GW - 40

INSPECTIONS & DATA

VOLATILE ORGANIC CONCENTRATIONS (pbb)
GIANT BLOOMFIELD REFINERY

AIR STRIPPER INFLUENT

SAMPLER	GIANT	GIANT	GIANT
DATE	9/5/90	10/4/90	11/5/90
PARAMETER			
DETECTION LIMIT	<1.0	(BELOW)	<1.0
BENZENE	**2.8 X**	**60.0**	**5.2**
BROMODICHLOROMETHANE	NA	ND(1.0)	ND
BROMOFORM	NA	ND(5.0)	ND
BROMOMETHANE	NA	ND(12.0)	ND
CARBON TETRACHLORIDE	NA	ND(1.2)	ND
CHLOROBENZENE	ND	**4.5 X**	ND
CHLOROETHANE	NA	ND(5.2)	ND
CHLOROFORM	NA	ND(1.0)	ND
CHLOROMETHANE	NA	ND(3.0)	ND
DIBROMOCHLOROMETHANE	NA	ND(2.0)	ND
1,2-DICHLOROBENZENE	ND	ND(4.0)	ND
1,3-DICHLOROBENZENE	ND	ND(4.0)	ND
1,4-DICHLOROBENZENE	ND	**100.0**	**2.3**
1,1-DICHLOROETHANE	NA	ND(5.0)	ND
1,2-DICHLOROETHANE	NA	**2.7 X**	ND
1,1-DICHLOROETHENE	NA	ND(2.0)	ND
CIS-1,2-DICHLOROETHENE	NA	**16.0 X**	**0.66**
TRANS-1,2-DICHLOROETHENE	NA	ND(2.0)	ND
1,2-DICHLOROPROPANE	NA	ND(1.0)	ND
ETHYLBENZENE	ND	ND(2.0)	**0.42**
METHYLENE CHLORIDE	NA	**4.9 X**	ND
1,1,2,2-TETRACHLOROETHANE	NA	ND(1.5)	ND
TETRACHLOROETHENE	NA	**1.5 X**	**0.31**
TOLUENE	ND	**3.0**	**0.25**
1,1,1-TRICHLOROETHANE	NA	**2.5 X**	ND
1,1,2-TRICHLOROETHANE	NA	ND(2.0)	ND
TRICHLOROETHENE	NA	**2.3 X**	ND
TRICHLOROFLUOROMETHANE	NA	**3.0 X**	ND
VINYL CHLORIDE	NA	ND(2.0)	ND
TOTAL XYLENES	**0.92 X**	**140.0**	**1.7**

TR - TRACE
ND - NOT DETECTED
NA - NOT ANALYZED
** - SPLIT SAMPLE
X - PRESENCE NOT CONFIRMED

VOLATILE ORGANIC CONCENTRATIONS (pbb)
GIANT BLOOMFIELD REFINERY

AIR STRIPPER INFLUENT

SAMPLER	GIANT	GIANT	GIANT	GIANT	GIANT
DATE	4/2/90	5/2/90	6/4/90	7/17/90	8/21/90
PARAMETER					
DETECTION LIMIT	<1.0	<1.0	<1.0	(BELOW)	<1.0
BENZENE	23.0	22.0	ND	52.0	ND
BROMODICHLOROMETHANE	ND	ND	ND	ND(1.0)	1.4 X
BROMOFORM	ND	ND	1.2	ND(5.0)	ND
BROMOMETHANE	ND	ND	ND	ND(12.0)	ND
CARBON TETRACHLORIDE	ND	ND	ND	ND(1.2)	ND
CHLOROBENZENE	ND	ND	4.5	ND(2.0)	ND
CHLOROETHANE	ND	ND	ND	ND(5.2)	ND
CHLOROFORM	ND	ND	ND	ND(1.0)	ND
CHLOROMETHANE	ND	ND	ND	ND(3.0)	ND
DIBROMOCHLOROMETHANE	ND	ND	ND	ND(2.0)	ND
1,2-DICHLOROBENZENE	ND	ND	ND	ND(4.0)	ND
1,3-DICHLOROBENZENE	ND	ND	ND	ND(4.0)	ND
1,4-DICHLOROBENZENE	ND	ND	ND	ND(3.0)	ND
DICHLORODIFLUOROMETHANE	NA	NA	NA	NA	ND
1,1-DICHLOROETHANE	3.1	2.2	ND	ND(5.0)	0.68 X
1,2-DICHLOROETHANE	4.5	2.2	1.3	ND(1.0)	1.1
1,1-DICHLOROETHENE	ND	ND	ND	ND(2.0)	ND
CIS-1,2-DICHLOROETHENE	25.0	5.9	ND	16.0	0.43 X
TRANS-1,2-DICHLOROETHENE	ND	ND	ND	ND(2.0)	ND
1,2-DICHLOROPROPANE	ND	ND	ND	ND(1.0)	ND
ETHYLBENZENE	0.9	3.5	7.1	6.7	ND
METHYLENE CHLORIDE	0.65	ND	ND	6.2	ND
1,1,2,2-TETRACHLOROETHANE	ND	ND	0.89	ND(1.5)	ND
TETRACHLOROETHENE	2.8	2.7	ND	4.2	0.32 X
TOLUENE	ND	ND	1.2	2.2	ND
1,1,1-TRICHLOROETHANE	0.96	0.53	ND	16.0	ND
1,1,2-TRICHLOROETHANE	ND	ND	ND	ND(2.0)	0.2 X
TRICHLOROETHENE	2.4	2.6	ND	36.0	ND
TRICHLOROFLUOROMETHANE	ND	ND	ND	ND(2.0)	ND
VINYL CHLORIDE	ND	ND	ND	ND(2.0)	ND
TOTAL XYLENES	7.1	3.8	16.0	36.0	0.81

TR - TRACE
ND - NOT DETECTED
NA - NOT ANALYZED
** - SPLIT SAMPLE
X - PRESENCE NOT CONFIRMED

VOLATILE ORGANIC CONCENTRATIONS (pbb)
GIANT BLOOMFIELD REFINERY

AIR STRIPPER INFLUENT

SAMPLER	GIANT	GIANT	GIANT	GIANT	GIANT
DATE	10/19/89	11/15/89	12/12/89	1/15/90	2/12/90
PARAMETER					
DETECTION LIMIT	(BELOW)	(BELOW)	(BELOW)	(BELOW)	(BELOW)
BENZENE	**129.58**	**23.6**	**110.0**	**112.5**	**240.0**
BROMODICHLOROMETHANE	ND(1.0)	ND(1.0)	ND(0.1)	ND(10.0)	ND(1.0)
BROMOFORM	ND(1.0)	ND(1.0)	ND(0.5)	ND(10.0)	ND(5.0)
BROMOMETHANE	ND(1.0)	ND(1.0)	ND(1.2)	ND(10.0)	ND(12.0)
CARBON TETRACHLORIDE	ND(1.0)	ND(1.0)	ND(0.12)	ND(10.0)	ND(1.2)
CHLOROBENZENE	ND(0.2)	ND(0.5)	ND(1.0)	ND(10.0)	ND(2.0)
CHLOROETHANE	ND(1.0)	ND(1.0)	ND(0.52)	ND(10.0)	ND(5.2)
CHLOROFORM	ND(1.0)	ND(1.0)	ND(0.1)	ND(10.0)	ND(1.0)
CHLOROMETHANE	ND(1.0)	ND(1.0)	ND(0.3)	ND(10.0)	ND(3.0)
DIBROMOCHLOROMETHANE	ND(1.0)	ND(1.0)	ND(0.2)	ND(10.0)	ND(2.0)
1,2-DICHLOROBENZENE	ND(0.2)	ND(0.5)	ND(2.0)	ND(10.0)	ND(4.0)
1,3-DICHLOROBENZENE	ND(0.2)	ND(0.5)	ND(2.0)	ND(10.0)	ND(4.0)
1,4-DICHLOROBENZENE	ND(0.2)	ND(0.5)	**8.6**	ND(10.0)	ND(3.0)
DICHLORODIFLUOROMETHANE	ND(1.0)	ND(1.0)	NA	NA	NA
1,1-DICHLOROETHANE	ND(1.0)	ND(1.0)	**1.9**	ND(10.0)	ND(5.0)
1,2-DICHLOROETHANE	ND(1.0)	ND(1.0)	**3.5**	ND(10.0)	**6.3**
1,1-DICHLOROETHENE	ND(1.0)	ND(1.0)	ND(0.2)	ND(10.0)	ND(2.0)
CIS-1,2-DICHLOROETHENE	NA	ND(1.0)	NA	ND(10.0)	**28.0**
TRANS-1,2-DICHLOROETHENE	ND(1.0)	**5.6**	**9.3**	ND(10.0)	ND(2.0)
1,2-DICHLOROPROPANE	ND(1.0)	ND(1.0)	ND(0.1)	ND(10.0)	ND(1.0)
ETHYLBENZENE	**23.67**	**3.01**	**18.0**	**20.5**	**19.0**
METHYLENE CHLORIDE	ND(1.0)	ND(1.0)	**1.0**	ND(10.0)	ND(4.0)
1,1,2,2-TETRACHLOROETHANE	ND(1.0)	**2.3**	ND(0.15)	ND(10.0)	ND(1.5)
TETRACHLOROETHENE	ND(1.0)	ND(1.0)	**1.3**	ND(10.0)	ND(1.0)
TOLUENE	**69.33**	ND(0.5)	ND(1.0)	ND(1.0)	ND(2.0)
1,1,1-TRICHLOROETHANE	ND(1.0)	ND(1.0)	**0.8**	ND(10.0)	**4.5**
1,1,2-TRICHLOROETHANE	ND(1.0)	**2.3**	ND(0.2)	ND(10.0)	ND(2.0)
TRICHLOROETHENE	ND(1.0)	ND(1.0)	**2.0**	ND(10.0)	**2.0**
TRICHLOROFLUOROMETHANE	ND(1.0)	ND(1.0)	ND(0.2)	ND(10.0)	ND(2.0)
VINYL CHLORIDE	ND(1.0)	ND(1.0)	ND(0.2)	ND(10.0)	ND(2.0)
TOTAL XYLENES	**47.44**	**18.86**	**9.1**	**6.25**	ND(2.0)

TR - TRACE
ND - NOT DETECTED
NA - NOT ANALYZED
** - SPLIT SAMPLE

VOLATILE ORGANIC CONCENTRATIONS (pbb)
GIANT BLOOMFIELD REFINERY

AIR STRIPPER INFLUENT

SAMPLER	GIANT	GIANT	GIANT	GIANT	GIANT
DATE	6/14/89	7/12/89	8/17/89	9/13/89	9/29/89
PARAMETER					
DETECTION LIMIT	(BELOW)	(BELOW)	(BELOW)	(BELOW)	1.0
BENZENE	**82.3**	**33.5**	**140.0**	**1,800**	**78.0**
BROMODICHLOROMETHANE	ND(1.0)	ND(1.0)	ND(1.0)	ND(10.0)	NA
BROMOFORM	ND(1.0)	ND(1.0)	ND(20.0)	ND(200.0)	NA
BROMOMETHANE	ND(1.0)	ND(1.0)	ND(10.0)	ND(100.0)	NA
CARBON TETRACHLORIDE	ND(1.0)	ND(1.0)	ND(2.0)	ND(20.0)	NA
CHLOROBENZENE	ND(<1.0)	ND(<1.0)	ND(1.0)	ND(10.0)	ND
CHLOROETHANE	ND(1.0)	ND(1.0)	ND(5.0)	ND(50.0)	NA
CHLOROFORM	**1.2**	ND(1.0)	ND(1.0)	ND(10.0)	NA
CHLOROMETHANE	ND(1.0)	ND(1.0)	ND(5.0)	ND(50.0)	NA
DIBROMOCHLOROMETHANE	ND(1.0)	ND(1.0)	ND(2.0)	ND(20.0)	NA
1,2-DICHLOROBENZENE	ND(<1.0)	ND(<1.0)	ND(2.0)	ND(20.0)	ND
1,3-DICHLOROBENZENE	ND(<1.0)	ND(<1.0)	ND(4.0)	ND(40.0)	ND
1,4-DICHLOROBENZENE	ND(<1.0)	ND(<1.0)	ND(2.0)	ND(20.0)	ND
DICHLORODIFLUOROMETHANE	ND(1.0)	ND(1.0)	NA	NA	NA
1,1-DICHLOROETHANE	**4.6**	ND(1.0)	ND(1.0)	ND(10.0)	NA
1,2-DICHLOROETHANE	**3.3**	ND(1.0)	**3.9**	ND(10.0)	NA
1,1-DICHLOROETHENE	ND(1.0)	ND(1.0)	ND(1.0)	ND(10.0)	NA
CIS-1,2-DICHLOROETHENE	NA	NA	NA	NA	NA
TRANS-1,2-DICHLOROETHENE	ND(1.0)	**2.7**	NA	NA	NA
TOTAL 1,2-DICHLOROETHENE	NA	NA	**17.0**	ND(10.0	NA
1,2-DICHLOROPROPANE	ND(1.0)	ND(1.0)	ND(1.0)	ND(10.0)	NA
ETHYLBENZENE	**11.4**	**1.8**	ND(1.0)	**130.0**	**16.3**
METHYLENE CHLORIDE	ND(1.0)	ND(1.0)	ND(4.0)	ND(40.0)	NA
1,1,2,2-TETRACHLOROETHANE	ND(1.0)	ND(1.0)	ND(2.0)	ND(20.0)	NA
TETRACHLOROETHENE	**1.6**	**1.2**	ND(1.0)	ND(10.0)	NA
TOLUENE	**17.8**	ND(<1.0)	**6.1**	**260.0**	**22.6**
1,1,1-TRICHLOROETHANE	ND(1.0)	**3.4**	ND(2.0)	ND(20.0)	NA
1,1,2-TRICHLOROETHANE	ND(1.0)	ND(1.0)	ND(2.0)	ND(20.0)	NA
TRICHLOROETHENE	**1.9**	**0.9**	ND(2.0)	ND(20.0)	NA
TRICHLOROFLUOROMETHANE	ND(1.0)	ND(1.0)	ND(1.0)	ND(10.0)	NA
VINYL CHLORIDE	ND(1.0)	ND(1.0)	ND(2.0)	ND(20.0)	NA
TOTAL XYLENES	**43.0**	**18.5**	**36.0**	**210.0**	**43.1**

TR - TRACE
ND - NOT DETECTED
NA - NOT ANALYZED
** - SPLIT SAMPLE

VOLATILE ORGANIC CONCENTRATIONS (pbb)
GIANT BLOOMFIELD REFINERY

AIR STRIPPER INFLUENT

SAMPLER	GIANT	GIANT	GIANT	GIANT	GIANT
DATE	1/16/89	2/2/89	3/14/89	12/11/89	5/12/89
PARAMETER					
DETECTION LIMIT	(BELOW)	(BELOW)	(BELOW)	2.0	<1.0
BENZENE	**440.0**	**280.0**	**2,314**	**363.0**	**390.0**
BROMODICHLOROMETHANE	ND(<1.0)	ND(<1.0)	ND(<1.0)	NA	ND
BROMOFORM	ND(<1.0)	ND(<1.0)	ND(<1.0)	NA	ND
BROMOMETHANE	ND(1.2)	ND(1.2)	ND(1.0)	NA	ND
CARBON TETRACHLORIDE	ND(<1.0)	ND(<1.0)	ND(<1.0)	NA	ND
CHLOROBENZENE	ND(7.5)	ND(15.0)	ND(<1.0)	NA	ND
CHLOROETHANE	ND(<1.0)	ND(<1.0)	ND(1.0)	NA	ND
CHLOROFORM	ND(<1.0)	**0.9**	ND(<1.0)	NA	ND
CHLOROMETHANE	ND(<1.0)	ND(<1.0)	ND(1.0)	NA	ND
DIBROMOCHLOROMETHANE	ND(<1.0)	ND(<1.0)	ND(<1.0)	NA	**1.2**
1,2-DICHLOROBENZENE	ND(10.0)	ND(20.0)	ND(<1.0)	NA	ND
1,3-DICHLOROBENZENE	ND(10.0)	ND(20.0)	ND(<1.0)	NA	ND
1,4-DICHLOROBENZENE	ND(7.5)	ND(15.0)	ND(<1.0)	NA	ND
DICHLORODIFLUOROMETHANE	NA	NA	ND(1.0)	NA	ND
1,1-DICHLOROETHANE	**4.2**	**5.0**	ND(<1.0)	NA	**3.1**
1,2-DICHLOROETHANE	**6.7**	**6.0**	**13.4**	NA	**7.3**
1,1-DICHLOROETHENE	ND(<1.0)	ND(<1.0)	ND(<1.0)	NA	ND
CIS-1,2-DICHLOROETHENE	NA	NA	NA	NA	NA
TRANS-1,2-DICHLOROETHENE	**11.0**	**11.0**	ND(<1.0)	NA	ND
1,2-DICHLOROPROPANE	ND(<1.0)	ND(<1.0)	ND(<1.0)	NA	ND
ETHYLBENZENE	ND(7.5)	ND(15.0)	**191.0**	**97.3**	**41.0**
METHYLENE CHLORIDE	**1.0**	**1.4**	**2.5**	NA	**1.2**
1,1,2,2-TETRACHLOROETHANE	ND(<1.0)	ND(<1.0)	ND(<1.0)	NA	ND
TETRACHLOROETHENE	**1.9**	**2.2**	ND(<1.0)	NA	ND
TOLUENE	ND(5.0)	ND(10.0)	**2,630**	**121.0**	**140.0**
1,1,1-TRICHLOROETHANE	**2.1**	**2.1**	ND(<1.0)	NA	ND
1,1,2-TRICHLOROETHANE	ND(<1.0)	ND(<1.0)	ND(<1.0)	NA	ND
TRICHLOROETHENE	**3.0**	**3.4**	ND(<1.0)	NA	ND
TRICHLOROFLUOROMETHANE	**0.5**	ND(<1.0)	ND(<1.0)	NA	ND
VINYL CHLORIDE	ND(<1.0)	ND(<1.0)	ND(1.0)	NA	ND
TOTAL XYLENES	**319.0**	**38.0**	**1,161**	**342.8**	**310.0**

TR - TRACE
ND - NOT DETECTED
NA - NOT ANALYZED
** - SPLIT SAMPLE

VOLATILE ORGANIC CONCENTRATIONS(pbb)
GIANT BLOOMFIELD REFINERY

AIR STRIPPER INFLUENT

SAMPLER	GIANT	OCD	GIANT	OCD	OCD*
DATE	6/23/88	7/13/88	11/8/88	12/15/88	12/15/88
PARAMETER					
DETECTION LIMIT	<1.0	50.0	2.0	(BELOW)	(BELOW)
BENZENE	**700.0**	**1,030**	**520.0**	**373.0**	**90.0**
BROMODICHLOROMETHANE	ND	ND	ND	ND(<1.0)	ND(0.5)
BROMOFORM	ND	ND	ND	ND(<1.0)	ND(0.5)
BROMOMETHANE	ND	ND	ND	ND(<1.0)	ND(0.5)
CARBON TETRACHLORIDE	ND	ND	ND	ND(<1.0)	ND(0.5)
CHLOROBENZENE	ND	ND	ND	ND(<1.0)	ND(0.5)
CHLOROETHANE	ND	ND	ND	ND(<1.0)	ND(0.5)
CHLOROFORM	ND	ND	ND	ND(<1.0)	ND(0.5)
CHLOROMETHANE	ND	ND	ND	ND(<1.0)	ND(0.5)
DIBROMOCHLOROMETHANE	ND	ND	ND	ND(<1.0)	ND(0.5)
1,2-DICHLOROBENZENE	ND	ND	ND	ND(<1.0)	ND(0.5)
1,3-DICHLOROBENZENE	ND	ND	ND	ND(<1.0)	ND(0.5)
1,4-DICHLOROBENZENE	ND	ND	ND	ND(<1.0)	ND(0.5)
DICHLORODIFLUOROMETHANE	ND	ND	ND	ND(<1.0)	ND(0.5)
1,1-DICHLOROETHANE	**4.5**	ND	ND	**3.9**	**1.0**
1,2-DICHLOROETHANE	**42.0**	**TR**	ND	**2.3**	**3.0**
1,1-DICHLOROETHENE	ND	ND	ND	ND(<1.0)	ND(0.5)
CIS-1,2-DICHLOROETHENE	NA	ND	NA	NA	**4.0**
TRANS-1,2-DICHLOROETHENE	**14.0**	ND	ND	ND(<1.0)	ND(0.5)
DICHLOROMETHANE	NA	ND	NA	NA	**1.5**
1,2-DICHLOROPROPANE	ND	ND	ND	ND(<1.0)	ND(0.5)
1,2-DIMETHYLBENZENE	NA	ND	NA	NA	**10.0**
ETHYLBENZENE	**79.0**	**210.0**	**68.0**	ND(5.0)	ND(5.0)
METHYLENE CHLORIDE	**4.7**	ND	ND	ND(<1.0)	ND(0.5)
1,1,2,2-TETRACHLOROETHANE	ND	ND	ND	ND(<1.0)	ND(0.5)
TETRACHLOROETHENE	ND	ND	ND	**1.8**	**1.0**
TOLUENE	**490.0**	**315.0**	**5.4**	**38.0**	**TR**(5.0)
1,1,1-TRICHLOROETHANE	**1.6**	ND	ND	**0.9**	ND(0.5)
1,1,2-TRICHLOROETHANE	ND	ND	ND	ND(<1.0)	ND(0.5)
TRICHLOROETHENE	**1.7**	ND	**3.2**	**2.2**	**1.0**
TRICHLOROFLUOROMETHANE	ND	ND	ND	ND(<1.0)	ND(0.5)
VINYL CHLORIDE	ND	ND	ND	ND(<1.0)	ND(0.5)
TOTAL XYLENES	**800.0**	**945.0**	**310.0**	**246.0**	**60.0**

TR - TRACE
ND - NOT DETECTED
NA - NOT ANALYZED
* - DUPLICATE SAMPLE

Giant Refining Company
Radian Work Order: S0-11-025

Method:Aromatics by SW8020 (1)
List:Complete analyte list

Sample ID:	901105950 STRIPPER INF.	9011051002 STRIPPER EFF.	REAGENT BLANK
Factor:	1	1	1
Results in:	ug/L	ug/L	ug/L
	04A	05A	06A
Matrix:	water	water	water

	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit
Benzene	5.2 C	0.20	ND	0.20	ND	0.20
Chlorobenzene	ND	0.20	ND	0.20	ND	0.20
1,2-Dichlorobenzene	ND	0.40	ND	0.40	ND	0.40
1,3-Dichlorobenzene	ND	0.40	ND	0.40	ND	0.40
1,4-Dichlorobenzene	2.3 C	0.30	ND	0.30	ND	0.30
Ethylbenzene	0.42 G@	0.20	ND	0.20	ND	0.20
Toluene	0.25 C@	0.20	0.29 X@	0.20	ND	0.20
Xylenes (total)	1.7 C	0.20	0.48 C@	0.20	ND	0.20
Surrogate Recovery(%)						
1-Bromo-4-fluorobenzene	119		128		129	
Control Limits: 40 to 140						

C Confirmed on second column or by GC/MS
G Indicates an estimated GC value due to interferences.
X See definition in report narrative

ND Not detected at specified detection limit
@ Est. result less that 5 times detection limit

(1) For a detailed description of flags and technical terms in this report refer to Appendix A in this report.

Giant Refining Company
Radian Work Order: S0-11-025

Method:Halocarbons by SW8010 (1)
List:Table 3 analyte list

Sample ID:	9011105950-- STRIPPER INF.	9011051002 STRIPPER EFF.	REAGENT BLANK	REAGENT BLANK
Factor:	1	1	1	1
Results in:	ug/L	ug/L	ug/L	ug/L
	01A	02A	03A	03B
Matrix:	water	water	water	water

	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit
Bromodichloromethane	ND	0.10	ND	0.10	ND	0.10	ND	0.10
Bromoform	ND	0.50	ND	0.50	ND	0.50	ND	0.50
Bromomethane	ND	1.2	ND	1.2	ND	1.2	ND	1.2
Carbon tetrachloride	ND	0.12	ND	0.12	ND	0.12	ND	0.12
Chlorobenzene	ND	0.25	ND	0.25	ND	0.25	ND	0.25
Chloroethane	ND	0.52	ND	0.52	ND	0.52	ND	0.52
2-Chloroethylvinylether	ND	0.50	ND	0.50	ND	0.50	ND	0.50
Chloroform	ND	0.10	ND	0.10	ND	0.10	ND	0.10
Chloromethane	ND	0.30	ND	0.30	ND	0.30	ND	0.30
Dibromochloromethane	ND	0.20	ND	0.20	ND	0.20	ND	0.20
1,2-Dichlorobenzene	ND	0.50	ND	0.50	ND	0.50	ND	0.50
1,3-Dichlorobenzene	ND	0.32	ND	0.32	ND	0.32	ND	0.32
1,4-Dichlorobenzene	ND	0.24	ND	0.24	ND	0.24	ND	0.24
1,1-Dichloroethane	ND	0.50	ND	0.50	ND	0.50	ND	0.50
1,2-Dichloroethane	ND	0.10	ND	0.10	ND	0.10	ND	0.10
1,1-Dichloroethene	ND	0.20	ND	0.20	ND	0.20	ND	0.20
cis-1,2-Dichloroethene	0.66 C@	0.20	ND	0.20	ND	0.20	ND	0.20
trans-1,2-Dichloroethene	ND	0.20	ND	0.20	ND	0.20	ND	0.20
1,2-Dichloropropane	ND	0.10	ND	0.10	ND	0.10	ND	0.10
cis-1,3-Dichloropropene	ND	0.20	ND	0.20	ND	0.20	ND	0.20
trans-1,3-Dichloropropene	ND	0.34	ND	0.34	ND	0.34	ND	0.34
Methylene chloride	ND	0.40	ND	0.40	ND	0.40	ND	0.40
1,1,2,2-Tetrachloroethane	ND	0.15	ND	0.15	ND	0.15	ND	0.15
Tetrachloroethene	0.31 C@	0.10	ND	0.10	ND	0.10	ND	0.10
1,1,1-Trichloroethane	ND	0.20	ND	0.20	ND	0.20	ND	0.20
1,1,2-Trichloroethane	ND	0.20	ND	0.20	ND	0.20	ND	0.20
Trichloroethene	ND	0.20	ND	0.20	ND	0.20	ND	0.20
Trichlorofluoromethane	ND	0.20	0.34 X@	0.20	ND	0.20	ND	0.20
Vinyl chloride	ND	0.20	ND	0.20	ND	0.20	ND	0.20

ND Not detected at specified detection limit
@ Est. result less that 5 times detection limit
C Confirmed on second column or by GC/MS
X See definition in report narrative

(1) For a detailed description of flags and technical terms in this report refer to Appendix A in this report.

Giant Refining Company
Radian Work Order: SO-10-043

Method:Aromatics by SW8020 (1)
List:Complete analyte list

Sample ID:	9010041115 STRIPPER INF.	9010041125 STRIPPER EFF.	9010041320 G-BR-17	9010041444 G-BR-15
Factor:	10	10	10	10
Results in:	ug/L	ug/L	ug/L	ug/L
	14A	15A	16A	17A
Matrix:	water	water	water	water

	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit
Benzene	60 C	2.0	5.9 X@	2.0	4.6 X@	2.0	87 C	2.0
Chlorobenzene	4.5 X@	2.0	14 X	2.0	13 X	2.0	ND	2.0
1,2-Dichlorobenzene	ND	4.0	ND	4.0	4.1 X@	4.0	ND	4.0
1,3-Dichlorobenzene	ND	4.0	19 G@	4.0	19 X@	4.0	ND	4.0
1,4-Dichlorobenzene	100 G	3.0	20 G	3.0	11 X@	3.0	ND	3.0
Ethylbenzene	ND	2.0	3.0 C@	2.0	7.8 X@	2.0	ND	2.0
Toluene	3.0 G@	2.0	6.5 G@	2.0	7.2 C@	2.0	ND	2.0
Xylenes (total)	140 C	2.0	35 G	2.0	35 X	2.0	ND	2.0
Surrogate Recovery(%)								
1-Bromo-4-fluorobenzene	101		106		110		105	
Control Limits: 40 to 140								

C Confirmed on second column or by GC/MS
@ Est. result less that 5 times detection limit
G Indicates an estimated GC value due to interferences.
X See definition in report narrative
ND Not detected at specified detection limit

(1) For a detailed description of flags and technical terms in this report refer to Appendix A in this report.

Giant Refining Company
Radian Work Order: S0-10-043

Method: Halocarbons by SW8010 (1)
List: Table 3 analyte list

Sample ID:	9010041115	9010041125	9010041320	9010041444
	STRIPPER INF.	STRIPPER EFF.	G-BR-17	G-BR-15
Factor:	10	10	10	10
Results in:	ug/L	ug/L	ug/L	ug/L
	05A	06A	07A	08A
Matrix:	water	water	water	water

	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit
Bromodichloromethane	ND	1.0	13 X	1.0	9.4 X	1.0	ND	1.0
Bromoform	ND	5.0	23 X@	5.0	21 X@	5.0	ND	5.0
Bromomethane	ND	12	ND	12	ND	12	ND	12
Carbon tetrachloride	ND	1.2	16 X	1.2	14 X	1.2	ND	1.2
Chlorobenzene	ND	2.5	16 X	2.5	13 X	2.5	ND	2.5
Chloroethane	ND	5.2	ND	5.2	ND	5.2	ND	5.2
2-Chloroethylvinylether	ND	5.0	ND	5.0	ND	5.0	ND	5.0
Chloroform	ND	1.0	10 X	1.0	8.2 X	1.0	ND	1.0
Chloromethane	ND	3.0	ND	3.0	ND	3.0	ND	3.0
Dibromochloromethane	ND	2.0	14 Y	2.0	13 Y	2.0	ND	2.0
1,2-Dichlorobenzene	ND	5.0	ND	5.0	ND	5.0	ND	5.0
1,3-Dichlorobenzene	ND	3.2	23 X	3.2	23 X	3.2	ND	3.2
1,4-Dichlorobenzene	ND	2.4	26 X	2.4	25 X	2.4	ND	2.4
1,1-Dichloroethane	ND	5.0	13 X@	5.0	11 X@	5.0	ND	5.0
1,2-Dichloroethane	2.7 X@	1.0	13 X	1.0	10 X	1.0	52 C	1.0
1,1-Dichloroethene	ND	2.0	14 X	2.0	11 X	2.0	ND	2.0
cis-1,2-Dichloroethene	16 X	2.0	13 X	2.0	11 X	2.0	ND	2.0
trans-1,2-Dichloroethene	ND	2.0	ND	2.0	ND	2.0	ND	2.0
1,2-Dichloropropane	ND	1.0	6.7 X	1.0	5.6 X	1.0	ND	1.0
cis-1,3-Dichloropropene	ND	2.0	19 X	2.0	18 X	2.0	ND	2.0
trans-1,3-Dichloropropene	ND	3.4	14 Y@	3.4	13 Y@	3.4	ND	3.4
Methylene chloride	4.9 X@	4.0	9.5 X@	4.0	11 X@	4.0	ND	4.0
1,1,2,2-Tetrachloroethane	ND	1.5	ND	1.5	ND	1.5	ND	1.5
Tetrachloroethene	1.5 X@	1.0	16 X	1.0	15 X	1.0	ND	1.0
1,1,1-Trichloroethane	2.5 X@	2.0	20 X	2.0	17 X	2.0	ND	2.0
1,1,2-Trichloroethane	ND	2.0	ND	2.0	ND	2.0	ND	2.0
Trichloroethene	2.3 X@	2.0	9.9 X@	2.0	9.5 X@	2.0	ND	2.0
Trichlorofluoromethane	3.0 X@	2.0	22 X	2.0	18 X	2.0	ND	2.0
Vinyl chloride	ND	2.0	ND	2.0	ND	2.0	ND	2.0

ND Not detected at specified detection limit
@ Est. result less that 5 times detection limit
C Confirmed on second column or by GC/MS
X See definition in report narrative
Y See definition in report narrative

(1) For a detailed description of flags and technical terms in this report refer to Appendix A in this report.

Giant Refining Co.
Radian Work Order: 90-09-163

Method:Vol. aromatics by SW8020 (1)
List:SW8020

Sample ID:	9009041352	900905957	9009051004	Reagent blank
	RW-13	STRIP INFL	STRIP EFFL	
Factor:	1	1	1	1
Results in:	ug/L	ug/L	ug/L	ug/L
	09A	10A	11A	12A
Matrix:	water	water	water	water

	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit
Benzene	ND	0.20	2.8 X	0.20	ND	0.20	ND	0.20
Chlorobenzene	ND	0.20	ND	0.20	ND	0.20	ND	0.20
1,2-Dichlorobenzene	ND	0.40	ND	0.40	ND	0.40	ND	0.40
1,3-Dichlorobenzene	ND	0.40	ND	0.40	ND	0.40	ND	0.40
1,4-Dichlorobenzene	ND	0.30	ND	0.30	ND	0.30	ND	0.30
Ethylbenzene	ND	0.20	ND	0.20	ND	0.20	ND	0.20
Toluene	ND	0.20	ND	0.20	ND	0.20	ND	0.20
Total xylenes	ND	0.20	0.92 X@	0.20	ND	0.20	ND	0.20
Surrogate Recovery(%)								
1-Bromo-4-fluorobenzene	92		88		93		92	
Control Limits: 76 to 140								

ND Not detected at specified detection limit
@ Est. result less that 5 times detection limit
X See definition in report narrative

(1) For a detailed description of flags and technical terms in this report refer to Appendix A in this report.

Giant Refining Company
adian Work Order: S0-08-228

Method:Aromatics by SW8020 (1)
List:Complete analyte list

Sample ID:	9008211514	9008211524	REAGENT BLANK
	STRIPPER INF.	STRIPPER EFFL.	
Factor:	1	1	1
Results in:	ug/L	ug/L	ug/L
	02A	04A	06A
Matrix:	water	water	water

	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit
Benzene	ND	0.20	ND	0.20	ND	0.20
Chlorobenzene	ND	0.20	ND	0.20	ND	0.20
1,2-Dichlorobenzene	ND	0.40	ND	0.40	ND	0.40
1,3-Dichlorobenzene	ND	0.40	ND	0.40	ND	0.40
1,4-Dichlorobenzene	ND	0.30	ND	0.30	ND	0.30
Ethylbenzene	ND	0.20	0.20 X@	0.20	ND	0.20
Toluene	ND	0.20	0.32 X@	0.20	ND	0.20
Xylenes (total)	0.81 G@	0.20	0.44 X@	0.20	ND	0.20
Surrogate Recovery(%)						
1-Bromo-4-fluorobenzene	91		91		58	
Control Limits: 40 to 140						

ND Not detected at specified detection limit
@ Est. result less that 5 times detection limit
G Indicates an estimated GC value due to interferences.
X See definition in report narrative

(1) For a detailed description of flags and technical terms in this report refer to Appendix A in this report.

Giant Refining Company
Radian Work Order: S0-08-228

Method:Halocarbons by SW8010 (1)
List:Table 3 analyte list

Sample ID:	9008211514 STRIPPER INF.	9008211524 STRIPPER EFFL.	REAGENT BLANK
Factor:	1	1	1
Results in:	ug/L	ug/L	ug/L
	01A	03A	05A
Matrix:	water	water	water

	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit
Bromodichloromethane	1.4 X	0.10	0.27 X@	0.10	ND	0.10
Bromoform	ND	0.50	ND	0.50	ND	0.50
Bromomethane	ND	1.2	ND	1.2	ND	1.2
Carbon tetrachloride	ND	0.12	ND	0.12	ND	0.12
Chlorobenzene	ND	0.25	ND	0.25	ND	0.25
Chloroethane	ND	0.52	ND	0.52	ND	0.52
2-Chloroethylvinylether	ND	0.50	ND	0.50	ND	0.50
Chloroform	ND	0.10	0.18 X@	0.10	ND	0.10
Chloromethane	ND	0.30	ND	0.30	ND	0.30
Dibromochloromethane	ND	0.20	ND	0.20	ND	0.20
1,2-Dichlorobenzene	ND	0.50	ND	0.50	ND	0.50
1,3-Dichlorobenzene	ND	0.32	ND	0.32	ND	0.32
1,4-Dichlorobenzene	ND	0.24	ND	0.24	ND	0.24
1,1-Dichloroethane	0.68 X@	0.50	ND	0.50	ND	0.50
1,2-Dichloroethane	1.1 C	0.10	ND	0.10	ND	0.10
1,1-Dichloroethene	ND	0.20	ND	0.20	ND	0.20
cis-1,2-Dichloroethene	0.43 X@	0.20	ND	0.20	ND	0.20
trans-1,2-Dichloroethene	ND	0.20	ND	0.20	ND	0.20
1,2-Dichloropropane	ND	0.10	ND	0.10	ND	0.10
cis-1,3-Dichloropropene	ND	0.20	ND	0.20	ND	0.20
trans-1,3-Dichloropropene	ND	0.34	ND	0.34	ND	0.34
Methylene chloride	ND	0.40	ND	0.40	ND	0.40
1,1,2,2-Tetrachloroethane	ND	0.15	ND	0.15	ND	0.15
Tetrachloroethene	0.32 X@	0.10	ND	0.10	ND	0.10
1,1,1-Trichloroethane	0.20 X@	0.20	ND	0.20	ND	0.20
1,1,2-Trichloroethane	ND	0.20	ND	0.20	ND	0.20
Trichloroethene	ND	0.20	0.48 X@	0.20	ND	0.20
Trichlorofluoromethane	ND	0.20	ND	0.20	ND	0.20
Vinyl chloride	ND	0.20	ND	0.20	ND	0.20

X See definition in report narrative
@ Est. result less that 5 times detection limit
ND Not detected at specified detection limit
C Confirmed on second column or by GC/MS

(1) For a detailed description of flags and technical terms in this report refer to Appendix A in this report.

Giant Refining Company
Radian Work Order: S0-07-122

Method:Aromatics by SW8020 (1)
List:Complete analyte list

Sample ID:	900717930 RW-3	900717945 RW-4	9007171004 RW-6	9007171022 STRIPPER INF
Factor:	50	25	10	10
Results in:	ug/L	ug/L	ug/L	ug/L
	02A	04A	06A	08A
Matrix:	water	water	water	water

	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit
Benzene	380 G	10	290 C	5.0	120 C	2.0	52 C	2.0
Chlorobenzene	ND	10	ND	5.0	ND	2.0	ND	2.0
1,2-Dichlorobenzene	ND	20	ND	10	ND	4.0	ND	4.0
1,3-Dichlorobenzene	ND	20	ND	10	ND	4.0	ND	4.0
1,4-Dichlorobenzene	ND	15	ND	7.5	ND	3.0	ND	3.0
Ethylbenzene	160 G	10	58 C	5.0	24 C	2.0	6.7 G@	2.0
Toluene	ND	10	ND	5.0	ND	2.0	2.2 C@	2.0
Xylenes (total)	57 G	10	9.3 C@	5.0	8.5 C@	2.0	36 C	2.0
Surrogate Recovery(%)								
1-Bromo-4-fluorobenzene	104		104		101		103	

Control Limits: 40 to 140

G Indicates an estimated GC value due to interferences.
C Confirmed on second column or by GC/MS
ND Not detected at specified detection limit
@ Est. result less that 5 times detection limit

(1) For a detailed description of flags and technical terms in this report refer to Appendix A in this report.

Giant Refining Company
Radian Work Order: S0-07-122

Method: Halocarbons by SW8010 (1)
List: Table 3 analyte list

Sample ID:	900717930	900717945	9007171004	9007171022
	RW-3	RW-4	RW-6	STRIPPER INF
Factor:	50	25	1	10
Results in:	ug/L	ug/L	ug/L	ug/L
	01A	03A	05A	07A
Matrix:	water	water	water	water

	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit
Bromodichloromethane	ND	5.0	ND	2.5	ND	0.10	ND	1.0
Bromoform	ND	25	ND	12	ND	0.50	ND	5.0
Bromomethane	ND	59	ND	30	ND	1.2	ND	12
Carbon tetrachloride	ND	6.0	ND	3.0	ND	0.12	ND	1.2
Chlorobenzene	ND	12	ND	6.2	ND	0.25	ND	2.5
Chloroethane	ND	26	ND	13	ND	0.52	ND	5.2
2-Chloroethylvinylether	ND	25	ND	12	ND	0.50	ND	5.0
Chloroform	ND	5.0	ND	2.5	ND	0.10	ND	1.0
Chloromethane	ND	15	ND	7.5	ND	0.30	ND	3.0
Dibromochloromethane	ND	10	ND	5.0	ND	0.20	ND	2.0
1,2-Dichlorobenzene	ND	25	ND	12	ND	0.50	ND	5.0
1,3-Dichlorobenzene	ND	16	ND	8.0	ND	0.32	ND	3.2
1,4-Dichlorobenzene	ND	12	ND	6.0	ND	0.24	ND	2.4
1,1-Dichloroethane	ND	25	13 @	12	1.9 @	0.50	ND	5.0
1,2-Dichloroethane	ND	5.0	5.2 @	2.5	5.1 C	0.10	ND	1.0
1,1-Dichloroethene	ND	10	ND	5.0	ND	0.20	ND	2.0
cis-1,2-Dichloroethene	22 @	10	46 C	5.0	7.8 C	0.20	16 C	2.0
trans-1,2-Dichloroethene	ND	10	ND	5.0	ND	0.20	ND	2.0
1,2-Dichloropropane	ND	5.0	ND	2.5	ND	0.10	ND	1.0
cis-1,3-Dichloropropene	ND	10	ND	5.0	ND	0.20	ND	2.0
trans-1,3-Dichloropropene	ND	17	ND	8.5	ND	0.34	ND	3.4
Methylene chloride	ND	20	ND	10	ND	0.40	6.2 X@	4.0
1,1,2,2-Tetrachloroethane	ND	7.5	ND	3.8	ND	0.15	ND	1.5
Tetrachloroethene	ND	5.0	ND	2.5	1.7 C	0.10	4.2 @	1.0
1,1,1-Trichloroethane	ND	10	ND	5.0	0.41 @	0.20	16 X	2.0
1,1,2-Trichloroethane	ND	10	ND	5.0	ND	0.20	ND	2.0
Trichloroethene	ND	10	10 @	5.0	1.5 C	0.20	36 C	2.0
Trichlorofluoromethane	ND	10	ND	5.0	0.34 @	0.20	ND	2.0
Vinyl chloride	ND	10	ND	5.0	ND	0.20	ND	2.0

ND Not detected at specified detection limit
@ Est. result less that 5 times detection limit
C Confirmed on second column or by GC/MS
X See definition in report narrative

(1) For a detailed description of flags and technical terms in this report refer to Appendix A in this report.

Giant Refining Company
Radian Work Order: S0-06-023

Method:Aromatics by SW8020 (1)
List:Complete analyte list

Sample ID:	9006041345 /STRIPPER INF	9006041355 /STRIPPER ENF	REAGENT BLANK	REAGENT BLANK
Factor:	1	1	1	1
Results in:	ug/L	ug/L	ug/L	ug/L
	02A	04A	06A	06B
Matrix:	water	water	water	water

	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit
Benzene	ND	0.20	ND	0.20	ND	0.20	ND	0.20
Chlorobenzene	4.5 C	0.20	ND	0.20	ND	0.20	ND	0.20
1,2-Dichlorobenzene	ND	0.40	ND	0.40	ND	0.40	ND	0.40
1,3-Dichlorobenzene	ND	0.40	ND	0.40	ND	0.40	ND	0.40
1,4-Dichlorobenzene	ND	0.30	ND	0.30	ND	0.30	ND	0.30
Ethylbenzene	7.1 C	0.20	ND	0.20	ND	0.20	ND	0.20
Toluene	1.2 G	0.20	ND	0.20	ND	0.20	ND	0.20
Xylenes (total)	16 G	0.20	ND	0.20	ND	0.20	ND	0.20
Surrogate Recovery(%)								
1-Bromo-4-fluorobenzene	101		103		107		107	
Control Limits: 40 to 140								

ND Not detected at specified detection limit
C Confirmed on second column or by GC/MS
G Indicates an estimated GC value due to interferences.

(1) For a detailed description of flags and technical terms in this report refer to Appendix A in this report.

Giant Refining Company
Radian Work Order: S0-06-023

Method:Halocarbons by SW8010 (1)
List:Table 3 analyte list

Sample ID:	9006041345 /STRIPPER INF	9006041355 /STRIPPER ENF	REAGENT BLANK	REAGENT BLANK
Factor:	1	1	1	1
Results in:	ug/L	ug/L	ug/L	ug/L
	01A	03A	05A	05B
Matrix:	water	water	water	water

	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit
Bromodichloromethane	ND	0.10	ND	0.10	ND	0.10	ND	0.10
Bromoform	1.2 CI@	0.50	ND	0.50	ND	0.50	ND	0.50
Bromomethane	ND	1.2	ND	1.2	ND	1.2	ND	1.2
Carbon tetrachloride	ND	0.12	ND	0.12	ND	0.12	ND	0.12
Chlorobenzene	ND	0.25	ND	0.25	ND	0.25	ND	0.25
Chloroethane	ND	0.52	ND	0.52	ND	0.52	ND	0.52
2-Chloroethylvinylether	ND	0.50	ND	0.50	ND	0.50	ND	0.50
Chloroform	ND	0.10	ND	0.10	ND	0.10	ND	0.10
Chloromethane	ND	0.30	ND	0.30	ND	0.30	ND	0.30
Dibromochloromethane	ND	0.20	ND	0.20	ND	0.20	ND	0.20
1,2-Dichlorobenzene	ND	0.50	ND	0.50	ND	0.50	ND	0.50
1,3-Dichlorobenzene	ND	0.32	ND	0.32	ND	0.32	ND	0.32
1,4-Dichlorobenzene	ND	0.24	ND	0.24	ND	0.24	ND	0.24
1,1-Dichloroethane	ND	0.50	ND	0.50	ND	0.50	ND	0.50
1,2-Dichloroethane	1.3 CI	0.10	ND	0.10	ND	0.10	ND	0.10
1,1-Dichloroethene	ND	0.20	ND	0.20	ND	0.20	ND	0.20
cis-1,2-Dichloroethene	ND	0.20	ND	0.20	ND	0.20	ND	0.20
trans-1,2-Dichloroethene	ND	0.20	5.2 XI	0.20	ND	0.20	ND	0.20
1,2-Dichloropropane	ND	0.10	ND	0.10	ND	0.10	ND	0.10
cis-1,3-Dichloropropene	ND	0.20	ND	0.20	ND	0.20	ND	0.20
trans-1,3-Dichloropropene	ND	0.34	ND	0.34	ND	0.34	ND	0.34
Methylene chloride	ND	0.40	ND	0.40	ND	0.40	ND	0.40
1,1,2,2-Tetrachloroethane	0.89 GI	0.15	ND	0.15	ND	0.15	ND	0.15
Tetrachloroethene	ND	0.10	ND	0.10	ND	0.10	ND	0.10
1,1,1-Trichloroethane	ND	0.20	ND	0.20	ND	0.20	ND	0.20
1,1,2-Trichloroethane	ND	0.20	ND	0.20	ND	0.20	ND	0.20
Trichloroethene	ND	0.20	ND	0.20	ND	0.20	ND	0.20
Trichlorofluoromethane	ND	0.20	ND	0.20	ND	0.20	ND	0.20
Vinyl chloride	ND	0.20	ND	0.20	ND	0.20	ND	0.20

ND Not detected at specified detection limit
I Result differs from last report - see report narrative
G Indicates an estimated GC value due to interferences.
C Confirmed on second column or by GC/MS
@ Est. result less that 5 times detection limit
X See definition in report narrative

(1) For a detailed description of flags and technical terms in this report refer to Appendix A in this report.

Giant Refining Company
Radian Work Order: SO-05-043

Method:Aromatics by SW8020 (1)
List:Complete analyte list

Sample ID:	90050213221/ STRIPPER I	9005021316/ STRIPPER E	REAGENT BLANK
Factor:	1	1	1
Results in:	ug/L	ug/L	ug/L
	04A	05A	06A
Matrix:	water	water	water

	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit
Benzene	22 C	0.20	ND	0.20	ND	0.20
Chlorobenzene	ND	0.20	ND	0.20	ND	0.20
1,2-Dichlorobenzene	ND	0.40	ND	0.40	ND	0.40
1,3-Dichlorobenzene	ND	0.40	ND	0.40	ND	0.40
1,4-Dichlorobenzene	ND	0.30	ND	0.30	ND	0.30
Ethylbenzene	3.5 C	0.20	ND	0.20	ND	0.20
Toluene	ND	0.20	ND	0.20	ND	0.20
Xylenes (total)	3.8 C	0.20	ND	0.20	ND	0.20
Surrogate Recovery(%)						
1-Bromo-4-fluorobenzene	106		109		106	
Control Limits: 40 to 140						

C Confirmed on second column or by GC/MS

ND Not detected at specified detection limit

(1) For a detailed description of flags and technical terms in this report refer to Appendix A in this report.

Giant Refining Company
Radian Work Order: S0-05-043

Method:Halocarbons by SW8010 (1)
List:Table 3 analyte list

Sample ID:	9005021321/ STRIPPER I	9005021316/ STRIPPER E	REAGENT BLANK
Factor:	1	1	1
Results in:	ug/L	ug/L	ug/L
	01A	02A	03A
Matrix:	water	water	water

	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit
Bromodichloromethane	ND	0.10	ND	0.10	ND	0.10
Bromoform	ND	0.50	ND	0.50	ND	0.50
Bromomethane	ND	1.2	ND	1.2	ND	1.2
Carbon tetrachloride	ND	0.12	ND	0.12	ND	0.12
Chlorobenzene	ND	0.25	ND	0.25	ND	0.25
Chloroethane	ND	0.52	ND	0.52	ND	0.52
2-Chloroethylvinylether	ND	0.50	ND	0.50	ND	0.50
Chloroform	ND	0.10	ND	0.10	ND	0.10
Chloromethane	ND	0.30	ND	0.30	ND	0.30
Dibromochloromethane	ND	0.20	ND	0.20	ND	0.20
1,2-Dichlorobenzene	ND	0.50	ND	0.50	ND	0.50
1,3-Dichlorobenzene	ND	0.32	ND	0.32	ND	0.32
1,4-Dichlorobenzene	ND	0.24	ND	0.24	ND	0.24
1,1-Dichloroethane	2.2 C@	0.50	ND	0.50	ND	0.50
1,2-Dichloroethane	2.2 C	0.10	0.17 C@	0.10	ND	0.10
1,1-Dichloroethene	ND	0.20	ND	0.20	ND	0.20
cis-1,2-Dichloroethene	5.9 C	0.20	ND	0.20	ND	0.20
trans-1,2-Dichloroethene	ND	0.20	ND	0.20	ND	0.20
1,2-Dichloropropane	ND	0.10	ND	0.10	ND	0.10
cis-1,3-Dichloropropene	ND	0.20	ND	0.20	ND	0.20
trans-1,3-Dichloropropene	ND	0.34	ND	0.34	ND	0.34
Methylene chloride	ND	0.40	ND	0.40	ND	0.40
1,1,2,2-Tetrachloroethane	ND	0.15	ND	0.15	ND	0.15
Tetrachloroethene	2.7 C	0.10	ND	0.10	ND	0.10
1,1,1-Trichloroethane	0.53 C@	0.20	ND	0.20	ND	0.20
1,1,2-Trichloroethane	ND	0.20	ND	0.20	ND	0.20
Trichloroethene	2.6 C	0.20	ND	0.20	ND	0.20
Trichlorofluoromethane	ND	0.20	ND	0.20	ND	0.20
Vinyl chloride	ND	0.20	ND	0.20	ND	0.20

ND Not detected at specified detection limit
@ Est. result less that 5 times detection limit
C Confirmed on second column or by GC/MS

(1) For a detailed description of flags and technical terms in this report refer to Appendix A in this report.

Giant Refining Company
Radian Work Order: S0-04-013

Method:Aromatics by SW8020 (1)
List:Complete analyte list

Sample ID:	9004021055 /GRW-3	9004021130 /GRW-4	9004021145 /GRW-6	9004021245 /STRIPPER INFL
Factor:	10	20	1	1
Results in:	ug/L	ug/L	ug/L	ug/L
	01B	02B	03C	04C
Matrix:	water	water	water	water

	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit
Benzene	280 C	2.0	440 C	4.0	16 C	0.20	23 C	0.20
Chlorobenzene	ND	2.0	ND	4.0	ND	0.20	ND	0.20
1,2-Dichlorobenzene	ND	4.0	ND	8.0	ND	0.40	ND	0.40
1,3-Dichlorobenzene	ND	4.0	ND	8.0	ND	0.40	ND	0.40
1,4-Dichlorobenzene	ND	3.0	ND	6.0	ND	0.30	ND	0.30
Ethylbenzene	98 C	2.0	65 C	4.0	ND	0.20	0.90 C@	0.20
Toluene	ND	2.0	ND	4.0	0.65 C@	0.20	ND	0.20
Xylenes (total)	33 C	2.0	ND	4.0	3.4 C	0.20	7.1 C	0.20
Surrogate Recovery(%)								
1-Bromo-4-fluorobenzene	91		104		69		84	
Control Limits: 40 to 140								

C Confirmed on second column or by GC/MS

ND Not detected at specified detection limit

@ Est. result less that 5 times detection limit

(1) For a detailed description of flags and technical terms in this report refer to Appendix A in this report.

Giant Refining Company
Radian Work Order: SO-04-013

Method:Halocarbons by SW8010 (1)
List:Table 3 analyte list

Sample ID:	9004021055 /GRW-3	9004021130 /GRW-4	9004021145 /GRW-6	9004021245 /STRIPPER INFL
Factor:	10	20	1	1
Results in:	ug/L	ug/L	ug/L	ug/L
	01A	02A	03A	04A
Matrix:	water	water	water	water

	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit
Bromodichloromethane	ND	1.0	ND	2.0	ND	0.10	ND	0.10
Bromoform	ND	5.0	ND	10	ND	0.50	ND	0.50
Bromomethane	ND	12	ND	24	ND	1.2	ND	1.2
Carbon tetrachloride	ND	1.2	ND	2.4	ND	0.12	ND	0.12
Chlorobenzene	ND	2.5	ND	5.0	ND	0.25	ND	0.25
Chloroethane	ND	5.2	ND	10	ND	0.52	ND	0.52
2-Chloroethylvinylether	ND	5.0	ND	10	ND	0.50	ND	0.50
Chloroform	ND	1.0	ND	2.0	ND	0.10	ND	0.10
Chloromethane	ND	3.0	ND	6.0	ND	0.30	ND	0.30
Dibromochloromethane	ND	2.0	ND	4.0	ND	0.20	ND	0.20
1,2-Dichlorobenzene	ND	5.0	ND	10	ND	0.50	ND	0.50
1,3-Dichlorobenzene	ND	3.2	ND	6.4	ND	0.32	ND	0.32
1,4-Dichlorobenzene	ND	2.4	ND	4.8	ND	0.24	ND	0.24
1,1-Dichloroethane	ND	5.0	ND	10	2.1 C@	0.50	3.1 C	0.50
1,2-Dichloroethane	ND	1.0	ND	2.0	7.9 C	0.10	4.5 C	0.10
1,1-Dichloroethene	ND	2.0	ND	4.0	ND	0.20	ND	0.20
cis-1,2-Dichloroethene	14 C	2.0	21 C	4.0	ND	0.20	25 C	0.20
trans-1,2-Dichloroethene	ND	2.0	ND	4.0	ND	0.20	ND	0.20
1,2-Dichloropropane	ND	1.0	ND	2.0	ND	0.10	ND	0.10
cis-1,3-Dichloropropene	ND	2.0	ND	4.0	ND	0.20	ND	0.20
trans-1,3-Dichloropropene	ND	3.4	ND	6.8	ND	0.34	ND	0.34
Methylene chloride	ND	4.0	ND	8.0	1.1 C@	0.40	0.65 C@	0.40
1,1,2,2-Tetrachloroethane	ND	1.5	ND	3.0	ND	0.15	ND	0.15
Tetrachloroethene	ND	1.0	ND	2.0	2.7 C	0.10	2.8 C	0.10
1,1,1-Trichloroethane	ND	2.0	ND	4.0	1.6 C	0.20	0.96 C@	0.20
1,1,2-Trichloroethane	ND	2.0	ND	4.0	ND	0.20	ND	0.20
Trichloroethene	ND	2.0	8.6 C@	4.0	2.3 C	0.20	2.4 C	0.20
Trichlorofluoromethane	ND	2.0	ND	4.0	ND	0.20	ND	0.20
Vinyl chloride	ND	2.0	ND	4.0	ND	0.20	ND	0.20

ND Not detected at specified detection limit
@ Est. result less that 5 times detection limit
C Confirmed on second column or by GC/MS

(1) For a detailed description of flags and technical terms in this report refer to Appendix A in this report.

Giant Refining Co.
Radian Work Order: 90-04-031

Method:SW8310 PAHs by HPLC (1)
List:8310 Method analytes

Sample ID:	9004021055 GRW-3	9004021130 GRW-4	9004021145 GRW-6	9004021245 STRIP INFLUE
Factor:	9.4	0.94	4.7	4.8
Results in:	ug/L	ug/L	ug/L	ug/L
	01A	02A	03A	04A
Matrix:	water	water	water	water

	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit
Acenaphthalene	ND	22	ND	2.3	ND	11	ND	11
Acenaphthene	ND	17	ND	1.8	ND	8.5	ND	8.6
Anthracene	ND	6.2	ND	0.66	ND	3.1	ND	3.2
Benzo(a)anthracene	ND	0.12	ND	0.013	ND	0.061	ND	0.062
Benzo(a)pyrene	ND	0.22	ND	0.023	ND	0.11	ND	0.11
Benzo(b)fluoranthene	ND	0.17	ND	0.018	ND	0.085	ND	0.086
Benzo(g,h,i)perylene	ND	0.71	ND	0.076	ND	0.36	ND	0.36
Benzo(k)fluoranthene	ND	0.16	ND	0.017	ND	0.080	ND	0.082
Chrysene	ND	0.12	ND	0.013	ND	0.061	ND	0.062
Dibenzo(a,h)anthracene	ND	0.28	ND	0.030	ND	0.14	ND	0.14
Fluoranthene	ND	2.0	ND	0.21	ND	0.99	ND	1.0
Fluorene	6.7 *	2.0	ND	0.21	2.8 *	0.99	2.2 *	1.0
Indeno(1,2,3-cd)pyrene	ND	0.40	ND	0.043	ND	0.20	ND	0.21
Naphthalene	ND	17	ND	1.8	ND	8.5	ND	8.6
Phenanthrene	7.3 *	6.0	ND	0.64	ND	3.0	3.3 *	3.1
Pyrene	ND	2.5	ND	0.27	ND	1.3	ND	1.3
Surrogate Recovery(%)								
Terphenyl-d14	221 Q		4 Q		89		87	

Control Limits: 24 to 146

ND Not detected at specified detection limit
Q Outside control limits

* Est. result less than 5 times detection limit

(1) For a detailed description of flags and technical terms in this report refer to Appendix A in this report.

Giant Refining Company
Radian Work Order: SO-02-151

Method:Aromatics by SW8020 (1)
List:Complete analyte list

Sample ID:	9002121558 STRIPPER EFFL	9002121618 STRIPPER INFL	TB-4	REAGENT BLANK
Factor:	1	10	1	1
Results in:	ug/L	ug/L	ug/L	ug/L
	01A	02A	05A	06A
Matrix:	water	water	water	water

	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit
Benzene	5.3 C	0.20	240 C	2.0	ND	0.20	ND	0.20
Chlorobenzene	ND	0.20	ND	2.0	ND	0.20	ND	0.20
1,2-Dichlorobenzene	ND	0.40	ND	4.0	ND	0.40	ND	0.40
1,3-Dichlorobenzene	ND	0.40	ND	4.0	ND	0.40	ND	0.40
1,4-Dichlorobenzene	ND	0.30	ND	3.0	ND	0.30	ND	0.30
Ethylbenzene	ND	0.20	19 C	2.0	ND	0.20	ND	0.20
Toluene	ND	0.20	ND	2.0	ND	0.20	ND	0.20
Xylenes (total)	ND	0.20	ND	2.0	ND	0.20	ND	0.20
Surrogate Recovery(%)								
1-Bromo-4-fluorobenzene	83		86		87		112	
Control Limits: 40 to 140								

C Confirmed on second column

ND Not detected at specified detection limit

(1) For a detailed description of flags and technical terms in this report refer to Appendix A in this report.

Giant Refining Company
Radian Work Order: SO-02-151

Method:Halocarbons by SW8010 (1)
List:Table 3 analyte list

Sample ID:	9002121620	9002126002	TB-4	REAGENT BLANK
	STRIPPER INFL	STRIPPER EFFL		
Factor:	10	1	1	1
Results in:	ug/L	ug/L	ug/L	ug/L
	03A	04A	05A	06A
Matrix:	water	water	water	water

	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit
Bromodichloromethane	ND	1.0	ND	0.10	ND	0.10	ND	0.10
Bromoform	ND	5.0	ND	0.50	ND	0.50	ND	0.50
Bromomethane	ND	12	ND	1.2	ND	1.2	ND	1.2
Carbon tetrachloride	ND	1.2	ND	0.12	ND	0.12	ND	0.12
Chlorobenzene	ND	2.5	ND	0.25	ND	0.25	ND	0.25
Chloroethane	ND	5.2	ND	0.52	ND	0.52	ND	0.52
2-Chloroethylvinylether	ND	5.0	ND	0.50	ND	0.50	ND	0.50
Chloroform	ND	1.0	ND	0.10	ND	0.10	ND	0.10
Chloromethane	ND	3.0	ND	0.30	ND	0.30	ND	0.30
Dibromochloromethane	ND	2.0	ND	0.20	ND	0.20	ND	0.20
1,2-Dichlorobenzene	ND	5.0	ND	0.50	ND	0.50	ND	0.50
1,3-Dichlorobenzene	ND	3.2	ND	0.32	ND	0.32	ND	0.32
1,4-Dichlorobenzene	ND	2.4	ND	0.24	ND	0.24	ND	0.24
1,1-Dichloroethane	ND	5.0	ND	0.50	ND	0.50	ND	0.50
1,2-Dichloroethane	6.3 C	1.0	0.84 C	0.10	ND	0.10	ND	0.10
1,1-Dichloroethene	ND	2.0	ND	0.20	ND	0.20	ND	0.20
cis-1,2-Dichloroethene	28 C	2.0	0.70 C*	0.20	ND	0.20	ND	0.20
trans-1,2-Dichloroethene	ND	2.0	ND	0.20	ND	0.20	ND	0.20
1,2-Dichloropropane	ND	1.0	ND	0.10	ND	0.10	ND	0.10
cis-1,3-Dichloropropene	ND	2.0	ND	0.20	ND	0.20	ND	0.20
trans-1,3-Dichloropropene	ND	3.4	ND	0.34	ND	0.34	ND	0.34
Methylene chloride	ND	4.0	ND	0.40	ND	0.40	ND	0.40
1,1,2,2-Tetrachloroethane	ND	1.5	ND	0.15	ND	0.15	ND	0.15
Tetrachloroethene	ND	1.0	ND	0.10	ND	0.10	ND	0.10
1,1,1-Trichloroethane	4.5 C*	2.0	ND	0.20	ND	0.20	ND	0.20
1,1,2-Trichloroethane	ND	2.0	ND	0.20	ND	0.20	ND	0.20
Trichloroethene	2.0 C*	2.0	ND	0.20	ND	0.20	ND	0.20
Trichlorofluoromethane	ND	2.0	ND	0.20	ND	0.20	ND	0.20
Vinyl chloride	ND	2.0	ND	0.20	ND	0.20	ND	0.20

ND Not detected at specified detection limit
C Confirmed on second column
* Est. result less than 5 times detection limit

(1) For a detailed description of flags and technical terms in this report refer to Appendix A in this report.

Giant Refining Co.
Radian Work Order: 90-02-164

Method:SW8310 PAH's by HPLC (1)
List:8310 Method analytes

Sample ID:	9002121530 ST-RIP EFFLUENT	9002121614 ST-RIP INFLUENT	REAGENT BLANK
Factor:	4.8	4.9	1
Results in:	ug/L	ug/L	ug/L
	01A	02A	03A
Matrix:	water	water	water

	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit
Acenaphthalene	ND	11	ND	11	ND	2.3		
Acenaphthene	ND	8.6	ND	8.8	ND	1.8		
Anthracene	ND	3.2	ND	3.2	ND	0.66		
Benzo(a)anthracene	ND	0.062	ND	0.064	ND	0.013		
Benzo(a)pyrene	ND	0.11	ND	0.11	ND	0.023		
Benzo(b)fluoranthene	ND	0.086	ND	0.088	ND	0.018		
Benzo(g,h,i)perylene	ND	0.36	ND	0.37	ND	0.076		
Benzo(k)fluoranthene	ND	0.082	ND	0.083	ND	0.017		
Chrysene	ND	0.062	ND	0.064	ND	0.013		
Dibenzo(a,h)anthracene	ND	0.14	ND	0.15	ND	0.030		
Fluoranthene	ND	1.0	ND	1.0	ND	0.21		
Fluorene	1.4 *	1.0	2.9 *	1.0	ND	0.21		
Indeno(1,2,3-cd)pyrene	ND	0.21	ND	0.21	ND	0.043		
Naphthalene	ND	8.6	ND	8.8	ND	1.8		
Phenanthrene	ND	3.1	5.0 *	3.1	ND	0.64		
Pyrene	ND	1.3	ND	1.3	ND	0.27		
Surrogate Recovery(%)								
Terphenyl-d14	106		90		62			
Control Limits: 24 to 146								

ND Not detected at specified detection limit

* Est. result less than 5 times detection limit

(1) For a detailed description of flags and technical terms in this report refer to Appendix A in this report.

Inter-Mountain Laboratories, Inc.

2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

CLIENT: GBR
ID:
SITE: Stripper Influent
LAB NO: F3785

DATE REPORTED: 01/24/90
DATE ANALYZED: 01/16/90
DATE RECEIVED: 01/15/90
DATE COLLECTED: 01/15/90

Analysis Requested: Purgeable aromatics in water.

Parameter	Concentration	Units
Benzene	112.5 (1.0)	ug/l
Toluene	ND (1.0)	ug/l
Ethylbenzene	20.5 (1.0)	ug/l
m/p-Xylene	3.25 (1.0)	ug/l
o-Xylene	3 (1.0)	ug/l

Method:
8020 Aromatic Volatile Organics, SW-846, USEPA (1982).
602 Purgeable Aromatics, 40 CFR, Part 136.

(Detection limit in parenthesis.)
ND - Parameter not detected at the stated detection limit.

C. Neal Schaeffer
Senior Chemist

Inter·Mountain Laboratories, Inc.

2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

CLIENT: GBR

SITE: Influent

LAB NO: F3785

DATE REPORTED: 02/21/90
DATE ANALYZED: 01/19/90
DATE RECEIVED: 01/15/90
DATE COLLECTED: 01/15/90

Analysis Requested: Purgeable halocarbons in water.

Parameter	Concentration	Units
Bromobenzene	ND (10)	ug/l
Bromodichloromethane	ND (10)	ug/l
Bromoform	ND (10)	ug/l
Carbon Tetrachloride	ND (10)	ug/l
Chlorobenzene	ND (10)	ug/l
Chloroethane	ND (10)	ug/l
Chloroform	ND (10)	ug/l
Chloromethane	ND (10)	ug/l
Dibromochloromethane	ND (10)	ug/l
Dibromomethane	ND (10)	ug/l
1,2-Dichlorobenzene	ND (10)	ug/l
1,3-Dichlorobenzene	ND (10)	ug/l
1,4-Dichlorobenzene	ND (10)	ug/l
Dichlorodifluoromethane	ND (10)	ug/l
1,1-Dichloroethane	ND (10)	ug/l
1,2-Dichloroethane	ND (10)	ug/l
1,1-Dichloroethene	ND (10)	ug/l
trans-1,2-Dichloroethene	ND (10)	ug/l
1,2-Dichloropropane	ND (10)	ug/l
1,3-Dichloropropylene	ND (10)	ug/l
2,2-Dichloropropane	ND (10)	ug/l
Dichloromethane	ND (10)	ug/l
1,1,1,2-Tetrachloroethane	ND (10)	ug/l
1,1,2,2-Tetrachloroethane	ND (10)	ug/l
Tetrachloroethene	ND (10)	ug/l
1,1,1-Trichloroethane	ND (10)	ug/l
1,1,2-Trichloroethane	ND (10)	ug/l
Trichloroethene	ND (10)	ug/l
Trichlorofluoromethane	ND (10)	ug/l
1,2,3-Trichloropropane	ND (10)	ug/l
Bromochloromethane	ND (10)	ug/l
1,2-Dibromoethane	ND (10)	ug/l
cis-1,2-Dichloroethene	ND (10)	ug/l
1,1-Dichloropropene	ND (10)	ug/l
Vinyl Chloride	ND (10)	ug/l

Method:
601 Purgeable Halocarbons, 40 CFR Part 136, USEPA (1984).
(Detection limit in parenthesis.)
ND - Parameter not detected at the stated detection limit.

C. Neal Schaeffer
Senior Chemist

2.1.3

Inter-Mountain Laboratories, Inc.

2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

CLIENT: GBR
SITE: Stripper Effluent
LAB NO: F3785

DATE REPORTED: 01/24/90
DATE RECEIVED: 01/15/90
DATE COLLECTED: 01/15/90

Analysis Requested: Polynuclear aromatic hydrocarbons in water.

Parameter	Concentration	Units
Acenaphthene	ND (0.02)	mg/l
Acenaphthylene	ND (0.02)	mg/l
Anthracene	ND (0.02)	mg/l
Benzo(a)Anthracene	ND (0.02)	mg/l
Benzo(a)pyrene	ND (0.02)	mg/l
Benzo(k)fluoranthene	ND (0.02)	mg/l
Benzo(b)fluoranthene	ND (0.02)	mg/l
Benzo(g,h,i)perylene	ND (0.02)	mg/l
Dibenzo(a,h)anthracene	ND (0.02)	mg/l
Chrysene	ND (0.02)	mg/l
Fluoranthene	ND (0.02)	mg/l
Fluorene	ND (0.02)	mg/l
Indeno(1,2,3-cd)pyrene	ND (0.02)	mg/l
Naphthalene	ND (0.02)	mg/l
Phenanthrene	ND (0.02)	mg/l
Pyrene	ND (0.02)	mg/l

Method:
8100 Polynuclear Aromatic Hydrocarbons, SW-846, USEPA (1982).
610 Polyaromatic Hydrocarbons, 40 CFR Part 136 (1984).

(Detection limit in parenthesis.)
ND - Parameter not detected at the stated detection limit.

C. Neal Schaeffer
Senior Chemist

Geoscience Consultants, Ltd.
Radian Work Order: 89-12-112

Method:Volatile aromatics (1) List:SW8020	SHS-1	Stripper Eff	Stripper Inf	GBR-24D
Sample ID:	8912121410	8912121145E	8912121145I	8912121130
Factor:	250	1	5	10
Results in:	ug/L	ug/L	ug/L	ug/L
	05B	06B	07B	08B
Matrix:	water	water	water	water

	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit
Benzene	ND	50	3.3	0.20	110	1.0	21	2.0
Chlorobenzene	ND	50	ND	0.20	ND	1.0	ND	2.0
1,2-Dichlorobenzene	ND	100	ND	0.40	ND	2.0	ND	4.0
1,3-Dichlorobenzene	ND	100	ND	0.40	ND	2.0	ND	4.0
1,4-Dichlorobenzene	ND	75	1.4 *	0.30	8.6	1.5	ND	3.0
Ethylbenzene	ND	50	0.55 *	0.20	18	1.0	27	2.0
Toluene	ND	50	ND	0.20	ND	1.0	ND	2.0
Total xylenes	330	50	ND	0.20	9.1	1.0	6.9 *	2.0
Surrogate Recovery(%)								
1-Bromo-4-fluorobenzene	113		94		114		110	
Control Limits: 76 to 140								

ND Not detected at specified detection limit

* Est. result less than 5 times detection limit

(1) For a detailed description of flags and technical terms in this report refer to Appendix A in this report.

Geoscience Consultants, Ltd.
Radian Work Order: 89-12-112

Method:Halogenated volatiles (1) List:SW8010	SHS-1	Stripper Eff	Stripper Inf	GBR-24D
Sample ID:	8912121410	8912121145E	8912121145I	8912121130
Factor:	5	1	1	1
Results in:	ug/L	ug/L	ug/L	ug/L
	05A	06A	07A	08A
Matrix:	water	water	water	water

	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit
Bromodichloromethane	ND	0.50	ND	0.10	ND	0.10	ND	0.10
Bromoform	ND	2.5	ND	0.50	ND	0.50	ND	0.50
Bromomethane	ND	5.9	ND	1.2	ND	1.2	ND	1.2
Carbon Tetrachloride	ND	0.60	ND	0.12	ND	0.12	ND	0.12
Chlorobenzene	ND	1.3	ND	0.25	ND	0.25	ND	0.25
Chloroethane	ND	2.6	ND	0.52	ND	0.52	ND	0.52
2-Chloroethylvinylether	ND	2.5	ND	0.50	ND	0.50	ND	0.50
Chloroform	5.7	0.50	ND	0.10	ND	0.10	ND	0.10
Chloromethane	ND	1.5	ND	0.30	ND	0.30	ND	0.30
Dibromochloromethane-(2)	ND	1.0	ND	0.20	ND	0.20	ND	0.20
1,2-Dichlorobenzene	ND	2.5	ND	0.50	ND	0.50	0.60 *	0.50
1,3-Dichlorobenzene	ND	1.6	ND	0.32	ND	0.32	ND	0.32
1,4-Dichlorobenzene	ND	1.2	ND	0.24	ND	0.24	ND	0.24
1,1-Dichloroethane	0.72 *	2.5	ND	0.50	1.9 *	0.50	ND	0.50
1,2-Dichloroethane	7.1	0.50	1.0	0.10	3.5	0.10	18	0.10
1,1-Dichloroethene	ND	1.0	ND	0.20	ND	0.20	ND	0.20
trans-1,2-Dichloroethene	21	1.0	0.97 *	0.20	9.3	0.20	ND	0.20
1,2-Dichloropropane	ND	0.50	ND	0.10	ND	0.10	ND	0.10
cis-1,3-Dichloropropene-(2)	N\A	N\A	N\A	N\A	N\A	N\A	N\A	N\A
trans-1,3-Dichloropropene	ND	1.5	ND	0.30	ND	0.30	ND	0.30
Methylene Chloride	ND	2.0	ND	0.40	1.0 *	0.40	ND	0.40
1,1,2,2-Tetrachloroethane-(3)	ND	0.75	ND	0.15	ND	0.15	ND	0.15
Tetrachloroethene-(3)	ND	0.50	ND	0.10	1.3	0.10	ND	0.10
1,1,2-Trichloroethane-(2)	ND	1.0	ND	0.20	ND	0.20	ND	0.20
1,1,1-Trichloroethane	ND	1.0	ND	0.20	0.80 *	0.20	ND	0.20
Trichloroethene	6.2	1.0	ND	0.20	2.0	0.20	ND	0.20
Trichlorofluoromethane	ND	1.0	ND	0.20	ND	0.20	ND	0.20
Vinyl Chloride	ND	1.0	ND	0.20	ND	0.20	ND	0.20

ND Not detected at specified detection limit
N\A Not available

* Est. result less than 5 times detection limit

(1) For a detailed description of flags and technical terms in this report refer to Appendix A in this report.
(2) Dibromochloromethane, 1,1,2-Trichloroethane, and cis-1,3-Dichloropropene coleute. Quantitated as Dibromochloromethane unless otherwise noted.
(3) Tetrachloroethene and 1,1,2,2-Tetrachloroethane coelute. Quantitated as Tetrachloroethene unless otherwise noted.

Geoscience Consultants, Ltd.
Radian Work Order: 89-12-112

Method:SW8310 PAH's by HPLC (1) List:8310 Method analytes	Stripper Eff	Stripper Inf	GBR-24D	GRW-13
Sample ID:	8912121145E	8912121145I	8912121130	8912121200
Factor:	0.94	1.9	0.94	0.94
Results in:	ug/L	ug/L	ug/L	ug/L
	06C	07C	08C	09C
Matrix:	water	water	water	water

	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit
Acenaphthalene	ND	2.2	ND	4.4	ND	2.2	ND	2.2
Acenaphthene	ND	1.7	ND	3.4	144 D	1.7	ND	1.7
Anthracene	ND	0.62	ND	1.3	ND	0.62	ND	0.62
Benzo(a)anthracene	ND	0.012	ND	0.025	ND	0.012	ND	0.012
Benzo(a)pyrene	ND	0.022	ND	0.044	ND	0.022	ND	0.022
Benzo(b)fluoranthene	ND	0.017	ND	0.034	ND	0.017	ND	0.017
Benzo(g,h,i)perylene	ND	0.071	ND	0.14	ND	0.071	ND	0.071
Benzo(k)fluoranthene	ND	0.016	ND	0.032	ND	0.016	ND	0.016
Chrysene	ND	0.012	ND	0.025	ND	0.012	ND	0.012
Dibenzo(a,h)anthracene	ND	0.028	ND	0.057	ND	0.028	ND	0.028
Fluoranthene	ND	0.20	ND	0.40	ND	0.20	ND	0.20
Fluorene	3.4 D	0.20	4.0 D	0.40	2.6 D	0.20	ND	0.20
Indeno(1,2,3-cd)pyrene	ND	0.040	ND	0.082	ND	0.040	ND	0.040
Naphthalene	8.9 D	1.7	14 *D	3.4	1.9 *D	1.7	4.3 *D	1.7
Phenanthrene	11	0.60	13	1.2	3.0	0.60	ND	0.60
Pyrene	0.62 *	0.25	0.54 *	0.51	0.29 *	0.25	ND	0.25
Surrogate Recovery(%)								
Terphenyl-d14	93		80		79		80	
Control Limits: 37 to 139								

ND Not detected at specified detection limit
D Sample diluted for this analyte
* Est. result less than 5 times detection limit

(1) For a detailed description of flags and technical terms in this report refer to Appendix A in this report.

Geoscience Consultants, Ltd.
Radian Work Order: 89-12-112

Method:PAHs by GC 8100 (1) List:8100, special list	Stripper Eff	Stripper Inf	GBR-24D	GRW-13
Sample ID:	8912121145E	8912121145I	8912121130	8912121200
Factor:	0.94	0.94	0.94	0.94
Results in:	ug/L	ug/L	ug/L	ug/L
	06C	07C	08C	09C
Matrix:	water	water	water	water

	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit
1-Methylnaphthalene	2.0 *	0.94	6.3	0.94	5.8	0.94	ND	0.94
2-Methylnaphthalene	2.8 *	0.94	2.8 *	0.94	ND	0.94	ND	0.94

* Est. result less than 5 times detection limit

ND Not detected at specified detection limit

(1) For a detailed description of flags and technical terms in this report refer to Appendix A in this report.

Inter·Mountain Laboratories, Inc.

2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

CLIENT: GBR- Giant Refinery
SITE: Inlet
LAB NO: F3528

DATE REPORTED: 11/21/89
DATE ANALYZED: 11/17/89
DATE RECEIVED: 11/15/89
DATE COLLECTED: 11/15/89

Analysis Requested: Purgeable aromatics in water.

Parameter	Concentration	Units
Benzene	23.6 (0.5)	ug/l
Toluene	ND (0.5)	ug/l
Ethylbenzene	3.01 (0.5)	ug/l
m,p-Xylene	13.2 (0.5)	ug/l
o-Xylene	5.66 (0.5)	ug/l
1,4-Dichlorobenzene	ND (0.5)	ug/l
1,3-Dichlorobenzene	ND (0.5)	ug/l
1,2-Dichlorobenzene	ND (0.5)	ug/l
Chlorobenzene	ND (0.5)	ug/l

Method:
8020 Aromatic Volatile Organics, SW-846, USEPA (1982)
602 Purgeable Aromatics, 40 CFR, Part 136

(Detection limit in parenthesis.)
ND - Parameter not detected at the stated detection limit.

C. Neal Schaeffer
Senior Chemist

Inter-Mountain Laboratories, Inc.
2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

CLIENT: GBR- Giant Refinery
SITE: Inlet
LAB NO: F3528

DATE REPORTED: 03/09/90
DATE ANALYZED: 11/17/89
DATE RECEIVED: 11/15/89
DATE COLLECTED: 11/15/89

Analysis Requested: Purgeable halocarbons in water.

Parameter	Concentration	Units
Bromobenzene	ND (1.0)	ug/l
Bromodichloromethane	ND (1.0)	ug/l
Bromoform	ND (1.0)	ug/l
Carbon Tetrachloride	ND (1.0)	ug/l
Chlorobenzene	ND (1.0)	ug/l
Chloroethane	ND (1.0)	ug/l
Chloroform	ND (1.0)	ug/l
Chloromethane	ND (1.0)	ug/l
Dibromochloromethane	ND (1.0)	ug/l
Dibromomethane	ND (1.0)	ug/l
1,2-Dichlorobenzene	ND (1.0)	ug/l
1,3-Dichlorobenzene	ND (1.0)	ug/l
1,4-Dichlorobenzene	ND (1.0)	ug/l
Dichlorodifluoromethane	ND (1.0)	ug/l
1,1-Dichloroethane	ND (1.0)	ug/l
1,2-Dichloroethane	ND (1.0)	ug/l
1,1-Dichloroethene	ND (1.0)	ug/l
trans-1,2-Dichloroethene	5.6 (1.0)	ug/l
1,2-Dichloropropane	ND (1.0)	ug/l
1,3-Dichloropropylene	ND (1.0)	ug/l
2,2-Dichloropropane	ND (1.0)	ug/l
Dichloromethane	ND (1.0)	ug/l
1,1,1,2-Tetrachloroethane	ND (1.0)	ug/l
1,1,2,2-Tetrachloroethane	2.3 (1.0)	ug/l
Tetrachloroethene	ND (1.0)	ug/l
1,1,1-Trichloroethane	ND (1.0)	ug/l
1,1,2-Trichloroethane	2.3 (1.0)	ug/l
Trichloroethene	ND (1.0)	ug/l
Trichlorofluoromethane	ND (1.0)	ug/l
1,2,3-Trichloropropane	ND (1.0)	ug/l
Bromochloromethane	ND (1.0)	ug/l
1,2-Dibromoethane	ND (1.0)	ug/l
cis-1,2-Dichloroethene	ND (1.0)	ug/l
1,1-Dichloropropene	ND (1.0)	ug/l
Vinyl Chloride	ND (1.0)	ug/l

Method:
601 Purgeable Halocarbons, 40 CFR Part 136, USEPA (1984).
8010 Halogenated Volatile Organics, SW-846, USEPA (1982).

(Detection limit in parenthesis.)
ND - Parameter not detected at the stated detection limit.

C. Neal Schaeffer
Senior Chemist

Inter·Mountain Laboratories, Inc.

2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

CLIENT: Giant Refinery
SITE: Stripper Influent
LAB NO: F3528

DATE REPORTED: 12/28/89
DATE ANALYZED: 11/27/89
DATE RECEIVED: 11/11/89
DATE COLLECTED: 11/11/89

Analysis Requested: Polynuclear aromatic hydrocarbons in water.

Parameter	Concentration	Units
Acenaphthene	ND (2.0)	mg/l
Acenaphthylene	ND (2.0)	mg/l
Anthracene	2.4 (2.0)	mg/l
Benzo(a)Anthracene	ND (2.0)	mg/l
Benzo(a)pyrene	ND (2.0)	mg/l
Benzo(k)fluoranthene	ND (2.0)	mg/l
Benzo(g,h,i)perylene	ND (2.0)	mg/l
Dibenzo(a,h)anthracene	ND (2.0)	mg/l
Chrysene	ND (2.0)	mg/l
Fluoranthene	ND (2.0)	mg/l
Fluorene	ND (2.0)	mg/l
Indeno(1,2,3-cd)pyrene	ND (2.0)	mg/l
Naphthalene	ND (2.0)	mg/l
Phenanthrene	4.7 (2.0)	mg/l
Pyrene	ND (2.0)	mg/l
Benzo(b)fluoranthene	ND (0.02)	mg/l

Method:
610 Polyaromatic Hydrocarbons, 40 CFR Part 136 (1984).

(Detection limit in parenthesis.)
ND - Parameter not detected at the stated detection limit.

C. Neal Schaeffer
Senior Chemist

Inter-Mountain Laboratories, Inc.

2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

CLIENT: GBR- Giant Refinery
SITE: Inlet
LAB NO: F3378

DATE REPORTED: 11/14/89
DATE ANALYZED: 10/26/89
DATE RECEIVED: 10/19/89
DATE COLLECTED: 10/19/89

Analysis Requested: Purgeable aromatics in water.

Parameter	Concentration	Units
Benzene	129.58 (0.2)	ug/l
Toluene	69.33 (0.2)	ug/l
Ethylbenzene	23.67 (0.2)	ug/l
m,p-Xylene	26.41 (0.2)	ug/l
o-Xylene	21.03 (0.2)	ug/l
1,4-Dichlorobenzene	ND (0.2)	ug/l
1,3-Dichlorobenzene	ND (0.2)	ug/l
1,2-Dichlorobenzene	ND (0.2)	ug/l
Chlorobenzene	ND (0.2)	ug/l

Method:
8020 Aromatic Volatile Organics, SW-846, USEPA (1982)
602 Purgeable Aromatics, 40 CFR, Part 136

(Detection limit in parenthesis.)
ND - Parameter not detected at the stated detection limit.

C. Neal Schaeffer
Senior Chemist

Inter-Mountain Laboratories, Inc.

2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

CLIENT: GBR- Giant Refinery
SITE: Inlet
LAB NO: F3378

DATE REPORTED: 11/14/89
DATE ANALYZED: 10/31/89
DATE RECEIVED: 10/19/89
DATE COLLECTED: 10/19/89

Analysis Requested: Purgeable halocarbons in water.

Parameter	Concentration	Units
Bromobenzene	ND (1.0)	ug/l
Bromodichloromethane	ND (1.0)	ug/l
Bromoform	ND (1.0)	ug/l
Carbon Tetrachloride	ND (1.0)	ug/l
Chlorobenzene	ND (1.0)	ug/l
Chloroethane	ND (1.0)	ug/l
Chloroform	ND (1.0)	ug/l
Chloromethane	ND (1.0)	ug/l
Dibromochloromethane	ND (1.0)	ug/l
Dibromomethane	ND (1.0)	ug/l
1,2-Dichlorobenzene	ND (1.0)	ug/l
1,3-Dichlorobenzene	ND (1.0)	ug/l
1,4-Dichlorobenzene	ND (1.0)	ug/l
Dichlorodifluoromethane	ND (1.0)	ug/l
1,1-Dichloroethane	ND (1.0)	ug/l
1,2-Dichloroethane	ND (1.0)	ug/l
1,1-Dichloroethene	ND (1.0)	ug/l
trans-1,2-Dichloroethene	ND (1.0)	ug/l
1,2-Dichloropropane	ND (1.0)	ug/l
1,3-Dichloropropylene	ND (1.0)	ug/l
2,2-Dichloropropane	ND (1.0)	ug/l
Dichloromethane	ND (1.0)	ug/l
1,1,1,2-Tetrachloroethane	ND (1.0)	ug/l
1,1,2,2-Tetrachloroethane	ND (1.0)	ug/l
Tetrachloroethene	ND (1.0)	ug/l
1,1,1-Trichloroethane	ND (1.0)	ug/l
1,1,2-Trichloroethane	ND (1.0)	ug/l
Trichloroethene	ND (1.0)	ug/l
Trichlorofluoromethane	ND (1.0)	ug/l
1,2,3-Trichloropropane	ND (1.0)	ug/l

Method:
601 Purgeable Halocarbons, 40 CFR Part 136, USEPA (1984).
8010 Halogenated Volatile Organics, SW-846, USEPA (1982).

(Detection limit in parenthesis.)
ND - Parameter not detected at the stated detection limit.

C. Neal Schaeffer
Senior Chemist

Inter-Mountain Laboratories, Inc.

2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

CLIENT: Giant Refinery
SITE: Inlet
LAB NO: F3378

DATE REPORTED: 12/28/89
DATE ANALYZED: 11/27/89
DATE RECEIVED: 10/19/89
DATE COLLECTED: 10/19/89

Analysis Requested: Polynuclear aromatic hydrocarbons in water.

Parameter	Concentration	Units
Acenaphthene	ND (5.0)	mg/l
Acenaphthylene	ND (5.0)	mg/l
Anthracene	ND (5.0)	mg/l
Benzo(a)Anthracene	ND (5.0)	mg/l
Benzo(a)pyrene	ND (5.0)	mg/l
Benzo(k)fluoranthene	ND (5.0)	mg/l
Benzo(g,h,i)perylene	ND (5.0)	mg/l
Dibenzo(a,h)anthracene	ND (5.0)	mg/l
Chrysene	ND (5.0)	mg/l
Fluoranthene	ND (5.0)	mg/l
Fluorene	ND (5.0)	mg/l
Indeno(1,2,3-cd)pyrene	ND (5.0)	mg/l
Naphthalene	ND (5.0)	mg/l
Phenanthrene	ND (5.0)	mg/l
Pyrene	ND (5.0)	mg/l
Benzo(b)fluoranthene	ND (5.0)	mg/l

Method:
610 Polyaromatic Hydrocarbons, 40 CFR Part 136 (1984).

(Detection limit in parenthesis.)
ND - Parameter not detected at the stated detection limit.

C. Neal Schaeffer
Senior Chemist

MONTHLY SAMPLING
ANALYTICAL RESULTS FOR AIR STRIPPER INFLUENT AND EFFLUENT
AROMATIC VOLATILE ORGANIC COMPOUNDS
(ug/L unless otherwise noted)
(Sampling Event: 09/29/89)

	INFLUENT		EFFLUENT	
Benzene	* 78.0	(1.0)	9.2	(1.0)
Chlorobenzene	ND	(1.0)	ND	(1.0)
Ethylbenzene	16.3	(1.0)	0.4	(1.0)
Toluene	22.6	(1.0)	0.6	(1.0)
m/p-Xylene	29.4	(1.0)	0.7	(1.0)
o-Xylene	13.7	(1.0)	0.5	(1.0)
1,2-Dichlorobenzene	ND	(1.0)	ND	(1.0)
1,3-Dichlorobenzene	ND	(1.0)	ND	(1.0)
1,4-Dichlorobenzene	ND	(1.0)	ND	(1.0)

( ) = Detection Limit
ND = Not Detected
T = Detected Below Quantifiable Level
NA = Not Analyzed

Why 20-fold decrease in Benzene from 9/13 sampling (P. 11)?

Product in 9/13 stream?
Blanks and/or contents not working?

0348/SAMP789.TAB

KAUFMAN CORPORATION

 RAS Sacramento REPORT Work Order # S9-09-083

Received: 09/14/89 Results by Sample

SAMPLE ID 8909131300 H2O Influent FRACTION 01C TEST CODE 602B NAME Purgeable Aromatics - H2O

Date & Time Collected 09/13/89 Category

ORGANICS ANALYSIS DATA SHEET - PURGEABLE AROMATICS (1)

ANALYST TBJ FILE # E409168 VERIFIED JD

INSTRMT 4 INJECTD 09/16/89 FACTOR 100 UNITS ug/L

CAS#	COMPOUND	RESULT	DET LIMIT	FACTOR
71-43-2	Benzene	1800 C	10	100
108-88-3	Toluene	260 C	30	100
100-41-4	Ethylbenzene	130 C	10	100
108-90-7	Chlorobenzene	ND	10	100
1330-20-7	Total Xylenes	210 C	20	100
106-46-7	1,4-Dichlorobenzene	ND	20	100
541-73-1	1,3-Dichlorobenzene	ND	40	100
95-50-1	1,2-Dichlorobenzene	ND	20	100

SURROGATE

460-00-4 1-Bromo-4-Fluorobenzene 94% recovery

(1) See Appendix A for Glossary of Report and Data Flag Definitions

KAUFMAN CORPORATION

 RAS Sacramento REPORT Work Order # 89-09-023

Received: 09/14/89 Results by Sample

SAMPLE ID 8909131300 H2O Influent FRACTION 01A TEST CODE 601 NAME Purgeable Halocarbons H2O

Date & Time Collected 09/13/89 Category

ORGANICS ANALYSIS DATA SHEET - PURGEABLE HALOCARBONS (1)

ANALYST TBJ FILE # D409168 VERIFIED JD

INSTRMT 4 INJECTD 09/16/89 FACTOR 100 High UNITS ug/L

CAS#	COMPOUND	RESULT	DET LIMIT	FACTOR
74-87-3	Chloromethane	ND	50	100
74-83-9	Bromomethane	ND	100	100
75-01-4	Vinyl Chloride	ND	20	100
75-00-3	Chloroethane	ND	50	100
75-09-2	Methylene Chloride	ND	40	100
75-69-4	Trichlorofluoromethane	ND	10	100
75-35-4	1,1-Dichloroethene	ND	10	100
75-34-3	1,1-Dichloroethane	ND	10	100
540-59-0	Total 1,2-Dichloroethene (2)	ND	10	100
67-66-3	Chloroform	ND	10	100
107-06-2	1,2-Dichloroethane	ND	10	100
71-55-6	1,1,1-Trichloroethane	ND	20	100
56-23-5	Carbon Tetrachloride	ND	20	100
75-27-4	Bromodichloromethane	ND	10	100
78-87-5	1,2-Dichloropropane	ND	10	100
10061-01-5	cis-1,3-Dichloropropene	ND	40	100
79-01-6	Trichloroethene	ND	20	100
124-48-1	Dibromochloromethane (3)	ND	20	100
79-00-5	1,1,2-Trichloroethane (3)	ND	20	100
10061 02-6	trans-1,3-Dichloropropene (3)	ND	40	100
110-75-8	2-Chloroethylvinyl Ether	ND	200	100
75-25-2	Bromoform	ND	200	100
79-34-5	1,1,2,2-Tetrachloroethane (4)	ND	20	100
127-18-4	Tetrachloroethene (4)	ND	10	100
108-90-7	Chlorobenzene	ND	20	100
541-73-1	1,3-Dichlorobenzene	ND	50	100
95-50-1	1,2-Dichlorobenzene	ND	20	100
106-46-7	1,4-Dichlorobenzene	ND	20	100

KAUFMAN CORPORATION

RAS Sacramento REPORT

Work Order # S9-09-053

Received: 09/14/89

Results by Sample

Continued From Above

SAMPLE ID 8909131300 H20 Influent FRACTION 01A TEST CODE 601 NAME Purgeable Halocarbons H20

Date & Time Collected 09/13/89 Category

SURROGATES

540-36-3	1-4-Difluorobenzene	NA	% Recovery
460-00-4	1-Bromo-4-Fluorobenzene	90	% Recovery

(1) See Appendix A for Glossary of Report and Data Flag Definitions
(2) Quantitated as the Trans-isomer
(3) Dibromochloromethane, 1,1,2-Trichloroethane and Trans-1,3-dichloropropene co-elute.
(4) 1,1,2,2-Tetrachloroethane and tetrachloroethene co-elute.

Geoscience Consultants, Ltd.
Radian Work Order: 89-09-111

Method:PAHs by HPLC (1) List:	GBR-30	GRW-13	GBR-31	GBR-17	Influent	Effluent
Sample ID:	8909131015	8909131030	8909131145	8909131230	8909131300	8909131330
Factor:	24	1	1	1	24	10
Results in:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
	07A	08A	09A	10A	11A	12A
Matrix:	water	water	water	water	water	water
Acenaphthalene	<55	<2.3	<2.3	<2.3	<55	<23
Acenaphthene	<43	<1.8	<1.8	<1.8	<43	<18
Anthracene	<16	<0.66	<0.66	<0.66	<16	<6.6
Benzo(a)anthracene	<0.31	<0.013	<0.013	<0.013	<0.31	<0.13
Benzo(a)pyrene	<0.55	<0.023	<0.023	<0.023	<0.55	<0.23
Benzo(b)fluoranthene	<0.43	<0.018	<0.018	<0.018	<0.43	<0.18
Benzo(g,h,i)perylene	<1.8	<0.076	<0.076	<0.076	<1.8	<0.76
Benzo(k)fluoranthene	<0.41	<0.017	<0.017	<0.017	<0.41	<0.17
Chrysene	<0.31	<0.013	<0.013	<0.013	<0.31	<0.13
Dibenzo(a,h)anthracene	<0.72	<0.030	<0.030	<0.030	<0.72	<0.30
Fluoranthene	<5.0	<0.21	<0.21	<0.21	<5.0	<2.1
Fluorene	11*	<0.21	<0.21	<0.21	9.4*	9.5*
Indeno(1,2,3-cd)pyrene	<1.0	<0.043	<0.043	<0.043	<1.0	<0.43
Naphthalene	<43	<1.8	<1.8	<1.8	<43	<18
Phenanthrene	<15	<0.64	<0.64	<0.64	<15	<6.4
Pyrene	<6.5	<0.27	<0.27	<0.27	<6.5	<2.7
Surrogate Recovery(%)						
Terphenyl-d14	NC	128	129	114	NC	130

Control Limits: 37 to 139

* Est. result less than 5 times detection limit NC Not calculated

(1) For a detailed description of flags and technical terms in this report refer to Appendix A in this report.

Received: 08/18/89

RAS Sacramento REPORT
Results by Sample

Work Order # 89-08-192

SAMPLE ID 8908171304 H2O Influent FRACTION 01C TEST CODE 602B NAME Purgeable Aromatics - H2O
Date & Time Collected 08/17/89 Category

ORGANICS ANALYSIS DATA SHEET - PURGEABLE AROMATICS (1)

ANALYST TBJ
INSTRMT 4
INJECTD 08/22/89
FILE # E408222
FACTOR 10 UNITS ug/L
VERIFIED JD

CAS#	COMPOUND	RESULT	DET LIMIT	FACTOR
71-43-2	Benzene	140 C	1.0	10
108-88-3	Toluene	6.1 C	3.0	10
100-41-4	Ethylbenzene	ND	1.0	10
108-90-7	Chlorobenzene	ND	1.0	10
1330-20-7	Total Xylenes	36 C	2.0	10
106-46-7	1,4-Dichlorobenzene	ND	2.0	10
541-73-1	1,3-Dichlorobenzene	ND	4.0	10
95-50-1	1,2-Dichlorobenzene	ND	2.0	10

SURROGATE

460-00-4 1-Bromo-4-Fluorobenzene 106% recovery

(1) See Appendix A for Glossary of Report and Data Flag Definitions

Received: 08/18/89

RAS Sacramento REPORT
Results by Sample

Work Order # 89-08-192

SAMPLE ID 8908171304 H2O Influent FRACTION 01A TEST CODE 601 NAME Purgeable Halocarbons H2O
Date & Time Collected 08/17/89 Category

ORGANICS ANALYSIS DATA SHEET - PURGEABLE HALOCARBONS (1)

ANALYST TBJ FILE # D408229 VERIFIED JD
INSTRMT 4 INJECTD 08/22/89 FACTOR 10 UNITS ug/L

CAS#	COMPOUND	RESULT	DET LIMIT	FACTOR
74-87-3	Chloromethane	ND	5.0	10
74-83-9	Bromomethane	ND	10	10
75-01-4	Vinyl Chloride	ND	2.0	10
75-00-3	Chloroethane	ND	5.0	10
75-09-2	Methylene Chloride	ND	4.0	10
75-69-4	Trichlorofluoromethane	ND	1.0	10
75-35-4	1,1-Dichloroethene	ND	1.0	10
75-34-3	1,1-Dichloroethane	ND	1.0	10
540-59-0	Total 1,2-Dichloroethene (2)	17 C	1.0	10
67-66-3	Chloroform	ND	1.0	10
107-06-2	1,2-Dichloroethane	3.9 C	1.0	10
71-55-6	1,1,1-Trichloroethane	ND	2.0	10
56-23-5	Carbon Tetrachloride	ND	2.0	10
75-27-4	Bromodichloromethane	ND	1.0	10
78-87-5	1,2-Dichloropropane	ND	1.0	10
10061-01-5	cis-1,3-Dichloropropene	ND	4.0	10
79-01-6	Trichloroethene	ND	2.0	10
124-48-1	Dibromochloromethane (3)	ND	2.0	10
79-00-5	1,1,2-Trichloroethane (3)	ND	2.0	10
10061-02-6	trans-1,3-Dichloropropene (3)	ND	4.0	10
110-75-8	2-Chloroethylvinyl Ether	ND	20	10
75-25-2	Bromoform	ND	20	10
79-34-5	1,1,2,2-Tetrachloroethane (4)	ND	2.0	10
127-18-4	Tetrachloroethene (4)	ND	1.0	10
108-90-7	Chlorobenzene	ND	2.0	10
541-73-1	1,3-Dichlorobenzene	ND	5.0	10
95-50-1	1,2-Dichlorobenzene	ND	2.0	10
106-46-7	1,4-Dichlorobenzene	ND	2.0	10

Received: 08/18/89

RAS Sacramento REPORT
Results by Sample

Work Order # S9-08-192
Continued From Above

SAMPLE ID BP08171304 H2O Influent FRACTION 01A TEST CODE 601 NAME Purgeable Halocarbons H2O
Date & Time Collected 08/17/89 Category

SURROGATES

540-36-3	1-4-Difluorobenzene	NA	% Recovery
460-00-4	1-Bromo-4-Fluorobenzene	92	% Recovery

(1) See Appendix A for Glossary of Report and Data Flag Definitions
(2) Quantitated as the Trans-isomer
(3) Dibromochloromethane, 1,1,2-Trichloroethane and Trans-1,3-dichloropropene co-elute.
(4) 1,1,2,2-Tetrachloroethane and tetrachloroethene co-elute.

Geoscience Consultants, Ltd.
Radian Work Order: 89-08-259

Method: SW8310 PAH's by HPLC (1) List:	Influent	Effluent	Rainbow Spring	
Sample ID:	8908171304	8908171316	8908171333	REAGENT BLANK
Factor:	10	10	10	10
Results in:	ug/L	ug/L	ug/L	ug/L
	01A	02A	03A	04A
Matrix:	water	water	water	water
Acenaphthalene	<23	<23	<23	<23
Acenaphthene	<18	<18	<18	<18
Anthracene	<6.6	<6.6	<6.6	<6.6
Benzo(a)anthracene	<0.13	<0.13	<0.13	<0.13
Benzo(a)pyrene	<0.23	<0.23	<0.23	<0.23
Benzo(b)fluoranthene	<0.18	<0.18	<0.18	<0.18
Benzo(g,h,i)perylene	<0.76	<0.76	<0.76	<0.76
Benzo(k)fluoranthene	<0.17	<0.17	<0.17	<0.17
Chrysene	<0.13	<0.13	<0.13	<0.13
Dibenzo(a,h)anthracene	<0.30	<0.30	<0.30	<0.30
Fluoranthene	<2.1	<2.1	<2.1	<2.1
Fluorene	4*	4*	<2.1	<2.1
Indeno(1,2,3-cd)pyrene	<0.43	<0.43	<0.43	<0.43
Naphthalene	250	27*	310	<18
Phenanthrene	43	42	<6.4	<6.4
Pyrene	<2.7	<2.7	<2.7	<2.7
Surrogate Recovery(%)				
Terphenyl-d14	134	138	102	132
Control Limits: 37 to 139				

* Est. result less than 5 times detection limit

(1) For a detailed description of flags and technical terms in this report refer to Appendix A in this report.

Inter-Mountain Laboratories, Inc.

2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

Date: 07/31/89

Client: Geoscience Consultants, Ltd.
GCL Sample No: 8907121145
Sample Site: Influent
IML Sample No: F1733
Analysis Requested: Purgeable Aromatics
Sample Matrix: Water

Date Sampled: 07/12/89
Date Received: 07/12/89
Date Extracted: N/A
Date Analyzed: 07/17/89

Parameter	Concentration	Units
BENZENE	33.5 (0.2)	ug/l
TOLUENE	ND (0.2)	ug/l
ETHYLBENZENE	1.8 (0.2)	ug/l
CHLOROBENZENE	ND (0.2)	ug/l
m,p-XYLENE	11.2 (0.2)	ug/l
o-XYLENE	7.3 (0.2)	ug/l
1,4-DICHLOROBENZENE	ND (0.2)	ug/l
1,3-DICHLOROBENZENE	ND (0.2)	ug/l
1,2-DICHLOROBENZENE	ND (0.2)	ug/l

Method: 8020 Aromatic Volatile Organics, SW-846, USEPA (1982)
602 Purgeable Aromatics, 40 CFR, Part 136

Note: Method Detection Limit (MDL) is given in parenthesis.
ND means analyte was not detected.

C. Neal Schaeffer
Senior Organic Chemist

iml
Inter-Mountain
Laboratories, Inc.

2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

Date: July 31, 1989

Client: Geoscience Consultants, Ltd.
GCL Sample No: 8907121145
Sample Site: Influent
IML Sample No: F1733
Analysis Requested: Purgeable Halocarbons
Sample Matrix: Water

Date Sampled: 07/12/89
Date Received: 07/12/89
Date Extracted: N/A
Date Analyzed: 07/17/89

Parameter	Concentration	Units
CHLOROMETHANE	ND (1.0)	ug/l
BROMOMETHANE	ND (1.0)	ug/l
DICHLORODIFLUOROMETHANE	ND (1.0)	ug/l
VINYL CHLORIDE	ND (1.0)	ug/l
CHLOROETHANE	ND (1.0)	ug/l
METHYLENE CHLORIDE	ND (1.0)	ug/l
TRICHLOROFLUOROMETHANE	ND (1.0)	ug/l
1,1-DICHLOROETHENE	ND (1.0)	ug/l
1,1-DICHLOROETHANE	ND (1.0)	ug/l
TRANS-1,2-DICHLOROETHENE	2.7 (1.0)	ug/l
CHLOROFORM	ND (1.0)	ug/l
1,2-DICHLOROETHANE	ND (1.0)	ug/l
1,1,1-TRICHLOROETHANE	3.4 (1.0)	ug/l
CARBON TETRACHLORIDE	ND (1.0)	ug/l
BROMODICHLOROMETHANE	ND (1.0)	ug/l
1,2-DICHLOROPROPANE	ND (1.0)	ug/l
CIS-1,3-DICHLOROPROPENE	ND (1.0)	ug/l
TRICHLOROETHENE	0.9 (1.0)	ug/l
DIBROMOCHLOROMETHANE	ND (1.0)	ug/l
1,1,2-TRICHLOROETHANE	ND (1.0)	ug/l
TRANS-1,3-DICHLOROPROPENE	ND (1.0)	ug/l
2-CHLOROETHYLVINYL ETHER	ND (1.0)	ug/l
BROMOFORM	ND (1.0)	ug/l
1,1,2,2-TETRACHLOROETHANE	ND (1.0)	ug/l
TETRACHLOROETHENE	1.2 (1.0)	ug/l
CHLOROBENZENE	ND (1.0)	ug/l
1,2-DICHLOROBENZENE	ND (1.0)	ug/l
1,3-DICHLOROBENZENE	ND (1.0)	ug/l
1,4-DICHLOROBENZENE	ND (1.0)	ug/l

Method: 601 Purgeable Halocarbons, 40 CFR Part 136, USEPA (1984).

(Detection limit in parenthesis.)
ND - Parameter not detected at the stated detection limit.

C. Neal Schaeffer

Inter-Mountain Laboratories, Inc.

2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

Client:	GCL #8907121145	Date Reported:	07/25/89
GCL Sample No:	Influent	Date Sampled:	07/12/89
IML Sample No:	F1733	Date Received:	07/12/89
Analysis Requested:	Polynuclear hydrocarbons	Date Extracted:	07/19/89
Sample Matrix:	Water	Date Analyzed:	07/24/89

Parameter	Concentration	Units
Naphthalene	ND (0.02)	ug/ml
Acenaphthylene	ND (0.02)	ug/ml
Acenaphthene	ND (0.02)	ug/ml
Fluorene	4.20 (0.02)	ug/ml
Phenanthrene	2.00 (0.02)	ug/ml
Anthracene	ND (0.02)	ug/ml
Fluoranthene	9.40 (0.02)	ug/ml
Pyrene	5.30 (0.02)	ug/ml
Benzo(a)Anthracene	ND (0.02)	ug/ml
Chrysene	ND (0.02)	ug/ml
Benzo(b)fluoranthene	ND (0.02)	ug/ml
Benzo(k)fluoranthene	ND (0.02)	ug/ml
Benzo(a)pyrene	ND (0.02)	ug/ml
Dibenzo(a,h)anthracene	ND (0.02)	ug/ml
Indeno(1,2,3-cd)pyrene	ND (0.02)	ug/ml
Benzo(g,h,i)perylene	ND (0.02)	ug/ml
Benzo(j)fluoranthene	ND (0.02)	ug/ml
Dibenz(a,h)acridine	ND (0.02)	ug/ml
Dibenz(a,j)acridine	ND (0.02)	ug/ml
Dibenz(a,e)pyrene	ND (0.02)	ug/ml
Dibenz(a,h)pyrene	ND (0.02)	ug/ml
Dibenz(a,i)pyrene	ND (0.02)	ug/ml
3-Methylnaphthalene	ND (0.02)	ug/ml

Method: 8100 Polynuclear Aromatic Hydrocarbons, SW-846, USEPA (1986)
610 Polyaromatic Hydrocarbons, 40 CFR, Part 136

(Detection limit in parenthesis.)
ND - Parameter not detected at the stated detection limit.

Comments: Sample required extensive cleanup. Increased detection limits reflect increased baseline perturbation as well as sample loss due to cleanup.

C. Neal Schaeffer
Senior Organic Chemist

Inter-Mountain Laboratories, Inc.

2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

Client: GCL #8906140926
Site: Influent
IML #: F1582

Date of report: 06/23/89
Date sampled: 06/14/89
Date received: 06/14/89

Parameter	Concentration	Units
BENZENE	82.3 (0.2)	ug/l
TOLUENE	17.8 (0.2)	ug/l
ETHYLBENZENE	11.4 (0.2)	ug/l
CHLOROBENZENE	ND (0.2)	ug/l
m,p-XYLENE	24.2 (0.2)	ug/l
o-XYLENE	18.8 (0.2)	ug/l
1,4-DICHLOROBENZENE	ND (0.2)	ug/l
1,3-DICHLOROBENZENE	ND (0.2)	ug/l
1,2-DICHLOROBENZENE	ND (0.2)	ug/l

Method: 8020 Aromatic Volatile Organics, SW-846, USEPA (1982)
602 Purgeable Aromatics, 40 CFR, Part 136

Note: Method Detection Limit (MDL) is given in parenthesis.
ND means analyte was not detected.

C. Neal Schaeffer
Senior Organic Chemist

iml
Inter-Mountain
Laboratories, Inc.

2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

Client: GCL #8906140926
Site: Influent
IML #: F1582

Date of report: 06/23/89
Date sampled: 06/14/89
Date received: 06/14/89

Parameter	Concentration	Units
CHLOROMETHANE	ND (1.0)	ug/l
BROMOMETHANE	ND (1.0)	ug/l
DICHLORODIFLUOROMETHANE	ND (1.0)	ug/l
VINYL CHLORIDE	ND (1.0)	ug/l
CHLOROETHANE	ND (1.0)	ug/l
METHYLENE CHLORIDE	ND (1.0)	ug/l
TRICHLOROFLUOROMETHANE	ND (1.0)	ug/l
1,1-DICHLOROETHENE	ND (1.0)	ug/l
1,1-DICHLOROETHANE	4.6 (1.0)	ug/l
TRANS-1,2-DICHLOROETHENE	ND (1.0)	ug/l
CHLOROFORM	1.2 (1.0)	ug/l
1,2-DICHLOROETHANE	3.3 (1.0)	ug/l
1,1,1-TRICHLOROETHANE	ND (1.0)	ug/l
CARBON TETRACHLORIDE	ND (1.0)	ug/l
BROMODICHLOROMETHANE	ND (1.0)	ug/l
1,2-DICHLOROPROPANE	ND (1.0)	ug/l
CIS-1,3-DICHLOROPROPENE	ND (1.0)	ug/l
TRICHLOROETHENE	1.9 (1.0)	ug/l
DIBROMOCHLOROMETHANE	ND (1.0)	ug/l
1,1,2-TRICHLOROETHANE	ND (1.0)	ug/l
TRANS-1,3-DICHLOROPROPENE	ND (1.0)	ug/l
2-CHLOROETHYLVINYL ETHER	ND (1.0)	ug/l
BROMOFORM	ND (1.0)	ug/l
1,1,2,2-TETRACHLOROETHANE	ND (1.0)	ug/l
TETRACHLOROETHENE	1.6 (1.0)	ug/l
CHLOROBENZENE	ND (1.0)	ug/l
1,3-DICHLOROBENZENE	ND (1.0)	ug/l
1,2-DICHLOROBENZENE	ND (1.0)	ug/l
1,4-DICHLOROBENZENE	ND (1.0)	ug/l

Methods: 8020 Aromatic Volatile Organics, SW-846, USEPA (1982)
601 Purgeable Halocarbons, 40 CFR Part 136, USEPA (1984).

Note: Method Detection Limit (MDL) is given in parenthesis.
ND means analyte was not detected.

C. Neal Schaeffer
Senior Organic Chemist

MONTHLY SAMPLING

ANALYTICAL RESULTS FOR AIR STRIPPER INFLUENT AND EFFLUENT

POLYNUCLEAR AROMATIC HYDROCARBONS

(ug/ml unless otherwise noted)

(Sampling Event: 06/13/89)

ANALYTE	INFLUENT		EFFLUENT	
Acenaphthene	ND	(0.025)	0.007	(0.003)
Acenaphthylene	0.050	(0.025)	ND	(0.003)
Anthracene	0.038	(0.025)	0.011	(0.003)
Benzo(a)anthracene	0.062	(0.025)	ND	(0.003)
Benzo(a)pyrene	ND	(0.025)	0.009	(0.003)
Benzo(b)fluoranthene	0.066	(0.025)	0.024	(0.003)
Benzo(j)fluoranthene	ND	(0.025)	ND	(0.003)
Benzo(k)fluoranthene	ND	(0.025)	ND	(0.003)
Benzo(g,h,i)perylene	ND	(0.025)	ND	(0.003)
Chrysene	ND	(0.025)	ND	(0.003)
Dibenz(a,h)acridine	ND	(0.025)	ND	(0.003)
Dibenz(a,j)acridine	ND	(0.025)	ND	(0.003)
Dibenzo(a,h)anthracene	ND	(0.025)	ND	(0.003)
Dibenz(a,e)pyrene	ND	(0.025)	ND	(0.003)
Dibenz(a,h)pyrene	ND	(0.025)	ND	(0.003)
Fluoranthene	0.040	(0.025)	ND	(0.003)
Fluorene	ND	(0.025)	0.005	(0.003)
Indeno(1,2,3-cd)pyrene	ND	(0.025)	ND	(0.003)
Naphthalene	0.052	(0.025)	ND	(0.003)
Phenanthrene	0.054	(0.025)	ND	(0.003)
Pyrene	ND	(0.025)	0.003	(0.003)
1-Methylnaphthalene	NA	(0.025)	NA	(0.003)
3-Methylnaphthalene	ND	(0.025)	ND	(0.003)

() = Detection limit

ND = Not detected

T = Detected below quantifiable level

NA = Not analyzed

MONTHLY SAMPLING

ANALYTICAL RESULTS FOR AIR STRIPPER INFLUENT AND EFFLUENT

AROMATIC VOLATILE ORGANIC COMPOUNDS

(ug/L unless otherwise noted)

(Sampling Event: 05/12/89)

ANALYTE	INFLUENT		EFFLUENT	
BENZENE	* 390	(2.0)	9.8	(0.2)
ETHYL BENZENE	41	(2.0)	2.6	(0.2)
TOLUENE	140	(2.0)	4.5	(0.2)
m,p-XYLENE	210	(2.0)	9.4	(0.2)
o-XYLENE	100	(2.0)	8.3	(0.2)

() = Detection limit

ND = Not detected

T = Detected below quantifiable level

NA = Not analyzed

MONTHLY SAMPLING

ANALYTICAL RESULTS FOR AIR STRIPPER INFLUENT AND EFFLUENT

HALOGENATED VOLATILE ORGANIC COMPOUNDS

(ug/L unless otherwise noted)

(Sampling Event: 05/12/89)

ANALYTE	INFLUENT		EFFLUENT	
BROMODICHLOROMETHANE	ND	(0.1)	ND	(0.1)
BROMOFORM	ND	(0.1)	ND	(0.5)
BROMOMETHANE	ND	(1.0)	ND	(1.0)
CARBON TETRACHLORIDE	ND	(0.1)	ND	(0.1)
CHLOROBENZENE	ND	(0.1)	ND	(0.1)
CHLOROETHANE	ND	(1.0)	ND	(1.0)
CHLOROFORM	ND	(0.1)	ND	(0.1)
2-CHLOROETHYL VINYL ETHER	ND	(0.1)	ND	(0.1)
CHLOROMETHANE	ND	(1.0)	ND	(1.0)
DIBROMOCHLOROMETHANE	1.2	(0.1)	ND	(0.1)
1,2-DICHLOROBENZENE	ND	(0.1)	ND	(0.1)
1,3-DICHLOROBENZENE	ND	(0.1)	ND	(0.1)
1,4-DICHLOROBENZENE	ND	(0.1)	ND	(0.1)
DICHLORODIFLUOROMETHANE	ND	(1.0)	ND	(1.0)
1,2-DICHLOROETHANE	7.3	(0.1)	0.9	(0.1)
1,2-DICHLOROPROPANE	ND	(0.1)	ND	(0.1)
1,1,2,2-TETRACHLOROETHANE	ND	(0.1)	ND	(0.1)
1,1,1-TRICHLOROETHANE	ND	(0.1)	ND	(0.1)
1,1,2-TRICHLOROETHANE	ND	(0.1)	ND	(0.1)
TRICHLOROFLUOROMETHANE	ND	(1.0)	ND	(1.0)
VINYL CHLORIDE	ND	(1.0)	ND	(1.0)
METHYLENE CHLORIDE	1.2	(0.1)	0.3	(0.1)
1,1-DICHLOROETHENE	ND	(0.1)	ND	(0.1)
TRANS-1,2-DICHLOROETHENE	ND	(0.1)	ND	(0.1)
TETRACHLOROETHANE	DT	(0.1)	ND	(0.1)
1,1-DICHLOROETHENE	3.1	(0.1)	ND	(0.1)
TRICHLOROETHENE	ND	(0.1)	ND	(0.1)
TRANS-1,3-DICHLOROPROPENE	ND	(0.1)	ND	(0.1)
CIS-1,3-DICHLOROPROPENE	ND	(0.1)	ND	(0.1)

() = Detection limit

ND = Not detected

T = Detected below quantifiable levels

NA = Not analyzed

MONTHLY SAMPLING

ANALYTICAL RESULTS FOR AIR STRIPPER INFLUENT AND EFFLUENT

POLYNUCLEAR AROMATIC HYDROCARBONS

(ug/ml unless otherwise noted)

(Sampling Event: 05/12/89)

ANALYTE	INFLUENT		EFFLUENT	
Acenaphthylene	ND	(0.2)	ND	(0.6)
Anthracene	ND	(0.2)	ND	(0.6)
Benzo(a)anthracene	ND	(0.2)	ND	(0.6)
Benzo(a)pyrene	ND	(0.2)	ND	(0.6)
Benzo(b)fluoranthene	ND	(0.2)	ND	(0.6)
Benzo(k)fluoranthene	ND	(0.2)	ND	(0.6)
Benzo(g,h,i)perylene	ND	(0.2)	ND	(0.6)
Chrysene	ND	(0.2)	ND	(0.6)
Dibenzo(a,h)anthracene	ND	(0.2)	ND	(0.6)
Fluoranthene	ND	(0.2)	ND	(0.6)
Fluorene	ND	(0.2)	ND	(0.6)
Indeno(1,2,3-cd)pyrene	ND	(0.2)	ND	(0.6)
Naphthalene	ND	(0.2)	ND	(0.6)
Phenanthrene	ND	(0.2)	ND	(0.6)
Pyrene	ND	(0.2)	ND	(0.6)
Acetnaphthene	ND	(0.2)	ND	(0.6)
1-Methylnaphthalene	ND	(0.2)	ND	(0.6)

() = Detection limit

ND = Not detected

T = Detected below quantifiable level

NA = Not analyzed

MONTHLY SAMPLING

ANALYTICAL RESULTS FOR AIR STRIPPER INFLUENT AND EFFLUENT

AROMATIC VOLATILE ORGANIC COMPOUNDS

(ug/L unless otherwise noted)

(Sampling Event: 04/25/89)

ANALYTE	INFLUENT		EFFLUENT	
BENZENE	* 363	(2.0)	10.1	(0.2)
ETHYL BENZENE	97.3	(2.0)	8.3	(0.2)
TOLUENE	121	(2.0)	4.6	(0.2)
m,p-XYLENE	247	(2.0)	19.7	(0.2)
o-XYLENE	95.8	(2.0)	10.2	(0.2)

() = Detection limit

ND = Not detected

T = Detected below quantifiable level

NA = Not analyzed

Inter-Mountain Laboratories, Inc.

2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

Date: April 01, 1989

Client: Geoscience Consultants, Ltd.
GCL Sample No: 8903141347
Sample Site: GBR-INFLUENT
IML Lab No: F890920
Analysis Requested: Purgeable Aromatic
Sample Matrix: Water

Date Sampled: 03/14/89
Date Received: 03/14/89
Date Extracted: NA
Date Analyzed: 03/22/89

Parameter	Concentration	Units
BENZENE	2314 (50.0)	ug/l
TOLUENE	2630 (50.0)	ug/l
ETHYLBENZENE	191 (50.0)	ug/l
m,p-XYLENE	860 (50.0)	ug/l
o-XYLENE	301 (50.0)	ug/l

Method: 8020 Aromatic Volatile Organics, SW-846, USEPA (1982)
602 Purgeable Aromatics, 40 CFR, Part 136

Note: Method Detection Limit (MDL) is given in parenthesis.
ND means analyte was not detected.

Jack M. Morgan
Senior Organic Chemist

Inter-Mountain Laboratories, Inc.

2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

Date: April 02, 1989

Client: Geoscience Consultants, Ltd.
GCL Sample No: 8903141347
Sample Site: GBR-INFLUENT
IML Sample No: F890920
Analysis Requested: Purgeable Halocarbons
Sample Matrix: Water

Date Sampled: 03/14/89
Date Received: 03/14/89
Date Extracted: N/A
Date Analyzed: 03/17/89

Parameter	Concentration	Units
CHLOROMETHANE	ND (1.0)	ug/l
BROMOMETHANE	ND (1.0)	ug/l
DICHLORODIFLUOROMETHANE	ND (1.0)	ug/l
VINYL CHLORIDE	ND (1.0)	ug/l
CHLOROETHANE	ND (1.0)	ug/l
METHYLENE CHLORIDE	2.5 (0.1)	ug/l
TRICHLOROFLUOROMETHANE	ND (0.1)	ug/l
1,1-DICHLOROETHENE	ND (0.1)	ug/l
1,1-DICHLOROETHANE	ND (0.05)	ug/l
TRANS-1,2-DICHLOROETHENE	ND (0.1)	ug/l
CHLOROFORM	ND (0.1)	ug/l
1,2-DICHLOROETHANE	13.4 (0.03)	ug/l
1,1,1-TRICHLOROETHANE	ND (0.03)	ug/l
CARBON TETRACHLORIDE	ND (0.1)	ug/l
BROMODICHLOROMETHANE	ND (0.1)	ug/l
1,2-DICHLOROPROPANE	ND (0.1)	ug/l
CIS-1,3-DICHLOROPROPENE	ND (0.1)	ug/l
TRICHLOROETHENE	ND (0.1)	ug/l
DIBROMOCHLOROMETHANE	ND (0.1)	ug/l
1,1,2-TRICHLOROETHANE	ND (0.02)	ug/l
TRANS-1,3-DICHLOROPROPENE	ND (0.1)	ug/l
2-CHLOROETHYLVINYL ETHER	ND (0.1)	ug/l
BROMOFORM	ND (0.2)	ug/l
1,1,2,2-TETRACHLOROETHANE	ND (0.03)	ug/l
TETRACHLOROETHENE	ND (0.03)	ug/l
CHLOROBENZENE	ND (0.1)	ug/l
1,2-DICHLOROBENZENE	ND (0.1)	ug/l
1,3-DICHLOROBENZENE	ND (0.1)	ug/l
1,4-DICHLOROBENZENE	ND (0.1)	ug/l

Method: 601 Purgeable Halocarbons, 40 CFR Part 136, USEPA (1984).

(Detection limit in parenthesis.)
ND - Parameter not detected at the stated detection limit.

Jack M. Morgan
Senior Organic Chemist

MONTHLY SAMPLING
AIR STRIPPER ANALYSES
POLYNUCLEAR AROMATIC HYDROCARBONS
UNITS FOR ANALYSES ARE ug/L
(03/14/89)

ANALYTE:	AIR STRIPPER INFLUENT	AIR STRIPPER EFFLUENT
PYRENE	ND (0.35)	ND (0.35)
DIBENZO(A,H)ANTHRACENE	ND (0.15)	ND (0.15)
BENZO(K)FLUORANTHENE	ND (0.05)	ND (0.1)
ACENAPTHTHYLENE	ND (15)	ND (15)
ACENAPTHENE	ND (1.7)	ND (1.7)
FLUORANTHENE	ND (0.3)	ND (0.3)
FLUORENE	7.1 (N\R)	7.1 (N\R)
CHRYSENE	ND (0.05)	ND (0.05)
NAPTHELENE	* 37 (N\R)	36 (N\R)
ANTHRACENE	ND (1.2)	ND (1.2)
BENZ(A)ANTHRACENE	ND (0.2)	ND (0.2)
INDENO(1,2,3-CD)PYRENE	ND (0.89)	ND (0.9)
BENZO(B)FLUORANTHENE	ND (0.05)	ND (0.05)
PHENANTHRENE	16 (N\R)	17 (N\R)
BENZO(A)PYRENE	ND (0.099)	ND (0.1)
BENZO(GHI)PERYLENE	ND (0.15)	ND (0.15)

UNITS ARE ug/L
() INDICATES DETECTION LIMITS
ND = NOT DETECTED
NA = NOT ANALYSED
N\R = NOT REPORTED

MONTHLY SAMPLING

ANALYTICAL RESULTS FOR AIR STRIPPER INFLUENT AND EFFLUENT

AROMATIC VOLATILE ORGANIC COMPOUNDS

(02/02/89)

ANALYTE	AIR STRIPPER INFLUENT		AIR STRIPPER EFFLUENT	
BENZENE	280	(10.0)	ND	(0.2)
TOLUENE	ND	(10.0)	ND	(0.2)
ETHYLBENZENE	ND	(15.0)	ND	(0.3)
CHLOROBENZENE-A	ND	(15.0)	ND	(0.3)
1,4-DICHLOROBENZENE	ND	(15.0)	ND	(0.3)
1,3-DICHLOROBENZENE	ND	(20.0)	ND	(0.4)
1,2-DICHLOROBENZENE	ND	(20.0)	ND	(0.4)
p-XYLENE-A	ND	(10.0)	ND	(0.2)
m-XYLENE	ND	(10.0)	ND	(0.2)
o-XYLENE	38	(5.0)	ND	(0.1)

Units are ug/L

() = detection limit

ND = not detected at detection limit

NA = not analyzed

N\R = not reported

MONTHLY SAMPLING
ANALYTICAL RESULTS FOR AIR STRIPPER INFLUENT AND EFFLUENT
HALOGENATED VOLATILE ORGANIC COMPOUNDS

ANALYTE	AIR STRIPPER INFLUENT (02/02/89)	AIR STRIPPER EFFLUENT (02/02/89)
CHLOROMETHANE	ND (.3)	ND (.3)
BROMOMETHANE	ND (1.2)	ND (1.2)
VINYL CHLORIDE	ND (.2)	ND (.2)
CHLOROETHANE	ND (.5)	ND (.5)
METHYLENE CHLORIDE	1.4 (.3)	ND (.3)
TRICHLOROFLUOROMETHANE	ND (.1)	ND (.1)
1,1-DICHLOROETHENE	ND (.1)	ND (.1)
1,1-DICHLOROETHANE	5.0 (.09)	ND (.09)
TRANS-1,2-DICHLOROETHENE	11 (.2)	ND (.2)
CHLOROFORM	0.9 (.05)	ND (.05)
1,2-DICHLOROETHANE	6.0 (.03)	0.7 (.03)
1,1,1-TRICHLOROETHANE	2.1 (.09)	ND (.09)
CARBON TETRACHLORIDE	ND (.1)	ND (.1)
BROMODICHLOROMETHANE	ND (.1)	ND (.1)
1,2-DICHLOROPROPANE	ND (.1)	ND (.1)
TRANS-1,3-DICHLOROPROPENE	ND (.3)	ND (.3)
TRICHLOROETHENE	3.4 (.2)	ND (.2)
DIBROMOCHLOROMETHANE-A	ND (.2)	ND (.2)
1,1,2-TRICHLOROETHANE-A	ND (.07)	ND (.07)
CIS-1,3-DICHLOROPROPENE-A	ND (N\R)	ND (N\R)
CHLOROETHYLVINYL ETHER	ND (.2)	ND (.2)
BROMOFORM	ND (.3)	ND (.3)
1,1,2,2-TETRACHLOROETHANE-B	ND (.12)	ND (.12)
TETRACHLOROETHENE-B	2.2 (.03)	ND (.03)
CHLOROBENZENE	ND (.3)	ND (.3)
1,3-DICHLOROBENZENE	ND (.3)	ND (.3)
1,2-DICHLOROBENZENE	ND (.5)	ND (.5)
1,4-DICHLOROBENZENE	ND (.4)	ND (.4)

UNITS ARE ug/L
() = detection limit
ND = not detected at detection limit
NA = not analyzed N\R = not reported

MONTHLY SAMPLING
AIR STRIPPER ANALYSES
POLYNUCLEAR AROMATIC HYDROCARBONS
UNITS FOR ANALYSES ARE ug/L
(02/01/89)

ANALYTE:	AIR STRIPPER INFLUENT	AIR STRIPPER EFFLUENT
PYRENE	ND (0.33)	ND (0.33)
DIBENZO(A,H)ANTHRACENE	ND (0.14)	ND (0.14)
BENZO(K)FLUORANTHENE	ND (0.047)	ND (0.047)
ACENAPTHTHYLENE	ND (14)	ND (14)
ACENAPTHENE	ND (1.6)	ND (1.6)
FLUORANTHENE	ND (0.28)	ND (0.28)
FLUORENE	5.4 (N\R)	4.2 (N\R)
CHRYSENE	ND (0.047)	ND (0.047)
NAPTHELENE	16 (N\R)	9.5 (N\R)
ANTHRACENE	ND (1.1)	ND (1.1)
BENZ(A)ANTHRACENE	ND (0.19)	ND (0.19)
INDENO(1,2,3-CD)PYRENE	ND (0.85)	ND (0.85)
BENZO(B)FLUORANTHENE	ND (0.047)	ND (0.047)
PHENANTHRENE	8.2 (N\R)	5.5 (N\R)
BENZO(A)PYRENE	ND (0.094)	ND (0.094)
BENZO(GHI)PERYLENE	ND (0.14)	ND (0.14)
1-METHYLNAPHTHALENE	36 (N\R)	15 (N\R)
2-METHYLNAPHTHALENE	28 (N\R)	8.2(N\R)

UNITS ARE ug/L
() INDICATES DETECTION LIMITS
ND = NOT DETECTED
NA = NOT ANALYSED
N\R = NOT REPORTED

MONTHLY SAMPLING

ANALYTICAL RESULTS FOR AIR STRIPPER INFLUENT AND EFFLUENT

AROMATIC VOLATILE ORGANIC COMPOUNDS

(01/16/89)

ANALYTE	AIR STRIPPER INFLUENT	AIR STRIPPER EFFLUENT
BENZENE	* 440 (10.0)	42 (1.0)
TOLUENE	ND (5.0)	ND (1.0)
ETHYLBENZENE	80 (7.5)	10 (1.5)
CHLOROBENZENE-A	ND (7.5)	ND (1.5)
1,4-DICHLOROBENZENE	ND (7.5)	ND (1.5)
1,3-DICHLOROBENZENE	ND (10.0)	ND (2.0)
1,2-DICHLOROBENZENE	ND (10.0)	ND (2.0)
p-XYLENE-A	150 (5.0)	18 (1.0)
m-XYLENE	120 (5.0)	15 (1.0)
o-XYLENE	49 (2.5)	8.6 (0.5)

Units are ug/L

() = detection limit

ND = not detected at detection limit

NA = not analyzed

N\R = not reported

MONTHLY SAMPLING

ANALYTICAL RESULTS FOR AIR STRIPPER INFLUENT AND EFFLUENT

HALOGENATED VOLATILE ORGANIC COMPOUNDS

ANALYTE	AIR STRIPPER INFLUENT (01/16/89)	AIR STRIPPER EFFLUENT (01/16/89)
CHLOROMETHANE	ND (.3)	ND (.3)
BROMOMETHANE	ND (1.2)	ND (1.2)
VINYL CHLORIDE	ND (.2)	ND (.2)
CHLOROETHANE	ND (.5)	ND (.5)
METHYLENE CHLORIDE	1.0 (.3)	ND (.3)
TRICHLOROFLUOROMETHANE	0.5 (.1)	1.0 (.1)
1,1-DICHLOROETHENE	ND (.1)	ND (.1)
1,1-DICHLOROETHANE	4.2 (.09)	0.8 (.09)
TRANS-1,2-DICHLOROETHENE	11 (.2)	1.3 (.2)
CHLOROFORM	ND (.05)	ND (.05)
1,2-DICHLOROETHANE	6.7 (.03)	2.9 (.03)
1,1,1-TRICHLOROETHANE	2.1 (.09)	0.6 (.09)
CARBON TETRACHLORIDE	ND (.1)	ND (.1)
BROMODICHLOROMETHANE	ND (.1)	ND (.1)
1,2-DICHLOROPROPANE	ND (.1)	ND (.1)
TRANS-1,3-DICHLOROPROPENE	ND (.3)	ND (.3)
TRICHLOROETHENE	3.0 (.2)	0.5 (.2)
DIBROMOCHLOROMETHANE-A	ND (.2)	ND (.2)
1,1,2-TRICHLOROETHANE-A	ND (.07)	ND (.07)
CIS-1,3-DICHLOROPROPENE-A	ND (N\R)	ND (N\R)
CHLOROETHYLVINYL ETHER	ND (.2)	ND (.2)
BROMOFORM	ND (.3)	ND (.3)
1,1,2,2-TETRACHLOROETHANE-B	ND (.12)	ND (.12)
TETRACHLOROETHENE-B	1.9 (.03)	0.6 (.03)
CHLOROBENZENE	ND (.3)	ND (.3)
1,3-DICHLOROBENZENE	ND (.3)	ND (.3)
1,2-DICHLOROBENZENE	ND (.5)	ND (.5)
1,4-DICHLOROBENZENE	ND (.4)	ND (.4)

UNITS ARE ug/L

() = detection limit

ND = not detected at detection limit

NA = not analyzed N\R = not reported

MONTHLY SAMPLING
AIR STRIPPER ANALYSES
POLYNUCLEAR AROMATIC HYDROCARBONS
UNITS FOR ANALYSES ARE ug/L
(01/16/89)

ANALYTE:	AIR STRIPPER INFLUENT	AIR STRIPPER EFFLUENT
PYRENE	ND (0.35)	ND (0.35)
DIBENZO(A,H)ANTHRACENE	ND (0.15)	ND (0.15)
BENZO(K)FLUORANTHENE	ND (0.05)	ND (0.1)
ACENAPTHTHYLENE	ND (15)	ND (15)
ACENAPTHENE	ND (1.7)	ND (1.7)
FLUORANTHENE	ND (0.3)	ND (0.3)
FLUORENE	7.1 (N\R)	7.1 (N\R)
CHRYSENE	ND (0.05)	ND (0.05)
NAPTHELENE	* 37 (N\R)	36 (N\R)
ANTHRACENE	ND (1.2)	ND (1.2)
BENZ(A)ANTHRACENE	ND (0.2)	ND (0.2)
INDENO(1,2,3-CD)PYRENE	ND (0.89)	ND (0.9)
BENZO(B)FLUORANTHENE	ND (0.05)	ND (0.05)
PHENANTHRENE	16 (N\R)	17 (N\R)
BENZO(A)PYRENE	ND (0.099)	ND (0.1)
BENZO(GHI)PERYLENE	ND (0.15)	ND (0.15)

UNITS ARE ug/L
() INDICATES DETECTION LIMITS
ND = NOT DETECTED
NA = NOT ANALYSED
N\R = NOT REPORTED

754
wp4

SCIENTIFIC LABORATORY DIVISION
ORGANIC ANALYSIS REQUEST FORM
Organic Section - Phone: 841-2570

88-2104C

REPORT TO: DAVID BOYER
N.M. OIL CONSERVATION DIVISION
P.O. Box 2088
Santa Fe, NM 87504-2088

S.L.D. No. OR-
DATE REC. 12/21/88
PRIORITY
PHONE(S): 827-5812

COLLECTION CITY: ; COUNTY:

COLLECTION DATE/TIME CODE: (Year-Month-Day-Hour-Minute) 8 8 1 2 1 5 0 8 4 5

LOCATION CODE: (Township-Range-Section-Tracts) 2 9 N + 1 2 W + 2 7 + (10N06E24342)

USER CODE: 8 2 2 3 5 SUBMITTER: David Boyer CODE: 2 6 0

SAMPLE TYPE: WATER [X], SOIL [ ], FOOD [ ], OTHER:

RECEIVED MAR 1 9 1989 OIL CONSERVATION DIVISION SANTA FE

This form accompanies 2 Septum Vials, ____ Glass Jugs, and/or ____
Samples were preserved as follows:

- [ ] NP: No Preservation; Sample stored at room temperature.
- [X] P-Ice Sample stored in an ice bath (Not Frozen).
- [ ] P-AA Sample Preserved with Ascorbic Acid to remove chlorine residual.
- [X] P-HCl Sample Preserved with Hydrochloric Acid (2 drops/40 ml)

ANALYSES REQUESTED: Please check the appropriate box(es) below to indicate the type of analytical screens required. Whenever possible list specific compounds suspected or required.

PURGEABLE SCREENS

- [ ] (753) Aliphatic Headspace (1-5 Carbons)
- [X] (754) Aromatic & Halogenated Purgeables
- [ ] (765) Mass Spectrometer Purgeables
- [ ] (766) Trihalomethanes
- [ ] (774) SDWA VOC's I (6 Regulated +)
- [ ] (775) SDWA VOC's II (EDB & DBCP)

Other Specific Compounds or Classes

- [ ] ____
- [ ] ____

EXTRACTABLE SCREENS

- [ ] (751) Aliphatic Hydrocarbons
- [ ] (755) Base/Neutral Extractables
- [ ] (758) Herbicides, Chlorophenoxy acid
- [ ] (759) Herbicides, Triazines
- [ ] (760) Organochlorine Pesticides
- [ ] (761) Organophosphate Pesticides
- [ ] (767) Polychlorinated Biphenyls (PCB's)
- [ ] (764) Polynuclear Aromatic Hydrocarbons
- [ ] (762) SDWA Pesticides & Herbicides

Remarks:

FIELD DATA:

pH=____; Conductivity=2400 umho/cm at 8 °C; Chlorine Residual=____mg/l

Dissolved Oxygen=____mg/l; Alkalinity=____mg/l; Flow Rate____ ____/____

Depth to water ____ft.; Depth of well____ft.; Perforation Interval ____-____ft.; Casing:

Sampling Location, Methods and Remarks (i.e. odors, etc.)

GIANT BLOOMFIELD AIRSTRIPPER INFLOW

I certify that the results in this block accurately reflect the results of my field analyses, observations and activities.(signature collector): Roger C. Anderson Method of Shipment to the Lab: Hand

CHAIN OF CUSTODY

I certify that this sample was transferred from ____ to ____

at (location) ____ on ____/____/____ - ____:____ and that

the statements in this block are correct. Evidentiary Seals: Not Sealed [ ] OR Seals Intact: Yes [ ] No [ ]

Signatures ____ ____

For OCD use: Date owner notified:____ Phone or Letter? Initials____

ANALYSES PERFORMED

LAB. No.: OR-

THIS PAGE FOR LABORATORY RESULTS ONLY

This sample was tested using the analytical screening method(s) checked below:

PURGEABLE SCREENS

- ☐ (753) Aliphatic Headspace (1-5 Carbons)
- ☐ (754) Aromatic & Halogenated Purgeables
- ☐ (765) Mass Spectrometer Purgeables
- ☐ (766) Trihalomethanes
- ☐ (774) SDWA VOC's I (8 Regulated +)
- ☐ (775) SDWA VOC's II (EDB & DBCP)

Other Specific Compounds or Classes

- ☐ _____
- ☐ _____

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
- ☐ (755) Base/Neutral Extractables
- ☐ (758) Herbicides, Chlorophenoxy acid
- ☐ (759) Herbicides, Triazines
- ☐ (760) Organochlorine Pesticides
- ☐ (761) Organophosphate Pesticides
- ☐ (767) Polychlorinated Biphenyls (PCB's)
- ☐ (764) Polynuclear Aromatic Hydrocarbons
- ☐ (762) SDWA Pesticides & Herbicides

ANALYTICAL RESULTS

COMPOUND(S) DETECTED	CONC. [PPB]	COMPOUND(S) DETECTED	CONC. [PPB]
* DETECTION LIMIT * *		+ DETECTION LIMIT + +	

ABBREVIATIONS USED:

N D = NONE DETECTED AT OR ABOVE THE STATED DETECTION LIMIT

T R = DETECTED AT A LEVEL BELOW THE STATED DETECTION LIMIT (NOT CONFIRMED)

[RESULTS IN BRACKETS] ARE UNCONFIRMED AND/OR WITH APPROXIMATE QUANTITATION

LABORATORY REMARKS: _____

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Not Sealed ☐ Intact: Yes ☐ No ☐. Seal(s) broken by: _____ date: _____

I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: _____. Analyst's signature: _____

I certify that I have reviewed and concur with the analytical results for this sample and with the statements in this block.

Reviewers signature: _____

STATE OF NEW MEXICO HEALTH AND ENVIRONMENT DEPARTMENT

SCIENTIFIC LABORATORY DIVISION

700 Camino de Salud, NE
Albuquerque, NM 87106 [505]-841-2500
ORGANIC CHEMISTRY SECTION [505]-841-2570

March 9, 1989

ANALYTICAL REPORT
SLD Accession No. OR-88-2104

Distribution
(■) User
(※) Submitter
(※) Client
(※) SLD Files

To: OIL CONSERVATION DIV
State Land Office Bldg.
P. O. Box 2088
Santa Fe, NM 87504-2088

From: Organic Chemistry Section
Scientific Laboratory Div.
700 Camino de Salud, NE
Albuquerque, NM 87106

Re: **A purgeable water sample submitted to this laboratory on December 21, 1988**

Submitter:
NM Oil Consv. Div.
State Land Office Bldg.
P. O. Box 2088
Santa Fe, NM 87504-2088

DEMOGRAPHIC DATA

COLLECTION		*LOCATION*	
On: 15-Dec-88	*By:* Boy . . .	*Township:* 29N	*Section:* 27
At: 8:45 hrs.	*In/Near:* Bloomfield	*Range:* 12W	*Tract:*

ANALYTICAL RESULTS: Aromatic & Halogenated Purgeable Screen

Parameter	Value	Note	MDL	Units
Benzene	90.00		5.00	ppb
Toluene	0.00	T	5.00	ppb
p- & m-Xylene	60.00		5.00	ppb
1,2-Dimethylbenzene	10.00		5.00	ppb
Ethylbenzene	0.00		5.00	ppb
Trichloroethene	1.00		0.50	ppb
1,2-Dichloroethane	3.00	U	0.50	ppb

See Laboratory Remarks for Additional Information

Notations & Comments:

MDL = Minimal Detectable Level.

A = Approximate Value; N = None Detected above Detection Limit; P = Compound Present, but not quantified;
T = Trace (<Detection Limit); U = Compound Identity Not Confirmed.

Seals: Not Sealed☐; Intact: No☐, Yes☐ & Broken By: _____ Date: _____

Laboratory Remarks: Airstripper Inflow

compound	conc.(ppb)	comment	detection limit
cis-1,2-dichloro--ethene	4.0	U	.5ppb
dichloromethane	1.5	U	.5ppb

(Continued on page 2.)

tetrachloro-ethene	1.0	U	.5ppb
1,1-dichloro-ethane	1.0	U	.5ppb

Twenty to thirty unidentified unsaturated compounds at trace to 10 ppb were detected

The aromatic compounds and trichloroethene were confirmed by gc/ms.

Analyst: Michael J. Owen — *Analyst, Organic Chemistry* — 12-22-88 Analysis Date

Reviewed By: Richard F. Meyerhein — *Supervisor, Organic Chemistry Section* — 01/23/89

~~SCIENTIFIC LABORATORY DIVISION~~
ORGANIC ANALYSIS REQUEST FORM
Organic Section - Phone: 841-2570

2301

REPORT TO: DAVID BOYER
N.M. OIL CONSERVATION DIVISION
P.O. Box 2088
Santa Fe, NM 87504-2088

S.L.D. No. OR-
DATE REC.
PRIORITY
PHONE(S): 827-5812

COLLECTION CITY: ; COUNTY:

COLLECTION DATE/TIME CODE: (Year-Month-Day-Hour-Minute) 8 8 1 2 1 5 0 8 4 5

LOCATION CODE: (Township-Range-Section-Tracts) | | | + | | + | + | | | (10N06E24342)

USER CODE: ~~8 8 2 1 5~~ ~~SUBMITTER:~~ David Boyer CODE: ~~3 6 1 0~~

SAMPLE TYPE: WATER [X], SOIL [ ], FOOD [ ], OTHER:

This form accompanies 2 Septum Vials, ____ Glass Jugs, and/or ____

Samples were preserved as follows:

- [ ] NP: No Preservation; Sample stored at room temperature.
- [X] P-Ice Sample stored in an ice bath (Not Frozen).
- [ ] P-AA Sample Preserved with Ascorbic Acid to remove chlorine residual.
- [X] P-HCl Sample Preserved with Hydrochloric Acid (2 drops/40 ml)

ANALYSES REQUESTED: Please check the appropriate box(es) below to indicate the type of analytical screens required. Whenever possible list specific compounds suspected or required.

PURGEABLE SCREENS

- [ ] (753) Aliphatic Headspace (1-5 Carbons)
- [X] (754) Aromatic & Halogenated Purgeables
- [ ] (765) Mass Spectrometer Purgeables
- [ ] (766) Trihalomethanes
- [ ] (774) SDWA VOC's I (8 Regulated +)
- [ ] (775) SDWA VOC's II (EDB & DBCP)

Other Specific Compounds or Classes

- [ ] ____
- [ ] ____

EXTRACTABLE SCREENS

- [ ] (751) Aliphatic Hydrocarbons
- [ ] (755) Base/Neutral Extractables
- [ ] (758) Herbicides, Chlorophenoxy acid
- [ ] (759) Herbicides, Triazines
- [ ] (760) Organochlorine Pesticides
- [ ] (761) Organophosphate Pesticides
- [ ] (767) Polychlorinated Biphenyls (PCB's)
- [ ] (764) Polynuclear Aromatic Hydrocarbons
- [ ] (762) SDWA Pesticides & Herbicides

Remarks:

FIELD DATA:

pH= 7 ; Conductivity= 2400 umho/cm at 8 °C; Chlorine Residual= ____ mg/l

Dissolved Oxygen= ____ mg/l; Alkalinity= ____ mg/l; Flow Rate ____ ____/____

Depth to water ____ ft.; Depth of well ____ ft.; Perforation Interval ____-____ ft.; Casing:

Sampling Location, Methods and Remarks (i.e. odors, etc.)

GIANT - BLOOMFIELD REFINERY - INFLUENT TO AIR STRIPPER

I certify that the results in this block accurately reflect the results of my field analyses, observations and activities.(signature collector): [signature] Method of Shipment to the Lab: Hand

CHAIN OF CUSTODY

I certify that this sample was transferred from ____ to ____

at (location) ____ on ____/____/____ - ____:____ and that

the statements in this block are correct. Evidentiary Seals: Not Sealed [ ] OR Seals Intact: Yes [ ] No [ ]

Signatures ____ ____

For OCD use: Date owner notified: ____ Phone or Letter? Initials ____

ANALYSES PERFORMED

LAB. No.: OR-

THIS PAGE FOR LABORATORY RESULTS ONLY

This sample was tested using the analytical screening method(s) checked below:

PURGEABLE SCREENS

- ☐ (753) Aliphatic Headspace (1-5 Carbons)
- ☐ (754) Aromatic & Halogenated Purgeables
- ☐ (765) Mass Spectrometer Purgeables
- ☐ (766) Trihalomethanes
- ☐ (774) SDWA VOC's I (8 Regulated +)
- ☐ (775) SDWA VOC's II (EDB & DBCP)

Other Specific Compounds or Classes

- ☐ _____
- ☐ _____

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
- ☐ (755) Base/Neutral Extractables
- ☐ (758) Herbicides, Chlorophenoxy acid
- ☐ (759) Herbicides, Triazines
- ☐ (760) Organochlorine Pesticides
- ☐ (761) Organophosphate Pesticides
- ☐ (767) Polychlorinated Biphenyls (PCB's)
- ☐ (764) Polynuclear Aromatic Hydrocarbons
- ☐ (762) SDWA Pesticides & Herbicides

ANALYTICAL RESULTS

COMPOUND(S) DETECTED	CONC. [PPB]	COMPOUND(S) DETECTED	CONC. [PPB]
* DETECTION LIMIT * *		+ DETECTION LIMIT + +	

ABBREVIATIONS USED:

N D = NONE DETECTED AT OR ABOVE THE STATED DETECTION LIMIT

T R = DETECTED AT A LEVEL BELOW THE STATED DETECTION LIMIT (NOT CONFIRMED)

[RESULTS IN BRACKETS] ARE UNCONFIRMED AND/OR WITH APPROXIMATE QUANTITATION

LABORATORY REMARKS: _____

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Not Sealed ☐ Intact: Yes ☐ No ☐. Seal(s) broken by: _____ date: _____

I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: _____. Analyst's signature: _____

I certify that I have reviewed and concur with the analytical results for this sample and with the statements in this block.

Reviewers signature: _____

Report Date: 12/30/88

Client: New Mexico OCD

Sample ID:	8812150845	Date Sampled:	12/15/88
Laboratory Number:	F2301	Date Received:	12/15/88
Analysis Requested:	Purgable Aromatics	Date Extracte:	NA
Sample Matrix:	Water	Date Analyzed:	12/28/88

	Parameter	Concentration		Units
	BENZENE	373	(5.0)	ug/l
	ETHYLBENZENE	ND	(5.0)	ug/l
	TOLUENE	38	(5.0)	ug/l
*	m,p-XYLENE	203	(5.0)	ug/l
	o-XYLENE	43	(5.0)	ug/l

Method: 8020 Aromatic Volatile Organics, SW-846, USEPA (1982)
602 Purgable Aromatics, 40 CFR Part 136, USEPA (1984)

(Detection limit in parenthesis.)
ND - Parameter not detected at the stated detection limit.

* Meta and para xylene coelute on the capilary system.

Jack M. Morgan
Senior Organic Chemist

Inter-Mountain Laboratories, Inc.

Report Date: 12/30/88

Client: New Mexico OCD

Sample ID: 8812150845
Laboratory Number: F2301
Analysis Requested: Purgable Halocarbons
Sample Matrix: Water

Date Sampled: 12/15/88
Date Received: 12/15/88
Date Extracted: NA
Date Analyzed: 12/29/88

Parameter	Concentration		Units
CHLOROMETHANE	ND	(0.5)	ug/l
BROMOMETHANE	ND	(0.5)	ug/l
VINYL CHLORIDE	ND	(0.5)	ug/l
CHLOROETHANE	ND	(0.5)	ug/l
METHYLENE CHLORIDE	ND	(0.5)	ug/l
TRICHLOROFLUOROMETHANE	ND	(0.5)	ug/l
1,1 DICHLOROETHENE	ND	(0.5)	ug/l
1,1 DICHLOROETHANE	3.9	(0.5)	ug/l
CHLOROFORM	ND	(0.5)	ug/l
1,2 DICHLOROETHANE	2.3	(0.5)	ug/l
1,1,1 TRICHLOROETHANE	0.9	(0.5)	ug/l
CARBONTETRACHLORIDE	ND	(0.5)	ug/l
TRICHLOROETHENE	2.2	(0.5)	ug/l
TRANS 1,2 DICHLOROETHENE	ND	(0.5)	ug/l
TRANS 1,3 DICHLOROPROPENE	ND	(0.5)	ug/l
CIS 1,3 DICHLOROPROPENE	ND	(0.5)	ug/l
DIBROMO CHLOROMETHANE	ND	(0.5)	ug/l
BROMOFORM	ND	(0.5)	ug/l
1,1,2 TRICHLOROETHANE	ND	(0.5)	ug/l
1,1,2,2 TETRACHLOROETHANE	ND	(0.5)	ug/l
TETRACHLOROETHENE	1.8	(0.5)	ug/l
CHLOROBENZENE	ND	(0.5)	ug/l
BROMODICHLOROMETHANE	ND	(0.5)	ug/l
1,2- DICHLOROBENZENE	ND	(0.5)	ug/l
1,3- DICHLOROBENZENE	ND	(0.5)	ug/l
1,4- DICHLOROBENZENE	ND	(0.5)	ug/l
DICHLORODIFLUOROMETHANE	ND	(0.5)	ug/l
1,1- DICHLOROETHANE	ND	(0.5)	ug/l
1,2- DICHLOROPROPANE	ND	(0.5)	ug/l

Method: 8010 Halogenated Volatile Organics, SW-846, USEPA, (1982).
601 Purgable Halocarbons, 40 CFR Part 136, USEPA (1984).

(Detection limit in parenthesis.)
ND - Parameter not detected at the stated detection limit.

Jack M. Morgan
Senior Organic Chemist

** Spike Analysis

Report Date: 12/30/88

Client: New Mexico OCD

Sample ID: 8812150845
Laboratory Number: F2301
Analysis Requested: Purgable Halocarbons
Sample Matrix: Water

Date Sampled: 12/15/88
Date Received: 12/15/88
Date Extracted: NA
Date Analyzed: 12/29/88

Parameter	Concentration	(Recovery)	Units
CHLOROMETHANE	NR (0.5)		ug/l
BROMOMETHANE	NR (0.5)		ug/l
VINYL CHLORIDE	NR (0.5)		ug/l
CHLOROETHANE	NR (0.5)		ug/l
METHYLENE CHLORIDE	NR (0.5)		ug/l
TRICHLOROFLUOROMETHANE	NR (0.5)		ug/l
1,1 DICHLOROETHENE	NR (0.5)		ug/l
1,1 DICHLOROETHANE	8.8 (0.5)	98%	ug/l
CHLOROFORM	NR (0.5)		ug/l
1,2 DICHLOROETHANE	8.8 (0.5)	130%	ug/l
1,1,1 TRICHLOROETHANE	5.1 (0.5)	84%	ug/l
CARBONTETRACHLORIDE	NR (0.5)		ug/l
TRICHLOROETHENE	6.9 (0.5)	94%	ug/l
TRANS 1,2 DICHLOROETHENE	NR (0.5)		ug/l
TRANS 1,3 DICHLOROPROPENE	NR (0.5)		ug/l
CIS 1,3 DICHLOROPROPENE	NR (0.5)		ug/l
DIBROMO CHLOROMETHANE	NR (0.5)		ug/l
BROMOFORM	NR (0.5)		ug/l
1,1,2 TRICHLOROETHANE	NR (0.5)		ug/l
1,1,2,2 TETRACHLOROETHANE	NR (0.5)		ug/l
TETRACHLOROETHENE	6.0 (0.5)	84%	ug/l
CHLOROBENZENE	NR (0.5)		ug/l
BROMODICHLOROMETHANE	NR (0.5)		ug/l
1,2- DICHLOROBENZENE	NR (0.5)		ug/l
1,3- DICHLOROBENZENE	NR (0.5)		ug/l
1,4- DICHLOROBENZENE	NR (0.5)		ug/l
DICHLORODIFLUOROMETHANE	NR (0.5)		ug/l
1,1- DICHLOROETHANE	NR (0.5)		ug/l
1,2- DICHLOROPROPANE	NR (0.5)		ug/l

Method: 8010 Halogenated Volatile Organics, SW-846, USEPA, (1982).
601 Purgable Halocarbons, 40 CFR Part 136, USEPA (1984).

(Detection limit in parenthesis.)
NR - Parameter not being reported. Available upon request.

Jack M. Morgan
Senior Organic Chemist

RADIAN
CORPORATION

Client: GEOSCIENCE CONSULTANTS, LTD.
500 COPPER N.W.; SUITE 200
ALBUQUERQUE, NM 87102

01B 8811081414
02B 8811081431
03B 8811081504
04B 8811081600

EPA METHOD 8240

Lab No: A8-11-046

RESULTS IN ug/L

CAS #	COMPOUND	~~Influent~~ 01B	02B Effluent	03B Tank 27	04B Tank 106
67-64-1	Acetone	<25	<25	<25	<25
107-02-8	Acrolein	<75	<75	<75	<75
107-13-1	Acrylonitrile	<30	<30	<30	<30
71-43-2	Benzene	520	<2.0	72	180
75-25-2	Bromoform	<2.0	<2.0	<2.0	<2.0
74-83-9	Bromomethane	<2.0	<2.0	<2.0	<2.0
124-48-1	Chlorodibromomethane	<2.0	<2.0	<2.0	<2.0
75-00-3	Chloroethane	<2.0	<2.0	<2.0	<2.0
108-90-7	Chlorobenzene	<2.0	<2.0	<2.0	<2.0
75-15-0	Carbon Disulfide	<2.0	<2.0	<2.0	<2.0
56-23-5	Carbon Tetrachloride	<2.0	<2.0	<2.0	<2.0
67-66-3	Chloroform	<2.0	<2.0	3.0*	<2.0
74-87-3	Chloromethane	<2.0	<2.0	<2.0	<2.0
110-75-8	2-Chloroethyl vinyl ether	<2.0	<2.0	<2.0	<2.0
74-95-3	Dibromomethane	<2.0	<2.0	<2.0	<2.0
75-71-8	Dichlorodifluoromethane	<2.0	<2.0	<2.0	<2.0
75-34-3	1,1-Dichloroethane	<2.0	<2.0	5.7*	2.9*
107-06-2	1,2-Dichloroethane	<2.0	<2.0	8.3*	<2.0
156-60-5	trans-1,2-Dichloroethene	<2.0	<2.0	<2.0	<2.0
75-35-4	1,1-Dichloroethene	<2.0	<2.0	<2.0	<2.0
75-27-4	Dichlorobromomethane	<2.0	<2.0	<2.0	<2.0
78-87-5	1,2-Dichloropropane	<2.0	<2.0	<2.0	<2.0
10061-01-5	cis-1,3-Dichloropropene	<2.0	<2.0	<2.0	<2.0
10061-02-6	trans-1,3-Dichloropropene	<2.0	<2.0	<2.0	<2.0
97-63-2	Ethyl methacrylate	<50	<50	<50	<50
100-41-4	Ethyl benzene	68	<2.0	<2.0	<2.0
591-78-6	2-Hexanone	<10	<10	<10	<10
74-88-4	Iodomethane	<2.0	<2.0	<2.0	<2.0
75-09-2	Methylene chloride	<10	<10	<10	<10
78-93-3	Methyl ethyl ketone	<10	<10	<10	<10
108-10-1	4-Methyl-2-pentanone	<2.0	<2.0	<2.0	<2.0
100-42-5	Styrene	<2.0	<2.0	<2.0	<2.0
79-34-5	1,1,2,2-Tetrachloroethane	<2.0	<2.0	<2.0	<2.0
127-18-4	Tetrachloroethylene	<2.0	<2.0	<2.0	<2.0
108-88-3	Toluene	5.4*	<2.0	3.9*	<2.0
79-01-6	Trichloroethene	3.2*	<2.0	2.6*	<2.0
71-55-6	1,1,1-Trichloroethane	<2.0	<2.0	<2.0	<2.0
79-00-5	1,1,2-Trichloroethane	<2.0	<2.0	<2.0	<2.0
75-69-4	Trichlorofluoromethane	<10	<10	<10	<10
96-18-4	1,2,3-Trichloropropane	<2.0	<2.0	<2.0	<2.0
75-01-4	Vinyl chloride	<2.0	<2.0	<2.0	<2.0
108-05-4	Vinyl acetate	<2.0	<2.0	<2.0	<2.0
110-57-6	Transl,4dichloro-2-butene	<2.0	<2.0	<2.0	<2.0
1330-20-7	Xylenes	310	6.6*	11	190

1160

RADIAN
CORPORATION

Client: GEOSCIENCE CONSULTANTS, LTD.
500 COPPER N.W.; SUITE 200
ALBUQUERQUE, NM 87102

01A 8811081414
02A 8811081431
03A 8811081504
04A 8811081600

EPA METHOD 8310

Lab No: A8-11-046

RESULTS IN ug/L

CAS #	COMPOUND	01A Influent	02A Effluent	03A Tank 27	04A Tank 106
208-96-8	Acenaphthylene	<31	<31	<31	<31
83-32-9	Acenaphthene	<3.4	<3.4	<3.4	<3.4
120-12-7	Anthracene	<2.4	<2.4	<2.4	<2.4
56-55-3	Benz(a)anthracene	<0.40	<0.40	<0.40	<0.40
50-32-8	Benzo(a)pyrene	<0.20	<0.20	<0.20	<0.20
205-99-2	Benzo(b)fluoranthene	<0.10	<0.10	<0.10	<0.10
191-24-2	Benzo(ghi)perylene	<0.30	<0.30	<0.30	<0.30
207-08-9	Benzo(k)fluoranthene	<0.10	<0.10	<0.10	<0.10
218-01-9	Chrysene	<0.10	<0.10	<0.10	<0.10
53-70-3	Dibenzo(a,h)anthracene	<0.30	<0.30	<0.30	<0.30
206-44-0	Fluoranthene	<0.61	<0.61	<0.61	<0.61
86-73-7	Fluorene	18	20	3.7 *	7.3 *
193-39-5	Indeno(1,2,3-cd)pyrene	<1.8	<1.8	<1.8	<1.8
91-20-3	Naphthalene	114	80	6.5 *	9.6
85-01-8	Phenanthrene	49	63	8.3 *	12 *
129-00-0	Pyrene	<0.71	<0.71	<0.71	<0.71

SURROGATE RECOVERIES (results in % recovery)

Terphenyl-D14	D	D	D	D

NOTES AND DEFINITIONS FOR THIS REPORT.
QC = OUTSIDE CONTROL LIMITS.
* = LESS THAN 5 TIMES THE DETECTION LIMIT.
B = DETECTED IN REAGENT BLANK; BACKGROUND SUBTRACTION NOT PERFORMED.
ND = NOT DETECTED AT DETECTION LIMIT.
D = NOT QUANTITATED DUE TO DILUTION.
NA = NOT ANALYZED.
N\A = NOT AVAILABLE.
NS = NOT SPIKED.

SCIENTIFIC LABORATORY DIVISION
ORGANIC ANALYSIS REQUEST FORM
Organic Section - Phone: 841-2570

88-1142-C

REPORT TO: DAVID BOYER
N.M. OIL CONSERVATION DIVISION
P.O. Box 2088
Santa Fe, NM 87504-2088

WP4 754

S.L.D. No. OR-
DATE REC. 7/18/88
PRIORITY 3
PHONE(S): 827-5812

COLLECTION CITY: Bloomfield ; COUNTY: San Juan

COLLECTION DATE/TIME CODE: (Year-Month-Day-Hour-Minute) 8 8 0 7 1 3 1 4 3 0

LOCATION CODE: (Township-Range-Section-Tracts) 29N+1 24W+2 2+3 3 0 (10N06E24342)

USER CODE: 8 2 2 3 5 SUBMITTER: David Boyer CODE: 2 6 0

SAMPLE TYPE: WATER [X], SOIL [ ], FOOD [ ], OTHER:

This form accompanies 2 Septum Vials, ____ Glass Jugs, and/or ____

Samples were preserved as follows:

- [ ] NP: No Preservation; Sample stored at room temperature.
- [X] P-Ice Sample stored in an ice bath (Not Frozen).
- [ ] P-AA Sample Preserved with Ascorbic Acid to remove chlorine residual.
- [X] P-HCl Sample Preserved with Hydrochloric Acid (2 drops/40 ml)

ANALYSES REQUESTED: Please check the appropriate box(es) below to indicate the type of analytical screens required. Whenever possible list specific compounds suspected or required.

PURGEABLE SCREENS

- [ ] (753) Aliphatic Headspace (1-5 Carbons)
- [X] (754) Aromatic & Halogenated Purgeables
- [ ] (765) Mass Spectrometer Purgeables
- [ ] (766) Trihalomethanes
- [ ] (774) SDWA VOC's I (8 Regulated +)
- [ ] (775) SDWA VOC's II (EDB & DBCP)

Other Specific Compounds or Classes

- [ ] ____
- [ ] ____

EXTRACTABLE SCREENS

- [ ] (751) Aliphatic Hydrocarbons
- [ ] (755) Base/Neutral Extractables
- [ ] (758) Herbicides, Chlorophenoxy acid
- [ ] (759) Herbicides, Triazines
- [ ] (760) Organochlorine Pesticides
- [ ] (761) Organophosphate Pesticides
- [ ] (767) Polychlorinated Biphenyls (PCB's)
- [ ] (764) Polynuclear Aromatic Hydrocarbons
- [ ] (762) SDWA Pesticides & Herbicides

Remarks:

FIELD DATA:

pH=____; Conductivity=____umho/cm at ____°C; Chlorine Residual=____mg/l

Dissolved Oxygen=____mg/l; Alkalinity=____mg/l; Flow Rate____ ____/____

Depth to water ____ft.; Depth of well____ft.; Perforation Interval ____-____ft.; Casing:

Sampling Location, Methods and Remarks (i.e. odors, etc.)
Giant Bloomfield, Sample from Air Stripper inlet

I certify that the results in this block accurately reflect the results of my field analyses, observations and activities.(signature collector): D. Boyer Method of Shipment to the Lab: State Car

CHAIN OF CUSTODY

I certify that this sample was transferred from D. Boyer to Judi R. Hill
at (location) SLD-ALB on 7/18/88 - 13:00 and that
the statements in this block are correct. Evidentiary Seals: Not Sealed [ ] OR Seals Intact: Yes [X] No [ ]
Signatures D. Boyer Judi R. Hill

For OCD use: Date owner notified:_____ Phone or Letter? Initials_____

ANALYSES PERFORMED

LAB. No.: OR- 1142

THIS PAGE FOR LABORATORY RESULTS ONLY

This sample was tested using the analytical screening method(s) checked below:

PURGEABLE SCREENS

- [ ] (753) Aliphatic Headspace (1-5 Carbons)
- [x] (754) Aromatic & Halogenated Purgeables
- [ ] (765) Mass Spectrometer Purgeables
- [ ] (766) Trihalomethanes
- [ ] (774) SDWA VOC's I (8 Regulated +)
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Other Specific Compounds or Classes

- [ ] _____
- [ ] _____

EXTRACTABLE SCREENS

- [ ] (751) Aliphatic Hydrocarbons
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- [ ] (759) Herbicides, Triazines
- [ ] (760) Organochlorine Pesticides
- [ ] (761) Organophosphate Pesticides
- [ ] (767) Polychlorinated Biphenyls (PCB's)
- [ ] (764) Polynuclear Aromatic Hydrocarbons
- [ ] (762) SDWA Pesticides & Herbicides

ANALYTICAL RESULTS

COMPOUND(S) DETECTED	CONC. [PPB]	COMPOUND(S) DETECTED	CONC. [PPB]
aromatic purgeables			
benzene	1030		
toluene	315		
ethylbenzene	210		
p + m xylene	800		
o-xylene	145		
halogenated purgeables			
1,2 + Dichloroethane	T.R.		
* DETECTION LIMIT * *	50 ppb/L	+ DETECTION LIMIT + +	

ABBREVIATIONS USED:

N D = NONE DETECTED AT OR ABOVE THE STATED DETECTION LIMIT
T R = DETECTED AT A LEVEL BELOW THE STATED DETECTION LIMIT (NOT CONFIRMED)
[RESULTS IN BRACKETS] ARE UNCONFIRMED AND/OR WITH APPROXIMATE QUANTITATION

LABORATORY REMARKS: _____

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Not Sealed [ ] Intact: Yes [✓] No [ ]. Seal(s) broken by: Mary C. Eden date: _____

I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: 7/22/88. Analyst's signature: Mary C. Eden

I certify that I have reviewed and concur with the analytical results for this sample and with the statements in this block.

Reviewers signature: K Meyerhen

GTEL Environmental Laboratories
A division of Groundwater Technology, Inc.

Western Region
4080-C Pike Lane
Concord, CA 94520
(415) 685-7852
(800) 544-3422 *from inside California*
(800) 423-7143 *from outside California*

06/28/88 mh

AIR Stripper

PROJECT MGR: Michael Wood
Groundwater Technology, Inc.
3620 Wyoming, NE
Albuquerque, NM 87111
PROJECT#: 232-799-5009-12
LOCATION: Farmington, NM

SAMPLED: 06/23/88 BY: M. Wood
RECEIVED: 06/25/88 BY: K. Biava
ANALYZED: 06/27/88 BY: P. Sra
MATRIX: Water
UNITS: ug/L (ppb)

TEST RESULTS

COMPOUND	MDL	LAB # / I.D.# EPA	WQC	26059 AS INF	26060 AS EFF		
Benzene	0.5	5	10	700	9.5		
Bromodichloromethane	0.5			<0.5	<0.5		
Bromoform	0.5			<0.5	<0.5		
Bromomethane	0.5			<0.5	<0.5		
Carbon tetrachloride	0.5			<0.5	<0.5		
Chlorobenzene	0.5			<0.5	<0.5		
Chloroethane	0.5			<0.5	<0.5		
2-Chloroethylvinyl ether	1.0			<1.0	<1.0		
Chloroform	0.5			<0.5	<0.5		
Chloromethane	0.5			<0.5	<0.5		
Dibromochloromethane	0.5			<0.5	<0.5		
1,2-Dichlorobenzene	0.5			<0.5	<0.5		
1,3-Dichlorobenzene	0.5			<0.5	<0.5		
1,4-Dichlorobenzene	0.2			<0.5	<0.5		
Dichlorodifluoromethane	0.5			<0.5	<0.5		
1,1-Dichloroethane	0.5	—	25	4.5	<0.5		
1,2-Dichloroethane (EDC)	0.5	5	10	42	0.87		
1,1-Dichloroethene	0.2			<0.2	<0.2		
trans-1,2-Dichloroethene	0.5	(70)	—	14	<0.5		
1,2-Dichloropropane	0.5			<0.5	<0.5		
cis-1,3-Dichloropropene	0.5			<0.5	<0.5		
trans-1,3-Dichloropropene	0.5			<0.5	<0.5		
Ethylbenzene	0.5	(680)	750	79	1.3		
Methylene chloride	0.5	—	100	4.7	3.0		
1,1,2,2-Tetrachloroethane	0.5			<0.5	<0.5		
Tetrachloroethene	0.5			<0.5	<0.5		
Toluene	0.5	2000	750	490	7.8		
1,1,1-Trichloroethane	0.5	200	60	1.6	<0.5		
1,1,2-Trichloroethane	0.5			<0.5	<0.5		
Trichloroethene	0.5	5	100	1.7	<0.5		
Trichlorofluoromethane	0.5			<0.5	<0.5		
Vinyl Chloride	1.0			<1.0	<1.0		
Xylenes	0.5	440	620	800	28		

MDL = Method Detection Limit.
METHODS: EPA 601/602.
( ) - MCL Goal

SAFY KHALIFA, Ph.D., Director

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(800) 544-3422 *from inside California*
(800) 423-7143 *from outside California*

07/11/88 JP

CLIENT: Michael Wood
Groundwater Technology, Inc.
3620 Wyoming, NE
Albuquerque, NM 87111
PROJECT#: 232-799-5009-13
LOCATION: Farmington, NM
SAMPLED: 06/23/88 BY: M. Wood
RECEIVED: 06/25/88 BY: K. Biava
ANALYZED: 07/07/88 BY: L. Hinson
MATRIX: Water
UNITS: ug/L (ppb)

TEST RESULTS

COMPOUNDS	MDL	LAB # I.D.#	26061 AS INF	26062 AS EFF		
Acenaphthene	10		<10	<10		
Acenaphthylene	10		<10	<10		
Anthracene	10		<10	<10		
Benzo (a) anthracene	10		<10	<10		
Benzo (a) pyrene	10		<10	<10		
Benzo (b) fluoranthene	10		<10	<10		
Benzo (ghi) perylene	10		<10	<10		
Benzo (k) fluoranthene	10		<10	<10		
Chrysene	10		<10	<10		
Dibenzo (a,h) anthracene	10		<10	<10		
Fluoranthene	10		<10	<10		
Fluorene	10		<10	<10		
Indeno (1,2,3-cd) pyrene	10		<10	<10		
Naphthalene	10	— 30	51	<10		
Phenanthrene	10		<10	<10		
Pyrene	10		<10	<10		

MDL=Method Detection Limit.
METHOD: EPA Method 610.

Safy Khalifa 7/8/88

SAFY KHALIFA, Ph.D., Director

Inter-Mountain Laboratories, Inc.

2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

CLIENT: Giant Refinery
ID: 9010041115
SITE: Stripper Influent
LAB NO: F5144

DATE REPORTED: 10/23/90
DATE RECEIVED: 10/04/90
DATE COLLECTED: 10/04/90

Lab pH (s.u.)	6.66
Lab conductivity, umhos/cm	4390
Lab resistivity, ohm-m	2.28
Total dissolved solids (180), mg/l	3430
Total dissolved solids (calc), mg/l	3250
Total alkalinity as CaCO3, mg/l	94
Total acidity as CaCO3, mg/l	0
Total hardness as CaCO3, mg/l	1200
Sodium absorption ratio	7.42

	mg/l	meq/l
Bicarbonate as HCO3	115	1.88
Carbonate as CO3	0	0
Chloride	735	20.7
Sulfate	1440	30
Calcium	349	17.4
Magnesium	81	6.66
Potassium	3.15	0.08
Sodium	592	25.8
Major cations		49.9
Major anions		52.6
Cation/anion difference		2.56 %

C. Neal Schaeffer
Lab Director

Inter·Mountain Laboratories, Inc.

2506 West Main Street
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CLIENT: Giant Refinery
ID: 9009050957
SITE: Stripper influent
LAB NO: F4905

DATE REPORTED: 09/13/90
DATE RECEIVED: 09/05/90
DATE COLLECTED: 09/05/90

Lab pH (s.u.)	7.38
Lab conductivity, umhos/cm	3760
Lab resistivity, ohm-m	2.66
Total dissolved solids (180), mg/l	3290
Total dissolved solids (calc), mg/l	3160
Total alkalinity as CaCO3, mg/l	316
Total acidity as CaCO3, mg/l	0
Total hardness as CaCO3, mg/l	1080
Sodium absorption ratio	8.61

	mg/l	meq/l
Bicarbonate as HCO3	386	6.33
Carbonate as CO3	0	0
Chloride	624	17.6
Sulfate	1340	27.8
Calcium	241	12
Magnesium	117	9.66
Potassium	3.15	0.08
Sodium	652	28.3
Major cations		50.1
Major anions		51.8
Cation/anion difference		0.02

C. Neal Schaeffer
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CLIENT:	Giant Refining	DATE REPORTED:	08/14/90
ID:	9008081119		
SITE:	Influent	DATE RECEIVED:	08/08/90
LAB NO:	F4725	DATE COLLECTED:	08/08/90

Lab pH (s.u.).....	7.47
Lab conductivity, umhos/cm.....	5080
Lab resistivity, ohm-m.....	1.9685
Total dissolved solids (180), mg/l..	3328
Total dissolved solids (calc), mg/l.	3293
Total alkalinity as CaCO3, mg/l.....	544.35
Total acidity as CaCO3, mg/l.....	0.00
Total hardness as CaCO3, mg/l.....	1114.44
Sodium absorption ratio.....	8.85

	mg/l	meq/l
Bicarbonate as HCO3.....	664.1	10.89
Carbonate as CO3.....	0.0	0.00
Chloride.....	582.4	16.43
Sulfate.....	1259.2	26.23
Calcium.....	433.7	21.64
Magnesium.....	7.9	0.65
Potassium.....	3.6	0.09
Sodium.....	679.5	29.56
Major cations.....		51.94
Major anions.....		53.55
Cation/anion difference.....		1.53 %

C. Neal Schaeffer
Lab Director

Inter-Mountain Laboratories, Inc.

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CLIENT:	GBR	DATE REPORTED:	07/16/90
ID:	9007100915		
SITE:	Stripper influent	DATE RECEIVED:	07/10/90
LAB NO:	F4584	DATE COLLECTED:	07/10/90

Lab pH (s.u.).....	8.30
Lab conductivity, umhos/cm.....	4802
Lab resistivity, ohm-m.....	2.0825
Total dissolved solids (180), mg/l..	3450
Total dissolved solids (calc), mg/l.	3451
Total alkalinity as CaC03, mg/l.....	553.90
Total acidity as CaC03, mg/l.....	0.00
Total hardness as CaC03, mg/l.....	1234.92
Sodium absorption ratio.....	8.48

	mg/l	meq/l
Bicarbonate as HC03.....	675.8	11.08
Carbonate as C03.....	0.0	0.00
Chloride.....	577.1	16.28
Sulfate.....	1390.9	28.98
Calcium.....	409.6	20.44
Magnesium.....	51.8	4.26
Potassium.....	3.8	0.10
Sodium.....	685.5	29.82
Major cations.....		54.61
Major anions.....		56.33
Cation/anion difference.....		1.55 %

C. Neal Schaeffer
Lab Director

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CLIENT:	Giant Refinery	DATE REPORTED:	06/13/90
ID:	Influent		
SITE:	Air stripper	DATE RECEIVED:	06/04/90
LAB NO:	F4366	DATE COLLECTED:	06/04/90

Lab pH (s.u.).....	7.91
Lab conductivity, umhos/cm.....	4635
Lab resistivity, ohm-m.....	2.1575
Total dissolved solids (180), mg/l..	3124
Total dissolved solids (calc), mg/l.	3112
Total alkalinity as CaCO3, mg/l.....	597.83
Total acidity as CaCO3, mg/l.....	0.00
Total hardness as CaCO3, mg/l.....	1084.32
Sodium absorption ratio.....	8.87

	mg/l	meq/l
Bicarbonate as HCO3.....	729.4	11.96
Carbonate as CO3.....	0.0	0.00
Chloride.....	613.9	17.32
Sulfate.....	1068.7	22.26
Calcium.....	333.3	16.63
Magnesium.....	61.4	5.05
Potassium.....	4.6	0.12
Sodium.....	671.5	29.21
Major cations.....		51.01
Major anions.....		51.54
Cation/anion difference.....		0.51 %

C. Neal Schaeffer
Lab Director

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CLIENT:	GBR	DATE REPORTED:	05/07/90
ID:	Influent		
SITE:	Stripper	DATE RECEIVED:	05/02/90
LAB NO:	F4197	DATE COLLECTED:	05/02/90

Lab pH (s.u.).....	7.51
Lab Conductivity, umhos/cm.....	4886
Lab resistivity, ohm-m.....	2.0467
Total Dissolved Solids (180), mg/l..	3580
Total Dissolved Solids (calc), mg/l.	3509
Total Alkalinity as CaCO3, mg/l.....	508.06
Total Acidity as CaCO3, mg/l.....	0.00
Total Hardness as CaCO3, mg/l.....	1355.40
Sodium Absorption Ratio.....	8.00

	mg/l	meq/l
Bicarbonate as HCO3.....	619.8	10.16
Carbonate as CO3.....	0.0	0.00
Chloride.....	583.5	16.46
Sulfate.....	1418.0	29.54
Calcium.....	485.9	24.25
Magnesium.....	34.8	2.86
Potassium.....	5.3	0.14
Sodium.....	677.0	29.45
Major Cations.....		56.69
Major Anions.....		56.16
Cation/Anion Difference.....		0.47 %

C. Neal Schaeffer
Lab Director

Inter-Mountain Laboratories, Inc.

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CLIENT:	Giant Refinery	DATE REPORTED:	04/13/90
ID:	GBR		
SITE:	Stripper Influent	DATE RECEIVED:	04/02/90
LAB NO:	F4082	DATE COLLECTED:	04/02/90

Lab pH (s.u.).....	7.72
Lab Conductivity, umhos/cm.....	4764
Lab resistivity, ohm-m.....	2.0991
Total Dissolved Solids (180), mg/l..	3488
Total Dissolved Solids (calc), mg/l.	3388
Total Alkalinity as CaC03, mg/l.....	488.96
Total Acidity as CaC03, mg/l.....	0.00
Total Hardness as CaC03, mg/l.....	1305.22
Sodium Absorption Ratio.....	7.78

	mg/l	meq/l
Bicarbonate as HC03.....	596.5	9.78
Carbonate as C03.....	0.0	0.00
Chloride.....	477.2	13.46
Sulfate.....	1472.3	30.67
Calcium.....	454.8	22.69
Magnesium.....	41.5	3.41
Potassium.....	2.9	0.07
Sodium.....	645.9	28.09
Major Cations.....		54.27
Major Anions.....		53.91
Cation/Anion Difference.....		0.33 %

C. Neal Schaeffer
Lab Director

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Tel. (505) 326-4737

CLIENT:	GBR	DATE REPORTED:	02/19/90
ID:	Effluent		
SITE:	Stripper	DATE RECEIVED:	02/14/90
LAB NO:	F3878	DATE COLLECTED:	02/14/90

Lab pH (s.u.).....	7.74
Lab Conductivity, umhos/cm.....	4893
Lab resistivity, ohm-m.....	2.0437
Total Dissolved Solids (180), mg/l..	3352
Total Dissolved Solids (calc), mg/l.	3236
Total Alkalinity as CaCO3, mg/l.....	586.37
Total Acidity as CaCO3, mg/l.....	0.00
Total Hardness as CaCO3, mg/l.....	1178.91
Sodium Absorption Ratio.....	8.53

	mg/l	meq/l
Bicarbonate as HCO3.....	715.37	11.73
Carbonate as CO3.....	0.00	0.00
Chloride.....	619.33	17.47
Sulfate.....	1139.44	23.74
Calcium.....	410.15	20.47
Magnesium.....	37.84	3.11
Potassium.....	3.36	0.09
Sodium.....	673.60	29.30
Major Cations.....		52.96
Major Anions.....		52.94
Cation/Anion Difference.....		0.03 %

C. Neal Schaeffer
Lab Director

Inter·Mountain
Laboratories, Inc.

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CLIENT: GBR

DATE REPORTED: 01/24/90

SITE: Stripper Influent

LAB NO: F3785

DATE RECEIVED: 01/15/90

DATE COLLECTED: 01/15/90

Lab pH (s.u.)	7.75
Lab Conductivity, umhos/cm	5318
Lab resistivity, ohm-m	1.8804
Total Dissolved Solids (180), mg/l	3458
Total Dissolved Solids (calc), mg/l	3437
Total Alkalinity as CaCO3, mg/l	605.88
Total Acidity as CaCO3, mg/l	0.00
Total Hardness as CaCO3, mg/l	1284.17
Sodium Absorption Ratio	8.16

	mg/l	meq/l
Bicarbonate as HCO3	739.17	12.12
Carbonate as CO3	0.00	0.00
Chloride	588.87	16.61
Sulfate	1309.39	27.28
Calcium	475.84	23.74
Magnesium	23.58	1.94
Potassium	2.85	0.07
Sodium	672.50	29.25
Major Cations		55.01
Major Anions		56.01
Cation/Anion Difference		0.90 %

C. Neal Schaeffer
Lab Director

Inter-Mountain Laboratories, Inc.

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CLIENT: Geoscience Consultants DATE REPORTED: 12/20/89

SITE: Stripper Influent DATE RECEIVED: 12/13/89
LAB NO: F3672 DATE COLLECTED: 12/12/89

Lab pH (s.u.).....	7.75
Lab Conductivity, umhos/cm.....	4780
Lab resistivity, ohm-m.....	2.0921
Total Dissolved Solids (180), mg/l..	3452
Total Dissolved Solids (calc), mg/l.	3421
Total Alkalinity as CaCO3, mg/l.....	586.08
Total Acidity as CaCO3, mg/l.....	0.00
Total Hardness as CaCO3, mg/l.....	1310.49
Sodium Absorption Ratio.....	8.21

	mg/l	meq/l
Bicarbonate as HCO3.....	715.02	11.72
Carbonate as CO3.....	0.00	0.00
Chloride.....	599.53	16.91
Sulfate.....	1311.86	27.33
Calcium.....	389.52	19.44
Magnesium.....	82.36	6.77
Potassium.....	2.96	0.08
Sodium.....	683.60	29.73
Major Cations.....		56.02
Major Anions.....		55.96
Cation/Anion Difference.....		0.05 %

C. Neal Schaeffer
Senior Chemist

Inter-Mountain Laboratories, Inc.

2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

CLIENT: GBR-Giant Refinery DATE REPORTED: 11/20/89

SITE: Inlet DATE RECEIVED: 11/15/89
LAB NO: F3528 DATE COLLECTED: 11/15/89

Lab pH	7.43
Lab Conductivity, umhos/cm	4958
Lab resistivity, ohm-m	2.0169
Total Dissolved Solids (180), mg/l	3492
Total Dissolved Solids (calc), mg/l	3311
Total Alkalinity as CaCO3, mg/l	554.40
Total Acidity as CaCO3, mg/l	0.00
Total Hardness as CaCO3, mg/l	1347.33
Sodium Absorption Ratio	7.73

	mg/l	meq/l
Bicarbonate as HCO3	676.37	11.09
Carbonate as CO3	0.00	0.00
Chloride	555.06	15.66
Sulfate	1364.95	28.44
Calcium	192.02	9.58
Magnesium	211.15	17.36
Potassium	2.60	0.07
Sodium	652.50	28.38
Major Cations		55.39
Major Anions		55.18
Cation/Anion Difference		0.19 %

C. Neal Schaeffer
Lab Director

Inter-Mountain Laboratories, Inc.

2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

CLIENT: GBR-Giant Refinery
DATE REPORTED: 11/02/89

SITE: Inlet
DATE RECEIVED: 10/19/89
LAB NO: F3378
DATE COLLECTED: 10/19/89

Lab pH	7.54
Lab Conductivity, umhos/cm	2710
Lab resistivity, ohm-m	3.6900
Total Dissolved Solids (180), mg/l	3492
Total Dissolved Solids (calc), mg/l	3351
Total Alkalinity as CaCO3, mg/l	546.48
Total Acidity as CaCO3, mg/l	0.00
Total Hardness as CaCO3, mg/l	1305.22
Sodium Absorption Ratio	7.55

	mg/l	meq/l
Bicarbonate as HCO3	666.71	10.93
Carbonate as CO3	0.00	0.00
Chloride	525.33	14.82
Sulfate	1360.83	28.35
Calcium	479.21	23.91
Magnesium	26.65	2.19
Potassium	3.90	0.10
Sodium	627.50	27.29
Major Cations		53.50
Major Anions		54.10
Cation/Anion Difference		0.56 %

C. Neal Schaeffer
Lab Director

Inter-Mountain Laboratories, Inc.

2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

CLIENT: Geoscience Consultants, Ltd DATE REPORTED: 09/27/89
SAMPLE: 8909131300
SITE: Influent DATE RECEIVED: 09/13/89
LAB NO: F3163 DATE COLLECTED: 09/13/89

Lab pH	8.11
Lab Conductivity, umhos/cm	4544
Lab resistivity, ohm-m	2.2007
Total Dissolved Solids (180), mg/l	3138
Total Dissolved Solids (calc), mg/l	2887
Total Alkalinity as CaCO3, mg/l	414.58
Total Acidity as CaCO3, mg/l	0.00
Total Hardness as CaCO3, mg/l	1079.97
Sodium Absorption Ratio	7.76

	mg/l	meq/l
Bicarbonate as HCO3	505.79	8.29
Carbonate as CO3	0.00	0.00
Chloride	572.48	16.15
Sulfate	1060.85	22.10
Calcium	385.31	19.23
Magnesium	28.85	2.37
Potassium	4.52	0.12
Sodium	586.00	25.49
Major Cations		47.20
Major Anions		46.54
Cation/Anion Difference		0.71 %

C. Neal Schaeffer
Senior Chemist

Geoscience Consultants, Ltd.
Radian Work Order: 89-08-243

Method/Analyte	Sample Identifications					
	~~Effluent~~ 8908171304		Effluent 8908171316		Rainbow Spring 8908171333	
Matrix	01 water		02 water		03 water	
alcium by ICPES						
Calcium	4200	mg/L	160	mg/L	160	mg/L
Chloride, by IC						
Chloride	620	mg/L	670	mg/L	69	mg/L
agnesium by ICPES						
Magnesium	430	mg/L	26	mg/L	25	mg/L
onductivity						
Conductivity	4800	umhos/cm	4800	umhos/cm	1600	umhos/cm
Sodium by ICPES						
Sodium	6000	mg/L	160	mg/L	160	mg/L
ulfate						
Sulfate	1300	mg/L	1300	mg/L	14000	mg/L
Total dissolved solids						
Total dissolved solids	3500	mg/L	3700	mg/L	1100	mg/L

Q Outside control limits

For a detailed description of flags and technical terms in this report refer to the glossary.

Geoscience Consultants, Ltd.
Radian Work Order: 89-08-243

Method:Alkalinity components (1)			
List:	Influent	Effluent	Rainbow Spring
Sample ID:	8908171304	8908171316	8908171333
Factor:	1	1	1
Results in:	mg/L	mg/L	mg/L
	01A	02A	03A
Matrix:	water	water	water
Bicarbonate	499	479	853
Carbonate	<1.0	<1.0	<1.0
Total alkalinity	499	479	853

(1) For a detailed description of flags and technical terms in this report refer to Appendix A in this report.

Inter-Mountain Laboratories, Inc.

2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

Client: GCL #8907121145
Site: Airstrip Inf.
IML #: F1733

Date of report: 07/26/89
Date sampled: 07/12/89
Date received: 07/12/89

Total dissolved solids (180).....	3672.00	mg/l
Total dissolved solids (calculated).	3622.48	mg/l
Total alkalinity (as CaCO3).....	485.17	mg/l
Total hardness (as CaCO3).....	1434.72	mg/l
Lab pH.....	7.83	
Lab conductivity.....	4860	umhos/cm @ 25C
Lab resistivity.....	2.0576	ohm-m

	mg/l	meq/l
Acidity (as CaCO3).....	<1.0	<0.01
Bicarbonate (as HCO3).....	591.91	9.70
Carbonate (as CO3).....	0.00	0.00
Chloride.....	680.64	19.20
Sulfate.....	1445.60	30.12
Calcium.....	481.22	24.01
Magnesium.....	56.92	4.68
Potassium.....	3.44	0.09
Sodium.....	667.00	29.01
Major cations.....		57.79
Major anions.....		59.02
Anion/cation % difference.....		1.05 %

C. Neal Schaeffer
Senior Chemist

Inter-Mountain Laboratories, Inc.

2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

Client: GCL #8906140926
Site: Influent
IML #: F1582

Date of report: 06/23/89
Date sampled: 06/14/89
Date received: 06/14/89

Total dissolved solids (180).....	3682.00	mg/l
Total dissolved solids (calculated).	3497.17	mg/l
Total alkalinity (as CaCO3).....	446.47	mg/l
Total hardness (as CaCO3).....	1373.65	mg/l
Lab pH.....	7.43	
Lab conductivity.....	5040	umhos/cm @ 25C
Lab resistivity.....	1.9841	ohm-m

	mg/l	meq/l
Acidity (as CaCO3).....	<1.0	<0.01
Bicarbonate (as HCO3).....	544.69	8.93
Carbonate (as CO3).....	0.00	0.00
Chloride.....	696.63	19.65
Sulfate.....	1352.60	28.18
Calcium.....	459.09	22.91
Magnesium.....	55.50	4.56
Potassium.....	2.24	0.06
Sodium.....	666.40	28.99
Major cations.....		56.52
Major anions.....		56.76
Anion/cation % difference.....		0.21 %

C. Neal Schaeffer
Senior Chemist

Inter-Mountain Laboratories, Inc.

2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

Date: April 01, 1989

Client: Geoscience Consultants, Ltd.
GCL Sample No: 8903141347
Site: GBR-INFLUENT
IML Lab No: F890920
Date Collected: 3/14/89
Date Received: 3/14/89

Total Dissolved Solids (180), mg/l.....	2628
Total Dissolved Solids (calc), mg/l.....	2524
Total Alkalinity as CaCO3, mg/l.....	455
Total Hardness as CaCO3, mg/l.....	1264

	mg/l	meq/l
Acidity as CaCO3.....	<1	<0.01
Bicarbonate as HCO3.....	555	9.10
Carbonate as CO3.....	0	0.00
Chloride.....	356	10.04
Sulfate.....	1042	21.71
Calcium.....	428	21.34
Magnesium.....	48	3.95
Potassium.....	5	0.13
Sodium.....	373	16.22
Nitrate/Nitrite.....	1.64	0.12

Major Cations.....	41.64
Major Anions.....	40.85
Cation/Anion Difference.....	0.96 %

Jack M. Morgan
Senior Organic Chemist

MONTHLY SAMPLING

ANALYTICAL RESULTS FOR AIR STRIPPER INFLUENT AND EFFLUENT

SELECTED MAJOR CATIONS, ANIONS, NITRATE, AND TOTAL DISSOLVED SOLIDS

(02/02/89)

ANALYTE	AIR STRIPPER INFLUENT	AIR STRIPPER EFFLUENT
CALCIUM	450 (N\R)	450 (N\R)
CARBONATE	ND (1.0)	ND (1.0)
CHLORIDE	* 630 (N\R)	620 (N\R)
FLUORIDE	3.6 (N\R)	3.4 (N\R)
MAGNESIUM	38 (N\R)	40 (N\R)
SODIUM	470 (N\R)	490 (N\R)
SULFATE	* 1600 (N\R)	1600 (N\R)
NITRATE AS N	NA	NA
TOTAL DISSOLVED SOLIDS	NA	NA

UNITS FOR ANALYSES ARE: mg/L

() = detection limit

ND = not detected at detection limit

NA = not analyzed

N\R = not reported

MONTHLY SAMPLING
ANALYTICAL RESULTS FOR AIR STRIPPER INFLUENT AND EFFLUENT
SELECTED MAJOR CATIONS, ANIONS, NITRATE, AND TOTAL DISSOLVED SOLIDS
(01/16/89)

ANALYTE	AIR STRIPPER INFLUENT	AIR STRIPPER EFFLUENT
CALCIUM	390 (N\R)	400 (N\R)
CARBONATE	ND (1.0)	ND (1.0)
CHLORIDE	* 630 (N\R)	630 (N\R)
FLUORIDE	3.7 (N\R)	3.6 (N\R)
MAGNESIUM	36 (N\R)	37 (N\R)
POTASSIUM	ND (3.0)	ND (3.0)
SODIUM	560 (N\R)	610 (N\R)
SULFATE	* 1400 (N\R)	1400 (N\R)
NITRATE AS N	NA	NA
TOTAL DISSOLVED SOLIDS	* 3700 (10)	3700 (10)

UNITS FOR ANALYSES ARE: mg/L
() = detection limit
ND = not detected at detection limit
NA = not analyzed
N\R = not reported

KADIMAN CORPORATION

RAS - Austin REPORT

Work Order # 88-11-070

Received: 11/10/88

Results By Test

SAMPLE Sample Id	Test: CA E ug/ml	Test: CL IC mg/L	Test: DG6010 date complete	Test: F IC mg/L	Test: K E ug/ml
Influent 01 8811081414	370	680		3.8	4.6*
Effluent 02 8811081431	330	630		3.8	6.4*
Tank 35 03 8811081529		410			
Tank 22 04 8811081619		680			
Tank 27 05 8811081504	390	940	11/22/88	3.5	3.9*
Tank 34 06 8811081522	460	720		3.7	3.7*
Tank 106 07 8811081600	400	580	11/22/88	3.8	5.2*

SAMPLE Sample Id	Test: MG E ug/ml	Test: NA E ug/ml	Test: NO3 mg/L as N	Test: PHEN mg/L as phenol	Test: SO4 IC mg/L as SO4
Influent 01 8811081414	37	460			1300
Effluent 02 8811081431	34	390			1200
Tank 35 03 8811081529					640
Tank 22 04 8811081619					1200
Tank 27 05 8811081504	51	540			940

KADIAN CORPORATION

 RAS - Austin REPORT Work Order # 88-11-070

Received: 11/10/88 Results by Sample

SAMPLE ID 8811081414 Influent FRACTION 01A TEST CODE ALKAL NAME Component alkalinities

Date & Time Collected 11/08/88 Category

VERIFIED LM

ANALYST TAM

INSTRMT 636 ANALYZED 11/21/88 1 UNITS mg/L as CaCO3

ANALYTE	RESULT	DET LIMIT
Total Alkalinity	489	1
Hydroxide	ND	1
Carbonate	ND	1
Bicarbonate	489	1

NOTES AND DEFINITIONS FOR THIS REPORT.

DET LIMIT = DETECTION LIMIT
ND = not detected at detection limit
NA = not analyzed
* = less than 5 times the detection limit
N\A = not available

SAMPLE ID 8811081414 Influent FRACTION 01A TEST CODE TDS NAME Total dissolved solids

Date & Time Collected 11/08/88 Category

VERIFIED LM

ANALYST TAM

INSTRMT ANALYZED 11/15/88 UNITS mg/L

ANALYTE	RESULT	DET LIMIT

KADIAN CORPORATION

Received: 11/10/88

RAS - Austin REPORT
Results by Sample

Work Order # 88-11-070
Continued From Above

SAMPLE ID 8811081414 Influent FRACTION 01A TEST CODE TDS NAME Total dissolved solids
Date & Time Collected 11/08/88 Category

Filterable Residue (TDS)	3800	6

NOTES AND DEFINITIONS FOR THIS REPORT.
DET LIMIT = DETECTION LIMIT
ND = not detected at detection limit
NA = not analyzed
* = less than 5 times the detection limit
N\A = not available

SAMPLE ID 8811081431 Effluent FRACTION 02A TEST CODE ALKAL NAME Component alkalinities
Date & Time Collected 11/08/88 Category

VERIFIED LM

ANALYST TAM
INSTRMT 636 ANALYZED 11/21/88 1 UNITS mg/L as CaCO3

ANALYTE	RESULT	DET LIMIT
Total Alkalinity	507	1
Hydroxide	ND	1
Carbonate	ND	1
Bicarbonate	507	1

NOTES AND DEFINITIONS FOR THIS REPORT.
DET LIMIT = DETECTION LIMIT
ND = not detected at detection limit

GTEL
Environmental
Laboratories
A di[illegible] of Groundwater Technology, Inc.

Western Region
4080-C Pike Lane
Concord, CA 94520
(415) 685-7852
(800) 544-3422 *from inside California*
(800) 423-7143 *from outside California*

06/30/88 mh

CLIENT: Michael Wood
Groundwater Technology, Inc.
3620 Wyoming, NE
Albuquerque, NM 87111
PROJECT#: 232-799-5009-14
LOCATION: Farmington, NM

SAMPLED: 06/23/88 BY: M. Wood
RECEIVED: 06/25/88 BY: K. Biava
ANALYZED: 06/29/88 BY: C. Miller
MATRIX: Water
UNITS: mg/L

TEST RESULTS

PARAMETER	MDL	LAB # I.D.#	26063A AS INF	26064A AS EFF		
Calcium	0.5		570	480		
Sodium	0.5		770	640		
Magnesium	0.5		49	50		
Potassium	0.5		2.9	2.4		

MDL = Method Detection Limit; compound below this level would not be detected.
METHOD: EPA 3020/6010.

Emma P. Pope

SAFY KHALIFA, Ph.D., Director

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Concord, CA 94520
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(800) 544-3422 *from inside California*
(800) 423-7143 *from outside California*

07/15/88 rw
CLIENT: Michael Wood
Groundwater Technology, Inc.
3620 Wyoming, NE
Albuquerque, NM 87111
PROJECT#: 232-799-5009-15
LOCATION: Farmington, NM

SAMPLED: 06/23/88 BY: M. Wood
RECEIVED: 06/25/88 BY: K. Biava
ANALYZED: 06/30/88 BY: R. Heines
MATRIX: Water R. Bly

TEST RESULTS

PARAMETER	UNITS	MDL	LAB # I.D.#	26063B AS INF	26064B AS EFF		
Chloride	mg/L	1		765	790		
Bicarbonate	mg CaC03/L	12		330	310		
Sulfate	mg/L	1		1335	1380		
Carbonate	mg CaC03/L	12		<12	<12		

MDL = Method Detection Limit; compound below this level would not be detected.

METHOD: SM429

Safy Khalifa 18M7

SAFY KHALIFA, Ph.D., Director

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4080-C Pike Lane
Concord, CA 94520
(415) 685-7852
(800) 544-3422 *from inside California*
(800) 423-7143 *from outside California*

07/08/88 JP

CLIENT: Michael Wood
Groundwater Technology, Inc.
3620 Wyoming, NE
Albuquerque, NM 87111
PROJECT#: 232-799-5009-16
LOCATION: Farmington, NM

SAMPLED: 06/23/88 BY: M. Wood
RECEIVED: 06/25/88 BY: K. Biava
ANALYZED: 07/05/88 BY: R. Heines
MATRIX: Water

TEST RESULTS

PARAMETER	UNITS	MDL	LAB # I.D.#	26065 AS INF	26066 AS EFF		
Total Dissolved Solids	mg/L	10		3,803	3,903		

MDL = Method Detection Limit; compound below this level would not be detected.

METHOD: SM209B

SAFY KHALIFA, Ph.D., Director

VOLATILE ORGANIC CONCENTRATIONS (pbb)
GIANT BLOOMFIELD REFINERY

AIR STRIPPER EFFLUENT

SAMPLER	GIANT
DATE	11/5/90
PARAMETER	
DETECTION LIMIT	<1.0
BENZENE	ND
BROMODICHLOROMETHANE	ND
BROMOFORM	ND
BROMOMETHANE	ND
CARBON TETRACHLORIDE	ND
CHLOROBENZENE	ND
CHLOROETHANE	ND
CHLOROFORM	ND
CHLOROMETHANE	ND
DIBROMOCHLOROMETHANE	ND
1,2-DICHLOROBENZENE	ND
1,3-DICHLOROBENZENE	ND
1,4-DICHLOROBENZENE	ND
1,1-DICHLOROETHANE	ND
1,2-DICHLOROETHANE	ND
1,1-DICHLOROETHENE	ND
CIS-1,2-DICHLOROETHENE	ND
TRANS-1,2-DICHLOROETHENE	ND
1,2-DICHLOROPROPANE	ND
ETHYLBENZENE	ND
METHYLENE CHLORIDE	ND
1,1,2,2-TETRACHLOROETHANE	ND
TETRACHLOROETHENE	ND
TOLUENE	**0.29 X**
1,1,1-TRICHLOROETHANE	ND
1,1,2-TRICHLOROETHANE	ND
TRICHLOROETHENE	ND
TRICHLOROFLUOROMETHANE	**0.34 X**
VINYL CHLORIDE	ND
TOTAL XYLENES	**0.48 X**

TR - TRACE
ND - NOT DETECTED
NA - NOT ANALYZED
** - SPLIT SAMPLE
X - PRESENCE NOT CONFIRMED

VOLATILE ORGANIC CONCENTRATIONS (pbb)
GIANT BLOOMFIELD REFINERY

AIR STRIPPER EFFLUENT

SAMPLER	GIANT	GIANT	GIANT	GIANT	GIANT
DATE	7/17/90	8/21/90	9/5/90	10/4/90	10/8/90
PARAMETER					
DETECTION LIMIT	<1.0	<1.0	<1.0	(BELOW)	<1.0
BENZENE	ND	ND	ND	5.9 X	ND
BROMODICHLOROMETHANE	ND	0.27 X	NA	13.0 X	ND
BROMOFORM	ND	ND	NA	23.0 X	ND
BROMOMETHANE	ND	ND	NA	ND(12.0)	ND
CARBON TETRACHLORIDE	ND	ND	NA	16.0 X	ND
CHLOROBENZENE	ND	ND	ND	14.0 X	ND
CHLOROETHANE	ND	ND	NA	ND(5.2)	ND
CHLOROFORM	ND	0.18 X	NA	10.0 X	ND
CHLOROMETHANE	ND	ND	NA	ND(3.0)	ND
DIBROMOCHLOROMETHANE	ND	ND	NA	14.0	ND
1,2-DICHLOROBENZENE	ND	ND	ND	ND(4.0)	ND
1,3-DICHLOROBENZENE	ND	ND	ND	19.0	ND
1,4-DICHLOROBENZENE	ND	ND	ND	20.0	0.56 X
1,1-DICHLOROETHANE	ND	ND	NA	13.0 X	ND
1,2-DICHLOROETHANE	ND	ND	NA	13.0 X	ND
1,1-DICHLOROETHENE	ND	ND	NA	14.0 X	ND
CIS-1,2-DICHLOROETHENE	ND	ND	NA	13.0 X	ND
TRANS-1,2-DICHLOROETHENE	ND	ND	NA	ND(2.0)	ND
1,2-DICHLOROPROPANE	ND	ND	NA	6.7 X	ND
ETHYLBENZENE	ND	0.2 X	ND	3.0	ND
METHYLENE CHLORIDE	0.69	ND	NA	9.5 X	ND
1,1,2,2-TETRACHLOROETHANE	ND	ND	NA	ND(1.5)	ND
TETRACHLOROETHENE	0.14	ND	NA	16.0 X	ND
TOLUENE	ND	0.32 X	ND	6.5	0.45 X
1,1,1-TRICHLOROETHANE	0.94	ND	NA	20.0 X	ND
1,1,2-TRICHLOROETHANE	ND	ND	NA	ND(2.0)	ND
TRICHLOROETHENE	6.8	0.48 X	NA	9.9 X	ND
TRICHLOROFLUOROMETHANE	0.24	ND	NA	22.0 X	ND
VINYL CHLORIDE	ND	ND	NA	ND(2.0)	ND
TOTAL XYLENES	ND	0.44 X	ND	35.0	0.91 X

TR - TRACE
ND - NOT DETECTED
NA - NOT ANALYZED
** - SPLIT SAMPLE
X - PRESENCE NOT CONFIRMED

VOLATILE ORGANIC CONCENTRATIONS (pbb)
GIANT BLOOMFIELD REFINERY

AIR STRIPPER EFFLUENT

SAMPLER	GIANT	GIANT	GIANT	GIANT	GIANT
DATE	1/15/90	2/12/90	4/2/90	5/2/90	6/4/90
PARAMETER					
DETECTION LIMIT	(BELOW)	<1.0	<1.0	<1.0	<1.0
BENZENE	ND(1.0)	**5.3**	ND	ND	ND
BROMODICHLOROMETHANE	ND(10.0)	ND	ND	ND	ND
BROMOFORM	ND(10.0)	ND	ND	ND	ND
BROMOMETHANE	ND(10.0)	ND	ND	ND	ND
CARBON TETRACHLORIDE	ND(10.0)	ND	ND	ND	ND
CHLOROBENZENE	ND(10.0)	ND	ND	ND	ND
CHLOROETHANE	ND(10.0)	ND	ND	ND	ND
CHLOROFORM	ND(10.0)	ND	ND	ND	ND
CHLOROMETHANE	ND(10.0)	ND	ND	ND	ND
DIBROMOCHLOROMETHANE	ND(10.0)	ND	ND	ND	ND
1,2-DICHLOROBENZENE	ND(10.0)	ND	ND	ND	ND
1,3-DICHLOROBENZENE	ND(10.0)	ND	ND	ND	ND
1,4-DICHLOROBENZENE	ND(10.0)	ND	ND	ND	ND
DICHLORODIFLUOROMETHANE	ND(10.0)	NA	NA	NA	NA
1,1-DICHLOROETHANE	ND(10.0)	ND	ND	ND	ND
1,2-DICHLOROETHANE	ND(10.0)	**0.84**	ND	**0.17**	ND
1,1-DICHLOROETHENE	ND(10.0)	ND	ND	ND	ND
CIS-1,2-DICHLOROETHENE	NA	**0.7**	ND	ND	ND
TRANS-1,2-DICHLOROETHENE	ND(10.0)	ND	ND	ND	**5.2**
1,2-DICHLOROPROPANE	ND(10.0)	ND	ND	ND	ND
ETHYLBENZENE	ND(1.0)	ND	ND	ND	ND
METHYLENE CHLORIDE	ND(10.0)	ND	ND	ND	ND
1,1,2,2-TETRACHLOROETHANE	ND(10.0)	ND	ND	ND	ND
TETRACHLOROETHENE	ND(10.0)	ND	ND	ND	ND
TOLUENE	ND(1.0)	ND	ND	ND	ND
1,1,1-TRICHLOROETHANE	ND(10.0)	ND	ND	ND	ND
1,1,2-TRICHLOROETHANE	ND(10.0)	ND	ND	ND	ND
TRICHLOROETHENE	ND(10.0)	ND	ND	ND	ND
TRICHLOROFLUOROMETHANE	ND(10.0)	ND	ND	ND	ND
VINYL CHLORIDE	ND(10.0)	ND	ND	ND	ND
TOTAL XYLENES	ND(1.0)	ND	ND	ND	ND

TR - TRACE
ND - NOT DETECTED
NA - NOT ANALYZED
** - SPLIT SAMPLE

VOLATILE ORGANIC CONCENTRATIONS (pbb)
GIANT BLOOMFIELD REFINERY

AIR STRIPPER EFFLUENT

SAMPLER	GIANT	GIANT	GIANT	GIANT	GIANT
DATE	9/13/89	9/29/89	10/19/89	11/15/89	12/12/89
PARAMETER					
DETECTION LIMIT	(BELOW)	1.0	(BELOW)	0.5	<1.0
BENZENE	**1,200**	**9.2**	**12.43**	ND	**3.3**
BROMODICHLOROMETHANE	ND(10.0)	NA	ND(1.0)	NA	ND
BROMOFORM	ND(200.0)	NA	ND(1.0)	NA	ND
BROMOMETHANE	ND(100.0)	NA	ND(1.0)	NA	ND
CARBON TETRACHLORIDE	ND(20.0)	NA	ND(1.0)	NA	ND
CHLOROBENZENE	ND(10.0)	ND	ND(0.2)	ND	ND
CHLOROETHANE	ND(50.0)	NA	ND(1.0)	NA	ND
CHLOROFORM	ND(10.0)	NA	ND(1.0)	NA	ND
CHLOROMETHANE	ND(50.0)	NA	ND(1.0)	NA	ND
DIBROMOCHLOROMETHANE	ND(20.0)	NA	ND(1.0)	NA	ND
1,2-DICHLOROBENZENE	ND(20.0)	ND	ND(0.2)	ND	ND
1,3-DICHLOROBENZENE	ND(40.0)	ND	ND(0.2)	ND	ND
1,4-DICHLOROBENZENE	ND(20.0)	ND	ND(0.2)	ND	**1.4**
DICHLORODIFLUOROMETHANE	NA	NA	ND(1.0)	NA	NA
1,1-DICHLOROETHANE	ND(10.0)	NA	ND(1.0)	NA	ND
1,2-DICHLOROETHANE	ND(10.0)	NA	ND(1.0)	NA	**1.0**
1,1-DICHLOROETHENE	ND(10.0)	NA	ND(1.0)	NA	ND
CIS-1,2-DICHLOROETHENE	NA	NA	NA	NA	NA
TRANS-1,2-DICHLOROETHENE	NA	NA	ND(1.0)	NA	**0.97**
TOTAL 1,2-DICHLOROETHENE	ND(10.0)	NA	NA	NA	NA
1,2-DICHLOROPROPANE	ND(10.0)	NA	ND(1.0	NA	ND
ETHYLBENZENE	**50.0**	**0.4**	**1.48**	ND	**0.55**
METHYLENE CHLORIDE	ND(40.0)	NA	ND(1.0A	NA	ND
1,1,2,2-TETRACHLOROETHANE	ND(20.0)	NA	ND(1.0A	NA	ND
TETRACHLOROETHENE	ND(10.0)	NA	ND(1.0)	NA	ND
TOLUENE	**190.0**	**0.6**	**5.42**	ND	ND
1,1,1-TRICHLOROETHANE	ND(20.0)	NA	ND(1.0)	NA	ND
1,1,2-TRICHLOROETHANE	ND(20.0)	NA	ND(1.0)	NA	ND
TRICHLOROETHENE	ND(20.0)	NA	ND(1.0)	NA	ND
TRICHLOROFLUOROMETHANE	ND(10.0)	NA	ND(1.0)	NA	ND
VINYL CHLORIDE	ND(20.0)	NA	ND(1.0)	NA	ND
TOTAL XYLENES	**110.0**	**1.2**	**3.54**	ND	ND

TR - TRACE
ND - NOT DETECTED
NA - NOT ANALYZED
** - SPLIT SAMPLE

VOLATILE ORGANIC CONCENTRATIONS (pbb)
GIANT BLOOMFIELD REFINERY

AIR STRIPPER EFFLUENT

SAMPLER	GIANT	GIANT	GIANT	GIANT	GIANT
DATE	4/25/89	5/12/89	6/14/89	7/12/89	8/17/89
PARAMETER					
DETECTION LIMIT	0.2	<1.0	(BELOW)	(BELOW)	(BELOW)
BENZENE	**10.1**	**9.8**	**5.5**	**0.51**	**58.0**
BROMODICHLOROMETHANE	NA	ND	ND(1.0)	ND(1.0)	ND(1.0)
BROMOFORM	NA	ND	ND(1.0)	ND(1.0)	ND(20.0)
BROMOMETHANE	NA	ND	ND(1.0)	ND(1.0)	ND(10.0)
CARBON TETRACHLORIDE	NA	ND	ND(1.0)	ND(1.0)	ND(2.0)
CHLOROBENZENE	NA	ND	ND(0.2)	ND(0.2)	ND(1.0)
CHLOROETHANE	NA	ND	ND(1.0)	ND(1.0)	ND(5.0)
CHLOROFORM	NA	ND	ND(1.0)	ND(1.0)	ND(1.0)
CHLOROMETHANE	NA	ND	ND(1.0)	ND(1.0)	ND(5.0)
DIBROMOCHLOROMETHANE	NA	ND	ND(1.0)	ND(1.0)	ND(2.0)
1,2-DICHLOROBENZENE	NA	ND	ND(0.2)	ND(0.2)	ND(2.0)
1,3-DICHLOROBENZENE	NA	ND	ND(0.2)	ND(0.2)	ND(4.0)
1,4-DICHLOROBENZENE	NA	ND	ND(0.2)	ND(0.2)	ND(2.0)
DICHLORODIFLUOROMETHANE	NA	ND	ND(1.0)	ND(1.0)	NA
1,1-DICHLOROETHANE	NA	ND	ND(1.0)	ND(1.0)	ND(1.0)
1,2-DICHLOROETHANE	NA	**0.9**	ND(1.0)	ND(1.0)	ND(1.0)
1,1-DICHLOROETHENE	NA	ND	ND(1.0)	ND(1.0)	ND(1.0)
CIS-1,2-DICHLOROETHENE	NA	NA	NA	NA	NA
TRANS-1,2-DICHLOROETHENE	NA	ND	ND(1.0)	ND(1.0)	NA
TOTAL 1,2-DICHLOROETHENE	NA	NA	NA	NA	**7.1**
1,2-DICHLOROPROPANE	NA	ND	ND(1.0)	ND(1.0)	ND(1.0)
ETHYLBENZENE	**8.3**	**2.6**	ND(0.2)	ND(0.2)	ND(1.0)
METHYLENE CHLORIDE	NA	**0.3**	ND(1.0)	ND(1.0)	ND(4.0)
1,1,2,2-TETRACHLOROETHANE	NA	ND	ND(1.0)	ND(1.0)	ND(2.0)
TETRACHLOROETHENE	NA	ND	ND(1.0)	ND(1.0)	ND(1.0)
TOLUENE	**4.6**	**4.5**	ND(0.2)	ND(0.2)	**2.7**
1,1,1-TRICHLOROETHANE	NA	ND	ND(1.0)	ND(1.0)	ND(2.0)
1,1,2-TRICHLOROETHANE	NA	ND	ND(1.0)	ND(1.0)	ND(2.0)
TRICHLOROETHENE	NA	ND	ND(1.0)	ND(1.0)	ND(2.0)
TRICHLOROFLUOROMETHANE	NA	ND	ND(1.0)	ND(1.0)	ND(1.0)
VINYL CHLORIDE	NA	ND	ND(1.0)	ND(1.0)	ND(2.0)
TOTAL XYLENES	**29.9**	**17.7**	ND(0.2)	ND(0.2)	**13.0**

TR - TRACE
ND - NOT DETECTED
NA - NOT ANALYZED
** - SPLIT SAMPLE

VOLATILE ORGANIC CONCENTRATIONS (pbb)
GIANT BLOOMFIELD REFINERY

AIR STRIPPER EFFLUENT

SAMPLER	OCD	OCD*	GIANT	GIANT	GIANT
DATE	12/15/88	12/15/88	1/16/89	2/2/89	3/14/89
PARAMETER					
DETECTION LIMIT	(BELOW)	(BELOW)	(BELOW)	<1.0	(BELOW)
BENZENE	**20.8**	**15.0**	**42.0**	ND	**219.0**
BROMODICHLOROMETHANE	ND(0.5)	ND(0.5)	ND(<1.0)	ND	ND(<1.0)
BROMOFORM	ND(0.5)	ND(0.5)	ND(<1.0)	ND	ND(<1.0)
BROMOMETHANE	ND(0.5)	ND(0.5)	ND(1.2)	ND	ND(1.0)
CARBON TETRACHLORIDE	ND(0.5)	ND(0.5)	ND(<1.0)	ND	ND(<1.0)
CHLOROBENZENE	ND(0.5)	ND(0.5)	ND(1.5)	ND	ND(<1.0)
CHLOROETHANE	ND(0.5)	ND(0.5)	ND(<1.0)	ND	ND(1.0)
CHLOROFORM	ND(0.5)	ND(0.5)	ND(<1.0)	ND	ND(<1.0)
CHLOROMETHANE	ND(0.5)	ND(0.5)	ND(<1.0)	ND	ND(1.0)
DIBROMOCHLOROMETHANE	ND(0.5)	ND(0.5)	ND(<1.0)	ND	ND(<1.0)
1,2-DICHLOROBENZENE	ND(0.5)	ND(0.5)	ND(2.0)	ND	ND(<1.0)
1,3-DICHLOROBENZENE	ND(0.5)	ND(0.5)	ND(2.0)	ND	ND(<1.0)
1,4-DICHLOROBENZENE	ND(0.5)	ND(0.5)	ND(1.5)	ND	ND(<1.0)
DICHLORODIFLUOROMETHANE	ND(0.5)	ND(0.5)	NA	NA	ND(1.0)
1,1-DICHLOROETHANE	**0.5**	ND(0.5)	**0.8**	ND	ND(<1.0)
1,2-DICHLOROETHANE	**1.5**	**1.0**	**2.9**	**0.7**	**11.1**
1,1-DICHLOROETHENE	ND(0.5)	ND(0.5)	ND(<1.0)	ND	ND(<1.0)
CIS-1,2-DICHLOROETHENE	NA	ND(0.5)	NA	NA	NA
TRANS-1,2-DICHLOROETHENE	ND(0.5)	ND(0.5)	**1.3**	ND	ND(<1.0)
1,2-DICHLOROPROPANE	ND(0.5)	ND(0.5)	ND(<1.0)	ND	ND(<1.0)
1,2-DIMETHYLBENZENE	NA	**TR**(2.0)	NA	NA	NA
ETHYLBENZENE	ND(0.2)	**TR**(2.0)	**10.0**	ND	**12.5**
METHYLENE CHLORIDE	ND(0.5)	ND(0.5)	ND(<1.0)	ND	**7.2**
1,1,2,2-TETRACHLOROETHANE	ND(0.5)	ND(0.5)	ND(<1.0)	ND	ND(<1.0)
TETRACHLOROETHENE	ND(0.5)	ND(0.5)	**0.6**	ND	ND(<1.0)
TOLUENE	**1.8**	**TR**(2.0)	ND(1.0)	ND	**319.0**
1,1,1-TRICHLOROETHANE	ND(0.5)	ND(0.5)	**0.6**	ND	ND(<1.0)
1,1,2-TRICHLOROETHANE	ND(0.5)	ND(0.5)	ND(<1.0)	ND	ND(<1.0)
TRICHLOROETHENE	ND(0.5)	ND(0.5)	**0.5**	ND	ND(<1.0)
TRICHLOROFLUOROMETHANE	ND(0.5)	ND(0.5)	**1.0**	ND	ND(<1.0)
VINYL CHLORIDE	ND(0.5)	ND(0.5)	ND(<1.0)	ND	ND(1.0)
TOTAL XYLENES	**12.0**	**15.0**	**41.6**	ND	**137.2**

TR - TRACE
ND - NOT DETECTED
NA - NOT ANALYZED
* - DUPLICATE ANALYSIS

VOLATILE ORGANIC CONCENTRATIONS (pbb)
GIANT BLOOMFIELD REFINERY

AIR STRIPPER EFFLUENT

SAMPLER	GIANT	OCD	GIANT	GIANT	GIANT
DATE	6/23/88	7/13/88	11/8/88	12/8/88	12/13/88
PARAMETER					
DETECTION LIMIT	<1.0	5.0	2.0	(BELOW)	<1.0
BENZENE	**9.5**	**14.0**	ND	**59.0**	**51.0**
BROMODICHLOROMETHANE	ND	ND	ND	ND(<1.0)	ND
BROMOFORM	ND	ND	ND	ND(<1.0)	ND
BROMOMETHANE	ND	ND	ND	ND(1.2)	ND
CARBON TETRACHLORIDE	ND	ND	ND	ND(<1.0)	ND
CHLOROBENZENE	ND	ND	ND	ND(7.5)	ND
CHLOROETHANE	ND	ND	ND	ND(<1.0)	ND
CHLOROFORM	ND	ND	ND	ND(<1.0)	ND
CHLOROMETHANE	ND	ND	ND	ND(<1.0)	ND
DIBROMOCHLOROMETHANE	ND	ND	ND	ND(<1.0)	ND
1,2-DICHLOROBENZENE	ND	ND	NA	ND(10.0)	ND
1,3-DICHLOROBENZENE	ND	ND	NA	ND(10.0)	ND
1,4-DICHLOROBENZENE	ND	ND	NA	ND(7.5)	ND
DICHLORODIFLUOROMETHANE	NA	ND	NA	NA	NA
1,1-DICHLOROETHANE	ND	ND	ND	**0.8**	**0.7**
1,2-DICHLOROETHANE	**0.87**	ND	ND	**2.4**	**2.4**
1,1-DICHLOROETHENE	ND	ND	ND	ND(<1.0)	ND
CIS-1,2-DICHLOROETHENE	NA	ND	NA	NA	NA
TRANS-1,2-DICHLOROETHENE	ND	ND	ND	**0.8**	**0.9**
1,2-DICHLOROPROPANE	ND	ND	ND	ND(<1.0)	ND
ETHYLBENZENE	**1.3**	**TR**	ND	**17.0**	**6.0**
METHYLENE CHLORIDE	**3.0**	ND	ND	ND(<1.0)	ND
1,1,2,2-TETRACHLOROETHANE	ND	ND	ND	ND(<1.0)	ND
TETRACHLOROETHENE	ND	ND	ND	ND(<1.0)	ND
TOLUENE	**7.8**	**TR**	ND	**18.0**	**1.8**
1,1,1-TRICHLOROETHANE	ND	ND	ND	ND(<1.0)	ND
1,1,2-TRICHLOROETHANE	ND	ND	ND	ND(<1.0)	ND
TRICHLOROETHENE	ND	ND	ND	ND(<1.0)	ND
TRICHLOROFLUOROMETHANE	ND	ND	ND	**1.3**	ND
VINYL CHLORIDE	ND	ND	ND	ND(<1.0)	ND
TOTAL XYLENES	**28.0**	**14.0**	**6.6**	**115.0**	**53.0**

TR - TRACE
ND - NOT DETECTED
NA - NOT ANALYZED
** - SPLIT SAMPLE

STATE OF NEW MEXICO DEPARTMENT OF HEALTH
SCIENTIFIC LABORATORY DIVISION
P.O. Box 4700 700 Camino de Salud, NE
Albuquerque, NM 87196-4700 [505]-841-2500
ORGANIC CHEMISTRY SECTION [505]-841-2570

December 20, 1993

Request ID No. 070083

ANALYTICAL REPORT
SLD Accession No. OR-93-3209

Distribution:
(x) User 70320
(X) Submitter 260
(x) SLD Files

To: Roger Anderson
NM Oil Consv. Div.
State Land Office Bldg.
P.O. Box 2088
Santa Fe, NM 87504-2088

From: Organic Chemistry Section
Scientific Laboratory Div.
700 Camino de Salud, NE
Albuquerque, NM 87106

Re: **A water, Extractab sample submitted to this laboratory on December 10, 1993**

DEMOGRAPHIC DATA

COLLECTION		*LOCATION*
On: 9-Dec-93	*By:* Ols . . .	Final Effluent
At: 9:30 hrs.	*In/Near:* Bloomfield	

ANALYTICAL RESULTS: Base/Neutral Extractable [EPA-625] Screen {755}

Parameter	Value	Note	MDL	Units
See Laboratory Remarks for Additional Information				

Notations & Comments:

MDL = Minimal Detectable Level.

A = Approximate Value; N = None Detected above Detection Limit; P = Compound Present, but not quantified;
T = Trace (<Detection Limit); U = Compound Identity Not Confirmed.

Evidentiary Seals: Not Sealed[Y]; Intact: No[ ], Yes[ ] & Broken By: _____ Date: _____

Laboratory Remarks:

No PAH's were found with a PQL of 1 ug/L.

POLYNUCLEAR AROMATIC HYDROCARBON ANALYSIS DATA SHEET

Lab Name: NM SCIENTIFIC LABORATORY DIVISION Contract: N/A
Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: N/A
Matrix: (soil/water) Water Lab Sample ID: OR-93-3209
Sample wt/vol: 920 (g/mL) ml SLD Batch No: 414
Level: (low/med) Low Date Received: 12/10/93
% Moisture: not dec. _____ dec. _____ Date Extracted: 12/13/93
Extraction: (SepF/Cont/Sonc) SepF Date Analyzed: 12/14/93
GPC Cleanup: (Y/N) No pH: _____ Dilution Factor: _____
CONCENTRATION UNITS:
(ug/L or ug/Kg): ug/L

This sample was analyzed for the following Polynuclear Aromatic Compounds Using EPA Method 610 using GC/MS

CAS NO.	COMPOUND	CONC.	Q	PQL

(Continued on page 2.)

83-32-9	Acenaphthene		U	1.0
208-96-8	Acenaphthylene		U	1.0
120-12-7	Anthracene		U	1.0
117-81-7	Benzo(a)anthracene		U	1.0
50-32-8	Benzo(a)pyrene		U	2.0
205-99-2	Benzo(b)fluoranthene		U	2.0
191-24-2	Benzo(g,h,i)perylene		U	2.0
207-08-9	Benzo(k)fluoroanthene		U	2.0
218-01-9	Chrysene		U	1.0
53-70-3	Dibenz(a,h)anthracene		U	1.0
206-44-0	Fluoranthene		U	1.0
86-73-7	Fluorene		U	1.0
193-39-5	Indeno(1,2,3-cd)pyrene		U	1.0
91-57-6	2-Methylnaphthalene		U	1.0
91-20-3	Naphthalene		U	1.0
85-01-8	Phenanthrene		U	1.0
129-00-0	Pyrene		U	1.0

* CONC = CONCENTRATION DETERMINED
  PQL = Practical Quantitation Limit (Approximately 10 times MDL)
* Q = Qualifier Definitions:
B - Indicates compound was detected in the Lab Blank as well as in the sample.
D - Indicates value taken from a secondary (diluted) sample analysis.
E - Indicates compound concentration exceeded the range of the standard curve.
J - Indicates an estimated value for tentatively identified conpounds, or for compounds detected and identified but present at a concentration less than the quantitation limit.
N - Indicates that more than one peak was used for quantitation.
U - Indicates compound was analyzed for, but not detected.

QUALITY CONTROL SUMMARY FOR SEMIVOLATILES SCREEN

METHOD BLANK: A laboratory method blank was analyzed along with this sample to assure the absence of interfering contaminants from lab reagents, instruments, or the general laboratory environment. Unless listed below, no contaminants were detected in this blank above the reported detection limit.

COMPOUND DETECTED CONCENTRATION (PPB)

(Continued on page 3.)

No compounds detected

SURROGATE RECOVERIES:

SURROGATE		CONCENTRATION		% RECOVERY
Nitrobenzene-d5	(B/N)	40	ppb	80.0
2-Fluorobiphenyl	(B/N)	43	ppb	86.0
Terphenyl-d14	(B/N)	52	ppb	104.0

SPIKE RECOVERY: The % recoveries for compounds in the batch spike were within EPA SW-846 criteria with the exception of the compounds listed below:

COMPOUND	CONCENTRATION	% RECOVERY
n-Nitroso-di-n-propylamine	69.1 ug	138.2

Analyst: T.H.C.
Timothy H. Chapman
Analyst, Organic Chemistry

Reviewed By: [signature]
Richard F. Meyerhein 12/16/93
Supervisor, Organic Chemistry Section

ORGANIC CHEMISTRY ANALYTICAL REQUEST FORM

SCIENTIFIC LABORATORY DIVISION
700 CAMINO DE SALUD N.E., ALBUQUERQUE, NM 87106
Organic Chemistry Section - Telephone: (505) 841-2570

SLD No. 3209-C

Date Received: 12-10-93

Request ID No. 070083-C

2 User Code #: 7 0 3 2 0

3 Request ID No.:

4 Priority Code #: 3 (For SLD Coordinator)

5 Facility Name: Giant Bloomfield Refinery

6 County: San Juan

7 City: Bloomfield

8 State: NM

9 Sample Location: FINAL EFFLUENT

10 Collected By: Bill DILSON (First / Initial) On: 93/12/09 (Date: YY/MM/DD) At: 0 9 3 0 hrs. (Time: 24 hr. clock 3:00 pm = 1500 hrs.)

11 Codes: Submitter / WSS # / Organization

12 Latitude (DDMMSS) Longitude (DDDMMSS) 2 Digit ID (if needed)

13 Report To: Roger Anderson

14 Phone #: (505) 827-5812

Address: New Mexico Oil Conservation Division
P. O. Box 2088
City, State Zip: Santa Fe, New Mexico 87504-2088

15 Sample Purpose:
- [x] Compliance
- [ ] Check
- [ ] Monitoring
- [ ] Special

Sampling Information:
- [x] Grab
- [ ] Composite (Composite Time Period)
  - [ ] Flow Proportioned
  - [ ] Equal Aliquot
- [ ] Sample Split w/Permittee
- [ ] Chain of Custody

16 Field Data: pH: 6.5, Conductivity: 2700 umhos @ 8 °C, Temperature: °C, Chlorine Residual: mg/l, Flow:

17 Sample Source:
- [ ] Stream
- [ ] Lake
- [ ] Drain
- [ ] Pool
- [ ] WWTP
- [ ] Well; Depth:
- [ ] Spring
- [ ] Distribution
- [ ] Point-of-Entry
- [x] Other: carbon filter

18 Field Notes/ Sample #:

19 Sample Type: [x] Water, [ ] Soil, [ ] Food, [ ] Wastewater, [ ] Other

This form accompanies a single sample consisting of:
- septum vial(s) (volume =)
- 2 glass jugs (volume = 1 liter)
- (volume =)

20 Preservation:
- [ ] NP — No Preservation; Sample stored at room temperature
- [x] P-Ice — Sample stored in an ice bath (Not Frozen)
- [ ] P-TS — Sample Preserved with Sodium Thiosulfate to remove chlorine residual
- [ ] P-HCl — Sample Preserved with Hydrochloric Acid (2 drops/40 ml)
- [ ] Other

21 Analyses Requested: Please check the appropriate box(es) below to indicate the type of analytical screen(s) required. Whenever possible, list specific compounds suspected or required.

Volatile Screens:
- [ ] (753) Aliphatic Headspace (1-5 Carbons)
- [ ] (754) Aromatic & Halogenated Purgeables (EPA 601 & 602)
- [ ] (765) Mass Spectrometer Purgeables (EPA 624)
- [ ] (766) SDWA Total Trihalomethanes (EPA 501.1)
- [ ] (774) SDWA VOC's I [8 Regulated +] (EPA 502.2)
- [ ] (775) SDWA VOC's II [EDB & DBCP] (EPA 504)

Other Specific Compounds or Classes:
- [ ] ( )
- [ ] ( )
- [ ] ( )

Semivolatile Screens:
- [ ] (763) Acid Extractables
- [ ] (751) Aliphatic Hydrocarbons
- [ ] (755) Base/Neutral Extractables (EPA 625)
- [ ] (756) Base/Neutral/Acid Extractables (EPA 8270)
- [ ] (758) Herbicides, Chlorophenoxy Acid
- [ ] (759) Herbicides, Triazines
- [ ] (760) Organochlorine Pesticides
- [ ] (761) Organophosphate Pesticides
- [ ] (767) Polychlorinated Biphenyls (PCB's)
- [x] (764) Polynuclear Aromatic Hydrocarbons
- [ ] (762) SDWA Pesticides & Herbicides

Remarks:

STATE OF NEW MEXICO DEPARTMENT OF HEALTH
SCIENTIFIC LABORATORY DIVISION
P.O. Box 4700 700 Camino de Salud, NE
Albuquerque, NM 87196-4700 [505]-841-2500
ORGANIC CHEMISTRY SECTION [505]-841-2570

January 6, 1994

Request ID No. 070082

ANALYTICAL REPORT
SLD Accession No. OR-93-3208

Distribution
(_) User 70320
(X) Submitter 260
(x) SLD Files

To: Roger Anderson
NM Oil Consv. Div.
State Land Office Bldg.
P.O. Box 2088
Santa Fe, NM 87504-2088

From: Organic Chemistry Section
Scientific Laboratory Div.
700 Camino de Salud, NE
Albuquerque, NM 87106

Re: **A water, purgeable sample submitted to this laboratory on December 10, 1993**

DEMOGRAPHIC DATA

COLLECTION		*LOCATION*
On: 9-Dec-93	*By:* Ols . . .	Final Effluent
At: 9:30 hrs.	*In/Near:* Bloomfield	

ANALYTICAL RESULTS: Aromatic & Halogenated Purgeable [EPA-601/2] Screen {754}

Parameter	Value	Note	MDL	Units
EPA 601/2 Volatiles (60)	0.00	N	1.00	ppb

See Laboratory Remarks for Additional Information

Notations & Comments:
MDL = Minimal Detectable Level.
A = Approximate Value; N = None Detected above Detection Limit; P = Compound Present, but not quantified;
T = Trace (<Detection Limit); U = Compound Identity Not Confirmed.
Evidentiary Seals: Not Sealed[✓]; Intact: No[ ], Yes[ ] & Broken By: _____ Date: _____

Laboratory Remarks:

VOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: NM SCIENTIFIC LABORATORY DIVISION Contract: N/A
Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: N/A
Matrix: (soil/water) Water Lab Sample ID: OR-93-3208
Sample wt/vol: 5.0 (g/mL) mL SLD Batch No: 421
Level: (low/med) Low Date Received: 12/10/93
% Moisture: not dec. N/A dec. N/A Date Extracted: N/A
Extraction: (SepF/Cont/Sonc) N/A Date Analyzed: 12/21/93
GPC Cleanup: (Y/N) No pH: ____ Dilution Factor: 1
CONCENTRATION UNITS:
(ug/L or ug/Kg): ug/L

This sample was analyzed for the following compounds using EPA Methods 601 & 602

CAS NO.	COMPOUND	CONC.	Q	PQL

(Continued on page 2.)

67-64-1	Acetone		U	5.0
71-43-2	Benzene		U	1.0
108-86-1	Bromobenzene		U	1.0
74-97-5	Bromochloromethane		U	1.0
75-27-4	Bromodichloromethane		U	1.0
75-25-2	Bromoform		U	1.0
78-93-3	2-Butanone (MEK)		U	5.0
104-51-8	n-Butylbenzene		U	1.0
135-98-8	sec-Butylbenzene		U	1.0
98-06-6	tert-Butylbenzene		U	1.0
1634-04-4	tert-Butyl methyl ether (MTBE)		U	5.0
56-23-5	Carbon tetrachloride		U	1.0
108-90-7	Chlorobenzene		U	1.0
67-66-3	Chloroform		U	1.0
95-49-8	2-Chlorotoluene		U	1.0
106-43-4	4-Chlorotoluene		U	1.0
96-12-8	1,2-Dibromo-3-chloropropane		U	1.0
124-48-1	Dibromochloromethane		U	1.0
106-93-4	1,2-Dibromoethane		U	1.0
74-95-3	Dibromomethane		U	1.0
95-50-1	1,2-Dichlorobenzene		U	1.0
541-73-1	1,3-Dichlorobenzene		U	1.0
106-46-7	1,4-Dichlorobenzene		U	1.0
75-71-8	Dichlorodifluoromethane		U	1.0
75-34-3	1,1-Dichloroethane		U	1.0
107-06-2	1,2-Dichloroethane		U	1.0
75-35-4	1,1-Dichloroethene		U	1.0
156-59-4	cis-1,2-Dichloroethene		U	1.0
156-60-5	trans-1,2-Dichloroethene		U	1.0
78-87-5	1,2-Dichloropropane		U	1.0
142-28-9	1,3-Dichloropropane		U	1.0
590-20-7	2,2-Dichloropropane		U	1.0
563-58-6	1,1-Dichloropropene		U	1.0
1006-01-5	cis-1,3-Dichloropropene		U	1.0
1006-02-6	trans-1,3-Dichloropropene		U	1.0
100-41-4	Ethylbenzene		U	1.0
87-68-3	Hexachlorobutadiene		U	1.0
98-82-8	Isopropylbenzene		U	1.0
99-87-6	4-Isopropyltoluene		U	1.0
75-09-2	Methylene chloride		U	1.0
90-12-0	1-Methylnaphthalene		U	1.0
91-57-6	2-Methylnaphthalene		U	1.0

(Continued on page 3.)

91-20-3	Naphthalene		U	1.0
103-65-1	n-Propylbenzene		U	1.0
100-42-5	Styrene		U	1.0
630-20-6	1,1,1,2-Tetrachloroethane		U	1.0
79-34-5	1,1,2,2-Tetrachloroethane		U	1.0
127-18-4	Tetrachloroethene		U	1.0
109-99-9	Tetrahydrofuran (THF)		U	5.0
108-88-3	Toluene		U	1.0
87-61-5	1,2,3-Trichlorobenzene		U	1.0
120-82-1	1,2,4-Trichlorobenzene		U	1.0
71-55-6	1,1,1-Trichloroethane		U	1.0
79-00-5	1,1,2-Trichloroethane		U	1.0
79-01-6	Trichloroethene		U	1.0
75-69-4	Trichlorofluoromethane		U	1.0
96-18-4	1,2,3-Trichloropropane		U	1.0
95-63-6	1,2,4-Trimethylbenzene		U	1.0
108-67-8	1,3,5-Trimethylbenzene		U	1.0
75-01-4	Vinyl chloride		U	1.0
95-47-6	o-Xylene		U	1.0
N/A	p- & m-Xylene		U	1.0

* CONC = CONCENTRAION DETERMINED
  PQL = Practical Quantitation Limit (Approximately 10 times MDL)
* Q = Qualifier Definitions:

B - Indicates compound was detected in the Lab Blank as well as in the sample.
D - Indicates value taken from a secondary (diluted) sample analysis.
E - Indicates compound concentration exceeded the range of the standard curve.
J - Indicates an estimated value for tentatively identified compounds, or for compounds detected and identified but present at a concentration less than the quantitation limit.
N - Indicates that more than one peak was used for quantitation.
U - Indicates compound was analyzed for, but not detected above the concentration listed (Quantitation Limit).

QUALITY CONTROL SUMMARY FOR VOLATILES SCREEN

METHOD BLANK: A laboratory method blank was analyzed along with this sample to assure the absence of interfering contaminants from lab reagents, instruments, or the general laboratory

(Continued on page 4.)

environment. Unless listed below, no contaminants were detected in this blank above the reported detection limit.

COMPOUND DETECTED	CONCENTRATION (PPB)
No Compounds Detected	

SURROGATE RECOVERIES:

SURROGATE	CONCENTRATION	% RECOVERY
Bromofluorobenzene	25.0 ppb	99.0
2-Bromo-1-chloropropane	25.0 ppb	89.0

SPIKE RECOVERY: The % recoveries for compounds in the batch spike were from 80% to 120% with the exception of the compounds listed below:

COMPOUND	CONCENTRATION	% RECOVERY
No exceptions	. ppb	.

Analyst: Alex A. Gallegos
Analyst, Organic Chemistry

Reviewed By: Richard F. Meyerhein 01/06/94
Supervisor, Organic Chemistry Section

ORGANIC CHEMISTRY ANALYTICAL REQUEST FORM

SCIENTIFIC LABORATORY DIVISION
700 CAMINO DE SALUD N.E., ALBUQUERQUE, NM 87106
Organic Chemistry Section - Telephone: (505) 841-2570

SLD No. 3208- C

Date Received: 12-10-93

Request ID No. 070082-C

1 User Code #: 7 0 3 2 0

3 Request ID No.:

4 Priority Code #: 3 (For SLD Coordinator)

5 Facility Name: Giant Bloomfield Refinery

6 County: San Juan

7 City: Bloomfield

8 State: NM

9 Sample Location: FINAL EFFLUENT

10 Collected By: Bill DILISON (First / Initial) On: 93/12/09 (Date: YY/MM/DD) At: 0930 hrs. (Time: 24 hr. clock 3:00 pm = 1500 hrs.)

11 Codes: Submitter / WSS # / Organization

12 Latitude (DDMMSS) Longitude (DDDMMSS) 2 Digit ID (if needed)

13 Report To: Name: Roger Anderson
Address: New Mexico Oil Conservation Division
P. O. Box 2088
City, State Zip: Santa Fe, New Mexico 87504-2088

14 Phone #: (505) 827-5812

15 Sample Purpose:
- [x] Compliance
- [ ] Check
- [ ] Monitoring
- [ ] Special

Sampling Information:
- [x] Grab
- [ ] Composite (Composite Time Period)
  - [ ] Flow Proportioned
  - [ ] Equal Aliquot
- [ ] Sample Split w/Permittee
- [ ] Chain of Custody

16 pH: 6.5, Conductivity: 2700 umhos @ 8 °C, Temperature: °C, Chlorine Residual: mg/l, Flow:

17 Sample Source:
- [ ] Stream
- [ ] Lake
- [ ] Drain
- [ ] Pool
- [ ] WTP
- [ ] Well; Depth:
- [ ] Spring
- [ ] Distribution Carbon filter
- [ ] Point-of-Entry
- [x] Other: Air Stripper

18 Field Notes/ Sample #:

19 Sample Type: [x] Water, [ ] Soil, [ ] Food, [ ] Wastewater, [ ] Other
This form accompanies a single sample consisting of:
2 - septum vial(s) (volume = 40 ml)
___ - glass jugs (volume = ___)
___ - ___ (volume = ___)

20 Preservation:
- [ ] NP No Preservation; Sample stored at room temperature
- [x] P-Ice Sample stored in an ice bath (Not Frozen)
- [ ] P-TS Sample Preserved with Sodium Thiosulfate to remove chlorine residual
- [ ] P-HCl Sample Preserved with Hydrochloric Acid (2 drops/40 ml)
- [x] Other HgCl

21 Analyses Requested: Please check the appropriate box(es) below to indicate the type of analytical screen(s) required. Whenever possible, list specific compounds suspected or required.

Volatile Screens:
- [ ] (753) Aliphatic Headspace (1-5 Carbons)
- [x] (754) Aromatic & Halogenated Purgeables (EPA 601 & 602)
- [ ] (765) Mass Spectrometer Purgeables (EPA 624)
- [ ] (766) SDWA Total Trihalomethanes (EPA 501.1)
- [ ] (774) SDWA VOC's I [8 Regulated +] (EPA 502.2)
- [ ] (775) SDWA VOC's II [EDB & DBCP] (EPA 504)

Other Specific Compounds or Classes:
- [ ] ( )
- [ ] ( )
- [ ] ( )

Semivolatile Screens:
- [ ] (763) Acid Extractables
- [ ] (751) Aliphatic Hydrocarbons
- [ ] (755) Base/Neutral Extractables (EPA 625)
- [ ] (756) Base/Neutral/Acid Extractables (EPA 8270)
- [ ] (758) Herbicides, Chlorophenoxy Acid
- [ ] (759) Herbicides, Triazines
- [ ] (760) Organochlorine Pesticides
- [ ] (761) Organophosphate Pesticides
- [ ] (767) Polychlorinated Biphenyls (PCB's)
- [ ] (764) Polynuclear Aromatic Hydrocarbons
- [ ] (762) SDWA Pesticides & Herbicides

Remarks:

STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

LABORATORY SAMPLE RECORD

PROJ. NO.	PROJECT NAME
	Giant Bloomfield Refinery

SAMPLERS: (Signature)
Bill Olson Bobby Myers

DATE	TIME	STATION LOCATION	NO. OF CONTAINERS	[illegible]	[illegible]	[illegible]	[illegible]			REMARKS
12/10/93		Final Effluent	5	X	X	X	X			

Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Bill Olson	12/10/93 1130	Gloria Olson
Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)

SEALS INTACT ☐ YES ☐ NO

: (Signature)

: (Signature)

Date / Time

Remarks

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

Giant Refining Company
Radian Work Order: S0-11-025

Method:Aromatics by SW8020 (1)
List:Complete analyte list

Sample ID:	901105950 STRIPPER INF.	9011051002 STRIPPER EFF.	REAGENT BLANK
Factor:	1	1	1
Results in:	ug/L	ug/L	ug/L
	04A	05A	06A
Matrix:	water	water	water

	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit
Benzene	5.2 C	0.20	ND	0.20	ND	0.20
Chlorobenzene	ND	0.20	ND	0.20	ND	0.20
1,2-Dichlorobenzene	ND	0.40	ND	0.40	ND	0.40
1,3-Dichlorobenzene	ND	0.40	ND	0.40	ND	0.40
1,4-Dichlorobenzene	2.3 C	0.30	ND	0.30	ND	0.30
Ethylbenzene	0.42 G@	0.20	ND	0.20	ND	0.20
Toluene	0.25 C@	0.20	0.29 X@	0.20	ND	0.20
Xylenes (total)	1.7 C	0.20	0.48 C@	0.20	ND	0.20
Surrogate Recovery(%)						
1-Bromo-4-fluorobenzene	119		128		129	
Control Limits: 40 to 140						

C Confirmed on second column or by GC/MS
G Indicates an estimated GC value due to interferences.
X See definition in report narrative

ND Not detected at specified detection limit
@ Est. result less that 5 times detection limit

(1) For a detailed description of flags and technical terms in this report refer to Appendix A in this report.

Giant Refining Company
Radian Work Order: S0-11-025

Method:Halocarbons by SW8010 (1)
List:Table 3 analyte list

Sample ID:	901105950 STRIPPER INF.	9011051002 STRIPPER EFF.	REAGENT BLANK	REAGENT BLANK
Factor:	1	1	1	1
Results in:	ug/L	ug/L	ug/L	ug/L
	01A	02A	03A	03B
Matrix:	water	water	water	water

	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit
Bromodichloromethane	ND	0.10	ND	0.10	ND	0.10	ND	0.10
Bromoform	ND	0.50	ND	0.50	ND	0.50	ND	0.50
Bromomethane	ND	1.2	ND	1.2	ND	1.2	ND	1.2
Carbon tetrachloride	ND	0.12	ND	0.12	ND	0.12	ND	0.12
Chlorobenzene	ND	0.25	ND	0.25	ND	0.25	ND	0.25
Chloroethane	ND	0.52	ND	0.52	ND	0.52	ND	0.52
2-Chloroethylvinylether	ND	0.50	ND	0.50	ND	0.50	ND	0.50
Chloroform	ND	0.10	ND	0.10	ND	0.10	ND	0.10
Chloromethane	ND	0.30	ND	0.30	ND	0.30	ND	0.30
Dibromochloromethane	ND	0.20	ND	0.20	ND	0.20	ND	0.20
1,2-Dichlorobenzene	ND	0.50	ND	0.50	ND	0.50	ND	0.50
1,3-Dichlorobenzene	ND	0.32	ND	0.32	ND	0.32	ND	0.32
1,4-Dichlorobenzene	ND	0.24	ND	0.24	ND	0.24	ND	0.24
1,1-Dichloroethane	ND	0.50	ND	0.50	ND	0.50	ND	0.50
1,2-Dichloroethane	ND	0.10	ND	0.10	ND	0.10	ND	0.10
1,1-Dichloroethene	ND	0.20	ND	0.20	ND	0.20	ND	0.20
cis-1,2-Dichloroethene	0.66 C@	0.20	ND	0.20	ND	0.20	ND	0.20
trans-1,2-Dichloroethene	ND	0.20	ND	0.20	ND	0.20	ND	0.20
1,2-Dichloropropane	ND	0.10	ND	0.10	ND	0.10	ND	0.10
cis-1,3-Dichloropropene	ND	0.20	ND	0.20	ND	0.20	ND	0.20
trans-1,3-Dichloropropene	ND	0.34	ND	0.34	ND	0.34	ND	0.34
Methylene chloride	ND	0.40	ND	0.40	ND	0.40	ND	0.40
1,1,2,2-Tetrachloroethane	ND	0.15	ND	0.15	ND	0.15	ND	0.15
Tetrachloroethene	0.31 C@	0.10	ND	0.10	ND	0.10	ND	0.10
1,1,1-Trichloroethane	ND	0.20	ND	0.20	ND	0.20	ND	0.20
1,1,2-Trichloroethane	ND	0.20	ND	0.20	ND	0.20	ND	0.20
Trichloroethene	ND	0.20	ND	0.20	ND	0.20	ND	0.20
Trichlorofluoromethane	ND	0.20	0.34 X@	0.20	ND	0.20	ND	0.20
Vinyl chloride	ND	0.20	ND	0.20	ND	0.20	ND	0.20

ND Not detected at specified detection limit
@ Est. result less that 5 times detection limit
C Confirmed on second column or by GC/MS
X See definition in report narrative

(1) For a detailed description of flags and technical terms in this report refer to Appendix A in this report.

Giant Refining Company
Radian Work Order: S0-10-082

Method:Aromatics by SW8020 (1)
List:Complete analyte list

Sample ID:	901008950 STRIPPER EFF.	9010081035 GBR-31	9010081135 GBR-33	9010081240 GBR-30
Factor:	1	1	10	1
Results in:	ug/L	ug/L	ug/L	ug/L
	07A	08A	09A	10A
Matrix:	water	water	water	water

	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit
Benzene	ND	0.20	ND	0.20	4.6 G@	2.0	ND	0.20
Chlorobenzene	ND	0.20	0.34 X@	0.20	11 G	2.0	ND	0.20
1,2-Dichlorobenzene	ND	0.40	1.2 X@	0.40	ND	4.0	0.86 X@	0.40
1,3-Dichlorobenzene	ND	0.40	1.8 X@	0.40	61 X	4.0	ND	0.40
1,4-Dichlorobenzene	0.56 X@	0.30	1.5 X	0.30	68 G	3.0	2.6 C	0.30
Ethylbenzene	ND	0.20	ND	0.20	220 G	2.0	1.6 C	0.20
Toluene	0.45 G@	0.20	0.98 G@	0.20	8.3 C@	2.0	1.2 C	0.20
Xylenes (total)	0.91 X@	0.20	0.45 X@	0.20	310 C	2.0	3.5 X	0.20
Surrogate Recovery(%)								
1-Bromo-4-fluorobenzene	120		75		118		133	

Control Limits: 40 to 140

ND Not detected at specified detection limit
@ Est. result less that 5 times detection limit
C Confirmed on second column or by GC/MS
X See definition in report narrative
G Indicates an estimated GC value due to interferences.

(1) For a detailed description of flags and technical terms in this report refer to Appendix A in this report.

Giant Refining Company
Radian Work Order: S0-10-082

Method:Halocarbons by SW8010 (1)
List:Table 3 analyte list

Sample ID:	901008950	9010081035	9010081135	9010081240
	STRIPPER EFF.	GBR-31	GBR-33	GBR-30
Factor:	1	1	10	1
Results in:	ug/L	ug/L	ug/L	ug/L
	01A	02A	03A	04A
Matrix:	water	water	water	water

	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit
Bromodichloromethane	ND	0.10	ND	0.10	ND	1.0	ND	0.10
Bromoform	ND	0.50	ND	0.50	ND	5.0	ND	0.50
Bromomethane	ND	1.2	ND	1.2	ND	12	ND	1.2
Carbon tetrachloride	ND	0.12	ND	0.12	ND	1.2	ND	0.12
Chlorobenzene	ND	0.25	ND	0.25	ND	2.5	ND	0.25
Chloroethane	ND	0.52	ND	0.52	ND	5.2	ND	0.52
2-Chloroethylvinylether	ND	0.50	ND	0.50	ND	5.0	ND	0.50
Chloroform	ND	0.10	ND	0.10	ND	1.0	ND	0.10
Chloromethane	ND	0.30	ND	0.30	ND	3.0	ND	0.30
Dibromochloromethane	ND	0.20	ND	0.20	ND	2.0	ND	0.20
1,2-Dichlorobenzene	ND	0.50	ND	0.50	ND	5.0	ND	0.50
1,3-Dichlorobenzene	ND	0.32	ND	0.32	ND	3.2	ND	0.32
1,4-Dichlorobenzene	ND	0.24	ND	0.24	ND	2.4	ND	0.24
1,1-Dichloroethane	ND	0.50	ND	0.50	ND	5.0	ND	0.50
1,2-Dichloroethane	ND	0.10	ND	0.10	ND	1.0	0.18 C@	0.10
1,1-Dichloroethene	ND	0.20	ND	0.20	ND	2.0	ND	0.20
cis-1,2-Dichloroethene	ND	0.20	13 C	0.20	38 C	2.0	ND	0.20
trans-1,2-Dichloroethene	ND	0.20	ND	0.20	ND	2.0	ND	0.20
1,2-Dichloropropane	ND	0.10	ND	0.10	ND	1.0	ND	0.10
cis-1,3-Dichloropropene	ND	0.20	ND	0.20	ND	2.0	ND	0.20
trans-1,3-Dichloropropene	ND	0.34	ND	0.34	ND	3.4	ND	0.34
Methylene chloride	ND	0.40	ND	0.40	ND	4.0	ND	0.40
1,1,2,2-Tetrachloroethane	ND	0.15	ND	0.15	ND	1.5	ND	0.15
Tetrachloroethene	ND	0.10	2.8 C	0.10	ND	1.0	ND	0.10
1,1,1-Trichloroethane	ND	0.20	ND	0.20	ND	2.0	ND	0.20
1,1,2-Trichloroethane	ND	0.20	ND	0.20	ND	2.0	ND	0.20
Trichloroethene	ND	0.20	0.47 C@	0.20	ND	2.0	ND	0.20
Trichlorofluoromethane	ND	0.20	ND	0.20	ND	2.0	ND	0.20
Vinyl chloride	ND	0.20	ND	0.20	ND	2.0	ND	0.20

ND Not detected at specified detection limit
@ Est. result less that 5 times detection limit
C Confirmed on second column or by GC/MS

(1) For a detailed description of flags and technical terms in this report refer to Appendix A in this report.

Giant Refining Company
Radian Work Order: SO-10-043

Method:Aromatics by SW8020 (1)
List:Complete analyte list

Sample ID:	9010041115 STRIPPER INF.	9010041125 STRIPPER EFF. 1	9010041320 G-BR-17	9010041444 G-BR-15
Factor:	10	10	10	10
Results in:	ug/L 14A	ug/L 15A	ug/L 16A	ug/L 17A
Matrix:	water	water	water	water

	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit
Benzene	60 C	2.0	5.9 X@	2.0	4.6 X@	2.0	87 C	2.0
Chlorobenzene	4.5 X@	2.0	14 X	2.0	13 X	2.0	ND	2.0
1,2-Dichlorobenzene	ND	4.0	ND	4.0	4.1 X@	4.0	ND	4.0
1,3-Dichlorobenzene	ND	4.0	19 G@	4.0	19 X@	4.0	ND	4.0
1,4-Dichlorobenzene	100 G	3.0	20 G	3.0	11 X@	3.0	ND	3.0
Ethylbenzene	ND	2.0	3.0 C@	2.0	7.8 X@	2.0	ND	2.0
Toluene	3.0 G@	2.0	6.5 G@	2.0	7.2 C@	2.0	ND	2.0
Xylenes (total)	140 C	2.0	35 G	2.0	35 X	2.0	ND	2.0
Surrogate Recovery(%)								
1-Bromo-4-fluorobenzene	101		106		110		105	
Control Limits: 40 to 140								

C Confirmed on second column or by GC/MS
@ Est. result less that 5 times detection limit
G Indicates an estimated GC value due to interferences.
X See definition in report narrative
ND Not detected at specified detection limit

(1) For a detailed description of flags and technical terms in this report refer to Appendix A in this report.

Giant Refining Company
Radian Work Order: S0-10-043

Method:Halocarbons by SW8010 (1)
List:Table 3 analyte list

Sample ID:	9010041115 STRIPPER INF.	9010041125 STRIPPER EFF.	9010041320 G-BR-17	9010041444 G-BR-15
Factor:	10	10	10	10
Results in:	ug/L	ug/L	ug/L	ug/L
	05A	06A	07A	08A
Matrix:	water	water	water	water

	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit
Bromodichloromethane	ND	1.0	13 X	1.0	9.4 X	1.0	ND	1.0
Bromoform	ND	5.0	23 X@	5.0	21 X@	5.0	ND	5.0
Bromomethane	ND	12	ND	12	ND	12	ND	12
Carbon tetrachloride	ND	1.2	16 X	1.2	14 X	1.2	ND	1.2
Chlorobenzene	ND	2.5	16 X	2.5	13 X	2.5	ND	2.5
Chloroethane	ND	5.2	ND	5.2	ND	5.2	ND	5.2
2-Chloroethylvinylether	ND	5.0	ND	5.0	ND	5.0	ND	5.0
Chloroform	ND	1.0	10 X	1.0	8.2 X	1.0	ND	1.0
Chloromethane	ND	3.0	ND	3.0	ND	3.0	ND	3.0
Dibromochloromethane	ND	2.0	14 Y	2.0	13 Y	2.0	ND	2.0
1,2-Dichlorobenzene	ND	5.0	ND	5.0	ND	5.0	ND	5.0
1,3-Dichlorobenzene	ND	3.2	23 X	3.2	23 X	3.2	ND	3.2
1,4-Dichlorobenzene	ND	2.4	26 X	2.4	25 X	2.4	ND	2.4
1,1-Dichloroethane	ND	5.0	13 X@	5.0	11 X@	5.0	ND	5.0
1,2-Dichloroethane	2.7 X@	1.0	13 X	1.0	10 X	1.0	52 C	1.0
1,1-Dichloroethene	ND	2.0	14 X	2.0	11 X	2.0	ND	2.0
cis-1,2-Dichloroethene	16 X	2.0	13 X	2.0	11 X	2.0	ND	2.0
trans-1,2-Dichloroethene	ND	2.0	ND	2.0	ND	2.0	ND	2.0
1,2-Dichloropropane	ND	1.0	6.7 X	1.0	5.6 X	1.0	ND	1.0
cis-1,3-Dichloropropene	ND	2.0	19 X	2.0	18 X	2.0	ND	2.0
trans-1,3-Dichloropropene	ND	3.4	14 Y@	3.4	13 Y@	3.4	ND	3.4
Methylene chloride	4.9 X@	4.0	9.5 X@	4.0	11 X@	4.0	ND	4.0
1,1,2,2-Tetrachloroethane	ND	1.5	ND	1.5	ND	1.5	ND	1.5
Tetrachloroethene	1.5 X@	1.0	16 X	1.0	15 X	1.0	ND	1.0
1,1,1-Trichloroethane	2.5 X@	2.0	20 X	2.0	17 X	2.0	ND	2.0
1,1,2-Trichloroethane	ND	2.0	ND	2.0	ND	2.0	ND	2.0
Trichloroethene	2.3 X@	2.0	9.9 X@	2.0	9.5 X@	2.0	ND	2.0
Trichlorofluoromethane	3.0 X@	2.0	22 X	2.0	18 X	2.0	ND	2.0
Vinyl chloride	ND	2.0	ND	2.0	ND	2.0	ND	2.0

ND Not detected at specified detection limit
@ Est. result less that 5 times detection limit
C Confirmed on second column or by GC/MS
X See definition in report narrative
Y See definition in report narrative

(1) For a detailed description of flags and technical terms in this report refer to Appendix A in this report.

VOA samples run shortly after midnight are associated with the blank which is run on the previous day within the 24hr period.

The X flag means that the presence of this analyte was not confirmed after analysis on a second column.

There was a large amount of matrix interferences with these samples. Several compounds were reported as estimated values due to significant differences in quantitation between the primary and confirmation analyses. The results of the confirmation analyses are reported below.

Sample ID	Compound	Concentration (ug/L)
901008950 STIPPER EFF.	Toluene	1.1
9010081035 GBR-31	Toluene	2.8
9010081135 GBR-33	Benzene	86
	Chlorobenzene	62
	1,4-Dichlorobenzene	170
	Ethylbenzene	99
9010081350 GBR-24D	Toluene	17

Giant Refining Co.
Radian Work Order: 90-09-163

Method:Vol. aromatics by SW8020 (1)
List:SW8020

Sample ID:	9009041352 RW-13	900905957 STRIP INFL	9009051004 STRIP EFFL	Reagent blank
Factor:	1	1	1	1
Results in:	ug/L	ug/L	ug/L	ug/L
	09A	10A	11A	12A
Matrix:	water	water	water	water

	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit
Benzene	ND	0.20	2.8 X	0.20	ND	0.20	ND	0.20
Chlorobenzene	ND	0.20	ND	0.20	ND	0.20	ND	0.20
1,2-Dichlorobenzene	ND	0.40	ND	0.40	ND	0.40	ND	0.40
1,3-Dichlorobenzene	ND	0.40	ND	0.40	ND	0.40	ND	0.40
1,4-Dichlorobenzene	ND	0.30	ND	0.30	ND	0.30	ND	0.30
Ethylbenzene	ND	0.20	ND	0.20	ND	0.20	ND	0.20
Toluene	ND	0.20	ND	0.20	ND	0.20	ND	0.20
Total xylenes	ND	0.20	0.92 X@	0.20	ND	0.20	ND	0.20
Surrogate Recovery(%)								
1-Bromo-4-fluorobenzene	92		88		93		92	

Control Limits: 76 to 140

ND Not detected at specified detection limit
X See definition in report narrative
@ Est. result less that 5 times detection limit

(1) For a detailed description of flags and technical terms in this report refer to Appendix A in this report.

Giant Refining Company
adian Work Order: S0-08-228

Method:Aromatics by SW8020 (1)
List:Complete analyte list

Sample ID:	9008211514	9008211524	REAGENT BLANK
	STRIPPER INF	STRIPPER EFFL	
Factor:	1	1	1
Results in:	ug/L	ug/L	ug/L
	02A	04A	06A
Matrix:	water	water	water

	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit
Benzene	ND	0.20	ND	0.20	ND	0.20
Chlorobenzene	ND	0.20	ND	0.20	ND	0.20
1,2-Dichlorobenzene	ND	0.40	ND	0.40	ND	0.40
1,3-Dichlorobenzene	ND	0.40	ND	0.40	ND	0.40
1,4-Dichlorobenzene	ND	0.30	ND	0.30	ND	0.30
Ethylbenzene	ND	0.20	0.20 X@	0.20	ND	0.20
Toluene	ND	0.20	0.32 X@	0.20	ND	0.20
Xylenes (total)	0.81 G@	0.20	0.44 X@	0.20	ND	0.20
Surrogate Recovery(%)						
1-Bromo-4-fluorobenzene	91		91		58	
Control Limits: 40 to 140						

ND Not detected at specified detection limit
@ Est. result less that 5 times detection limit
G Indicates an estimated GC value due to interferences.
X See definition in report narrative

(1) For a detailed description of flags and technical terms in this report refer to Appendix A in this report.

Giant Refining Company
adian Work Order: S0-08-228

Method:Halocarbons by SW8010 (1)
List:Table 3 analyte list

Sample ID:	9008211514	9008211524	REAGENT BLANK
	STRIPPER INF	STRIPPER EFFL	
Factor:	1	1	1
Results in:	ug/L	ug/L	ug/L
	01A	03A	05A
Matrix:	water	water	water

	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit
Bromodichloromethane	1.4 X	0.10	0.27 X@	0.10	ND	0.10
Bromoform	ND	0.50	ND	0.50	ND	0.50
Bromomethane	ND	1.2	ND	1.2	ND	1.2
Carbon tetrachloride	ND	0.12	ND	0.12	ND	0.12
Chlorobenzene	ND	0.25	ND	0.25	ND	0.25
Chloroethane	ND	0.52	ND	0.52	ND	0.52
2-Chloroethylvinylether	ND	0.50	ND	0.50	ND	0.50
Chloroform	ND	0.10	0.18 X@	0.10	ND	0.10
Chloromethane	ND	0.30	ND	0.30	ND	0.30
Dibromochloromethane	ND	0.20	ND	0.20	ND	0.20
1,2-Dichlorobenzene	ND	0.50	ND	0.50	ND	0.50
1,3-Dichlorobenzene	ND	0.32	ND	0.32	ND	0.32
1,4-Dichlorobenzene	ND	0.24	ND	0.24	ND	0.24
1,1-Dichloroethane	0.68 X@	0.50	ND	0.50	ND	0.50
1,2-Dichloroethane	1.1 C	0.10	ND	0.10	ND	0.10
1,1-Dichloroethene	ND	0.20	ND	0.20	ND	0.20
cis-1,2-Dichloroethene	0.43 X@	0.20	ND	0.20	ND	0.20
trans-1,2-Dichloroethene	ND	0.20	ND	0.20	ND	0.20
1,2-Dichloropropane	ND	0.10	ND	0.10	ND	0.10
cis-1,3-Dichloropropene	ND	0.20	ND	0.20	ND	0.20
trans-1,3-Dichloropropene	ND	0.34	ND	0.34	ND	0.34
Methylene chloride	ND	0.40	ND	0.40	ND	0.40
1,1,2,2-Tetrachloroethane	ND	0.15	ND	0.15	ND	0.15
Tetrachloroethene	0.32 X@	0.10	ND	0.10	ND	0.10
1,1,1-Trichloroethane	0.20 X@	0.20	ND	0.20	ND	0.20
1,1,2-Trichloroethane	ND	0.20	ND	0.20	ND	0.20
Trichloroethene	ND	0.20	0.48 X@	0.20	ND	0.20
Trichlorofluoromethane	ND	0.20	ND	0.20	ND	0.20
Vinyl chloride	ND	0.20	ND	0.20	ND	0.20

X See definition in report narrative
@ Est. result less that 5 times detection limit
ND Not detected at specified detection limit
C Confirmed on second column or by GC/MS

(1) For a detailed description of flags and technical terms in this report refer to Appendix A in this report.

Giant Refining Company
Radian Work Order: S0-07-122

Method:Aromatics by SW8020 (1)
List:Complete analyte list

Sample ID:	9007171035 STRIPPER EFF	9007171055 RW-13	9007171215 GBR-17	9007171345 GBR-15
Factor:	1	1	1	2
Results in:	ug/L	ug/L	ug/L	ug/L
	10A	12A	14A	16A
Matrix:	water	water	water	water

	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit
Benzene	ND	0.20	ND	0.20	ND	0.20	39 C	0.40
Chlorobenzene	ND	0.20	ND	0.20	ND	0.20	ND	0.40
1,2-Dichlorobenzene	ND	0.40	ND	0.40	ND	0.40	ND	0.80
1,3-Dichlorobenzene	ND	0.40	ND	0.40	ND	0.40	ND	0.80
1,4-Dichlorobenzene	ND	0.30	ND	0.30	ND	0.30	ND	0.60
Ethylbenzene	ND	0.20	ND	0.20	ND	0.20	ND	0.40
Toluene	ND	0.20	ND	0.20	ND	0.20	ND	0.40
Xylenes (total)	ND	0.20	ND	0.20	ND	0.20	ND	0.40
Surrogate Recovery(%)								
1-Bromo-4-fluorobenzene	105		104		98		98	

Control Limits: 40 to 140

ND Not detected at specified detection limit

C Confirmed on second column or by GC/MS

(1) For a detailed description of flags and technical terms in this report refer to Appendix A in this report.

Giant Refining Company
Radian Work Order: S0-07-122

Method:Halocarbons by SW8010 (1)
List:Table 3 analyte list

Sample ID:	9007171035 STRIPPER EFF	9007171055 RW-13	9007171215 GBR-17	9007171345 GBR-15
Factor:	1	1	1	1
Results in:	ug/L	ug/L	ug/L	ug/L
	09A	11A	13A	15A
Matrix:	water	water	water	water

	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit
Bromodichloromethane	ND	0.10	ND	0.10	ND	0.10	ND	0.10
Bromoform	ND	0.50	ND	0.50	ND	0.50	ND	0.50
Bromomethane	ND	1.2	ND	1.2	ND	1.2	ND	1.2
Carbon tetrachloride	ND	0.12	ND	0.12	ND	0.12	ND	0.12
Chlorobenzene	ND	0.25	ND	0.25	ND	0.25	ND	0.25
Chloroethane	ND	0.52	ND	0.52	ND	0.52	ND	0.52
2-Chloroethylvinylether	ND	0.50	ND	0.50	ND	0.50	ND	0.50
Chloroform	ND	0.10	ND	0.10	ND	0.10	ND	0.10
Chloromethane	ND	0.30	ND	0.30	ND	0.30	ND	0.30
Dibromochloromethane	ND	0.20	ND	0.20	ND	0.20	ND	0.20
1,2-Dichlorobenzene	ND	0.50	ND	0.50	ND	0.50	ND	0.50
1,3-Dichlorobenzene	ND	0.32	ND	0.32	ND	0.32	ND	0.32
1,4-Dichlorobenzene	ND	0.24	ND	0.24	ND	0.24	ND	0.24
1,1-Dichloroethane	ND	0.50	ND	0.50	ND	0.50	ND	0.50
1,2-Dichloroethane	ND	0.10	4.8 C	0.10	ND	0.10	33 C	0.10
1,1-Dichloroethene	ND	0.20	ND	0.20	ND	0.20	ND	0.20
cis-1,2-Dichloroethene	ND	0.20	ND	0.20	ND	0.20	ND	0.20
trans-1,2-Dichloroethene	ND	0.20	ND	0.20	ND	0.20	0.45 X@	0.20
1,2-Dichloropropane	ND	0.10	ND	0.10	ND	0.10	ND	0.10
cis-1,3-Dichloropropene	ND	0.20	ND	0.20	ND	0.20	ND	0.20
trans-1,3-Dichloropropene	ND	0.34	ND	0.34	ND	0.34	ND	0.34
Methylene chloride	0.69 X@	0.40	ND	0.40	ND	0.40	ND	0.40
1,1,2,2-Tetrachloroethane	ND	0.15	ND	0.15	ND	0.15	ND	0.15
Tetrachloroethene	0.14 X@	0.10	ND	0.10	0.19 X@	0.10	ND	0.10
1,1,1-Trichloroethane	0.94 G@	0.20	ND	0.20	0.30 C@	0.20	ND	0.20
1,1,2-Trichloroethane	ND	0.20	ND	0.20	ND	0.20	ND	0.20
Trichloroethene	6.8 G	0.20	3.0 X	0.20	1.5 X	0.20	ND	0.20
Trichlorofluoromethane	0.24 X@	0.20	0.25 X@	0.20	ND	0.20	ND	0.20
Vinyl chloride	ND	0.20	ND	0.20	ND	0.20	ND	0.20

ND Not detected at specified detection limit
@ Est. result less that 5 times detection limit
C Confirmed on second column or by GC/MS
X See definition in report narrative
G Indicates an estimated GC value due to interferences.

(1) For a detailed description of flags and technical terms in this report refer to Appendix A in this report.

Giant Refining Company
Radian Work Order: S0-06-023

Method:Aromatics by SW8020 (1)
List:Complete analyte list

Sample ID:	9006041345 /STRIPPER INF	9006041355 /STRIPPER ENF	REAGENT BLANK	REAGENT BLANK
Factor:	1	1	1	1
Results in:	ug/L	ug/L	ug/L	ug/L
	02A	04A	06A	06B
Matrix:	water	water	water	water

	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit
Benzene	ND	0.20	ND	0.20	ND	0.20	ND	0.20
Chlorobenzene	4.5 C	0.20	ND	0.20	ND	0.20	ND	0.20
1,2-Dichlorobenzene	ND	0.40	ND	0.40	ND	0.40	ND	0.40
1,3-Dichlorobenzene	ND	0.40	ND	0.40	ND	0.40	ND	0.40
1,4-Dichlorobenzene	ND	0.30	ND	0.30	ND	0.30	ND	0.30
Ethylbenzene	7.1 C	0.20	ND	0.20	ND	0.20	ND	0.20
Toluene	1.2 G	0.20	ND	0.20	ND	0.20	ND	0.20
Xylenes (total)	16 G	0.20	ND	0.20	ND	0.20	ND	0.20
Surrogate Recovery(%)								
1-Bromo-4-fluorobenzene	101		103		107		107	
Control Limits: 40 to 140								

ND Not detected at specified detection limit
C Confirmed on second column or by GC/MS
G Indicates an estimated GC value due to interferences.

(1) For a detailed description of flags and technical terms in this report refer to Appendix A in this report.

Giant Refining Company
Radian Work Order: S0-06-023

Method:Halocarbons by SW8010 (1)
List:Table 3 analyte list

Sample ID:	9006041345 /STRIPPER INF	9006041355 /STRIPPER ENF	REAGENT BLANK	REAGENT BLANK
Factor:	1	1	1	1
Results in:	ug/L	ug/L	ug/L	ug/L
	01A	03A	05A	05B
Matrix:	water	water	water	water

	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit
Bromodichloromethane	ND	0.10	ND	0.10	ND	0.10	ND	0.10
Bromoform	1.2 CI@	0.50	ND	0.50	ND	0.50	ND	0.50
Bromomethane	ND	1.2	ND	1.2	ND	1.2	ND	1.2
Carbon tetrachloride	ND	0.12	ND	0.12	ND	0.12	ND	0.12
Chlorobenzene	ND	0.25	ND	0.25	ND	0.25	ND	0.25
Chloroethane	ND	0.52	ND	0.52	ND	0.52	ND	0.52
2-Chloroethylvinylether	ND	0.50	ND	0.50	ND	0.50	ND	0.50
Chloroform	ND	0.10	ND	0.10	ND	0.10	ND	0.10
Chloromethane	ND	0.30	ND	0.30	ND	0.30	ND	0.30
Dibromochloromethane	ND	0.20	ND	0.20	ND	0.20	ND	0.20
1,2-Dichlorobenzene	ND	0.50	ND	0.50	ND	0.50	ND	0.50
1,3-Dichlorobenzene	ND	0.32	ND	0.32	ND	0.32	ND	0.32
1,4-Dichlorobenzene	ND	0.24	ND	0.24	ND	0.24	ND	0.24
1,1-Dichloroethane	ND	0.50	ND	0.50	ND	0.50	ND	0.50
1,2-Dichloroethane	1.3 CI	0.10	ND	0.10	ND	0.10	ND	0.10
1,1-Dichloroethene	ND	0.20	ND	0.20	ND	0.20	ND	0.20
cis-1,2-Dichloroethene	ND	0.20	ND	0.20	ND	0.20	ND	0.20
trans-1,2-Dichloroethene	ND	0.20	5.2 XI	0.20	ND	0.20	ND	0.20
1,2-Dichloropropane	ND	0.10	ND	0.10	ND	0.10	ND	0.10
cis-1,3-Dichloropropene	ND	0.20	ND	0.20	ND	0.20	ND	0.20
trans-1,3-Dichloropropene	ND	0.34	ND	0.34	ND	0.34	ND	0.34
Methylene chloride	ND	0.40	ND	0.40	ND	0.40	ND	0.40
1,1,2,2-Tetrachloroethane	0.89 GI	0.15	ND	0.15	ND	0.15	ND	0.15
Tetrachloroethene	ND	0.10	ND	0.10	ND	0.10	ND	0.10
1,1,1-Trichloroethane	ND	0.20	ND	0.20	ND	0.20	ND	0.20
1,1,2-Trichloroethane	ND	0.20	ND	0.20	ND	0.20	ND	0.20
Trichloroethene	ND	0.20	ND	0.20	ND	0.20	ND	0.20
Trichlorofluoromethane	ND	0.20	ND	0.20	ND	0.20	ND	0.20
Vinyl chloride	ND	0.20	ND	0.20	ND	0.20	ND	0.20

ND Not detected at specified detection limit
I Result differs from last report - see report narrative
G Indicates an estimated GC value due to interferences.
C Confirmed on second column or by GC/MS
@ Est. result less that 5 times detection limit
X See definition in report narrative

(1) For a detailed description of flags and technical terms in this report refer to Appendix A in this report.

Giant Refining Company
Radian Work Order: S0-05-043

Method:Aromatics by SW8020 (1)
List:Complete analyte list

Sample ID:	90050213221/ STRIPPER I	9005021316/ STRIPPER E	REAGENT BLANK
Factor:	1	1	1
Results in:	ug/L	ug/L	ug/L
	04A	05A	06A
Matrix:	water	water	water

	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit
Benzene	22 C	0.20	ND	0.20	ND	0.20
Chlorobenzene	ND	0.20	ND	0.20	ND	0.20
1,2-Dichlorobenzene	ND	0.40	ND	0.40	ND	0.40
1,3-Dichlorobenzene	ND	0.40	ND	0.40	ND	0.40
1,4-Dichlorobenzene	ND	0.30	ND	0.30	ND	0.30
Ethylbenzene	3.5 C	0.20	ND	0.20	ND	0.20
Toluene	ND	0.20	ND	0.20	ND	0.20
Xylenes (total)	3.8 C	0.20	ND	0.20	ND	0.20
Surrogate Recovery(%)						
1-Bromo-4-fluorobenzene	106		109		106	
Control Limits: 40 to 140						

C Confirmed on second column or by GC/MS

ND Not detected at specified detection limit

(1) For a detailed description of flags and technical terms in this report refer to Appendix A in this report.

Giant Refining Company
Radian Work Order: SO-05-043

Method:Halocarbons by SW8010 (1)
List:Table 3 analyte list

Sample ID:	9005021321/ STRIPPER I	9005021316/ STRIPPER E	REAGENT BLANK
Factor:	1	1	1
Results in:	ug/L	ug/L	ug/L
	01A	02A	03A
Matrix:	water	water	water

	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit
Bromodichloromethane	ND	0.10	ND	0.10	ND	0.10
Bromoform	ND	0.50	ND	0.50	ND	0.50
Bromomethane	ND	1.2	ND	1.2	ND	1.2
Carbon tetrachloride	ND	0.12	ND	0.12	ND	0.12
Chlorobenzene	ND	0.25	ND	0.25	ND	0.25
Chloroethane	ND	0.52	ND	0.52	ND	0.52
2-Chloroethylvinylether	ND	0.50	ND	0.50	ND	0.50
Chloroform	ND	0.10	ND	0.10	ND	0.10
Chloromethane	ND	0.30	ND	0.30	ND	0.30
Dibromochloromethane	ND	0.20	ND	0.20	ND	0.20
1,2-Dichlorobenzene	ND	0.50	ND	0.50	ND	0.50
1,3-Dichlorobenzene	ND	0.32	ND	0.32	ND	0.32
1,4-Dichlorobenzene	ND	0.24	ND	0.24	ND	0.24
1,1-Dichloroethane	2.2 C@	0.50	ND	0.50	ND	0.50
1,2-Dichloroethane	2.2 C	0.10	0.17 C@	0.10	ND	0.10
1,1-Dichloroethene	ND	0.20	ND	0.20	ND	0.20
cis-1,2-Dichloroethene	5.9 C	0.20	ND	0.20	ND	0.20
trans-1,2-Dichloroethene	ND	0.20	ND	0.20	ND	0.20
1,2-Dichloropropane	ND	0.10	ND	0.10	ND	0.10
cis-1,3-Dichloropropene	ND	0.20	ND	0.20	ND	0.20
trans-1,3-Dichloropropene	ND	0.34	ND	0.34	ND	0.34
Methylene chloride	ND	0.40	ND	0.40	ND	0.40
1,1,2,2-Tetrachloroethane	ND	0.15	ND	0.15	ND	0.15
Tetrachloroethene	2.7 C	0.10	ND	0.10	ND	0.10
1,1,1-Trichloroethane	0.53 C@	0.20	ND	0.20	ND	0.20
1,1,2-Trichloroethane	ND	0.20	ND	0.20	ND	0.20
Trichloroethene	2.6 C	0.20	ND	0.20	ND	0.20
Trichlorofluoromethane	ND	0.20	ND	0.20	ND	0.20
Vinyl chloride	ND	0.20	ND	0.20	ND	0.20

ND Not detected at specified detection limit
@ Est. result less that 5 times detection limit
C Confirmed on second column or by GC/MS

(1) For a detailed description of flags and technical terms in this report refer to Appendix A in this report.

Giant Refining Company
Radian Work Order: S0-04-013

Method:Aromatics by SW8020 (1)
List:Complete analyte list

Sample ID:	9004021255 /STRIPPER EFFL	9004021430 /GRW-13	TRIP BLANK #2	REAGENT BLANK
Factor:	1	1	1	1
Results in:	ug/L	ug/L	ug/L	ug/L
	05C	06C	07A	09A
Matrix:	water	water	water	water

	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit
Benzene	ND	0.20	ND	0.20	ND	0.20	ND	0.20
Chlorobenzene	ND	0.20	ND	0.20	ND	0.20	ND	0.20
1,2-Dichlorobenzene	ND	0.40	ND	0.40	ND	0.40	ND	0.40
1,3-Dichlorobenzene	ND	0.40	ND	0.40	ND	0.40	ND	0.40
1,4-Dichlorobenzene	ND	0.30	ND	0.30	ND	0.30	ND	0.30
Ethylbenzene	ND	0.20	ND	0.20	ND	0.20	ND	0.20
Toluene	ND	0.20	ND	0.20	ND	0.20	ND	0.20
Xylenes (total)	ND	0.20	ND	0.20	ND	0.20	ND	0.20
Surrogate Recovery(%)								
1-Bromo-4-fluorobenzene	92		89		89		101	
Control Limits: 40 to 140								

ND Not detected at specified detection limit

(1) For a detailed description of flags and technical terms in this report refer to Appendix A in this report.

Giant Refining Company
Radian Work Order: S0-04-013

Method:Halocarbons by SW8010 (1)
List:Table 3 analyte list

Sample ID:	9004021255 /STRIPPER EFFL	9004021430 /GRW-13	TRIP BLANK #2	REAGENT BLANK
Factor:	1	1	1	1
Results in:	ug/L	ug/L	ug/L	ug/L
	05A	06A	07A	08A
Matrix:	water	water	water	water

	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit
Bromodichloromethane	ND	0.10	ND	0.10	ND	0.10	ND	0.10
Bromoform	ND	0.50	ND	0.50	ND	0.50	ND	0.50
Bromomethane	ND	1.2	ND	1.2	ND	1.2	ND	1.2
Carbon tetrachloride	ND	0.12	ND	0.12	ND	0.12	ND	0.12
Chlorobenzene	ND	0.25	ND	0.25	ND	0.25	ND	0.25
Chloroethane	ND	0.52	ND	0.52	ND	0.52	ND	0.52
2-Chloroethylvinylether	ND	0.50	ND	0.50	ND	0.50	ND	0.50
Chloroform	ND	0.10	ND	0.10	ND	0.10	ND	0.10
Chloromethane	ND	0.30	ND	0.30	ND	0.30	ND	0.30
Dibromochloromethane	ND	0.20	ND	0.20	ND	0.20	ND	0.20
1,2-Dichlorobenzene	ND	0.50	ND	0.50	ND	0.50	ND	0.50
1,3-Dichlorobenzene	ND	0.32	ND	0.32	ND	0.32	ND	0.32
1,4-Dichlorobenzene	ND	0.24	ND	0.24	ND	0.24	ND	0.24
1,1-Dichloroethane	ND	0.50	ND	0.50	ND	0.50	ND	0.50
1,2-Dichloroethane	ND	0.10	4.5 C	0.10	ND	0.10	ND	0.10
1,1-Dichloroethene	ND	0.20	ND	0.20	ND	0.20	ND	0.20
cis-1,2-Dichloroethene	ND	0.20	ND	0.20	ND	0.20	ND	0.20
trans-1,2-Dichloroethene	ND	0.20	ND	0.20	ND	0.20	ND	0.20
1,2-Dichloropropane	ND	0.10	ND	0.10	ND	0.10	ND	0.10
cis-1,3-Dichloropropene	ND	0.20	ND	0.20	ND	0.20	ND	0.20
trans-1,3-Dichloropropene	ND	0.34	ND	0.34	ND	0.34	ND	0.34
Methylene chloride	ND	0.40	ND	0.40	ND	0.40	ND	0.40
1,1,2,2-Tetrachloroethane	ND	0.15	ND	0.15	ND	0.15	ND	0.15
Tetrachloroethene	ND	0.10	ND	0.10	ND	0.10	ND	0.10
1,1,1-Trichloroethane	ND	0.20	ND	0.20	ND	0.20	ND	0.20
1,1,2-Trichloroethane	ND	0.20	ND	0.20	ND	0.20	ND	0.20
Trichloroethene	ND	0.20	ND	0.20	ND	0.20	ND	0.20
Trichlorofluoromethane	ND	0.20	ND	0.20	ND	0.20	ND	0.20
Vinyl chloride	ND	0.20	ND	0.20	ND	0.20	ND	0.20

ND Not detected at specified detection limit

C Confirmed on second column or by GC/MS

(1) For a detailed description of flags and technical terms in this report refer to Appendix A in this report.

Giant Refining Co.
Radian Work Order: 90-04-031

Method:SW8310 PAHs by HPLC (1)
List:8310 Method analytes

Sample ID:	9004021255 STRIP EFFLUE	9004021215 GRW-13	REAGENT BLANK
Factor:	4.7	0.94	1
Results in:	ug/L	ug/L	ug/L
	05A	06A	07A
Matrix:	water	water	water

	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit
Acenaphthalene	ND	11	ND	2.2	ND	2.3		
Acenaphthene	ND	8.5	ND	1.7	ND	1.8		
Anthracene	ND	3.1	ND	0.62	ND	0.66		
Benzo(a)anthracene	ND	0.061	ND	0.012	ND	0.013		
Benzo(a)pyrene	ND	0.11	ND	0.022	ND	0.023		
Benzo(b)fluoranthene	ND	0.085	ND	0.017	ND	0.018		
Benzo(g,h,i)perylene	ND	0.36	ND	0.071	ND	0.076		
Benzo(k)fluoranthene	ND	0.080	ND	0.016	ND	0.017		
Chrysene	ND	0.061	ND	0.012	ND	0.013		
Dibenzo(a,h)anthracene	ND	0.14	ND	0.028	ND	0.030		
Fluoranthene	ND	0.99	ND	0.20	ND	0.21		
Fluorene	ND	0.99	ND	0.20	ND	0.21		
Indeno(1,2,3-cd)pyrene	ND	0.20	ND	0.040	ND	0.043		
Naphthalene	ND	8.5	ND	1.7	ND	1.8		
Phenanthrene	ND	3.0	ND	0.60	ND	0.64		
Pyrene	ND	1.3	ND	0.25	ND	0.27		
Surrogate Recovery(%)								
Terphenyl-d14	86		54		62			
Control Limits: 24 to 146								

ND Not detected at specified detection limit

(1) For a detailed description of flags and technical terms in this report refer to Appendix A in this report.

Giant Refining Company
Radian Work Order: S0-02-151

Method:Aromatics by SW8020 (1)
List:Complete analyte list

Sample ID:	9002121558 STRIPPER EFFL	9002121618 STRIPPER INFL	TB-4	REAGENT BLANK
Factor:	1	10	1	1
Results in:	ug/L 01A	ug/L 02A	ug/L 05A	ug/L 06A
Matrix:	water	water	water	water

	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit
Benzene	5.3 C	0.20	240 C	2.0	ND	0.20	ND	0.20
Chlorobenzene	ND	0.20	ND	2.0	ND	0.20	ND	0.20
1,2-Dichlorobenzene	ND	0.40	ND	4.0	ND	0.40	ND	0.40
1,3-Dichlorobenzene	ND	0.40	ND	4.0	ND	0.40	ND	0.40
1,4-Dichlorobenzene	ND	0.30	ND	3.0	ND	0.30	ND	0.30
Ethylbenzene	ND	0.20	19 C	2.0	ND	0.20	ND	0.20
Toluene	ND	0.20	ND	2.0	ND	0.20	ND	0.20
Xylenes (total)	ND	0.20	ND	2.0	ND	0.20	ND	0.20
Surrogate Recovery(%)								
1-Bromo-4-fluorobenzene	83		86		87		112	
Control Limits: 40 to 140								

C Confirmed on second column

ND Not detected at specified detection limit

(1) For a detailed description of flags and technical terms in this report refer to Appendix A in this report.

Giant Refining Company
Radian Work Order: S0-02-151

Method:Halocarbons by SW8010 (1)
List:Table 3 analyte list

Sample ID:	9002121620 STRIPPER INFL	9002126002 STRIPPER EFFL	TB-4	REAGENT BLANK
Factor:	10	1	1	1
Results in:	ug/L	ug/L	ug/L	ug/L
	03A	04A	05A	06A
Matrix:	water	water	water	water

	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit
Bromodichloromethane	ND	1.0	ND	0.10	ND	0.10	ND	0.10
Bromoform	ND	5.0	ND	0.50	ND	0.50	ND	0.50
Bromomethane	ND	12	ND	1.2	ND	1.2	ND	1.2
Carbon tetrachloride	ND	1.2	ND	0.12	ND	0.12	ND	0.12
Chlorobenzene	ND	2.5	ND	0.25	ND	0.25	ND	0.25
Chloroethane	ND	5.2	ND	0.52	ND	0.52	ND	0.52
2-Chloroethylvinylether	ND	5.0	ND	0.50	ND	0.50	ND	0.50
Chloroform	ND	1.0	ND	0.10	ND	0.10	ND	0.10
Chloromethane	ND	3.0	ND	0.30	ND	0.30	ND	0.30
Dibromochloromethane	ND	2.0	ND	0.20	ND	0.20	ND	0.20
1,2-Dichlorobenzene	ND	5.0	ND	0.50	ND	0.50	ND	0.50
1,3-Dichlorobenzene	ND	3.2	ND	0.32	ND	0.32	ND	0.32
1,4-Dichlorobenzene	ND	2.4	ND	0.24	ND	0.24	ND	0.24
1,1-Dichloroethane	ND	5.0	ND	0.50	ND	0.50	ND	0.50
1,2-Dichloroethane	6.3 C	1.0	0.84 C	0.10	ND	0.10	ND	0.10
1,1-Dichloroethene	ND	2.0	ND	0.20	ND	0.20	ND	0.20
cis-1,2-Dichloroethene	28 C	2.0	0.70 C*	0.20	ND	0.20	ND	0.20
trans-1,2-Dichloroethene	ND	2.0	ND	0.20	ND	0.20	ND	0.20
1,2-Dichloropropane	ND	1.0	ND	0.10	ND	0.10	ND	0.10
cis-1,3-Dichloropropene	ND	2.0	ND	0.20	ND	0.20	ND	0.20
trans-1,3-Dichloropropene	ND	3.4	ND	0.34	ND	0.34	ND	0.34
Methylene chloride	ND	4.0	ND	0.40	ND	0.40	ND	0.40
1,1,2,2-Tetrachloroethane	ND	1.5	ND	0.15	ND	0.15	ND	0.15
Tetrachloroethene	ND	1.0	ND	0.10	ND	0.10	ND	0.10
1,1,1-Trichloroethane	4.5 C*	2.0	ND	0.20	ND	0.20	ND	0.20
1,1,2-Trichloroethane	ND	2.0	ND	0.20	ND	0.20	ND	0.20
Trichloroethene	2.0 C*	2.0	ND	0.20	ND	0.20	ND	0.20
Trichlorofluoromethane	ND	2.0	ND	0.20	ND	0.20	ND	0.20
Vinyl chloride	ND	2.0	ND	0.20	ND	0.20	ND	0.20

ND Not detected at specified detection limit
* Est. result less than 5 times detection limit
C Confirmed on second column

(1) For a detailed description of flags and technical terms in this report refer to Appendix A in this report.

RADIAN CORPORATION

Analytical Data Summary

Giant Refining Co.
Radian Work Order: 90-02-164

Method:SW8310 PAH's by HPLC (1)
List:8310 Method analytes

Sample ID:	9002121530 ST-RIP EFFLUENT	9002121614 ST-RIP INFLUENT	REAGENT BLANK
Factor:	4.8	4.9	1
Results in:	ug/L	ug/L	ug/L
	01A	02A	03A
Matrix:	water	water	water

	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit
Acenaphthalene	ND	11	ND	11	ND	2.3		
Acenaphthene	ND	8.6	ND	8.8	ND	1.8		
Anthracene	ND	3.2	ND	3.2	ND	0.66		
Benzo(a)anthracene	ND	0.062	ND	0.064	ND	0.013		
Benzo(a)pyrene	ND	0.11	ND	0.11	ND	0.023		
Benzo(b)fluoranthene	ND	0.086	ND	0.088	ND	0.018		
Benzo(g,h,i)perylene	ND	0.36	ND	0.37	ND	0.076		
Benzo(k)fluoranthene	ND	0.082	ND	0.083	ND	0.017		
Chrysene	ND	0.062	ND	0.064	ND	0.013		
Dibenzo(a,h)anthracene	ND	0.14	ND	0.15	ND	0.030		
Fluoranthene	ND	1.0	ND	1.0	ND	0.21		
Fluorene	1.4 *	1.0	2.9 *	1.0	ND	0.21		
Indeno(1,2,3-cd)pyrene	ND	0.21	ND	0.21	ND	0.043		
Naphthalene	ND	8.6	ND	8.8	ND	1.8		
Phenanthrene	ND	3.1	5.0 *	3.1	ND	0.64		
Pyrene	ND	1.3	ND	1.3	ND	0.27		
Surrogate Recovery(%)								
Terphenyl-d14	106		90		62			
Control Limits: 24 to 146								

ND Not detected at specified detection limit

* Est. result less than 5 times detection limit

(1) For a detailed description of flags and technical terms in this report refer to Appendix A in this report.

Inter·Mountain Laboratories, Inc.

2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

CLIENT: GBR
ID:
SITE: Stripper Effluent
LAB NO: F3784

DATE REPORTED: 01/24/90
DATE ANALYZED: 01/16/90
DATE RECEIVED: 01/15/90
DATE COLLECTED: 01/15/90

Analysis Requested: Purgeable aromatics in water.

Parameter	Concentration	Units
Benzene	ND (1.0)	ug/l
Toluene	ND (1.0)	ug/l
Ethylbenzene	ND (1.0)	ug/l
m/p-Xylene	ND (1.0)	ug/l
o-Xylene	ND (1.0)	ug/l

Method:
8020 Aromatic Volatile Organics, SW-846, USEPA (1982).
602 Purgeable Aromatics, 40 CFR, Part 136.

(Detection limit in parenthesis.)
ND - Parameter not detected at the stated detection limit.

C. Neal Schaeffer
Senior Chemist

Inter-Mountain Laboratories, Inc.

2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

CLIENT: GBR

DATE REPORTED: 02/21/90
DATE ANALYZED: 01/19/90
DATE RECEIVED: 01/15/90
DATE COLLECTED: 01/15/90

SITE: Effluent
LAB NO: F3784

Analysis Requested: Purgeable halocarbons in water.

Parameter	Concentration	Units
Bromobenzene	ND (10)	ug/l
Bromodichloromethane	ND (10)	ug/l
Bromoform	ND (10)	ug/l
Carbon Tetrachloride	ND (10)	ug/l
Chlorobenzene	ND (10)	ug/l
Chloroethane	ND (10)	ug/l
Chloroform	ND (10)	ug/l
Chloromethane	ND (10)	ug/l
Dibromochloromethane	ND (10)	ug/l
Dibromomethane	ND (10)	ug/l
1,2-Dichlorobenzene	ND (10)	ug/l
1,3-Dichlorobenzene	ND (10)	ug/l
1,4-Dichlorobenzene	ND (10)	ug/l
Dichlorodifluoromethane	ND (10)	ug/l
1,1-Dichloroethane	ND (10)	ug/l
1,2-Dichloroethane	ND (10)	ug/l
1,1-Dichloroethene	ND (10)	ug/l
trans-1,2-Dichloroethene	ND (10)	ug/l
1,2-Dichloropropane	ND (10)	ug/l
1,3-Dichloropropylene	ND (10)	ug/l
2,2-Dichloropropane	ND (10)	ug/l
Dichloromethane	ND (10)	ug/l
1,1,1,2-Tetrachloroethane	ND (10)	ug/l
1,1,2,2-Tetrachloroethane	ND (10)	ug/l
Tetrachloroethene	ND (10)	ug/l
1,1,1-Trichloroethane	ND (10)	ug/l
1,1,2-Trichloroethane	ND (10)	ug/l
Trichloroethene	ND (10)	ug/l
Trichlorofluoromethane	ND (10)	ug/l
1,2,3-Trichloropropane	ND (10)	ug/l
Bromochloromethane	ND (10)	ug/l
1,2-Dibromoethane	ND (10)	ug/l
cis-1,2-Dichloroethene	ND (10)	ug/l
1,1-Dichloropropene	ND (10)	ug/l
Vinyl Chloride	ND (10)	ug/l

Method:
601 Purgeable Halocarbons, 40 CFR Part 136, USEPA (1984).
(Detection limit in parenthesis.)
ND - Parameter not detected at the stated detection limit.

C. Neal Schaeffer
Senior Chemist

Inter·Mountain Laboratories, Inc.

2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

CLIENT: GBR
SITE: Stripper Effluent
LAB NO: F3784

DATE REPORTED: 01/24/90
DATE RECEIVED: 01/15/90
DATE COLLECTED: 01/15/90

Analysis Requested: Polynuclear aromatic hydrocarbons in water.

Parameter	Concentration	Units
Acenaphthene	ND (0.02)	mg/l
Acenaphthylene	ND (0.02)	mg/l
Anthracene	ND (0.02)	mg/l
Benzo(a)Anthracene	ND (0.02)	mg/l
Benzo(a)pyrene	ND (0.02)	mg/l
Benzo(k)fluoranthene	ND (0.02)	mg/l
Benzo(b)fluoranthene	ND (0.02)	mg/l
Benzo(g,h,i)perylene	ND (0.02)	mg/l
Dibenzo(a,h)anthracene	ND (0.02)	mg/l
Chrysene	ND (0.02)	mg/l
Fluoranthene	ND (0.02)	mg/l
Fluorene	ND (0.02)	mg/l
Indeno(1,2,3-cd)pyrene	ND (0.02)	mg/l
Naphthalene	ND (0.02)	mg/l
Phenanthrene	ND (0.02)	mg/l
Pyrene	ND (0.02)	mg/l

Method:
8100 Polynuclear Aromatic Hydrocarbons, SW-846, USEPA (1982).
610 Polyaromatic Hydrocarbons, 40 CFR Part 136 (1984).

(Detection limit in parenthesis.)
ND - Parameter not detected at the stated detection limit.

C. Neal Schaefer
Senior Chemist

Geoscience Consultants, Ltd.
Radian Work Order: 89-12-112

Method:Volatile aromatics (1) List:SW8020	SHS-1	Stripper Eff.	Stripper Inf	GBR-24D
Sample ID:	8912121410	8912121145E	8912121145I	8912121130
Factor:	250	1	5	10
Results in:	ug/L	ug/L	ug/L	ug/L
	05B	06B	07B	08B
Matrix:	water	water	water	water

	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit
Benzene	ND	50	3.3	0.20	110	1.0	21	2.0
Chlorobenzene	ND	50	ND	0.20	ND	1.0	ND	2.0
1,2-Dichlorobenzene	ND	100	ND	0.40	ND	2.0	ND	4.0
1,3-Dichlorobenzene	ND	100	ND	0.40	ND	2.0	ND	4.0
1,4-Dichlorobenzene	ND	75	1.4 *	0.30	8.6	1.5	ND	3.0
Ethylbenzene	ND	50	0.55 *	0.20	18	1.0	27	2.0
Toluene	ND	50	ND	0.20	ND	1.0	ND	2.0
Total xylenes	330	50	ND	0.20	9.1	1.0	6.9 *	2.0
Surrogate Recovery(%)								
1-Bromo-4-fluorobenzene	113		94		114		110	
Control Limits: 76 to 140								

ND Not detected at specified detection limit

* Est. result less than 5 times detection limit

(1) For a detailed description of flags and technical terms in this report refer to Appendix A in this report.

Geoscience Consultants, Ltd.
Radian Work Order: 89-12-112

Method:Halogenated volatiles (1) List:SW8010	SHS-1	Stripper Eff	Stripper Inf	GBR-24D
Sample ID:	8912121410	8912121145E	8912121145I	8912121130
Factor:	5	1	1	1
Results in:	ug/L	ug/L	ug/L	ug/L
	05A	06A	07A	08A
Matrix:	water	water	water	water

	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit
Bromodichloromethane	ND	0.50	ND	0.10	ND	0.10	ND	0.10
Bromoform	ND	2.5	ND	0.50	ND	0.50	ND	0.50
Bromomethane	ND	5.9	ND	1.2	ND	1.2	ND	1.2
Carbon Tetrachloride	ND	0.60	ND	0.12	ND	0.12	ND	0.12
Chlorobenzene	ND	1.3	ND	0.25	ND	0.25	ND	0.25
Chloroethane	ND	2.6	ND	0.52	ND	0.52	ND	0.52
2-Chloroethylvinylether	ND	2.5	ND	0.50	ND	0.50	ND	0.50
Chloroform	5.7	0.50	ND	0.10	ND	0.10	ND	0.10
Chloromethane	ND	1.5	ND	0.30	ND	0.30	ND	0.30
Dibromochloromethane-(2)	ND	1.0	ND	0.20	ND	0.20	ND	0.20
1,2-Dichlorobenzene	ND	2.5	ND	0.50	ND	0.50	0.60 *	0.50
1,3-Dichlorobenzene	ND	1.6	ND	0.32	ND	0.32	ND	0.32
1,4-Dichlorobenzene	ND	1.2	ND	0.24	ND	0.24	ND	0.24
1,1-Dichloroethane	0.72 *	2.5	ND	0.50	1.9 *	0.50	ND	0.50
1,2-Dichloroethane	7.1	0.50	1.0	0.10	3.5	0.10	18	0.10
1,1-Dichloroethene	ND	1.0	ND	0.20	ND	0.20	ND	0.20
trans-1,2-Dichloroethene	21	1.0	0.97 *	0.20	9.3	0.20	ND	0.20
1,2-Dichloropropane	ND	0.50	ND	0.10	ND	0.10	ND	0.10
cis-1,3-Dichloropropene-(2)	N\A	N\A	N\A	N\A	N\A	N\A	N\A	N\A
trans-1,3-Dichloropropene	ND	1.5	ND	0.30	ND	0.30	ND	0.30
Methylene Chloride	ND	2.0	ND	0.40	1.0 *	0.40	ND	0.40
1,1,2,2-Tetrachloroethane-(3)	ND	0.75	ND	0.15	ND	0.15	ND	0.15
Tetrachloroethene-(3)	ND	0.50	ND	0.10	1.3	0.10	ND	0.10
1,1,2-Trichloroethane-(2)	ND	1.0	ND	0.20	ND	0.20	ND	0.20
1,1,1-Trichloroethane	ND	1.0	ND	0.20	0.80 *	0.20	ND	0.20
Trichloroethene	6.2	1.0	ND	0.20	2.0	0.20	ND	0.20
Trichlorofluoromethane	ND	1.0	ND	0.20	ND	0.20	ND	0.20
Vinyl Chloride	ND	1.0	ND	0.20	ND	0.20	ND	0.20

ND Not detected at specified detection limit
N\A Not available

* Est. result less than 5 times detection limit

(1) For a detailed description of flags and technical terms in this report refer to Appendix A in this report.
(2) Dibromochloromethane, 1,1,2-Trichloroethane, and cis-1,3-Dichloropropene coleute. Quantitated as Dibromochloromethane unless otherwise noted.
(3) Tetrachloroethene and 1,1,2,2-Tetrachloroethane coelute. Quantitated as Tetrachloroethene unless otherwise noted.

Geoscience Consultants, Ltd.
Radian Work Order: 89-12-112

Method:SW8310 PAH's by HPLC (1) List:8310 Method analytes	Stripper Eff	Stripper Inf	GBR-24D	GRW-13
Sample ID:	8912121145E	8912121145I	8912121130	8912121200
Factor:	0.94	1.9	0.94	0.94
Results in:	ug/L	ug/L	ug/L	ug/L
	06C	07C	08C	09C
Matrix:	water	water	water	water

	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit
Acenaphthalene	ND	2.2	ND	4.4	ND	2.2	ND	2.2
Acenaphthene	ND	1.7	ND	3.4	144 D	1.7	ND	1.7
Anthracene	ND	0.62	ND	1.3	ND	0.62	ND	0.62
Benzo(a)anthracene	ND	0.012	ND	0.025	ND	0.012	ND	0.012
Benzo(a)pyrene	ND	0.022	ND	0.044	ND	0.022	ND	0.022
Benzo(b)fluoranthene	ND	0.017	ND	0.034	ND	0.017	ND	0.017
Benzo(g,h,i)perylene	ND	0.071	ND	0.14	ND	0.071	ND	0.071
Benzo(k)fluoranthene	ND	0.016	ND	0.032	ND	0.016	ND	0.016
Chrysene	ND	0.012	ND	0.025	ND	0.012	ND	0.012
Dibenzo(a,h)anthracene	ND	0.028	ND	0.057	ND	0.028	ND	0.028
Fluoranthene	ND	0.20	ND	0.40	ND	0.20	ND	0.20
Fluorene	3.4 D	0.20	4.0 D	0.40	2.6 D	0.20	ND	0.20
Indeno(1,2,3-cd)pyrene	ND	0.040	ND	0.082	ND	0.040	ND	0.040
Naphthalene	8.9 D	1.7	14 *D	3.4	1.9 *D	1.7	4.3 *D	1.7
Phenanthrene	11	0.60	13	1.2	3.0	0.60	ND	0.60
Pyrene	0.62 *	0.25	0.54 *	0.51	0.29 *	0.25	ND	0.25
Surrogate Recovery(%)								
Terphenyl-d14	93		80		79		80	
Control Limits: 37 to 139								

ND Not detected at specified detection limit
D Sample diluted for this analyte
* Est. result less than 5 times detection limit

(1) For a detailed description of flags and technical terms in this report refer to Appendix A in this report.

Geoscience Consultants, Ltd.
Radian Work Order: 89-12-112

Method:PAHs by GC 8100 (1) List:8100, special list	Stripper Eff	Stripper Inf	GBR-24D	GRW-13
Sample ID:	8912121145E	8912121145I	8912121130	8912121200
Factor:	0.94	0.94	0.94	0.94
Results in:	ug/L	ug/L	ug/L	ug/L
	06C	07C	08C	09C
Matrix:	water	water	water	water

	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit
1-Methylnaphthalene	2.0 *	0.94	6.3	0.94	5.8	0.94	ND	0.94
2-Methylnaphthalene	2.8 *	0.94	2.8 *	0.94	ND	0.94	ND	0.94

* Est. result less than 5 times detection limit

ND Not detected at specified detection limit

(1) For a detailed description of flags and technical terms in this report refer to Appendix A in this report.

Inter-Mountain Laboratories, Inc.

2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

CLIENT: GBR- Giant Refinery
SITE: Outlet
LAB NO: F3529

DATE REPORTED: 11/21/89
DATE ANALYZED: 11/17/89
DATE RECEIVED: 11/15/89
DATE COLLECTED: 11/15/89

Analysis Requested: Purgeable aromatics in water.

Parameter	Concentration	Units
Benzene	ND (0.5)	ug/l
Toluene	ND (0.5)	ug/l
Ethylbenzene	ND (0.5)	ug/l
m,p-Xylene	ND (0.5)	ug/l
o-Xylene	ND (0.5)	ug/l
1,4-Dichlorobenzene	ND (0.5)	ug/l
1,3-Dichlorobenzene	ND (0.5)	ug/l
1,2-Dichlorobenzene	ND (0.5)	ug/l
Chlorobenzene	ND (0.5)	ug/l

Method:
8020 Aromatic Volatile Organics, SW-846, USEPA (1982)
602 Purgeable Aromatics, 40 CFR, Part 136

(Detection limit in parenthesis.)
ND - Parameter not detected at the stated detection limit.

C. Neal Schaeffer
Senior Chemist

Inter-Mountain Laboratories, Inc.
2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

CLIENT: GBR- Giant Refinery
SITE: Outlet
LAB NO: F3529

DATE REPORTED: 03/09/90
DATE ANALYZED: N/A *
DATE RECEIVED: 11/15/89
DATE COLLECTED: 11/15/89

Analysis Requested: Purgeable halocarbons in water.

* Analysis could not be performed due to loss of sample in shipment. Due to laboratory error this was not reported to the Giant Refinery staff in a timely manner.

C. Neal Schaeffer
Senior Chemist

Inter-Mountain Laboratories, Inc.

2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

CLIENT: Giant Refinery
SITE: Stripper Effluent
LAB NO: F3529

DATE REPORTED: 12/28/89
DATE ANALYZED: 11/27/89
DATE RECEIVED: 11/11/89
DATE COLLECTED: 11/11/89

Analysis Requested: Polynuclear aromatic hydrocarbons in water.

Parameter	Concentration	Units
Acenaphthene	ND (2.0)	mg/l
Acenaphthylene	ND (2.0)	mg/l
Anthracene	ND (2.0)	mg/l
Benzo(a)Anthracene	ND (2.0)	mg/l
Benzo(a)pyrene	ND (2.0)	mg/l
Benzo(k)fluoranthene	ND (2.0)	mg/l
Benzo(g,h,i)perylene	ND (2.0)	mg/l
Dibenzo(a,h)anthracene	ND (2.0)	mg/l
Chrysene	ND (2.0)	mg/l
Fluoranthene	ND (2.0)	mg/l
Fluorene	2.5 (2.0)	mg/l
Indeno(1,2,3-cd)pyrene	ND (2.0)	mg/l
Naphthalene	ND (2.0)	mg/l
Phenanthrene	3.4 (2.0)	mg/l
Pyrene	ND (2.0)	mg/l
Benzo(b)fluoranthene	ND (0.02)	mg/l

Method:
610 Polyaromatic Hydrocarbons, 40 CFR Part 136 (1984)

(Detection limit in parenthesis.)
ND - Parameter not detected at the stated detection limit.

C. Neal Schaeffer
Senior Chemist

Inter-Mountain Laboratories, Inc.

2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

CLIENT: GBR- Giant Refinery
SITE: Outlet
LAB NO: F3379

DATE REPORTED: 11/14/89
DATE ANALYZED: 10/26/89
DATE RECEIVED: 10/19/89
DATE COLLECTED: 10/19/89

Analysis Requested: Purgeable aromatics in water.

Parameter	Concentration	Units
Benzene	12.43 (0.2)	ug/l
Toluene	5.42 (0.2)	ug/l
Ethylbenzene	1.48 (0.2)	ug/l
m,p-Xylene	1.89 (0.2)	ug/l
o-Xylene	1.65 (0.2)	ug/l
1,4-Dichlorobenzene	ND (0.2)	ug/l
1,3-Dichlorobenzene	ND (0.2)	ug/l
1,2-Dichlorobenzene	ND (0.2)	ug/l
Chlorobenzene	ND (0.2)	ug/l

Method:
8020 Aromatic Volatile Organics, SW-846, USEPA (1982)
602 Purgeable Aromatics, 40 CFR, Part 136

(Detection limit in parenthesis.)
ND - Parameter not detected at the stated detection limit.

C. Neal Schaeffer
Senior Chemist

Inter-Mountain Laboratories, Inc.

2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

CLIENT: GBR- Giant Refinery
SITE: Outlet
LAB NO: F3379

DATE REPORTED: 11/14/89
DATE ANALYZED: 10/31/89
DATE RECEIVED: 10/19/89
DATE COLLECTED: 10/19/89

Analysis Requested: Purgeable halocarbons in water.

Parameter	Concentration	Units
Bromobenzene	ND (1.0)	ug/l
Bromodichloromethane	ND (1.0)	ug/l
Bromoform	ND (1.0)	ug/l
Carbon Tetrachloride	ND (1.0)	ug/l
Chlorobenzene	ND (1.0)	ug/l
Chloroethane	ND (1.0)	ug/l
Chloroform	ND (1.0)	ug/l
Chloromethane	ND (1.0)	ug/l
Dibromochloromethane	ND (1.0)	ug/l
Dibromomethane	ND (1.0)	ug/l
1,2-Dichlorobenzene	ND (1.0)	ug/l
1,3-Dichlorobenzene	ND (1.0)	ug/l
1,4-Dichlorobenzene	ND (1.0)	ug/l
Dichlorodifluoromethane	ND (1.0)	ug/l
1,1-Dichloroethane	ND (1.0)	ug/l
1,2-Dichloroethane	ND (1.0)	ug/l
1,1-Dichloroethene	ND (1.0)	ug/l
trans-1,2-Dichloroethene	ND (1.0)	ug/l
1,2-Dichloropropane	ND (1.0)	ug/l
1,3-Dichloropropylene	ND (1.0)	ug/l
2,2-Dichloropropane	ND (1.0)	ug/l
Dichloromethane	ND (1.0)	ug/l
1,1,1,2-Tetrachloroethane	ND (1.0)	ug/l
1,1,2,2-Tetrachloroethane	ND (1.0)	ug/l
Tetrachloroethene	ND (1.0)	ug/l
1,1,1-Trichloroethane	ND (1.0)	ug/l
1,1,2-Trichloroethane	ND (1.0)	ug/l
Trichloroethene	ND (1.0)	ug/l
Trichlorofluoromethane	ND (1.0)	ug/l
1,2,3-Trichloropropane	ND (1.0)	ug/l

Method:
601 Purgeable Halocarbons, 40 CFR Part 136, USEPA (1984).
8010 Halogenated Volatile Organics, SW-846, USEPA (1982).

(Detection limit in parenthesis.)
ND - Parameter not detected at the stated detection limit.

C. Neal Schaeffer
Senior Chemist

1.4.4

Inter-Mountain Laboratories, Inc.
2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

CLIENT: Giant Refinery
DATE REPORTED: 12/28/89
DATE ANALYZED: 11/27/89
SITE: Outlet
DATE RECEIVED: 10/19/89
LAB NO: F3379
DATE COLLECTED: 10/19/89
Analysis Requested: Polynuclear aromatic hydrocarbons in water.

Parameter	Concentration	Units
Acenaphthene	ND (5.0)	mg/l
Acenaphthylene	ND (5.0)	mg/l
Anthracene	ND (5.0)	mg/l
Benzo(a)Anthracene	ND (5.0)	mg/l
Benzo(a)pyrene	ND (5.0)	mg/l
Benzo(k)fluoranthene	ND (5.0)	mg/l
Benzo(g,h,i)perylene	ND (5.0)	mg/l
Dibenzo(a,h)anthracene	ND (5.0)	mg/l
Chrysene	ND (5.0)	mg/l
Fluoranthene	ND (5.0)	mg/l
Fluorene	ND (5.0)	mg/l
Indeno(1,2,3-cd)pyrene	ND (5.0)	mg/l
Naphthalene	ND (5.0)	mg/l
Phenanthrene	ND (5.0)	mg/l
Pyrene	ND (5.0)	mg/l
Benzo(b)fluoranthene	ND (5.0)	mg/l

Method:
610 Polyaromatic Hydrocarbons, 40 CFR Part 136 (1984).

(Detection limit in parenthesis.)
ND - Parameter not detected at the stated detection limit.

C. Neal Schaeffer
Senior Chemist

MONTHLY SAMPLING
ANALYTICAL RESULTS FOR AIR STRIPPER INFLUENT AND EFFLUENT
AROMATIC VOLATILE ORGANIC COMPOUNDS
(ug/L unless otherwise noted)
(Sampling Event: 09/29/89)

	INFLUENT		EFFLUENT	
Benzene	78.0	(1.0)	9.2	(1.0)
Chlorobenzene	ND	(1.0)	ND	(1.0)
Ethylbenzene	16.3	(1.0)	0.4	(1.0)
Toluene	22.6	(1.0)	0.6	(1.0)
m/p-Xylene	29.4	(1.0)	0.7	(1.0)
o-Xylene	13.7	(1.0)	0.5	(1.0)
1,2-Dichlorobenzene	ND	(1.0)	ND	(1.0)
1,3-Dichlorobenzene	ND	(1.0)	ND	(1.0)
1,4-Dichlorobenzene	ND	(1.0)	ND	(1.0)

( ) = Detection Limit
ND = Not Detected
T = Detected Below Quantifiable Level
NA = Not Analyzed

Why 20-fold decrease in Benzene from 9/13 sampling (P. 11)?

0348/SAMP789.TAB

Product in 9/13 stream?
Blending and/or tanks not working?

RADIAN CORPORATION

 RAS Sacramento REPORT Work Order # 89-09-083

Received: 09/14/89 Results by Sample

SAMPLE ID E9091310330 H2O Effluent FRACTION 020 TEST CODE 6028 NAME Purgeable Aromatics - H2O

Date & Time Collected 09/13/89 Category

ORGANICS ANALYSIS DATA SHEET - PURGEABLE AROMATICS (1)

ANALYST TBJ FILE # E4091510 VERIFIED JD

INSTRMT 4 INJECTD 09/16/89 FACTOR 100 UNITS ug/L

high

CAS#	COMPOUND	RESULT	DET LIMIT	FACTOR
71-43-2	Benzene	1200 C	10	100
108-88-3	Toluene	190 C	30	100
100-41-4	Ethylbenzene	50 C	10	100
108-90-7	Chlorobenzene	ND	10	100
1330-20-7	Total Xylenes	110 C	20	100
106-46-7	1,4-Dichlorobenzene	ND	20	100
541-73-1	1,3-Dichlorobenzene	ND	40	100
95-50-1	1,2-Dichlorobenzene	ND	20	100

SURROGATE

460-00-4 1-Bromo-4-Fluorobenzene 100% recovery

(1) See Appendix A for Glossary of Report and Data Flag Definitions

RADIAN CORPORATION

 RAS Sacramento REPORT Work Order # S9-09-083

Received: 09/14/89 Results by Sample

SAMPLE ID E909131330 H2O Effluent FRACTION 02A TEST CODE 601 NAME Purgeable Halocarbons H2O

Date & Time Collected 09/13/89 Category

ORGANICS ANALYSIS DATA SHEET - PURGEABLE HALOCARBONS (1)

ANALYST TBJ FILE # D40P1510 VERIFIED JD

INSTRMT 4 INJECTD 09/15/89 FACTOR 100 UNITS ug/L

High

CAS#	COMPOUND	RESULT	DET LIMIT	FACTOR
74-87-3	Chloromethane	ND	50	100
74-83-9	Bromomethane	ND	100	100
75-01-4	Vinyl Chloride	ND	20	100
75-00-3	Chloroethane	ND	50	100
75-09-2	Methylene Chloride	ND	40	100
75-69-4	Trichlorofluoromethane	ND	10	100
75-35-4	1,1-Dichloroethene	ND	10	100
75-34-3	1,1-Dichloroethane	ND	10	100
540-59-0	Total 1,2-Dichloroethene (2)	ND	10	100
67-66-3	Chloroform	ND	10	100
107-06-2	1,2-Dichloroethane	ND	10	100
71-55-6	1,1,1-Trichloroethane	ND	20	100
56-23-5	Carbon Tetrachloride	ND	20	100
75-27-4	Bromodichloromethane	ND	10	100
78-87-5	1,2-Dichloropropane	ND	10	100
10061-01-5	cis-1,3-Dichloropropene	ND	40	100
79-01-6	Trichloroethene	ND	20	100
124-48-1	Dibromochloromethane (3)	ND	20	100
79-00-5	1,1,2-Trichloroethane (3)	ND	20	100
10061-02-6	trans-1,3-Dichloropropene (3)	ND	40	100
110-75-8	2-Chloroethylvinyl Ether	ND	200	100
75-25-2	Bromoform	ND	200	100
79-34-5	1,1,2,2-Tetrachloroethane (4)	ND	20	100
127-18-4	Tetrachloroethene (4)	ND	10	100
108-90-7	Chlorobenzene	ND	20	100
541-73-1	1,3-Dichlorobenzene	ND	50	100
95-50-1	1,2-Dichlorobenzene	ND	20	100
106-46-7	1,4-Dichlorobenzene	ND	20	100

KADIAN CORPORATION

Received 09/14/89

RAS Sacramento REPORT
Results by Sample

Work Order # 89-09-063
Continued From Above

SAMPLE ID 8909131330 H20 Effluent FRACTION OEA TEST CODE 601 NAME Purgeable Halocarbons H20
Date & Time Collected 09/13/89 Category

SURROGATES

540-36-3	1-4-Difluorobenzene	NA	% Recovery
460-00-4	1-Bromo-4-Fluorobenzene	102	% Recovery

(1) See Appendix A for Glossary of Report and Data Flag Definitions
(2) Quantitated as the Trans-isomer
(3) Dibromochloromethane, 1,1,2-Trichloroethane and Trans-1,3-dichloropropene co-elute.
(4) 1,1,2,2-Tetrachloroethane and tetrachloroethene co-elute.

Analytical Data Summary

Geoscience Consultants, Ltd.
Radian Work Order: 89-09-111

Method:PAHs by HPLC (1) List:	GBR-30	GRW-13	GBR-31	GBR-17	Influent	Effluent
Sample ID:	8909131015	8909131030	8909131145	8909131230	8909131300	8909131330
Factor:	24	1	1	1	24	10
Results in:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
	07A	08A	09A	10A	11A	12A
Matrix:	water	water	water	water	water	water
Acenaphthalene	<55	<2.3	<2.3	<2.3	<55	<23
Acenaphthene	<43	<1.8	<1.8	<1.8	<43	<18
Anthracene	<16	<0.66	<0.66	<0.66	<16	<6.6
Benzo(a)anthracene	<0.31	<0.013	<0.013	<0.013	<0.31	<0.13
Benzo(a)pyrene	<0.55	<0.023	<0.023	<0.023	<0.55	<0.23
Benzo(b)fluoranthene	<0.43	<0.018	<0.018	<0.018	<0.43	<0.18
Benzo(g,h,i)perylene	<1.8	<0.076	<0.076	<0.076	<1.8	<0.76
Benzo(k)fluoranthene	<0.41	<0.017	<0.017	<0.017	<0.41	<0.17
Chrysene	<0.31	<0.013	<0.013	<0.013	<0.31	<0.13
Dibenzo(a,h)anthracene	<0.72	<0.030	<0.030	<0.030	<0.72	<0.30
Fluoranthene	<5.0	<0.21	<0.21	<0.21	<5.0	<2.1
Fluorene	11*	<0.21	<0.21	<0.21	9.4*	9.5*
Indeno(1,2,3-cd)pyrene	<1.0	<0.043	<0.043	<0.043	<1.0	<0.43
Naphthalene	<43	<1.8	<1.8	<1.8	<43	<18
Phenanthrene	<15	<0.64	<0.64	<0.64	<15	<6.4
Pyrene	<6.5	<0.27	<0.27	<0.27	<6.5	<2.7
Surrogate Recovery(%)						
Terphenyl-d14	NC	128	129	114	NC	130

Control Limits: 37 to 139

* Est. result less than 5 times detection limit NC Not calculated

(1) For a detailed description of flags and technical terms in this report refer to Appendix A in this report.

MONTHLY SAMPLING
ANALYTICAL RESULTS FOR AIR STRIPPER INFLUENT AND EFFLUENT
AROMATIC VOLATILE ORGANIC COMPOUNDS
(ug/L unless otherwise noted)
(Sampling Event: 08/17/89)

	INFLUENT		EFFLUENT	
			High	
Benzene	140	(1.0)	* 58	(1.0)
Toluene	6.1	(3.0)	2.7	(3.0)
Ethylbenzene	ND	(1.0)	ND	(1.0)
Chlorobenzene	ND	(1.0)	ND	(1.0)
Total Xylenes	36	(2.0)	13	(2.0)
1,4-Dichlorobenzene	ND	(2.0)	ND	(2.0)
1,3-Dichlorobenzene	ND	(4.0)	ND	(4.0)
1,2-Dichlorobenzene	ND	(2.0)	ND	(2.0)

( ) = Detection Limit
ND = Not Detected
T = Detection Below Quantifiable Level
NA = Not Analyzed

RAS Sacramento REPORT Work Order # 89-08-192

Received: 08/18/89

Results by Sample

SAMPLE ID 8908171316 H2O Effluent FRACTION 02A TEST CODE 601 NAME Purgeable Halocarbons H2O

Date & Time Collected 08/17/89 Category

ORGANICS ANALYSIS DATA SHEET - PURGEABLE HALOCARBONS (1)

ANALYST TBJ FILE # D4082210 VERIFIED JD

INSTRMT 4 INJECTD 08/22/89 FACTOR 10 UNITS ug/L

CAS#	COMPOUND	RESULT	DET LIMIT	FACTOR
74-87-3	Chloromethane	ND	5.0	10
74-83-9	Bromomethane	ND	10	10
75-01-4	Vinyl Chloride	ND	2.0	10
75-00-3	Chloroethane	ND	5.0	10
75-09-2	Methylene Chloride	ND	4.0	10
75-69-4	Trichlorofluoromethane	ND	1.0	10
75-35-4	1,1-Dichloroethene	ND	1.0	10
75-34-3	1,1-Dichloroethane	ND	1.0	10
540-59-0	Total 1,2-Dichloroethene (2)	7.1 C	1.0	10
67-66-3	Chloroform	ND	1.0	10
107-06-2	1,2-Dichloroethane	ND	1.0	10
71-55-6	1,1,1-Trichloroethane	ND	2.0	10
56-23-5	Carbon Tetrachloride	ND	2.0	10
75-27-4	Bromodichloromethane	ND	1.0	10
78-87-5	1,2-Dichloropropane	ND	1.0	10
10061-01-5	cis-1,3-Dichloropropene	ND	4.0	10
79-01-6	Trichloroethene	ND	2.0	10
124-48-1	Dibromochloromethane (3)	ND	2.0	10
79-00-5	1,1,2-Trichloroethane (3)	ND	2.0	10
10061-02-6	trans-1,3-Dichloropropene (3)	ND	4.0	10
110-75-8	2-Chloroethylvinyl Ether	ND	20	10
75-25-2	Bromoform	ND	20	10
79-34-5	1,1,2,2-Tetrachloroethane (4)	ND	2.0	10
127-18-4	Tetrachloroethene (4)	ND	1.0	10
108-90-7	Chlorobenzene	ND	2.0	10
541-73-1	1,3-Dichlorobenzene	ND	5.0	10
95-50-1	1,2-Dichlorobenzene	ND	2.0	10
106-46-7	1,4-Dichlorobenzene	ND	2.0	10

Received: 08/18/89

RAS Sacramento REPORT
Results by Sample

Work Order # 89-08-192
Continued From Above

SAMPLE ID 890817131E H2O Effluent FRACTION 02A TEST CODE 601 NAME Purgeable Halocarbons H2O
Date & Time Collected 08/17/89 Category

SURROGATES

540-36-3	1-4-Difluorobenzene	NA	% Recovery
460-00-4	1-Bromo-4-Fluorobenzene	100	% Recovery

(1) See Appendix A for Glossary of Report and Data Flag Definitions
(2) Quantitated as the Trans-isomer
(3) Dibromochloromethane, 1,1,2-Trichloroethane and Trans-1,3-dichloropropene co-elute.
(4) 1,1,2,2-Tetrachloroethane and tetrachloroethene co-elute.

Geoscience Consultants, Ltd.
Radian Work Order: 89-08-259

Method:SW8310 PAH's by HPLC (1) List:	Influent	Effluent	Rainbow Spring	
Sample ID:	8908171304	8908171316	8908171333	REAGENT BLANK
Factor:	10	10	10	10
Results in:	ug/L	ug/L	ug/L	ug/L
	01A	02A	03A	04A
Matrix:	water	water	water	water
Acenaphthalene	<23	<23	<23	<23
Acenaphthene	<18	<18	<18	<18
Anthracene	<6.6	<6.6	<6.6	<6.6
Benzo(a)anthracene	<0.13	<0.13	<0.13	<0.13
Benzo(a)pyrene	<0.23	<0.23	<0.23	<0.23
Benzo(b)fluoranthene	<0.18	<0.18	<0.18	<0.18
Benzo(g,h,i)perylene	<0.76	<0.76	<0.76	<0.76
Benzo(k)fluoranthene	<0.17	<0.17	<0.17	<0.17
Chrysene	<0.13	<0.13	<0.13	<0.13
Dibenzo(a,h)anthracene	<0.30	<0.30	<0.30	<0.30
Fluoranthene	<2.1	<2.1	<2.1	<2.1
Fluorene	4*	4*	<2.1	<2.1
Indeno(1,2,3-cd)pyrene	<0.43	<0.43	<0.43	<0.43
Naphthalene	250	27*	310	<18
Phenanthrene	43	42	<6.4	<6.4
Pyrene	<2.7	<2.7	<2.7	<2.7
Surrogate Recovery(%)				
Terphenyl-d14	134	138	102	132
Control Limits: 37 to 139				

* Est. result less than 5 times detection limit

(1) For a detailed description of flags and technical terms in this report refer to Appendix A in this report.

Inter-Mountain Laboratories, Inc.

2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

Date: 07/31/89

Client: Geoscience Consultants, Ltd.
GCL Sample No: 8907121200
Sample Site: Effluent
IML Sample No: F1732
Analysis Requested: Purgeable Aromatics
Sample Matrix: Water

Date Sampled: 07/12/89
Date Received: 07/12/89
Date Extracted: N/A
Date Analyzed: 07/21/89

Parameter	Concentration	Units
BENZENE	0.51 (0.2)	ug/l
TOLUENE	ND(0.2)	ug/l
ETHYLBENZENE	ND(0.2)	ug/l
CHLOROBENZENE	ND(0.2)	ug/l
m,p-XYLENE	ND(0.2)	ug/l
o-XYLENE	ND(0.2)	ug/l
1,4-DICHLOROBENZENE	ND(0.2)	ug/l
1,3-DICHLOROBENZENE	ND(0.2)	ug/l
1,2-DICHLOROBENZENE	ND(0.2)	ug/l

Method: 8020 Aromatic Volatile Organics, SW-846, USEPA (1982)
602 Purgeable Aromatics, 40 CFR, Part 136

Note: Method Detection Limit (MDL) is given in parenthesis.
ND means analyte was not detected.

C. Neal Schaeffer
Senior Organic Chemist

Inter-Mountain Laboratories, Inc.

2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

RECEIVED AUG 2 3 1989

Date: July 31, 1989

Client: Geoscience Consultants, Ltd.
GCL Sample No: 8907121200
Sample Site: Effluent
IML Sample No: F1732
Analysis Requested: Purgeable Halocarbons
Sample Matrix: Water

Date Sampled: 07/12/89
Date Received: 07/12/89
Date Extracted: N/A
Date Analyzed: 07/17/89

Parameter	Concentration	Units
CHLOROMETHANE	ND (1.0)	ug/l
BROMOMETHANE	ND (1.0)	ug/l
DICHLORODIFLUOROMETHANE	ND (1.0)	ug/l
VINYL CHLORIDE	ND (1.0)	ug/l
CHLOROETHANE	ND (1.0)	ug/l
METHYLENE CHLORIDE	ND (1.0)	ug/l
TRICHLOROFLUOROMETHANE	ND (1.0)	ug/l
1,1-DICHLOROETHENE	ND (1.0)	ug/l
1,1-DICHLOROETHANE	ND (1.0)	ug/l
TRANS-1,2-DICHLOROETHENE	ND (1.0)	ug/l
CHLOROFORM	ND (1.0)	ug/l
1,2-DICHLOROETHANE	ND (1.0)	ug/l
1,1,1-TRICHLOROETHANE	ND (1.0)	ug/l
CARBON TETRACHLORIDE	ND (1.0)	ug/l
BROMODICHLOROMETHANE	ND (1.0)	ug/l
1,2-DICHLOROPROPANE	ND (1.0)	ug/l
CIS-1,3-DICHLOROPROPENE	ND (1.0)	ug/l
TRICHLOROETHENE	ND (1.0)	ug/l
DIBROMOCHLOROMETHANE	ND (1.0)	ug/l
1,1,2-TRICHLOROETHANE	ND (1.0)	ug/l
TRANS-1,3-DICHLOROPROPENE	ND (1.0)	ug/l
2-CHLOROETHYLVINYL ETHER	ND (1.0)	ug/l
BROMOFORM	ND (1.0)	ug/l
1,1,2,2-TETRACHLOROETHANE	ND (1.0)	ug/l
TETRACHLOROETHENE	ND (1.0)	ug/l
CHLOROBENZENE	ND (1.0)	ug/l
1,2-DICHLOROBENZENE	ND (1.0)	ug/l
1,3-DICHLOROBENZENE	ND (1.0)	ug/l
1,4-DICHLOROBENZENE	ND (1.0)	ug/l

Method: 601 Purgeable Halocarbons, 40 CFR Part 136, USEPA (1984).

(Detection limit in parenthesis.)
ND - Parameter not detected at the stated detection limit.

C. Neal Schaffer

Inter-Mountain Laboratories, Inc.

2506 West Main Street
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Client:	GCL #8907121200	Date Reported:	07/25/89
GCL Sample No:	Effluent	Date Sampled:	07/12/89
IML Sample No:	F1732	Date Received:	07/12/89
Analysis Requested:	Polynuclear hydrocarbons	Date Extracted:	07/19/89
Sample Matrix:	Water	Date Analyzed:	07/24/89

Parameter	Concentration		Units
Naphthalene	ND	(0.02)	ug/ml
Acenaphthylene	ND	(0.02)	ug/ml
Acenaphthene	ND	(0.02)	ug/ml
Fluorene	4.50	(0.02)	ug/ml
Phenanthrene	4.50	(0.02)	ug/ml
Anthracene	ND	(0.02)	ug/ml
Fluoranthene	22.40	(0.02)	ug/ml
Pyrene	11.00	(0.02)	ug/ml
Benzo(a)Anthracene	ND	(0.02)	ug/ml
Chrysene	ND	(0.02)	ug/ml
Benzo(b)fluoranthene	2.00	(0.02)	ug/ml
Benzo(k)fluoranthene	2.000	(0.02)	ug/ml
Benzo(a)pyrene	ND	(0.02)	ug/ml
Dibenzo(a,h)anthracene	ND	(0.02)	ug/ml
Indeno(1,2,3-cd)pyrene	ND	(0.02)	ug/ml
Benzo(g,h,i)perylene	ND	(0.02)	ug/ml
Benzo(j)fluoranthene	ND	(0.02)	ug/ml
Dibenz(a,h)acridine	ND	(0.02)	ug/ml
Dibenz(a,j)acridine	ND	(0.02)	ug/ml
Dibenz(a,e)pyrene	ND	(0.02)	ug/ml
Dibenz(a,h)pyrene	ND	(0.02)	ug/ml
Dibenz(a,i)pyrene	ND	(0.02)	ug/ml
3-Methylnaphthalene	ND	(0.02)	ug/ml

Method: 8100 Polynuclear Aromatic Hydrocarbons, SW-846, USEPA (1986)
610 Polyaromatic Hydrocarbons, 40 CFR, Part 136

(Detection limit in parenthesis.)
ND - Parameter not detected at the stated detection limit.

Comments: Sample required extensive cleanup. Increased detection limits reflect increased baseline perturbation as well as sample loss due to cleanup.

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Senior Organic Chemist

iml
Inter-Mountain
Laboratories, Inc.

2506 West Main Street
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Client: GCL #8906140915
Site: Effluent
IML #: F1581

Date of report: 06/23/89
Date sampled: 06/14/89
Date received: 06/14/89

Parameter	Concentration	Units
BENZENE	5.5 (0.2)	ug/l
TOLUENE	ND (0.2)	ug/l
ETHYLBENZENE	ND (0.2)	ug/l
CHLOROBENZENE	ND (0.2)	ug/l
m,p-XYLENE	ND (0.2)	ug/l
o-XYLENE	ND (0.2)	ug/l
1,4-DICHLOROBENZENE	ND (0.2)	ug/l
1,3-DICHLOROBENZENE	ND (0.2)	ug/l
1,2-DICHLOROBENZENE	ND (0.2)	ug/l

Method: 8020 Aromatic Volatile Organics, SW-846, USEPA (1982)
602 Purgeable Aromatics, 40 CFR, Part 136

Note: Method Detection Limit (MDL) is given in parenthesis.
ND means analyte was not detected.

** This sample was labeled GBR-14 on the volatiles sample bottles.

C. Neal Schaeffer
Senior Organic Chemist

Inter-Mountain Laboratories, Inc.

2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

Client: GCL #8906140915
Site: Effluent
IML #: F1581

Date of report: 06/23/89
Date sampled: 06/14/89
Date received: 06/14/89

Parameter	Concentration	Units
CHLOROMETHANE	ND (1.0)	ug/l
BROMOMETHANE	ND (1.0)	ug/l
DICHLORODIFLUOROMETHANE	ND (1.0)	ug/l
VINYL CHLORIDE	ND (1.0)	ug/l
CHLOROETHANE	ND (1.0)	ug/l
METHYLENE CHLORIDE	ND (1.0)	ug/l
TRICHLOROFLUOROMETHANE	ND (1.0)	ug/l
1,1-DICHLOROETHENE	ND (1.0)	ug/l
1,1-DICHLOROETHANE	ND (1.0)	ug/l
TRANS-1,2-DICHLOROETHENE	ND (1.0)	ug/l
CHLOROFORM	ND (1.0)	ug/l
1,2-DICHLOROETHANE	ND (1.0)	ug/l
1,1,1-TRICHLOROETHANE	ND (1.0)	ug/l
CARBON TETRACHLORIDE	ND (1.0)	ug/l
BROMODICHLOROMETHANE	ND (1.0)	ug/l
1,2-DICHLOROPROPANE	ND (1.0)	ug/l
CIS-1,3-DICHLOROPROPENE	ND (1.0)	ug/l
TRICHLOROETHENE	ND (1.0)	ug/l
DIBROMOCHLOROMETHANE	ND (1.0)	ug/l
1,1,2-TRICHLOROETHANE	ND (1.0)	ug/l
TRANS-1,3-DICHLOROPROPENE	ND (1.0)	ug/l
2-CHLOROETHYLVINYL ETHER	ND (1.0)	ug/l
BROMOFORM	ND (1.0)	ug/l
1,1,2,2-TETRACHLOROETHANE	ND (1.0)	ug/l
TETRACHLOROETHENE	ND (1.0)	ug/l
CHLOROBENZENE	ND (1.0)	ug/l
1,3-DICHLOROBENZENE	ND (1.0)	ug/l
1,2-DICHLOROBENZENE	ND (1.0)	ug/l
1,4-DICHLOROBENZENE	ND (1.0)	ug/l

Methods: 8020 Aromatic Volatile Organics, SW-846, USEPA (1982)
601 Purgeable Halocarbons, 40 CFR Part 136, USEPA (1984).

Note: Method Detection Limit (MDL) is given in parenthesis.
ND means analyte was not detected.

C. Neal Schaeffer
Senior Organic Chemist

MONTHLY SAMPLING

ANALYTICAL RESULTS FOR AIR STRIPPER INFLUENT AND EFFLUENT

POLYNUCLEAR AROMATIC HYDROCARBONS

(ug/ml unless otherwise noted)

(Sampling Event: 06/13/89)

ANALYTE	INFLUENT		EFFLUENT	
Acenaphthene	ND	(0.025)	0.007	(0.003)
Acenaphthylene	0.050	(0.025)	ND	(0.003)
Anthracene	0.038	(0.025)	0.011	(0.003)
Benzo(a)anthracene	0.062	(0.025)	ND	(0.003)
Benzo(a)pyrene	ND	(0.025)	0.009	(0.003)
Benzo(b)fluoranthene	0.066	(0.025)	0.024	(0.003)
Benzo(j)fluoranthene	ND	(0.025)	ND	(0.003)
Benzo(k)fluoranthene	ND	(0.025)	ND	(0.003)
Benzo(g,h,i)perylene	ND	(0.025)	ND	(0.003)
Chrysene	ND	(0.025)	ND	(0.003)
Dibenz(a,h)acridine	ND	(0.025)	ND	(0.003)
Dibenz(a,j)acridine	ND	(0.025)	ND	(0.003)
Dibenzo(a,h)anthracene	ND	(0.025)	ND	(0.003)
Dibenz(a,e)pyrene	ND	(0.025)	ND	(0.003)
Dibenz(a,h)pyrene	ND	(0.025)	ND	(0.003)
Fluoranthene	0.040	(0.025)	ND	(0.003)
Fluorene	ND	(0.025)	0.005	(0.003)
Indeno(1,2,3-cd)pyrene	ND	(0.025)	ND	(0.003)
Naphthalene	0.052	(0.025)	ND	(0.003)
Phenanthrene	0.054	(0.025)	ND	(0.003)
Pyrene	ND	(0.025)	0.003	(0.003)
1-Methylnaphthalene	NA	(0.025)	NA	(0.003)
3-Methylnaphthalene	ND	(0.025)	ND	(0.003)

() = Detection limit

ND = Not detected

T = Detected below quantifiable level

NA = Not analyzed

MONTHLY SAMPLING

ANALYTICAL RESULTS FOR AIR STRIPPER INFLUENT AND EFFLUENT

POLYNUCLEAR AROMATIC HYDROCARBONS

(ug/m) unless otherwise noted)

(Sampling Event: 05/12/89)

ANALYTE	INFLUENT		EFFLUENT	
Acenaphthylene	ND	(0.2)	ND	(0.6)
Anthracene	ND	(0.2)	ND	(0.6)
Benzo(a)anthracene	ND	(0.2)	ND	(0.6)
Benzo(a)pyrene	ND	(0.2)	ND	(0.6)
Benzo(b)fluoranthene	ND	(0.2)	ND	(0.6)
Benzo(k)fluoranthene	ND	(0.2)	ND	(0.6)
Benzo(g,h,i)perylene	ND	(0.2)	ND	(0.6)
Chrysene	ND	(0.2)	ND	(0.6)
Dibenzo(a,h)anthracene	ND	(0.2)	ND	(0.6)
Fluoranthene	ND	(0.2)	ND	(0.6)
Fluorene	ND	(0.2)	ND	(0.6)
Indeno(1,2,3-cd)pyrene	ND	(0.2)	ND	(0.6)
Naphthalene	ND	(0.2)	ND	(0.6)
Phenanthrene	ND	(0.2)	ND	(0.6)
Pyrene	ND	(0.2)	ND	(0.6)
Acetnaphthene	ND	(0.2)	ND	(0.6)
1-Methylnaphthalene	ND	(0.2)	ND	(0.6)

() = Detection limit

ND = Not detected

T = Detected below quantifiable level

NA = Not analyzed

MONTHLY SAMPLING

ANALYTICAL RESULTS FOR AIR STRIPPER INFLUENT AND EFFLUENT

AROMATIC VOLATILE ORGANIC COMPOUNDS

(ug/L unless otherwise noted)

(Sampling Event: 05/12/89)

ANALYTE	INFLUENT		EFFLUENT	
BENZENE	390	(2.0)	9.8	(0.2)
ETHYL BENZENE	41	(2.0)	2.6	(0.2)
TOLUENE	140	(2.0)	4.5	(0.2)
m,p-XYLENE	210	(2.0)	9.4	(0.2)
o-XYLENE	100	(2.0)	8.3	(0.2)

() = Detection limit

ND = Not detected

T = Detected below quantifiable level

NA = Not analyzed

MONTHLY SAMPLING

ANALYTICAL RESULTS FOR AIR STRIPPER INFLUENT AND EFFLUENT

HALOGENATED VOLATILE ORGANIC COMPOUNDS

(ug/L unless otherwise noted)

(Sampling Event: 05/12/89)

ANALYTE	INFLUENT		EFFLUENT	
BROMODICHLOROMETHANE	ND	(0.1)	ND	(0.1)
BROMOFORM	ND	(0.1)	ND	(0.5)
BROMOMETHANE	ND	(1.0)	ND	(1.0)
CARBON TETRACHLORIDE	ND	(0.1)	ND	(0.1)
CHLOROBENZENE	ND	(0.1)	ND	(0.1)
CHLOROETHANE	ND	(1.0)	ND	(1.0)
CHLOROFORM	ND	(0.1)	ND	(0.1)
2-CHLOROETHYL VINYL ETHER	ND	(0.1)	ND	(0.1)
CHLOROMETHANE	ND	(1.0)	ND	(1.0)
DIBROMOCHLOROMETHANE	1.2	(0.1)	ND	(0.1)
1,2-DICHLOROBENZENE	ND	(0.1)	ND	(0.1)
1,3-DICHLOROBENZENE	ND	(0.1)	ND	(0.1)
1,4-DICHLOROBENZENE	ND	(0.1)	ND	(0.1)
DICHLORODIFLUOROMETHANE	ND	(1.0)	ND	(1.0)
1,2-DICHLOROETHANE	7.3	(0.1)	0.9	(0.1)
1,2-DICHLOROPROPANE	ND	(0.1)	ND	(0.1)
1,1,2,2-TETRACHLOROETHANE	ND	(0.1)	ND	(0.1)
1,1,1-TRICHLOROETHANE	ND	(0.1)	ND	(0.1)
1,1,2-TRICHLOROETHANE	ND	(0.1)	ND	(0.1)
TRICHLOROFLUOROMETHANE	ND	(1.0)	ND	(1.0)
VINYL CHLORIDE	ND	(1.0)	ND	(1.0)
METHYLENE CHLORIDE	1.2	(0.1)	0.3	(0.1)
1,1-DICHLOROETHENE	ND	(0.1)	ND	(0.1)
TRANS-1,2-DICHLOROETHENE	ND	(0.1)	ND	(0.1)
TETRACHLOROETHANE	DT	(0.1)	ND	(0.1)
1,1-DICHLOROETHENE	3.1	(0.1)	ND	(0.1)
TRICHLOROETHENE	ND	(0.1)	ND	(0.1)
TRANS-1,3-DICHLOROPROPENE	ND	(0.1)	ND	(0.1)
CIS-1,3-DICHLOROPROPENE	ND	(0.1)	ND	(0.1)

() = Detection limit

ND = Not detected

T = Detected below quantifiable levels

NA = Not analyzed

MONTHLY SAMPLING

ANALYTICAL RESULTS FOR AIR STRIPPER INFLUENT AND EFFLUENT

AROMATIC VOLATILE ORGANIC COMPOUNDS

(ug/L unless otherwise noted)

(Sampling Event: 04/25/89)

ANALYTE	INFLUENT		EFFLUENT	
BENZENE	363	(2.0)	* 10.1	(0.2)
ETHYL BENZENE	97.3	(2.0)	8.3	(0.2)
TOLUENE	121	(2.0)	4.6	(0.2)
m,p-XYLENE	247	(2.0)	19.7	(0.2)
o-XYLENE	95.8	(2.0)	10.2	(0.2)

() = Detection limit

ND = Not detected

T = Detected below quantifiable level

NA = Not analyzed

Inter-Mountain Laboratories, Inc.

2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

Date: April 01, 1989

Client: Geoscience Consultants, Ltd.
GCL Sample No: 8903141331
Sample Site: GBR-EFFLUENT
IML Lab No: F890910
Analysis Requested: Purgeable Aromatic
Sample Matrix: Water

Date Sampled: 03/14/89
Date Received: 03/14/89
Date Extracted: NA
Date Analyzed: 03/16/89

Parameter	Concentration	Units
BENZENE	219 (0.2)	ug/l
TOLUENE	319 (0.2)	ug/l
ETHYLBENZENE	12.5 (0.2)	ug/l
m,p-XYLENE	94.7 (0.2)	ug/l
o-XYLENE	42.5 (0.2)	ug/l

Method: 8020 Aromatic Volatile Organics, SW-846, USEPA (1982)
602 Purgeable Aromatics, 40 CFR, Part 136

Note: Method Detection Limit (MDL) is given in parenthesis.
ND means analyte was not detected.

Jack M. Morgan
Senior Organic Chemist

Inter-Mountain Laboratories, Inc.

2506 West Main Street
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Date: April 02, 1989

Client: Geoscience Consultants, Ltd.
GCL Sample No: 8903141331
Sample Site: GBR-EFFLUENT
IML Sample No: F890910
Analysis Requested: Purgeable Halocarbons
Sample Matrix: Water

Date Sampled: 03/14/89
Date Received: 03/14/89
Date Extracted: N/A
Date Analyzed: 03/17/89

Parameter	Concentration	Units
CHLOROMETHANE	ND (1.0)	ug/l
BROMOMETHANE	ND (1.0)	ug/l
DICHLORODIFLUOROMETHANE	ND (1.0)	ug/l
VINYL CHLORIDE	ND (1.0)	ug/l
CHLOROETHANE	ND (1.0)	ug/l
METHYLENE CHLORIDE	7.2 (0.1)	ug/l
TRICHLOROFLUOROMETHANE	ND (0.1)	ug/l
1,1-DICHLOROETHENE	ND (0.1)	ug/l
1,1-DICHLOROETHANE	ND (0.05)	ug/l
TRANS-1,2-DICHLOROETHENE	ND (0.1)	ug/l
CHLOROFORM	ND (0.1)	ug/l
1,2-DICHLOROETHANE	11.1 (0.03)	ug/l
1,1,1-TRICHLOROETHANE	ND (0.03)	ug/l
CARBON TETRACHLORIDE	ND (0.1)	ug/l
BROMODICHLOROMETHANE	ND (0.1)	ug/l
1,2-DICHLOROPROPANE	ND (0.1)	ug/l
CIS-1,3-DICHLOROPROPENE	ND (0.1)	ug/l
TRICHLOROETHENE	ND (0.1)	ug/l
DIBROMOCHLOROMETHANE	ND (0.1)	ug/l
1,1,2-TRICHLOROETHANE	ND (0.02)	ug/l
TRANS-1,3-DICHLOROPROPENE	ND (0.1)	ug/l
2-CHLOROETHYLVINYL ETHER	ND (0.1)	ug/l
BROMOFORM	ND (0.2)	ug/l
1,1,2,2-TETRACHLOROETHANE	ND (0.03)	ug/l
TETRACHLOROETHENE	ND (0.03)	ug/l
CHLOROBENZENE	ND (0.1)	ug/l
1,2-DICHLOROBENZENE	ND (0.1)	ug/l
1,3-DICHLOROBENZENE	ND (0.1)	ug/l
1,4-DICHLOROBENZENE	ND (0.1)	ug/l

Method: 601 Purgeable Halocarbons, 40 CFR Part 136, USEPA (1984).

(Detection limit in parenthesis.)
ND - Parameter not detected at the stated detection limit.

Jack M. Morgan
Senior Organic Chemist

MONTHLY SAMPLING
AIR STRIPPER ANALYSES
POLYNUCLEAR AROMATIC HYDROCARBONS
UNITS FOR ANALYSES ARE ug/L
(03/14/89)

ANALYTE:	AIR STRIPPER INFLUENT	AIR STRIPPER EFFLUENT
PYRENE	ND (0.35)	ND (0.35)
DIBENZO(A,H)ANTHRACENE	ND (0.15)	ND (0.15)
BENZO(K)FLUORANTHENE	ND (0.05)	ND (0.1)
ACENAPTHTHYLENE	ND (15)	ND (15)
ACENAPTHENE	ND (1.7)	ND (1.7)
FLUORANTHENE	ND (0.3)	ND (0.3)
FLUORENE	7.1 (N\R)	7.1 (N\R)
CHRYSENE	ND (0.05)	ND (0.05)
NAPTHELENE	37 (N\R)	* 36 (N\R)
ANTHRACENE	ND (1.2)	ND (1.2)
BENZ(A)ANTHRACENE	ND (0.2)	ND (0.2)
INDENO(1,2,3-CD)PYRENE	ND (0.89)	ND (0.9)
BENZO(B)FLUORANTHENE	ND (0.05)	ND (0.05)
PHENANTHRENE	16 (N\R)	17 (N\R)
BENZO(A)PYRENE	ND (0.099)	ND (0.1)
BENZO(GHI)PERYLENE	ND (0.15)	ND (0.15)

UNITS ARE ug/L
() INDICATES DETECTION LIMITS
ND = NOT DETECTED
NA = NOT ANALYSED
N\R = NOT REPORTED

MONTHLY SAMPLING

ANALYTICAL RESULTS FOR AIR STRIPPER INFLUENT AND EFFLUENT

AROMATIC VOLATILE ORGANIC COMPOUNDS

(02/02/89)

ANALYTE	AIR STRIPPER INFLUENT		AIR STRIPPER EFFLUENT	
BENZENE	280	(10.0)	ND	(0.2)
TOLUENE	ND	(10.0)	ND	(0.2)
ETHYLBENZENE	ND	(15.0)	ND	(0.3)
CHLOROBENZENE-A	ND	(15.0)	ND	(0.3)
1,4-DICHLOROBENZENE	ND	(15.0)	ND	(0.3)
1,3-DICHLOROBENZENE	ND	(20.0)	ND	(0.4)
1,2-DICHLOROBENZENE	ND	(20.0)	ND	(0.4)
p-XYLENE-A	ND	(10.0)	ND	(0.2)
m-XYLENE	ND	(10.0)	ND	(0.2)
o-XYLENE	38	(5.0)	ND	(0.1)

Units are ug/L

() = detection limit

ND = not detected at detection limit

NA = not analyzed

N\R = not reported

MONTHLY SAMPLING

ANALYTICAL RESULTS FOR AIR STRIPPER INFLUENT AND EFFLUENT

HALOGENATED VOLATILE ORGANIC COMPOUNDS

ANALYTE	AIR STRIPPER INFLUENT (02/02/89)	AIR STRIPPER EFFLUENT (02/02/89)
CHLOROMETHANE	ND (.3)	ND (.3)
BROMOMETHANE	ND (1.2)	ND (1.2)
VINYL CHLORIDE	ND (.2)	ND (.2)
CHLOROETHANE	ND (.5)	ND (.5)
METHYLENE CHLORIDE	1.4 (.3)	ND (.3)
TRICHLOROFLUOROMETHANE	ND (.1)	ND (.1)
1,1-DICHLOROETHENE	ND (.1)	ND (.1)
1,1-DICHLOROETHANE	5.0 (.09)	ND (.09)
TRANS-1,2-DICHLOROETHENE	11 (.2)	ND (.2)
CHLOROFORM	0.9 (.05)	ND (.05)
1,2-DICHLOROETHANE	6.0 (.03)	0.7 (.03)
1,1,1-TRICHLOROETHANE	2.1 (.09)	ND (.09)
CARBON TETRACHLORIDE	ND (.1)	ND (.1)
BROMODICHLOROMETHANE	ND (.1)	ND (.1)
1,2-DICHLOROPROPANE	ND (.1)	ND (.1)
TRANS-1,3-DICHLOROPROPENE	ND (.3)	ND (.3)
TRICHLOROETHENE	3.4 (.2)	ND (.2)
DIBROMOCHLOROMETHANE-A	ND (.2)	ND (.2)
1,1,2-TRICHLOROETHANE-A	ND (.07)	ND (.07)
CIS-1,3-DICHLOROPROPENE-A	ND (N\R)	ND (N\R)
CHLOROETHYLVINYL ETHER	ND (.2)	ND (.2)
BROMOFORM	ND (.3)	ND (.3)
1,1,2,2-TETRACHLOROETHANE-B	ND (.12)	ND (.12)
TETRACHLOROETHENE-B	2.2 (.03)	ND (.03)
CHLOROBENZENE	ND (.3)	ND (.3)
1,3-DICHLOROBENZENE	ND (.3)	ND (.3)
1,2-DICHLOROBENZENE	ND (.5)	ND (.5)
1,4-DICHLOROBENZENE	ND (.4)	ND (.4)

UNITS ARE ug/L

() = detection limit

ND = not detected at detection limit

NA = not analyzed N\R = not reported

MONTHLY SAMPLING
AIR STRIPPER ANALYSES
POLYNUCLEAR AROMATIC HYDROCARBONS
UNITS FOR ANALYSES ARE ug/L
(02/01/89)

ANALYTE:	AIR STRIPPER INFLUENT	AIR STRIPPER EFFLUENT
PYRENE	ND (0.33)	ND (0.33)
DIBENZO(A,H)ANTHRACENE	ND (0.14)	ND (0.14)
BENZO(K)FLUORANTHENE	ND (0.047)	ND (0.047)
ACENAPTHTHYLENE	ND (14)	ND (14)
ACENAPTHENE	ND (1.6)	ND (1.6)
FLUORANTHENE	ND (0.28)	ND (0.28)
FLUORENE	5.4 (N\R)	4.2 (N\R)
CHRYSENE	ND (0.047)	ND (0.047)
NAPTHELENE	16 (N\R)	9.5 (N\R)
ANTHRACENE	ND (1.1)	ND (1.1)
BENZ(A)ANTHRACENE	ND (0.19)	ND (0.19)
INDENO(1,2,3-CD)PYRENE	ND (0.85)	ND (0.85)
BENZO(B)FLUORANTHENE	ND (0.047)	ND (0.047)
PHENANTHRENE	8.2 (N\R)	5.5 (N\R)
BENZO(A)PYRENE	ND (0.094)	ND (0.094)
BENZO(GHI)PERYLENE	ND (0.14)	ND (0.14)
1-METHYLNAPHTHALENE	36 (N\R)	15 (N\R)
2-METHYLNAPHTHALENE	28 (N\R)	8.2(N\R)

*

UNITS ARE ug/L
() INDICATES DETECTION LIMITS
ND = NOT DETECTED
NA = NOT ANALYSED
N\R = NOT REPORTED

MONTHLY SAMPLING

ANALYTICAL RESULTS FOR AIR STRIPPER INFLUENT AND EFFLUENT

AROMATIC VOLATILE ORGANIC COMPOUNDS

(01/16/89)

ANALYTE	AIR STRIPPER INFLUENT	AIR STRIPPER EFFLUENT
BENZENE	440 (10.0)	42 (1.0)
TOLUENE	ND (5.0)	ND (1.0)
ETHYLBENZENE	80 (7.5)	10 (1.5)
CHLOROBENZENE-A	ND (7.5)	ND (1.5)
1,4-DICHLOROBENZENE	ND (7.5)	ND (1.5)
1,3-DICHLOROBENZENE	ND (10.0)	ND (2.0)
1,2-DICHLOROBENZENE	ND (10.0)	ND (2.0)
p-XYLENE-A	150 (5.0)	18 (1.0)
m-XYLENE	120 (5.0)	15 (1.0)
o-XYLENE	49 (2.5)	8.6 (0.5)

Units are ug/L

() = detection limit

ND = not detected at detection limit

NA = not analyzed

N\R = not reported

MONTHLY SAMPLING

ANALYTICAL RESULTS FOR AIR STRIPPER INFLUENT AND EFFLUENT

HALOGENATED VOLATILE ORGANIC COMPOUNDS

ANALYTE	AIR STRIPPER INFLUENT (01/16/89)	AIR STRIPPER EFFLUENT (01/16/89)
CHLOROMETHANE	ND (.3)	ND (.3)
BROMOMETHANE	ND (1.2)	ND (1.2)
VINYL CHLORIDE	ND (.2)	ND (.2)
CHLOROETHANE	ND (.5)	ND (.5)
METHYLENE CHLORIDE	1.0 (.3)	ND (.3)
TRICHLOROFLUOROMETHANE	0.5 (.1)	1.0 (.1)
1,1-DICHLOROETHENE	ND (.1)	ND (.1)
1,1-DICHLOROETHANE	4.2 (.09)	0.8 (.09)
TRANS-1,2-DICHLOROETHENE	11 (.2)	1.3 (.2)
CHLOROFORM	ND (.05)	ND (.05)
1,2-DICHLOROETHANE	6.7 (.03)	2.9 (.03)
1,1,1-TRICHLOROETHANE	2.1 (.09)	0.6 (.09)
CARBON TETRACHLORIDE	ND (.1)	ND (.1)
BROMODICHLOROMETHANE	ND (.1)	ND (.1)
1,2-DICHLOROPROPANE	ND (.1)	ND (.1)
TRANS-1,3-DICHLOROPROPENE	ND (.3)	ND (.3)
TRICHLOROETHENE	3.0 (.2)	0.5 (.2)
DIBROMOCHLOROMETHANE-A	ND (.2)	ND (.2)
1,1,2-TRICHLOROETHANE-A	ND (.07)	ND (.07)
CIS-1,3-DICHLOROPROPENE-A	ND (N\R)	ND (N\R)
CHLOROETHYLVINYL ETHER	ND (.2)	ND (.2)
BROMOFORM	ND (.3)	ND (.3)
1,1,2,2-TETRACHLOROETHANE-B	ND (.12)	ND (.12)
TETRACHLOROETHENE-B	1.9 (.03)	0.6 (.03)
CHLOROBENZENE	ND (.3)	ND (.3)
1,3-DICHLOROBENZENE	ND (.3)	ND (.3)
1,2-DICHLOROBENZENE	ND (.5)	ND (.5)
1,4-DICHLOROBENZENE	ND (.4)	ND (.4)

UNITS ARE ug/L

() = detection limit

ND = not detected at detection limit

NA = not analyzed N\R = not reported

MONTHLY SAMPLING
AIR STRIPPER ANALYSES
POLYNUCLEAR AROMATIC HYDROCARBONS
UNITS FOR ANALYSES ARE ug/L
(01/16/89)

ANALYTE:	AIR STRIPPER INFLUENT	AIR STRIPPER EFFLUENT
PYRENE	ND (0.35)	ND (0.35)
DIBENZO(A,H)ANTHRACENE	ND (0.15)	ND (0.15)
BENZO(K)FLUORANTHENE	ND (0.05)	ND (0.1)
ACENAPTHTHYLENE	ND (15)	ND (15)
ACENAPTHENE	ND (1.7)	ND (1.7)
FLUORANTHENE	ND (0.3)	ND (0.3)
FLUORENE	7.1 (N\R)	7.1 (N\R)
CHRYSENE	ND (0.05)	ND (0.05)
NAPTHELENE	37 (N\R)	* 36 (N\R)
ANTHRACENE	ND (1.2)	ND (1.2)
BENZ(A)ANTHRACENE	ND (0.2)	ND (0.2)
INDENO(1,2,3-CD)PYRENE	ND (0.89)	ND (0.9)
BENZO(B)FLUORANTHENE	ND (0.05)	ND (0.05)
PHENANTHRENE	16 (N\R)	17 (N\R)
BENZO(A)PYRENE	ND (0.099)	ND (0.1)
BENZO(GHI)PERYLENE	ND (0.15)	ND (0.15)

UNITS ARE ug/L
() INDICATES DETECTION LIMITS
ND = NOT DETECTED
NA = NOT ANALYSED
N\R = NOT REPORTED

SCIENTIFIC LABORATORY DIVISION

ORGANIC ANALYSIS REQUEST FORM

Organic Section - Phone: 841-2570

754 wpu

88-2105C

REPORT TO: DAVID BOYER
N.M. OIL CONSERVATION DIVISION
P.O. Box 2088
Santa Fe, NM 87504-2088

S.L.D. No. OR-__
DATE REC. 12/21/88
PRIORITY
PHONE(S): 827-5812

COLLECTION CITY: ; COUNTY:

COLLECTION DATE/TIME CODE: (Year-Month-Day-Hour-Minute) 8 8 1 2 1 5 0 8 4 0

LOCATION CODE: (Township-Range-Section-Tracts) 2 9 N + 1 2 W + 2 7 + (10N06E24342)

USER CODE: 8 2 2 3 5 SUBMITTER: David Boyer CODE: 2 6 0

SAMPLE TYPE: WATER [X], SOIL [ ], FOOD [ ], OTHER:

This form accompanies 2 Septum Vials, ____ Glass Jugs, and/or ____

RECEIVED MAR 1 5 1989 OIL CONSERVATION DIVISION SANTA FE

Samples were preserved as follows:

- [ ] NP: No Preservation; Sample stored at room temperature.
- [X] P-Ice Sample stored in an ice bath (Not Frozen).
- [ ] P-AA Sample Preserved with Ascorbic Acid to remove chlorine residual.
- [X] P-HCl Sample Preserved with Hydrochloric Acid (2 drops/40 ml)

ANALYSES REQUESTED: Please check the appropriate box(es) below to indicate the type of analytical screens required. Whenever possible list specific compounds suspected or required.

PURGEABLE SCREENS

- [ ] (753) Aliphatic Headspace (1-5 Carbons)
- [X] (754) Aromatic & Halogenated Purgeables
- [ ] (765) Mass Spectrometer Purgeables
- [ ] (766) Trihalomethanes
- [ ] (774) SDWA VOC's I (8 Regulated +)
- [ ] (775) SDWA VOC's II (EDB & DBCP)

Other Specific Compounds or Classes

- [ ] ____
- [ ] ____

EXTRACTABLE SCREENS

- [ ] (751) Aliphatic Hydrocarbons
- [ ] (755) Base/Neutral Extractables
- [ ] (758) Herbicides, Chlorophenoxy acid
- [ ] (759) Herbicides, Triazines
- [ ] (760) Organochlorine Pesticides
- [ ] (761) Organophosphate Pesticides
- [ ] (767) Polychlorinated Biphenyls (PCB's)
- [ ] (764) Polynuclear Aromatic Hydrocarbons
- [ ] (762) SDWA Pesticides & Herbicides

Remarks:

FIELD DATA:

pH=____; Conductivity=2300 umho/cm at 8 °C; Chlorine Residual=____mg/l

Dissolved Oxygen=____mg/l; Alkalinity=____mg/l; Flow Rate____ ____/____

Depth to water ____ft.; Depth of well____ft.; Perforation Interval ____-____ft.; Casing:

Sampling Location, Methods and Remarks (i.e. odors, etc.)

GIANT BLOOMFIELD - AIRSTRIPPER OUTFLOW

I certify that the results in this block accurately reflect the results of my field analyses, observations and activities.(signature collector): Roger C Anderson Method of Shipment to the Lab: Hand

CHAIN OF CUSTODY

I certify that this sample was transferred from ____ to ____

at (location) ____ on ____/____/____ - ____:____ and that

the statements in this block are correct. Evidentiary Seals: Not Sealed [ ] OR Seals Intact: Yes [ ] No [ ]

Signatures ____ ____

For OCD use: Date owner notified:____ Phone or Letter? Initials____

ANALYSES PERFORMED

LAB. No.: OR-

THIS PAGE FOR LABORATORY RESULTS ONLY

This sample was tested using the analytical screening method(s) checked below:

PURGEABLE SCREENS

- ☐ (753) Aliphatic Headspace (1-5 Carbons)
- ☐ (754) Aromatic & Halogenated Purgeables
- ☐ (765) Mass Spectrometer Purgeables
- ☐ (766) Trihalomethanes
- ☐ (774) SDWA VOC's I (8 Regulated +)
- ☐ (775) SDWA VOC's II (EDB & DBCP)

Other Specific Compounds or Classes

- ☐ _____
- ☐ _____

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
- ☐ (755) Base/Neutral Extractables
- ☐ (758) Herbicides, Chlorophenoxy acid
- ☐ (759) Herbicides, Triazines
- ☐ (760) Organochlorine Pesticides
- ☐ (761) Organophosphate Pesticides
- ☐ (767) Polychlorinated Biphenyls (PCB's)
- ☐ (764) Polynuclear Aromatic Hydrocarbons
- ☐ (762) SDWA Pesticides & Herbicides

ANALYTICAL RESULTS

COMPOUND(S) DETECTED	CONC. [PPB]	COMPOUND(S) DETECTED	CONC. [PPB]
* DETECTION LIMIT * *		+ DETECTION LIMIT + +	

ABBREVIATIONS USED:

N D = NONE DETECTED AT OR ABOVE THE STATED DETECTION LIMIT

T R = DETECTED AT A LEVEL BELOW THE STATED DETECTION LIMIT (NOT CONFIRMED)

[RESULTS IN BRACKETS] ARE UNCONFIRMED AND/OR WITH APPROXIMATE QUANTITATION

LABORATORY REMARKS: _____

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Not Sealed ☐ Intact: Yes ☐ No ☐. Seal(s) broken by: _____ date: _____

I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: _____. Analyst's signature: _____

I certify that I have reviewed and concur with the analytical results for this sample and with the statements in this block.

Reviewers signature: _____

STATE OF NEW MEXICO HEALTH AND ENVIRONMENT DEPARTMENT

SCIENTIFIC LABORATORY DIVISION

700 Camino de Salud, NE
Albuquerque, NM 87106 [505]-841-2500
ORGANIC CHEMISTRY SECTION [505]-841-2570

March 9, 1989

ANALYTICAL REPORT
SLD Accession No. OR-88-2105

Distribution
(■) User
(▩) Submitter
(▩) Client
(▩) SLD Files

To: OIL CONSERVATION DIV
State Land Office Bldg.
P. O. Box 2088
Santa Fe, NM 87504-2088

From: Organic Chemistry Section
Scientific Laboratory Div.
700 Camino de Salud, NE
Albuquerque, NM 87106

Re: **A purgeable water sample submitted to this laboratory on December 21, 1988**

RECEIVED
MAR 15 1989
OIL CONSERVATION DIVISION
SANTA FE

Submitter:
NM Oil Consv. Div.
State Land Office Bldg.
P. O. Box 2088
Santa Fe, NM 87504-2088

DEMOGRAPHIC DATA

COLLECTION		*LOCATION*	
On: 15-Dec-88	*By:* Boy . . .	*Township:* 29N	*Section:* 27
At: 8:40 hrs.	*In/Near:* Bloomfield	*Range:* 12W	*Tract:*

ANALYTICAL RESULTS: Aromatic & Halogenated Purgeable Screen

Parameter	Value	Note	MDL	Units
Benzene	15.00		2.00	ppb
Toluene	0.00	T	2.00	ppb
p- & m-Xylene	15.00		2.00	ppb
Ethylbenzene	0.00	T	2.00	ppb
1,2-Dimethylbenzene	0.00	T	2.00	ppb
1,2-Dichloroethane	1.00	U	0.50	ppb

See Laboratory Remarks for Additional Information

Notations & Comments:
MDL = Minimal Detectable Level.
A = Approximate Value; N = None Detected above Detection Limit; P = Compound Present, but not quantified;
T = Trace (<Detection Limit); U = Compound Identity Not Confirmed.
Seals: Not Sealed [X]; Intact: No [ ], Yes [ ] & Broken By: _____ Date: _____

Laboratory Remarks: Airstrpper Outflow
Fifteen unknown unsaturated compounds at trace to 20 ppb were detected.

Analyst: Michael J. Owen — 12-22-88 — **Reviewed By:** R Meyerhein
Michael J. Owen, *Analyst, Organic Chemistry* — Analysis Date — Richard F. Meyerhein, *Supervisor, Organic Chemistry Section* — 01/23/89

~~SCIENTIFIC LABORATORY DIVISION~~
ORGANIC ANALYSIS REQUEST FORM
Organic Section - Phone: 841-2570

2299

REPORT TO: DAVID BOYER
N.M. OIL CONSERVATION DIVISION
P.O. Box 2088
Santa Fe, NM 87504-2088

S.L.D. No. OR-
DATE REC.
PRIORITY
PHONE(S): 827-5812

COLLECTION CITY: ; COUNTY:

COLLECTION DATE/TIME CODE: (Year-Month-Day-Hour-Minute) 8 8 1 2 1 5 0 8 4 0

LOCATION CODE: (Township-Range-Section-Tracts) | | | + | | + | + | | | (10N06E24342)

USER CODE: ~~8 2 2 2~~ 5 SUBMITTER: David Boyer CODE: ~~2 6 1 0~~

SAMPLE TYPE: WATER [X], SOIL [ ], FOOD [ ], OTHER:

This form accompanies 2 Septum Vials, ____ Glass Jugs, and/or ____
Samples were preserved as follows:

- [ ] NP: No Preservation; Sample stored at room temperature.
- [X] P-Ice Sample stored in an ice bath (Not Frozen).
- [ ] P-AA Sample Preserved with Ascorbic Acid to remove chlorine residual.
- [X] P-HCl Sample Preserved with Hydrochloric Acid (2 drops/40 ml)

ANALYSES REQUESTED: Please check the appropriate box(es) below to indicate the type of analytical screens required. Whenever possible list specific compounds suspected or required.

PURGEABLE SCREENS

- [ ] (753) Aliphatic Headspace (1-5 Carbons)
- [X] (754) Aromatic & Halogenated Purgeables
- [ ] (765) Mass Spectrometer Purgeables
- [ ] (766) Trihalomethanes
- [ ] (774) SDWA VOC's I (8 Regulated +)
- [ ] (775) SDWA VOC's II (EDB & DBCP)

Other Specific Compounds or Classes

- [ ] ____
- [ ] ____

EXTRACTABLE SCREENS

- [ ] (751) Aliphatic Hydrocarbons
- [ ] (755) Base/Neutral Extractables
- [ ] (758) Herbicides, Chlorophenoxy acid
- [ ] (759) Herbicides, Triazines
- [ ] (760) Organochlorine Pesticides
- [ ] (761) Organophosphate Pesticides
- [ ] (767) Polychlorinated Biphenyls (PCB's)
- [ ] (764) Polynuclear Aromatic Hydrocarbons
- [ ] (762) SDWA Pesticides & Herbicides

Remarks:

FIELD DATA:

pH= 7 ; Conductivity= 2300 umho/cm at 8 °C; Chlorine Residual= ____ mg/l

Dissolved Oxygen= ____ mg/l; Alkalinity= ____ mg/l; Flow Rate ____ ____/____

Depth to water ____ ft.; Depth of well ____ ft.; Perforation Interval ____-____ ft.; Casing:

Sampling Location, Methods and Remarks (i.e. odors, etc.)

GIANT - BLOOMFIELD REFINERY - EFFLUENT FROM AIR STRIPPER

I certify that the results in this block accurately reflect the results of my field analyses, observations and activities.(signature collector): Roger A Anderson Method of Shipment to the Lab: Hand

CHAIN OF CUSTODY

I certify that this sample was transferred from ____ to ____

at (location) ____ on ____/____/____ - ____:____ and that

the statements in this block are correct. Evidentiary Seals: Not Sealed [ ] OR Seals Intact: Yes [ ] No [ ]

Signatures ____ ____

For OCD use: Date owner notified: ____ Phone or Letter? Initials ____

ANALYSES PERFORMED

LAB. No.: OR-

THIS PAGE FOR LABORATORY RESULTS ONLY

This sample was tested using the analytical screening method(s) checked below:

PURGEABLE SCREENS

- ☐ (753) Aliphatic Headspace (1-5 Carbons)
- ☐ (754) Aromatic & Halogenated Purgeables
- ☐ (765) Mass Spectrometer Purgeables
- ☐ (766) Trihalomethanes
- ☐ (774) SDWA VOC's I (8 Regulated +)
- ☐ (775) SDWA VOC's II (EDB & DBCP)

Other Specific Compounds or Classes

- ☐ _____
- ☐ _____

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
- ☐ (755) Base/Neutral Extractables
- ☐ (758) Herbicides, Chlorophenoxy acid
- ☐ (759) Herbicides, Triazines
- ☐ (760) Organochlorine Pesticides
- ☐ (761) Organophosphate Pesticides
- ☐ (767) Polychlorinated Biphenyls (PCB's)
- ☐ (764) Polynuclear Aromatic Hydrocarbons
- ☐ (762) SDWA Pesticides & Herbicides

ANALYTICAL RESULTS

COMPOUND(S) DETECTED	CONC. [PPB]	COMPOUND(S) DETECTED	CONC. [PPB]
* DETECTION LIMIT * *		+ DETECTION LIMIT + +	

ABBREVIATIONS USED:

N D = NONE DETECTED AT OR ABOVE THE STATED DETECTION LIMIT

T R = DETECTED AT A LEVEL BELOW THE STATED DETECTION LIMIT (NOT CONFIRMED)

[RESULTS IN BRACKETS] ARE UNCONFIRMED AND/OR WITH APPROXIMATE QUANTITATION

LABORATORY REMARKS: _____

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Not Sealed ☐ Intact: Yes ☐ No ☐. Seal(s) broken by: _____ date: _____

I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: _____. Analyst's signature: _____

I certify that I have reviewed and concur with the analytical results for this sample and with the statements in this block.

Reviewers signature: _____

Inter-Mountain Laboratories, Inc.

Report Date: 12/30/88

Client: New Mexico OCD

Sample ID:	8812150840	Date Sampled:	12/15/88
Laboratory Number:	F2299	Date Received:	12/15/88
Analysis Requested:	Purgable Aromatics	Date Extracte:	NA
Sample Matrix:	Water	Date Analyzed:	12/28/88

	Parameter	Concentration		Units
	BENZENE	20.8	(0.2)	ug/l
	ETHYLBENZENE	ND	(0.2)	ug/l
	TOLUENE	1.8	(0.2)	ug/l
*	m,p-XYLENE	7.7	(0.2)	ug/l
	o-XYLENE	4.3	(0.2)	ug/l

Method: 8020 Aromatic Volatile Organics, SW-846, USEPA (1982)
602 Purgable Aromatics, 40 CFR Part 136, USEPA (1984)

(Detection limit in parenthesis.)
ND - Parameter not detected at the stated detection limit.

* Meta and para xylene coelute on the capilary system.

Jack M. Morgan
Senior Organic Chemist

Report Date: 12/30/88

Client: New Mexico OCD

Sample ID: 8812150840
Laboratory Number: F2299
Analysis Requested: Purgable Halocarbons
Sample Matrix: Water

Date Sampled: 12/15/88
Date Received: 12/15/88
Date Extracted: NA
Date Analyzed: 12/29/88

Parameter	Concentration		Units
CHLOROMETHANE	ND	(0.5)	ug/l
BROMOMETHANE	ND	(0.5)	ug/l
VINYL CHLORIDE	ND	(0.5)	ug/l
CHLOROETHANE	ND	(0.5)	ug/l
METHYLENE CHLORIDE	ND	(0.5)	ug/l
TRICHLOROFLUOROMETHANE	ND	(0.5)	ug/l
1,1 DICHLOROETHENE	ND	(0.5)	ug/l
1,1 DICHLOROETHANE	0.5	(0.5)	ug/l
CHLOROFORM	ND	(0.5)	ug/l
1,2 DICHLOROETHANE	1.5	(0.5)	ug/l
1,1,1 TRICHLOROETHANE	ND	(0.5)	ug/l
CARBONTETRACHLORIDE	ND	(0.5)	ug/l
TRICHLOROETHENE	ND	(0.5)	ug/l
TRANS 1,2 DICHLOROETHENE	ND	(0.5)	ug/l
TRANS 1,3 DICHLOROPROPENE	ND	(0.5)	ug/l
CIS 1,3 DICHLOROPROPENE	ND	(0.5)	ug/l
DIBROMO CHLOROMETHANE	ND	(0.5)	ug/l
BROMOFORM	ND	(0.5)	ug/l
1,1,2 TRICHLOROETHANE	ND	(0.5)	ug/l
1,1,2,2 TETRACHLOROETHANE	ND	(0.5)	ug/l
TETRACHLOROETHENE	ND	(0.5)	ug/l
CHLOROBENZENE	ND	(0.5)	ug/l
BROMODICHLOROMETHANE	ND	(0.5)	ug/l
1,2- DICHLOROBENZENE	ND	(0.5)	ug/l
1,3- DICHLOROBENZENE	ND	(0.5)	ug/l
1,4- DICHLOROBENZENE	ND	(0.5)	ug/l
DICHLORODIFLUOROMETHANE	ND	(0.5)	ug/l
1,1- DICHLOROETHANE	ND	(0.5)	ug/l
1,2- DICHLOROPROPANE	ND	(0.5)	ug/l

Method: 8010 Halogenated Volatile Organics, SW-846, USEPA, (1982).
601 Purgable Halocarbons, 40 CFR Part 136, USEPA (1984).

(Detection limit in parenthesis.)
ND - Parameter not detected at the stated detection limit.

Jack M. Morgan
Senior Organic Chemist

** Spike Analysis

Report Date: 12/30/88

Client: New Mexico OCD

Sample ID:	8812150840	Date Sampled:	12/15/88
Laboratory Number:	F2299	Date Received:	12/15/88
Analysis Requested:	Purgable Aromatics	Date Extracte:	NA
Sample Matrix:	Water	Date Analyzed:	12/28/88

	Parameter	Concentration	(Recovery)	Units
	BENZENE	26.2 (0.2)	108%	ug/l
	ETHYLBENZENE	4.5 (0.2)	90%	ug/l
	TOLUENE	5.2 (0.2)	68%	ug/l
*	m,p-XYLENE	12.2 (0.2)	60%	ug/l
	o-XYLENE	11.4 (0.2)	95%	ug/l

Method: 8020 Aromatic Volatile Organics, SW-846, USEPA (1982)
602 Purgable Aromatics, 40 CFR Part 136, USEPA (1984)

(Detection limit in parenthesis.)
ND - Parameter not detected at the stated detection limit.

* Meta and para xylene coelute on the capilary system.

Spiked with 5 ppb for all parameters except o- xylene (7.5 ppb)

Jack M. Morgan
Senior Organic Chemist

Report Date: 12/30/88

Client: New Mexico OCD

Sample ID:	Blank	Date Sampled:	NA
Laboratory Number:	Blank	Date Received:	NA
Analysis Requested:	Purgable Aromatics	Date Extracte:	NA
Sample Matrix:	Water	Date Analyzed:	12/28/88

	Parameter	Concentration		Units
	BENZENE	ND	(0.2)	ug/l
	ETHYLBENZENE	ND	(0.2)	ug/l
	TOLUENE	ND	(0.2)	ug/l
*	m,p-XYLENE	ND	(0.2)	ug/l
	o-XYLENE	ND	(0.2)	ug/l

Method: 8020 Aromatic Volatile Organics, SW-846, USEPA (1982)
602 Purgable Aromatics, 40 CFR Part 136, USEPA (1984)

(Detection limit in parenthesis.)
ND - Parameter not detected at the stated detection limit.

* Meta and para xylene coelute on the capilary system.

Jack M. Morgan
Senior Organic Chemist

Report Date: 12/30/88

Client: New Mexico OCD

Sample ID: Blank
Laboratory Number: Blank
Analysis Requested: Purgable Halocarbons
Sample Matrix: Water

Date Sampled: NA
Date Received: NA
Date Extracted: NA
Date Analyzed: 12/29/88

Parameter	Concentration	Units
CHLOROMETHANE	ND (0.5)	ug/l
BROMOMETHANE	ND (0.5)	ug/l
VINYL CHLORIDE	ND (0.5)	ug/l
CHLOROETHANE	ND (0.5)	ug/l
METHYLENE CHLORIDE	ND (0.5)	ug/l
TRICHLOROFLUOROMETHANE	ND (0.5)	ug/l
1,1 DICHLOROETHENE	ND (0.5)	ug/l
1,1 DICHLOROETHANE	ND (0.5)	ug/l
CHLOROFORM	ND (0.5)	ug/l
1,2 DICHLOROETHANE	ND (0.5)	ug/l
1,1,1 TRICHLOROETHANE	ND (0.5)	ug/l
CARBONTETRACHLORIDE	ND (0.5)	ug/l
TRICHLOROETHENE	ND (0.5)	ug/l
TRANS 1,2 DICHLOROETHENE	ND (0.5)	ug/l
TRANS 1,3 DICHLOROPROPENE	ND (0.5)	ug/l
CIS 1,3 DICHLOROPROPENE	ND (0.5)	ug/l
DIBROMO CHLOROMETHANE	ND (0.5)	ug/l
BROMOFORM	ND (0.5)	ug/l
1,1,2 TRICHLOROETHANE	ND (0.5)	ug/l
1,1,2,2 TETRACHLOROETHANE	ND (0.5)	ug/l
TETRACHLOROETHENE	ND (0.5)	ug/l
CHLOROBENZENE	ND (0.5)	ug/l
BROMODICHLOROMETHANE	ND (0.5)	ug/l
1,2- DICHLOROBENZENE	ND (0.5)	ug/l
1,3- DICHLOROBENZENE	ND (0.5)	ug/l
1,4- DICHLOROBENZENE	ND (0.5)	ug/l
DICHLORODIFLUOROMETHANE	ND (0.5)	ug/l
1,1- DICHLOROETHANE	ND (0.5)	ug/l
1,2- DICHLOROPROPANE	ND (0.5)	ug/l

Method: 8010 Halogenated Volatile Organics, SW-846, USEPA, (1982).
601 Purgable Halocarbons, 40 CFR Part 136, USEPA (1984).

(Detection limit in parenthesis.)
ND - Parameter not detected at the stated detection limit.

Jack M. Morgan
Senior Organic Chemist

RADIAN CORPORATION

 RAS - Austin REPORT Work Order # 88-12-043

Received: 12/15/88 Results by Sample

SAMPLE ID 8812131233 Effluent FRACTION 01E TEST CODE EPA602 NAME EPA method 602

Date & Time Collected 12/13/88 Category

VERIFIED CL

ANALYST DMV FILE #

INSTRMT D INJECTED 12/19/88 UNITS ug/L

CAS#	COMPOUND	RESULT	DET LIMIT
71-43-2	Benzene	51	0.20
108-88-3	Toluene	1.8	0.20
100-41-4	Ethylbenzene	6.0	0.30
108-90-7	Chlorobenzene-A	ND	0.30
106-46-7	1,4-Dichlorobenzene	ND	0.30
541-73-1	1,3-Dichlorobenzene	ND	0.40
95-50-1	1,2-Dichlorobenzene	ND	0.40

SURROGATES

98-08-8	a,a,a-Trifluorotoluene	156**% recovery

NOTES AND DEFINITIONS FOR THIS REPORT.

DET LIMIT = DETECTION LIMIT
ND = not detected at detection limit
NA = not analyzed
* = less than 5 times the detection limit
N\A = not available
Second column confirmation NOT performed unless otherwise noted.

RADIAN CORPORATION

RAS - Austin REPORT

Work Order # 88-12-043

Received: 12/15/88

Results by Sample

Continued From Above

SAMPLE ID 8812131233 Effluent FRACTION 01A TEST CODE TDS NAME Total dissolved solids

Date & Time Collected 12/13/88 Category

DET LIMIT = DETECTION LIMIT
ND = not detected at detection limit
NA = not analyzed
* = less than 5 times the detection limit
N\A = not available

SAMPLE ID 8812131233 Effluent FRACTION 01E TEST CODE XYLENE NAME Xylenes, EPA 602

Date & Time Collected 12/13/88 Category

VERIFIED CL

ANALYST DMV FILE #

INSTRMT D INJECTD 12/12/88 UNITS ug/L

CAS #	COMPOUND	RESULT	DET LIMIT
106-42-3	p-Xylene-A	21	0.20
108-38-3	m-Xylene	20	0.20
95-47-6	o-Xylene	12	0.10

SURROGATES

98-08-8 a,a,a-Trifluorotoluene 156**% recovery

NOTES AND DEFINITIONS FOR THIS REPORT.
DET LIMIT = DETECTION LIMIT
ND = not detected at detection limit
NA = not analyzed
* = less than 5 times the detection limit
N\A = not available
Second column confirmation NOT performed unless otherwise noted.
Q = daily EPA standard recovery out...

RADIAN CORPORATION

RAS - Austin REPORT

Work Order # 88-12-043

Received: 12/15/88

Results by Sample

SAMPLE ID 8812131233 Effluent FRACTION OIC TEST CODE EPA601 NAME EPA method 601

Date & Time Collected 12/13/88 Category

ANALYST BM VERIFIED CL

INSTRMT B INJECTD 12/15/88 FILE # UNITS ug/L

CAS#	COMPOUND	RESULT	DET LIMIT
74-87-3	Chloromethane	ND	0.30
74-83-9	Bromomethane	ND	1.2
75-01-4	Vinyl chloride	ND	0.20
75-00-3	Chloroethane	ND	0.50
75-09-2	Methylene chloride	ND	0.30
75-69-4	Trichlorofluoromethane	ND	0.10
75-35-4	1,1-Dichloroethene	ND	0.10
75-34-3	1,1-Dichloroethane	0.7	0.090
156-60-5	trans-1,2-Dichloroethene	0.9*	0.20
67-66-3	Chloroform	ND	0.050
107-06-2	1,2-Dichloroethane	2.4	0.030
71-55-6	1,1,1-Trichloroethane	ND	0.090
56-23-5	Carbon tetrachloride	ND	0.10
75-27-4	Bromodichloromethane	ND	0.10

KADIAN CORPORATION

 RAS - Austin REPORT Work Order # 88-12-043

Received: 12/15/88 Results by Sample Continued From Above

SAMPLE ID 8812131233 Effluent FRACTION 01C TEST CODE EPA601 NAME EPA method 601

Date & Time Collected 12/13/88 Category

CAS#	COMPOUND	RESULT	DET LIMIT
78-87-5	1,2-Dichloropropane	ND	0.10
10061-02-6	trans-1,3-Dichloropropene	ND	0.30
79-01-6	Trichloroethene	ND	0.20
124-48-1	Dibromochloromethane-A	ND	0.20
79-00-5	1,1,2-Trichloroethane-A	ND	0.070
10061-01-5	cis-1,3-Dichloropropene-A	ND	N\A
110-75-8	2-Chloroethylvinyl ether	ND	0.20
75-25-2	Bromoform	ND	0.30
79-34-5	1,1,2,2-Tetrachloroethane-B	ND	0.12
127-18-4	Tetrachloroethene-B	ND	0.030
108-90-7	Chlorobenzene	ND	0.30
541-73-1	1,3-Dichlorobenzene	ND	0.30
95-50-1	1,2-Dichlorobenzene	ND	0.50
106-46-7	1,4-Dichlorobenzene	ND	0.40

SURROGATES

74-97-5	Bromochloromethane	121	% Recovery
460-00-4	1-Bromo-4-fluorobenzene	108	% Recovery

RADIAN CORPORATION

 RAS - Austin REPORT Work Order # 88-12-057

Received: 12/09/88 Results by Sample

SAMPLE ID 8812081030 Effluent FRACTION 11A TEST CODE EPA602 NAME EPA method 602

Date & Time Collected 12/08/88 Category

VERIFIED CL

ANALYST BM FILE #

INSTRMT D INJECTED 12/13/88 UNITS ug/L

CAS#	COMPOUND	RESULT	DET LIMIT
71-43-2	Benzene	32	5.0
108-88-3	Toluene	18*	5.0
100-41-4	Ethylbenzene	17*	7.5
108-90-7	Chlorobenzene-A	ND	7.5
106-46-7	1,4-Dichlorobenzene	ND	7.5
541-73-1	1,3-Dichlorobenzene	ND	10
95-50-1	1,2-Dichlorobenzene	ND	10

SURROGATES

98-08-8	a,a,a-Trifluorotoluene	106% recovery

NOTES AND DEFINITIONS FOR THIS REPORT.

DET LIMIT = DETECTION LIMIT
ND = not detected at detection limit
NA = not analyzed
* = less than 5 times the detection limit
N\A = not available
Second column confirmation NOT performed unless otherwise noted.

RADIAN CORPORATION

RAS - Austin REPORT

Work Order # 88-12-057

Received: 12/09/88

Results by Sample

SAMPLE ID 8812081030 FRACTION 11A TEST CODE XYLENE NAME Xylenes, EPA 602

Date & Time Collected 12/08/88 Category

VERIFIED CL

ANALYST BM FILE #

INSTRMT D INJECTD 12/13/88 UNITS ug/L

CAS #	COMPOUND	RESULT	DET LIMIT
106-42-3	p-Xylene-A	51	5.0
108-38-3	m-Xylene	40	5.0
95-47-6	o-Xylene	24	2.5

SURROGATES

98-08-8 a,a,a-Trifluorotoluene 106% recovery

NOTES AND DEFINITIONS FOR THIS REPORT.

DET LIMIT = DETECTION LIMIT
ND = not detected at detection limit
NA = not analyzed
* = less than 5 times the detection limit
N\A = not available
Second column confirmation NOT performed unless otherwise noted.
Q = daily EPA standard recovery outside 95% confidence interval.
Chlorobenzene and p-xylene co-elute. Quantitated as chlorobenzene unless otherwise noted.

KADIAN CORPORATION

RAS - Austin REPORT

Work Order # 88-12-057

Received: 12/09/88

Results by Sample

SAMPLE ID 8812081030 Effluent FRACTION 11C TEST CODE EPA601 NAME EPA method 601

Date & Time Collected 12/08/88 Category

VERIFIED CL

ANALYST BM FILE #

INSTRMT B INJECTD 12/15/88 UNITS ug/L

CAS#	COMPOUND	RESULT	DET LIMIT
74-87-3	Chloromethane	ND	0.30
74-83-9	Bromomethane	ND	1.2
75-01-4	Vinyl chloride	ND	0.20
75-00-3	Chloroethane	ND	0.50
75-09-2	Methylene chloride	ND	0.30
75-69-4	Trichlorofluoromethane	1.3	0.10
75-35-4	1,1-Dichloroethene	ND	0.10
75-34-3	1,1-Dichloroethane	0.8	0.090
156-60-5	trans-1,2-Dichloroethene	0.8*	0.20
67-66-3	Chloroform	ND	0.050
107-06-2	1,2-Dichloroethane	2.4	0.030
71-55-6	1,1,1-Trichloroethane	ND	0.090
56-23-5	Carbon tetrachloride	ND	0.10
75-27-4	Bromodichloromethane	ND	0.10

RADIAN CORPORATION

Received: 12/09/88

RAS - Austin REPORT
Results by Sample

Work Order # 88-12-057
Continued From Above

SAMPLE ID 8812081030 Effluent FRACTION 11C TEST CODE EPA601 NAME EPA method 601
Date & Time Collected 12/08/88 Category

CAS#	COMPOUND	RESULT	DET LIMIT
78-87-5	1,2-Dichloropropane	ND	0.10
10061-02-6	trans-1,3-Dichloropropene	ND	0.30
79-01-6	Trichloroethene	ND	0.20
124-48-1	Dibromochloromethane-A	ND	0.20
79-00-5	1,1,2-Trichloroethane-A	ND	0.070
10061-01-5	cis-1,3-Dichloropropene-A	ND	N/A
110-75-8	2-Chlorbethylvinyl ether	ND	0.20
75-25-2	Bromoform	ND	0.30
79-34-5	1,1,2,2-Tetrachloroethane-B	ND	0.12
127-18-4	Tetrachloroethene-B	ND	0.030
108-90-7	Chlorobenzene	ND	0.30
541-73-1	1,3-Dichlorobenzene	ND	0.30
95-50-1	1,2-Dichlorobenzene	ND	0.50
106-46-7	1,4-Dichlorobenzene	ND	0.40

SURROGATES

74-97-5	Bromochloromethane	129	% Recovery
460-00-4	1-Bromo-4-fluorobenzene	108	% Recovery

RADIAN
CORPORATION

Client: GEOSCIENCE CONSULTANTS, LTD.
500 COPPER N.W.; SUITE 200
ALBUQUERQUE, NM 87102

01B 8811081414
02B 8811081431
03B 8811081504
04B 8811081600

EPA METHOD 8240

Lab No: A8-11-046

RESULTS IN ug/L

CAS #	COMPOUND	Influent 01B	02B Effluent	Tank 27 03B	04B Tank 106
67-64-1	Acetone	<25	<25	<25	<25
107-02-8	Acrolein	<75	<75	<75	<75
107-13-1	Acrylonitrile	<30	<30	<30	<30
71-43-2	Benzene	520	<2.0	72	180
75-25-2	Bromoform	<2.0	<2.0	<2.0	<2.0
74-83-9	Bromomethane	<2.0	<2.0	<2.0	<2.0
124-48-1	Chlorodibromomethane	<2.0	<2.0	<2.0	<2.0
75-00-3	Chloroethane	<2.0	<2.0	<2.0	<2.0
108-90-7	Chlorobenzene	<2.0	<2.0	<2.0	<2.0
75-15-0	Carbon Disulfide	<2.0	<2.0	<2.0	<2.0
56-23-5	Carbon Tetrachloride	<2.0	<2.0	<2.0	<2.0
67-66-3	Chloroform	<2.0	<2.0	3.0*	<2.0
74-87-3	Chloromethane	<2.0	<2.0	<2.0	<2.0
110-75-8	2-Chloroethyl vinyl ether	<2.0	<2.0	<2.0	<2.0
74-95-3	Dibromomethane	<2.0	<2.0	<2.0	<2.0
75-71-8	Dichlorodifluoromethane	<2.0	<2.0	<2.0	<2.0
75-34-3	1,1-Dichloroethane	<2.0	<2.0	5.7*	2.9*
107-06-2	1,2-Dichloroethane	<2.0	<2.0	8.3*	<2.0
156-60-5	trans-1,2-Dichloroethene	<2.0	<2.0	<2.0	<2.0
75-35-4	1,1-Dichloroethene	<2.0	<2.0	<2.0	<2.0
75-27-4	Dichlorobromomethane	<2.0	<2.0	<2.0	<2.0
78-87-5	1,2-Dichloropropane	<2.0	<2.0	<2.0	<2.0
10061-01-5	cis-1,3-Dichloropropene	<2.0	<2.0	<2.0	<2.0
10061-02-6	trans-1,3-Dichloropropene	<2.0	<2.0	<2.0	<2.0
97-63-2	Ethyl methacrylate	<50	<50	<50	<50
100-41-4	Ethyl benzene	68	<2.0	<2.0	<2.0
591-78-6	2-Hexanone	<10	<10	<10	<10
74-88-4	Iodomethane	<2.0	<2.0	<2.0	<2.0
75-09-2	Methylene chloride	<10	<10	<10	<10
78-93-3	Methyl ethyl ketone	<10	<10	<10	<10
108-10-1	4-Methyl-2-pentanone	<2.0	<2.0	<2.0	<2.0
100-42-5	Styrene	<2.0	<2.0	<2.0	<2.0
79-34-5	1,1,2,2-Tetrachloroethane	<2.0	<2.0	<2.0	<2.0
127-18-4	Tetrachloroethylene	<2.0	<2.0	<2.0	<2.0
108-88-3	Toluene	5.4*	<2.0	3.9*	<2.0
79-01-6	Trichloroethene	3.2*	<2.0	2.6*	<2.0
71-55-6	1,1,1-Trichloroethane	<2.0	<2.0	<2.0	<2.0
79-00-5	1,1,2-Trichloroethane	<2.0	<2.0	<2.0	<2.0
75-69-4	Trichlorofluoromethane	<10	<10	<10	<10
96-18-4	1,2,3-Trichloropropane	<2.0	<2.0	<2.0	<2.0
75-01-4	Vinyl chloride	<2.0	<2.0	<2.0	<2.0
108-05-4	Vinyl acetate	<2.0	<2.0	<2.0	<2.0
110-57-6	Transl,4dichloro-2-butene	<2.0	<2.0	<2.0	<2.0
1330-20-7	Xylenes	310	6.6*	11	190

1160

RADIAN
CORPORATION

Client: GEOSCIENCE CONSULTANTS, LTD.
500 COPPER N.W.; SUITE 200
ALBUQUERQUE, NM 87102

01A 8811081414
02A 8811081431
03A 8811081504
04A 8811081600

EPA METHOD 8310

Lab No: A8-11-046

RESULTS IN ug/L

CAS #	COMPOUND	Influent 01A	Effluent 02A	Tank 27 03A	Tank 106 04A
208-96-8	Acenaphthylene	<31	<31	<31	<31
83-32-9	Acenaphthene	<3.4	<3.4	<3.4	<3.4
120-12-7	Anthracene	<2.4	<2.4	<2.4	<2.4
56-55-3	Benz(a)anthracene	<0.40	<0.40	<0.40	<0.40
50-32-8	Benzo(a)pyrene	<0.20	<0.20	<0.20	<0.20
205-99-2	Benzo(b)fluoranthene	<0.10	<0.10	<0.10	<0.10
191-24-2	Benzo(ghi)perylene	<0.30	<0.30	<0.30	<0.30
207-08-9	Benzo(k)fluoranthene	<0.10	<0.10	<0.10	<0.10
218-01-9	Chrysene	<0.10	<0.10	<0.10	<0.10
53-70-3	Dibenzo(a,h)anthracene	<0.30	<0.30	<0.30	<0.30
206-44-0	Fluoranthene	<0.61	<0.61	<0.61	<0.61
86-73-7	Fluorene	18	20	3.7 *	7.3 *
193-39-5	Indeno(1,2,3-cd)pyrene	<1.8	<1.8	<1.8	<1.8
91-20-3	Naphthalene	114	80	6.5 *	9.6
85-01-8	Phenanthrene	49	63	8.3 *	12 *
129-00-0	Pyrene	<0.71	<0.71	<0.71	<0.71

SURROGATE RECOVERIES (results in % recovery)

Terphenyl-D14	D	D	D	D

NOTES AND DEFINITIONS FOR THIS REPORT.
QC = OUTSIDE CONTROL LIMITS.
* = LESS THAN 5 TIMES THE DETECTION LIMIT.
B = DETECTED IN REAGENT BLANK; BACKGROUND SUBTRACTION NOT PERFORMED.
ND = NOT DETECTED AT DETECTION LIMIT.
D = NOT QUANTITATED DUE TO DILUTION.
NA = NOT ANALYZED.
N\A = NOT AVAILABLE.
NS = NOT SPIKED.

SCIENTIFIC LABORATORY DIVISION
ORGANIC ANALYSIS REQUEST FORM
Organic Section - Phone: 841-2570

88-1147-C

REPORT TO: DAVID BOYER
N.M. OIL CONSERVATION DIVISION
P.O. Box 2088
Santa Fe, NM 87504-2088

S.L.D. No. OR-
DATE REC. 7/18/88
PRIORITY 3
PHONE(S): 827-5812

WPU 754

COLLECTION CITY: Bloomfield ; COUNTY: San Juan

COLLECTION DATE/TIME CODE: (Year-Month-Day-Hour-Minute) 8 8 0 7 1 3 1 4 1 0

LOCATION CODE: (Township-Range-Section-Tracts) 29N+12W+22+3 3 0 (10N06E24342)

USER CODE: 8 2 2 3 5 SUBMITTER: David Boyer CODE: 2 6 0

SAMPLE TYPE: WATER [X], SOIL [ ], FOOD [ ], OTHER:

This form accompanies 2 Septum Vials, ____ Glass Jugs, and/or ____

Samples were preserved as follows:

- [ ] NP: No Preservation; Sample stored at room temperature.
- [X] P-Ice Sample stored in an ice bath (Not Frozen).
- [ ] P-AA Sample Preserved with Ascorbic Acid to remove chlorine residual.
- [X] P-HCl Sample Preserved with Hydrochloric Acid (2 drops/40 ml)

ANALYSES REQUESTED: Please check the appropriate box(es) below to indicate the type of analytical screens required. Whenever possible list specific compounds suspected or required.

PURGEABLE SCREENS

- [ ] (753) Aliphatic Headspace (1-5 Carbons)
- [X] (754) Aromatic & Halogenated Purgeables
- [ ] (765) Mass Spectrometer Purgeables
- [ ] (766) Trihalomethanes
- [ ] (774) SDWA VOC's I (8 Regulated +)
- [ ] (775) SDWA VOC's II (EDB & DBCP)

Other Specific Compounds or Classes

- [ ] ____
- [ ] ____

EXTRACTABLE SCREENS

- [ ] (751) Aliphatic Hydrocarbons
- [ ] (755) Base/Neutral Extractables
- [ ] (758) Herbicides, Chlorophenoxy acid
- [ ] (759) Herbicides, Triazines
- [ ] (760) Organochlorine Pesticides
- [ ] (761) Organophosphate Pesticides
- [ ] (767) Polychlorinated Biphenyls (PCB's)
- [ ] (764) Polynuclear Aromatic Hydrocarbons
- [ ] (762) SDWA Pesticides & Herbicides

Remarks:

FIELD DATA:

pH= 7 ; Conductivity= 4900 umho/cm at 27 °C; Chlorine Residual= ____ mg/l

Dissolved Oxygen= ____ mg/l; Alkalinity= ____ mg/l; Flow Rate ____ ____/____

Depth to water ____ ft.; Depth of well ____ ft.; Perforation Interval ____-____ ft.; Casing:

Sampling Location, Methods and Remarks (i.e. odors, etc.)

NABC ~~Water~~ Bloomfield Giant Refinery, Sample Steam Air Stripper effluent

I certify that the results in this block accurately reflect the results of my field analyses, observations and activities.(signature collector): D. Boyer Method of Shipment to the Lab: State Car

CHAIN OF CUSTODY

I certify that this sample was transferred from D. BOYER to JUDI R-HILL

at (location) SLD-ALB on 7/18/88 - 13:00 and that

the statements in this block are correct. Evidentiary Seals: Not Sealed [ ] OR Seals Intact: Yes [X] No [ ]

Signatures D. Boyer Judi R-Hill

For OCD use: Date owner notified: ____ Phone or Letter? Initials ____

ANALYSES PERFORMED

LAB. No.: OR- 1147

THIS PAGE FOR LABORATORY RESULTS ONLY

This sample was tested using the analytical screening method(s) checked below:

PURGEABLE SCREENS

- [ ] (753) Aliphatic Headspace (1-5 Carbons)
- [x] (754) Aromatic & Halogenated Purgeables
- [ ] (765) Mass Spectrometer Purgeables
- [ ] (766) Trihalomethanes
- [ ] (774) SDWA VOC's I (8 Regulated +)
- [ ] (775) SDWA VOC's II (EDB & DBCP)

Other Specific Compounds or Classes

- [ ] _____
- [ ] _____

EXTRACTABLE SCREENS

- [ ] (751) Aliphatic Hydrocarbons
- [ ] (755) Base/Neutral Extractables
- [ ] (758) Herbicides, Chlorophenoxy acid
- [ ] (759) Herbicides, Triazines
- [ ] (760) Organochlorine Pesticides
- [ ] (761) Organophosphate Pesticides
- [ ] (767) Polychlorinated Biphenyls (PCB's)
- [ ] (764) Polynuclear Aromatic Hydrocarbons
- [ ] (762) SDWA Pesticides & Herbicides

ANALYTICAL RESULTS

COMPOUND(S) DETECTED	CONC. [PPB]	COMPOUND(S) DETECTED	CONC. [PPB]
aromatic purgeables			
benzene	~~14~~ 14		
toluene	T.R.		
ethylbenzene	T.R.		
p+m-xylene	14		
o-xylene	T.R.		
halogenated purgeables	T.R.		
* DETECTION LIMIT * *	5 ug/L	+ DETECTION LIMIT + +	

ABBREVIATIONS USED:

N D = NONE DETECTED AT OR ABOVE THE STATED DETECTION LIMIT
T R = DETECTED AT A LEVEL BELOW THE STATED DETECTION LIMIT (NOT CONFIRMED)
[RESULTS IN BRACKETS] ARE UNCONFIRMED AND/OR WITH APPROXIMATE QUANTITATION

LABORATORY REMARKS: _____

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Not Sealed [ ] Intact: Yes [✓] No [ ]. Seal(s) broken by: Gary C. Ellen date: _____

I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: 7/22/88. Analyst's signature: Gary C. Ellen

I certify that I have reviewed and concur with the analytical results for this sample and with the statements in this block.

Reviewers signature: R Meyerhen

GTEL Environmental Laboratories
Division of Groundwater Technology, Inc.

Western Region
4080-C Pike Lane
Concord, CA 94520

(415) 685-7852
(800) 544-3422 *from inside California*
(800) 423-7143 *from outside California*

06/28/88 mh

PROJECT MGR: Michael Wood
Groundwater Technology, Inc.
3620 Wyoming, NE
Albuquerque, NM 87111
PROJECT#: 232-799-5009-12
LOCATION: Farmington, NM

SAMPLED: 06/23/88 BY: M. Wood
RECEIVED: 06/25/88 BY: K. Biava
ANALYZED: 06/27/88 BY: P. Sra
MATRIX: Water
UNITS: ug/L (ppb)

TEST RESULTS

COMPOUND	MDL	LAB # / I.D.# EPA	WQCC	26059 AS INF	26060 AS EFF		
Benzene	0.5	5	10	700	9.5		
Bromodichloromethane	0.5			<0.5	<0.5		
Bromoform	0.5			<0.5	<0.5		
Bromomethane	0.5			<0.5	<0.5		
Carbon tetrachloride	0.5			<0.5	<0.5		
Chlorobenzene	0.5			<0.5	<0.5		
Chloroethane	0.5			<0.5	<0.5		
2-Chloroethylvinyl ether	1.0			<1.0	<1.0		
Chloroform	0.5			<0.5	<0.5		
Chloromethane	0.5			<0.5	<0.5		
Dibromochloromethane	0.5			<0.5	<0.5		
1,2-Dichlorobenzene	0.5			<0.5	<0.5		
1,3-Dichlorobenzene	0.5			<0.5	<0.5		
1,4-Dichlorobenzene	0.2			<0.5	<0.5		
Dichlorodifluoromethane	0.5			<0.5	<0.5		
1,1-Dichloroethane	0.5	—	25	4.5	<0.5		
1,2-Dichloroethane (EDC)	0.5	5	10	42	0.87		
1,1-Dichloroethene	0.2			<0.2	<0.2		
trans-1,2-Dichloroethene	0.5	(70)	—	14	<0.5		
1,2-Dichloropropane	0.5			<0.5	<0.5		
cis-1,3-Dichloropropene	0.5			<0.5	<0.5		
trans-1,3-Dichloropropene	0.5			<0.5	<0.5		
Ethylbenzene	0.5	(680)	750	79	1.3		
Methylene chloride	0.5	—	100	4.7	3.0		
1,1,2,2-Tetrachloroethane	0.5			<0.5	<0.5		
Tetrachloroethene	0.5			<0.5	<0.5		
Toluene	0.5	2000	750	490	7.8		
1,1,1-Trichloroethane	0.5	200	60	1.6	<0.5		
1,1,2-Trichloroethane	0.5			<0.5	<0.5		
Trichloroethene	0.5	5	100	1.7	<0.5		
Trichlorofluoromethane	0.5			<0.5	<0.5		
Vinyl Chloride	1.0			<1.0	<1.0		
Xylenes	0.5	440	620	800	28		

MDL = Method Detection Limit.
METHODS: EPA 601/602.

( ) - MCL Goal

SAFY KHALIFA, Ph.D., Director

GTEL Environmental Laboratories
division of Groundwater Technology, Inc.

Western Region
4080-C Pike Lane
Concord, CA 94520
(415) 685-7852
(800) 544-3422 *from inside California*
(800) 423-7143 *from outside California*

07/11/88 JP

CLIENT: Michael Wood
Groundwater Technology, Inc.
3620 Wyoming, NE
Albuquerque, NM 87111
PROJECT#: 232-799-5009-13
LOCATION: Farmington, NM
SAMPLED: 06/23/88 BY: M. Wood
RECEIVED: 06/25/88 BY: K. Biava
ANALYZED: 07/07/88 BY: L. Hinson
MATRIX: Water
UNITS: ug/L (ppb)

TEST RESULTS

COMPOUNDS	MDL	LAB # I.D.#	26061 AS INF	26062 AS EFF		
Acenaphthene	10		<10	<10		
Acenaphthylene	10		<10	<10		
Anthracene	10		<10	<10		
Benzo (a) anthracene	10		<10	<10		
Benzo (a) pyrene	10		<10	<10		
Benzo (b) fluoranthene	10		<10	<10		
Benzo (ghi) perylene	10		<10	<10		
Benzo (k) fluoranthene	10		<10	<10		
Chrysene	10		<10	<10		
Dibenzo (a,h) anthracene	10		<10	<10		
Fluoranthene	10		<10	<10		
Fluorene	10		<10	<10		
Indeno (1,2,3-cd) pyrene	10		<10	<10		
Naphthalene	10	— 30	51	<10		
Phenanthrene	10		<10	<10		
Pyrene	10		<10	<10		

MDL=Method Detection Limit.
METHOD: EPA Method 610.

Safy Khalifa 7/8/87
SAFY KHALIFA, Ph.D., Director

STATE OF NEW MEXICO DEPARTMENT OF HEALTH
SCIENTIFIC LABORATORY DIVISION
P.O. Box 4700 700 Camino de Salud, NE
Albuquerque, NM 87196-4700 [505]-841-2500
WATER CHEMISTRY SECTION [505]-841-2555

March 22, 1994

Request ID No. 070080

ANALYTICAL REPORT
SLD Accession No. WC-93-7736

Distribution
( ) User 70320
(X) Submitter 260
(x) SLD Files

To: Roger Anderson
NM Oil Consv. Div.
State Land Office Bldg.
P.O. Box 2088
Santa Fe, NM 87504-2088

From: Water Chemistry Section
Scientific Laboratory Div.
700 Camino de Salud, NE
Albuquerque, NM 87106

Re: **A water,Nonpres/No sample submitted to this laboratory on December 10, 1993**

DEMOGRAPHIC DATA

COLLECTION		*LOCATION*
On: 9-Dec-93	*By:* Ols . . .	Final Effluent
At: 9:30 hrs.	*In/Near:* Bloomfield	

ANALYTICAL RESULTS

Analysis	Value	D. Lmt.	Units
calcium	346.00		mG/L
magnesium	32.00		mG/L
potassium	4.00		mG/L
sodium	452.00		mG/L
bicarbonate	215.00		mG/L
carbonate	0.00		mG/L
chloride	387.00		mG/L
sulfate	1246.00		mG/L
total diss resid	2870.00		mG/L

Reviewed By: _____
John A. Firney 02/15/94
Supervisor, Water Chemistry Section

STATE OF NEW MEXICO DEPARTMENT OF HEALTH
SCIENTIFIC LABORATORY DIVISION
P.O. Box 4700 700 Camino de Salud, NE
Albuquerque, NM 87196-4700 [505]-841-2500
AIR & HEAVY METALS SECTION [505]-841-2553

May 11, 1994

Request ID No. 070081

ANALYTICAL REPORT
SLD Accession No. IC-93-0970

Distribution
( ) User 70320
(X) Submitter 260
(x) SLD Files

To: B. Olson / ROGER ANDERSON
NM Oil Consv. Div.
State Land Office Bldg.
P.O. Box 2088
Santa Fe, NM 87504-2088

From: Air & Heavy Metals Section
Scientific Laboratory Div.
700 Camino de Salud, NE
Albuquerque, NM 87106

Re: **A water,Nonpres/No sample submitted to this laboratory on December 10, 1993**

User:
NM Energy & Min - Oil Conserv.
, NM

DEMOGRAPHIC DATA

COLLECTION		*LOCATION*
On: 9-Dec-93	*By:* Ols . . .	Final Effluent
At: 9:30 hrs.	*In/Near:* Bloomfield	

ANALYTICAL RESULTS in mG/L

Analysis		Value	Analysis		Value	Analysis		Value
Aluminum	<	0.10	Copper	<	0.10	Silver	<	0.10
Barium	<	0.10	Iron	<	0.10	Strontium		7.30
Beryllium	<	0.10	Lead	<	0.10	Tin	<	0.10
Boron		0.30	Magnesium		33.00	Vanadium	<	0.10
Cadmium	<	0.10	Manganese		1.80	Zinc	<	0.10
Calcium		380.00	Molybdenum	<	0.10	Mercury	<	0.0005
Chromium	<	0.10	Nickel	<	0.10			
Cobalt	<	0.05	Silicon		8.90			

Laboratory Remarks:
Mercury by method 245.1 on 12/16/93 by SD.
ICP by method 200.7 on 4/29/94 by RAH.

Reviewed By: _____
Jim F. Ashby 05/11/94
Supervisor, Air & Heavy Metals Section

Inter-Mountain Laboratories, Inc.

2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

CLIENT:	Giant Refinery	DATE REPORTED:	10/23/90
ID:	9010041125		
SITE:	Stripper Effluent	DATE RECEIVED:	10/04/90
LAB NO:	F5145	DATE COLLECTED:	10/04/90

Lab pH (s.u.).....	8.05
Lab conductivity, umhos/cm.....	4360
Lab resistivity, ohm-m.....	2.3
Total dissolved solids (180), mg/l..	3430
Total dissolved solids (calc), mg/l.	3260
Total alkalinity as CaCO3, mg/l.....	85.5
Total acidity as CaCO3, mg/l.....	0
Total hardness as CaCO3, mg/l.....	1220
Sodium absorption ratio.....	7.57

	mg/l	meq/l
Bicarbonate as HCO3.....	104	1.71
Carbonate as CO3.....	0	0
Chloride.....	736	20.8
Sulfate.....	1440	30.1
Calcium.....	297	14.8
Magnesium.....	118	9.67
Potassium.....	3.24	0.08
Sodium.....	609	26.5
Major cations.....		51.1
Major anions.....		52.5
Cation/anion difference.....		1.41 %

C. Neal Schaeffer
Lab Director

Inter-Mountain Laboratories, Inc.

2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

CLIENT:	Giant Refinery	DATE REPORTED:	09/13/90
ID:	9009051004		
SITE:	Stripper effluent	DATE RECEIVED:	09/05/90
LAB NO:	F4904	DATE COLLECTED:	09/05/90

Lab pH (s.u.)	8.16
Lab conductivity, umhos/cm	3760
Lab resistivity, ohm-m	2.66
Total dissolved solids (180), mg/l	3290
Total dissolved solids (calc), mg/l	3180
Total alkalinity as CaCO3, mg/l	280
Total acidity as CaCO3, mg/l	0
Total hardness as CaCO3, mg/l	1010
Sodium absorption ratio	9.34

	mg/l	meq/l
Bicarbonate as HCO3	342	5.61
Carbonate as CO3	0	0
Chloride	619	17.5
Sulfate	1320	27.5
Calcium	357	17.8
Magnesium	28.8	2.36
Potassium	3.35	0.09
Sodium	682	29.6
Major cations		49.9
Major anions		50.6
Cation/anion difference		0.01

C. Neal Schaeffer
Lab Director

Inter-Mountain Laboratories, Inc.

2506 West Main Street
Farmington, New Mexico 87401
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CLIENT:	Giant Refining	DATE REPORTED:	08/14/90
ID:	9008081121		
SITE:	Effluent	DATE RECEIVED:	08/08/90
LAB NO:	F4726	DATE COLLECTED:	08/08/90

Lab pH (s.u.).....	7.90
Lab conductivity, umhos/cm.....	4892
Lab resistivity, ohm-m.....	2.0442
Total dissolved solids (180), mg/l..	3222
Total dissolved solids (calc), mg/l.	3155
Total alkalinity as CaC03, mg/l.....	401.10
Total acidity as CaC03, mg/l.....	0.00
Total hardness as CaC03, mg/l.....	1036.13
Sodium absorption ratio.....	8.90

	mg/l	meq/l
Bicarbonate as HC03.....	489.3	8.02
Carbonate as C03.....	0.0	0.00
Chloride.....	577.1	16.28
Sulfate.....	1278.1	26.63
Calcium.....	371.1	18.52
Magnesium.....	26.8	2.21
Potassium.....	3.0	0.08
Sodium.....	658.5	28.64
Major cations.....		49.44
Major anions.....		50.93
Cation/anion difference.....		1.48 %

C. Neal Schaeffer
Lab Director

Inter-Mountain Laboratories, Inc.

2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

CLIENT:	GBR	DATE REPORTED:	07/16/90
ID:	9007100925		
SITE:	Stripper effluent	DATE RECEIVED:	07/10/90
LAB NO:	F4583	DATE COLLECTED:	07/10/90

Lab pH (s.u.).....	8.16
Lab conductivity, umhos/cm.....	4690
Lab resistivity, ohm-m.....	2.1322
Total dissolved solids (180), mg/l..	3346
Total dissolved solids (calc), mg/l.	3242
Total alkalinity as CaCO3, mg/l.....	391.55
Total acidity as CaCO3, mg/l.....	0.00
Total hardness as CaCO3, mg/l.....	1094.36
Sodium absorption ratio.....	8.78

	mg/l	meq/l
Bicarbonate as HCO3.....	477.7	7.83
Carbonate as CO3.....	0.0	0.00
Chloride.....	571.9	16.13
Sulfate.....	1383.9	28.83
Calcium.....	289.2	14.43
Magnesium.....	90.7	7.46
Potassium.....	3.7	0.10
Sodium.....	668.0	29.06
Major cations.....		51.04
Major anions.....		52.79
Cation/anion difference.....		1.69 %

C. Neal Schaeffer
Lab Director

Inter-Mountain Laboratories, Inc.

2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

CLIENT:	Giant Refinery	DATE REPORTED:	06/13/90
ID:	Effluent		
SITE:	Air stripper	DATE RECEIVED:	06/04/90
LAB NO:	F4365	DATE COLLECTED:	06/04/90

Lab pH (s.u.).....	8.01
Lab conductivity, umhos/cm.....	4646
Lab resistivity, ohm-m.....	2.1524
Total dissolved solids (180), mg/l..	3152
Total dissolved solids (calc), mg/l.	3227
Total alkalinity as CaCO3, mg/l.....	485.14
Total acidity as CaCO3, mg/l.....	0.00
Total hardness as CaCO3, mg/l.....	1114.44
Sodium absorption ratio.....	9.19

	mg/l	meq/l
Bicarbonate as HCO3.....	591.9	9.70
Carbonate as CO3.....	0.0	0.00
Chloride.....	650.6	18.35
Sulfate.....	1160.8	24.18
Calcium.....	369.5	18.44
Magnesium.....	46.8	3.85
Potassium.....	2.9	0.07
Sodium.....	705.0	30.67
Major cations.....		53.03
Major anions.....		52.24
Cation/anion difference.....		0.75 %

C. Neal Schaeffer
Lab Director

Inter-Mountain Laboratories, Inc.

2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

CLIENT:	GBR	DATE REPORTED:	05/07/90
ID:	Effluent		
SITE:	Stripper	DATE RECEIVED:	05/02/90
LAB NO:	F4196	DATE COLLECTED:	05/02/90

Lab pH (s.u.).....	7.69
Lab Conductivity, umhos/cm.....	4806
Lab resistivity, ohm-m.....	2.0807
Total Dissolved Solids (180), mg/l..	3498
Total Dissolved Solids (calc), mg/l.	3436
Total Alkalinity as CaC03, mg/l.....	450.76
Total Acidity as CaC03, mg/l.....	0.00
Total Hardness as CaC03, mg/l.....	1295.16
Sodium Absorption Ratio.....	8.17

	mg/l	meq/l
Bicarbonate as HC03.....	549.9	9.02
Carbonate as C03.....	0.0	0.00
Chloride.....	572.8	16.16
Sulfate.....	1419.7	29.58
Calcium.....	449.8	22.44
Magnesium.....	42.1	3.46
Potassium.....	5.6	0.14
Sodium.....	676.0	29.40
Major Cations.....		55.45
Major Anions.....		54.75
Cation/Anion Difference.....		0.64 %

C. Neal Schaeffer
Lab Director

Inter·Mountain Laboratories, Inc.

2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

CLIENT:	Giant Refinery	DATE REPORTED:	04/13/90
ID:	GBR		
SITE:	Stripper Effluent	DATE RECEIVED:	04/02/90
LAB NO:	F4083	DATE COLLECTED:	04/02/90

Lab pH (s.u.).....	8.11
Lab Conductivity, umhos/cm.....	4699
Lab resistivity, ohm-m.....	2.1281
Total Dissolved Solids (180), mg/l..	3416
Total Dissolved Solids (calc), mg/l.	3318
Total Alkalinity as CaCO3, mg/l.....	374.36
Total Acidity as CaCO3, mg/l.....	0.00
Total Hardness as CaCO3, mg/l.....	1199.96
Sodium Absorption Ratio.....	8.21

	mg/l	meq/l
Bicarbonate as HCO3.....	456.7	7.49
Carbonate as CO3.....	0.0	0.00
Chloride.....	497.5	14.03
Sulfate.....	1483.9	30.91
Calcium.....	416.9	20.80
Magnesium.....	38.9	3.20
Potassium.....	3.1	0.08
Sodium.....	653.5	28.43
Major Cations.....		52.50
Major Anions.....		52.43
Cation/Anion Difference.....		0.06 %

C. Neal Schaeffer
Lab Director

Inter·Mountain Laboratories, Inc.

2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

CLIENT: GBR
ID: Effluent
SITE: Stripper
LAB NO: F3879

DATE REPORTED: 02/19/90
DATE RECEIVED: 02/14/90
DATE COLLECTED: 02/14/90

Lab pH (s.u.)	7.82
Lab Conductivity, umhos/cm	4916
Lab resistivity, ohm-m	2.0342
Total Dissolved Solids (180), mg/l	3348
Total Dissolved Solids (calc), mg/l	3287
Total Alkalinity as CaCO3, mg/l	603.56
Total Acidity as CaCO3, mg/l	0.00
Total Hardness as CaCO3, mg/l	1176.81
Sodium Absorption Ratio	8.86

	mg/l	meq/l
Bicarbonate as HCO3	736.34	12.07
Carbonate as CO3	0.00	0.00
Chloride	629.48	17.76
Sulfate	1147.67	23.91
Calcium	405.94	20.26
Magnesium	39.88	3.28
Potassium	3.36	0.09
Sodium	698.40	30.38
Major Cations		54.00
Major Anions		53.74
Cation/Anion Difference		0.24 %

C. Neal Schaeffer
Lab Director

Inter-Mountain Laboratories, Inc.

2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

CLIENT: GBR

DATE REPORTED: 01/24/90

SITE: Stripper Effluent

LAB NO: F3784

DATE RECEIVED: 01/15/90

DATE COLLECTED: 01/15/90

Lab pH (s.u.).....	7.79
Lab Conductivity, umhos/cm.....	5279
Lab resistivity, ohm-m.....	1.8943
Total Dissolved Solids (180), mg/l..	3432
Total Dissolved Solids (calc), mg/l.	[illegible]
Total Alkalinity as CaCO3, mg/l.....	504.90
Total Acidity as CaCO3, mg/l.....	0.00
Total Hardness as CaCO3, mg/l.....	1231.54
Sodium Absorption Ratio.....	8.15

	mg/l	meq/l
Bicarbonate as HCO3.....	615.98	10.10
Carbonate as CO3.....	0.00	0.00
Chloride.....	599.02	16.90
Sulfate.....	1293.76	26.95
Calcium.....	469.53	23.43
Magnesium.....	14.61	1.20
Potassium.....	2.89	0.07
Sodium.....	657.50	28.60
Major Cations.....		53.30
Major Anions.....		53.95
Cation/Anion Difference.....		0.60 %

C. Neal Schaeffer
Lab Director

Inter-Mountain Laboratories, Inc.

2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

CLIENT: Geoscience Consultants DATE REPORTED: 12/20/89

SITE: Effluent DATE RECEIVED: 12/13/89
LAB NO: F3673 DATE COLLECTED: 12/12/89

Lab pH (s.u.).....	7.92
Lab Conductivity, umhos/cm.....	4767
Lab resistivity, ohm-m.....	2.0978
Total Dissolved Solids (180), mg/l..	3416
Total Dissolved Solids (calc), mg/l.	3433
Total Alkalinity as CaCO3, mg/l.....	562.32
Total Acidity as CaCO3, mg/l.....	0.00
Total Hardness as CaCO3, mg/l.....	1268.38
Sodium Absorption Ratio.....	8.21

	mg/l	meq/l
Bicarbonate as HCO3.....	686.03	11.25
Carbonate as CO3.....	0.00	0.00
Chloride.....	604.88	17.06
Sulfate.....	1311.86	27.33
Calcium.....	496.90	24.80
Magnesium.....	6.96	0.57
Potassium.....	2.92	0.07
Sodium.....	672.00	29.23
Major Cations.....		54.67
Major Anions.....		55.64
Cation/Anion Difference.....		0.88 %

C. Neal Schaeffer
Senior Chemist

Inter-Mountain Laboratories, Inc.

2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

CLIENT: GBR-Giant Refinery
DATE REPORTED: 11/20/89

SITE: Outlet
DATE RECEIVED: 11/15/89

LAB NO: F3529
DATE COLLECTED: 11/15/89

Lab pH	7.83
Lab Conductivity, umhos/cm	4946
Lab resistivity, ohm-m	2.0218
Total Dissolved Solids (180), mg/l	3490
Total Dissolved Solids (calc), mg/l	3457
Total Alkalinity as CaCO3, mg/l	524.70
Total Acidity as CaCO3, mg/l	0.00
Total Hardness as CaCO3, mg/l	1273.65
Sodium Absorption Ratio	8.25

	mg/l	meq/l
Bicarbonate as HCO3	640.13	10.49
Carbonate as CO3	0.00	0.00
Chloride	594.71	16.78
Sulfate	1366.18	28.46
Calcium	488.48	24.38
Magnesium	13.35	1.10
Potassium	2.65	0.07
Sodium	677.00	29.45
Major Cations		54.99
Major Anions		55.73
Cation/Anion Difference		0.67 %

C. Neal Schaeffer
Lab Director

Inter·Mountain Laboratories, Inc.

2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

CLIENT: GBR-Giant Refinery
DATE REPORTED: 11/02/89

SITE: Outlet
LAB NO: F3379
DATE RECEIVED: 10/19/89
DATE COLLECTED: 10/19/89

Lab pH	8.15
Lab Conductivity, umhos/cm	3187
Lab resistivity, ohm-m	3.1377
Total Dissolved Solids (180), mg/l	3468
Total Dissolved Solids (calc), mg/l	3362
Total Alkalinity as CaCO3, mg/l	534.60
Total Acidity as CaCO3, mg/l	0.00
Total Hardness as CaCO3, mg/l	1303.12
Sodium Absorption Ratio	7.74

	mg/l	meq/l
Bicarbonate as HCO3	652.21	10.69
Carbonate as CO3	0.00	0.00
Chloride	535.24	15.10
Sulfate	1357.95	28.29
Calcium	471.63	23.53
Magnesium	30.74	2.53
Potassium	2.85	0.07
Sodium	642.50	27.95
Major Cations		54.08
Major Anions		54.08
Cation/Anion Difference		0.00 %

C. Neal Schaeffer
Lab Director

iml
Inter-Mountain
Laboratories, Inc.

2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

CLIENT: Geoscience Consultants, Ltd DATE REPORTED: 09/27/89
SAMPLE: 8909131330
SITE: Effluent DATE RECEIVED: 09/13/89
LAB NO: F3164 DATE COLLECTED: 09/13/89

Lab pH.....	8.19
Lab Conductivity, umhos/cm.....	4519
Lab resistivity, ohm-m.....	2.2129
Total Dissolved Solids (180), mg/l..	3096
Total Dissolved Solids (calc), mg/l.	3077
Total Alkalinity as CaCO3, mg/l.....	567.32
Total Acidity as CaCO3, mg/l.....	0.00
Total Hardness as CaCO3, mg/l.....	1128.96
Sodium Absorption Ratio.....	8.52

	mg/l	meq/l
Bicarbonate as HCO3.....	692.13	11.35
Carbonate as CO3.....	0.00	0.00
Chloride.....	564.97	15.94
Sulfate.....	1088.01	22.67
Calcium.....	372.67	18.60
Magnesium.....	48.43	3.98
Potassium.....	4.32	0.11
Sodium.....	658.00	28.62
Major Cations.....		51.31
Major Anions.....		49.95
Cation/Anion Difference.....		1.34 %

C. Neal Schaeffer
Senior Chemist

Analytical Data Summary

Geoscience Consultants, Ltd.
Radian Work Order: 89-08-243

Method/Analyte	Sample Identifications		
	Influent 8908171304	Effluent 8908171316	Rainbow Spring 8908171333
Matrix	01 water	02 water	03 water
alcium by ICPES			
Calcium	4200 mg/L	160 mg/L	160 mg/L
Chloride, by IC			
Chloride	620 mg/L	670 mg/L	69 mg/L
agnesium by ICPES			
Magnesium	430 mg/L	26 mg/L	25 mg/L
onductivity			
Conductivity	4800 umhos/cm	4800 umhos/cm	1600 umhos/cm
Sodium by ICPES			
Sodium	6000 mg/L	160 mg/L	160 mg/L
ulfate			
Sulfate	1300 mg/L	1300 mg/L	14000 mg/L
Total dissolved solids			
Total dissolved solids	3500 mg/L	3700 mg/L	1100 mg/L

Q Outside control limits

For a detailed description of flags and technical terms in this report refer to the glossary.

Geoscience Consultants, Ltd.
Radian Work Order: 89-08-243

Method:Alkalinity components (1)			
Lists:	Influent	Effluent	Rainbow Spring
Sample ID:	8908171304	8908171316	8908171333
Factor:	1	1	1
Results in:	mg/L	mg/L	mg/L
	01A	02A	03A
Matrix:	water	water	water
Bicarbonate	499	479	853
Carbonate	<1.0	<1.0	<1.0
Total alkalinity	499	479	853

(1) For a detailed description of flags and technical terms in this report refer to Appendix A in this report.

Inter-Mountain Laboratories, Inc.

RECEIVED AUG 2 3 1989

2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

Client: GCL #8907121200
Site: Airstrip Eff.
IML #: F1732

Date of report: 07/26/89
Date sampled: 07/12/89
Date received: 07/12/89

Total dissolved solids (180).....	3570.00	mg/l
Total dissolved solids (calculated).	3525.15	mg/l
Total alkalinity (as CaCO3).....	381.64	mg/l
Total hardness (as CaCO3).....	1307.64	mg/l
Lab pH.....	7.60	
Lab conductivity.....	4760	umhos/cm @ 25C
Lab resistivity.....	2.1008	ohm-m

	mg/l	meq/l
Acidity (as CaCO3).....	<1.0	<0.01
Bicarbonate (as HCO3).....	465.60	7.63
Carbonate (as CO3).....	0.00	0.00
Chloride.....	691.28	19.50
Sulfate.....	1448.07	30.17
Calcium.....	442.69	22.09
Magnesium.....	49.40	4.06
Potassium.....	3.44	0.09
Sodium.....	664.00	28.88
Major cations.....		55.12
Major anions.....		57.30
Anion/cation % difference.....		1.94 %

C. Neal Schaefer
Senior Chemist

Inter-Mountain Laboratories, Inc.

2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

Client: GCL #8906140915
Site: Effluent
IML #: F1581

Date of report: 06/23/89
Date sampled: 06/14/89
Date received: 06/14/89

Total dissolved solids (180).....	3632.00	mg/l
Total dissolved solids (calculated).	3496.75	mg/l
Total alkalinity (as CaCO3).....	427.04	mg/l
Total hardness (as CaCO3).....	1343.79	mg/l
Lab pH.....	8.11	
Lab conductivity.....	4950	umhos/cm @ 25C
Lab resistivity.....	2.0202	ohm-m

	mg/l	meq/l
Acidity (as CaCO3).....	<1.0	<0.01
Bicarbonate (as HCO3).....	520.99	8.54
Carbonate (as CO3).....	0.00	0.00
Chloride.....	704.73	19.88
Sulfate.....	1347.66	28.08
Calcium.....	430.39	21.48
Magnesium.....	65.65	5.40
Potassium.....	2.32	0.06
Sodium.....	692.80	30.13
Major cations.....		57.07
Major anions.....		56.50
Anion/cation % difference.....		0.50 %

C. Neal Schaeffer
Senior Chemist

Inter-Mountain Laboratories, Inc.

2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326 4737

Date: April 01, 1989

Client: Geoscience Consultants, Ltd.
GCL Sample No: 8903141331
Site: GBR-EFFLUENT
IML Lab No: F890910
Date Collected: 3/14/89
Date Received: 3/14/89

Total Dissolved Solids (180), mg/l.....	2592
Total Dissolved Solids (calc), mg/l.....	2478
Total Alkalinity as CaCO3, mg/l.....	426
Total Hardness as CaCO3, mg/l.....	1211

	mg/l	meq/l
Acidity as CaCO3.....	<1	<0.01
Bicarbonate as HCO3.....	520	8.52
Carbonate as CO3.....	0	0.00
Chloride.....	357	10.08
Sulfate.....	1032	21.50
Calcium.....	408	20.38
Magnesium.....	47	3.84
Potassium.....	5	0.13
Sodium.....	374	16.27
Nitrate/Nitrite.....	0.79	0.06

Major Cations.....	40.62
Major Anions.....	40.10
Cation/Anion Difference.....	0.64 %

Jack M. Morgan
Senior Organic Chemist

MONTHLY SAMPLING

ANALYTICAL RESULTS FOR AIR STRIPPER INFLUENT AND EFFLUENT

SELECTED MAJOR CATIONS, ANIONS, NITRATE, AND TOTAL DISSOLVED SOLIDS

(02/02/89)

ANALYTE	AIR STRIPPER INFLUENT	AIR STRIPPER EFFLUENT
CALCIUM	450 (N\R)	450 (N\R)
CARBONATE	ND (1.0)	ND (1.0)
CHLORIDE	630 (N\R)	* 620 (N\R)
FLUORIDE	3.6 (N\R)	3.4 (N\R)
MAGNESIUM	38 (N\R)	40 (N\R)
SODIUM	470 (N\R)	490 (N\R)
SULFATE	1600 (N\R)	* 1600 (N\R)
NITRATE AS N	NA	NA
TOTAL DISSOLVED SOLIDS	NA	NA

UNITS FOR ANALYSES ARE: mg/L

() = detection limit

ND = not detected at detection limit

NA = not analyzed

N\R = not reported

MONTHLY SAMPLING

ANALYTICAL RESULTS FOR AIR STRIPPER INFLUENT AND EFFLUENT

SELECTED MAJOR CATIONS, ANIONS, NITRATE, AND TOTAL DISSOLVED SOLIDS

(01/16/89)

ANALYTE	AIR STRIPPER INFLUENT	AIR STRIPPER EFFLUENT
CALCIUM	390 (N\R)	400 (N\R)
CARBONATE	ND (1.0)	ND (1.0)
CHLORIDE	630 (N\R)	* 630 (N\R)
FLUORIDE	3.7 (N\R)	3.6 (N\R)
MAGNESIUM	36 (N\R)	37 (N\R)
POTASSIUM	ND (3.0)	ND (3.0)
SODIUM	560 (N\R)	610 (N\R)
SULFATE	1400 (N\R)	* 1400 (N\R)
NITRATE AS N	NA	NA
TOTAL DISSOLVED SOLIDS	3700 (10)	* 3700 (10)

UNITS FOR ANALYSES ARE: mg/L

() = detection limit

ND = not detected at detection limit

NA = not analyzed

N\R = not reported

New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

859
WNN

GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

DATE RECEIVED 12/21/88	LAB NO. WC-4938	USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235	
Collection DATE 88/12/15	SITE INFORMATION ►	Sample location: GIANT BLOOMFIELD REFINERY	
Collection TIME 0840		Collection site description: AIR STRIPPER OUTFLOW	
Collected by — Person/Agency: ANDERSON /OCD			

SEND FINAL REPORT TO ►

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87504-2088

Attn: David Boyer

Phone: 827-5812

Station/well code

Owner

SAMPLING CONDITIONS

☐ Bailed ☐ Dipped ☒ Pump ☒ Tap	Water level	Discharge	Sample type: GRAB
pH (00400)	Conductivity (Uncorrected) 2300 µmho	Water Temp. (00010) 8 °C	Conductivity at 25°C (00094) µmho

Field comments

SAMPLE FIELD TREATMENT — *Check proper boxes*

No. of samples submitted: ☒ NF: Whole sample (Non-filtered) ☐ F: Filtered in field with 0.45 µmembrane filter ☐ A: 2 ml H_2SO_4/L added

☒ NA: No acid added ☐ Other-*specify:* ☐ A: 5ml conc. HNO_3 added ☐ A: 4ml fuming HNO_3 added

ANALYTICAL RESULTS from SAMPLES

NA		Units	Date analyzed
☒ Conductivity (Corrected) 25°C (00095)	4738	µmho	1/10/89
☐ Total non-filterable residue (suspended) (00530)		mg/l	
☒ Other: lab pH	7.60		1/3
☐ Other:			
☐ Other:			

A-H_2SO_4			
☐ Nitrate-N +, Nitrate-N total (00630)		mg/l	
☐ Ammonia-N total (00610)		mg/l	
☐ Total Kjeldahl-N ( )		mg/l	
☐ Chemical oxygen demand (00340)		mg/l	
☐ Total organic carbon ( )		mg/l	
☐ Other:			
☐ Other:			

From NF, NA Sample:

			Date Analyzed
☒ Calcium	512	mg/l	12/21
☒ Potassium	4	mg/l	12/28
☒ Magnesium	50.0	mg/l	12/21
☒ Sodium	679	mg/l	12/28
☒ Bicarbonate	460	mg/l	1/3
☒ Chloride	723	mg/l	1/4
☒ Sulfate	1430	mg/l	1/4
☒ Total Solids	3758	mg/l	1-4
☒ CO3	Ø		1/3
☐			
☒ Cation/Anion Balance			

RECEIVED JAN 16 1989 OIL CONSERVATION DIVISION SANTA FE

Analyst	Date Reported	Reviewed by
	1/11/89	Dean

Laboratory remarks

762

FOR OCD USE -- Date Owner Notified _____ Phone or Letter? _____ Initals _____

CATIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT
Ca	25.55	512.00	<3.0
Mg	4.11	50.00	<0.3
Na	29.53	679.00	<10.0
K	0.10	4.00	<0.3
Mn	0.00	0.00	
Fe	0.00	0.00	
SUMS	59.29	1245.00	

Total Dissolved Solids= 3758
Ion Balance = 102.72%

ANIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT
HC03	7.54	460.00	<1.0
SO4	29.79	1430.00	<10.0
CL	20.39	723.00	<5.0
NO3	0.00	0.00	< 0.
C03	0.00	0.00	< 1.
NH3	0.00	0.00	< 0.
PO4	0.00	0.00	< 0.
	57.73	2613.00	

WC No. = 8804938
Date out/By _____

Inter·Mountain
Laboratories, Inc.

2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

CLIENT: Oil Conservation Division

Sample Id: 8812150840
Lab Id: F2299
Date Collected: 12/15/88
Date Received: 12/15/88
Date Reported: 01/03/89

		Date Analyzed
Total Dissolved Solids (180), mg/l.....	3890	12/19
Total Dissolved Solids (calc), mg/l.....	3790	
Sodium Adsorption Ratio.....	8.21	
Total Alkalinity as CaCO3, mg/l.....	417	12/19
Total Hardness as CaCO3, mg/l.....	1430	12/19

	mg/l	meq/l	
Acidity as CaCo3.....	<1	<0.01	12/19
Bicarbonate as HCO3.....	509	8.34	12/19
Carbonate as CO3.....	0	0.00	12/19
Chloride.....	702	19.81	12/21
Sulfate.....	1580	32.81	12/21
Calcium.....	518	25.86	12/21
Magnesium.....	32	2.67	12/21
Potassium.....	3	0.08	12/21
Sodium.....	713	31.01	12/21
Major Cations.....		59.62	
Major Anions.....		60.96	
Cation/Anion Difference.....		1.11 %	

KADIAN CORPORATION

 RAS - Austin REPORT Work Order # 88-12-043

Received: 12/15/88 Results by Sample

SAMPLE ID 8812131233 Effluent FRACTION 01A TEST CODE OP04 NAME Orthophosphate

Date & Time Collected 12/13/88 Category

VERIFIED LM

ANALYST MJS

INSTRMT 21 ANALYZED 12/15/88 UNITS mg/L as P

ANALYTE	RESULT	DET LIMIT
Orthophosphate	ND	0.020

NOTES AND DEFINITIONS FOR THIS REPORT.

DET LIMIT = DETECTION LIMIT
ND = not detected at detection limit
NA = not analyzed
* = less than 5 times the detection limit
N\A = not available

SAMPLE ID 8812131233 FRACTION 01A TEST CODE TDS NAME Total dissolved solids

Date & Time Collected 12/13/88 Category

VERIFIED LM

ANALYST MJF

INSTRMT ANALYZED 12/20/88 UNITS mg/L

ANALYTE	RESULT	DET LIMIT
Filterable Residue (TDS)	3700	6

NOTES AND DEFINITIONS FOR THIS REPORT.

KADIAN CORPORATION

RAS - Austin REPORT

Work Order # 88-12-043

Received: 12/15/88

Results By Test

SAMPLE Sample Id	Test: CA E ug/ml	Test: CL IC mg/L	Test: DG6010 date complete	Test: F IC mg/L	Test: K E ug/ml
Effluent 01 8812131233	430	610	12/30/88	2.9@	<3.0

SAMPLE Sample Id	Test: MG E ug/ml	Test: NA E ug/ml	Test: SO4 IC mg/L as SO4
Effluent 01 8812131233	41	590	1400

KADIMAN CORPORATION

Received: 11/10/88

RAS - Austin REPORT

Results By Test

Work Order # 88-11-070

SAMPLE Sample Id	Test: CA E ug/ml	Test: CL IC mg/L	Test: DG6010 date complete	Test: F IC mg/L	Test: K E ug/ml
Influent 01 8811081414	370	680		3.8	4.6*
Effluent 02 8811081431	330	630		3.8	6.4*
Tank 35 03 8811081529		410			
Tank 22 04 8811081619		680			
Tank 27 05 8811081504	390	940	11/22/88	3.5	3.9*
Tank 34 06 8811081522	460	720		3.7	3.7*
Tank 106 07 8811081600	400	580	11/22/88	3.8	5.2*

SAMPLE Sample Id	Test: MG E ug/ml	Test: NA E ug/ml	Test: NO3 mg/L as N	Test: PHEN mg/L as phenol	Test: SO4 IC mg/L as SO4
Influent 01 8811081414	37	460			1300
Effluent 02 8811081431	34	390			1200
Tank 35 03 8811081529					640
Tank 22 04 8811081619					1200
Tank 27 05 8811081504	51	540			940

KADMAN CORPORATION

 RAS - Austin REPORT Work Order # 88-11-070
Received: 11/10/88 Results by Sample Continued From Above

SAMPLE ID 8811081414 Influent FRACTION 01A TEST CODE TDS NAME Total dissolved solids
Date & Time Collected 11/08/88 Category

Filterable Residue (TDS) 3800 6

NOTES AND DEFINITIONS FOR THIS REPORT.
DET LIMIT = DETECTION LIMIT
ND = not detected at detection limit
NA = not analyzed
* = less than 5 times the detection limit
N\A = not available

SAMPLE ID 8811081431 Effluent FRACTION 02A TEST CODE ALKAL NAME Component alkalinities
Date & Time Collected 11/08/88 Category

VERIFIED LM

ANALYST TAM
INSTRMT 636 ANALYZED 11/21/88 1 UNITS mg/L as CaCO3

ANALYTE	RESULT	DET LIMIT
Total Alkalinity	507	1
Hydroxide	ND	1
Carbonate	ND	1
Bicarbonate	507	1

NOTES AND DEFINITIONS FOR THIS REPORT.
DET LIMIT = DETECTION LIMIT
ND = not detected at detection limit

Received: 11/10/88

RAS - Austin REPORT
Results by Sample

Work Order # 88-11-070
Continued From Above

SAMPLE ID 8811081431 Effluent FRACTION 02A TEST CODE ALKAL NAME Component alkalinities
Date & Time Collected 11/08/88 Category

NA = not analyzed
* = less than 5 times the detection limit
N\A = not available

SAMPLE ID 8811081431 Effluent FRACTION 02A TEST CODE TDS NAME Total dissolved solids
Date & Time Collected 11/08/88 Category

VERIFIED LM

ANALYST TAM
INSTRMT
ANALYZED 11/15/88 UNITS mg/L

ANALYTE	RESULT	DET LIMIT
Filterable Residue (TDS)	3800	6

NOTES AND DEFINITIONS FOR THIS REPORT.
DET LIMIT = DETECTION LIMIT
ND = not detected at detection limit
NA = not analyzed
* = less than 5 times the detection limit
N\A = not available

SAMPLE ID 8811081529 FRACTION 03A TEST CODE TDS NAME Total dissolved solids
Date & Time Collected 11/08/88 Category

VERIFIED LM

ANALYST TAM

859
WNN

New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

DATE RECEIVED 7/18/88	LAB NO. UX-2693	USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235	
Collection DATE 8/07/13	SITE INFORMATION ►	Sample location Giant Bloomfield Refinery	
Collection TIME 1440		Collection site description Sample from Air Stripper outlet	
Collected by — Person/Agency Boyer / OCD			

SEND FINAL REPORT TO ►

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87504-2088

Attn: David Boyer

Phone: 827-5812

Station/well code 29N/12W, 22.33
Owner

SAMPLING CONDITIONS

☐ Bailed ☐ Pump ☐ Dipped ☒ Tap	Water level –	Discharge –	Sample type Grab
pH (00400) 7	Conductivity (Uncorrected) 4500 µmho	Water Temp. (00010) 27 °C	Conductivity at 25°C (00094) µmho

Field comments

SAMPLE FIELD TREATMENT — *Check proper boxes*

No. of samples submitted 1

☒ NF: Whole sample (Non-filtered) ☐ F: Filtered in field with 0.45 µmembrane filter ☐ A: 2 ml H_2SO_4/L added

☒ NA: No acid added ☐ Other-*specify:* ☐ A: 5ml conc. HNO_3 added ☐ A: 4ml fuming HNO_3 added

ANALYTICAL RESULTS from SAMPLES

NA		Units	Date analyzed
☒ Conductivity (Corrected) 25°C (00095)	5034	µmho	8/12
☐ Total non-filterable residue (suspended) (00530)		mg/l	
☒ Other: Lab pH	7.88		8/9
☐ Other:			
☐ Other:			

A-H_2SO_4			
☐ Nitrate-N +, Nitrate-N total (00630)		mg/l	
☐ Ammonia-N total (00610)		mg/l	
☐ Total Kjeldahl-N ( )		mg/l	
☐ Chemical oxygen demand (00340)		mg/l	
☐ Total organic carbon ( )		mg/l	
☐ Other:			
☐ Other:			

SEP - 0 1988

From NF, NA Sample:

			Date Analyzed
☒ Calcium	468	mg/l	8/02
☒ Potassium	4	mg/l	7/29
☒ Magnesium	84.2	mg/l	8/02
☒ Sodium	739	mg/l	7/29
☒ Bicarbonate	347	mg/l	8/9
☒ Chloride	806	mg/l	8/3
☒ Sulfate	1420	mg/l	8/3
☒ Total Solids	3692	mg/l	8/9
☒ Bo	0.70	mg/l	8/24
☐			
☒ Cation/Anion Balance			

Analyst	Date Reported	Reviewed by
	8/30/88	CJ

Laboratory remarks
818

FOR OCD USE -- Date Owner Notified _____ Phone or Letter? _____ Initals _____

CATIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT
Ca	23.35	468.00	<3.0
Mg	6.92	84.20	<0.3
Na	32.14	739.00	<10.0
K	0.10	4.00	<0.3
Mn	0.00	0.00	
Fe	0.00	0.00	
SUMS	62.52	1295.20	

Total Dissolved Solids= 3692
Ion Balance = 107.77%

ANIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT
HC03	5.69	347.00	<1.0
SO4	29.58	1420.00	<10.0
CL	22.74	806.00	<5.0
NO3	0.00	0.00	< 0.
C03	0.00	0.00	< 1.
NH3	0.00	0.00	< 0.
PO4	0.00	0.00	< 0.
	58.01	2573.00	

WC No. = 8802693
Date out/By 8/30/91

GTEL
Environmental
Laboratories
Division of Groundwater Technology, Inc.

Western Region
4080-C Pike Lane
Concord, CA 94520
(415) 685-7852
(800) 544-3422 *from inside California*
(800) 423-7143 *from outside California*

06/30/88 mh

CLIENT: Michael Wood
Groundwater Technology, Inc.
3620 Wyoming, NE
Albuquerque, NM 87111
PROJECT#: 232-799-5009-14
LOCATION: Farmington, NM

SAMPLED: 06/23/88 BY: M. Wood
RECEIVED: 06/25/88 BY: K. Biava
ANALYZED: 06/29/88 BY: C. Miller
MATRIX: Water
UNITS: mg/L

TEST RESULTS

PARAMETER	MDL	LAB # I.D.#	26063A AS INF	26064A AS EFF		
Calcium	0.5		570	480		
Sodium	0.5		770	640		
Magnesium	0.5		49	50		
Potassium	0.5		2.9	2.4		

MDL = Method Detection Limit; compound below this level would not be detected.
METHOD: EPA 3020/6010.

Emma P. Pope

SAFY KHALIFA, Ph.D., Director

GTEL Environmental Laboratories
Division of Groundwater Technology, Inc.

Western Region
4080-C Pike Lane
Concord, CA 94520
(415) 685-7852
(800) 544-3422 *from inside California*
(800) 423-7143 *from outside California*

07/15/88 rw
CLIENT: Michael Wood
Groundwater Technology, Inc.
3620 Wyoming, NE
Albuquerque, NM 87111
PROJECT#: 232-799-5009-15
LOCATION: Farmington, NM

SAMPLED: 06/23/88 BY: M. Wood
RECEIVED: 06/25/88 BY: K. Biava
ANALYZED: 06/30/88 BY: R. Heines
MATRIX: Water R. Bly

TEST RESULTS

PARAMETER	UNITS	MDL	LAB # I.D.#	26063B AS INF	26064B AS EFF		
Chloride	mg/L	1		765	790		
Bicarbonate	mg CaC03/L	12		330	310		
Sulfate	mg/L	1		1335	1380		
Carbonate	mg CaC03/L	12		<12	<12		

MDL = Method Detection Limit; compound below this level would not be detected.

METHOD:SM429

Safy Khalifa 18mf

SAFY KHALIFA, Ph.D., Director

GTEL Environmental Laboratories
division of Groundwater Technology, Inc.

Western Region
4080-C Pike Lane
Concord, CA 94520

(415) 685-7852
(800) 544-3422 *from inside California*
(800) 423-7143 *from outside California*

07/08/88 JP

CLIENT: Michael Wood
Groundwater Technology, Inc.
3620 Wyoming, NE
Albuquerque, NM 87111
PROJECT#: 232-799-5009-16
LOCATION: Farmington, NM

SAMPLED: 06/23/88 BY: M. Wood
RECEIVED: 06/25/88 BY: K. Biava
ANALYZED: 07/05/88 BY: R. Heines
MATRIX: Water

TEST RESULTS

PARAMETER	UNITS	MDL	LAB # I.D.#	26065 AS INF	26066 AS EFF		
Total Dissolved Solids	mg/L	10		3,803	3,903		

MDL = Method Detection Limit; compound below this level would not be detected.

METHOD:SM209B

SAFY KHALIFA, Ph.D., Director

Inter-Mountain Laboratories, Inc.

2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

CLIENT: GBR
SITE: Tank 22
LAB NO: F3754

DATE REPORTED: 01/23/90
DATE ANALYZED: 01/12/90
DATE RECEIVED: 01/10/90
DATE COLLECTED: 01/10/90

Analysis Requested: Purgeable aromatics in water.

Parameter	Concentration	Units
Benzene	267.75 (5.0)	ug/l
Toluene	ND (5.0)	ug/l
Ethylbenzene	67.25 (5.0)	ug/l
m/p-Xylene	7.75 (5.0)	ug/l
o-Xylene	13.5 (5.0)	ug/l

Method:
8020 Aromatic Volatile Organics, SW-846, USEPA (1982).
602 Purgeable Aromatics, 40 CFR, Part 136.

(Detection limit in parenthesis.)
ND - Parameter not detected at the stated detection limit.

C. Neal Schaeffer
Senior Chemist

Inter-Mountain Laboratories, Inc.
2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

CLIENT: GBR
SITE: Tank 22
LAB NO: F3754

DATE REPORTED: 02/21/90
DATE ANALYZED: 01/17/90
DATE RECEIVED: 01/10/90
DATE COLLECTED: 01/10/90

Analysis Requested: Purgeable halocarbons in water.

Parameter	Concentration	Units
Bromobenzene	ND (10)	ug/l
Bromodichloromethane	ND (10)	ug/l
Bromoform	ND (10)	ug/l
Carbon Tetrachloride	ND (10)	ug/l
Chlorobenzene	ND (10)	ug/l
Chloroethane	ND (10)	ug/l
Chloroform	ND (10)	ug/l
Chloromethane	ND (10)	ug/l
Dibromochloromethane	ND (10)	ug/l
Dibromomethane	ND (10)	ug/l
1,2-Dichlorobenzene	ND (10)	ug/l
1,3-Dichlorobenzene	ND (10)	ug/l
1,4-Dichlorobenzene	ND (10)	ug/l
Dichlorodifluoromethane	ND (10)	ug/l
1,1-Dichloroethane	* ND (10)	ug/l
1,2-Dichloroethane	ND (10)	ug/l
1,1-Dichloroethene	ND (10)	ug/l
trans-1,2-Dichloroethene	* ND (10)	ug/l
1,2-Dichloropropane	ND (10)	ug/l
1,3-Dichloropropylene	ND (10)	ug/l
2,2-Dichloropropane	ND (10)	ug/l
Dichloromethane	ND (10)	ug/l
1,1,1,2-Tetrachloroethane	ND (10)	ug/l
1,1,2,2-Tetrachloroethane	ND (10)	ug/l
Tetrachloroethene	ND (10)	ug/l
1,1,1-Trichloroethane	ND (10)	ug/l
1,1,2-Trichloroethane	ND (10)	ug/l
Trichloroethene	ND (10)	ug/l
Trichlorofluoromethane	ND (10)	ug/l
1,2,3-Trichloropropane	ND (10)	ug/l
Bromochloromethane	ND (10)	ug/l
1,2-Dibromoethane	ND (10)	ug/l
cis-1,2-Dichloroethene	ND (10)	ug/l
1,1-Dichloropropene	ND (10)	ug/l
Vinyl Chloride	ND (10)	ug/l

Method:
601 Purgeable Halocarbons, 40 CFR Part 136, USEPA (1984).
(Detection limit in parenthesis.)
ND - Parameter not detected at the stated detection limit.
* Chromatographic evidence of analyte below detection limits.

C. Neal Schaeffer
Senior Chemist

Inter-Mountain Laboratories, Inc.

2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

CLIENT: GBR
SITE: Tank 22
LAB NO: F3754

DATE REPORTED: 01/23/90
DATE RECEIVED: 01/10/90
DATE COLLECTED: 01/10/90

Analysis Requested: Polynuclear aromatic hydrocarbons in water.

Parameter	Concentration		Units
Acenaphthene	ND	(0.02)	mg/l
Acenaphthylene	ND	(0.02)	mg/l
Anthracene	ND	(0.02)	mg/l
Benzo(a)Anthracene	ND	(0.02)	mg/l
Benzo(a)pyrene	ND	(0.02)	mg/l
Benzo(k)fluoranthene	ND	(0.02)	mg/l
Benzo(b)fluoranthene	ND	(0.02)	mg/l
Benzo(g,h,i)perylene	0.090	(0.02)	mg/l
Dibenzo(a,h)anthracene	ND	(0.02)	mg/l
Chrysene	ND	(0.02)	mg/l
Fluoranthene	ND	(0.02)	mg/l
Fluorene	0.012	(0.02)	mg/l
Indeno(1,2,3-cd)pyrene	ND	(0.02)	mg/l
Naphthalene	0.041	(0.02)	mg/l
Phenanthrene	0.012	(0.02)	mg/l
Pyrene	0.010	(0.02)	mg/l
Benzo(b)fluoranthene	ND	(0.02)	mg/l

Method:
8100 Polynuclear Aromatic Hydrocarbons, SW-846, USEPA (1982).
610 Polyaromatic Hydrocarbons, 40 CFR Part 136 (1984).

(Detection limit in parenthesis.)
ND - Parameter not detected at the stated detection limit.

C. Neal Schaeffer
Senior Chemist

RADIAN
CORPORATION

Client: GEOSCIENCE CONSULTANTS, LTD.
500 COPPER N.W.; SUITE 200
ALBUQUERQUE, NM 87102

05B 8811081522
06A 8811081529
07A 8811081619
09A SYSTEM BLANK

EPA METHOD 8240

Lab No: A8-11-046

RESULTS IN ug/L

CAS #	COMPOUND	Tank 34 05B	06A Tank 35	Tank 22 07A	09A System Blank
67-64-1	Acetone	<25	<25	<25	<25
107-02-8	Acrolein	<75	<75	<75	<75
107-13-1	Acrylonitrile	<30	<30	<30	<30
71-43-2	Benzene	570	33	690	<2.0
75-25-2	Bromoform	<2.0	<2.0	<2.0	<2.0
74-83-9	Bromomethane	<2.0	<2.0	<2.0	<2.0
124-48-1	Chlorodibromomethane	<2.0	<2.0	<2.0	<2.0
75-00-3	Chloroethane	<2.0	<2.0	<2.0	<2.0
108-90-7	Chlorobenzene	<2.0	<2.0	<2.0	<2.0
75-15-0	Carbon Disulfide	<2.0	<2.0	<2.0	<2.0
56-23-5	Carbon Tetrachloride	<2.0	<2.0	<2.0	<2.0
67-66-3	Chloroform	<2.0	<2.0	<2.0	<2.0
74-87-3	Chloromethane	<2.0	<2.0	<2.0	<2.0
110-75-8	2-Chloroethyl vinyl ether	<2.0	<2.0	<2.0	<2.0
74-95-3	Dibromomethane	<2.0	<2.0	<2.0	<2.0
75-71-8	Dichlorodifluoromethane	<2.0	<2.0	<2.0	<2.0
75-34-3	1,1-Dichloroethane	<2.0	<2.0	4.4*	<2.0
107-06-2	1,2-Dichloroethane	<2.0	<2.0	4.5*	<2.0
156-60-5	trans-1,2-Dichloroethene	<2.0	<2.0	<2.0	<2.0
75-35-4	1,1-Dichloroethene	<2.0	<2.0	<2.0	<2.0
75-27-4	Dichlorobromomethane	<2.0	<2.0	<2.0	<2.0
78-87-5	1,2-Dichloropropane	<2.0	<2.0	<2.0	<2.0
10061-01-5	cis-1,3-Dichloropropene	<2.0	<2.0	<2.0	<2.0
10061-02-6	trans-1,3-Dichloropropene	<2.0	<2.0	<2.0	<2.0
97-63-2	Ethyl methacrylate	<50	<50	<50	<50
100-41-4	Ethyl benzene	55	2.1*	120	<2.0
591-78-6	2-Hexanone	<10	<10	<10	<10
74-88-4	Iodomethane	<2.0	<2.0	<2.0	<2.0
75-09-2	Methylene chloride	<10	<10	<10	<10
78-93-3	Methyl ethyl ketone	<10	<10	<10	<10
108-10-1	4-Methyl-2-pentanone	<2.0	<2.0	<2.0	<2.0
100-42-5	Styrene	<2.0	<2.0	<2.0	<2.0
79-34-5	1,1,2,2-Tetrachloroethane	<2.0	<2.0	<2.0	<2.0
127-18-4	Tetrachloroethylene	<2.0	<2.0	<2.0	<2.0
108-88-3	Toluene	9.2*	2.1*	4.7*	<2.0
79-01-6	Trichloroethene	<2.0	<2.0	3.4*	<2.0
71-55-6	1,1,1-Trichloroethane	<2.0	<2.0	<2.0	<2.0
79-00-5	1,1,2-Trichloroethane	<2.0	<2.0	3.4*	<2.0
75-69-4	Trichlorofluoromethane	<10	<10	<10	<10
96-18-4	1,2,3-Trichloropropane	<2.0	<2.0	<2.0	<2.0
75-01-4	Vinyl chloride	<2.0	<2.0	<2.0	<2.0
108-05-4	Vinyl acetate	<2.0	<2.0	<2.0	<2.0
110-57-6	Trans1,4dichloro-2-butene	<2.0	<2.0	<2.0	<2.0
1330-20-7	Xylenes	168	12	140	<2.0

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ANNUAL SAMPLING
ANALYTICAL RESULTS FOR WATER STORED IN TANKS
POLYNUCLEAR AROMATIC HYDROCARBONS
(11/08/88)

ANALYTE:	TANK 22	TANK 27	TANK 34	TANK 35	TANK 106
PYRENE	NA	ND (0.71)	NA	NA	ND (0.71)
DIBENZO(A,H)ANTHRACENE	NA	ND (0.3)	NA	NA	ND (0.3)
BENZO(K)FLUORANTHENE	NA	ND (0.1)	NA	NA	ND (0.1)
ACENAPTHTHYLENE	NA	ND (31)	NA	NA	ND (31)
ACENAPTHENE	NA	ND (3.4)	NA	NA	ND (3.4)
FLUORANTHENE	NA	ND (0.61)	NA	NA	ND (0.61)
FLUORENE	NA	3.7 (N\R)	NA	NA	7.3 (N\R)
CHRYSENE	NA	ND (0.1)	NA	NA	ND (0.1)
NAPTHELENE	NA	6.5 (N\R)	NA	NA	9.6 (N\R)
ANTHRACENE	NA	ND (2.4)	NA	NA	ND (2.4)
BENZ(A)ANTHRACENE	NA	ND (0.4)	NA	NA	ND (0.4)
INDENO(1,2,3-CD)PYRENE	NA	ND (1.8)	NA	NA	ND (1.8)
BENZO(B)FLUORANTHENE	NA	ND (0.1)	NA	NA	ND (0.1)
PHENANTHRENE	NA	8.3 (N\R)	NA	NA	12 (N\R)
BENZO(A)PYRENE	NA	ND (0.2)	NA	NA	ND (0.2)
BENZO(GHI)PERYLENE	NA	ND (0.3)	NA	NA	ND (0.3)
1-METHYLNAPHTHALENE	NA	55 (N\R)	25 (N\R)	NA	83 (N\R)
2-METHYLNAPHTHALENE	NA	56 (N\R)	9.3 (N\R)	NA	45 (N\R)

UNITS ARE ug/L
() INDICATES DETECTION LIMITS
ND = NOT DETECTED
NA = NOT ANALYSED
N\R = NOT REPORTED

GTEL Environmental Laboratories
A division of Groundwater Technology, Inc.

Western Region
4080-C Pike Lane
Concord, CA 94520

(415) 685-7852
(800) 544-3422 *from inside California*
(800) 423-7143 *from outside California*

Same as "South Tank"?

PROJECT MGR: Michael Wood
PROJECT#: 232-799-5009-10
LOCATION: Farmington, NM

6/2/88

TEST RESULTS

MATRIX: Water
UNITS: ug/L (ppb)

COMPOUND	MDL	LAB # / I.D.#	24497 / 020135
			TK-22
Benzene	0.5		290
Bromodichloromethane	0.5		<0.5
Bromoform	0.5		<0.5
Bromomethane	0.5		<0.5
Carbon tetrachloride	0.5		<0.5
Chlorobenzene	0.5		<0.5
Chloroethane	0.5		<0.5
2-Chloroethylvinyl ether	1.0		<1.0
Chloroform	0.5		<0.5
Chloromethane	0.5		<0.5
Dibromochloromethane	0.5		<0.5
1,2-Dichlorobenzene	0.5		<0.5
1,3-Dichlorobenzene	0.5		<0.5
1,4-Dichlorobenzene	0.2		<0.2
Dichlorodifluoromethane	0.5		<0.5
1,1-Dichloroethane	0.5		10
1,2-Dichloroethane	0.5		7.4
1,1-Dichloroethene	0.2		0.32
trans-1,2-Dichloroethene	0.5		17
1,2-Dichloropropane	0.5		<0.5
cis-1,3-Dichloropropene	0.5		<0.5
trans-1,3-Dichloropropene	0.5		<0.5
Ethylbenzene	0.5		21
Methylene chloride	0.5		<0.5
1,1,2,2-Tetrachloroethane	0.5		<0.5
Tetrachloroethene	0.5		0.50
1,1,1-Trichloroethane	0.5		1.7
1,1,2-Trichloroethane	0.5		<0.5
Trichloroethene	0.5		3.0
Trichlorofluoromethane	0.5		<0.5
Vinyl Chloride	1.0		<1.0
Xylenes	0.5		480
Toluene	0.5		7.4

MDL = Method Detection Limit.
METHODS: EPA 8010/8020.

SAFY KHALIFA, Ph.D., Director

GTEL Environmental Laboratories
A division of Groundwater Technology, Inc.

Western Region
4080-C Pike Lane
Concord, CA 94520
(415) 685-7852
(800) 544-3422 *from inside California*
(800) 423-7143 *from outside California*

07/14/88 MH

CLIENT: Michael Wood
Groundwater Technology, Inc.
3620 Wyoming Northeast #104
Albuquerque, NM 87111
PROJECT#: 232-799-5009-17
LOCATION: Farmington, NM
SAMPLED: 06/1,2/88 BY: T. LePage
RECEIVED: 06/27/88 BY: K. Biava
ANALYZED: 7/6-8,11/88 BY: L. Hinson
MATRIX: Water
UNITS: ug/L

TEST RESULTS

6/2/88

COMPOUNDS	MDL	LAB # I.D.#	24480C 010530 (GBR-30)	24481C 010347 (GBR-24B)	24482C 020135 (TK-22)	24483C 021015 (GBR-31)
Acenaphthene	10		<10	<10	<10	<10
Acenaphthylene	10		<10	<10	<10	<10
Anthracene	10		<10	<10	<10	<10
Benzo (a) anthracene	10		<10	<10	<10	<10
Benzo (a) pyrene	10		<10	<10	<10	<10
Benzo (b) fluoranthene	10		<10	<10	<10	<10
Benzo (ghi) perylene	10		<10	<10	<10	<10
Benzo (k) fluoranthene	10		<10	<10	<10	<10
Chrysene	10		<10	<10	<10	<10
Dibenzo (a,h) anthracene	10		<10	<10	<10	<10
Fluoranthene	10		<10	<10	<10	<10
Fluorene	10		<10	<10	<10	<10
Indeno (1,2,3-cd) pyrene	10		<10	<10	<10	<10
Naphthalene	10		<10	<10	<10	<10
Phenanthrene	10		<10	<10	<10	<10
Pyrene	10		<10	<10	<10	<10

MDL=Method Detection Limit.
METHOD: EPA Method 610.

GTEL Environmental Laboratories
A division of Groundwater Technology, Inc.

Western Region
4080-C Pike Lane
Concord, CA 94520
(415) 685-7852
(800) 544-3422 *from inside California*
(800) 423-7143 *from outside California*

RECEIVED 6/2/88

CLIENT: Michael Wood
PROJECT#: 232-799-5009-17
LOCATION: Farmington, NM

TEST RESULTS

MATRIX: Water
UNITS: ug/L

COMPOUNDS	MDL	LAB # / I.D.#	24484C / 021220 (GBR-17)	24485C / 020205 (TR-32)	24486C / 020105 (TK-24)	24487C / 020135 (TK-22)
Acenaphthene	10		<10	<10	<10	<10
Acenaphthylene	10		<10	<10	<10	<10
Anthracene	10		<10	<10	<10	<10
Benzo (a) anthracene	10		<10	<10	<10	<10
Benzo (a) pyrene	10		<10	<10	<10	<10
Benzo (b) fluoranthene	10		<10	<10	<10	<10
Benzo (ghi) perylene	10		<10	<10	<10	<10
Benzo (k) fluoranthene	10		<10	<10	<10	<10
Chrysene	10		<10	<10	<10	<10
Dibenzo (a,h) anthracene	10		<10	<10	<10	<10
Fluoranthene	10		<10	<10	<10	<10
Fluorene	10		<10	<10	<10	<10
Indeno (1,2,3-cd) pyrene	10		<10	<10	<10	<10
Naphthalene	10		<10	42	39	10
Phenanthrene	10		<10	<10	<10	<10
Pyrene	10		<10	<10	<10	<10

MDL=Method Detection Limit.
METHOD: EPA Method 610.

8/11 10 1655

AnalyticalTechnologies, Inc

EPA METHOD 601/602
PROJECT: GIANT MONITOR WELLS

SAMPLE DATE: 11/10/87
LAB RECEIPT DATE: 11/16/87
ANALYSIS DATE: 11/17/87
MATRIX: WATER
ANALYST: MGB

SAMPLE ID: 8711101655
LOCATION: SOUTH TANK
LAB SAMPLE #: 3574-1
UNITS: ug/l
DILUTION FACTOR: 1

CONSTITUENT NAME	DETECTION LIMIT	RESULT
CHLOROMETHANE	0.2	ND
BROMOMETHANE	0.2	ND
DICHLORODIFLUOROMETHANE	0.2	ND
VINYL CHLORIDE	0.2	ND
CHLOROETHANE	0.2	ND
METHYLENE CHLORIDE	2.0	ND
TRICHLOROFLUOROMETHANE	2.0	ND
1,1-DICHLOROETHENE	0.2	ND
1,1-DICHLOROETHANE	0.2	9.9
TRANS-1,2-DICHLOROETHENE	0.2	7.1
CHLOROFORM	0.2	ND
1,2-DICHLOROETHANE	0.2	7.0
1,1,1-TRICHLOROETHANE	0.2	3.2
CARBON TETRACHLORIDE	0.2	ND
BROMODICHLOROMETHANE	0.2	ND
1,2-DICHLOROPROPANE	0.2	ND
TRANS-1,3-DICHLOROPROPENE	0.2	ND
TRICHLOROETHENE	0.2	4.8
DIBROMOCHLOROMETHANE	0.2	ND
1,1,2-TRICHLOROETHANE	0.2	ND
CIS-1,3-DICHLOROPROPENE	0.2	ND
2-CHLOROETHYLVINYL ETHER	0.2	ND
BROMOFORM	0.2	ND
1,1,2,2-TETRACHLOROETHANE	0.2	ND
TETRACHLOROETHENE	0.2	3.1
BENZENE	0.5	ND
TOLUENE	1.0	ND
CHLOROBENZENE	0.5	ND
ETHYLBENZENE	0.5	ND
1,3-DICHLOROBENZENE	0.5	ND
1,2-DICHLOROBENZENE	0.5	ND
1,4-DICHLOROBENZENE	0.5	ND
M-XYLENE	0.5	ND
O,P-XYLENE	0.5	2.0

91.3 % SURROGATE RECOVERY

COMMENTS: ND = NOT DETECTED

PROJECT MANAGER: M. Baldy

DATE: 12/10/87

AnalyticalTechnologies, Inc.

EPA METHOD 601/602
PROJECT: GBR

SAMPLE DATE: 10/06/87
LAB RECEIPT DATE: 10/09/87
ANALYSIS DATE/TIME: 10/12/87, 13:56
MATRIX: WATER
ANALYST: MGB

SAMPLE ID: 8710061629
LOCATION: SOUTH TANK
LAB SAMPLE #: 3439-2
UNITS: ug/l
DILUTION FACTOR: 1

CONSTITUENT NAME	DETECTION LIMIT	RESULT
CHLOROMETHANE	0.02	ND
BROMOMETHANE	0.06	ND
DICHLORODIFLUOROMETHANE	0.04	ND
VINYL CHLORIDE	0.05	ND
CHLOROETHANE	0.1	ND
METHYLENE CHLORIDE	0.02	ND
TRICHLOROFLUOROMETHANE	0.07	ND
1,1-DICHLOROETHENE	0.07	ND
1,1-DICHLOROETHANE	0.05	14.5
TRANS-1,2-DICHLOROETHENE	0.09	14.2
CHLOROFORM	0.05	ND
1,2-DICHLOROETHANE	0.07	5.9
1,1,1-TRICHLOROETHANE	0.03	1.9
CARBON TETRACHLORIDE	0.08	ND
BROMODICHLOROMETHANE	0.04	ND
1,2-DICHLOROPROPANE	0.03	ND
TRANS-1,3-DICHLOROPROPENE	0.11	ND
TRICHLOROETHENE	0.06	6.1
DIBROMOCHLOROMETHANE	0.07	ND
1,1,2-TRICHLOROETHANE	0.03	ND
CIS-1,3-DICHLOROPROPENE	0.07	ND
2-CHLOROETHYLVINYL ETHER	0.03	ND
BROMOFORM	0.09	ND
1,1,2,2-TETRACHLOROETHANE	0.03	ND
TETRACHLOROETHENE	0.03	1.1
BENZENE	0.2	17.3
TOLUENE	0.4	5.6
CHLOROBENZENE	0.16	ND
ETHYLBENZENE	0.1	ND
1,3-DICHLOROBENZENE	0.4	ND
1,2-DICHLOROBENZENE	0.4	ND
1,4-DICHLOROBENZENE	0.6	ND
M-XYLENE	0.18	ND
O,P-XYLENE	0.15	51.4

99.9 % SURROGATE RECOVERY

COMMENTS: ND = NOT DETECTED
NA = NOT ANALYZED

PROJECT MANAGER: JMH

DATE: 10/28/87

Inter-Mountain Laboratories, Inc.

2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

CLIENT: GBR

DATE REPORTED: 01/19/90

SITE: TANK 22

LAB NO: 3754

DATE RECEIVED: 01/10/90

DATE COLLECTED: 01/10/90

Lab pH (s.u.).....	7.33
Lab Conductivity, umhos/cm.....	4944
Lab resistivity, ohm-m.....	2.0227
Total Dissolved Solids (180), mg/l..	3456
Total Dissolved Solids (calc), mg/l.	3408
Total Alkalinity as CaCO3, mg/l.....	618.97
Total Hardness as CaCO3, mg/l.....	1275.75
Sodium Absorption Ratio.....	8.37

	mg/l	meq/l
Bicarbonate as HCO3.....	755.14	12.38
Carbonate as CO3.....	0.00	0.00
Chloride.....	578.71	16.32
Sulfate.....	1283.06	26.73
Calcium.....	442.16	22.06
Magnesium.....	41.97	3.45
Potassium.....	3.92	0.10
Sodium.....	687.20	29.89
Major Cations.....		55.51
Major Anions.....		55.43
Cation/Anion Difference.....		0.06 %

Inter-Mountain Laboratories, Inc.

2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

CLIENT: GBR DATE REPORTED: 01/19/90

SITE: TANK 22-LAB SPLIT DATE RECEIVED: 01/10/90
LAB NO: 3757 DATE COLLECTED: 01/10/90

Lab pH (s.u.).....	7.37
Lab Conductivity, umhos/cm.....	4931
Lab resistivity, ohm-m.....	2.0280
Total Dissolved Solids (180), mg/l..	3456
Total Dissolved Solids (calc), mg/l.	3433
Total Alkalinity as CaCO3, mg/l.....	620.84
Total Hardness as CaCO3, mg/l.....	1282.07
Sodium Absorption Ratio.....	8.48

	mg/l	meq/l
Bicarbonate as HCO3.....	757.42	12.42
Carbonate as CO3.....	0.00	0.00
Chloride.....	578.71	16.32
Sulfate.....	1275.65	26.58
Calcium.....	488.48	24.38
Magnesium.....	15.40	1.27
Potassium.....	4.16	0.11
Sodium.....	698.00	30.36
Major Cations.....		56.11
Major Anions.....		55.32
Cation/Anion Difference.....		0.71 %

KADMAN CORPORATION

Received: 11/10/88

RAS - Austin REPORT

Results By Test

Work Order # 88-11-070

SAMPLE Sample Id	Test: CA E ug/ml	Test: CL IC mg/L	Test: DG6010 date complete	Test: F IC mg/L	Test: K E ug/ml
Influent 01 8811081414	370	680		3.8	4.6*
Effluent 02 8811081431	330	630		3.8	6.4*
Tank 35 03 8811081529		410			
Tank 22 04 8811081619		680			
Tank 27 05 8811081504	390	940	11/22/88	3.5	3.9*
Tank 34 06 8811081522	460	720		3.7	3.7*
Tank 106 07 8811081600	400	580	11/22/88	3.8	5.2*

SAMPLE Sample Id	Test: MG E ug/ml	Test: NA E ug/ml	Test: NO3 mg/L as N	Test: PHEN mg/L as phenol	Test: SO4 IC mg/L as SO4
Influent 01 8811081414	37	460			1300
Effluent 02 8811081431	34	390			1200
Tank 35 03 8811081529					640
Tank 22 04 8811081619					1200
Tank 27 05 8811081504	51	540			940

KADIAN CORPORATION

 RAS - Austin REPORT Work Order # 88-11-070
Received: 11/10/88 Results by Sample Continued From Above

SAMPLE ID 8811081529 Tank 35 FRACTION 03A TEST CODE TDS NAME Total dissolved solids
Date & Time Collected 11/08/88 Category

INSTRMT ANALYZED 11/15/88 UNITS mg/L

ANALYTE	RESULT	DET LIMIT
Filterable Residue (TDS)	3800	6

NOTES AND DEFINITIONS FOR THIS REPORT.
DET LIMIT = DETECTION LIMIT
ND = not detected at detection limit
NA = not analyzed
* = less than 5 times the detection limit
N\A = not available

SAMPLE ID 8811081619 Tank 22 FRACTION 04A TEST CODE TDS NAME Total dissolved solids
Date & Time Collected 11/08/88 Category

VERIFIED LM

ANALYST TAM
INSTRMT ANALYZED 11/15/88 UNITS mg/L

ANALYTE	RESULT	DET LIMIT
Filterable Residue (TDS)	3800	6

NOTES AND DEFINITIONS FOR THIS REPORT.
DET LIMIT = DETECTION LIMIT
ND = not detected at detection limit
NA = not analyzed
* = less than 5 times the detection limit

GTEL Environmental Laboratories
A division of Groundwater Technology, Inc.

Western Region
4080-C Pike Lane
Concord, CA 94520

(415) 685-7852
(800) 544-3422 *from inside California*
(800) 423-7143 *from outside California*

06/16/88 rw
MANAGER: Michael Wood
Groundwater Technology, Inc.
3620 Wyoming Northeast, Suite 104
Albuquerque, NM 87111
PROJECT#: 232-799-5009-11
LOCATION: Farmington, NM

SAMPLED: 06/01/88 BY: T. LePage
RECEIVED: 06/03/88 BY: J. Floro
ANALYZED: 06/15/88 BY: C. Miller
MATRIX: Water

MAJOR CATIONS
TEST RESULTS

6/2/88

PARAMETER	UNITS	MDL	LAB # / I.D.#	24480A / 010530 (GBR-30)	24481A / 010347 (GBR-24D)	24482A / 020135 (TK 22)	24483A / 021015 (GBR-31)
Sodium	mg/L	0.1		578	491	686	769
Potassium	mg/L	1.0		3.3	5.3	3.4	3.5
Calcium	mg/L	0.1		586	500	558	598
Magnesium	mg/L	0.1		50	75	52	51

MDL = Method Detection Limit; compound below this level would not be detected.

METHOD: EPA 3005/6010

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Concord, CA 94520

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(800) 544-3422 *from inside California*
(800) 423-7143 *from outside California*

MANAGER: Michael Wood
PROJECT#: 232-799-5009-11
LOCATION: Farmington, NM

MAJOR CATIONS
TEST RESULTS

MATRIX: Water

6/2/88

PARAMETER	UNITS	MDL	LAB # / I.D.#	24484A / 021220 (GBR-17)	24485A / 020205 (TK-32)	24486A / 020105 (TK-24)	24487A / 020135 (TK-22)
Sodium	mg/L	0.1		281	620	700	752
Potassium	mg/L	1.0		1.1	2.9	3.5	3.8
Calcium	mg/L	0.1		411	474	521	579
Magnesium	mg/L	0.1		44	48	50	54

MDL = Method Detection Limit; compound below this level would not be detected.

METHOD: EPA 3005/6010

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Concord, CA 94520
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(800) 544-3422 *from inside California*
(800) 423-7143 *from outside California*

RECEIVED 7/13/88

07/12/88 jp
MANAGER: Michael Wood
Groundwater Technology, Inc.
3620 Wyoming N.E. Suite 104
Albuquerque, NM 87111
PROJECT#: 232-799-5009-9
LOCATION: Farmington, NM

SAMPLED: 06/01/88 BY: T. LePage
RECEIVED: 06/03/88 BY: J. Floro
ANALYZED: 06/07/88 BY: R. Heines
MATRIX: Water
UNITS: mg/L

6/2/88

TEST RESULTS

PARAMETER	MDL	LAB # / I.D.#	GBR-30 24480 / 010530	GBR-24D 24481 / 010347	TK 22 24482 / 020135	GBR-31 24483 / 021015	GBR-17 24484 / 021220
Total Dissolved Solids	10		3996	3487	4094	4374	2382
Bicarbonate	20		124	130	297	211	140
Carbonate	20		<20	<20	<20	<20	<20
Chloride	1		370	630	910	850	190
Sulfate	1		2270	1640	1570	1920	1350

MDL = Method Detection Limit; compound below this level would not be detected.
METHOD: TDS by Standard Method 209B
Bicarbonate by Standard Method 403
Carbonate by Standard Method 403
Chloride by Standard Method 429
Sulfate by Standard Method 429

RECEIVED 7/13/88 D

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4080-C Pike Lane
Concord, CA 94520
(415) 685-7852
(800) 544-3422 *from inside California*
(800) 423-7143 *from outside California*

MANAGER: Michael Wood
PROJECT#: 232-799-5009-9
LOCATION: Farmington, NM

TEST RESULTS

MATRIX: Water
UNITS: mg/L

6/7/88

PARAMETER	MDL	LAB # / I.D.#	Tk 32 24485 / 020205	Tk 24 24486 / 020105	Tk 22 24487 / 020135	Tk 32 24488 / 020205
Total Dissolved Solids	10		4274	4031	4218	4256
Bicarbonate	20		200	311	284	80
Carbonate	20		<20	<20	<20	<20
Chloride	1		940	690	915	1050
Sulfate	1		1510	1370	1580	1630

MDL = Method Detection Limit; compound below this level would not be detected.
METHOD: TDS by Standard Method 209B
Bicarbonate by Standard Method 403
Carbonate by Standard Method 403
Chloride by Standard Method 429
Sulfate by Standard Method 429

Safy Khalifa/EMT

SAFY KHALIFA, Ph.D., Director

Inter-Mountain Laboratories, Inc.

2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

CLIENT: GBR DATE REPORTED: 01/19/90

SITE: TANK 22 DATE RECEIVED: 01/10/90
LAB NO: 3754 DATE COLLECTED: 01/10/90

Trace metals by AA (Dissolved Concentration), mg/l

	Analytical Result:	Detection Limit:
Arsenic (As).....	0.0021	<0.0003
Lead (Pb).....	0.009	<0.004
Selenium (Se).....	ND	<0.0002

Trace metals by ICAP (Dissolved Concentration), mg/l

	Analytical Result:	Detection Limit:
Silver (Ag).....	ND	<0.05
Aluminum (Al).....	ND	<0.1
Boron (B).....	0.48	<0.01
Barium (Ba).....	ND	<0.5
Cobalt (Co).....	0.04	<0.02
Chromium (Cr).....	ND	<0.02
Copper (Cu).....	ND	<0.01
Iron (Fe).....	6.24	<0.05
Manganese (Mn).....	1.66	<0.02
Molybdenum (Mo).....	ND	<0.02
Nickel (Ni).....	0.14	<0.01
Zinc (Zn).....	0.02	<0.01

C. Neal Schaeffer
Lab Director

Inter-Mountain Laboratories, Inc.

2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

CLIENT: GBR — DATE REPORTED: 01/19/90

SITE: TANK 22-LAB SPLIT — DATE RECEIVED: 01/10/90
LAB NO: 3757 — DATE COLLECTED: 01/10/90

Trace metals by AA (Dissolved Concentration), mg/l

	Analytical Result:	Detection Limit:
Arsenic (As).....	0.0023	<0.0003
Lead (Pb).....	0.009	<0.004
Selenium (Se).....	ND	<0.0002

Trace metals by ICAP (Dissolved Concentration), mg/l

	Analytical Result:	Detection Limit:
Silver (Ag).....	ND	<0.05
Aluminum (Al).....	ND	<0.1
Boron (B).....	0.46	<0.01
Barium (Ba).....	ND	<0.5
Cobalt (Co).....	0.02	<0.02
Chromium (Cr).....	ND	<0.02
Copper (Cu).....	ND	<0.01
Iron (Fe).....	2.87	<0.05
Manganese (Mn).....	0.94	<0.02
Molybdenum (Mo).....	ND	<0.02
Nickel (Ni).....	0.16	<0.01
Zinc (Zn).....	0.06	<0.01

C. Neal Schaeffer
Lab Director

ANNUAL SAMPLING
ANALYTICAL RESULTS FOR WATER STORED IN TANKS
WQCC METALS
(11/08/88)

ANALYTE:	TANK 22	TANK 27	TANK 34	TANK 35	TANK 106
SILVER	NA	NA (0.03)	NA	NA	ND (0.03)
ALUMINUM	NA	0.3 (0.20)	NA	NA	ND (0.20)
ARSENIC	NA	0.3 (0.3)	NA	NA	ND (0.30)
BORON	NA	0.71 (0.60)	NA	NA	0.64 (0.60)
BARIUM	NA	0.042 (0.01)	NA	NA	0.052 (0.01)
CALCIUM	NA	390 (1.00)	NA	NA	410 (1.00)
COBALT	NA	ND (0.01)	NA	NA	0.035 ((0.01)
CHROMIUM	NA	ND (0.03)	NA	NA	ND (0.03)
COPPER	NA	ND (0.02)	NA	NA	0.052 (0.02)
IRON	NA	5.0 (0.04)	NA	NA	7.6 (0.04)
POTASSIUM	NA	ND (3.00)	NA	NA	ND (3.0)
MAGNESIUM	NA	49 (1.00)	NA	NA	41 (1.00)
MANGANESE	NA	2.6 (0.01)	NA	NA	2.6 (0.01)
MOLYBDENUM	NA	ND (0.05)	NA	NA	ND (0.05)
SODIUM	NA	560 (1.00)	NA	NA	540 (1.00)
NICKEL	NA	0.18 (0.02)	NA	NA	0.12 (0.02)
LEAD	NA	ND (0.05)	NA	NA	ND (0.05)
SELENIUM	NA	ND (0.03)	NA	NA	ND (0.30)
ZINC	NA	ND (0.02)	NA	NA	0.26 (0.02)

Units are mg/L
ND = not detected at detection limit
NA = not analyzed
N\R = not reported

AnalyticalTechnologies, Inc.

METALS
PROJECT: GIANT MONITOR WELLS

SAMPLE DATE: 11/10/87
LAB RECEIPT DATE: 11/16/87
MATRIX: WATER

SAMPLE ID: 8711101655
LOCATION: SOUTH TANK
LAB SAMPLE #: 3574-1
UNITS: mg/l

ANALYSIS DATE	CONSTITUENT NAME	DILUTION FACTOR	DETECTION LIMIT	RESULT
12/01/87	ARSENIC (As)	1	0.010	ND
12/02/87	BARIUM (Ba)	1	0.060	ND
12/01/87	CADMIUM (Cd)	1	0.003	.011
11/16/87	HEXAVALENT CHROMIUM (CR+6)	1	0.03	ND
12/01/87	TOTAL CHROMIUM (Cr Tot)	1	0.010	0.028
11/30/87	LEAD (Pb)	1	0.002	ND
11/19/87	MERCURY (Hg)	1	0.0005	ND
12/01/87	SELENIUM (Se)	1	0.010	ND
12/01/87	SILVER (Ag)	1	0.010	0.012

* THE LISTED DETECTION LIMITS REFLECT ANY SAMPLE DILUTION.

NOTE: ND = NOT DETECTED
NA = NOT ANALYZED

PROJECT MANAGER: M Gary

DATE: 12/10/87

8710061629

AnalyticalTechnologies, Inc.

METALS
PROJECT: GBR

SAMPLE DATE: 10/06/87
LAB RECEIPT DATE: 10/09/87
MATRIX: WATER

SAMPLE ID: 8710061629
LOCATION: S. TANK
LAB SAMPLE #: 3439-2
UNITS: mg/l

ANALYSIS DATE	CONSTITUENT NAME	DILUTION FACTOR	DETECTION LIMIT	RESULT
10/14/87	ARSENIC (As)	1	0.010	ND
10/15/87	BARIUM (Ba)	1	0.060	ND
10/13/87	CADMIUM (Cd)	1	0.003	0.009
10/12/87	HEXAVALENT CHROMIUM (CR+6)	1	0.03	ND
10/13/87	TOTAL CHROMIUM (T. Cr)	1	0.010	ND
10/12/87	LEAD (Pb)	1	0.002	0.005
10/18/87	MERCURY (Hg)	1	0.0002	ND
10/14/87	SELENIUM (Se)	1	0.010	ND
10/14/87	SILVER (Ag)	1	0.010	0.018

NOTE: ND = NOT DETECTED
NA = NOT ANALYZED

346

PROJECT MANAGER: [illegible]

DATE: 10/28/87

GTEL Environmental Laboratories
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Western Region
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Concord, CA 94520
(415) 685-7852
(800) 544-3422 *from inside California*
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RECEIVED

Same as "North Tank"?

PROJECT MGR: Michael Wood
PROJECT#: 232-799-5009-10
LOCATION: Farmington, NM
MATRIX: Water
UNITS: ug/L (ppb)

Sample Date 880602

TEST RESULTS

COMPOUND	MDL	LAB # I.D.#	24493 021220 (GER-17)	24494 020205 (TK-32)	24495 TripBlank	24496 020105 (TK-24)
Benzene	0.5		<0.5	360	<0.5	1100
Bromodichloromethane	0.5		<0.5	<0.5	<0.5	<0.5
Bromoform	0.5		<0.5	<0.5	<0.5	<0.5
Bromomethane	0.5		<0.5	<0.5	<0.5	<0.5
Carbon tetrachloride	0.5		<0.5	<0.5	<0.5	<0.5
Chlorobenzene	0.5		<0.5	<0.5	<0.5	<0.5
Chloroethane	0.5		<0.5	<0.5	<0.5	<0.5
2-Chloroethylvinyl ether	1.0		<1.0	<1.0	<1.0	<1.0
Chloroform	0.5		<0.5	<0.5	<0.5	<0.5
Chloromethane	0.5		<0.5	<0.5	<0.5	<0.5
Dibromochloromethane	0.5		<0.5	<0.5	<0.5	<0.5
1,2-Dichlorobenzene	0.5		<0.5	<0.5	<0.5	<0.5
1,3-Dichlorobenzene	0.5		<0.5	<0.5	<0.5	<0.5
1,4-Dichlorobenzene	0.2		<0.2	<0.2	<0.2	<0.2
Dichlorodifluoromethane	0.5		<0.5	<0.5	<0.5	<0.5
1,1-Dichloroethane	0.5		<0.5	12	<0.5	8.0
1,2-Dichloroethane	0.5		<0.5	10	<0.5	130
1,1-Dichloroethene	0.2		<0.2	0.51	<0.2	0.61
trans-1,2-Dichloroethene	0.5		<0.5	18	<0.5	13
1,2-Dichloropropane	0.5		<0.5	<0.5	<0.5	<0.5
cis-1,3-Dichloropropene	0.5		<0.5	<0.5	<0.5	<0.5
trans-1,3-Dichloropropene	0.5		<0.5	<0.5	<0.5	<0.5
Ethylbenzene	0.5		<0.5	82	<0.5	2.5
Methylene chloride	0.5		<0.5	<0.5	<0.5	<0.5
1,1,2,2-Tetrachloroethane	0.5		<0.5	<0.5	<0.5	<0.5
Tetrachloroethene	0.5		<0.5	1.5	<0.5	1.8
1,1,1-Trichloroethane	0.5		3.1	2.3	<0.5	5.5
1,1,2-Trichloroethane	0.5		<0.5	<0.5	<0.5	<0.5
Trichloroethene	0.5		<0.5	4.9	<0.5	4.1
Trichlorofluoromethane	0.5		<0.5	<0.5	<0.5	<0.5
Vinyl Chloride	1.0		<1.0	<1.0	<1.0	<1.0
Xylenes	0.5		<0.5	300	<0.5	1300
Toluene	0.5		<0.5	15	<0.5	940

MDL = Method Detection Limit.
METHODS: EPA 8010/8020.

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RECEIVED 7/21/93

CLIENT: Michael Wood
PROJECT#: 232-799-5009-17
LOCATION: Farmington, NM

TEST RESULTS

MATRIX: Water
UNITS: ug/L

COMPOUNDS	MDL	LAB # I.D.#	24484C 021220 (GRR-17)	24485C 020205 (Tank 3)	24486C 020105 (Tank 4)	24487C 020135 (Tank 2)
Acenaphthene	10		<10	<10	<10	<10
Acenaphthylene	10		<10	<10	<10	<10
Anthracene	10		<10	<10	<10	<10
Benzo (a) anthracene	10		<10	<10	<10	<10
Benzo (a) pyrene	10		<10	<10	<10	<10
Benzo (b) fluoranthene	10		<10	<10	<10	<10
Benzo (ghi) perylene	10		<10	<10	<10	<10
Benzo (k) fluoranthene	10		<10	<10	<10	<10
Chrysene	10		<10	<10	<10	<10
Dibenzo (a,h) anthracene	10		<10	<10	<10	<10
Fluoranthene	10		<10	<10	<10	<10
Fluorene	10		<10	<10	<10	<10
Indeno (1,2,3-cd) pyrene	10		<10	<10	<10	<10
Naphthalene	10		<10	42	39	10
Phenanthrene	10		<10	<10	<10	<10
Pyrene	10		<10	<10	<10	<10

MDL=Method Detection Limit.
METHOD: EPA Method 610.

8111101710

AnalyticalTechnologies, Inc

EPA METHOD 601/602
PROJECT: GIANT MONITOR WELLS

SAMPLE DATE: 11/10/87
LAB RECEIPT DATE: 11/16/87
ANALYSIS DATE: 11/17/87
MATRIX: WATER
ANALYST: MGB

SAMPLE ID: 8711101710
LOCATION: NORTH TANK
LAB SAMPLE #: 3574-2
UNITS: ug/l
DILUTION FACTOR: 1

CONSTITUENT NAME	DETECTION LIMIT	RESULT
CHLOROMETHANE	0.2	ND
BROMOMETHANE	0.2	ND
DICHLORODIFLUOROMETHANE	0.2	ND
VINYL CHLORIDE	0.2	ND
CHLOROETHANE	0.2	ND
METHYLENE CHLORIDE	2.0	ND
TRICHLOROFLUOROMETHANE	2.0	ND
1,1-DICHLOROETHENE	0.2	ND
1,1-DICHLOROETHANE	0.2	ND
TRANS-1,2-DICHLOROETHENE	0.2	ND
CHLOROFORM	0.2	ND
1,2-DICHLOROETHANE	0.2	6.3
1,1,1-TRICHLOROETHANE	0.2	ND
CARBON TETRACHLORIDE	0.2	ND
BROMODICHLOROMETHANE	0.2	ND
1,2-DICHLOROPROPANE	0.2	ND
TRANS-1,3-DICHLOROPROPENE	0.2	ND
TRICHLOROETHENE	0.2	ND
DIBROMOCHLOROMETHANE	0.2	ND
1,1,2-TRICHLOROETHANE	0.2	ND
CIS-1,3-DICHLOROPROPENE	0.2	ND
2-CHLOROETHYLVINYL ETHER	0.2	ND
BROMOFORM	0.2	ND
1,1,2,2-TETRACHLOROETHANE	0.2	ND
TETRACHLOROETHENE	0.2	ND
BENZENE	0.5	ND
TOLUENE	1.0	ND
CHLOROBENZENE	0.5	ND
ETHYLBENZENE	0.5	ND
1,3-DICHLOROBENZENE	0.5	ND
1,2-DICHLOROBENZENE	0.5	ND
1,4-DICHLOROBENZENE	0.5	ND
M-XYLENE	0.5	8.9
O,P-XYLENE	0.5	39

92.7 % SURROGATE RECOVERY

COMMENTS: ND = NOT DETECTED

PROJECT MANAGER: M. Eddy

DATE: 12/10/87

AnalyticalTechnologies, Inc.

EPA METHOD 601/602
PROJECT: GBR

SAMPLE DATE: 10/07/87
LAB RECEIPT DATE: 10/09/87
ANALYSIS DATE/TIME: 10/13/87, 13:00
MATRIX: WATER
ANALYST: MGB

SAMPLE ID: 8710070745
LOCATION: NORTH TANK
LAB SAMPLE #: 3439-4
UNITS: ug/l
DILUTION FACTOR: 50

CONSTITUENT NAME	DETECTION LIMIT	RESULT
CHLOROMETHANE	1.0	ND
BROMOMETHANE	3.0	ND
DICHLORODIFLUOROMETHANE	2.0	ND
VINYL CHLORIDE	2.5	ND
CHLOROETHANE	50	ND
METHYLENE CHLORIDE	1.0	ND
TRICHLOROFLUOROMETHANE	3.5	ND
1,1-DICHLOROETHENE	3.5	ND
1,1-DICHLOROETHANE	2.5	ND
TRANS-1,2-DICHLOROETHENE	4.5	ND
CHLOROFORM	2.5	ND
1,2-DICHLOROETHANE	3.5	ND
1,1,1-TRICHLOROETHANE	1.5	ND
CARBON TETRACHLORIDE	4.0	ND
BROMODICHLOROMETHANE	2.0	ND
1,2-DICHLOROPROPANE	1.5	ND
TRANS-1,3-DICHLOROPROPENE	5.5	ND
TRICHLOROETHENE	3.0	ND
DIBROMOCHLOROMETHANE	3.5	ND
1,1,2-TRICHLOROETHANE	1.5	ND
CIS-1,3-DICHLOROPROPENE	3.5	ND
2-CHLOROETHYLVINYL ETHER	1.5	ND
BROMOFORM	4.5	ND
1,1,2,2-TETRACHLOROETHANE	1.5	ND
TETRACHLOROETHENE	1.5	ND
BENZENE	10	1840
TOLUENE	20	2210
CHLOROBENZENE	8.0	ND
ETHYLBENZENE	5.0	1760
1,3-DICHLOROBENZENE	20	ND
1,2-DICHLOROBENZENE	20	ND
1,4-DICHLOROBENZENE	30	ND
M-XYLENE	9.0	4410
O,P-XYLENE	7.5	4110

123 % SURROGATE RECOVERY

COMMENTS: ND = NOT DETECTED
MDL 50 x NORMAL DUE TO HIGH LEVELS

PROJECT MANAGER: JMH

DATE: 10/28/87

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A division of Groundwater Technology, Inc.

Western Region
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Concord, CA 94520
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(800) 423-7143 *from outside California*

RECEIVED

CLIENT: Michael Wood
PROJECT#: 232-799-5009-17
LOCATION: Farmington, NM

Sample date 4/2/88

TEST RESULTS

MATRIX: Water
UNITS: ug/L

COMPOUNDS	MDL	LAB # I.D.#	24484C 021220 (GBR-17)	24485C 020205 (~~TR-32~~)	24486C 020105 (TK-24)	24487C 020135 (TK-22)
Acenaphthene	10		<10	<10	<10	<10
Acenaphthylene	10		<10	<10	<10	<10
Anthracene	10		<10	<10	<10	<10
Benzo (a) anthracene	10		<10	<10	<10	<10
Benzo (a) pyrene	10		<10	<10	<10	<10
Benzo (b) fluoranthene	10		<10	<10	<10	<10
Benzo (ghi) perylene	10		<10	<10	<10	<10
Benzo (k) fluoranthene	10		<10	<10	<10	<10
Chrysene	10		<10	<10	<10	<10
Dibenzo (a,h) anthracene	10		<10	<10	<10	<10
Fluoranthene	10		<10	<10	<10	<10
Fluorene	10		<10	<10	<10	<10
Indeno (1,2,3-cd) pyrene	10		<10	<10	<10	<10
Naphthalene	10		<10	42	39	10
Phenanthrene	10		<10	<10	<10	<10
Pyrene	10		<10	<10	<10	<10

MDL=Method Detection Limit.
METHOD: EPA Method 610.

GTEL Environmental Laboratories
A division of Groundwater Technology, Inc.

Western Region
4080-C Pike Lane
Concord, CA 94520

(415) 685-7852
(800) 544-3422 *from inside California*
(800) 423-7143 *from outside California*

MANAGER: Michael Wood
PROJECT#: 232-799-5009-11
LOCATION: Farmington, NM

Sample date 6/2/88

MAJOR CATIONS
TEST RESULTS

MATRIX: Water

PARAMETER	UNITS	MDL	LAB # / I.D.#	GBR-17 24484A 021220	TK-32 24485A 020205	TK-24 24486A 020105	TK-22 24487A 020135
Sodium	mg/L	0.1		281	620	700	752
Potassium	mg/L	1.0		1.1	2.9	3.5	3.8
Calcium	mg/L	0.1		411	474	521	579
Magnesium	mg/L	0.1		44	48	50	54

MDL = Method Detection Limit; compound below this level would not be detected.

METHOD: EPA 3005/6010

RECEIVED 7/13/88 D

GTEL Environmental Laboratories
A division of Groundwater Technology, Inc.

Western Region
4080-C Pike Lane
Concord, CA 94520
(415) 685-7852
(800) 544-3422 *from inside California*
(800) 423-7143 *from outside California*

MANAGER: Michael Wood
PROJECT#: 232-799-5009-9
LOCATION: Farmington, NM

TEST RESULTS

MATRIX: Water 6/2/88
UNITS: mg/L

PARAMETER	MDL	LAB # / I.D.#	Tk 32 24485 / 020205	Tk 24 24486 / 020105	Tk 22 24487 / 020135	Tk 32 24488 / 020205
Total Dissolved Solids	10		4274	4031	4218	4256
Bicarbonate	20		200	311	284	80
Carbonate	20		<20	<20	<20	<20
Chloride	1		940	690	915	1050
Sulfate	1		1510	1370	1580	1630

MDL = Method Detection Limit; compound below this level would not be detected.
METHOD: TDS by Standard Method 209B
Bicarbonate by Standard Method 403
Carbonate by Standard Method 403
Chloride by Standard Method 429
Sulfate by Standard Method 429

Safy Khalifa/EMT

SAFY KHALIFA, Ph.D., Director

AnalyticalTechnologies, Inc.

METALS
PROJECT: GIANT MONITOR WELLS

SAMPLE DATE: 11/10/87
LAB RECEIPT DATE: 11/16/87
MATRIX: WATER

SAMPLE ID: 8711101710
LOCATION: NORTH TANK
LAB SAMPLE #: 3574-2
UNITS: mg/l

ANALYSIS DATE	CONSTITUENT NAME	DILUTION FACTOR	DETECTION LIMIT	RESULT
12/01/87	ARSENIC (As)	1	0.010	ND
12/02/87	BARIUM (Ba)	1	0.060	ND
12/01/87	CADMIUM (Cd)	1	0.003	0.010
11/16/87	HEXAVALENT CHROMIUM (CR+6)	1	0.03	ND
12/01/87	TOTAL CHROMIUM (Cr Tot)	1	0.010	0.034
11/30/87	LEAD (Pb)	1	0.002	ND
11/19/87	MERCURY (Hg)	1	0.0005	ND
12/01/87	SELENIUM (Se)	1	0.010	0.021
12/01/87	SILVER (Ag)	1	0.010	0.013

* THE LISTED DETECTION LIMITS REFLECT ANY SAMPLE DILUTION.

NOTE: ND = NOT DETECTED
NA = NOT ANALYZED

PROJECT MANAGER: M. Pitts

DATE: 12/10/87

8710070745

AnalyticalTechnologies, Inc.

METALS
PROJECT: GBR

SAMPLE DATE: 10/07/87
LAB RECEIPT DATE: 10/09/87
MATRIX: WATER

SAMPLE ID: 8710070745
LOCATION: N. TANK
LAB SAMPLE #: 3439-4
UNITS: mg/kg

ANALYSIS DATE	CONSTITUENT NAME	DILUTION FACTOR	DETECTION LIMIT	RESULT
10/21/87	ARSENIC (As)	100	1.0	ND
10/23/87	BARIUM (Ba)	100	6.0	ND
10/23/87	CADMIUM (Cd)	100	0.3	0.3
10/12/87	HEXAVALENT CHROMIUM (CR+6)	1	0.03	ND
10/23/87	TOTAL CHROMIUM (T. Cr)	100	1.0	ND
10/21/87	LEAD (Pb)	100	0.2	4.7
10/18/87	MERCURY (Hg)	10	0.002	ND
10/22/87	SELENIUM (Se)	100	1.0	ND
10/27/87	SILVER (Ag)	100	1.0	ND

NOTE: ND = NOT DETECTED
NA = NOT ANALYZED

346

PROJECT MANAGER: Jane M. Humphrey

DATE: 10/28/87

Inter-Mountain Laboratories, Inc.

2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

CLIENT: GBR
SITE: Tank 27
LAB NO: F3756

DATE REPORTED: 01/23/90
DATE ANALYZED: 01/12/90
DATE RECEIVED: 01/10/90
DATE COLLECTED: 01/10/90

Analysis Requested: Purgeable aromatics in water.

Parameter	Concentration	Units
Benzene	ND (1.0)	ug/l
Toluene	ND (1.0)	ug/l
Ethylbenzene	ND (1.0)	ug/l
m/p-Xylene	ND (1.0)	ug/l
o-Xylene	ND (1.0)	ug/l

Method:
8020 Aromatic Volatile Organics, SW-846, USEPA (1982).
602 Purgeable Aromatics, 40 CFR, Part 136.

(Detection limit in parenthesis.)
ND - Parameter not detected at the stated detection limit.

C. Neal Schaeffer
Senior Chemist

Inter-Mountain Laboratories, Inc.

2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

CLIENT: GBR

SITE: Tank 27

LAB NO: F3756

DATE REPORTED: 02/21/90
DATE ANALYZED: 01/17/90
DATE RECEIVED: 01/10/90
DATE COLLECTED: 01/10/90

Analysis Requested: Purgeable halocarbons in water.

Parameter	Concentration	Units
Bromobenzene	ND (10)	ug/l
Bromodichloromethane	ND (10)	ug/l
Bromoform	ND (10)	ug/l
Carbon Tetrachloride	ND (10)	ug/l
Chlorobenzene	ND (10)	ug/l
Chloroethane	ND (10)	ug/l
Chloroform	ND (10)	ug/l
Chloromethane	ND (10)	ug/l
Dibromochloromethane	ND (10)	ug/l
Dibromomethane	ND (10)	ug/l
1,2-Dichlorobenzene	ND (10)	ug/l
1,3-Dichlorobenzene	ND (10)	ug/l
1,4-Dichlorobenzene	ND (10)	ug/l
Dichlorodifluoromethane	ND (10)	ug/l
1,1-Dichloroethane	ND (10)	ug/l
1,2-Dichloroethane	ND (10)	ug/l
1,1-Dichloroethene	ND (10)	ug/l
trans-1,2-Dichloroethene	ND (10)	ug/l
1,2-Dichloropropane	ND (10)	ug/l
1,3-Dichloropropylene	ND (10)	ug/l
2,2-Dichloropropane	ND (10)	ug/l
Dichloromethane	ND (10)	ug/l
1,1,1,2-Tetrachloroethane	ND (10)	ug/l
1,1,2,2-Tetrachloroethane	ND (10)	ug/l
Tetrachloroethene	ND (10)	ug/l
1,1,1-Trichloroethane	ND (10)	ug/l
1,1,2-Trichloroethane	ND (10)	ug/l
Trichloroethene	ND (10)	ug/l
Trichlorofluoromethane	ND (10)	ug/l
1,2,3-Trichloropropane	ND (10)	ug/l
Bromochloromethane	ND (10)	ug/l
1,2-Dibromoethane	ND (10)	ug/l
cis-1,2-Dichloroethene	ND (10)	ug/l
1,1-Dichloropropene	ND (10)	ug/l
Vinyl Chloride	ND (10)	ug/l

Method:
601 Purgeable Halocarbons, 40 CFR Part 136, USEPA (1984).
(Detection limit in parenthesis.)
ND - Parameter not detected at the stated detection limit.

C. Neal Schaeffer
Senior Chemist

8.3.2

Inter-Mountain Laboratories, Inc.

2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

CLIENT: GBR
SITE: Tank 27
LAB NO: F3756

DATE REPORTED: 01/23/90
DATE RECEIVED: 01/10/90
DATE COLLECTED: 01/10/90

Analysis Requested: Polynuclear aromatic hydrocarbons in water.

Parameter	Concentration		Units
Acenaphthene	ND	(0.02)	mg/l
Acenaphthylene	ND	(0.02)	mg/l
Anthracene	ND	(0.02)	mg/l
Benzo(a)Anthracene	ND	(0.02)	mg/l
Benzo(a)pyrene	ND	(0.02)	mg/l
Benzo(k)fluoranthene	ND	(0.02)	mg/l
Benzo(b)fluoranthene	0.180	(0.02)	mg/l
Benzo(g,h,i)perylene	ND	(0.02)	mg/l
Dibenzo(a,h)anthracene	ND	(0.02)	mg/l
Chrysene	ND	(0.02)	mg/l
Fluoranthene	ND	(0.02)	mg/l
Fluorene	ND	(0.02)	mg/l
Indeno(1,2,3-cd)pyrene	ND	(0.02)	mg/l
Naphthalene	ND	(0.02)	mg/l
Phenanthrene	ND	(0.02)	mg/l
Pyrene	ND	(0.02)	mg/l
Benzo(b)fluoranthene	ND	(0.02)	mg/l

Method:
8100 Polynuclear Aromatic Hydrocarbons, SW-846, USEPA (1982).
610 Polyaromatic Hydrocarbons, 40 CFR Part 136 (1984).

(Detection limit in parenthesis.)
ND - Parameter not detected at the stated detection limit.

C. Neal Schaeffer
Senior Chemist

RADIAN
CORPORATION

Client: GEOSCIENCE CONSULTANTS, LTD.
500 COPPER N.W.; SUITE 200
ALBUQUERQUE, NM 87102

01B 8811081414
02B 8811081431
03B 8811081504
04B 8811081600

EPA METHOD 8240

Lab No: A8-11-046

RESULTS IN ug/L

CAS #	COMPOUND	01B Influent	02B Effluent	03B Tank 27	04B Tank 106
67-64-1	Acetone	<25	<25	<25	<25
107-02-8	Acrolein	<75	<75	<75	<75
107-13-1	Acrylonitrile	<30	<30	<30	<30
71-43-2	Benzene	520	<2.0	72	180
75-25-2	Bromoform	<2.0	<2.0	<2.0	<2.0
74-83-9	Bromomethane	<2.0	<2.0	<2.0	<2.0
124-48-1	Chlorodibromomethane	<2.0	<2.0	<2.0	<2.0
75-00-3	Chloroethane	<2.0	<2.0	<2.0	<2.0
108-90-7	Chlorobenzene	<2.0	<2.0	<2.0	<2.0
75-15-0	Carbon Disulfide	<2.0	<2.0	<2.0	<2.0
56-23-5	Carbon Tetrachloride	<2.0	<2.0	<2.0	<2.0
67-66-3	Chloroform	<2.0	<2.0	3.0*	<2.0
74-87-3	Chloromethane	<2.0	<2.0	<2.0	<2.0
110-75-8	2-Chloroethyl vinyl ether	<2.0	<2.0	<2.0	<2.0
74-95-3	Dibromomethane	<2.0	<2.0	<2.0	<2.0
75-71-8	Dichlorodifluoromethane	<2.0	<2.0	<2.0	<2.0
75-34-3	1,1-Dichloroethane	<2.0	<2.0	5.7*	2.9*
107-06-2	1,2-Dichloroethane	<2.0	<2.0	8.3*	<2.0
156-60-5	trans-1,2-Dichloroethene	<2.0	<2.0	<2.0	<2.0
75-35-4	1,1-Dichloroethene	<2.0	<2.0	<2.0	<2.0
75-27-4	Dichlorobromomethane	<2.0	<2.0	<2.0	<2.0
78-87-5	1,2-Dichloropropane	<2.0	<2.0	<2.0	<2.0
10061-01-5	cis-1,3-Dichloropropene	<2.0	<2.0	<2.0	<2.0
10061-02-6	trans-1,3-Dichloropropene	<2.0	<2.0	<2.0	<2.0
97-63-2	Ethyl methacrylate	<50	<50	<50	<50
100-41-4	Ethyl benzene	68	<2.0	<2.0	<2.0
591-78-6	2-Hexanone	<10	<10	<10	<10
74-88-4	Iodomethane	<2.0	<2.0	<2.0	<2.0
75-09-2	Methylene chloride	<10	<10	<10	<10
78-93-3	Methyl ethyl ketone	<10	<10	<10	<10
108-10-1	4-Methyl-2-pentanone	<2.0	<2.0	<2.0	<2.0
100-42-5	Styrene	<2.0	<2.0	<2.0	<2.0
79-34-5	1,1,2,2-Tetrachloroethane	<2.0	<2.0	<2.0	<2.0
127-18-4	Tetrachloroethylene	<2.0	<2.0	<2.0	<2.0
108-88-3	Toluene	5.4*	<2.0	3.9*	<2.0
79-01-6	Trichloroethene	3.2*	<2.0	2.6*	<2.0
71-55-6	1,1,1-Trichloroethane	<2.0	<2.0	<2.0	<2.0
79-00-5	1,1,2-Trichloroethane	<2.0	<2.0	<2.0	<2.0
75-69-4	Trichlorofluoromethane	<10	<10	<10	<10
96-18-4	1,2,3-Trichloropropane	<2.0	<2.0	<2.0	<2.0
75-01-4	Vinyl chloride	<2.0	<2.0	<2.0	<2.0
108-05-4	Vinyl acetate	<2.0	<2.0	<2.0	<2.0
110-57-6	Trans1,4dichloro-2-butene	<2.0	<2.0	<2.0	<2.0
1330-20-7	Xylenes	310	6.6*	11	190

1160

(180)

RADIAN CORPORATION

Client: GEOSCIENCE CONSULTANTS, LTD.
500 COPPER N.W.; SUITE 200
ALBUQUERQUE, NM 87102

01A 8811081414
02A 8811081431
03A 8811081504
04A 8811081600

EPA METHOD 8310

Lab No: A8-11-046

RESULTS IN ug/L

CAS #	COMPOUND	Influent 01A	02A Effluent	Tank 27 03A	04A Tank 106
208-96-8	Acenaphthylene	<31	<31	<31	<31
83-32-9	Acenaphthene	<3.4	<3.4	<3.4	<3.4
120-12-7	Anthracene	<2.4	<2.4	<2.4	<2.4
56-55-3	Benz(a)anthracene	<0.40	<0.40	<0.40	<0.40
50-32-8	Benzo(a)pyrene	<0.20	<0.20	<0.20	<0.20
205-99-2	Benzo(b)fluoranthene	<0.10	<0.10	<0.10	<0.10
191-24-2	Benzo(ghi)perylene	<0.30	<0.30	<0.30	<0.30
207-08-9	Benzo(k)fluoranthene	<0.10	<0.10	<0.10	<0.10
218-01-9	Chrysene	<0.10	<0.10	<0.10	<0.10
53-70-3	Dibenzo(a,h)anthracene	<0.30	<0.30	<0.30	<0.30
206-44-0	Fluoranthene	<0.61	<0.61	<0.61	<0.61
86-73-7	Fluorene	18	20	3.7 *	7.3 *
193-39-5	Indeno(1,2,3-cd)pyrene	<1.8	<1.8	<1.8	<1.8
91-20-3	Naphthalene	114	80	6.5 *	9.6
85-01-8	Phenanthrene	49	63	8.3 *	12 *
129-00-0	Pyrene	<0.71	<0.71	<0.71	<0.71

SURROGATE RECOVERIES (results in % recovery)

Terphenyl-D14	D	D	D	D

NOTES AND DEFINITIONS FOR THIS REPORT.
QC = OUTSIDE CONTROL LIMITS.
* = LESS THAN 5 TIMES THE DETECTION LIMIT.
B = DETECTED IN REAGENT BLANK; BACKGROUND SUBTRACTION NOT PERFORMED.
ND = NOT DETECTED AT DETECTION LIMIT.
D = NOT QUANTITATED DUE TO DILUTION.
NA = NOT ANALYZED.
N\A = NOT AVAILABLE.
NS = NOT SPIKED.

(180)

RADIAN CORPORATION

Client: GEOSCIENCE CONSULTANTS, LTD.
500 COPPER N.W.; SUITE 200
ALBUQUERQUE, NM 87102

03D 8811081504
04D 8811081600
04E 8811081600 DUPLICATE
05D 8811081522

EPA METHOD 8100

Lab No: A8-11-046

RESULTS IN ug/L

CAS #	COMPOUND	Tank 27 03D	04D Tank 106	Tank 106 04E	05D Tank 34
90-12-0	1-Methylnaphthalene	55	83	82	25
91-57-6	2-Methylnaphthalene	56	45	44	9.3 *

SURROGATE RECOVERIES (results in % recovery)				
2-Fluorobiphenyl	100	129	129	124

NOTES AND DEFINITIONS FOR THIS REPORT.
QC = OUTSIDE CONTROL LIMITS.
* = LESS THAN 5 TIMES THE DETECTION LIMIT.
B = DETECTED IN REAGENT BLANK; BACKGROUND SUBTRACTION NOT PERFORMED.
ND = NOT DETECTED AT DETECTION LIMIT.
NA = NOT ANALYZED.
N\A = NOT AVAILABLE.
NS = NOT SPIKED.

Inter-Mountain Laboratories, Inc.

2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

CLIENT: GBR
DATE REPORTED: 01/19/90

SITE: TANK 27
LAB NO: 3756
DATE RECEIVED: 01/10/90
DATE COLLECTED: 01/10/90

Lab pH (s.u.)	7.68
Lab Conductivity, umhos/cm	5444
Lab resistivity, ohm-m	1.8369
Total Dissolved Solids (180), mg/l	3760
Total Dissolved Solids (calc), mg/l	3646
Total Alkalinity as CaCO3, mg/l	403.92
Total Hardness as CaCO3, mg/l	1397.85
Sodium Absorption Ratio	8.12

	mg/l	meq/l
Bicarbonate as HCO3	492.78	8.08
Carbonate as CO3	0.00	0.00
Chloride	781.77	22.05
Sulfate	1386.75	28.89
Calcium	490.58	24.48
Magnesium	42.28	3.48
Potassium	4.16	0.11
Sodium	698.00	30.36
Major Cations		58.42
Major Anions		59.02
Cation/Anion Difference		0.51 %

KADDMAN CORPORATION

Received: 11/10/88

RAS - Austin REPORT

Results By Test

Work Order # 88-11-070

SAMPLE Sample Id	Test: CA E ug/ml	Test: CL IC mg/L	Test: DG6010 date complete	Test: F IC mg/L	Test: K E ug/ml
Influent 01 8811081414	370	680		3.8	4.6*
Effluent 02 8811081431	330	630		3.8	6.4*
Tank 35 03 8811081529		410			
Tank 22 04 8811081619		680			
Tank 27 05 8811081504	390	940	11/22/88	3.5	3.9*
Tank 34 06 8811081522	460	720		3.7	3.7*
Tank 106 07 8811081600	400	580	11/22/88	3.8	5.2*

SAMPLE Sample Id	Test: MG E ug/ml	Test: NA E ug/ml	Test: NO3 mg/L as N	Test: PHEN mg/L as phenol	Test: SO4 IC mg/L as SO4
Influent 01 8811081414	37	460			1300
Effluent 02 8811081431	34	390			1200
Tank 35 03 8811081529					640
Tank 22 04 8811081619					1200
Tank 27 05 8811081504	51	520			940

RADIAN CORPORATION

 RAS - Austin REPORT Work Order # 88-11-070

Received: 11/10/88 Results by Sample

SAMPLE ID 8811081504 Tank 27 FRACTION 05A TEST CODE TDS NAME Total dissolved solids

Date & Time Collected 11/08/88 Category

VERIFIED LM

ANALYST TAM

INSTRMT ANALYZED 11/15/88 UNITS mg/L

ANALYTE	RESULT	DET LIMIT
Filterable Residue (TDS)	3800	6

NOTES AND DEFINITIONS FOR THIS REPORT.

DET LIMIT = DETECTION LIMIT
ND = not detected at detection limit
NA = not analyzed
* = less than 5 times the detection limit
N\A = not available

SAMPLE ID 8811081522 Tank 34 FRACTION 05A TEST CODE ALKAL NAME Component alkalinities

Date & Time Collected 11/08/88 Category

VERIFIED LM

ANALYST TAM

INSTRMT 636 ANALYZED 11/21/88 1 UNITS mg/L as CaCO3

ANALYTE	RESULT	DET LIMIT
Total Alkalinity	423	1
Hydroxide	ND	1

Received: 11/10/88

RAS - Austin REPORT
Results by Sample

Work Order # 88-11-070
Continued From Above

SAMPLE ID 8811081619 FRACTION 04A TEST CODE TDS NAME Total dissolved solids
Date & Time Collected 11/08/88 Category

N\A = not available

SAMPLE ID 8811081504 FRACTION 05A TEST CODE ALKAL NAME Component alkalinities
Date & Time Collected 11/08/88 Category

VERIFIED LM

ANALYST TAM
INSTRMT 636 ANALYZED 11/21/88 1 UNITS mg/L as CaCO3

ANALYTE	RESULT	DET LIMIT
Total Alkalinity	358	1
Hydroxide	ND	1
Carbonate	ND	1
Bicarbonate	358	1

NOTES AND DEFINITIONS FOR THIS REPORT.
DET LIMIT = DETECTION LIMIT
ND = not detected at detection limit
NA = not analyzed
* = less than 5 times the detection limit
N\A = not available

Inter-Mountain Laboratories, Inc.

2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

CLIENT: GBR
DATE REPORTED: 01/19/90

SITE: TANK 27
DATE RECEIVED: 01/10/90
LAB NO: 3756
DATE COLLECTED: 01/10/90

Trace metals by AA (Dissolved Concentration), mg/l

	Analytical Result:	Detection Limit:
Arsenic (As).....	0.0012	<0.0003
Lead (Pb).....	0.014	<0.004
Selenium (Se).....	ND	<0.0002

Trace metals by ICAP (Dissolved Concentration), mg/l

	Analytical Result:	Detection Limit:
Silver (Ag).....	ND	<0.05
Aluminum (Al).....	ND	<0.1
Boron (B).....	0.39	<0.01
Barium (Ba).....	ND	<0.5
Cobalt (Co).....	0.04	<0.02
Chromium (Cr).....	ND	<0.02
Copper (Cu).....	0.01	<0.01
Iron (Fe).....	6.34	<0.05
Manganese (Mn).....	1.69	<0.02
Molybdenum (Mo).....	ND	<0.02
Nickel (Ni).....	0.14	<0.01
Zinc (Zn).....	0.02	<0.01

C. Neal Schaeffer
Lab Director

KADIMAN CORPORATION

 RAS - Austin REPORT Work Order # 88-11-070

Received: 11/10/88 Results by Sample

SAMPLE ID 8811081504 Tank 27 FRACTION 05B TEST CODE CN TOT NAME Total cyanide

Date & Time Collected 11/08/88 Category

VERIFIED LM

ANALYST MJS

INSTRMT TECH 2 ANALYZED 11/17/88 UNITS mg/L

ANALYTE	RESULT	DET LIMIT
Total Cyanide	ND	0.010

NOTES AND DEFINITIONS FOR THIS REPORT.

DET LIMIT = DETECTION LIMIT
ND = not detected at detection limit
NA = not analyzed
* = less than 5 times the detection limit
N\A = not available

SAMPLE ID 8811081504 Tank 27 FRACTION 05C TEST CODE HG C NAME Mercury, cold vapor

Date & Time Collected 11/08/88 Category

VERIFIED RHH

ANALYST KCP

INSTRMT 403 ANALYZED 11/22/88 UNITS ug/ml

ANALYTE	RESULT	DET LIMIT
Mercury	0.0005*	0.0002

KAUFMAN CORPORATION

Received: 11/10/88

RAS - Austin REPORT
Results by Sample

Work Order # 88-11-070

SAMPLE ID 8811081504 Tank 27 FRACTION 05C TEST CODE ICP200 NAME ICPES, EPA 200.7 elements
Date & Time Collected 11/08/88 Category

ANALYST DMC

VERIFIED RHH
UNITS ug/ml

CODE	METAL	RESULT	DET LIMIT	CODE	METAL	RESULT	DET LIMIT
Ag	Silver	ND	0.02	Mg	Magnesium	49R	1
Al	Aluminum	0.30*	0.2	Mn	Manganese	0.96R	0.01
As	Arsenic	ND	0.3	Mo	Molybdenum	ND	0.05
B	Boron	0.71*	0.6	Na	Sodium	560R	1
Ba	Barium	0.042*	0.01	Ni	Nickel	0.18	0.02
Be	Beryllium	ND	0.002	Pb	Lead	NDR	0.05
Ca	Calcium	390R	1	Sb	Antimony	ND	0.2
Cd	Cadmium	ND	0.005	Se	Selenium	ND	0.3
Co	Cobalt	ND	0.01	Si	Silicon	4.3*	1
Cr	Chromium	ND	0.03	Tl	Thallium	ND	0.1
Cu	Copper	ND	0.02	V	Vanadium	ND	0.02
Fe	Iron	5.0	0.04	Zn	Zinc	ND	0.02
K	Potassium	ND	3				

Inter-Mountain Laboratories, Inc.

2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

CLIENT: GBR
SITE: Tank 32
LAB NO: F3755

DATE REPORTED: 01/23/90
DATE ANALYZED: 01/12/90
DATE RECEIVED: 01/10/90
DATE COLLECTED: 01/10/90

Analysis Requested: Purgeable aromatics in water.

Parameter	Concentration	Units
Benzene	420 (5.0)	ug/l
Toluene	210 (5.0)	ug/l
Ethylbenzene	40 (5.0)	ug/l
m/p-Xylene	20 (5.0)	ug/l
o-Xylene	126 (5.0)	ug/l

Method:
8020 Aromatic Volatile Organics, SW-846, USEPA (1982).
602 Purgeable Aromatics, 40 CFR, Part 136.

(Detection limit in parenthesis.)
ND - Parameter not detected at the stated detection limit.

C. Neal Schaeffer
Senior Chemist

Inter-Mountain Laboratories, Inc.
2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

CLIENT: GBR
SITE: Tank 32
LAB NO: F3755

DATE REPORTED: 02/21/90
DATE ANALYZED: 01/17/90
DATE RECEIVED: 01/10/90
DATE COLLECTED: 01/10/90

Analysis Requested: Purgeable halocarbons in water.

Parameter	Concentration	Units
Bromobenzene	ND (10)	ug/l
Bromodichloromethane	ND (10)	ug/l
Bromoform	ND (10)	ug/l
Carbon Tetrachloride	ND (10)	ug/l
Chlorobenzene	ND (10)	ug/l
Chloroethane	ND (10)	ug/l
Chloroform	ND (10)	ug/l
Chloromethane	ND (10)	ug/l
Dibromochloromethane	ND (10)	ug/l
Dibromomethane	ND (10)	ug/l
1,2-Dichlorobenzene	ND (10)	ug/l
1,3-Dichlorobenzene	ND (10)	ug/l
1,4-Dichlorobenzene	ND (10)	ug/l
Dichlorodifluoromethane	ND (10)	ug/l
1,1-Dichloroethane	ND (10)	ug/l
1,2-Dichloroethane	ND (10)	ug/l
1,1-Dichloroethene	ND (10)	ug/l
trans-1,2-Dichloroethene	ND (10)	ug/l
1,2-Dichloropropane	ND (10)	ug/l
1,3-Dichloropropylene	ND (10)	ug/l
2,2-Dichloropropane	ND (10)	ug/l
Dichloromethane	ND (10)	ug/l
1,1,1,2-Tetrachloroethane	ND (10)	ug/l
1,1,2,2-Tetrachloroethane	ND (10)	ug/l
Tetrachloroethene	ND (10)	ug/l
1,1,1-Trichloroethane	ND (10)	ug/l
1,1,2-Trichloroethane	ND (10)	ug/l
Trichloroethene	ND (10)	ug/l
Trichlorofluoromethane	ND (10)	ug/l
1,2,3-Trichloropropane	ND (10)	ug/l
Bromochloromethane	ND (10)	ug/l
1,2-Dibromoethane	ND (10)	ug/l
cis-1,2-Dichloroethene	ND (10)	ug/l
1,1-Dichloropropene	ND (10)	ug/l
Vinyl Chloride	ND (10)	ug/l

Method:
601 Purgeable Halocarbons, 40 CFR Part 136, USEPA (1984).
(Detection limit in parenthesis.)
ND - Parameter not detected at the stated detection limit.

C. Neal Schaeffer
Senior Chemist

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2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

CLIENT: GBR
SITE: Tank 32
LAB NO: F3755

DATE REPORTED: 01/23/90
DATE RECEIVED: 01/10/90
DATE COLLECTED: 01/10/90

Analysis Requested: Polynuclear aromatic hydrocarbons in water.

Parameter	Concentration		Units
Acenaphthene	ND	(0.02)	mg/l
Acenaphthylene	ND	(0.02)	mg/l
Anthracene	trace	(0.02)	mg/l
Benzo(a)Anthracene	ND	(0.02)	mg/l
Benzo(a)pyrene	0.09	(0.02)	mg/l
Benzo(k)fluoranthene	ND	(0.02)	mg/l
Benzo(b)fluoranthene	ND	(0.02)	mg/l
Benzo(g,h,i)perylene	0.180	(0.02)	mg/l
Dibenzo(a,h)anthracene	ND	(0.02)	mg/l
Chrysene	ND	(0.02)	mg/l
Fluoranthene	ND	(0.02)	mg/l
Fluorene	trace	(0.02)	mg/l
Indeno(1,2,3-cd)pyrene	ND	(0.02)	mg/l
Naphthalene	0.11	(0.02)	mg/l
Phenanthrene	trace	(0.02)	mg/l
Pyrene	ND	(0.02)	mg/l
Benzo(b)fluoranthene	ND	(0.02)	mg/l

Method:
8100 Polynuclear Aromatic Hydrocarbons, SW-846, USEPA (1982).
610 Polyaromatic Hydrocarbons, 40 CFR Part 136 (1984).

(Detection limit in parenthesis.)
ND - Parameter not detected at the stated detection limit.

C. Neal Schaeffer
Senior Chemist

GTEL Environmental Laboratories
division of Groundwater Technology, Inc.

Western Region
4080-C Pike Lane
Concord, CA 94520

(415) 685-7852
(800) 544-3422 *from inside California*
(800) 423-7143 *from outside California*

RECEIVED

PROJECT MGR: Michael Wood
PROJECT#: 232-799-5009-10
LOCATION: Farmington, NM
MATRIX: Water
UNITS: ug/L (ppb)

6/2/88

TEST RESULTS

COMPOUND	MDL	LAB # / I.D.#	24493 / 021220	24494 / 020205	24495 / TripBlank	24496 / 020105
			GER-17	TK-32		TK-24
Benzene	0.5		<0.5	360	<0.5	1100
Bromodichloromethane	0.5		<0.5	<0.5	<0.5	<0.5
Bromoform	0.5		<0.5	<0.5	<0.5	<0.5
Bromomethane	0.5		<0.5	<0.5	<0.5	<0.5
Carbon tetrachloride	0.5		<0.5	<0.5	<0.5	<0.5
Chlorobenzene	0.5		<0.5	<0.5	<0.5	<0.5
Chloroethane	0.5		<0.5	<0.5	<0.5	<0.5
2-Chloroethylvinyl ether	1.0		<1.0	<1.0	<1.0	<1.0
Chloroform	0.5		<0.5	<0.5	<0.5	<0.5
Chloromethane	0.5		<0.5	<0.5	<0.5	<0.5
Dibromochloromethane	0.5		<0.5	<0.5	<0.5	<0.5
1,2-Dichlorobenzene	0.5		<0.5	<0.5	<0.5	<0.5
1,3-Dichlorobenzene	0.5		<0.5	<0.5	<0.5	<0.5
1,4-Dichlorobenzene	0.2		<0.2	<0.2	<0.2	<0.2
Dichlorodifluoromethane	0.5		<0.5	<0.5	<0.5	<0.5
1,1-Dichloroethane	0.5		<0.5	12	<0.5	8.0
1,2-Dichloroethane	0.5		<0.5	10	<0.5	130
1,1-Dichloroethene	0.2		<0.2	0.51	<0.2	0.61
trans-1,2-Dichloroethene	0.5		<0.5	18	<0.5	13
1,2-Dichloropropane	0.5		<0.5	<0.5	<0.5	<0.5
cis-1,3-Dichloropropene	0.5		<0.5	<0.5	<0.5	<0.5
trans-1,3-Dichloropropene	0.5		<0.5	<0.5	<0.5	<0.5
Ethylbenzene	0.5		<0.5	82	<0.5	2.5
Methylene chloride	0.5		<0.5	<0.5	<0.5	<0.5
1,1,2,2-Tetrachloroethane	0.5		<0.5	<0.5	<0.5	<0.5
Tetrachloroethene	0.5		<0.5	1.5	<0.5	1.8
1,1,1-Trichloroethane	0.5		3.1	2.3	<0.5	5.5
1,1,2-Trichloroethane	0.5		<0.5	<0.5	<0.5	<0.5
Trichloroethene	0.5		<0.5	4.9	<0.5	4.1
Trichlorofluoromethane	0.5		<0.5	<0.5	<0.5	<0.5
Vinyl Chloride	1.0		<1.0	<1.0	<1.0	<1.0
Xylenes	0.5		<0.5	300	<0.5	1300
Toluene	0.5		<0.5	15	<0.5	940

MDL = Method Detection Limit.
METHODS: EPA 8010/8020.

GTEL Environmental Laboratories
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Western Region
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Concord, CA 94520
(415) 685-7852
(800) 544-3422 *from inside California*
(800) 423-7143 *from outside California*

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CLIENT: Michael Wood
PROJECT#: 232-799-5009-17
LOCATION: Farmington, NM

TEST RESULTS

MATRIX: Water
UNITS: ug/L

6/2/88

COMPOUNDS	MDL	LAB # / I.D.#	24484C / GBR-17 / 021220	24485C / TK-33 / 020205	24486C / TK-24 / 020105	24487C / TK-22 / 020135
Acenaphthene	10		<10	<10	<10	<10
Acenaphthylene	10		<10	<10	<10	<10
Anthracene	10		<10	<10	<10	<10
Benzo (a) anthracene	10		<10	<10	<10	<10
Benzo (a) pyrene	10		<10	<10	<10	<10
Benzo (b) fluoranthene	10		<10	<10	<10	<10
Benzo (ghi) perylene	10		<10	<10	<10	<10
Benzo (k) fluoranthene	10		<10	<10	<10	<10
Chrysene	10		<10	<10	<10	<10
Dibenzo (a,h) anthracene	10		<10	<10	<10	<10
Fluoranthene	10		<10	<10	<10	<10
Fluorene	10		<10	<10	<10	<10
Indeno (1,2,3-cd) pyrene	10		<10	<10	<10	<10
Naphthalene	10		<10	42	39	10
Phenanthrene	10		<10	<10	<10	<10
Pyrene	10		<10	<10	<10	<10

MDL=Method Detection Limit.
METHOD: EPA Method 610.

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Western Region
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Concord, CA 94520
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(800) 544-3422 *from inside California*
(800) 423-7143 *from outside California*

CLIENT: Michael Wood
PROJECT#: 232-799-5009-17
LOCATION: Farmington, NM

TEST RESULTS

MATRIX: Water
UNITS: ug/L 6/2/88 (TK-32)

COMPOUNDS	MDL	LAB # / I.D.#	24488C / 020205
Acenaphthene	10		<10
Acenaphthylene	10		<10
Anthracene	10		<10
Benzo (a) anthracene	10		<10
Benzo (a) pyrene	10		<10
Benzo (b) fluoranthene	10		<10
Benzo (ghi) perylene	10		<10
Benzo (k) fluoranthene	10		<10
Chrysene	10		<10
Dibenzo (a,h) anthracene	10		<10
Fluoranthene	10		<10
Fluorene	10		<10
Indeno (1,2,3-cd) pyrene	10		<10
Naphthalene	10		96
Phenanthrene	10		<10
Pyrene	10		<10

MDL=Method Detection Limit.
METHOD: EPA Method 610.

SAFY KHALIFA, Ph.D., Director

Inter-Mountain Laboratories, Inc.

2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

CLIENT: GBR
DATE REPORTED: 01/19/90

SITE: TANK 32
DATE RECEIVED: 01/10/90
LAB NO: 3755
DATE COLLECTED: 01/10/90

Lab pH (s.u.).....	7.30
Lab Conductivity, umhos/cm.....	4618
Lab resistivity, ohm-m.....	2.1654
Total Dissolved Solids (180), mg/l..	3086
Total Dissolved Solids (calc), mg/l.	3050
Total Alkalinity as CaCO3, mg/l.....	482.46
Total Hardness as CaCO3, mg/l.....	1117.86
Sodium Absorption Ratio.....	8.02

	mg/l	meq/l
Bicarbonate as HCO3.....	588.60	9.65
Carbonate as CO3.....	0.00	0.00
Chloride.....	619.33	17.47
Sulfate.....	1094.18	22.80
Calcium.....	391.62	19.54
Magnesium.....	34.23	2.82
Potassium.....	4.50	0.12
Sodium.....	616.20	26.80
Major Cations.....		49.28
Major Anions.....		49.91
Cation/Anion Difference.....		0.64 %

GTEL Environmental Laboratories
A division of Groundwater Technology, Inc.

Western Region
4080-C Pike Lane
Concord, CA 94520

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(800) 544-3422 *from inside California*
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RECEIVED 6/21/88

MANAGER: Michael Wood
PROJECT#: 232-799-5009-11
LOCATION: Farmington, NM

MAJOR CATIONS
TEST RESULTS

MATRIX: Water 6/2/88
FLC 32

PARAMETER	UNITS	MDL	LAB # / I.D.#	24488A / 020205
Sodium	mg/L	0.1		570
Potassium	mg/L	1.0		3.1
Calcium	mg/L	0.1		456
Magnesium	mg/L	0.1		47

MDL = Method Detection Limit; compound below this level would not be detected.

METHOD: EPA 3005/6010

Safy Khalifa

SAFY KHALIFA, Ph.D., Director

RECEIVED 7/13/88 D

GTEL Environmental Laboratories
A division of Groundwater Technology, Inc.

Western Region
4080-C Pike Lane
Concord, CA 94520
(415) 685-7852
(800) 544-3422 *from inside California*
(800) 423-7143 *from outside California*

MANAGER: Michael Wood
PROJECT#: 232-799-5009-9
LOCATION: Farmington, NM

6/2/88

TEST RESULTS

MATRIX: Water
UNITS: mg/L

PARAMETER	MDL	LAB # I.D.#	24485 020205 (Tk 32)	24486 020105 (Tk 24)	24487 020135 (Tk 22)	24488 020205 (Tk 32)
Total Dissolved Solids	10		4274	4031	4218	4256
Bicarbonate	20		200	311	284	80
Carbonate	20		<20	<20	<20	<20
Chloride	1		940	690	915	1050
Sulfate	1		1510	1370	1580	1630

MDL = Method Detection Limit; compound below this level would not be detected.
METHOD: TDS by Standard Method 209B
Bicarbonate by Standard Method 403
Carbonate by Standard Method 403
Chloride by Standard Method 429
Sulfate by Standard Method 429

Safy Khalifa/EMT

SAFY KHALIFA, Ph.D., Director

Inter·Mountain Laboratories, Inc.

2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

CLIENT: GBR

DATE REPORTED: 01/19/90

SITE: TANK 32

DATE RECEIVED: 01/10/90

LAB NO: 3755

DATE COLLECTED: 01/10/90

Trace metals by AA (Dissolved Concentration), mg/l

	Analytical Result:	Detection Limit:
Arsenic (As).....	0.0017	<0.0003
Lead (Pb).....	0.007	<0.004
Selenium (Se).....	ND	<0.0002

Trace metals by ICAP (Dissolved Concentration), mg/l

	Analytical Result:	Detection Limit:
Silver (Ag).....	ND	<0.05
Aluminum (Al).....	ND	<0.1
Boron (B).....	0.51	<0.01
Barium (Ba).....	ND	<0.5
Cobalt (Co).....	ND	<0.02
Chromium (Cr).....	ND	<0.02
Copper (Cu).....	ND	<0.01
Iron (Fe).....	36.94	<0.05
Manganese (Mn).....	1.38	<0.02
Molybdenum (Mo).....	ND	<0.02
Nickel (Ni).....	0.12	<0.01
Zinc (Zn).....	0.02	<0.01

C. Neal Schaeffer
Lab Director

RADIAN
CORPORATION

Client: GEOSCIENCE CONSULTANTS, LTD.
500 COPPER N.W.; SUITE 200
ALBUQUERQUE, NM 87102

05B 8811081522
06A 8811081529
07A 8811081619
09A SYSTEM BLANK

EPA METHOD 8240

Lab No: A8-11-046

RESULTS IN ug/L

CAS #	COMPOUND	Tank 34 05B	06A Tank 35	Tank 22 07A	09A System Blank
67-64-1	Acetone	<25	<25	<25	<25
107-02-8	Acrolein	<75	<75	<75	<75
107-13-1	Acrylonitrile	<30	<30	<30	<30
71-43-2	Benzene	570	33	690	<2.0
75-25-2	Bromoform	<2.0	<2.0	<2.0	<2.0
74-83-9	Bromomethane	<2.0	<2.0	<2.0	<2.0
124-48-1	Chlorodibromomethane	<2.0	<2.0	<2.0	<2.0
75-00-3	Chloroethane	<2.0	<2.0	<2.0	<2.0
108-90-7	Chlorobenzene	<2.0	<2.0	<2.0	<2.0
75-15-0	Carbon Disulfide	<2.0	<2.0	<2.0	<2.0
56-23-5	Carbon Tetrachloride	<2.0	<2.0	<2.0	<2.0
67-66-3	Chloroform	<2.0	<2.0	<2.0	<2.0
74-87-3	Chloromethane	<2.0	<2.0	<2.0	<2.0
110-75-8	2-Chloroethyl vinyl ether	<2.0	<2.0	<2.0	<2.0
74-95-3	Dibromomethane	<2.0	<2.0	<2.0	<2.0
75-71-8	Dichlorodifluoromethane	<2.0	<2.0	<2.0	<2.0
75-34-3	1,1-Dichloroethane	<2.0	<2.0	4.4*	<2.0
107-06-2	1,2-Dichloroethane	<2.0	<2.0	4.5*	<2.0
156-60-5	trans-1,2-Dichloroethene	<2.0	<2.0	<2.0	<2.0
75-35-4	1,1-Dichloroethene	<2.0	<2.0	<2.0	<2.0
75-27-4	Dichlorobromomethane	<2.0	<2.0	<2.0	<2.0
78-87-5	1,2-Dichloropropane	<2.0	<2.0	<2.0	<2.0
10061-01-5	cis-1,3-Dichloropropene	<2.0	<2.0	<2.0	<2.0
10061-02-6	trans-1,3-Dichloropropene	<2.0	<2.0	<2.0	<2.0
97-63-2	Ethyl methacrylate	<50	<50	<50	<50
100-41-4	Ethyl benzene	55	2.1*	120	<2.0
591-78-6	2-Hexanone	<10	<10	<10	<10
74-88-4	Iodomethane	<2.0	<2.0	<2.0	<2.0
75-09-2	Methylene chloride	<10	<10	<10	<10
78-93-3	Methyl ethyl ketone	<10	<10	<10	<10
108-10-1	4-Methyl-2-pentanone	<2.0	<2.0	<2.0	<2.0
100-42-5	Styrene	<2.0	<2.0	<2.0	<2.0
79-34-5	1,1,2,2-Tetrachloroethane	<2.0	<2.0	<2.0	<2.0
127-18-4	Tetrachloroethylene	<2.0	<2.0	<2.0	<2.0
108-88-3	Toluene	9.2*	2.1*	4.7*	<2.0
79-01-6	Trichloroethene	<2.0	<2.0	3.4*	<2.0
71-55-6	1,1,1-Trichloroethane	<2.0	<2.0	<2.0	<2.0
79-00-5	1,1,2-Trichloroethane	<2.0	<2.0	3.4*	<2.0
75-69-4	Trichlorofluoromethane	<10	<10	<10	<10
96-18-4	1,2,3-Trichloropropane	<2.0	<2.0	<2.0	<2.0
75-01-4	Vinyl chloride	<2.0	<2.0	<2.0	<2.0
108-05-4	Vinyl acetate	<2.0	<2.0	<2.0	<2.0
110-57-6	Trans1,4dichloro-2-butene	<2.0	<2.0	<2.0	<2.0
1330-20-7	Xylenes	168	12	140	<2.0

118

RADIAN CORPORATION

Client: GEOSCIENCE CONSULTANTS, LTD.
500 COPPER N.W.; SUITE 200
ALBUQUERQUE, NM 87102

04G 8811081600 DUPLICATE
05A 8811081522
10A REAGENT BLANK

EPA METHOD 8310

Lab No: A8-11-046

RESULTS IN ug/L

CAS #	COMPOUND	04G (Tank 106)	05A (Tank 134)	10A
208-96-8	Acenaphthylene	<31	<31	<0.30
83-32-9	Acenaphthene	<3.4	<3.5	<0.034
120-12-7	Anthracene	<2.4	<2.5	<0.024
56-55-3	Benz(a)anthracene	<0.40	<0.41	<0.004
50-32-8	Benzo(a)pyrene	<0.20	<0.21	<0.002
205-99-2	Benzo(b)fluoranthene	<0.10	<0.10	<0.001
191-24-2	Benzo(ghi)perylene	<0.30	<0.31	<0.003
207-08-9	Benzo(k)fluoranthene	<0.10	<0.10	<0.001
218-01-9	Chrysene	<0.10	<0.10	<0.001
53-70-3	Dibenzo(a,h)anthracene	<0.30	<0.31	<0.003
206-44-0	Fluoranthene	<0.61	<0.62	<0.006
86-73-7	Fluorene	8.1 *	7.2 *	<0.029
193-39-5	Indeno(1,2,3-cd)pyrene	<1.8	<1.9	<0.018
91-20-3	Naphthalene	13	25	<0.014
85-01-8	Phenanthrene	15 *	15 *	<0.051
129-00-0	Pyrene	<0.71	<0.72	<0.007

SURROGATE RECOVERIES (results in % recovery)

Terphenyl-D14	D	D	90

NOTES AND DEFINITIONS FOR THIS REPORT.
QC = OUTSIDE CONTROL LIMITS.
* = LESS THAN 5 TIMES THE DETECTION LIMIT.
B = DETECTED IN REAGENT BLANK; BACKGROUND SUBTRACTION NOT PERFORMED.
ND = NOT DETECTED AT DETECTION LIMIT.
D = NOT QUANTITATED DUE TO DILUTION.
NA = NOT ANALYZED.
N\A = NOT AVAILABLE.
NS = NOT SPIKED.

(180)

KADIMAN CORPORATION

Received: 11/10/88

RAS - Austin REPORT

Results By Test

Work Order # 88-11-070

SAMPLE Sample Id	Test: CA E ug/ml	Test: CL IC mg/L	Test: DG6010 date complete	Test: F IC mg/L	Test: K E ug/ml
Influent 01 8811081414	370	680		3.8	4.6*
Effluent 02 8811081431	330	630		3.8	6.4*
Tank 35 03 8811081529		410			
Tank 22 04 8811081619		680			
Tank 27 05 8811081504	390	940	11/22/88	3.5	3.9*
Tank 34 06 8811081522	460	720		3.7	3.7*
Tank 106 07 8811081600	400	580	11/22/88	3.8	5.2*

SAMPLE Sample Id	Test: MG E ug/ml	Test: NA E ug/ml	Test: NO3 mg/L as N	Test: PHEN mg/L as phenol	Test: SO4 IC mg/L as SO4
Influent 01 8811081414	37	460			1300
Effluent 02 8811081431	34	390			1200
Tank 35 03 8811081529					640
Tank 22 04 8811081619					1200
Tank 27 05 8811081504	51	570			940

RADIAN
CORPORATION

Client: GEOSCIENCE CONSULTANTS, LTD.
500 COPPER N.W.; SUITE 200
ALBUQUERQUE, NM 87102

03D 8811081504
04D 8811081600
04E 8811081600 DUPLICATE
05D 8811081522

EPA METHOD 8100

Lab No: A8-11-046

RESULTS IN ug/L

CAS #	COMPOUND	03D Tank 27	04D Tank 106	04E Tank 106	05D Tank 34
90-12-0	1-Methylnaphthalene	55	83	82	25
91-57-6	2-Methylnaphthalene	56	45	44	9.3 *

SURROGATE RECOVERIES	(results in % recovery)			
2-Fluorobiphenyl	100	129	129	124

NOTES AND DEFINITIONS FOR THIS REPORT.
QC = OUTSIDE CONTROL LIMITS.
* = LESS THAN 5 TIMES THE DETECTION LIMIT.
B = DETECTED IN REAGENT BLANK; BACKGROUND SUBTRACTION NOT PERFORMED.
ND = NOT DETECTED AT DETECTION LIMIT.
NA = NOT ANALYZED.
N\A = NOT AVAILABLE.
NS = NOT SPIKED.

KADIAN CORPORATION

Received: 11/10/88

RAS - Austin REPORT
Results By Test

Work Order # 88-11-070
Continued From Above

SAMPLE Sample Id	Test: MG E ug/ml	Test: NA E ug/ml	Test: NO3 mg/L as N	Test: PHEN mg/L as phenol	Test: SO4 IC mg/L as SO4
Tank 34 06 8811081522	48	600	0.32	0.060	1400
Tank 106 07 8811081600	43	470	1.4	0.021*	1400

RADIAN CORPORATION

 RAS - Austin REPORT Work Order # 88-11-070

Received: 11/10/88 Results by Sample

SAMPLE ID 8811081504 Tank 27 FRACTION OSA TEST CODE TDS NAME Total dissolved solids

Date & Time Collected 11/08/88 Category

VERIFIED LM

ANALYST TAM

INSTRMT ANALYZED 11/15/88 UNITS mg/L

ANALYTE	RESULT	DET LIMIT
Filterable Residue (TDS)	3800	6

NOTES AND DEFINITIONS FOR THIS REPORT.

DET LIMIT = DETECTION LIMIT
ND = not detected at detection limit
NA = not analyzed
* = less than 5 times the detection limit
N\A = not available

SAMPLE ID 8811081522 Tank 34 FRACTION OSA TEST CODE ALKAL NAME Component alkalinities

Date & Time Collected 11/08/88 Category

VERIFIED LM

ANALYST TAM

INSTRMT 636 ANALYZED 11/21/88 1 UNITS mg/L as CaCO3

ANALYTE	RESULT	DET LIMIT
Total Alkalinity	423	1
Hydroxide	ND	1

KADIMAN CORPORATION

RAS - Austin REPORT

Work Order # 88-11-070

Received: 11/10/88

Results by Sample

SAMPLE ID 8811081522 Tank 34 FRACTION 06A TEST CODE TDS NAME Total dissolved solids

Date & Time Collected 11/08/88 Category

VERIFIED LM

ANALYST TAM

INSTRMT

ANALYZED 11/15/88 UNITS mg/L

ANALYTE	RESULT	DET LIMIT
Filterable Residue (TDS)	3900	6

NOTES AND DEFINITIONS FOR THIS REPORT.

DET LIMIT = DETECTION LIMIT
ND = not detected at detection limit
NA = not analyzed
* = less than 5 times the detection limit
N\A = not available

SAMPLE ID 8811081600 Tank 106 FRACTION 07A TEST CODE ALKAL NAME Component alkalinities

Date & Time Collected 11/08/88 Category

VERIFIED LM

ANALYST TAM

INSTRMT 636 ANALYZED 11/21/88 1 UNITS mg/L as CaCO3

ANALYTE	RESULT	DET LIMIT
Total Alkalinity	480	1
Hydroxide	ND	1

SAMPLE ID 8811081522 Tank 34 FRACTION 06A TEST CODE ALKAL NAME Component alkalinities
Date & Time Collected 11/08/88 Category

Carbonate	ND	1
Bicarbonate	423	1

NOTES AND DEFINITIONS FOR THIS REPORT.
DET LIMIT = DETECTION LIMIT
ND = not detected at detection limit
NA = not analyzed
* = less than 5 times the detection limit
N\A = not available

SAMPLE ID 8811081522 Tank 34 FRACTION 06B TEST CODE CN TOT NAME Total cyanide
Date & Time Collected 11/08/88 Category

VERIFIED LM

ANALYST MJS
INSTRMT TECH 2 ANALYZED 11/17/88 UNITS mg/L

ANALYTE	RESULT	DET LIMIT
Total Cyanide	ND	0.010

NOTES AND DEFINITIONS FOR THIS REPORT.
DET LIMIT = DETECTION LIMIT
ND = not detected at detection limit
NA = not analyzed
* = less than 5 times the detection limit
N\A = not available

ANNUAL SAMPLING
ANALYTICAL RESULTS FOR WATER STORED IN TANKS
WQCC METALS
(11/08/88)

ANALYTE:	TANK 22	TANK 27	TANK 34	TANK 35	TANK 106
SILVER	NA	NA (0.03)	NA	NA	ND (0.03)
ALUMINUM	NA	0.3 (0.20)	NA	NA	ND (0.20)
ARSENIC	NA	0.3 (0.3)	NA	NA	ND (0.30)
BORON	NA	0.71 (0.60)	NA	NA	0.64 (0.60)
BARIUM	NA	0.042 (0.01)	NA	NA	0.052 (0.01)
CALCIUM	NA	390 (1.00)	NA	NA	410 (1.00)
COBALT	NA	ND (0.01)	NA	NA	0.035 ((0.01)
CHROMIUM	NA	ND (0.03)	NA	NA	ND (0.03)
COPPER	NA	ND (0.02)	NA	NA	0.052 (0.02)
IRON	NA	5.0 (0.04)	NA	NA	7.6 (0.04)
POTASSIUM	NA	ND (3.00)	NA	NA	ND (3.0)
MAGNESIUM	NA	49 (1.00)	NA	NA	41 (1.00)
MANGANESE	NA	2.6 (0.01)	NA	NA	2.6 (0.01)
MOLYBDENUM	NA	ND (0.05)	NA	NA	ND (0.05)
SODIUM	NA	560 (1.00)	NA	NA	540 (1.00)
NICKEL	NA	0.18 (0.02)	NA	NA	0.12 (0.02)
LEAD	NA	ND (0.05)	NA	NA	ND (0.05)
SELENIUM	NA	ND (0.03)	NA	NA	ND (0.30)
ZINC	NA	ND (0.02)	NA	NA	0.26 (0.02)

Units are mg/L
ND = not detected at detection limit
NA = not analyzed
N\R = not reported

RADIAN
CORPORATION

Client: GEOSCIENCE CONSULTANTS, LTD.
500 COPPER N.W.; SUITE 200
ALBUQUERQUE, NM 87102

05B 8811081522
06A 8811081529
07A 8811081619
09A SYSTEM BLANK

EPA METHOD 8240

Lab No: A8-11-046

RESULTS IN ug/L

CAS #	COMPOUND	Tank 34 05B	06A Tank 35	Tank 22 07A	09A System Blank
67-64-1	Acetone	<25	<25	<25	<25
107-02-8	Acrolein	<75	<75	<75	<75
107-13-1	Acrylonitrile	<30	<30	<30	<30
71-43-2	Benzene	570	33	690	<2.0
75-25-2	Bromoform	<2.0	<2.0	<2.0	<2.0
74-83-9	Bromomethane	<2.0	<2.0	<2.0	<2.0
124-48-1	Chlorodibromomethane	<2.0	<2.0	<2.0	<2.0
75-00-3	Chloroethane	<2.0	<2.0	<2.0	<2.0
108-90-7	Chlorobenzene	<2.0	<2.0	<2.0	<2.0
75-15-0	Carbon Disulfide	<2.0	<2.0	<2.0	<2.0
56-23-5	Carbon Tetrachloride	<2.0	<2.0	<2.0	<2.0
67-66-3	Chloroform	<2.0	<2.0	<2.0	<2.0
74-87-3	Chloromethane	<2.0	<2.0	<2.0	<2.0
110-75-8	2-Chloroethyl vinyl ether	<2.0	<2.0	<2.0	<2.0
74-95-3	Dibromomethane	<2.0	<2.0	<2.0	<2.0
75-71-8	Dichlorodifluoromethane	<2.0	<2.0	<2.0	<2.0
75-34-3	1,1-Dichloroethane	<2.0	<2.0	4.4*	<2.0
107-06-2	1,2-Dichloroethane	<2.0	<2.0	4.5*	<2.0
156-60-5	trans-1,2-Dichloroethene	<2.0	<2.0	<2.0	<2.0
75-35-4	1,1-Dichloroethene	<2.0	<2.0	<2.0	<2.0
75-27-4	Dichlorobromomethane	<2.0	<2.0	<2.0	<2.0
78-87-5	1,2-Dichloropropane	<2.0	<2.0	<2.0	<2.0
10061-01-5	cis-1,3-Dichloropropene	<2.0	<2.0	<2.0	<2.0
10061-02-6	trans-1,3-Dichloropropene	<2.0	<2.0	<2.0	<2.0
97-63-2	Ethyl methacrylate	<50	<50	<50	<50
100-41-4	Ethyl benzene	55	2.1*	120	<2.0
591-78-6	2-Hexanone	<10	<10	<10	<10
74-88-4	Iodomethane	<2.0	<2.0	<2.0	<2.0
75-09-2	Methylene chloride	<10	<10	<10	<10
78-93-3	Methyl ethyl ketone	<10	<10	<10	<10
108-10-1	4-Methyl-2-pentanone	<2.0	<2.0	<2.0	<2.0
100-42-5	Styrene	<2.0	<2.0	<2.0	<2.0
79-34-5	1,1,2,2-Tetrachloroethane	<2.0	<2.0	<2.0	<2.0
127-18-4	Tetrachloroethylene	<2.0	<2.0	<2.0	<2.0
108-88-3	Toluene	9.2*	2.1*	4.7*	<2.0
79-01-6	Trichloroethene	<2.0	<2.0	3.4*	<2.0
71-55-6	1,1,1-Trichloroethane	<2.0	<2.0	<2.0	<2.0
79-00-5	1,1,2-Trichloroethane	<2.0	<2.0	3.4*	<2.0
75-69-4	Trichlorofluoromethane	<10	<10	<10	<10
96-18-4	1,2,3-Trichloropropane	<2.0	<2.0	<2.0	<2.0
75-01-4	Vinyl chloride	<2.0	<2.0	<2.0	<2.0
108-05-4	Vinyl acetate	<2.0	<2.0	<2.0	<2.0
110-57-6	Trans1,4dichloro-2-butene	<2.0	<2.0	<2.0	<2.0
1330-20-7	Xylenes	168	12	140	<2.0

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ANNUAL SAMPLING
ANALYTICAL RESULTS FOR WATER STORED IN TANKS
POLYNUCLEAR AROMATIC HYDROCARBONS
(11/08/88)

ANALYTE:	TANK 22	TANK 27	TANK 34	TANK 35	TANK 106
PYRENE	NA	ND (0.71)	NA	NA	ND (0.71)
DIBENZO(A,H)ANTHRACENE	NA	ND (0.3)	NA	NA	ND (0.3)
BENZO(K)FLUORANTHENE	NA	ND (0.1)	NA	NA	ND (0.1)
ACENAPTHTHYLENE	NA	ND (31)	NA	NA	ND (31)
ACENAPTHENE	NA	ND (3.4)	NA	NA	ND (3.4)
FLUORANTHENE	NA	ND (0.61)	NA	NA	ND (0.61)
FLUORENE	NA	3.7 (N\R)	NA	NA	7.3 (N\R)
CHRYSENE	NA	ND (0.1)	NA	NA	ND (0.1)
NAPTHELENE	NA	6.5 (N\R)	NA	NA	9.6 (N\R)
ANTHRACENE	NA	ND (2.4)	NA	NA	ND (2.4)
BENZ(A)ANTHRACENE	NA	ND (0.4)	NA	NA	ND (0.4)
INDENO(1,2,3-CD)PYRENE	NA	ND (1.8)	NA	NA	ND (1.8)
BENZO(B)FLUORANTHENE	NA	ND (0.1)	NA	NA	ND (0.1)
PHENANTHRENE	NA	8.3 (N\R)	NA	NA	12 (N\R)
BENZO(A)PYRENE	NA	ND (0.2)	NA	NA	ND (0.2)
BENZO(GHI)PERYLENE	NA	ND (0.3)	NA	NA	ND (0.3)
1-METHYLNAPHTHALENE	NA	55 (N\R)	25 (N\R)	NA	83 (N\R)
2-METHYLNAPHTHALENE	NA	56 (N\R)	9.3 (N\R)	NA	45 (N\R)

UNITS ARE ug/L
() INDICATES DETECTION LIMITS
ND = NOT DETECTED
NA = NOT ANALYSED
N\R = NOT REPORTED

KADMAN CORPORATION

Received: 11/10/88

RAS - Austin REPORT
Results By Test

Work Order # 88-11-070

SAMPLE Sample Id	Test: CA E ug/ml	Test: CL IC mg/L	Test: DG6010 date complete	Test: F IC mg/L	Test: K E ug/ml
Influent 01 8811081414	370	680		3.8	4.6*
Effluent 02 8811081431	330	630		3.8	6.4*
Tank 35 03 8811081529		410			
Tank 22 04 8811081619		680			
Tank 27 05 8811081504	390	940	11/22/88	3.5	3.9*
Tank 34 06 8811081522	460	720		3.7	3.7*
Tank 106 07 8811081600	400	580	11/22/88	3.8	5.2*

SAMPLE Sample Id	Test: MG E ug/ml	Test: NA E ug/ml	Test: NO3 mg/L as N	Test: PHEN mg/L as phenol	Test: SO4 IC mg/L as SO4
Influent 01 8811081414	37	460			1300
Effluent 02 8811081431	34	390			1200
Tank 35 03 8811081529					640
Tank 22 04 8811081619					1200
Tank 27 05 8811081504	51	520			940

KADIAN CORPORATION

Received: 11/10/88

RAS - Austin REPORT
Results by Sample

Work Order # 88-11-070
Continued From Above

SAMPLE ID 8811081527 Tank 35 FRACTION 03A TEST CODE TDS NAME Total dissolved solids
Date & Time Collected 11/08/88 Category

INSTRMT ANALYZED 11/15/88 UNITS mg/L

ANALYTE	RESULT	DET LIMIT
Filterable Residue (TDS)	3800	6

NOTES AND DEFINITIONS FOR THIS REPORT.
DET LIMIT = DETECTION LIMIT
ND = not detected at detection limit
NA = not analyzed
* = less than 5 times the detection limit
N\A = not available

SAMPLE ID 8811081619 Tank 22 FRACTION 04A TEST CODE TDS NAME Total dissolved solids
Date & Time Collected 11/08/88 Category

VERIFIED LM

ANALYST TAM
INSTRMT ANALYZED 11/15/88 UNITS mg/L

ANALYTE	RESULT	DET LIMIT
Filterable Residue (TDS)	3800	6

NOTES AND DEFINITIONS FOR THIS REPORT.
DET LIMIT = DETECTION LIMIT
ND = not detected at detection limit
NA = not analyzed
* = less than 5 times the detection limit

ANNUAL SAMPLING
ANALYTICAL RESULTS FOR WATER STORED IN TANKS
WQCC METALS
(11/08/88)

ANALYTE:	TANK 22	TANK 27	TANK 34	TANK 35	TANK 106
SILVER	NA	NA (0.03)	NA	NA	ND (0.03)
ALUMINUM	NA	0.3 (0.20)	NA	NA	ND (0.20)
ARSENIC	NA	0.3 (0.3)	NA	NA	ND (0.30)
BORON	NA	0.71 (0.60)	NA	NA	0.64 (0.60)
BARIUM	NA	0.042 (0.01)	NA	NA	0.052 (0.01)
CALCIUM	NA	390 (1.00)	NA	NA	410 (1.00)
COBALT	NA	ND (0.01)	NA	NA	0.035 ((0.01)
CHROMIUM	NA	ND (0.03)	NA	NA	ND (0.03)
COPPER	NA	ND (0.02)	NA	NA	0.052 (0.02)
IRON	NA	5.0 (0.04)	NA	NA	7.6 (0.04)
POTASSIUM	NA	ND (3.00)	NA	NA	ND (3.0)
MAGNESIUM	NA	49 (1.00)	NA	NA	41 (1.00)
MANGANESE	NA	2.6 (0.01)	NA	NA	2.6 (0.01)
MOLYBDENUM	NA	ND (0.05)	NA	NA	ND (0.05)
SODIUM	NA	560 (1.00)	NA	NA	540 (1.00)
NICKEL	NA	0.18 (0.02)	NA	NA	0.12 (0.02)
LEAD	NA	ND (0.05)	NA	NA	ND (0.05)
SELENIUM	NA	ND (0.03)	NA	NA	ND (0.30)
ZINC	NA	ND (0.02)	NA	NA	0.26 (0.02)

Units are mg/L
ND = not detected at detection limit
NA = not analyzed
N\R = not reported

AnalyticalTechnologies,Inc.

EPA METHOD 601/602
PROJECT: M & A

SAMPLE DATE: 1/20/88
LAB RECEIPT DATE: 1/22/88
ANALYSIS DATE: 1/26/88
MATRIX: WATER
ANALYST: TMG

SAMPLE ID: 8801200830
LOCATION: TANK 37
LAB SAMPLE #: 3873-1
UNITS: ug/l
DILUTION FACTOR: 10

CONSTITUENT NAME	DETECTION LIMIT	RESULT
CHLOROMETHANE	2.0	ND
BROMOMETHANE	2.0	ND
DICHLORODIFLUOROMETHANE	2.0	ND
VINYL CHLORIDE	2.0	ND
CHLOROETHANE	2.0	ND
METHYLENE CHLORIDE	20.0	ND
TRICHLOROFLUOROMETHANE	20.0	ND
1,1-DICHLOROETHENE	2.0	ND
1,1-DICHLOROETHANE	2.0	2
TRANS-1,2-DICHLOROETHENE	2.0	3
CHLOROFORM	2.0	ND
1,2-DICHLOROETHANE	2.0	7
1,1,1-TRICHLOROETHANE	2.0	ND
CARBON TETRACHLORIDE	2.0	ND
BROMODICHLOROMETHANE	2.0	ND
1,2-DICHLOROPROPANE	2.0	ND
TRANS-1,3-DICHLOROPROPENE	2.0	ND
TRICHLOROETHENE	2.0	ND
DIBROMOCHLOROMETHANE	2.0	ND
1,1,2-TRICHLOROETHANE	2.0	ND
CIS-1,3-DICHLOROPROPENE	2.0	ND
2-CHLOROETHYLVINYL ETHER	5.0	ND
BROMOFORM	5.0	ND
1,1,2,2-TETRACHLOROETHANE	2.0	ND
TETRACHLOROETHENE	2.0	ND
BENZENE	5.0	150
TOLUENE	5.0	23
CHLOROBENZENE	5.0	ND
ETHYLBENZENE	5.0	20
1,3-DICHLOROBENZENE	5.0	ND
1,2-DICHLOROBENZENE	5.0	ND
1,4-DICHLOROBENZENE	5.0	ND
M-XYLENE	5.0	9
O,P-XYLENE	5.0	63

COMMENTS: ND = NOT DETECTED
HIGH LEVELS REQUIRED DILUTION

% SURROGATE RECOVERY
95.3% BROMOCHLOROMETHANE
77.9% BROMOFLUOROBENZENE

PROJECT MANAGER: [illegible]

DATE: 2/9/88

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GTEL
ENVIRONMENTAL LABORATORIES, INC.

Western Region
4080-C Pike Lane, Concord, CA 94520
(415) 685-7852
(800) 544-3422 *from inside California*
(800) 423-7143 *from outside California*

10/26/88 jp

CLIENT: James E. Goetz
Groundwater Technology, Inc.
3620 Wyoming NE #104
Albuquerque, NM 87111

PROJECT#: 232-799-5009-28
LOCATION: Bloomfield, NM

SAMPLED: 10/18/88 BY: J. Goetz
RECEIVED: 10/20/88 BY: K. Fillinger
ANALYZED: 10/25/88 BY: A. Mamangun
MATRIX: Sediment C. Miller
UNITS: mg/kg

TEST RESULTS

PARAMETER	MDL	LAB # I.D.#	34000A AS/SCALE			
Manganese	0.5		4100			
Magnesium	0.5		920			
Iron	0.5		90800			
Calcium	1.0		211000			

MDL = Method Detection Limit; compound below this level would not be detected.

METHOD: EPA 3050/6010

Emma Popek (S.K.)
EMMA P. POPEK, Director

8801200830

AnalyticalTechnologies,Inc.

METALS
PROJECT: M&A

SAMPLE DATE: 01/20/88

SAMPLE ID: 8801200830
TANK (37)

LAB RECEIPT DATE: 01/22/88
MATRIX: WATER

LOCATION:
LAB SAMPLE #: 3873-1
UNITS: mg/l

ANALYST	ANALYSIS DATE	CONSTITUENT NAME	DILUTION FACTOR	DETECTION LIMIT	RESULT
RC	01/27/88	ARSENIC (As)	1	0.010	ND
RC	02/01/88	BARIUM (Ba)	1	0.060	ND
RC	01/26/88	LEAD (Pb)	1	0.002	0.002
RC	01/29/88	MERCURY (Hg)	1	0.0002	ND
JH	01/28/88	SELENIUM (Se)	1	0.010	ND
JH	02/01/88	SILVER (Ag)	1	0.010	0.015

* THE LISTED DETECTION LIMITS REFLECT ANY SAMPLE DILUTION.

NOTE: ND = NOT DETECTED
NA = NOT ANALYZED

PROJECT MANAGER: R.W. DATE: 03/01/88

Inter-Mountain Laboratories, Inc.

2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

CLIENT: GBR
SITE: Tank 102
LAB NO: F3753

DATE REPORTED: 01/23/90
DATE ANALYZED: 01/12/90
DATE RECEIVED: 01/10/90
DATE COLLECTED: 01/10/90

Analysis Requested: Purgeable aromatics in water.

Parameter	Concentration	Units
Benzene	126.25 (1.0)	ug/l
Toluene	ND (1.0)	ug/l
Ethylbenzene	25.75 (1.0)	ug/l
m/p-Xylene	4.5 (1.0)	ug/l
o-Xylene	5.75 (1.0)	ug/l

Method:
8020 Aromatic Volatile Organics, SW-846, USEPA (1982).
602 Purgeable Aromatics, 40 CFR, Part 136.

(Detection limit in parenthesis.)
ND - Parameter not detected at the stated detection limit.

C. Neal Schaeffer
Senior Chemist

Inter-Mountain Laboratories, Inc.
2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

CLIENT: GBR
SITE: Tank 102
LAB NO: F3753

DATE REPORTED: 02/21/90
DATE ANALYZED: 01/17/90
DATE RECEIVED: 01/10/90
DATE COLLECTED: 01/10/90

Analysis Requested: Purgeable halocarbons in water.

Parameter	Concentration	Units
Bromobenzene	ND (10)	ug/l
Bromodichloromethane	ND (10)	ug/l
Bromoform	ND (10)	ug/l
Carbon Tetrachloride	ND (10)	ug/l
Chlorobenzene	ND (10)	ug/l
Chloroethane	ND (10)	ug/l
Chloroform	ND (10)	ug/l
Chloromethane	ND (10)	ug/l
Dibromochloromethane	ND (10)	ug/l
Dibromomethane	ND (10)	ug/l
1,2-Dichlorobenzene	ND (10)	ug/l
1,3-Dichlorobenzene	ND (10)	ug/l
1,4-Dichlorobenzene	ND (10)	ug/l
Dichlorodifluoromethane	ND (10)	ug/l
1,1-Dichloroethane	* ND (10)	ug/l
1,2-Dichloroethane	ND (10)	ug/l
1,1-Dichloroethene	ND (10)	ug/l
trans-1,2-Dichloroethene	ND (10)	ug/l
1,2-Dichloropropane	ND (10)	ug/l
1,3-Dichloropropylene	ND (10)	ug/l
2,2-Dichloropropane	ND (10)	ug/l
Dichloromethane	ND (10)	ug/l
1,1,1,2-Tetrachloroethane	ND (10)	ug/l
1,1,2,2-Tetrachloroethane	ND (10)	ug/l
Tetrachloroethene	ND (10)	ug/l
1,1,1-Trichloroethane	ND (10)	ug/l
1,1,2-Trichloroethane	ND (10)	ug/l
Trichloroethene	ND (10)	ug/l
Trichlorofluoromethane	ND (10)	ug/l
1,2,3-Trichloropropane	ND (10)	ug/l
Bromochloromethane	ND (10)	ug/l
1,2-Dibromoethane	ND (10)	ug/l
cis-1,2-Dichloroethene	ND (10)	ug/l
1,1-Dichloropropene	ND (10)	ug/l
Vinyl Chloride	ND (10)	ug/l

Method:
601 Purgeable Halocarbons, 40 CFR Part 136, USEPA (1984).
(Detection limit in parenthesis.)
ND - Parameter not detected at the stated detection limit.
* Chromatographic evidence of analyte below detection limits.

C. Neal Schaeffer
Senior Chemist
8.3.4

Inter-Mountain Laboratories, Inc.

2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

CLIENT: GBR
SITE: Tank 102
LAB NO: F3753

DATE REPORTED: 01/23/90
DATE RECEIVED: 01/10/90
DATE COLLECTED: 01/10/90

Analysis Requested: Polynuclear aromatic hydrocarbons in water.

Parameter	Concentration		Units
Acenaphthene	ND	(0.02)	mg/l
Acenaphthylene	ND	(0.02)	mg/l
Anthracene	ND	(0.02)	mg/l
Benzo(a)Anthracene	ND	(0.02)	mg/l
Benzo(a)pyrene	ND	(0.02)	mg/l
Benzo(k)fluoranthene	ND	(0.02)	mg/l
Benzo(b)fluoranthene	ND	(0.02)	mg/l
Benzo(g,h,i)perylene	0.185	(0.02)	mg/l
Dibenzo(a,h)anthracene	ND	(0.02)	mg/l
Chrysene	ND	(0.02)	mg/l
Fluoranthene	ND	(0.02)	mg/l
Fluorene	ND	(0.02)	mg/l
Indeno(1,2,3-cd)pyrene	ND	(0.02)	mg/l
Naphthalene	0.04	(0.02)	mg/l
Phenanthrene	ND	(0.02)	mg/l
Pyrene	ND	(0.02)	mg/l
Benzo(b)fluoranthene	ND	(0.02)	mg/l

Method:
8100 Polynuclear Aromatic Hydrocarbons, SW-846, USEPA (1982).
610 Polyaromatic Hydrocarbons, 40 CFR Part 136 (1984).

(Detection limit in parenthesis.)
ND - Parameter not detected at the stated detection limit.

C. Neal Schaeffer
Senior Chemist

Inter-Mountain Laboratories, Inc.

2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

CLIENT: GBR
DATE REPORTED: 01/19/90

SITE: TANK 102
LAB NO: 3753
DATE RECEIVED: 01/10/90
DATE COLLECTED: 01/10/90

Lab pH (s.u.).....	7.40
Lab Conductivity, umhos/cm.....	4994
Lab resistivity, ohm-m.....	2.0024
Total Dissolved Solids (180), mg/l..	3578
Total Dissolved Solids (calc), mg/l.	3423
Total Alkalinity as CaCO3, mg/l.....	615.23
Total Hardness as CaCO3, mg/l.....	1271.54
Sodium Absorption Ratio.....	8.34

	mg/l	meq/l
Bicarbonate as HCO3.....	750.58	12.30
Carbonate as CO3.....	0.00	0.00
Chloride.....	588.87	16.61
Sulfate.....	1292.52	26.93
Calcium.....	446.37	22.27
Magnesium.....	38.39	3.16
Potassium.....	3.84	0.10
Sodium.....	683.60	29.73
Major Cations.....		55.26
Major Anions.....		55.84
Cation/Anion Difference.....		0.52 %

Inter·Mountain Laboratories, Inc.

2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

CLIENT: GBR — DATE REPORTED: 01/19/90

SITE: TANK 102 — DATE RECEIVED: 01/10/90

LAB NO: 3753 — DATE COLLECTED: 01/10/90

Trace metals by AA (Dissolved Concentration), mg/l

	Analytical Result:	Detection Limit:
Arsenic (As).....	0.0009	<0.0003
Lead (Pb).....	0.012	<0.004
Selenium (Se).....	0.0004	<0.0002

Trace metals by ICAP (Dissolved Concentration), mg/l

	Analytical Result:	Detection Limit:
Silver (Ag).....	ND	<0.05
Aluminum (Al).....	ND	<0.1
Boron (B).....	0.5	<0.01
Barium (Ba).....	ND	<0.5
Cobalt (Co).....	0.04	<0.02
Chromium (Cr).....	ND	<0.02
Copper (Cu).....	ND	<0.01
Iron (Fe).....	4.54	<0.05
Manganese (Mn).....	1.75	<0.02
Molybdenum (Mo).....	ND	<0.02
Nickel (Ni).....	0.13	<0.01
Zinc (Zn).....	0.04	<0.01

C. Neal Schaeffer
Lab Director

RADIAN CORPORATION

Client: GEOSCIENCE CONSULTANTS, LTD.
500 COPPER N.W.; SUITE 200
ALBUQUERQUE, NM 87102

01B 8811081414
02B 8811081431
03B 8811081504
04B 8811081600

EPA METHOD 8240

Lab No: A8-11-046

RESULTS IN ug/L

CAS #	COMPOUND	Influent 01B	02B Effluent	Tank 27 03B	04B Tank 106
67-64-1	Acetone	<25	<25	<25	<25
107-02-8	Acrolein	<75	<75	<75	<75
107-13-1	Acrylonitrile	<30	<30	<30	<30
71-43-2	Benzene	520	<2.0	72	180
75-25-2	Bromoform	<2.0	<2.0	<2.0	<2.0
74-83-9	Bromomethane	<2.0	<2.0	<2.0	<2.0
124-48-1	Chlorodibromomethane	<2.0	<2.0	<2.0	<2.0
75-00-3	Chloroethane	<2.0	<2.0	<2.0	<2.0
108-90-7	Chlorobenzene	<2.0	<2.0	<2.0	<2.0
75-15-0	Carbon Disulfide	<2.0	<2.0	<2.0	<2.0
56-23-5	Carbon Tetrachloride	<2.0	<2.0	<2.0	<2.0
67-66-3	Chloroform	<2.0	<2.0	3.0*	<2.0
74-87-3	Chloromethane	<2.0	<2.0	<2.0	<2.0
110-75-8	2-Chloroethyl vinyl ether	<2.0	<2.0	<2.0	<2.0
74-95-3	Dibromomethane	<2.0	<2.0	<2.0	<2.0
75-71-8	Dichlorodifluoromethane	<2.0	<2.0	<2.0	<2.0
75-34-3	1,1-Dichloroethane	<2.0	<2.0	5.7*	2.9*
107-06-2	1,2-Dichloroethane	<2.0	<2.0	8.3*	<2.0
156-60-5	trans-1,2-Dichloroethene	<2.0	<2.0	<2.0	<2.0
75-35-4	1,1-Dichloroethene	<2.0	<2.0	<2.0	<2.0
75-27-4	Dichlorobromomethane	<2.0	<2.0	<2.0	<2.0
78-87-5	1,2-Dichloropropane	<2.0	<2.0	<2.0	<2.0
10061-01-5	cis-1,3-Dichloropropene	<2.0	<2.0	<2.0	<2.0
10061-02-6	trans-1,3-Dichloropropene	<2.0	<2.0	<2.0	<2.0
97-63-2	Ethyl methacrylate	<50	<50	<50	<50
100-41-4	Ethyl benzene	68	<2.0	<2.0	<2.0
591-78-6	2-Hexanone	<10	<10	<10	<10
74-88-4	Iodomethane	<2.0	<2.0	<2.0	<2.0
75-09-2	Methylene chloride	<10	<10	<10	<10
78-93-3	Methyl ethyl ketone	<10	<10	<10	<10
108-10-1	4-Methyl-2-pentanone	<2.0	<2.0	<2.0	<2.0
100-42-5	Styrene	<2.0	<2.0	<2.0	<2.0
79-34-5	1,1,2,2-Tetrachloroethane	<2.0	<2.0	<2.0	<2.0
127-18-4	Tetrachloroethylene	<2.0	<2.0	<2.0	<2.0
108-88-3	Toluene	5.4*	<2.0	3.9*	<2.0
79-01-6	Trichloroethene	3.2*	<2.0	2.6*	<2.0
71-55-6	1,1,1-Trichloroethane	<2.0	<2.0	<2.0	<2.0
79-00-5	1,1,2-Trichloroethane	<2.0	<2.0	<2.0	<2.0
75-69-4	Trichlorofluoromethane	<10	<10	<10	<10
96-18-4	1,2,3-Trichloropropane	<2.0	<2.0	<2.0	<2.0
75-01-4	Vinyl chloride	<2.0	<2.0	<2.0	<2.0
108-05-4	Vinyl acetate	<2.0	<2.0	<2.0	<2.0
110-57-6	Transl,4dichloro-2-butene	<2.0	<2.0	<2.0	<2.0
1330-20-7	Xylenes	310	6.6*	11	190

(160)

RADIAN CORPORATION

Client: GEOSCIENCE CONSULTANTS, LTD.
500 COPPER N.W.; SUITE 200
ALBUQUERQUE, NM 87102

04G 8811081600 DUPLICATE
05A 8811081522
10A REAGENT BLANK

EPA METHOD 8310

Lab No: A8-11-046

RESULTS IN ug/L

CAS #	COMPOUND	04G	05A	10A
208-96-8	Acenaphthylene	<31	<31	<0.30
83-32-9	Acenaphthene	<3.4	<3.5	<0.034
120-12-7	Anthracene	<2.4	<2.5	<0.024
56-55-3	Benz(a)anthracene	<0.40	<0.41	<0.004
50-32-8	Benzo(a)pyrene	<0.20	<0.21	<0.002
205-99-2	Benzo(b)fluoranthene	<0.10	<0.10	<0.001
191-24-2	Benzo(ghi)perylene	<0.30	<0.31	<0.003
207-08-9	Benzo(k)fluoranthene	<0.10	<0.10	<0.001
218-01-9	Chrysene	<0.10	<0.10	<0.001
53-70-3	Dibenzo(a,h)anthracene	<0.30	<0.31	<0.003
206-44-0	Fluoranthene	<0.61	<0.62	<0.006
86-73-7	Fluorene	8.1 *	7.2 *	<0.029
193-39-5	Indeno(1,2,3-cd)pyrene	<1.8	<1.9	<0.018
91-20-3	Naphthalene	13	25	<0.014
85-01-8	Phenanthrene	15 *	15 *	<0.051
129-00-0	Pyrene	<0.71	<0.72	<0.007

Tank 34

SURROGATE RECOVERIES (results in % recovery)

Terphenyl-D14	D	D	90

NOTES AND DEFINITIONS FOR THIS REPORT.
QC = OUTSIDE CONTROL LIMITS.
* = LESS THAN 5 TIMES THE DETECTION LIMIT.
B = DETECTED IN REAGENT BLANK; BACKGROUND SUBTRACTION NOT PERFORMED.
ND = NOT DETECTED AT DETECTION LIMIT.
D = NOT QUANTITATED DUE TO DILUTION.
NA = NOT ANALYZED.
N\A = NOT AVAILABLE.
NS = NOT SPIKED.

(180)

RADIAN
CORPORATION

Client: GEOSCIENCE CONSULTANTS, LTD.
500 COPPER N.W.; SUITE 200
ALBUQUERQUE, NM 87102

01A 8811081414
02A 8811081431
03A 8811081504
04A 8811081600

EPA METHOD 8310

Lab No: A8-11-046

RESULTS IN ug/L

CAS #	COMPOUND	Influent 01A	02A Effluent	Tank 27 03A	04A Tank 106
208-96-8	Acenaphthylene	<31	<31	<31	<31
83-32-9	Acenaphthene	<3.4	<3.4	<3.4	<3.4
120-12-7	Anthracene	<2.4	<2.4	<2.4	<2.4
56-55-3	Benz(a)anthracene	<0.40	<0.40	<0.40	<0.40
50-32-8	Benzo(a)pyrene	<0.20	<0.20	<0.20	<0.20
205-99-2	Benzo(b)fluoranthene	<0.10	<0.10	<0.10	<0.10
191-24-2	Benzo(ghi)perylene	<0.30	<0.30	<0.30	<0.30
207-08-9	Benzo(k)fluoranthene	<0.10	<0.10	<0.10	<0.10
218-01-9	Chrysene	<0.10	<0.10	<0.10	<0.10
53-70-3	Dibenzo(a,h)anthracene	<0.30	<0.30	<0.30	<0.30
206-44-0	Fluoranthene	<0.61	<0.61	<0.61	<0.61
86-73-7	Fluorene	18	20	3.7 *	7.3 *
193-39-5	Indeno(1,2,3-cd)pyrene	<1.8	<1.8	<1.8	<1.8
91-20-3	Naphthalene	114	80	6.5 *	9.6
85-01-8	Phenanthrene	49	63	8.3 *	12 *
129-00-0	Pyrene	<0.71	<0.71	<0.71	<0.71

SURROGATE RECOVERIES (results in % recovery)

Terphenyl-D14	D	D	D	D

NOTES AND DEFINITIONS FOR THIS REPORT.
QC = OUTSIDE CONTROL LIMITS.
* = LESS THAN 5 TIMES THE DETECTION LIMIT.
B = DETECTED IN REAGENT BLANK; BACKGROUND SUBTRACTION NOT PERFORMED.
ND = NOT DETECTED AT DETECTION LIMIT.
D = NOT QUANTITATED DUE TO DILUTION.
NA = NOT ANALYZED.
N\A = NOT AVAILABLE.
NS = NOT SPIKED.

RADIAN CORPORATION

Client: GEOSCIENCE CONSULTANTS, LTD.
500 COPPER N.W.; SUITE 200
ALBUQUERQUE, NM 87102

03D 8811081504
04D 8811081600
04E 8811081600 DUPLICATE
05D 8811081522

EPA METHOD 8100

Lab No: A8-11-046

RESULTS IN ug/L

CAS #	COMPOUND	03D Tank 27	04D Tank 106	04E Tank 106	05D Tank 34
90-12-0	1-Methylnaphthalene	55	83	82	25
91-57-6	2-Methylnaphthalene	56	45	44	9.3 *

SURROGATE RECOVERIES (results in % recovery)				
2-Fluorobiphenyl	100	129	129	124

NOTES AND DEFINITIONS FOR THIS REPORT.
QC = OUTSIDE CONTROL LIMITS.
* = LESS THAN 5 TIMES THE DETECTION LIMIT.
B = DETECTED IN REAGENT BLANK; BACKGROUND SUBTRACTION NOT PERFORMED.
ND = NOT DETECTED AT DETECTION LIMIT.
NA = NOT ANALYZED.
N\A = NOT AVAILABLE.
NS = NOT SPIKED.

ANNUAL SAMPLING
ANALYTICAL RESULTS FOR WATER STORED IN TANKS
POLYNUCLEAR AROMATIC HYDROCARBONS
(11/08/88)

ANALYTE:	TANK 22	TANK 27	TANK 34	TANK 35	TANK 106
PYRENE	NA	ND (0.71)	NA	NA	ND (0.71)
DIBENZO(A,H)ANTHRACENE	NA	ND (0.3)	NA	NA	ND (0.3)
BENZO(K)FLUORANTHENE	NA	ND (0.1)	NA	NA	ND (0.1)
ACENAPTHTHYLENE	NA	ND (31)	NA	NA	ND (31)
ACENAPTHENE	NA	ND (3.4)	NA	NA	ND (3.4)
FLUORANTHENE	NA	ND (0.61)	NA	NA	ND (0.61)
FLUORENE	NA	3.7 (N\R)	NA	NA	7.3 (N\R)
CHRYSENE	NA	ND (0.1)	NA	NA	ND (0.1)
NAPTHELENE	NA	6.5 (N\R)	NA	NA	9.6 (N\R)
ANTHRACENE	NA	ND (2.4)	NA	NA	ND (2.4)
BENZ(A)ANTHRACENE	NA	ND (0.4)	NA	NA	ND (0.4)
INDENO(1,2,3-CD)PYRENE	NA	ND (1.8)	NA	NA	ND (1.8)
BENZO(B)FLUORANTHENE	NA	ND (0.1)	NA	NA	ND (0.1)
PHENANTHRENE	NA	8.3 (N\R)	NA	NA	12 (N\R)
BENZO(A)PYRENE	NA	ND (0.2)	NA	NA	ND (0.2)
BENZO(GHI)PERYLENE	NA	ND (0.3)	NA	NA	ND (0.3)
1-METHYLNAPHTHALENE	NA	55 (N\R)	25 (N\R)	NA	83 (N\R)
2-METHYLNAPHTHALENE	NA	56 (N\R)	9.3 (N\R)	NA	45 (N\R)

UNITS ARE ug/L
() INDICATES DETECTION LIMITS
ND = NOT DETECTED
NA = NOT ANALYSED
N\R = NOT REPORTED

KADMAN CORPORATION

Received: 11/10/88

RAS - Austin REPORT

Results By Test

Work Order # 88-11-070

SAMPLE Sample Id	Test: CA E ug/ml	Test: CL IC mg/L	Test: DG6010 date complete	Test: F IC mg/L	Test: K E ug/ml
Influent 01 8811081414	370	680		3.8	4.6*
Effluent 02 8811081431	330	630		3.8	6.4*
Tank 35 03 8811081529		410			
Tank 22 04 8811081619		680			
Tank 27 05 8811081504	390	940	11/22/88	3.5	3.9*
Tank 34 06 8811081522	460	720		3.7	3.7*
Tank 106 07 8811081600	400	580	11/22/88	3.8	5.2*

SAMPLE Sample Id	Test: MG E ug/ml	Test: NA E ug/ml	Test: NO3 mg/L as N	Test: PHEN mg/L as phenol	Test: SO4 IC mg/L as SO4
Influent 01 8811081414	37	460			1300
Effluent 02 8811081431	34	390			1200
Tank 35 03 8811081529					640
Tank 22 04 8811081619					1200
Tank 27 05 8811081504	51	520			940

KADIMAN CORPORATION

Received: 11/10/88

RAS - Austin REPORT
Results By Test

Work Order # 88-11-070
Continued From Above

SAMPLE Sample Id	Test: MG E ug/ml	Test: NA E ug/ml	Test: NO3 mg/L as N	Test: PHEN mg/L as phenol	Test: SO4 IC mg/L as SO4
Tank 34 06 8811081522	48	600	0.32	0.060	1400
Tank 106 07 8811081600	43	470	1.4	0.021*	1400

RAS - Austin REPORT

Work Order # 88-11-070

Received: 11/10/88

Results by Sample

SAMPLE ID 8811081522 Tank 34 FRACTION 06A TEST CODE TDS NAME Total dissolved solids

Date & Time Collected 11/08/88 Category

VERIFIED LM

ANALYST TAM

INSTRMT

ANALYZED 11/15/88

UNITS mg/L

ANALYTE	RESULT	DET LIMIT
Filterable Residue (TDS)	3900	6

NOTES AND DEFINITIONS FOR THIS REPORT.

DET LIMIT = DETECTION LIMIT
ND = not detected at detection limit
NA = not analyzed
* = less than 5 times the detection limit
N\A = not available

SAMPLE ID 8811081600 Tank 106 FRACTION 07A TEST CODE ALKAL NAME Component alkalinities

Date & Time Collected 11/08/88 Category

VERIFIED LM

ANALYST TAM

INSTRMT 636

ANALYZED 11/21/88

1 UNITS mg/L as CaCO3

ANALYTE	RESULT	DET LIMIT
Total Alkalinity	480	1
Hydroxide	ND	1

RADIAN CORPORATION

RAS - Austin REPORT

Work Order # 88-11-070

Received: 11/10/88

Results by Sample

SAMPLE ID 8811081600 Jan 1/06 FRACTION O/A TEST CODE TDS NAME Total dissolved solids

Date & Time Collected 11/08/88 Category

VERIFIED LM

ANALYST TAM

INSTRMT

ANALYZED 11/13/88

UNITS mg/L

ANALYTE	RESULT	DET LIMIT
Filterable Residue (TDS)	3700	6

NOTES AND DEFINITIONS FOR THIS REPORT.

DET LIMIT = DETECTION LIMIT
ND = not detected at detection limit
NA = not analyzed
* = less than 5 times the detection limit
N\A = not available

KAUFMAN CORPORATION

Received: 11/10/88

RAS - Austin REPORT
Results by Sample

Work Order # 88-11-070
Continued From Above

SAMPLE ID 8811081600 Tank 106 FRACTION 07A TEST CODE ALKAL NAME Component alkalinities
Date & Time Collected 11/08/88 Category

Carbonate	ND	1
Bicarbonate	480	1

NOTES AND DEFINITIONS FOR THIS REPORT.
DET LIMIT = DETECTION LIMIT
ND = not detected at detection limit
NA = not analyzed
* = less than 5 times the detection limit
N\A = not available

SAMPLE ID 8811081600 Tank 106 FRACTION 07B TEST CODE CN TOT NAME Total cyanide
Date & Time Collected 11/08/88 Category

VERIFIED LM

ANALYST MJS
INSTRMT TECH 2 ANALYZED 11/17/88 UNITS mg/L

ANALYTE	RESULT	DET LIMIT
Total Cyanide	ND	0.010

NOTES AND DEFINITIONS FOR THIS REPORT.
DET LIMIT = DETECTION LIMIT
ND = not detected at detection limit
NA = not analyzed
* = less than 5 times the detection limit
N\A = not available

KADIAN CORPORATION

RAS - Austin REPORT

Work Order # 88-11-070

Received: 11/10/88

Results by Sample

SAMPLE ID 8811081600 Test 106 ; FRACTION 07D TEST CODE HG C NAME Mercury, cold vapor

Date & Time Collected 11/08/88 Category

VERIFIED RHH

ANALYST KCP

INSTRMT 403 ANALYZED 11/22/88 UNITS ug/ml

ANALYTE	RESULT	DET LIMIT
Mercury	ND	0.0002

NOTES AND DEFINITIONS FOR THIS REPORT.

DET LIMIT = DETECTION LIMIT
ND = not detected at detection limit
NA = not analyzed
* = less than 5 times the detection limit
N\A = not available

KADIAN CORPORATION

RAS - Austin REPORT

Work Order # 88-11-070

Received: 11/10/88

Results by Sample

SAMPLE ID 8811081600 Tank 106 FRACTION O/D TEST CODE ICP200 NAME ICPES, EPA 200.7 elements

Date & Time Collected 11/08/88 Category

ANALYST DMC

VERIFIED RHH

UNITS ug/ml

CODE	METAL	RESULT	DET LIMIT	CODE	METAL	RESULT	DET LIMIT
Ag	Silver	ND	0.03	Mg	Magnesium	41	1
Al	Aluminum	ND	0.2	Mn	Manganese	2.6	0.01
As	Arsenic	ND	0.3	Mo	Molybdenum	ND	0.05
B	Boron	0.64*	0.6	Na	Sodium	540	1
Ba	Barium	0.052	0.01	Ni	Nickel	0.12	0.02
Be	Beryllium	ND	0.002	Pb	Lead	ND	0.05
Ca	Calcium	410	1	Sb	Antimony	ND	0.2
Cd	Cadmium	ND	0.005	Se	Selenium	ND	0.3
Co	Cobalt	0.035*	0.01	Si	Silicon	7.5	1
Cr	Chromium	ND	0.03	Tl	Thallium	ND	0.1
Cu	Copper	0.052*	0.02	V	Vanadium	ND	0.02
Fe	Iron	7.6	0.04	Zn	Zinc	0.26	0.02
K	Potassium	ND	3				

KAUFMAN CORPORATION

RAS Sacramento REPORT Work Order # 89-vd-192

Received: 08/18/89 Results by Sample

SAMPLE ID 8908171333 H2O-Rainbow Spring FRACTION 03C TEST CODE 602B NAME Purgeable Aromatics - H2O

Date & Time Collected 08/17/89 Category

ORGANICS ANALYSIS DATA SHEET - PURGEABLE AROMATICS (1)

ANALYST TBJ FILE # E4088211 VERIFIED JD

INSTRMT 4 INJECTD 08/22/89 FACTOR 100 UNITS ug/L

CAS#	COMPOUND	RESULT	DET LIMIT	FACTOR
71-43-2	Benzene	2900 C	10	100
108-88-3	Toluene	400 C	30	100
100-41-4	Ethylbenzene	700 C	10	100
108-90-7	Chlorobenzene	ND	10	100
1330-20-7	Total Xylenes	4400 C	20	100
106-46-7	1,4-Dichlorobenzene	ND	20	100
541-73-1	1,3-Dichlorobenzene	ND	40	100
95-50-1	1,2-Dichlorobenzene	ND	20	100

SURROGATE

460-00-4 1-Bromo-4-Fluorobenzene 94% recovery

(1) See Appendix A for Glossary of Report and Data Flag Definitions

Received: 08/18/89

RAS Sacramento REPORT
Results by Sample

Work Order # S9-v8-192

SAMPLE ID 8908171333 H2O Rainbow Spring FRACTION 03A TEST CODE 601 NAME Purgeable Halocarbons H2O
Date & Time Collected 08/17/89 Category

ORGANICS ANALYSIS DATA SHEET - PURGEABLE HALOCARBONS (1)

ANALYST TBJ
INSTRMT 4
INJECTD 08/22/89
FILE # D4082211
FACTOR 100
VERIFIED JD
UNITS ug/L

CAS#	COMPOUND	RESULT	DET LIMIT	FACTOR
74-87-3	Chloromethane	ND	50	100
74-83-9	Bromomethane	ND	100	100
75-01-4	Vinyl Chloride	ND	20	100
75-00-3	Chloroethane	ND	50	100
75-09-2	Methylene Chloride	ND	40	100
75-69-4	Trichlorofluoromethane	ND	10	100
75-35-4	1,1-Dichloroethene	ND	10	100
75-34-3	1,1-Dichloroethane	ND	10	100
540-59-0	Total 1,2-Dichloroethene (2)	ND	10	100
67-66-3	Chloroform	ND	10	100
107-06-2	1,2-Dichloroethane	ND	10	100
71-55-6	1,1,1-Trichloroethane	ND	20	100
56-23-5	Carbon Tetrachloride	ND	20	100
75-27-4	Bromodichloromethane	ND	10	100
78-87-5	1,2-Dichloropropane	ND	10	100
10061-01-5	cis-1,3-Dichloropropene	ND	40	100
79-01-6	Trichloroethene	ND	20	100
124-48-1	Dibromochloromethane (3)	ND	20	100
79-00-5	1,1,2-Trichloroethane (3)	ND	20	100
10061-02-6	trans-1,3-Dichloropropene (3)	ND	40	100
110-75-8	2-Chloroethylvinyl Ether	ND	200	100
75-25-2	Bromoform	ND	200	100
79-34-5	1,1,2,2-Tetrachloroethane (4)	ND	20	100
127-18-4	Tetrachloroethene (4)	ND	10	100
108-90-7	Chlorobenzene	ND	20	100
541-73-1	1,3-Dichlorobenzene	ND	50	100
95-50-1	1,2-Dichlorobenzene	ND	20	100
106-46-7	1,4-Dichlorobenzene	ND	20	100

Received: 08/18/89

RAS Sacramento REPORT
Results by Sample

Work Order # S9-08-192
Continued From Above

SAMPLE ID 8908171333 H2O-Rainbow Spring FRACTION 03A TEST CODE 601 NAME Purgeable Halocarbons H2O
Date & Time Collected 08/17/89 Category

SURROGATES

540-36-3	1-4-Difluorobenzene	NA	% Recovery
460-00-4	1-Bromo-4-Fluorobenzene	103	% Recovery

(1) See Appendix A for Glossary of Report and Data Flag Definitions
(2) Quantitated as the Trans-isomer
(3) Dibromochloromethane, 1,1,2-Trichloroethane and Trans-1,3-dichloropropene co-elute.
(4) 1,1,2,2-Tetrachloroethane and tetrachloroethene co-elute.

Geoscience Consultants, Ltd.
Radian Work Order: 89-08-259

Method: SW8310 PAH's by HPLC (1) List:	Influent	Effluent	Rainbow Spring	
Sample ID:	8908171304	8908171316	8908171333	REAGENT BLANK
Factor:	10	10	10	10
Results in:	ug/L	ug/L	ug/L	ug/L
	01A	02A	03A	04A
Matrix:	water	water	water	water
Acenaphthalene	<23	<23	<23	<23
Acenaphthene	<18	<18	<18	<18
Anthracene	<6.6	<6.6	<6.6	<6.6
Benzo(a)anthracene	<0.13	<0.13	<0.13	<0.13
Benzo(a)pyrene	<0.23	<0.23	<0.23	<0.23
Benzo(b)fluoranthene	<0.18	<0.18	<0.18	<0.18
Benzo(g,h,i)perylene	<0.76	<0.76	<0.76	<0.76
Benzo(k)fluoranthene	<0.17	<0.17	<0.17	<0.17
Chrysene	<0.13	<0.13	<0.13	<0.13
Dibenzo(a,h)anthracene	<0.30	<0.30	<0.30	<0.30
Fluoranthene	<2.1	<2.1	<2.1	<2.1
Fluorene	4*	4*	<2.1	<2.1
Indeno(1,2,3-cd)pyrene	<0.43	<0.43	<0.43	<0.43
Naphthalene	250	27*	310	<18
Phenanthrene	43	42	<6.4	<6.4
Pyrene	<2.7	<2.7	<2.7	<2.7
Surrogate Recovery(%)				
Terphenyl-d14	134	138	102	132

Control Limits: 37 to 139

* Est. result less than 5 times detection limit

(1) For a detailed description of flags and technical terms in this report refer to Appendix A in this report.

Analytical Data Summary

Geoscience Consultants, Ltd.
Radian Work Order: 89-08-243

Method/Analyte	Influent 8908171304		Effluent 8908171316		Sample Identifications Rainbow Spring 8908171333	
Matrix	01 water		02 water		03 water	
alcium by ICPES						
Calcium	4200	mg/L	160	mg/L	160	mg/L
Chloride, by IC						
Chloride	620	mg/L	670	mg/L	69	mg/L
agnesium by ICPES						
Magnesium	430	mg/L	26	mg/L	25	mg/L
onductivity						
Conductivity	4800	umhos/cm	4800	umhos/cm	1600	umhos/cm
Sodium by ICPES						
Sodium	6000	mg/L	160	mg/L	160	mg/L
ulfate						
Sulfate	1300	mg/L	1300	mg/L	14000	mg/L
Total dissolved solids						
Total dissolved solids	3500	mg/L	3700	mg/L	1100	mg/L

Q Outside control limits

For a detailed description of flags and technical terms in this report refer to the glossary.

Geoscience Consultants, Ltd.
Radian Work Order: 89-08-243

Method:Alkalinity components (1) List:	Influent	Effluent	Rainbow Spring
Sample ID:	8908171304	8908171316	8908171333
Factor:	1	1	1
Results in:	mg/L	mg/L	mg/L
	01A	02A	03A
Matrix:	water	water	water
Bicarbonate	499	479	853
Carbonate	<1.0	<1.0	<1.0
Total alkalinity	499	479	853

(1) For a detailed description of flags and technical terms in this report refer to Appendix A in this report.

SCIENTIFIC LABORATORY DIVISION
ORGANIC ANALYSIS REQUEST FORM
Organic Section - Phone: 841-2570

AUG 19 1988 OIL CONSERVATION DIVISION

88-0848-C

REPORT TO: DAVID BOYER
N.M. OIL CONSERVATION DIVISION
P.O. Box 2088
Santa Fe, NM 87504-2088

S.L.D. No. OR
DATE REC. 6/10/88
PRIORITY 3
PHONE(S): 827-5812

WPU 754

COLLECTION CITY: Bloomfield ; COUNTY: San Juan

COLLECTION DATE/TIME CODE: (Year-Month-Day-Hour-Minute) 8 8 0 6 0 8 1 2 1 0

LOCATION CODE: (Township-Range-Section-Tracts) 2 9 W + 1 2 W + 2 7 + 1 1 3 (10N06E24342)

USER CODE: 8 2 2 3 5 SUBMITTER: David Boyer CODE: 2 6 0

SAMPLE TYPE: WATER [X], SOIL [ ], FOOD [ ], OTHER:

This form accompanies 2 Septum Vials, ____ Glass Jugs, and/or ____

Samples were preserved as follows:

- [ ] NP: No Preservation; Sample stored at room temperature.
- [X] P-Ice Sample stored in an ice bath (Not Frozen).
- [ ] P-AA Sample Preserved with Ascorbic Acid to remove chlorine residual.
- [X] P-HCl Sample Preserved with Hydrochloric Acid (2 drops/40 ml)

ANALYSES REQUESTED: Please check the appropriate box(es) below to indicate the type of analytical screens required. Whenever possible list specific compounds suspected or required.

PURGEABLE SCREENS

- [ ] (753) Aliphatic Headspace (1-5 Carbons)
- [X] (754) Aromatic & Halogenated Purgeables
- [ ] (765) Mass Spectrometer Purgeables
- [ ] (766) Trihalomethanes
- [ ] (774) SDWA VOC's I (8 Regulated +)
- [ ] (775) SDWA VOC's II (EDB & DBCP)

Other Specific Compounds or Classes

- [ ] ____
- [ ] ____

EXTRACTABLE SCREENS

- [ ] (751) Aliphatic Hydrocarbons
- [ ] (755) Base/Neutral Extractables
- [ ] (758) Herbicides, Chlorophenoxy acid
- [ ] (759) Herbicides, Triazines
- [ ] (760) Organochlorine Pesticides
- [ ] (761) Organophosphate Pesticides
- [ ] (767) Polychlorinated Biphenyls (PCB's)
- [ ] (764) Polynuclear Aromatic Hydrocarbons
- [ ] (762) SDWA Pesticides & Herbicides

Remarks: ____

FIELD DATA:

pH= 7 ; Conductivity= 1650 umho/cm at 26 °C; Chlorine Residual= ____ mg/l

Dissolved Oxygen= ____ mg/l; Alkalinity= ____ mg/l; Flow Rate 330 ml/min

Depth to water ____ ft.; Depth of well ____ ft.; Perforation Interval ____ - ____ ft.; Casing: ____

Sampling Location, Methods and Remarks (i.e. odors, etc.)

Giant Bloomfield West Seep ("Rainbow Spring") pipe
Foamy, ~~No~~ odor Hydrocarbon

I certify that the results in this block accurately reflect the results of my field analyses, observations and activities.(signature collector): David B Boyer Method of Shipment to the Lab: State Car

CHAIN OF CUSTODY

I certify that this sample was transferred from David Boyer to Gary C. Ellis

at (location) SLD-ALB on 6/9/88 - ____ : ____ and that

the statements in this block are correct. Evidentiary Seals: Not Sealed [ ] OR Seals Intact: Yes [X] No [ ]

Signatures D B Boyer Gary C. Ellis

For OCD use: Date owner notified: 8/19/88 Phone or Letter? Initials RB

ANALYSES PERFORMED

LAB. No.: OR- 848

THIS PAGE FOR LABORATORY RESULTS ONLY

This sample was tested using the analytical screening method(s) checked below:

PURGEABLE SCREENS

- [ ] (753) Aliphatic Headspace (1-5 Carbons)
- [ ] (754) Aromatic & Halogenated Purgeables
- [ ] (765) Mass Spectrometer Purgeables
- [ ] (766) Trihalomethanes
- [ ] (774) SDWA VOC's I (8 Regulated +)
- [ ] (775) SDWA VOC's II (EDB & DBCP)

Other Specific Compounds or Classes

- [ ] _____
- [ ] _____

EXTRACTABLE SCREENS

- [ ] (751) Aliphatic Hydrocarbons
- [ ] (755) Base/Neutral Extractables
- [ ] (758) Herbicides, Chlorophenoxy acid
- [ ] (759) Herbicides, Triazines
- [ ] (760) Organochlorine Pesticides
- [ ] (761) Organophosphate Pesticides
- [ ] (767) Polychlorinated Biphenyls (PCB's)
- [ ] (764) Polynuclear Aromatic Hydrocarbons
- [ ] (762) SDWA Pesticides & Herbicides

ANALYTICAL RESULTS

COMPOUND(S) DETECTED	CONC. [PPB]	COMPOUND(S) DETECTED	CONC. [PPB]
aromatic purgeables			
benzene	1600		
toluene	45		
ethylbenzene	N.D.		
p + m - xylene	2140		
o-xylene	1025		
halogenated purgeables	N.D.		
* DETECTION LIMIT * *	12.5 ppb	+ DETECTION LIMIT + +	

ABBREVIATIONS USED:

N D = NONE DETECTED AT OR ABOVE THE STATED DETECTION LIMIT
T R = DETECTED AT A LEVEL BELOW THE STATED DETECTION LIMIT (NOT CONFIRMED)
[RESULTS IN BRACKETS] ARE UNCONFIRMED AND/OR WITH APPROXIMATE QUANTITATION

LABORATORY REMARKS: _____

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Not Sealed [ ] Intact: Yes [✓] No [ ]. Seal(s) broken by: Mary C. Eden date: 6/14/88

I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: 6/14/88. Analyst's signature: Mary C. Eden

I certify that I have reviewed and concur with the analytical results for this sample and with the statements in this block.

Reviewers signature: R Meyerhen

87-0691-C

wpH
754

SCIENTIFIC LABORATORY DIVISION

700 Camino de Salud NE
Albuquerque, NM 87106 841-2570

STATE OF NEW MEXICO
HEALTH & ENVIRONMENT

REPORT TO: David Boyer
N.M. Oil Conservation Division
P. O. Box 2088
Santa Fe, N.M. 87504-2088

S.L.D. No. OR- 691
DATE REC. 4-27-87
PRIORITY

PHONE(S): 827-5812
USER CODE: 8 2 2 3 5
SUBMITTER: David Boyer
CODE: 2 6 0

SAMPLE COLLECTION CODE: (YYMMDDHHMMIII) 8 7 0 4 2 3 1 0 4 5 DB

SAMPLE TYPE: WATER [X], SOIL [ ], FOOD [ ], OTHER: _____ CODE: ___

COUNTY: San Juan ; CITY: Bloomfield CODE: ___

LOCATION CODE: (Township-Range-Section-Tracts) 2 9 N + 1 2 W + 1 7 + ___ (10N06E24342)

ANALYSES REQUESTED: Please check the appropriate box(es) below to indicate the type of analytical screens required. Whenever possible list specific compounds suspected or required.

PURGEABLE SCREENS

- [ ] (753) Aliphatic Purgeables (1-3 Carbons)
- [X] (754) Aromatic & Halogenated Purgeables
- [ ] (765) Mass Spectrometer Purgeables
- [ ] (766) Trihalomethanes

Other Specific Compounds or Classes

- [ ] _____
- [ ] _____
- [ ] _____
- [ ] _____
- [ ] _____

EXTRACTABLE SCREENS

- [ ] (751) Aliphatic Hydrocarbons
- [ ] (760) Organochlorine Pesticides
- [ ] (755) Base/Neutral Extractables
- [ ] (758) Herbicides, Chlorophenoxy acid
- [ ] (759) Herbicides, Triazines
- [ ] (760) Organochlorine Pesticides
- [ ] (761) Organophosphate Pesticides
- [ ] (767) Polychlorinated Biphenyls (PCB's)
- [ ] (764) Polynuclear Aromatic Hydrocarbons
- [ ] (762) SDWA Pesticides & Herbicides

Remarks: Grant "Rainbow Springs" (Old Burn Pit Seep) Bloomfield Ref.

FIELD DATA:

pH= 2.0 Strip; Conductivity= 1360 umho/cm at 15.5 °C; Chlorine Residual= _____ mg/l

Dissolved Oxygen= _____ mg/l; Alkalinity= _____ mg/l; Flow Rate _____ ___/___

Depth to water _____ ft.; Depth of well _____ ft.; Perforation Interval ___-___ ft.; Casing: _____

Sampling Location, Methods and Remarks (i.e. odors, etc.)

Pipe to from stock tank, Foamy, Strong HC odor
Flow 1000 ml in 80 seconds

I certify that the results in this block accurately reflect the results of my field analyses, observations and activities.(signature collector): [signature] Method of Shipment to the Lab: Hand carried

This form accompanies 2 Septum Vials, ___ Glass Jugs, and/or ___ _____

Samples were preserved as follows:

- [ ] NP: No Preservation; Sample stored at room temperature.
- [X] P-Ice Sample stored in an ice bath (Not Frozen).
- [X] P-$Na_2S_2O_3$ Sample Preserved with Sodium Thiosulfate to remove chlorine residual.

CHAIN OF CUSTODY

I certify that this sample was transferred from _____ to _____

at (location) _____ on ___/___/___ - ___:___ and that

the statements in this block are correct. Evidentiary Seals: Not Sealed [ ] Seals Intact: Yes [ ] No [ ]

Signatures _____ _____

For OCD Use: Date Owner Notified _____ Phone or Letter? _____ Initials _____

ANALYSES PERFORMED

LAB. No.: OR- 691

THIS PAGE FOR LABORATORY RESULTS ONLY

This sample was tested using the analytical screening method(s) checked below:

PURGEABLE SCREENS

- [ ] (753) Aliphatic Purgeables (1-3 Carbons)
- [x] (754) Aromatic & Halogenated Purgeables
- [ ] (765) Mass Spectrometer Purgeables
- [ ] (766) Trihalomethanes

Other Specific Compounds or Classes

- [ ] _____
- [ ] _____
- [ ] _____
- [ ] _____
- [ ] _____

EXTRACTABLE SCREENS

- [ ] (751) Aliphatic Hydrocarbons
- [ ] (760) Organochlorine Pesticides
- [ ] (755) Base/Neutral Extractables
- [ ] (758) Herbicides, Chlorophenoxy acid
- [ ] (759) Herbicides, Triazines
- [ ] (760) Organochlorine Pesticides
- [ ] (761) Organophosphate Pesticides
- [ ] (767) Polychlorinated Biphenyls (PCB's)
- [ ] (764) Polynuclear Aromatic Hydrocarbons
- [ ] (762) SDWA Pesticides & Herbicides

ANALYTICAL RESULTS

COMPOUND(S) DETECTED	CONC. [PPB]	COMPOUND(S) DETECTED	CONC. [PPB]
aromatic purgeables			
benzene	5400		
toluene	5900		
p-xylene	1540		
m-xylene	4500		
o-xylene	2660		
halogenated purgeables			
chloroform	T.R.		
* DETECTION LIMIT * *	100 ~~49/L~~	+ DETECTION LIMIT + +	

ABBREVIATIONS USED:

N D = NONE DETECTED AT OR ABOVE THE STATED DETECTION LIMIT
T R = DETECTED AT A LEVEL BELOW THE STATED DETECTION LIMIT (NOT CONFIRMED)
[RESULTS IN BRACKETS] ARE UNCONFIRMED AND/OR WITH APPROXIMATE QUANTITATION

LABORATORY REMARKS: ~~Three compounds~~ Three late eluting compounds in the C3 substituted benzene region detected with the photoionization detector but not identified.

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes [ ] No [x] Seal(s) broken by: not sealed date: _____

I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: 5/4/87. Analyst's signature: Mary C. Esten

I certify that I have reviewed and concur with the analytical results for this sample and with the statements in this block.

Reviewers signature: R Meyerhen

86- 1363-C

SCIENTIFIC LABORATORY DIVISION

700 Camino de Salud NE
Albuquerque, NM 87106 841-2570

HEALTH & ENVIRONMENT — STATE OF NEW MEXICO

REPORT TO: David Boyer
N.M. Oil Conservation Division
P. O. Box 2088
Santa Fe, N.M. 87504-2088

S.L.D. No. OR- 1363A
DATE REC. 11-26-86

PRIORITY

PHONE(S): 827-5812 USER CODE: 8 2 2 3 5

SUBMITTER: David Boyer CODE: 2 6 0

SAMPLE COLLECTION CODE: (YYMMDDHHMMIII) 8 6 1 1 2 1 1 5 3 5 A

SAMPLE TYPE: WATER ☒ SOIL ☐, FOOD ☐, OTHER: CODE:

COUNTY: San Juan ; CITY: Lee Acres CODE:

LOCATION CODE: (Township-Range-Section-Tracts) 29N+12W+27+1 1 3 (10N06E24342)

ANALYSES REQUESTED: Please check the appropriate box(es) below to indicate the type of analytical screens required. Whenever possible list specific compounds suspected or required.

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
- ☒ (754) Aromatic & Halogenated Purgeables
- ☐ (765) Mass Spectrometer Purgeables
- ☐ (766) Trihalomethanes

Other Specific Compounds or Classes

- ☐
- ☐
- ☐
- ☐
- ☐

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
- ☐ (760) Organochlorine Pesticides
- ☐ (755) Base/Neutral Extractables
- ☐ (758) Herbicides, Chlorophenoxy acid
- ☐ (759) Herbicides, Triazines
- ☐ (760) Organochlorine Pesticides
- ☐ (761) Organophosphate Pesticides
- ☐ (767) Polychlorinated Biphenyls (PCB's)
- ☐ (764) Polynuclear Aromatic Hydrocarbons
- ☐ (762) SDWA Pesticides & Herbicides

Remarks:

FIELD DATA:

pH=____; Conductivity=____umho/cm at ____°C; Chlorine Residual=____mg/l

Dissolved Oxygen=____mg/l; Alkalinity=____mg/l; Flow Rate____ ____/____

Depth to water ____ft.; Depth of well____ft.; Perforation Interval ____-____ft.; Casing:

Sampling Location, Methods and Remarks (i.e. odors, etc.)

Giant, Burn pit seep, sample from pipe installed 6/86 by Boyd Hicks, oil floats on H_2O

I certify that the results in this block accurately reflect the results of my field analyses, observations and activities.(signature collector): W. Boyd Method of Shipment to the Lab: Hand

This form accompanies 2 Septum Vials, 1 Glass Jugs, and/or ____

Samples were preserved as follows:

- ☐ NP: No Preservation; Sample stored at room temperature.
- ☒ P-Ice Sample stored in an ice bath (Not Frozen).
- ☐ P-$Na_2S_2O_3$ Sample Preserved with Sodium Thiosulfate to remove chlorine residual.

CHAIN OF CUSTODY

I certify that this sample was transferred from Willie Olson to Gary C. Eden

at (location) HED/SLD on 11/26/86 - 4:13 and that

the statements in this block are correct. Evidentiary Seals: Not Sealed ☐ Seals Intact: Yes ☒ No ☐

Signatures Willie Olson Gary C. Eden

For OCD Use: Date Owner Notified ____ Phone or Letter? ____ Initials ____

ANALYSES PERFORMED

LAB. No.: OR- 1363

THIS PAGE FOR LABORATORY RESULTS ONLY

This sample was tested using the analytical screening method(s) checked below:

PURGEABLE SCREENS

- [ ] (753) Aliphatic Purgeables (1-3 Carbons)
- [x] (754) Aromatic & Halogenated Purgeables
- [ ] (765) Mass Spectrometer Purgeables
- [ ] (766) Trihalomethanes

Other Specific Compounds or Classes

- [ ] _____
- [ ] _____
- [ ] _____
- [ ] _____
- [ ] _____

EXTRACTABLE SCREENS

- [ ] (751) Aliphatic Hydrocarbons
- [ ] (760) Organochlorine Pesticides
- [ ] (755) Base/Neutral Extractables
- [ ] (758) Herbicides, Chlorophenoxy acid
- [ ] (759) Herbicides, Triazines
- [ ] (760) Organochlorine Pesticides
- [ ] (761) Organophosphate Pesticides
- [ ] (767) Polychlorinated Biphenyls (PCB's)
- [ ] (764) Polynuclear Aromatic Hydrocarbons
- [ ] (762) SDWA Pesticides & Herbicides

ANALYTICAL RESULTS

COMPOUND(S) DETECTED	CONC. [PPB]	COMPOUND(S) DETECTED	CONC. [PPB]
benzene	3800	[cis-1,2-dichloroethene]	TR
toluene	1200		
ethylbenzene	180		
p-xylene	460		
m-xylene	1300		
o-xylene	1100		
1,2-dichloroethane	11		
[chloroform]	TR		
* DETECTION LIMIT * *	20 ppb	+ DETECTION LIMIT + +	

ABBREVIATIONS USED:

N D = NONE DETECTED AT OR ABOVE THE STATED DETECTION LIMIT
T R = DETECTED AT A LEVEL BELOW THE STATED DETECTION LIMIT (NOT CONFIRMED)
[RESULTS IN BRACKETS] ARE UNCONFIRMED AND/OR WITH APPROXIMATE QUANTITATION

LABORATORY REMARKS: Ten other compounds were detected by the aromatic screen that were not identified.

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes [X] No [ ]. Seal(s) broken by: [signature] date: 12/4/12-9-86

I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: 4+9 Dec 86. Analyst's signature: [signature]

I certify that I have reviewed and concur with the analytical results for this sample and with the statements in this block.

Reviewers signature: [signature]

86-0684-C

STATE OF NEW MEXICO
ENVIRONMENT

SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 841-2570

JUL 10 1986

REPORT TO: DAVID G. BOYER
PLEASE PRINT
NEW MEXICO OIL CONSERVATION DIV.
P.O. BOX 2088
SANTA FE, NM 87504-2088

S.L.D. No.: OR-684-H.B
DATE REC. : 06/09/86
SLD PRIORITY #:

PHONE(S): 827-5812
USER CODE: 8 2 2 3 5
SUBMITTER: DAVID BOYER
SUBMITTER CODE:
SAMPLE TYPE: WATER ☒, SOIL ☐, OTHER
SAMPLE TYPE CODE:
COLLECTED: 86/06/05 - 17:05 BY DGB
DATE TIME INITIALS
CODE: Y Y M M D D H H M M I I I
SOURCE: East Burn Pit Seep
CODE: AQUIFER DEPTH
NEAREST CITY: Bloomfield
CODE:
LOCATION: Giant Bloomfield Refinery
CODE: 29N 12W 21 1 1
TOWNSHIP RANGE SECTION TRACTS

pH= 7 ; Conductivity= 1600 umho/cm at 21.5 °C; Chlorine Residual=
Dissolved Oxygen= mg/l; Alkalinity= ; Flow Rate=

Sampling Location, Methods and Remarks (i.e. odors, etc.)

Seep at face of excavated pit. Source to east towards reformer unit. Sample is water in contact w/ hydrocarbons at seep.

I certify that the statements in this block accurately reflect the results of my field analyses, observations and activities. DG Boyer

Method of shipment to the Laboratory Hand carried

This form accompanies 2 Septum Vials, Glass Jugs,

Containers are marked as follows to indicate preservation:

- ☐ NP: No preservation; sample stored at room temperature.
- ☒ P-Ice Sample stored in an ice bath (not frozen).
- ☐ P-$Na_2S_2O_3$; Sample preserved with $Na_2S_2O_3$ to remove chlorine residual.

I (we) certify that this sample was transferred from DG Boyer
to R Meyerhein at (location) SLD on
6/9/86 - 16:10 and that the statements in this block are correct.
DATE AND TIME
Evidentiary Seals: Not Sealed ☐ Seals Intact: Yes ☒ No ☐
Signatures R Meyerhein DG Boyer

(we) certify that this sample was transferred from
to at (location) on
/ / - : and that the statements in this block are correct.
DATE AND TIME
Evidentiary Seals: Not Sealed ☐ Seals Intact: Yes ☐ No ☐
Signatures

ANALYSES REQUESTED LAB. No.: ORG- 684

PLEASE CHECK THE APPROPRIATE BOXES BELOW TO INDICATE THE TYPE OF ANALYTICAL SCREENS REQUIRED. WHENEVER POSSIBLE LIST SPECIFIC COMPOUNDS SUSPECTED OR REQUIRED.

QUALITATIVE	QUANTITATIVE	PURGEABLE SCREENS	QUALITATIVE	QUANTITATIVE	EXTRACTABLE SCREENS
		ALIPHATIC HYDROCARBON SCREEN			ALIPHATIC HYDROCARBONS
X	X	AROMATIC HYDROCARBON SCREEN			CHLORINATED HYDROCARBON PESTICIDES
X	X	HALOGENATED HYDROCARBON SCREEN			CHLOROPHENOXY ACID HERBICIDES
		GAS CHROMATOGRAPH/MASS SPECTROMETER			HYDROCARBON FUEL SCREEN
					ORGANOPHOSPHATE PESTICIDES
					POLYCHLORINATED BIPHENYLS (PCB's)
					POLYNUCLEAR AROMATIC HYDROCARBONS
					TRIAZINE HERBICIDES
		SPECIFIC COMPOUNDS			SPECIFIC COMPOUNDS

REMARKS:

ANALYTICAL RESULTS

COMPOUND	[PPB]	COMPOUND	[PPB]
benzene	26000		
toluene	18000		
ethylbenzene	1200		
p-xylene	2200		
m-xylene	5500		
o-xylene	3000		
1,2-dichloroethane	49		
$CHCl_3$	50	* DETECTION LIMIT	10 ug/l

REMARKS: Twelve other compounds were detected by the aromatic scree that were not identified.

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes X NO___. Seal(s) broken by: JAF date: 6-24-86

I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements in this block and the analytical data on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: 6-24-86 6-13-86. Analyst's signature: [signature]

I certify that I have reviewed and concur with the analytical results for this sample and with the statements in this block. Reviewers signature: [signature]

FOR OCD USE -- Date Owner Notified_____ Phone or letter?_____ Initials_____

8606051905

ASSAIGAI ANALYTICAL LABORATORIES

TO: Geoscience Consultants Ltd.
Attn: Randy Hicks
500 Copper NW Suite 325
Albuquerque, NM 87102

DATE: 21 July 1986
0933

SAMPLE ID: 8606051905 Burn Pit (FIRE FIGHTING DRILL AREA)

ANALYTE	ANALYTICAL RESULTS	NOMINAL DETECTION LIMITS
Benzene	15.5 mg/l	1 mg/l
Toluene	11.9 mg/l	1 mg/l
Xylenes	1.1 ug/l	1 mg/l
Fe	<0.3 mg/l	0.3 mg/l
Pb	<0.050 mg/l	0.050 mg/l
Cr	<0.050 mg/l	0.050 mg/l

Recovery %:

Pb	100 %
Cr	100 %

REFERENCE: "Test Methods for Evaluating Solid Waste Physical/Chemical Methods", USEPA, SW 846, EMSL-Cincinnati, 1982

An invoice for services is enclosed. Thank you for contacting Assaigai Laboratories.

Sincerely,

Jennifer V. Smith

Jennifer V. Smith, Ph.D.
Laboratory Director

Xylenes 1.1 mg/l

0.1 mg/l

12.28.86

7300 Jefferson, N.E. • Albuquerque, New Mexico 87109 • (505) 345-8964

8510241735

GBR-27

ASSAIGAI ANALYTICAL LABORATORIES

85/10/24 8510241735

TO: Geoscience Consultants, Ltd.
500 Copper N.W. Suite 325
Albuquerque, NM 87102

DATE: 8 January 1986
1559 Revised
Page 1 of 2

See [illegible]

ANALYTE	SAMPLE ID/ANALYTICAL RESULTS		NOMINAL DETECTION LIMITS
	Water 851024 1435	Sludge EP TOX	
As	<0.050 mg/l	<0.050 mg/l	0.050 mg/l
Ba	<1.0 mg/l	2.0 mg/l	1.0 mg/l
Cd	<0.010 mg/l	<0.010 mg/l	0.010 mg/l
Cr	<0.050 mg/l	<0.050 mg/l	0.050 mg/l
Hg	<0.002 mg/l	<0.002 mg/l	0.002 mg/l
Se	<0.010 mg/l	<0.010 mg/l	0.010 mg/l
Ag	<0.050 mg/l	<0.050 mg/l	0.050 mg/l
Pb	<0.050 mg/l	<0.050 mg/l	0.050 mg/l
NO 3 as N	<0.01 mg/l		0.01 mg/l
Benzene	5.23 mg/l		0.01 mg/l
Toluene	<0.01 mg/l		0.01 mg/l
Ethyl Benzene	3.16 mg/l		0.01 mg/l
Xylenes	3.25 mg/l		0.01 mg/l
PCB	1.0 ppm		1.0 ppm
C Cl 4	<0.001 mg/l		0.001 mg/l
1,2-dichloroethane	<0.001 mg/l		0.001 mg/l
1,1-dichloroethylene	<0.001 mg/l		0.001 mg/l
Tetrachloroethylene	<0.001 mg/l		0.001 mg/l
TCE	<0.001 mg/l		0.001 mg/l
Phenols	0.4 mg/l		0.001 mg/l
Cl	98.0 mg/l		0.1 mg/l
Fe	32.0 mg/l		0.05 mg/l
Cu	<0.01 mg/l		0.01 mg/l
Mn	1.19 mg/l		0.005 mg/l
SO 4	9.0 mg/l		0.1 mg/l
TDS	1258.0 mg/l		1 mg/l
pH	7.5		0.01
Methylene Chloride	<0.001 mg/l		0.001 mg/l

REFERENCES: 1. "Standard Methods for the Examination of Water and Wastewater", 15th Edition, APHA, N.Y., 1980.

2. EPA Method 608

7300 Jefferson, NE • Albuquerque, New Mexico 87109 • (505) 345-8964

10/24/85

STATE OF NEW MEXICO
ENVIRONMENT

85-1121 C

SCIENTIFIC LABORATORY DIVISION

700 Camino de Salud NE
Albuquerque, NM 87106 841-2570

REPORT TO: DAVID G. BOYER
PLEASE PRINT
NEW MEXICO OIL CONSERVATION DIV.
P.O. BOX 2088
SANTA FE, NM 87501

S.L.D. No.: OR- 1121
DATE REC. : 10/29/85
SLD PRIORITY #: 3

PHONE(S): 827-5812
USER CODE: 8 2 2 3 5

SUBMITTER: D. G. BOYER
SUBMITTER CODE:

SAMPLE TYPE: WATER ☒, SOIL ☐, OTHER
SAMPLE TYPE CODE:

COLLECTED: 85/10/24 - 14:50 BY DGB
DATE TIME INITIALS
CODE: Y Y M M D D H H M M I I I

SOURCE: West Seep, Giant Refinery
CODE: AQUIFER DEPTH

NEAREST CITY: Farmington
CODE:

LOCATION: Refinery at Lee Acres
CODE: TOWNSHIP RANGE SECTION TRACTS

pH= ; Conductivity= 1550 umho/cm at 21 °C; Chlorine Residual=
Dissolved Oxygen= mg/l; Alkalinity= ; Flow Rate=

Sampling Location, Methods and Remarks (i.e. odors, etc.)
Sample from seep at west side of Facility Pad, SW corner of refinery above parking lot. Seep has oil droplets and sheen. Area very black and oily. Strong odor

I certify that the statements in this block accurately reflect the results of my field analyses, observations and activities. D G Boyer *

Method of shipment to the Laboratory Hand carried

This form accompanies 2 Septum Vials, Glass Jugs,

Containers are marked as follows to indicate preservation:

- ☐ NP: No preservation; sample stored at room temperature.
- ☒ P-Ice Sample stored in an ice bath (not frozen).
- ☐ P-$Na_2S_2O_3$; Sample preserved with $Na_2S_2O_3$ to remove chlorine residual.

* Collection observed by Giant Rep. E. J. Hunter, Geoscientist

I (we) certify that this sample was transferred from D. G. BOYER to R. F. ~~Meyhein~~ Meyerheinz at (location) SLD Specimen Receiving on 85/10/29 - 14:30 (DATE AND TIME) and that the statements in this block are correct.

Evidentiary Seals: Not Sealed ☐ Seals Intact: Yes ☒ No ☐

Signatures D G Boyer K Meyerheinz

(we) certify that this sample was transferred from

at (location) on

/ / - : (DATE AND TIME) and that the statements in this block are correct.

Evidentiary Seals: Not Sealed ☐ Seals Intact: Yes ☐ No ☐

Signatures

ANALYSES REQUESTED LAB. No.: ORG- 1121

PLEASE CHECK THE APPROPRIATE BOXES BELOW TO INDICATE THE TYPE OF ANALYTICAL SCREENS REQUIRED. WHENEVER POSSIBLE LIST SPECIFIC COMPOUNDS SUSPECTED OR REQUIRED.

QUALITATIVE	QUANTITATIVE	PURGEABLE SCREENS	QUALITATIVE	QUANTITATIVE	EXTRACTABLE SCREENS
		ALIPHATIC HYDROCARBON SCREEN			ALIPHATIC HYDROCARBONS
X	X	AROMATIC HYDROCARBON SCREEN			CHLORINATED HYDROCARBON PESTICIDES
X	X	HALOGENATED HYDROCARBON SCREEN			CHLOROPHENOXY ACID HERBICIDES
		GAS CHROMATOGRAPH/MASS SPECTROMETER			HYDROCARBON FUEL SCREEN
					ORGANOPHOSPHATE PESTICIDES
					POLYCHLORINATED BIPHENYLS (PCB's)
					POLYNUCLEAR AROMATIC HYDROCARBONS
					TRIAZINE HERBICIDES
		SPECIFIC COMPOUNDS			SPECIFIC COMPOUNDS

REMARKS:

ANALYTICAL RESULTS

COMPOUND	[PPB]	COMPOUND	[PPB]
benzene	2200		
toluene	110		
ethylbenzene	80		
p-xylene	none detected		
m-xylene	80		
o-xylene	none detected		
1,2-dichloroethane	trace <10ppb		
		* DETECTION LIMIT	10 ugm/l

REMARKS:

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes X NO ___. Seal(s) broken by: [illegible] date: 29Oct85

I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements in this block and the analytical data on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: 29Oct & 26Nov85 Analyst's signature: [illegible]

I certify that I have reviewed and concur with the analytical results for this sample and with the statements in this block. Reviewers signature: R Meyerhen

STATE OF NEW MEXICO
ENVIRONMENT

SCIENTIFIC LABORATORY DIVISION

700 Camino de Salud NE
Albuquerque, NM 87106 841-2570

85- 1121 -C

REPORT TO: DAVID G. BOYER
PLEASE PRINT
NEW MEXICO OIL CONSERVATION DIV.
P.O. BOX 2088
SANTA FE, NM 87501

S.L.D. No.: OR- 1121
DATE REC. : 10/29/85
SLD PRIORITY #: 3

PHONE(S): 827-5812
USER CODE: 8 2 2 3 5
SUBMITTER: D. G. BOYER
SUBMITTER CODE:
SAMPLE TYPE: WATER ☒, SOIL ☐, OTHER
SAMPLE TYPE CODE:
COLLECTED: 85/10/24 - 14:50 BY DGB
DATE TIME INITIALS
CODE: Y Y M M D D H H M M I I I
SOURCE: West Seep, Giant Refinery
CODE: AQUIFER DEPTH
NEAREST CITY: Farmington
CODE:
LOCATION: Refinery at Lea Acres
CODE: TOWNSHIP RANGE SECTION TRACTS

pH= ; Conductivity= 1550 umho/cm at 21 °C; Chlorine Residual=
Dissolved Oxygen= mg/l; Alkalinity= ; Flow Rate=

Sampling Location, Methods and Remarks (i.e. odors, etc.)
Sample from seep at west side of Facility Pad, SW corner of refinery above parking lot. Seep has oil droplets and sheen. Area very black and oily. Strong odor

I certify that the statements in this block accurately reflect the results of my field analyses, observations and activities. D G Boyer *
Method of shipment to the Laboratory Hand Carried
This form accompanies 2 Septum Vials, Glass Jugs,
Containers are marked as follows to indicate preservation:
☐ NP: No preservation; sample stored at room temperature.
☒ P-Ice Sample stored in an ice bath (not frozen).
☐ P-$Na_2S_2O_3$; Sample preserved with $Na_2S_2O_3$ to remove chlorine residual.

* Collection observed by Giant Rep. & J. Hunter, Geoscientist

I (we) certify that this sample was transferred from D. G. BOYER
to R. F. ~~Meyerheim~~ Meyerheim at (location) SLD Specimen Receiving on
85/10/29 - 14:30 and that the statements in this block are correct.
DATE AND TIME
Evidentiary Seals: Not Sealed ☐ Seals Intact: Yes ☒ No ☐
Signatures D G Boyer K Meyerheim

(we) certify that this sample was transferred from
to at (location) on
/ / - : and that the statements in this block are correct.
DATE AND TIME
Evidentiary Seals: Not Sealed ☐ Seals Intact: Yes ☐ No ☐
Signatures

ANALYSES REQUESTED LAB. No.: ORG- 1121

PLEASE CHECK THE APPROPRIATE BOXES BELOW TO INDICATE THE TYPE OF ANALYTICAL SCREENS REQUIRED. WHENEVER POSSIBLE LIST SPECIFIC COMPOUNDS SUSPECTED OR REQUIRED.

QUALITATIVE	QUANTITATIVE	PURGEABLE SCREENS	QUALITATIVE	QUANTITATIVE	EXTRACTABLE SCREENS
		ALIPHATIC HYDROCARBON SCREEN			ALIPHATIC HYDROCARBONS
X	X	AROMATIC HYDROCARBON SCREEN			CHLORINATED HYDROCARBON PESTICIDES
X	X	HALOGENATED HYDROCARBON SCREEN			CHLOROPHENOXY ACID HERBICIDES
		GAS CHROMATOGRAPH/MASS SPECTROMETER			HYDROCARBON FUEL SCREEN
					ORGANOPHOSPHATE PESTICIDES
					POLYCHLORINATED BIPHENYLS (PCB's)
					POLYNUCLEAR AROMATIC HYDROCARBONS
					TRIAZINE HERBICIDES
		SPECIFIC COMPOUNDS			SPECIFIC COMPOUNDS

REMARKS:

ANALYTICAL RESULTS

COMPOUND	[PPB]	COMPOUND	[PPB]
benzene	2200		
toluene	110		
ethylbenzene	80		
p-xylene	none detected		
m-xylene	80		
o-xylene	none detected		
1,2-dichloroethane	trace <10ppb		
		* DETECTION LIMIT	10 ugm/l

REMARKS:

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes X NO ___. Seal(s) broken by: M Finney date: 29Oct85

I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements in this block and the analytical data on this page accurately reflect the analytical results for this sample.

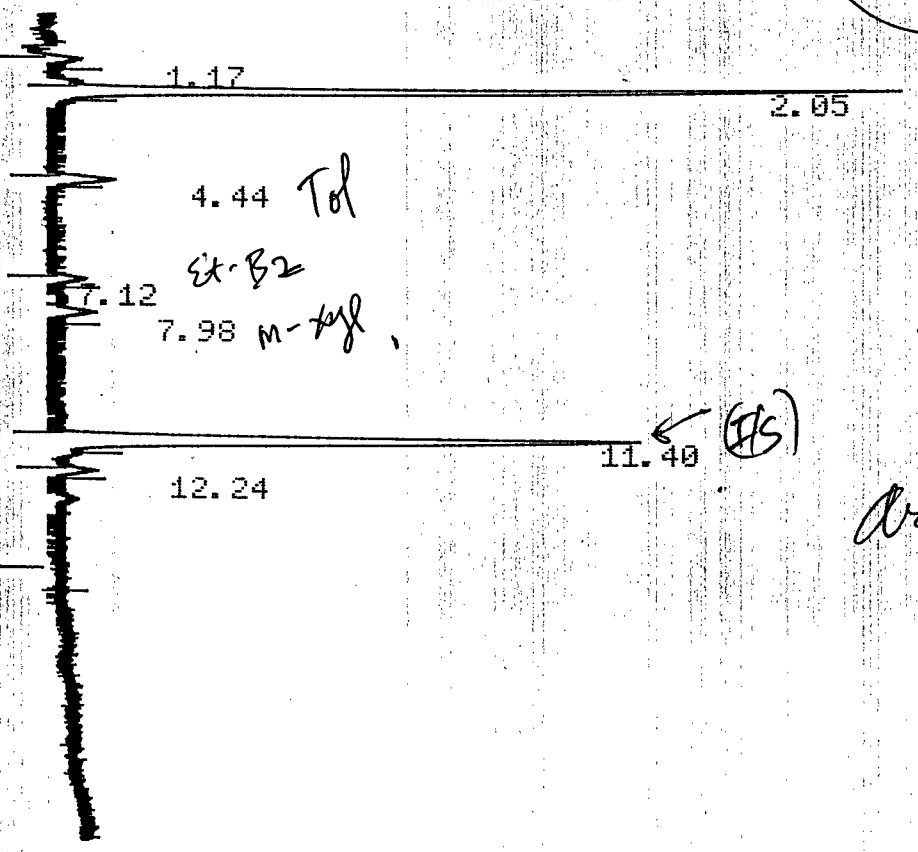
Date(s) of analysis: 29Oct & 26Nov85 Analyst's signature: M Finney

I certify that I have reviewed and concur with the analytical results for this sample and with the statements in this block. Reviewers signature: R Meyerhan

11	0.	12.26	306	01
TOTALS	0.		45895	

29 Oct 85

CHANNEL A INJECT 10/29/85 20:54:03



Aromatic screen

1 10/29/85 20:54:03 CH= "A" PS= 1.

FILE 1. METHOD 1. RUN 133 INDEX 133

ANALYST: JF

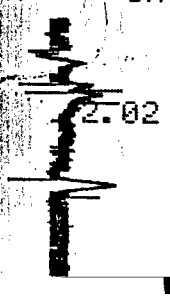
dilution factor =(1/100)

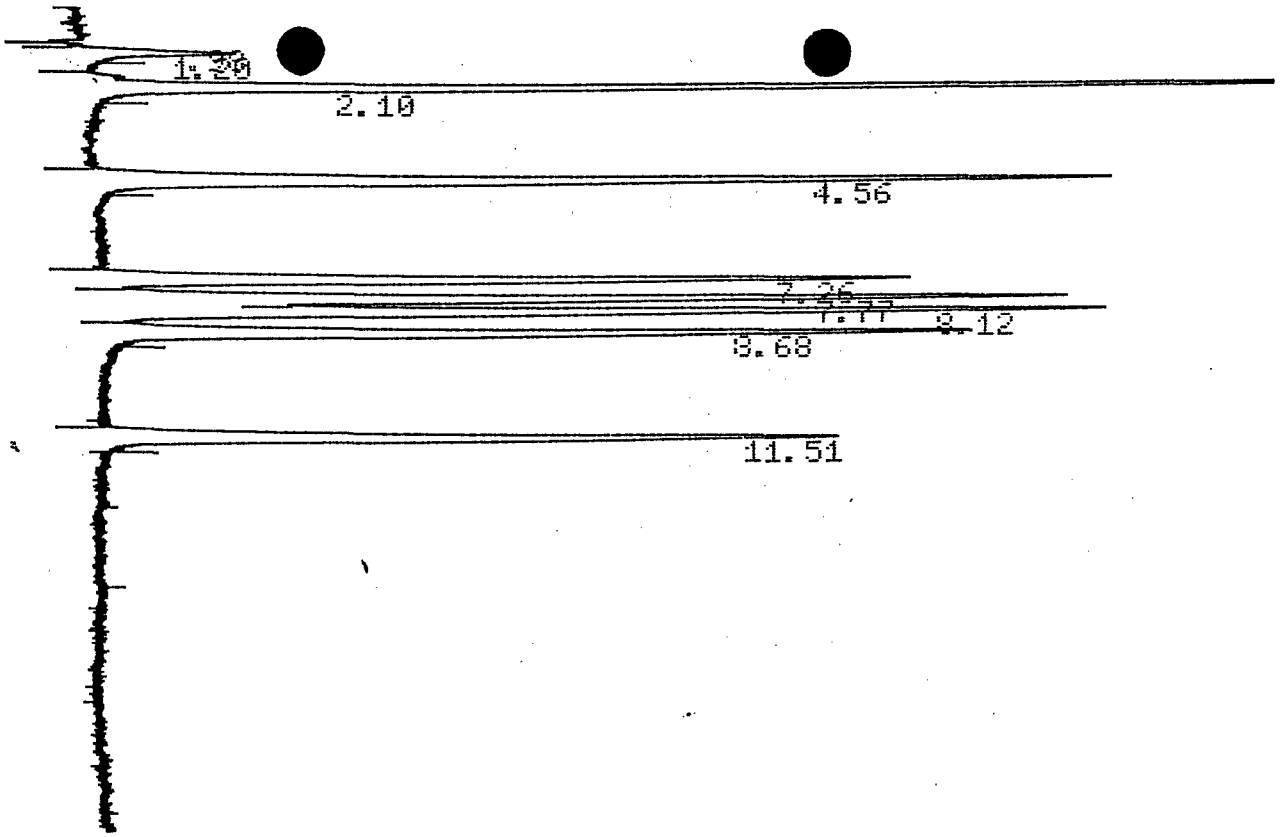
NAME	CONC	RT	AREA	BC	RF
1	0.	1.17	177	01	
2	0.	2.05	4424	01	
3	0.	4.44	379	01	
4	0.	7.12	169	01	
5	0.	7.98	185	01	
6	0.	11.4	4829	01	
7	0.	12.24	169	01	
TOTALS	0.		10332		

50λ/5ml
1121-A

12

CHANNEL A INJECT 10/29/85 21:22:50





1 10/29/85 17:33:23 CH= "A" PS= 1.

FILE 1. METHOD 1. RUN 126 INDEX 126

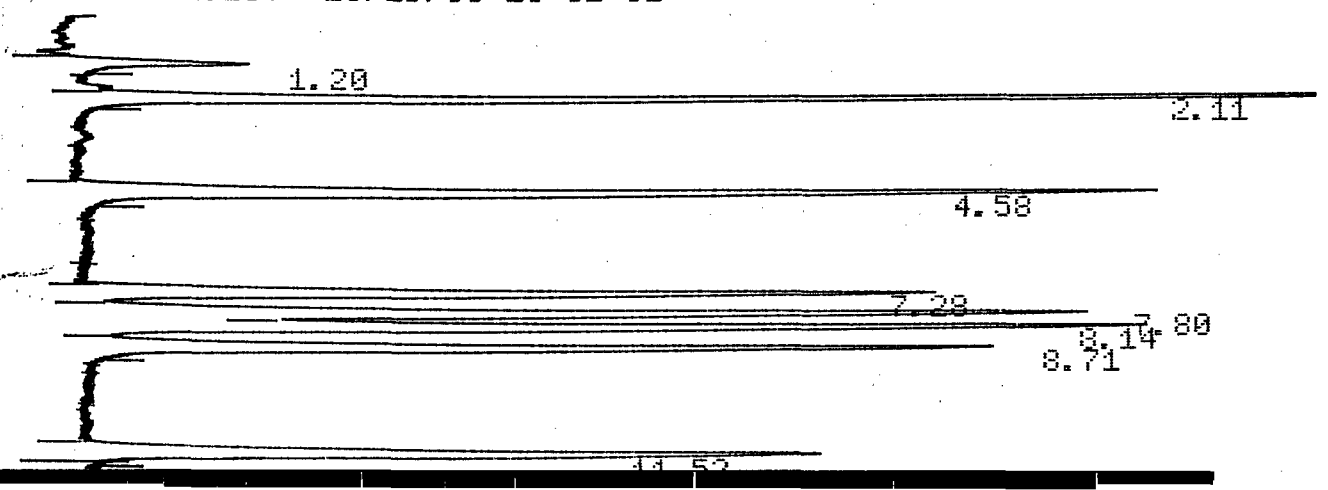
ANALYST: JF

Aromatic Standard

NAME	CONC	RT	AREA	BC	RF
1	0.	1.2	1104	03	
2	0.	2.1 ✓	8874	01	Benzene
3	0.	4.56 ✓	8672	01	toluene
4	0.	7.26 ✓	6665	02	ethylbenzene
5	0.	7.77 ✓	8014	02	p-xylene
6	0.	8.12 ✓	8407	02	m-xylene
7	0.	8.68 ✓	7023	03	o-xylene
8	0.	11.51 ✓	6395	01	I/S
TOTALS	0.		55154		

Std 862B
SA(50/10)
21Oct-4

CHANNEL A INJECT 10/29/85 18:02:02

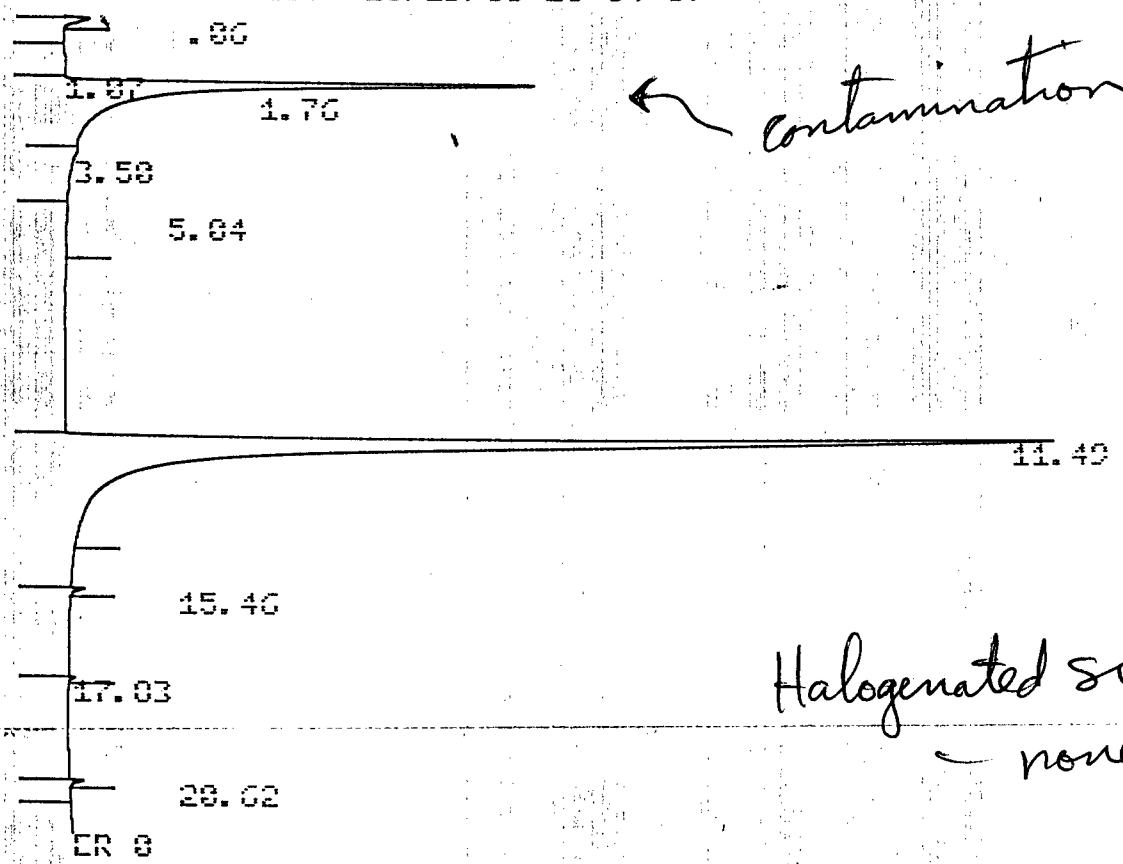


7

NAME	CONC	RT	AREA	DC	RF
1	0.	0.86	6306	01	
2	0.	1.20	3955	02	
3	0.	1.76	142595	03	
4	0.	11.52	434817	09	
5	0.	10.41	2289	01	
TOTALS	0.		589162		

$\left(\frac{1}{100}\right)$ 1120-A

CHANNEL A INJECT 10/29/05 20:54:07



contamination

(I/S)

Halogenated screen
— none detected

1 10/29/05 20:54:07 CH= "A" PO= 1.

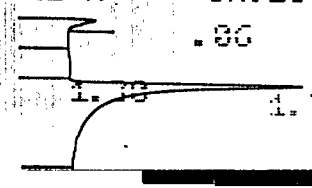
FILE 1. METHOD 1. RUN 131 INDEX 131

ANALYST: JF

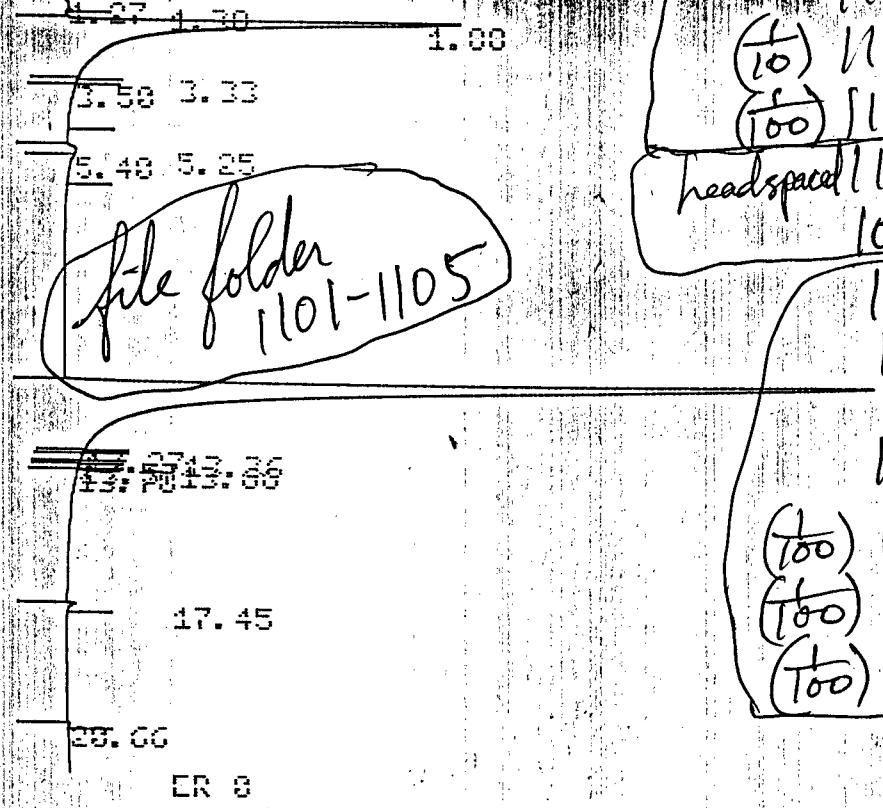
NAME	CONC	RT	AREA	DC	RF
1	0.	0.86	4719	01	
2	0.	1.76	105291	02	
3	0.	3.5	13429	02	
4	0.	5.84	2671	03	
5	0.	11.49	484068	01	
TOTALS	0.		608078		

$\left(\frac{1}{100}\right)$ 1121-A

CHANNEL A INJECT 10/29/05 21:22:54



CHANNEL A INJECT 10/20/05 11:11:50



(1/100) 1102-A HØ 100
1103-A HØ 1
(1/10) 1104-A (EDC+EDB) 2
(1/100) 1105-A HØ 1
headspace 1100-A HØ 1
1099-B HØ 1
1117-A HØ 1
1118-A HØ 1
11.63
1119-A (3THM's) 1
(1/100) 1120-A HØ 100
(1/100) 1121-A HØ 100
(1/100) 1122-A HØ 100

1 10/20/05 11:11:59 CH= "A" PO= 1.

FILE 1. METHOD 1. RUN 111 INDEX 111

ANALYST: JF

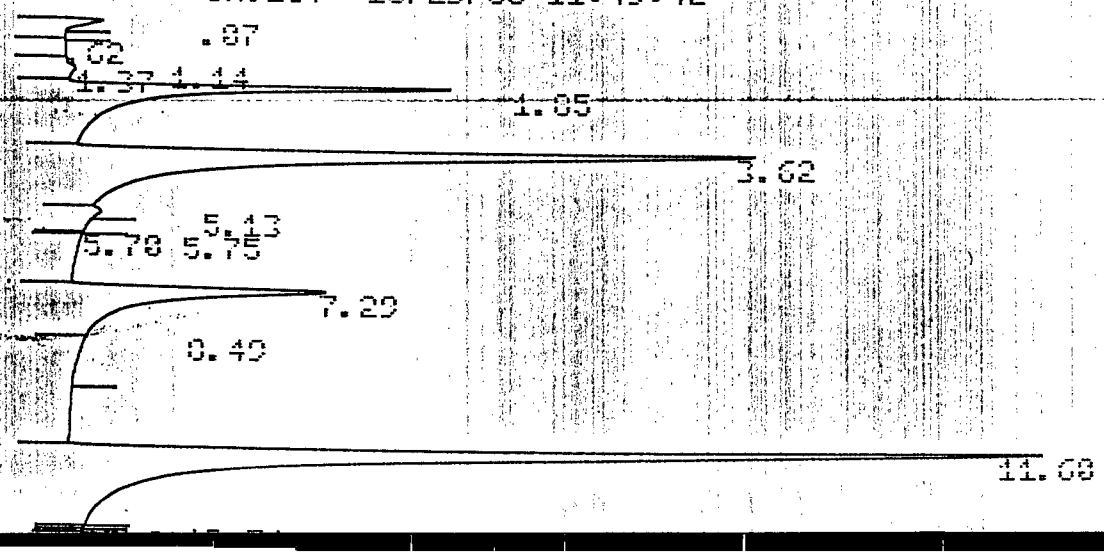
NAME	CONC	RT	AREA	BC	RF
1	0.	0.13	9468	01	
2	0. contaminant	1.00	100689	00	
3	0.	5.25	2693	02	
4	0.	5.4	2062	03	
5	0. (I/S)	11.63	392367	00	
TOTALS	0.		575091		

flank H_2O

21 Oct 05

BLK H_2O

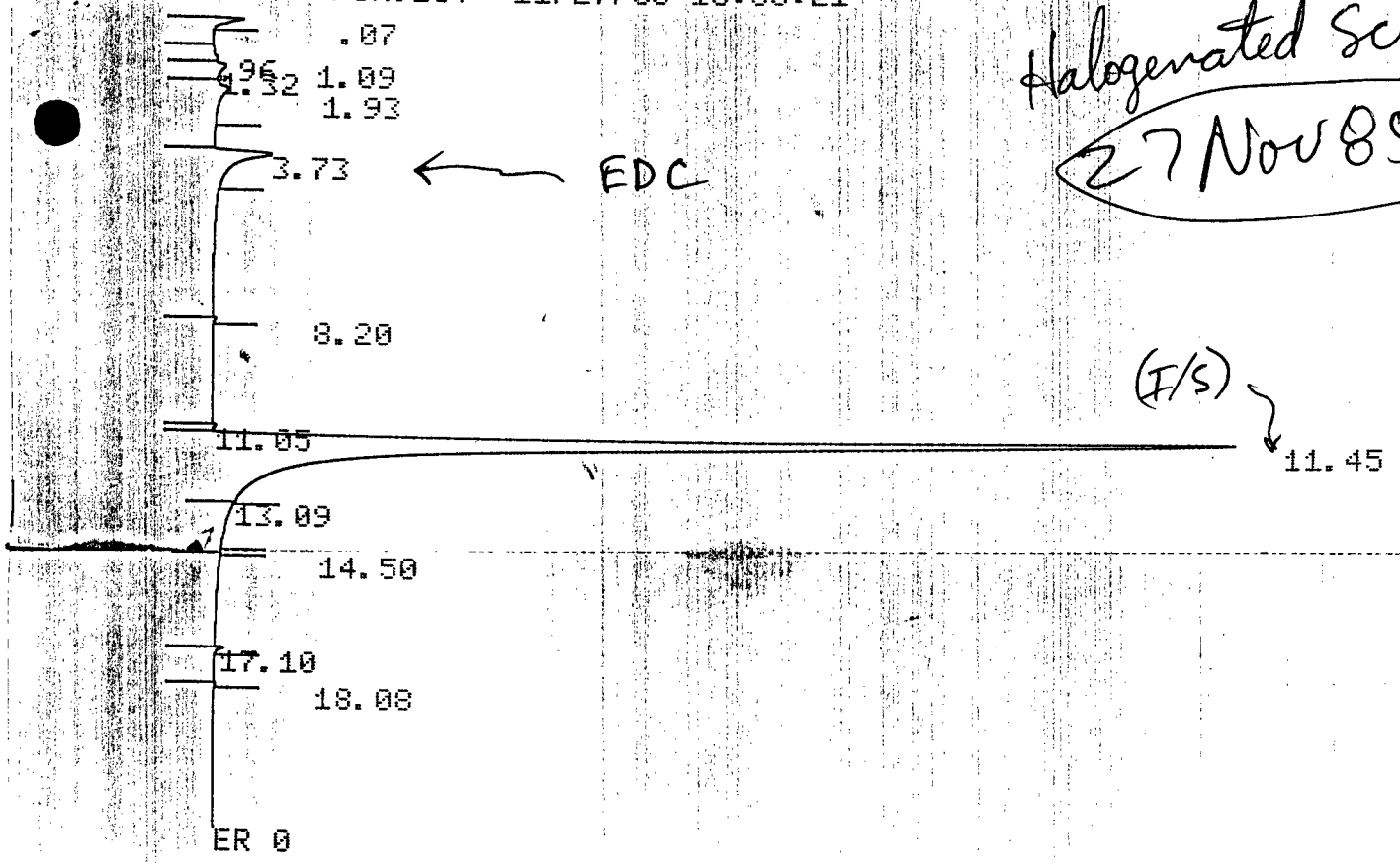
CHANNEL A INJECT 10/20/05 11:40:42



CHANNEL A INJECT 11/27/85 18:55:21

Halogenated Screen

27 Nov 85



HALL 11/27/85 18:55:21 CH= "A" PS= 1.

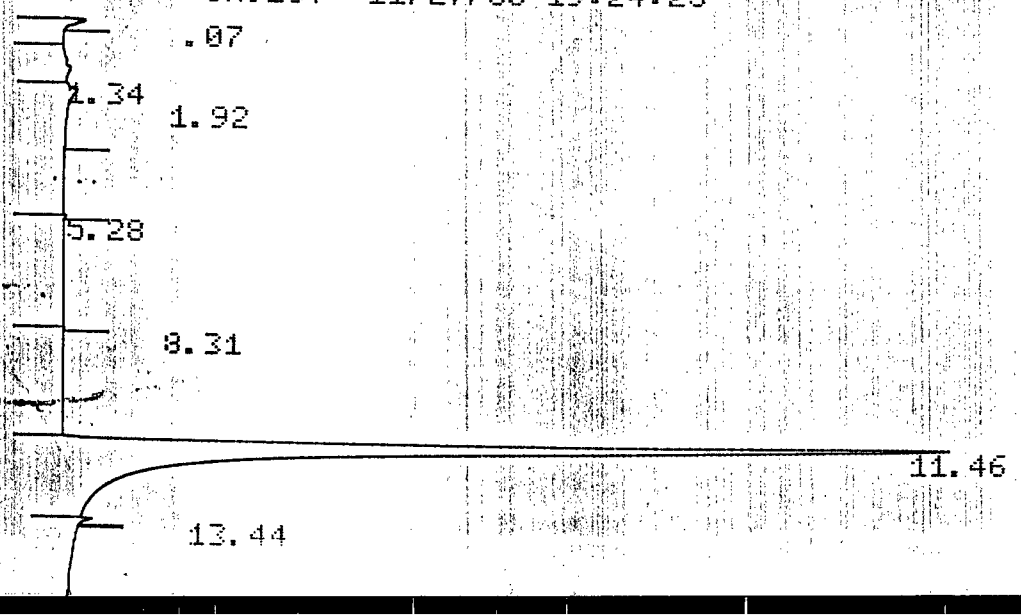
FILE 1. METHOD 0. RUN 133 INDEX 133

PEAK#	AREA%	RT	AREA	BC
1	1.004	0.07	5434	01
2	0.893	1.32	4835	02
3	1.676	1.93	9068	03
4	5.114	3.73 ✓	27676	01
5	91.313	11.45 ✓	494194	09
TOTAL	100.		541207	

dilution factor

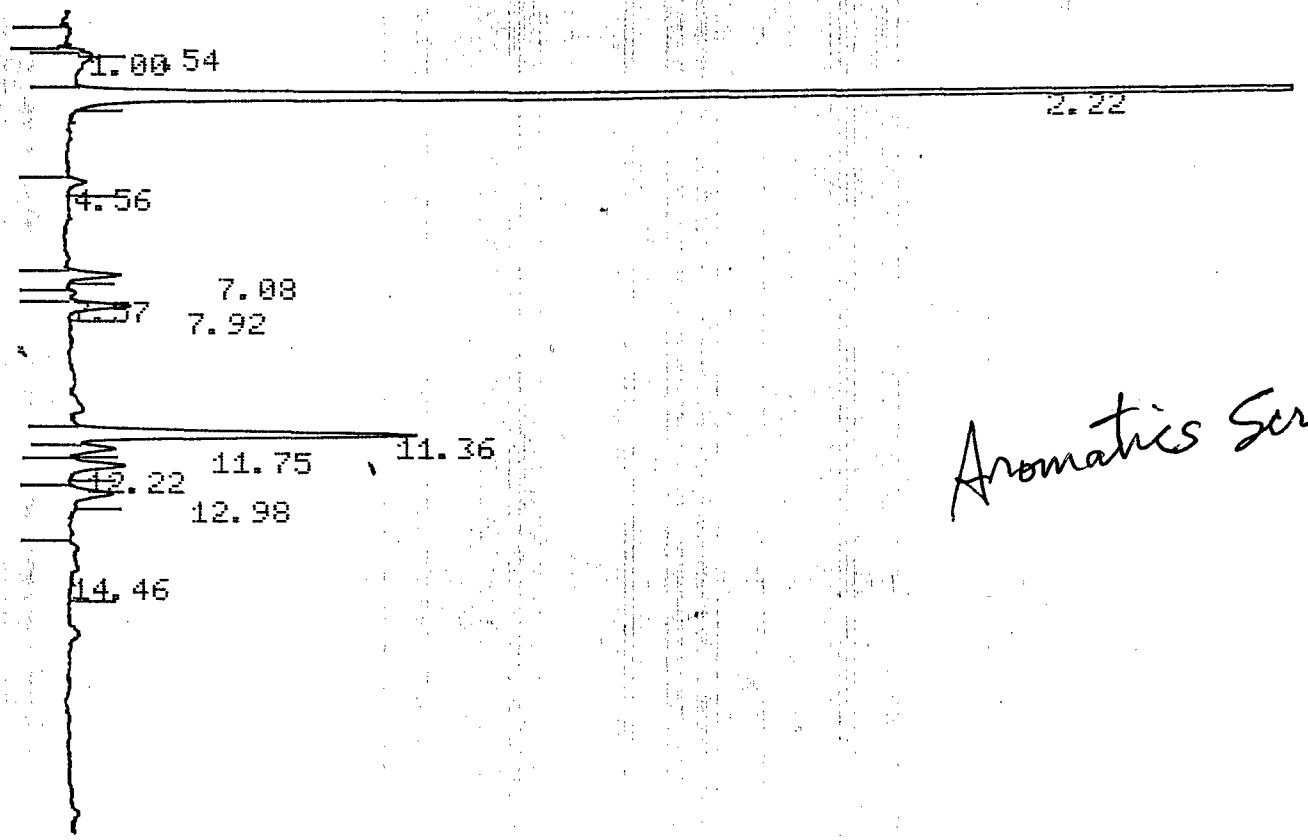
$\left(\frac{1}{10}\right)$ 1121-B

CHANNEL A INJECT 11/27/85 19:24:25



64

CHANNEL A INJECT 03:36:54



Aromatics Screen

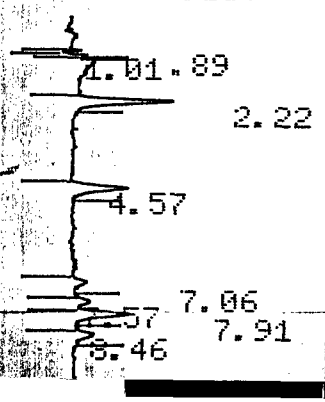
HALL 03:36:54 CH= "A" PS= 1.

FILE 1. METHOD 0. RUN 278 INDEX 278

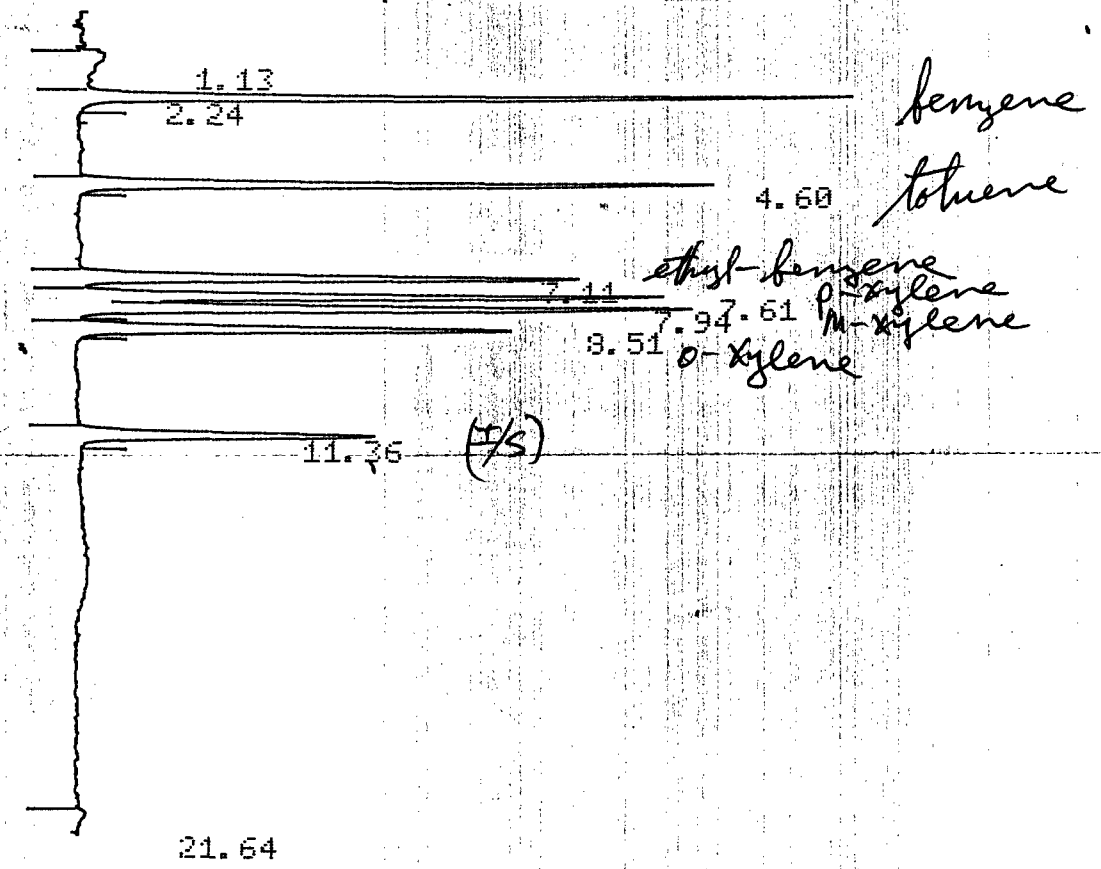
PEAK#	AREA%	RT	AREA	BC	
1	0.791	0.54	674	03	
2	75.567	2.22 ✓	64377	01	benzene
3	0.59	4.56 ✓	503	01	toluene
4	1.643	7.08 ✓	1400	01	~~Et BZ~~
5	2.311	7.92 ✓	1969	03	m-xyl.
6	12.732	11.36 ✓	10847	02	(I/S)
7	1.459	11.75	1243	03	
8	2.128	12.22	1813	01	
9	1.731	12.98	1475	01	
10	1.046	14.46	891	01	
TOTAL	100.		85192		

(1/10)
1121-B

CHANNEL A INJECT 04:05:58



CHANNEL A INJECT 19:52:57



HALL 19:52:57 CH= "A" PS= 1.

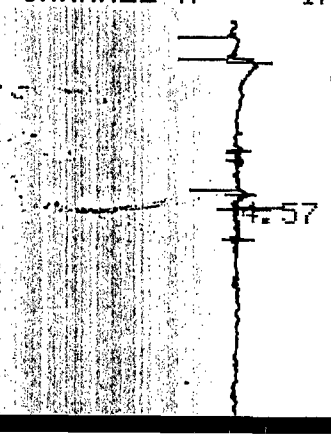
FILE 1. METHOD 0. RUN 262 INDEX 262

PEAK#	AREA%	RT	AREA	BC
1	1.988	1.13	2171	02
2	16.441	2.24	17958	03
3	15.726	4.6	17177	01
4	13.042	7.11	14245	02
5	15.254	7.61	16661	02
6	16.655	7.94	18191	03
7	11.901	8.51	12999	01
8	8.629	11.36	9425	01
9	0.364	21.64	398	01
TOTAL	100.		109225	

Std863B
SA(50/25)
21Nov-1

Aromatic Standard

CHANNEL A INJECT 20:21:58



ER 0

HALL 11/27/85 08:29:01 CH= "A" PS= 1.

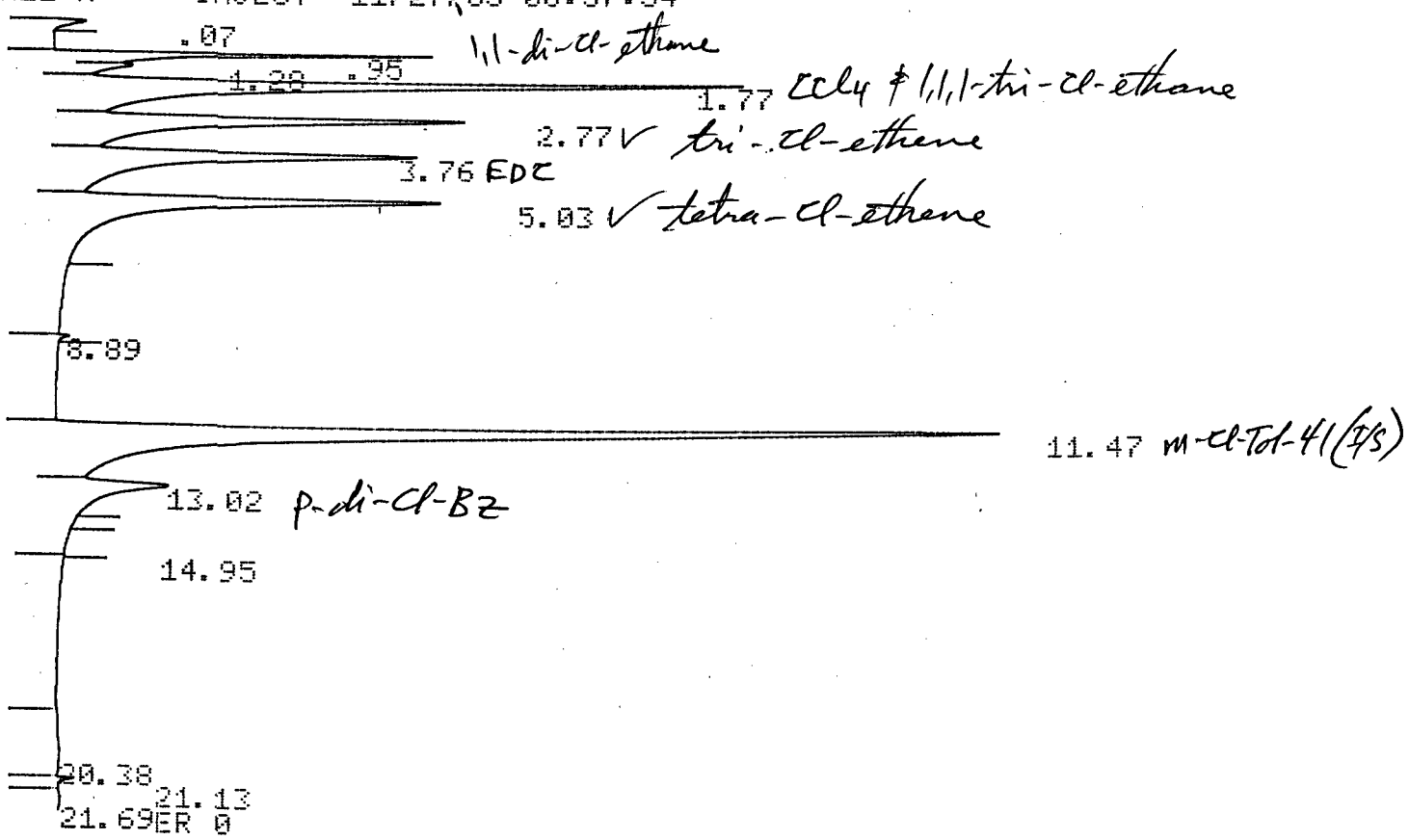
FILE 1. METHOD 0. RUN 112 INDEX 112

PEAK#	AREA%	RT	AREA	BC
1	2.056	0.09	7478	01
2	1.399	1.36	5090	02
3	1.3	2.04	4730	03
4	95.245	11.55	346460	01
TOTAL	100.		363758	

BLK H_2O
14 Nov-2

50

CHANNEL A INJECT 11/27/85 08:57:54



HALL 11/27/85 08:57:54 CH= "A" PS= 1.

FILE 1. METHOD 0. RUN 113 INDEX 113

PEAK#	AREA%	RT	AREA	BC
1	0.388	0.07	5679	01
2	4.84	0.95	70814	02
3	1.791	1.28	26206	02
4	19.226	1.77	281307	02
5	12.72	2.77	186121	02
6	12.701	3.76	185847	02
7	13.073	5.03	191282	03
8	32.231	11.47	471594	08
9	2.748	13.02	40213	05
10	0.282	20.38	4127	03
TOTAL	100.		1463190	

IF8563
VOC's 5ppb
Halogenated Standard

ENVIRONMENT

STATE OF NEW MEXICO

OIL CONSERVATION DIVISION SANTA FE

85-1123-C

SCIENTIFIC LABORATORY DIVISION

700 Camino de Salud NE
Albuquerque, NM 87106 841-2570

REPORT TO: DAVID G. BOYER
PLEASE PRINT
NEW MEXICO OIL CONSERVATION DIV.
P.O. BOX 2088
SANTA FE, NM 87501

S.L.D. No.: OR- 1123
DATE REC. : 10/29/85
SLD PRIORITY #: 3

PHONE(S): 827-5812

USER CODE: 8 2 2 3 5

SUBMITTER: D. G. BOYER

SUBMITTER CODE:

SAMPLE TYPE: WATER [X], SOIL [ ], OTHER

SAMPLE TYPE CODE:

COLLECTED: 85/10/24 - 14:30 BY DGB
DATE TIME INITIALS

CODE: Y Y M M D D H H M M I I I

SOURCE: West Seep, Giant Refinery

*CODE: AQUIFER + DEPTH +

NEAREST CITY: Farmington

CODE:

LOCATION: Refinery at Lea Acres

CODE: TOWNSHIP RANGE SECTION TRACTS

pH= ; Conductivity= umho/cm at °C; Chlorine Residual=

Dissolved Oxygen= mg/l; Alkalinity= ; Flow Rate=

Sampling Location, Methods and Remarks (i.e. odors, etc.)
Sample from seep at west side of Facility Pad, SW corner of refinery above parking lot. Seep has oil droplets and sheen. Area very black and oily. Strong odor

I certify that the statements in this block accurately reflect the results of my field analyses, observations and activities. DG Boyer *

Method of shipment to the Laboratory Hand Carried

This form accompanies 2 Septum Vials, Glass Jugs,

Containers are marked as follows to indicate preservation:

- [ ] NP: No preservation; sample stored at room temperature.
- [X] P-Ice Sample stored in an ice bath (not frozen).
- [ ] P-$Na_2S_2O_3$; Sample preserved with $Na_2S_2O_3$ to remove chlorine residual.

* Collection observed by Giant Rep. & J. Hunter, Geoscientist

I (we) certify that this sample was transferred from David G Boyer to R Meyerhein at (location) SLD on 10/29/85 - 14:30 and that the statements in this block are correct.
DATE AND TIME

Evidentiary Seals: Not Sealed [ ] Seals Intact: Yes [X] No [ ]

Signatures DG Boyer Richard Meyerhein

I (we) certify that this sample was transferred from to at (location) on / / - : and that the statements in this block are correct.
DATE AND TIME

Evidentiary Seals: Not Sealed [ ] Seals Intact: Yes [ ] No [ ]

Signatures

ANALYSES REQUESTED LAB. No.: ORG- 1123

PLEASE CHECK THE APPROPRIATE BOXES BELOW TO INDICATE THE TYPE OF ANALYTICAL SCREENS REQUIRED. WHENEVER POSSIBLE LIST SPECIFIC COMPOUNDS SUSPECTED OR REQUIRED.

QUALITATIVE	QUANTITATIVE	PURGEABLE SCREENS	QUALITATIVE	QUANTITATIVE	EXTRACTABLE SCREENS
		ALIPHATIC HYDROCARBON SCREEN			ALIPHATIC HYDROCARBONS
X	X	AROMATIC HYDROCARBON SCREEN			CHLORINATED HYDROCARBON PESTICIDES
X	X	HALOGENATED HYDROCARBON SCREEN			CHLOROPHENOXY ACID HERBICIDES
		GAS CHROMATOGRAPH/MASS SPECTROMETER			HYDROCARBON FUEL SCREEN
					ORGANOPHOSPHATE PESTICIDES
					POLYCHLORINATED BIPHENYLS (PCB's)
					POLYNUCLEAR AROMATIC HYDROCARBONS
					TRIAZINE HERBICIDES
		SPECIFIC COMPOUNDS			SPECIFIC COMPOUNDS

REMARKS:

ANALYTICAL RESULTS

COMPOUND	[PPB]	COMPOUND	[PPB]
benzene	4100		
toluene	none detected		
ethylbenzene	200		
p-xylene	28		
m-xylene	860		
o-xylene	none detected		
1,2-dichloroethane	8		
		* DETECTION LIMIT	3 ugm/l

REMARKS: Four other compounds were detected by aromatic screen that were not identified.

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes X NO ___. Seal(s) broken by: J. Zinney date: 9 Dec 85

I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements in this block and the analytical data on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: 9 Dec 85, 10 Dec 85 Analyst's signature: J. Zinney

I certify that I have reviewed and concur with the analytical results for this sample and with the statements in this block. Reviewers signature: R. Meyerhofer

STATE OF NEW MEXICO
ENVIRONMENT

SCIENTIFIC LABORATORY DIVISION

700 Camino de Salud NE
Albuquerque, NM 87106 841-2570

85-1123-C

REPORT TO: DAVID G. BOYER
PLEASE PRINT
NEW MEXICO OIL CONSERVATION DIV.
P.O. BOX 2088
SANTA FE, NM 87501

S.L.D. No.: OR-1123
DATE REC.: 10/29/85
SLD PRIORITY #: 3

PHONE(S): 827-5812
USER CODE: 8 2 2 3 5

SUBMITTER: D. G. BOYER
SUBMITTER CODE:

SAMPLE TYPE: WATER ☒, SOIL ☐, OTHER
SAMPLE TYPE CODE:

COLLECTED: 85/10/24 - 14:30 BY DGB
DATE TIME INITIALS
CODE: Y Y M M D D H H M M I I I

SOURCE: West Seep, Giant Refinery
CODE: AQUIFER DEPTH

NEAREST CITY: Farmington
CODE:

LOCATION: Refinery at Lee Acres
CODE: TOWNSHIP RANGE SECTION TRACTS

pH=____; Conductivity=____umho/cm at ____°C; Chlorine Residual=____

Dissolved Oxygen=____mg/l; Alkalinity=____; Flow Rate=____

Sampling Location, Methods and Remarks (i.e. odors, etc.)
Sample from seep at west side of Facility Pad, SW corner of refinery above parking lot. Seep has oil droplets and sheen. Area very black and oily. Strong odor

I certify that the statements in this block accurately reflect the results of my field analyses, observations and activities. DG Boyer *

Method of shipment to the Laboratory Hand Carried

This form accompanies 2 Septum Vials, ___ Glass Jugs, ___

Containers are marked as follows to indicate preservation:

- ☐ NP: No preservation; sample stored at room temperature.
- ☒ P-Ice: Sample stored in an ice bath (not frozen).
- ☐ P-$Na_2S_2O_3$: Sample preserved with $Na_2S_2O_3$ to remove chlorine residual.

* Collection observed by Giant Rep. R. J. Hunter, Geoscientist

I (we) certify that this sample was transferred from David G Boyer to R Meyerhein at (location) SLD on 10/29/85 - 14:30 (DATE AND TIME) and that the statements in this block are correct.

Evidentiary Seals: Not Sealed ☐ Seals Intact: Yes ☒ No ☐

Signatures DG Boyer Richard Meyerhein

(we) certify that this sample was transferred from ____ to ____ at (location) ____ on __/__/__ - __:__ (DATE AND TIME) and that the statements in this block are correct.

Evidentiary Seals: Not Sealed ☐ Seals Intact: Yes ☐ No ☐

Signatures ____

ANALYSES REQUESTED LAB. No.: ORG- 1123

PLEASE CHECK THE APPROPRIATE BOXES BELOW TO INDICATE THE TYPE OF ANALYTICAL SCREENS REQUIRED. WHENEVER POSSIBLE LIST SPECIFIC COMPOUNDS SUSPECTED OR REQUIRED.

QUALITATIVE	QUANTITATIVE	PURGEABLE SCREENS	QUALITATIVE	QUANTITATIVE	EXTRACTABLE SCREENS
		ALIPHATIC HYDROCARBON SCREEN			ALIPHATIC HYDROCARBONS
X	X	AROMATIC HYDROCARBON SCREEN			CHLORINATED HYDROCARBON PESTICIDES
X	X	HALOGENATED HYDROCARBON SCREEN			CHLOROPHENOXY ACID HERBICIDES
		GAS CHROMATOGRAPH/MASS SPECTROMETER			HYDROCARBON FUEL SCREEN
					ORGANOPHOSPHATE PESTICIDES
					POLYCHLORINATED BIPHENYLS (PCB's)
					POLYNUCLEAR AROMATIC HYDROCARBONS
					TRIAZINE HERBICIDES
		SPECIFIC COMPOUNDS			SPECIFIC COMPOUNDS

REMARKS:

ANALYTICAL RESULTS

COMPOUND	[PPB]	COMPOUND	[PPB]
benzene	4100		
toluene	none detected		
ethylbenzene	200		
p-xylene	28		
m-xylene	860		
o-xylene	none detected		
1,2-dichloroethane	8		
		* DETECTION LIMIT	3 ugm/l

REMARKS: Four other compounds were detected by aromatic screen that were not identified.

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes X NO ___. Seal(s) broken by: J. Finney date: 9 Dec 85

I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements in this block and the analytical data on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: 9 Dec 85, 10 Dec 85 Analyst's signature: J. Finney

I certify that I have reviewed and concur with the analytical results for this sample and with the statements in this block. Reviewers signature: R. Meyerson

Purgeable Method

9 Dec 85
Bentone M-Cl-Td-41
PID detector

```
MN=  0.        REM  FE=  1.        CH= "A"  PS=  1.

NM    = "PID  "

PW    = 6.          PT    = 15.         RN    = 17.
IX    = 18.         OD    = 1.          PH    = 0.
TB    = 0.          MA    = 200.        LS    = 0.
SI    = 0.

TT(1)=     0.       TF(1)="AZ"      TV(1)=     1.
TT(2)=     0.       TF(2)="PM"      TV(2)=     1.
TT(3)=    47.       TF(3)="ER"      TV(3)=     1.


FI= 1.       FE= 1.       CH= "A"  PS=  1.
CS=    0.5       AT=    1.        OF=  15.        PLOT "A" AUTO
FREE MEMORY = 12718.        = SIZE 43

BYTES IN FI    11 =  126

BYTES IN PS    11 =   31

        TRACOR MODEL 570
        GAS CHROMATOGRAPH

        METHOD  1

        DETECTORS
          LEFT    250 DEG
          CENTER  250 DEG   SELECTED
          RIGHT   250 DEG

        INJECTORS
          LEFT    200 DEG   SELECTED
          RIGHT   200 DEG

        OVEN       55 DEG   HOLD    3.00 MIN
  5.0 DEG/MIN TO 140 DEG   HOLD    2.00 MIN

      MAX OVEN TEMP     180 DEG

        HALL VENT TIMER
        OFF        ON        OFF
        0.20    ******    ******

        RUN TIME      22.00  MIN

        METHOD LEVEL TIMED OUTPUTS
                 ON        OFF
          1     0.00      0.01
          2    ******    ******

      SYSTEM LEVEL TIMED OUTPUTS  DISABLED


   923
CHANNEL A      INJECT  12/09/85 14:33:34
```

fileholder 1171-1177

Purge 8 minutes
desorb 0.3 minutes
bake 4 minutes

(1/250) 1123-A	P(2)
(1/10) 1123-B	P(4+4)
(2/5) 1123-B	P(4+4)
1171-A	PØ
1171-A	PØ
1172-A	PØ
1173-A	PØ
1174-A	PØ
1175-A	PØ
1176-A	PØ
1177-A	PØ

119

internal standard is m-chlorotoluene 41ppb.
column is SP1200/Bentone.
GC is a Tracor 570 purge & trap.

9 Dec 85
Bentone M-Cl-Td-41
Hall detector

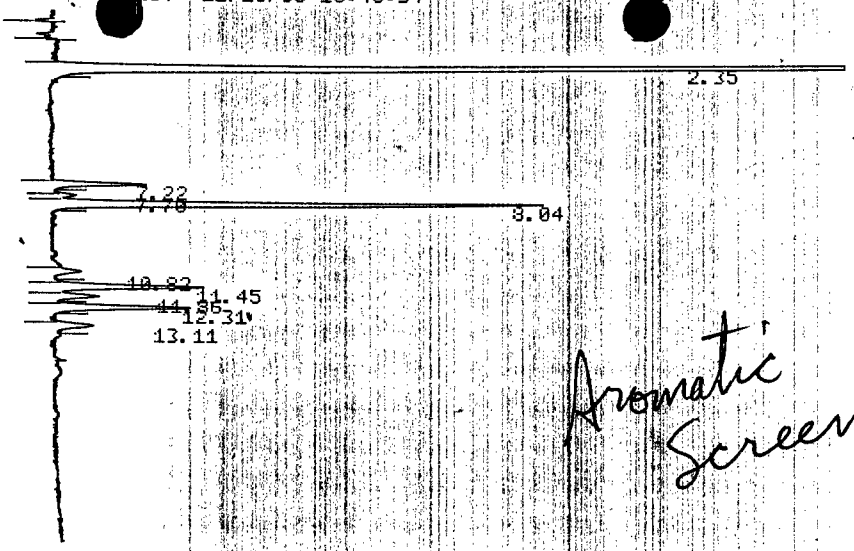
```
MN=  0.        REM  FE=  1.        CH= "A"  PS=  1.

NM    = "HALL "

PW    = 6.          PT    = 19.         RN    = 184.
IX    = 185.        OD    = 1.          PH    = 0.
TB    = 0.          MA    = 2000.       LS    = 0.
SI    = 0.

TT(1)=     0.       TF(1)="AZ"      TV(1)=     1.
TT(2)=     0.       TF(2)="PM"      TV(2)=     1.
TT(3)=    22.       TF(3)="ER"      TV(3)=     1.


FI= 1.       FE= 1.       CH= "A"  PS=  1.
CS=    0.5       AT=   16.        OF=  10.        PLOT "A" AUTO
FREE MEMORY = 14017.        = SIZE 43

BYTES IN FI    11 =  118

BYTES IN PS    11 =   52

   939
CHANNEL A      INJECT  12/09/85 14:36:28
```

100

.08

1.29

CHANNEL A INJECT 12/10/85 10:45:34



Aromatic Screen

PID 12/10/85 10:45:34 CH= "A" PS= 1.

FILE 1. METHOD 0. RUN 27 INDEX 27

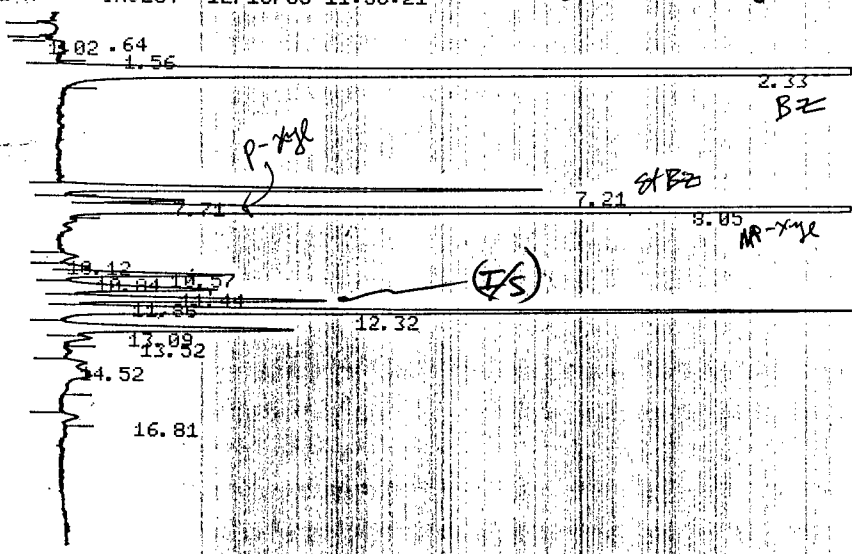
PEAK#	AREA%	RT	AREA	BC	
1	69.15	2.35	49078	01	benzene
2	2.725	7.22	1934	01	ET-BZ
3	0.449	7.7	319	02	p-xyl
4	15.192	8.04	10782	03	m-xyl
5	0.728	10.82	517	01	
6	4.829	11.45	3427	02	(I/S)
7	1.302	11.86	924	03	
8	4.337	12.31	3078	01	
9	1.288	13.11	914	01	
TOTAL	100.		70973		

(1/10) 1123-B

dilution factor = $\left(\frac{1}{10}\right)$

126

CHANNEL A INJECT 12/10/85 11:58:21



PID 12/10/85 11:58:21 CH= "A" PS= 1.

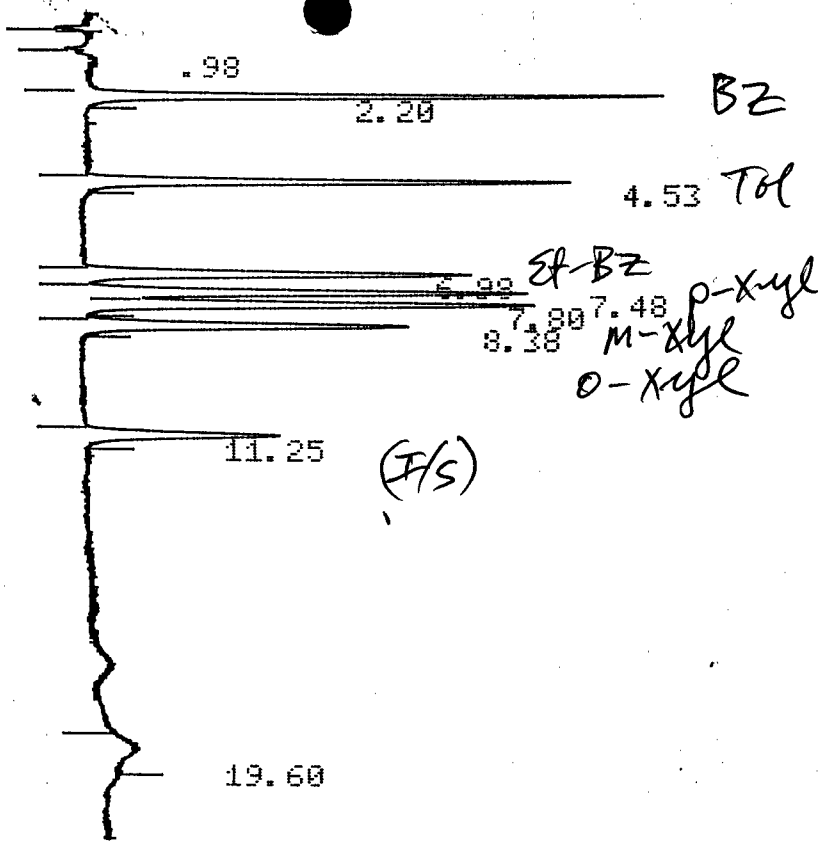
FILE 1. METHOD 0. RUN 28 INDEX 28

PEAK#	AREA%	RT	AREA	BC
1	0.224	0.64	1001	02
2	0.248	1.56	1107	03
3	71.31	2.33	318558	01
4	2.23	7.21	9961	01
5	0.501	7.71	2240	02
6	15.212	8.05	67954	03
7	0.081	10.12	363	02
8	0.127	10.57	567	02
9	0.871	10.84	3891	02
10	1.023	11.44	4568	02
11	1.444	11.86	6452	02
12	4.587	12.32	20491	08
13	1.401	13.09	6258	06
14	0.158	13.52	704	07

(2/5) 1123-B

dilution factor = $\left(\frac{2}{5}\right)$

CHANNEL A INJECT 12/09/85 16:14:42



PID 12/09/85 16:14:42 CH= "A" PS= 1.

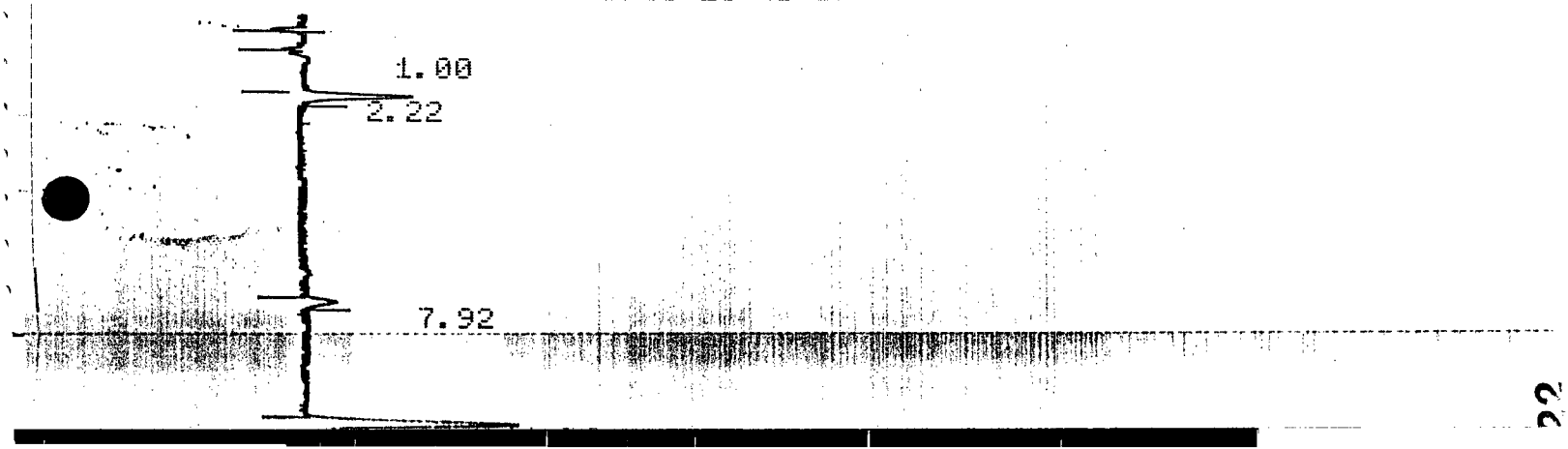
FILE 1. METHOD 0. RUN 21 INDEX 21

PEAK#	AREA%	RT	AREA	BC
1	3.913	0.98	1577	02
2	16.347	2.2	6588	03
3	15.034	4.53	6059	01
4	12.541	6.98	5054	02
5	14.791	7.48	5961	02
6	16.047	7.8	6467	03
7	11.551	8.38	4655	01
8	7.513	11.25	3028	01
9	2.263	19.6	912	01
TOTAL	100.		40301	

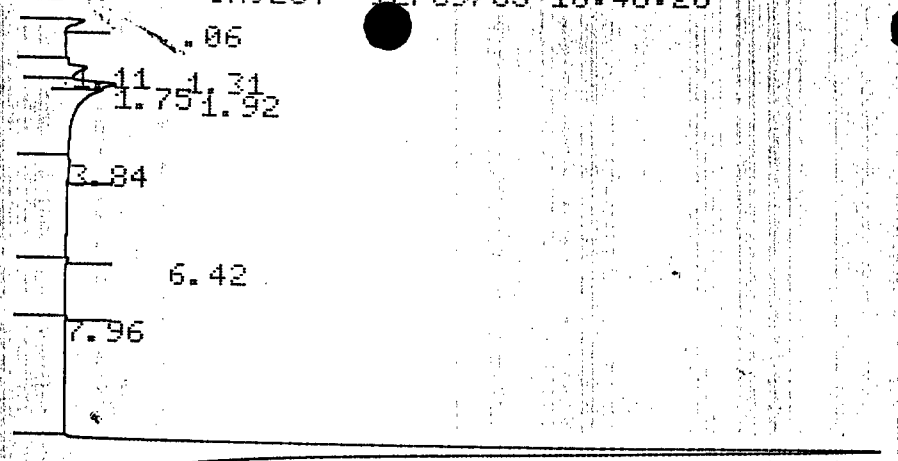
8620
5x (50/10)
21Nov-4

Aromatic Standard

CHANNEL A INJECT 12/09/85 16:43:33

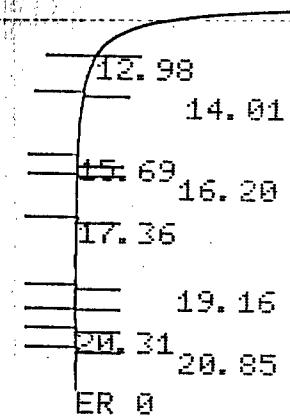


CHANNEL A INJECT 12/09/85 16:46:26



Halogenated Screen

(I/S)



none detected

103

HALL 12/09/85 16:46:26 CH= "A" PS= 1.

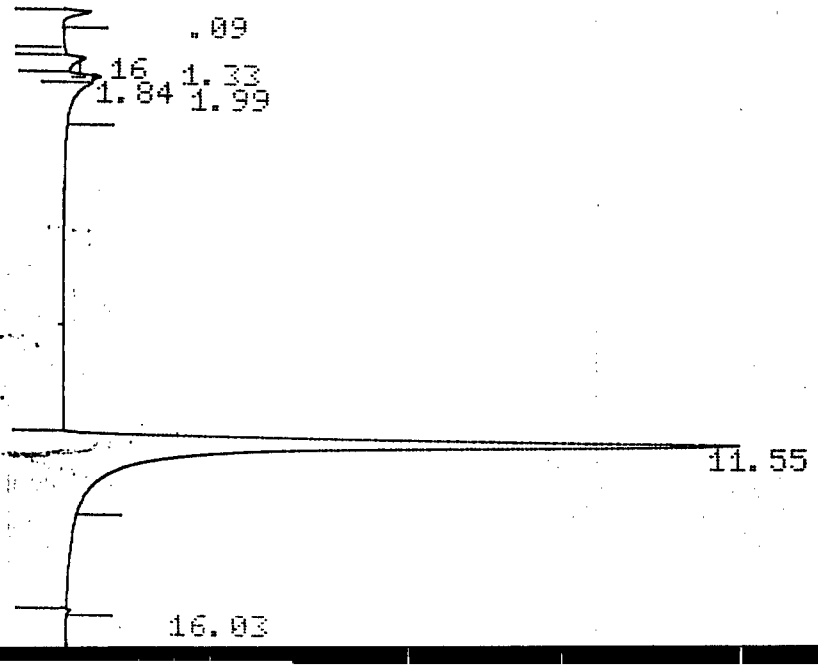
FILE 1. METHOD 0. RUN 189 INDEX 189

dilution factor

PEAK#	AREA%	RT	AREA	BC
1	0.627	0.06	2875	01
2	1.245	1.31	5707	02
3	2.59	1.75	11868	02
4	4.678	1.92	21437	09
5	90.86	11.44 ✓	416379	09
TOTAL	100.		458266	

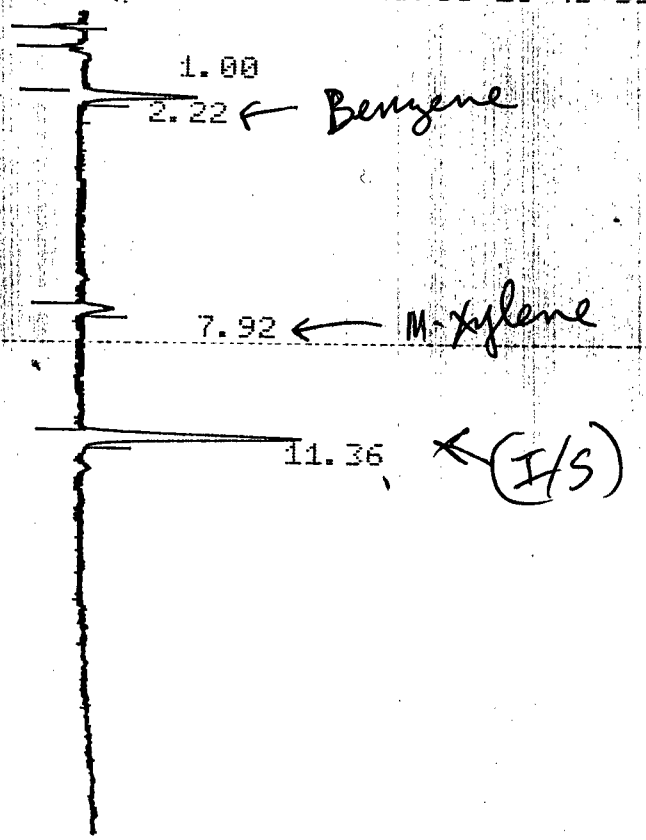
$\left(\frac{1}{250}\right)$ 1123-A

CHANNEL A INJECT 12/10/85 08:31:53



CHANNEL A INJECT 12/09/85 16:43:33

Aromatic Screen



122

PID 12/09/85 16:43:33 CH= "A" PS= 1.

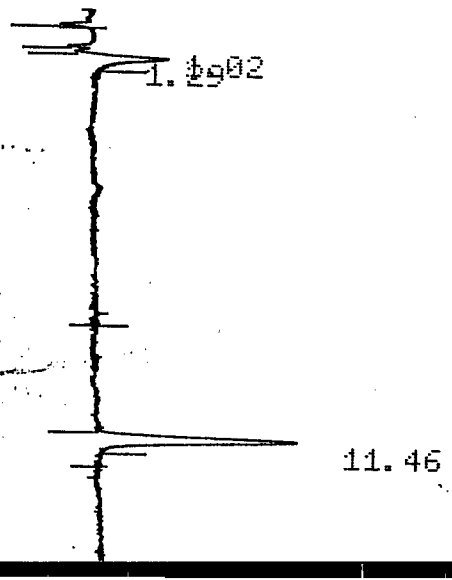
FILE 1. METHOD 0. RUN 22 INDEX 22

PEAK#	AREA%	RT	AREA	BC
1	22.979	1.	1572	02
2	22.745	2.22 ✓	1556	03
3	5.789	7.92 ✓	396	01
4	48.487	11.36 ✓	3317	01
TOTAL	100.		6841	

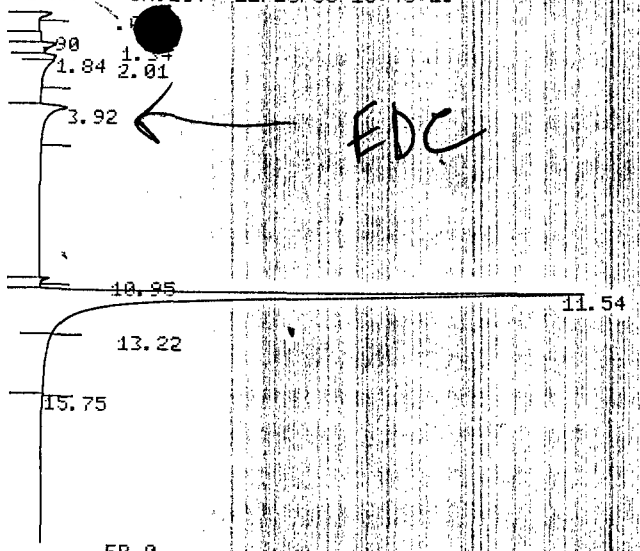
dilution factor

(20λ/5ml)
1123-A

CHANNEL A INJECT 12/10/85 08:28:59



CHANNEL A INJECT 12/10/85 10:48:29



Halogenated Screen

HALL 12/10/85 10:48:29 CH= "A" PS= 1.

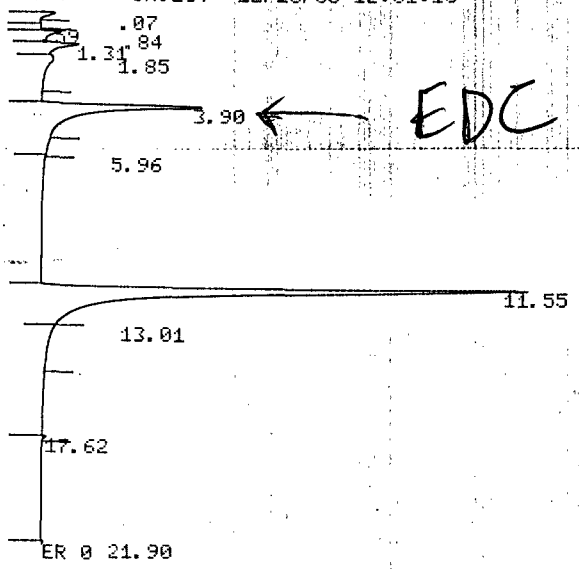
FILE 1. METHOD 0. RUN 194 INDEX 194

dilution factor

PEAK#	AREA%	RT	AREA	BC
1	0.842	0.07	3663	01
2	1.953	1.34	8495	02
3	1.386	1.84	6031	02
4	2.476	2.01	10772	03
5	5.135	3.92	22339	01
6	88.207	11.54	383703	09
TOTAL	100.		435003	

(1/10) 1123-B

CHANNEL A INJECT 12/10/85 12:01:16



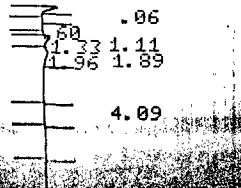
HALL 12/10/85 12:01:16 CH= "A" PS= 1.

FILE 1. METHOD 0. RUN 195 INDEX 195

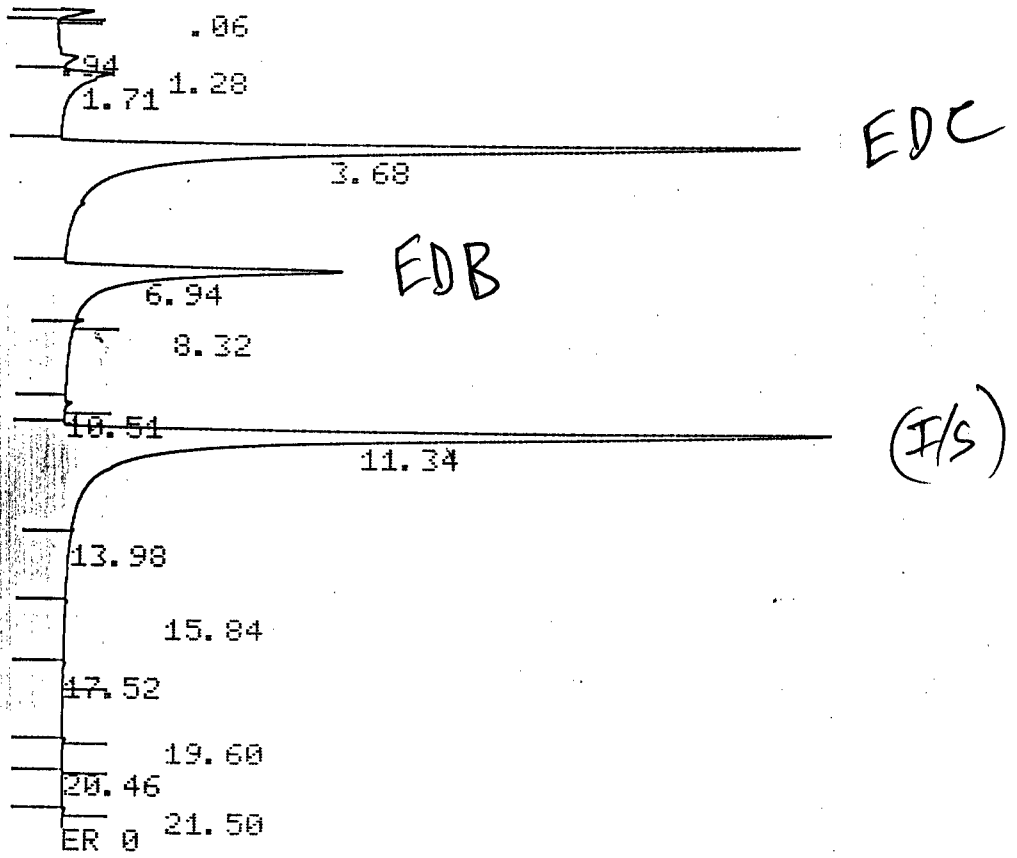
PEAK#	AREA%	RT	AREA	BC
1	0.787	0.07	4221	01
2	1.532	0.84	8222	02
3	3.781	1.31	20292	02
4	2.912	1.85	15625	03
5	20.572	3.9	110393	01
6	70.416	11.55	377861	09
TOTAL	100.		536614	

(2/5) 1123-B

CHANNEL A INJECT 12/10/85 12:30:04



CHANNEL A INJECT 12/09/85 16:17:36



HALL 12/09/85 16:17:36 CH= "A" PS= 1.

FILE 1. METHOD 0. RUN 188 INDEX 188

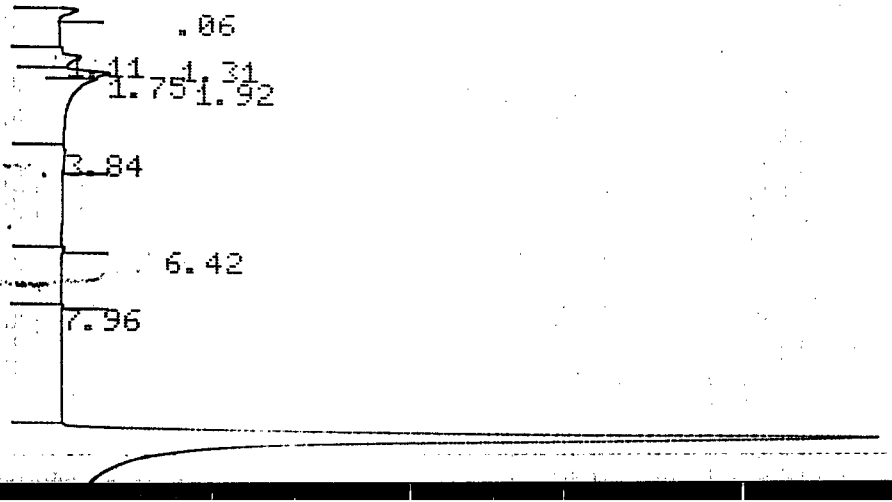
Halogenated Standard

862B

10 ppb

PEAK#	AREA%	RT	AREA	BC
1	0.618	0.06	6138	01
2	0.684	1.28	6794	02
3	3.774	1.71	37486	02
4	35.965	3.68 ✓	357196	02
5	17.711	6.94 ✓	175904	09
6	39.686	11.34 ✓	394146	02
7	1.213	13.98	12044	02
8	0.348	15.84	3459	03
TOTAL	100.		993167	

CHANNEL A INJECT 12/09/85 16:46:26



New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

859
~~WNR~~ WNF

GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

DATE RECEIVED 6/10/88	LAB NO. WC-2089	USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235	
Collection DATE 6/06/08	SITE INFORMATION ►	Sample location Giant Bloomfield-West Sep pipe	
Collection TIME 12:10		Collection site description (AKA "Rainbow Spring")	
Collected by — Person/Agency Boyer/Anderson/OCD			

SEND FINAL REPORT TO ►

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87504-2088

Attn: David Boyer

Phone: 827-5812

RECEIVED AUG - 8 1988 OIL CONSERVATION DIVISION SANTA FE

Station/well code

Owner

SAMPLING CONDITIONS

☐ Bailed ☒ Dipped ☐ Pump ☐ Tap	Water level —	Discharge 330ml/min	Sample type GRAB
pH (00400) 7	Conductivity (Uncorrected) 1650 µmho	Water Temp. (00010) 26 °C	Conductivity at 25°C (00094) µmho

Field comments Foamy, odor hydrocarbon

SAMPLE FIELD TREATMENT — *Check proper boxes* Prefiltered w/1µ filter

No. of samples submitted 1 | ☐ NF: Whole sample (Non-filtered) | ~~☒F: Filtered in field with 0.45 µmembrane filter~~ | ☐ A: 2 ml H_2SO_4/L added

☒ NA: No acid added ☐ Other-*specify:* ☐ A: 5ml conc. HNO_3 added ☐ A: 4ml fuming HNO_3 added

ANALYTICAL RESULTS from SAMPLES

NA		Units	Date analyzed
☒ Conductivity (Corrected) 25°C (00095)	1142	µmho	7/11
☐ Total non-filterable residue (suspended) (00530)		mg/l	
☒ Other: Lab pH	8.36		7/20
☐ Other:			
☐ Other:			

A-H_2SO_4			
☐ Nitrate-N +, Nitrate-N total (00630)		mg/l	
☐ Ammonia-N total (00610)		mg/l	
☐ Total Kjeldahl-N ( )		mg/l	
☐ Chemical oxygen demand (00340)		mg/l	
☐ Total organic carbon ( )		mg/l	
☐ Other:			
☐ Other:			

From F, NA Sample:

			Date Analyzed
☒ Calcium	40	mg/l	7/19
☒ Potassium	4	mg/l	7/25
☒ Magnesium	36.6	mg/l	7/19
☒ Sodium	191	mg/l	7/25
☒ Bicarbonate	519	mg/l	7/21
☒ Chloride	93.2	mg/l	6/29
☒ Sulfate	14.3	mg/l	6/29
☒ Total Solids	864	mg/l	7/7
☒ Bromide	0.094		6/22
☐			
☒ Cation/Anion Balance			

Analyst | Date Reported 7/19/88 | Reviewed by

Laboratory remarks Received by LW 6/9/88 SLD-ALB seal intact

FOR OCD USE -- Date Owner Notified 8/19/88 Phone or Letter? Initials

945

New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

DATE RECEIVED: 4/27/87	LAB NO. UC-1470	USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235	
Collection DATE: 04/23/87	SITE INFORMATION ►	Sample location: GIANT - BLOOMFIELD	
Collection TIME: 1045		Collection site description: BURN PIT PIPE	
Collected by — Person/Agency: BOYER /OCD			

SEND FINAL REPORT TO ►
ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87504-2088

Attn: David Boyer

Phone: 827-5812

Station/well code:
Owner:

SAMPLING CONDITIONS

☐ Bailed ☒ Dipped ☐ Pump ☐ Tap	Water level	Discharge	Sample type: GRAB
pH (00400)	Conductivity (Uncorrected): 1360 µmho	Water Temp. (00010): 15.5 °C	Conductivity at 25°C (00094): µmho

Field comments:

SAMPLE FIELD TREATMENT — *Check proper boxes*

No. of samples submitted: 1

☒ NF: Whole sample (Non-filtered) ☐ F: Filtered in field with 0.45 µmembrane filter ☐ A: 2 ml H_2SO_4/L added

☒ NA: No acid added ☐ Other-*specify:* ☐ A: 5ml conc. HNO_3 added ☐ A: 4ml fuming HNO_3 added

ANALYTICAL RESULTS from SAMPLES

NE NA		Units	Date analyzed
☒ Conductivity (Corrected) 25°C (00095)	1223	µmho	5/28
☐ Total non-filterable residue (suspended) (00530)		mg/l	
☒ Other: pH	7.63		5/5
☐ Other:			
☐ Other:			

A-H_2SO_4			
☐ Nitrate-N +, Nitrate-N total (00630)		mg/l	
☐ Ammonia-N total (00610)		mg/l	
☐ Total Kjeldahl-N ( )		mg/l	
☐ Chemical oxygen demand (00340)		mg/l	
☐ Total organic carbon ( )		mg/l	
☐ Other:			
☐ Other:			

From NE, NA Sample:			Date Analyzed
☒ Calcium	125	mg/l	5/14
☒ Potassium	1.95	mg/l	5/18
☒ Magnesium	29	mg/l	5/14
☒ Sodium	179	mg/l	5/18
☒ Bicarbonate	916	mg/l	5/5
☒ Chloride	113	mg/l	5/5
☒ Sulfate	99	mg/l	5/12
☒ Total Solids	~~870~~	mg/l	5/28
☒ CO_3	0		5/5
☐			
☒ Cation/Anion Balance			

Analyst	Date Reported	Reviewed by
	5/28/87	

Laboratory remarks: TDS Sum: 1463 mg/l (From Lab)

FOR OCD USE -- Date Owner Notified _____ Phone or Letter? _____ Initals _____

CATIONS				ANIONS		
ANALYTE	MEQ.	PPM	DET.LIMIT	ANALYTE	MEQ.	PPM
Ca	6.24	125.00	< 3.0	HCO3	15.01	916.00
Mg	2.38	29.00	< 10.0	S04	2.06	99.00
Na	7.79	179.00	< 10.0	Cl	3.19	113.00
K	0.05	1.95	< 0.5			
Mn	0.00	0.00		NO3	0.00	0.00
Fe	0.00	0.00		CO3	0.00	0.00
				NH3	0.00	0.00
				PO4	0.00	0.00
SUMS	16.46	334.95			20.26	1128.00

* TDS(measured) = ~~4350.00 ppm~~ DJR

Ion Balance = 81.21%

Sample No. =870 1470

Date out/By CD 5/28/87

* Dilution incorrect, Disregard measurement

New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

859 2

GENERAL WATER CHEMISTRY & NITROGEN ANALYSIS

DATE RECEIVED 6 / 10 / 86	LAB NO. WC-2525	USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235	
Collection DATE 86/06/05	CO3-2526	SITE INFORMATION ► Sample location: BURN PIT SEEP	
Collection TIME 1905		Collection site description: GIANT BLOOMFIELD REFINERY	
Collected by — Person/Agency: BOYER /OCD			

SEND FINAL REPORT TO ►

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87504-2088

Attn: David Boyer

Phone: 827-5812

RECEIVED

Station/well code

Owner

SAMPLING CONDITIONS

☐ Bailed ☒ Dipped ☐ Pump ☐ Tap	Water level	Discharge	Sample type: GRAB
pH (00400): 7	Conductivity (Uncorrected): 1600 µmho	Water Temp. (00010): 21.5 °C	Conductivity at 25°C (00094): µmho

Field comments

SAMPLE FIELD TREATMENT — *Check proper boxes*

No. of samples submitted: 1

☐ NF: Whole sample (Non-filtered) ☒ F: Filtered in field with 0.45 µmembrane filter ☐ A: 2 ml H_2SO_4/L added

☒ NA: No acid added ☐ Other-*specify:* ☐ A: 5ml conc. HNO_3 added ☐ A: 4ml fuming HNO_3 added

ANALYTICAL RESULTS from SAMPLES

NF, NA	Units	Date analyzed
☐ Conductivity (Corrected) 25°C (00095)	µmho	
☐ Total non-filterable residue (suspended) (00530)	mg/l	
☐ Other:		
☐ Other:		
☐ Other:		

F, NA		Units	Date analyzed
☒ Calcium (00915)	104	mg/l	6-23
☒ Magnesium (00925)	14.6	mg/l	"
☒ Sodium (00930)	4.6	mg/l	"
☒ Potassium (00935)	Ø	mg/l	"
☒ Bicarbonate (00440)	100	mg/l	6/13
☒ Chloride (00940)	134	mg/l	6/17
☒ Sulfate (00945)	70	mg/l	6/19
☒ Total filterable residue (dissolved) (70300)	1293	mg/l	6/19
☒ Other: CO_3	0		6/13

NF, A-H_2SO_4			
☐ Nitrate-N +, Nitrate-N total (00630)		mg/l	
☐ Ammonia-N total (00610)		mg/l	
☐ Total Kjeldahl-N ( )		mg/l	
☐ Chemical oxygen demand (00340)		mg/l	
☐ Total organic carbon ( )		mg/l	
☐ Other:			
☐ Other:			

F, A-H_2SO_4			
☐ Nitrate-N +, Nitrate-N dissolved (00631)		mg/l	
☐ Ammonia-N dissolved (00608)		mg/l	
☐ Total Kjeldahl-N ( )		mg/l	
☐ Other:			

Analyst	Date Reported	Reviewed by
	6/24/86	[illegible]

Laboratory remarks

FOR OCD USE -- Date Owner Notified _____ Phone or Letter? _____ Initals _____

New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

852 -1

GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

DATE RECEIVED 6 / 10 / 86	LAB NO. WC-2529	USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235	
Collection DATE 6/06/05	SITE INFORMATION ►	Sample location: BURN PIT SEEP	
Collection TIME 1905		Collection site description: GIANT BLOOMFIELD REFINERY	
Collected by — Person/Agency: BOYER /OCD			

SEND FINAL REPORT TO ►

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87504-2088

Attn: David Boyer

Phone: 827-5812

RECEIVED JUL 1986 OIL CONSERVATION DIVISION SANTA FE

Station/ well code

Owner

SAMPLING CONDITIONS

☐ Bailed ☒ Dipped ☐ Pump ☐ Tap	Water level	Discharge	Sample type: GRAB
pH (00400): 7	Conductivity (Uncorrected): 1600 µmho	Water Temp. (00010): 21.5 °C	Conductivity at 25°C (00094): µmho

Field comments

SAMPLE FIELD TREATMENT — *Check proper boxes*

No. of samples submitted: 1

☐ NF: Whole sample (Non-filtered) ☒ F: Filtered in field with 0.45 µ membrane filter ☒ A: 2 ml H_2SO_4/L added

~~☐ NA: No acid added~~ ☐ Other-*specify:* ☐ A: 5ml conc. HNO_3 added ☐ A: 4ml fuming HNO_3 added

ANALYTICAL RESULTS from SAMPLES

NF, NA	Units	Date analyzed
☐ Conductivity (Corrected) 25°C (00095)	µmho	
☐ Total non-filterable residue (suspended) (00530)	mg/l	
☐ Other:		
☐ Other:		
☐ Other:		

F, NA	Units	Date analyzed
☒ Calcium (00915)	mg/l	
☒ Magnesium (00925)	mg/l	
☒ Sodium (00930)	mg/l	
☒ Potassium (00935)	mg/l	
☒ Bicarbonate (00440)	mg/l	
☒ Chloride (00940)	mg/l	
☒ Sulfate (00945)	mg/l	
☒ Total filterable residue (dissolved) (70300)	mg/l	
☒ Other: CO_3		

NF, A-H_2SO_4	Units	Date analyzed
☐ Nitrate-N +, Nitrate-N total (00630)	mg/l	
☐ Ammonia-N total (00610)	mg/l	
☐ Total Kjeldahl-N ( )	mg/l	
☐ Chemical oxygen demand (00340)	mg/l	
☐ Total organic carbon ( )	mg/l	
☐ Other:		
☐ Other:		

F, A-H_2SO_4		Units	Date analyzed
☒ Nitrate-N +, Nitrate-N dissolved (00631)	0.14	mg/l	6/17
☒ Ammonia-N dissolved (00608)	0.26	mg/l	6/29
☒ Total Kjeldahl-N ( )	1.26	mg/l	6/23
☐ Other:			

Analyst	Date Reported	Reviewed by
	7/7/86	[illegible]

Laboratory remarks

FOR OCD USE -- Date Owner Notified _____ Phone or Letter? _____ Initals _____

New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505[redacted]-2555

N/N

GENERAL WATER CHEMISTRY a[redacted]NITROGEN ANALYSIS

DATE RECEIVED 10 29 85	LAB NO. WC 4989	USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235	
Collection DATE 85 10 24	SITE INFORMATION ►	Sample location Giant Refinery West Seep, Farmington	
C[redacted]ion TIME 1430		Collection site description Seep from facility pad at SW end of property above parking lot and near highway	
Collected by — Person/Agency Boyer-Bailey/OCD			

SEND FINAL REPORT TO ►

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87501

Attn: David Boyer

Station/ well code

Owner

SAMPLING CONDITIONS

☐ Bailed ☒ Dipped ☐ Pump ☐ Tap	Water level	Discharge Est Several gpm	Sample type Grab
pH (00400)	Conductivity (Uncorrected) (Time 1450/1550) µmho	Water Temp. (00010) 21 °C	Conductivity at 25°C (00094) µmho

Field comments Sample collected by digging small ditch in pad side to pond. Very oily, sheen and droplets, strong odor. Witnessed by company rep & consultant

SAMPLE FIELD TREATMENT — *Check proper boxes*

No. of samples submitted 1 | ☒ NF: Whole sample (Non-filtered) | ☐ F: Filtered in field with 0.45 µmembrane filter | ☐ A: 2 ml H_2SO_4/L added

[redacted]NA: No acid added ☐ Other-*specify:*

ANALYTICAL RESULTS from SAMPLES

NF, NA		Units	Date analyzed
☒ Conductivity (Corrected) 25°C (00095)	1842	µmho	11/18/85
☐ Total non-filterable residue (suspended) (00530)		mg/l	
☒ Other: pH	8.0		12/3
☐ Other:			
☐ Other:			

☒ NA NF		Units	Date analyzed
☒ Calcium (00915)	140	mg/l	11-8
☒ Magnesium (00925)	36.6	mg/l	"
☒ Sodium (00930)	299	mg/l	"
☒ Potassium (00935)	5.07	mg/l	"
☒ Bicarbonate (00440)	1,081	mg/l	12/3
☒ Chloride (00940)	116.2	mg/l	12/9
☒ Sulfate (00945)	29.7	mg/l	11/27
☒ Total filterable residue (dissolved) (70300)	1145	mg/l	11/22
☒ Other: CO_3	0.0		
N F	0.52		11/20/85

NF, A-H_2SO_4			
☐ Nitrate-N +, Nitrate-N total (00630)		mg/l	
☐ Ammonia-N total (00610)		mg/l	
☐ Total Kjeldahl-N ( )		mg/l	
☐ Chemical oxygen demand (00340)		mg/l	
☐ Total organic carbon ( )		mg/l	
☐ Other:			
☐ Other:			

F, A-H_2SO_4			
☐ Nitrate-N +, Nitrate-N dissolved (00631)		mg/l	
☐ Ammonia-N dissolved (00608)		mg/l	
☐ Total Kjeldahl-N ( )		mg/l	
☐ Other:			

Analyst	Date Reported	Reviewed by
	12 10 85	[illegible]

[redacted]ratory remarks

SLD 726 (12/84) *DISTRIBUTION:* **WHITE** — EID, GW&HW Bureau **CANARY** — WS System **PINK** — EID Local Office **GOLDENROD** — SLD

New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

852 WPN

GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

DATE RECEIVED 6/10/88	LAB NO. W C-2103	USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235	
Collection DATE 88/06/08	SITE INFORMATION ►	Sample location Giant Bloomfield - West Seep pipe	
Collection TIME 1210		Collection site description	
Collected by — Person/Agency Boyer/Anderson /OCD			

RECEIVED AUG - 8 1988 OIL CONSERVATION DIVISION SANTA FE

SEND FINAL REPORT TO ►

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87504-2088

Attn: David Boyer

Phone: 827-5812

Station/well code

Owner

SAMPLING CONDITIONS

☐ Bailed ☒ Dipped ☐ Pump ☐ Tap	Water level —	Discharge 330 ml/min	Sample type Grab	
pH (00400) 7	Conductivity (Uncorrected) 1650 µmho	Water Temp. (00010) 20 °C	Conductivity at 25°C (00094) µmho	

Field comments Foamy, no odor hydrocarbon

SAMPLE FIELD TREATMENT — *Check proper boxes*

No. of samples submitted 1 | ☐ NF: Whole sample (Non-filtered) | ☒ F: Filtered in field with 0.45 µmembrane filter | ☒ A: 2 ml H_2SO_4/L added

☐ NA: No acid added ☒ Other specify | ☐ A: 5ml conc. HNO_3 added | ☐ A: 4ml fuming HNO_3 added

ANALYTICAL RESULTS from SAMPLES

NA		Units	Date analyzed
☐ Conductivity (Corrected) 25°C (00095)		µmho	
☐ Total non-filterable residue (suspended) (00530)		mg/l	
☐ Other:			
☐ Other:			
☐ Other:			

A-H_2SO_4			
☒ Nitrate-N +, Nitrate-N total (00630)	0.36	mg/l	7/21
☒ Ammonia-N total (00610)	1.60	mg/l	7/7
☒ Total Kjeldahl-N ( )	1.82	mg/l	7/26
☐ Chemical oxygen demand (00340)		mg/l	
☐ Total organic carbon ( )		mg/l	
☐ Other:			
☐ Other:			

From ____, NA Sample:

			Date Analyzed
☐ Calcium		mg/l	
☐ Potassium		mg/l	
☐ Magnesium		mg/l	
☐ Sodium		mg/l	
☐ Bicarbonate		mg/l	
☐ Chloride		mg/l	
☐ Sulfate		mg/l	
☐ Total Solids		mg/l	
☐			
☐			
☐ Cation/Anion Balance			

Analyst | Date Reported 7/27/88 | Reviewed by

Laboratory remarks Received by RN 6/9/88 SLD - ALB sealed

FOR OCD USE -- Date Owner Notified 8/19/88 Phone or Letter ____ Initals

85-2/WPN

New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

DATE RECEIVED 4/27/87	LAB NO. WC-1466	USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235	
Collection DATE 04/23/87	SITE INFORMATION ►	Sample location: GIANT BLOOMFIELD	
Collection TIME 1045		Collection site description: BURN PIT PIPE	
Collected by — Person/Agency: BOYER /OCD			

SEND FINAL REPORT TO ►

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87504-2088

Attn: David Boyer

Phone: 827-5812

Station/well code

Owner

SAMPLING CONDITIONS

☐ Bailed ☒ Dipped ☐ Pump ☐ Tap	Water level	Discharge 1000 ml/80 sec	Sample type GRAB
pH (00400) (7.0 strip)	Conductivity (Uncorrected) 1360 µmho	Water Temp. (00010) 15.5 °C	Conductivity at 25°C (00094) µmho

Field comments (See VOC form for comments)

SAMPLE FIELD TREATMENT — *Check proper boxes*

No. of samples submitted 1

☒ NF: Whole sample (Non-filtered) ☐ F: Filtered in field with 0.45 µmembrane filter ☒ A: 2 ml H_2SO_4/L added

☐ NA: No acid added ☐ Other-*specify:* ☒ A: ~~5ml conc. HNO3 added~~ 2ml H_2SO_4 ☐ A: 4ml fuming HNO_3 added

ANALYTICAL RESULTS from SAMPLES

NF, NA		Units	Date analyzed
☐ Conductivity (Corrected) 25°C (00095)		µmho	
☐ Total non-filterable residue (suspended) (00530)		mg/l	
☐ Other:			
☐ Other:			
☐ Other:			

F, NA		Units	Date analyzed
☐ Calcium (00915)		mg/l	
☐ Magnesium (00925)		mg/l	
☐ Sodium (00930)		mg/l	
☐ Potassium (00935)		mg/l	
☐ Bicarbonate (00440)		mg/l	
☐ Chloride (00940)		mg/l	
☐ Sulfate (00945)		mg/l	
☐ Total filterable residue (dissolved) (70300)		mg/l	
☐ Other:			

NF, A-H_2SO_4			
☒ Nitrate-N +, Nitrate-N total (00630)	0.08	mg/l	5/12
☒ Ammonia-N total (00610)	0.46	mg/l	5/7
☒ Total Kjeldahl-N ( )	1.85	mg/l	5/15
☐ Chemical oxygen demand (00340)		mg/l	
☐ Total organic carbon ( )		mg/l	
☐ Other:			
☐ Other:			

~~F, A-H_2SO_4~~			
☐ Nitrate-N +, Nitrate-N dissolved (00631)		mg/l	
☐ Ammonia-N dissolved (00608)		mg/l	
☐ Total Kjeldahl-N ( )		mg/l	
☐ Other:			

Analyst	Date Reported	Reviewed by
	5/15/87	[illegible]

Laboratory remarks

FOR OCD USE -- Date Owner Notified _____ Phone or Letter? _____ Initals _____

New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) [redacted] 2555

pN

GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

DATE RECEIVED 10 29 85	LAB NO. WC-4497	USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235	
Collection DATE 85 10 24	SITE INFORMATION ►	Sample location: Giant Refinery West Seep, Farmington	
Collection TIME 1430		Collection site description: Seep from facility pad at SW end of property above parking lot and near highway	
Collected by — Person/Agency: Boyer-Bailey/OCD			

SEND FINAL REPORT TO ►

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87501

Attn: David Boyer

Station/well code

Owner

SAMPLING CONDITIONS

☐ Bailed ☒ Dipped ☐ Pump ☐ Tap	Water level	Discharge Est Several gpm	Sample type Grab
pH (00400)	Conductivity (Uncorrected) (Time 1450) 1550 µmho	Water Temp. (00010) 21 °C	Conductivity at 25°C (00094) µmho

Field comments: Sample collected by digging small ditch in pad side to pond. Very oily, sheen and droplets, strong odor. Witnessed by company and conservation

SAMPLE FIELD TREATMENT — *Check proper boxes*

No. of samples submitted: 1

☒ NF: Whole sample (Non-filtered) ☐ F: Filtered in field with 0.45 µmembrane filter ☒ A: 2 ml H_2SO_4/L added

☐ NA: No acid added ☐ Other-*specify:*

ANALYTICAL RESULTS from SAMPLES

NF, NA		Units	Date analyzed
☐ Conductivity (Corrected) 25°C (00095)		µmho	
☐ Total non-filterable residue (suspended) (00530)		mg/l	
☐ Other:			
☐ Other:			
☐ Other:			

F, NA		Units	Date analyzed
☐ Calcium (00915)		mg/l	
☐ Magnesium (00925)		mg/l	
☐ Sodium (00930)		mg/l	
☐ Potassium (00935)		mg/l	
☐ Bicarbonate (00440)		mg/l	
☐ Chloride (00940)		mg/l	
☐ Sulfate (00945)		mg/l	
☐ Total filterable residue (dissolved) (70300)		mg/l	
☐ Other:			

NF, A-H_2SO_4			
☒ Nitrate-N +, Nitrate-N total (00630)	2.46	mg/l	11/6
☒ Ammonia-N total (00610)	2.8	mg/l	11/14
☒ Total Kjeldahl-N ( )	* 3.93	mg/l	1/14
☐ Chemical oxygen demand (00340)		mg/l	
☐ Total organic carbon ( )		mg/l	
☐ Other:			
☐ Other:			

F, A-H_2SO_4			
☐ Nitrate-N +, Nitrate-N dissolved (00631)		mg/l	
☐ Ammonia-N dissolved (00608)		mg/l	
☐ Total Kjeldahl-N ( )		mg/l	
☐ Other:			

Analyst	Date Reported	Reviewed by
	1 14 86	

Laboratory remarks: * Extremely hard to digest. Non diluted, kept shooting out, thus the time delay. Chris Jones

SLD 726 (12/84) *DISTRIBUTION:* **WHITE** — EID, GW&HW Bureau **CANARY** — WS System **PINK** — EID Local Office **GOLDENROD** — SLD

New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106

HEAVY METAL ANALYSIS FORM

Telephone: (505)841-2553

Date Received	6/10/88	Lab No. ICP-260	User Code	☒ 82235 ☐ Other:

COLLECTION DATE & TIME: yy 88 mm 06 dd 08 hh 12 mm 10

COLLECTED BY: Boyer/Anderson OCD

COLLECTION SITE DESCRIPTION: West Seep Pipe

TO:

OWNER: Giant Bloomfield Refinery

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg., PO Box 2088
SANTA FE, NM 87504-2088

SITE LOCATION:
County: San Juan

Township, Range, Section, Tract: (10N06E24342)
29N/12W/27/1/3

ATTN: S. BOYER
TELEPHONE: 827-5812

STATION/ WELL CODE:

LATITUDE, LONGITUDE:

SAMPLING CONDITIONS:

☐ Bailed ☒ Dipped ☐ Pump ☐ Tap	Water Level:	Discharge: 330 ml/min	Sample Type: Grab
pH(00400) 7	Conductivity(Uncorr.) 1650 µmho	Water Temp.(00010) 26 °C	Conductivity at 25°C (00094) µmho

FIELD COMMENTS: Foamy, no odor, hydrocarbon

SAMPLE FIELD TREATMENT Check proper boxes:		LAB ANALYSIS REQUESTED:
☐ WPN: Water Preserved w/HNO_3 Non-Filtered	☒ WPF: Water Preserved w/HNO_3 Filtered	☒ ICAP Scan Mark box next to metal if AA is required.

ANALYTICAL RESULTS (MG/L)

ELEMENT	ICAP VALUE		AA VALUE	ELEMENT	ICAP VALUE		AA VALUE
Aluminum	<0.1			Silicon	25.		
Barium	0.3			Silver	<0.1	☐	
Beryllium	<0.1			Strontium	3.3		
Boron	6.6			Tin	<0.1		
Cadmium	<0.1	☐		Vanadium	<0.1		
Calcium	200.			Zinc	<0.1		
Chromium	<0.1	☒	<0.005	Arsenic		☐	
Cobalt	<0.05			Selenium		☐	
Copper	<0.1			Mercury		☐	
Iron	<0.1					☐	
Lead	<0.1	☒	<0.01			☐	
Magnesium	30.					☐	
Manganese	4.6					☐	
Molybdenum	<0.1					☐	
Nickel	<0.1					☐	

LAB COMMENTS: Seal intact. Broken by JJA 6/14/88.

For OCD Use:
Date Owner Notified: 8/19/88
Phone or Letter?
Initials: AJB

ICAP Analyst JB
Date Analyzed 7/13/88

Reviewer Jim Ashby
Date Reviewed 7/25/88

Received by WJJ 6/9/88 SLS-NB

New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

HEAVY METALS
~~GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS~~

DATE RECEIVED 6 10 86	LAB NO. HM-1079	USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235	
Collection DATE 86 06 05	SITE INFORMATION ►	Sample location: BURN PIT SEEP	
Collection TIME 1905		Collection site description: GIANT BLOOMFIELD REFINERY	
Collected by — Person/Agency: BOYER /OCD			

SEND FINAL REPORT TO ►

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87504-2088

Attn: David Boyer

Phone: 827-5812

Station/well code

Owner

SAMPLING CONDITIONS

☐ Bailed ☒ Dipped ☐ Pump ☐ Tap	Water level	Discharge	Sample type: GRAB
pH (00400): 7	Conductivity (Uncorrected): 1600 µmho	Water Temp. (00010): 21.5 °C	Conductivity at 25°C (00094): µmho

Field comments

SAMPLE FIELD TREATMENT — *Check proper boxes*

No. of samples submitted: ☐ NF: Whole sample (Non-filtered) ☒ F: Filtered in field with 0.45 µmembrane filter ☐ A: 2 ml H_2SO_4/L added

☐ NA: No acid added ☐ Other-*specify:* ☐ A: 5ml conc. HNO_3 added ☒ A: 4ml fuming HNO_3 added

ANALYTICAL RESULTS from SAMPLES

NF, NA	Units	Date analyzed
☐ Conductivity (Corrected) 25°C (00095)	µmho	
☐ Total non-filterable residue (suspended) (00530)	mg/l	
☒ Other: ICAP		
☒ Other: AS	0.024	
☒ Other: Hg	<0.0005	

F, NA	Units	Date analyzed
☐ Calcium (00915)	mg/l	
☐ Magnesium (00925)	mg/l	
☐ Sodium (00930)	mg/l	
☐ Potassium (00935)	mg/l	
☐ Bicarbonate (00440)	mg/l	
☐ Chloride (00940)	mg/l	
☐ Sulfate (00945)	mg/l	
☐ Total filterable residue (dissolved) (70300)	mg/l	
☐ Other:		

NF, A-H_2SO_4	Units	Date analyzed
☐ Nitrate-N +, Nitrate-N total (00630)	mg/l	
☐ Ammonia-N total (00610)	mg/l	
☐ Total Kjeldahl-N ( )	mg/l	
☐ Chemical oxygen demand (00340)	mg/l	
☐ Total organic carbon ( )	mg/l	
☐ Other:		
☐ Other:		

F, A-H_2SO_4	Units	Date analyzed
☐ Nitrate-N +, Nitrate-N dissolved (00631)	mg/l	
☐ Ammonia-N dissolved (00608)	mg/l	
☐ Total Kjeldahl-N ( )	mg/l	
☐ Other:		

Analyst	Date Reported	Reviewed by
	7 8 86	J.T. Ashley

Laboratory remarks

FOR OCD USE -- Date Owner Notified _____ Phone or Letter? _____ Initals _____

Lab Number: HM 1079

Date Submitted: 6/10/86

By: Boyer

Sample Code: Giant Bloomfield Pit Seep

Date Analyzed: 6/19/86

Reviewed By: Jim Ashley

Date Reported: 7/8/86

Element	ICAP VALUE (MG/L)	AA VALUE (MG/L)
Aluminum	<0.1	
Barium	0.4	
Berylium	<0.1	
Boron	5.4	
Cadmium	<0.1	
Calcium	160.	
Chromium	<0.1	
Cobalt	<0.1	
Copper	<0.1	
Iron	24.	
Lead	<0.1	
Magnesium	22.	
Manganese	3.5	
Molybdenum	<0.1	
Nickel	<0.1	
Silicon	30.	
Silver	<0.1	
Strontium	5.9	
Tin	<0.1	
Vanadium	<0.1	
Zinc	0.2	
Arsenic		0.024
Selenium		
Mercury		<0.0005

New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) [redacted] 2555

PN Heavy Metal

GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

DATE RECEIVED 10 29 85	LAB NO. HM-1860	USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235	
Collection DATE 85 10 24	SITE INFORMATION ►	Sample location: Giant Refinery West Seep, Farmington	
Collection TIME 1430		Collection site description: Seep from facility pad at SW end of property above parking lot and near highway	
Collected by — Person/Agency: Boyer-Ridley/OCD			

SEND FINAL REPORT TO ►

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87501

Attn: David Boyer

Station/well code

Owner

SAMPLING CONDITIONS

☐ Bailed ☒ Dipped ☐ Pump ☐ Tap	Water level	Discharge: Est Several gpm	Sample type: Grab
pH (00400)	Conductivity (Uncorrected) (Time 1430) 1550 µmho	Water Temp. (00010) 21 °C	Conductivity at 25°C (00094) µmho

Field comments: Sample collected by digging small ditch in pad side to pond. Very oily, sheen and droplets, strong odor. Witnessed by company and completion

SAMPLE FIELD TREATMENT — *Check proper boxes*

No. of samples submitted: 1

☒ NF: Whole sample (Non-filtered) ☐ F: Filtered in field with 0.45 µmembrane filter ☒ A: ~~2 ml H_2SO_4/L~~ added HNO_3

☐ NA: No acid added ☐ Other-*specify:*

ANALYTICAL RESULTS from SAMPLES

NF, NA (A HNO_3)	Units	Date analyzed
☐ Conductivity (Corrected) 25°C (00095)	µmho	
☐ Total non-filterable residue (suspended) (00530)	mg/l	
☒ Other: ICAP SCAN		
☐ Other:		
☐ Other:		

F, NA		Units	Date analyzed
☐ Calcium (00915)		mg/l	
☐ Magnesium (00925)		mg/l	
☐ Sodium (00930)		mg/l	
☐ Potassium (00935)		mg/l	
☐ Bicarbonate (00440)		mg/l	
☐ Chloride (00940)		mg/l	
☐ Sulfate (00945)		mg/l	
☐ Total filterable residue (dissolved) (70300)		mg/l	
☐ Other:			

NF, A-H_2SO_4		Units	Date analyzed
☐ Nitrate-N +, Nitrate-N total (00630)		mg/l	
☐ Ammonia-N total (00610)		mg/l	
☐ Total Kjeldahl-N ( )		mg/l	
☐ Chemical oxygen demand (00340)		mg/l	
☐ Total organic carbon ( )		mg/l	
☐ Other:			
☐ Other:			

F, A-H_2SO_4		Units	Date analyzed
☐ Nitrate-N +, Nitrate-N dissolved (00631)		mg/l	
☐ Ammonia-N dissolved (00608)		mg/l	
☐ Total Kjeldahl-N ( )		mg/l	
☐ Other:			

Analyst	Date Reported	Reviewed by
	12 9 85	Jim Ashley

Laboratory remarks: Sample digested 11/21/85

SLD 726 (12/84) *DISTRIBUTION:* **WHITE** — EID, GW&HW Bureau **CANARY** — WS System **PINK** — EID Local Office **GOLDENROD** — SLD

ICAP SCREEN

Lab Number: HM 1860

Date Submitted: 10/24/85

By: David Bayer

Sample Code: S. Refinery West Seep

Date Reported: 12/9/85

By: Jim Oelly

Date Analyzed: 11/27/85

Determination	Concentration (µg/ml)
Aluminum	20.
Barium	0.8
Beryllium	<0.1
Boron	5.4
Cadmium	<0.1
Calcium	260.
Chromium	<0.1
Cobalt	<0.1
Copper	<0.1
Iron	56.
Lead	<0.1
Magnesium	36.
Manganese	7.2
Molybdenum	<0.1
Nickel	<0.1
Silicon	2.1
Silver	<0.1
Strontium	4.6
Tin	<0.1
Vanadium	<0.1
Yttrium	<0.1
Zinc	0.1

ATOMIC ABSORPTION ANALYSES

Determination	Concentration (µg/ml)
Arsenic	
Selenium	
Mercury	

STATE OF NEW MEXICO DEPARTMENT OF HEALTH

SCIENTIFIC LABORATORY DIVISION

P.O. Box 4700 700 Camino de Salud, NE
Albuquerque, NM 87196-4700 [505]-841-2500
ORGANIC CHEMISTRY SECTION [505]-841-2570

September 6, 1994

Request ID No. 022278

ANALYTICAL REPORT
SLD Accession No. OR-94-2371

Distribution
( ) User 70320
(X) Submitter 260
(x) SLD Files

To: David Boyer
NM Oil Consv. Div.
State Land Office Bldg.
P.O. Box 2088
Santa Fe, NM 87504-2088

From: Organic Chemistry Section
Scientific Laboratory Div.
700 Camino de Salud, N.E.
P.O. Box 4700
Albuquerque, NM 87196-4700

Re: **A soil sample submitted to this laboratory on July 27, 1994**

DEMOGRAPHIC DATA

COLLECTION		*LOCATION*
On: 26-Jul-94	*By:* Ols . . .	FP-C
At: 14:15 hrs.	*In/Near:* San Juan County	

ANALYTICAL RESULTS: Aromatic & Halogenated Purgeable [EPA-601/2] Screen {754}

Parameter	Value	Note	PQL	Units
EPA 601/2 Volatiles (60)	0.00	N	200.00	ppb

See Laboratory Remarks for Additional Information

Notations & Comments:

PQL = Practical Quantitation Level.

A = Approximate Value; N = None Detected above Detection Limit; P = Compound Present, but not quantified;
T = Trace (<Detection Limit); U = Compound Identity Not Confirmed.

Evidentiary Seals: Not Sealed [☑]; Intact: No [ ], Yes [ ] & Broken By: _____ Date: _____

Laboratory Remarks:

VOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: NM SCIENTIFIC LABORATORY DIVISION Contract: N/A
Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: N/A
Matrix: (soil/water) Soil Lab Sample ID: OR-94-2371
Sample wt/vol: 9.68 (g/mL) g SLD Batch No: 357
Level: (low/med) Low Date Received: 7/27/94
% Moisture: not dec. 4.7 dec. N/A Date Extracted: N/A
Extraction: (SepF/Cont/Sonc) N/A Date Analyzed: 8/05/94
GPC Cleanup: (Y/N) No pH: _____ Dilution Factor: 200
CONCENTRATION UNITS:
(ug/L or ug/Kg): ug/L

This sample was analyzed for the following compounds using EPA Methods 601 & 602

(Continued on page 2.)

CAS NO.	COMPOUND	CONC.	Q	PQL
67-64-1	Acetone		U	1000
71-43-2	Benzene		U	200
108-86-1	Bromobenzene		U	200
74-97-5	Bromochloromethane		U	200
75-27-4	Bromodichloromethane		U	200
75-25-2	Bromoform		U	200
78-93-3	2-Butanone (MEK)		U	1000
104-51-8	n-Butylbenzene		U	200
135-98-8	sec-Butylbenzene		U	200
98-06-6	tert-Butylbenzene		U	200
1634-04-4	tert-Butyl methyl ether (MTBE)		U	1000
56-23-5	Carbon tetrachloride		U	200
108-90-7	Chlorobenzene		U	200
67-66-3	Chloroform		U	200
95-49-8	2-Chlorotoluene		U	200
106-43-4	4-Chlorotoluene		U	200
96-12-8	1,2-Dibromo-3-chloropropane		U	200
124-48-1	Dibromochloromethane		U	200
106-93-4	1,2-Dibromoethane		U	200
74-95-3	Dibromomethane		U	200
95-50-1	1,2-Dichlorobenzene		U	200
541-73-1	1,3-Dichlorobenzene		U	200
106-46-7	1,4-Dichlorobenzene		U	200
75-71-8	Dichlorodifluoromethane		U	200
75-34-3	1,1-Dichloroethane		U	200
107-06-2	1,2-Dichloroethane		U	200
75-35-4	1,1-Dichloroethene		U	200
156-59-4	cis-1,2-Dichloroethene		U	200
156-60-5	trans-1,2-Dichloroethene		U	200
78-87-5	1,2-Dichloropropane		U	200
142-28-9	1,3-Dichloropropane		U	200
590-20-7	2,2-Dichloropropane		U	200
563-58-6	1,1-Dichloropropene		U	200
1006-01-5	cis-1,3-Dichloropropene		U	200
1006-02-6	trans-1,3-Dichloropropene		U	200
100-41-4	Ethylbenzene		U	200
87-68-3	Hexachlorobutadiene		U	200
98-82-8	Isopropylbenzene		U	200
99-87-6	4-Isopropyltoluene		U	200
75-09-2	Methylene chloride		U	200
90-12-0	1-Methylnaphthalene		U	200

(Continued on page 3.)

91-57-6	2-Methylnaphthalene		U	200
91-20-3	Naphthalene		U	200
103-65-1	n-Propylbenzene		U	200
100-42-5	Styrene		U	200
630-20-6	1,1,1,2-Tetrachloroethane		U	200
79-34-5	1,1,2,2-Tetrachloroethane		U	200
127-18-4	Tetrachloroethene		U	200
109-99-9	Tetrahydrofuran (THF)		U	1000
108-88-3	Toluene		U	200
87-61-5	1,2,3-Trichlorobenzene		U	200
120-82-1	1,2,4-Trichlorobenzene		U	200
71-55-6	1,1,1-Trichloroethane		U	200
79-00-5	1,1,2-Trichloroethane		U	200
79-01-6	Trichloroethene		U	200
75-69-4	Trichlorofluoromethane		U	200
96-18-4	1,2,3-Trichloropropane		U	200
95-63-6	1,2,4-Trimethylbenzene		U	200
108-67-8	1,3,5-Trimethylbenzene		U	200
75-01-4	Vinyl chloride		U	200
95-47-6	o-Xylene		U	200
N/A	p- & m-Xylene		U	200

* CONC = CONCENTRAION DETERMINED
PQL = Practical Quantitation Limit (Approximately 10 times MDL)
* Q = Qualifier Definitions:
B - Indicates compound was detected in the Lab Blank as well as in the sample.
D - Indicates value taken from a secondary (diluted) sample analysis.
E - Indicates compound concentration exceeded the range of the standard curve.
J - Indicates an estimated value for tentatively identified compounds, or for compounds detected and identified but present at a concentration less than the quantitation limit.
N - Indicates that more than one peak was used for quantitation.
U - Indicates compound was analyzed for, but not detected above the concentration listed (Quantitation Limit).

QUALITY CONTROL SUMMARY FOR VOLATILES SCREEN

METHOD BLANK: A laboratory method blank was analyzed along with this sample to assure the absence of interfering contaminants

(Continued on page 4.)

from lab reagents, instruments, or the general laboratory environment. Unless listed below, no contaminants were detected in this blank above the reported detection limit.

COMPOUND DETECTED	CONCENTRATION (PPB)
No Compounds Detected	

SURROGATE RECOVERIES:

SURROGATE	CONCENTRATION		% RECOVERY
Bromofluorobenzene	5000	ppb	95.0
2-Bromo-1-chloropropane	5000	ppb	93.0
m-Cl-Toluene	5000	ppb	106.8

SPIKE RECOVERY: The % recoveries for compounds in the batch spike were from 80% to 120% with the exception of the compounds listed below:

COMPOUND	CONCENTRATION	% RECOVERY
Bromoform	10.0 ppb	78.0

Analyst: Patrick Basile
Patrick F. Basile
Analyst, Organic Chemistry

Reviewed By: R. Meyerhein
Richard F. Meyerhein 08/24/94
Supervisor, Organic Chemistry Section

ORGANIC CHEMISTRY ANALYTICAL REQUEST FORM

SCIENTIFIC LABORATORY DIVISION
700 CAMINO DE SALUD N.E., ALBUQUERQUE, NM 87106
Organic Chemistry Section - Telephone: (505) 841-2570

OR94 2371 B

SLD Request ID No. 022278-B

Date Received: 7-27-94

2 User Code #: 7 0 3 2 0

3 Request ID No.: Place Form ID Sticker Here

4 Priority Code #: 3 (If "1" or "2", call EIO-SLD Coordinator)

5 Facility Name: Giant Bloomfield Refinery

6 County: San Juan

7 City:

8 State: NM

9 Sample Location: EP-C

10 Collected By: William Olison (First / Last) On: 94/07/26 (Date: YY/MM/DD) At: 14/15 hrs. (Time: 24 hr. clock 3:00 pm = 1500 hrs.)

11 Codes: Submitter / WSS # / Organization

12 Latitude (DDMMSS) ° ' "
Longitude (DDDMMSS) ° ' "
2 Digit ID (If needed)

13 Report To: Roger Anderson
Address: New Mexico Oil Conservation Division
P. O. Box 2088
City, State Zip: Santa Fe, New Mexico 87504-2088

14 Phone #: (505) 827-5812

15 Sample Purpose:
- [ ] Compliance
- [x] Check
- [ ] Monitoring
- [ ] Special

Sampling Information:
- [x] Grab
- [ ] Composite _____ (Composite Time Period)
- [ ] Flow Proportioned
- [ ] Equal Aliquot
- [x] Sample Split w/Permittee
- [ ] Chain of Custody

16 Field Data: pH: _____, Conductivity: _____ umhos @ _____ °C, Temperature: _____ °C, Chlorine Residual: _____ mg/l, Flow: _____

17 Sample Source:
- [ ] Stream
- [ ] Lake
- [ ] Drain
- [ ] Pool
- [ ] WWTP
- [ ] Well; Depth: _____
- [ ] Spring
- [ ] Distribution
- [ ] Point-of-Entry
- [x] Other: former firewater pond

18 Field Notes/Sample #:
soil from 1 foot depth
PID = 0 ppm

19 Sample Type: [ ] Water, [x] Soil, [ ] Food, [ ] Wastewater, [ ] Other _____

This form accompanies a **single sample** consisting of:
____ - septum vial(s) (volume = _____)
____ - glass jugs (volume = _____)
1 - glass jar (volume = _____)

20 Preservation:
- [ ] NP — No Preservation; Sample stored at room temperature
- [x] P-Ice — Sample stored in an ice bath (Not Frozen)
- [ ] P-TS — Sample Preserved with Sodium Thiosulfate to remove chlorine residua
- [ ] P-HCl — Sample Preserved with Hydrochloric Acid (2 drops/40 ml)
- [ ] Other _____

21 Analyses Requested: Please check the appropriate box(es) below to indicate the type of analytical screen(s) required. Whenever possible, list specific compounds suspected or required.

Volatile Screens:
- [ ] (753) Aliphatic Headspace (1-5 Carbons)
- [x] (754) Aromatic & Halogenated Purgeables (EPA 601 & 602)
- [ ] (765) Mass Spectrometer Purgeables (EPA 624)
- [ ] (766) SDWA Total Trihalomethanes (EPA 501.1)
- [ ] (774) SDWA VOC's I [8 Regulated +] (EPA 502.2)
- [ ] (775) SDWA VOC's II [EDB & DBCP] (EPA 504)

Other Specific Compounds or Classes:
- [ ] ( )
- [ ] ( )
- [ ] ( )

Semivolatile Screens:
- [ ] (763) Acid Extractables
- [ ] (751) Aliphatic Hydrocarbons
- [ ] (755) Base/Neutral Extractables (EPA 625)
- [ ] (756) Base/Neutral/Acid Extractables (EPA 8270)
- [ ] (758) Herbicides, Chlorophenoxy Acid
- [ ] (759) Herbicides, Triazines
- [ ] (760) Organochlorine Pesticides
- [ ] (761) Organophosphate Pesticides
- [ ] (767) Polychlorinated Biphenyls (PCB's)
- [ ] (764) Polynuclear Aromatic Hydrocarbons
- [ ] (762) SDWA Pesticides & Herbicides

Remarks:

STATE OF NEW MEXICO DEPARTMENT OF HEALTH

SCIENTIFIC LABORATORY DIVISION

P.O. Box 4700 700 Camino de Salud, NE
Albuquerque, NM 87196-4700 [505]-841-2500
ORGANIC CHEMISTRY SECTION [505]-841-2570

September 6, 1994

Request ID No. 022276

ANALYTICAL REPORT
SLD Accession No. OR-94-2373

Distribution
( ) User 70320
(X) Submitter 260
(x) SLD Files

To: David Boyer
NM Oil Consv. Div.
State Land Office Bldg.
P.O. Box 2088
Santa Fe, NM 87504-2088

From: Organic Chemistry Section
Scientific Laboratory Div.
700 Camino de Salud, N.E.
P.O. Box 4700
Albuquerque, NM 87196-4700

Re: **A soil sample submitted to this laboratory on July 27, 1994**

DEMOGRAPHIC DATA

COLLECTION		*LOCATION*
On: 26-Jul-94	*By:* Ols . . .	FP-NE
At: 13:25 hrs.	*In/Near:* San Juan County	

ANALYTICAL RESULTS: Aromatic & Halogenated Purgeable [EPA-601/2] Screen {754}

Parameter	Value	Note	PQL	Units
EPA 601/2 Volatiles (60)	0.00	N	200.00	ppb

See Laboratory Remarks for Additional Information

Notations & Comments:

PQL = Practical Quantitation Level.

A = Approximate Value; N = None Detected above Detection Limit; P = Compound Present, but not quantified;
T = Trace (<Detection Limit); U = Compound Identity Not Confirmed.

Evidentiary Seals: Not Sealed [✓]; Intact: No [ ], Yes [ ] & Broken By: _____ Date: _____

Laboratory Remarks:

VOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: NM SCIENTIFIC LABORATORY DIVISION Contract: N/A
Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: N/A
Matrix: (soil/water) Soil Lab Sample ID: OR-94-2373
Sample wt/vol: 12.15 (g/mL) g SLD Batch No: 357
Level: (low/med) Low Date Received: 7/27/94
% Moisture: not dec. 6.8 dec. N/A Date Extracted: N/A
Extraction: (SepF/Cont/Sonc) N/A Date Analyzed: 8/05/94
GPC Cleanup: (Y/N) No pH: _____ Dilution Factor: 200
CONCENTRATION UNITS:
(ug/L or ug/Kg): ug/L

This sample was analyzed for the following compounds using EPA Methods 601 & 602

(Continued on page 2.)

CAS NO.	COMPOUND	CONC.	Q	PQL
67-64-1	Acetone		U	1000
71-43-2	Benzene		U	200
108-86-1	Bromobenzene		U	200
74-97-5	Bromochloromethane		U	200
75-27-4	Bromodichloromethane		U	200
75-25-2	Bromoform		U	200
78-93-3	2-Butanone (MEK)		U	1000
104-51-8	n-Butylbenzene		U	200
135-98-8	sec-Butylbenzene		U	200
98-06-6	tert-Butylbenzene		U	200
1634-04-4	tert-Butyl methyl ether (MTBE)		U	1000
56-23-5	Carbon tetrachloride		U	200
108-90-7	Chlorobenzene		U	200
67-66-3	Chloroform		U	200
95-49-8	2-Chlorotoluene		U	200
106-43-4	4-Chlorotoluene		U	200
96-12-8	1,2-Dibromo-3-chloropropane		U	200
124-48-1	Dibromochloromethane		U	200
106-93-4	1,2-Dibromoethane		U	200
74-95-3	Dibromomethane		U	200
95-50-1	1,2-Dichlorobenzene		U	200
541-73-1	1,3-Dichlorobenzene		U	200
106-46-7	1,4-Dichlorobenzene		U	200
75-71-8	Dichlorodifluoromethane		U	200
75-34-3	1,1-Dichloroethane		U	200
107-06-2	1,2-Dichloroethane		U	200
75-35-4	1,1-Dichloroethene		U	200
156-59-4	cis-1,2-Dichloroethene		U	200
156-60-5	trans-1,2-Dichloroethene		U	200
78-87-5	1,2-Dichloropropane		U	200
142-28-9	1,3-Dichloropropane		U	200
590-20-7	2,2-Dichloropropane		U	200
563-58-6	1,1-Dichloropropene		U	200
1006-01-5	cis-1,3-Dichloropropene		U	200
1006-02-6	trans-1,3-Dichloropropene		U	200
100-41-4	Ethylbenzene		U	200
87-68-3	Hexachlorobutadiene		U	200
98-82-8	Isopropylbenzene		U	200
99-87-6	4-Isopropyltoluene		U	200
75-09-2	Methylene chloride		U	200
90-12-0	1-Methylnaphthalene		U	200

(Continued on page 3.)

91-57-6	2-Methylnaphthalene		U	200
91-20-3	Naphthalene		U	200
103-65-1	n-Propylbenzene		U	200
100-42-5	Styrene		U	200
630-20-6	1,1,1,2-Tetrachloroethane		U	200
79-34-5	1,1,2,2-Tetrachloroethane		U	200
127-18-4	Tetrachloroethene		U	200
109-99-9	Tetrahydrofuran (THF)		U	1000
108-88-3	Toluene		U	200
87-61-5	1,2,3-Trichlorobenzene		U	200
120-82-1	1,2,4-Trichlorobenzene		U	200
71-55-6	1,1,1-Trichloroethane		U	200
79-00-5	1,1,2-Trichloroethane		U	200
79-01-6	Trichloroethene		U	200
75-69-4	Trichlorofluoromethane		U	200
96-18-4	1,2,3-Trichloropropane		U	200
95-63-6	1,2,4-Trimethylbenzene		U	200
108-67-8	1,3,5-Trimethylbenzene		U	200
75-01-4	Vinyl chloride		U	200
95-47-6	o-Xylene		U	200
N/A	p- & m-Xylene		U	200

* CONC = CONCENTRAION DETERMINED
PQL = Practical Quantitation Limit (Approximately 10 times MDL)
* Q = Qualifier Definitions:
B - Indicates compound was detected in the Lab Blank as well as in the sample.
D - Indicates value taken from a secondary (diluted) sample analysis.
E - Indicates compound concentration exceeded the range of the standard curve.
J - Indicates an estimated value for tentatively identified compounds, or for compounds detected and identified but present at a concentration less than the quantitation limit.
N - Indicates that more than one peak was used for quantitation.
U - Indicates compound was analyzed for, but not detected above the concentration listed (Quantitation Limit).

QUALITY CONTROL SUMMARY FOR VOLATILES SCREEN

METHOD BLANK: A laboratory method blank was analyzed along with this sample to assure the absence of interfering contaminants

(Continued on page 4.)

from lab reagents, instruments, or the general laboratory environment. Unless listed below, no contaminants were detected in this blank above the reported detection limit.

COMPOUND DETECTED	CONCENTRATION (PPB)
No Compounds Detected	

SURROGATE RECOVERIES:

SURROGATE	CONCENTRATION		% RECOVERY
Bromofluorobenzene	5000	ppb	95.0
2-Bromo-1-chloropropane	5000	ppb	87.0
m-Cl-Toluene	5000	ppb	105.5

SPIKE RECOVERY: The % recoveries for compounds in the batch spike were from 80% to 120% with the exception of the compounds listed below:

COMPOUND	CONCENTRATION	% RECOVERY
Bromoform	10.0 ppb	78.0

Analyst: Patrick Basile
Analyst, Organic Chemistry

Reviewed By: Richard F. Meyerhein 08/24/94
Supervisor, Organic Chemistry Section

ORGANIC CHEMISTRY ANALYTICAL REQUEST FORM

SCIENTIFIC LABORATORY DIVISION
700 CAMINO DE SALUD N.E., ALBUQUERQUE, NM 87106
Organic Chemistry Section - Telephone: (505) 841-2570

OR94 2373 B SLD N

Request ID No. 022276-B

Date Received:

2 User Code #: 7 0 3 2 0

3 Request ID No.: Place Form ID Sticker Here

4 Priority Code #: 3 (If "1" or "2", call EIO-SLD Coordinator)

5 Facility Name: Giant Bloomfield Refinery

6 County: San Juan

7 City:

8 State: NM

9 Sample Location: FP-NE

10 Collected By: William Olsion (First / Initials) On: 94/07/26 (Date: YY/MM/DD) At: 1325 hrs. (Time: 24 hr clock 3:00 pm = 1500 hrs.)

11 Codes: Submitter / WSS # / Organization

12 Latitude (DDMMSS) ° ' "
Longitude (DDDMMSS) ° ' "
2 Digit ID (If needed)

13 Report To: Roger Anderson
Address: New Mexico Oil Conservation Division
P. O. Box 2088
City, State Zip: Santa Fe, New Mexico 87504-2088

14 Phone #: (505) 827-5812

15 Sample Purpose:
- [ ] Compliance
- [x] Check
- [ ] Monitoring
- [ ] Special

Sampling Information:
- [x] Grab
- [ ] Composite (Composite Time Period)
- [ ] Flow Proportioned
- [ ] Equal Aliquot
- [x] Sample Split w/Permittee
- [ ] Chain of Custody

16 Field Data: pH: , Conductivity: umhos @ °C, Temperature: °C, Chlorine Residual: mg/l, Flow:

17 Sample Source:
- [ ] Stream
- [ ] Lake
- [ ] Drain
- [ ] Pool
- [ ] WWTP
- [ ] Well; Depth:
- [ ] Spring
- [ ] Distribution
- [ ] Point-of-Entry
- [x] Other: from fire water pond

18 Field Notes/ Sample #:
soil from 2 foot depth
PID = 0 ppm

19 Sample Type: [ ] Water, [x] Soil, [ ] Food, [ ] Wastewater, [ ] Other
This form accompanies a single sample consisting of:
- septum vial(s) (volume =)
- glass jugs (volume =)
1 - glass jar (volume =)

20 Preservation:
- [ ] NP No Preservation; Sample stored at room temperature
- [x] P-Ice Sample stored in an ice bath (Not Frozen)
- [ ] P-TS Sample Preserved with Sodium Thiosulfate to remove chlorine residual
- [ ] P-HCl Sample Preserved with Hydrochloric Acid (2 drops/40 ml)
- [ ] Other

21 Analyses Requested: Please check the appropriate box(es) below to indicate the type of analytical screen(s) required. Whenever possible, list specific compounds suspected or required.

Volatile Screens:
- [ ] (753) Aliphatic Headspace (1-5 Carbons)
- [x] (754) Aromatic & Halogenated Purgeables (EPA 601 & 602)
- [ ] (765) Mass Spectrometer Purgeables (EPA 624)
- [ ] (766) SDWA Total Trihalomethanes (EPA 501.1)
- [ ] (774) SDWA VOC's I [8 Regulated +] (EPA 502.2)
- [ ] (775) SDWA VOC's II [EDB & DBCP] (EPA 504)

Other Specific Compounds or Classes:
- [ ] ( )
- [ ] ( )
- [ ] ( )

Semivolatile Screens:
- [ ] (763) Acid Extractables
- [ ] (751) Aliphatic Hydrocarbons
- [ ] (755) Base/Neutral Extractables (EPA 625)
- [ ] (756) Base/Neutral/Acid Extractables (EPA 8270)
- [ ] (758) Herbicides, Chlorophenoxy Acid
- [ ] (759) Herbicides, Triazines
- [ ] (760) Organochlorine Pesticides
- [ ] (761) Organophosphate Pesticides
- [ ] (767) Polychlorinated Biphenyls (PCB's)
- [ ] (764) Polynuclear Aromatic Hydrocarbons
- [ ] (762) SDWA Pesticides & Herbicides

Remarks:

STATE OF NEW MEXICO DEPARTMENT OF HEALTH

SCIENTIFIC LABORATORY DIVISION

P.O. Box 4700 700 Camino de Salud, NE
Albuquerque, NM 87196-4700 [505]-841-2500
ORGANIC CHEMISTRY SECTION [505]-841-2570

September 6, 1994

Request ID No. 022277

ANALYTICAL REPORT
SLD Accession No. OR-94-2372

Distribution
( ) User 70320
(X) Submitter 260
(x) SLD Files

To: David Boyer
NM Oil Consv. Div.
State Land Office Bldg.
P.O. Box 2088
Santa Fe, NM 87504-2088

From: Organic Chemistry Section
Scientific Laboratory Div.
700 Camino de Salud, N.E.
P.O. Box 4700
Albuquerque, NM 87196-4700

Re: **A soil sample submitted to this laboratory on July 27, 1994**

DEMOGRAPHIC DATA

COLLECTION		*LOCATION*
On: 26-Jul-94	*By:* Ols . . .	FP-NW
At: 13:50 hrs.	*In/Near:* San Juan County	

ANALYTICAL RESULTS: Aromatic & Halogenated Purgeable [EPA-601/2] Screen {754}

Parameter	Value	Note	PQL	Units
EPA 601/2 Volatiles (60)	0.00	N	200.00	ppb

See Laboratory Remarks for Additional Information

Notations & Comments:

PQL = Practical Quantitation Level.

A = Approximate Value; N = None Detected above Detection Limit; P = Compound Present, but not quantified;
T = Trace (<Detection Limit); U = Compound Identity Not Confirmed.

Evidentiary Seals: Not Sealed [☑]; Intact: No [ ], Yes [ ] & Broken By: _____ Date: _____

Laboratory Remarks:

VOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: NM SCIENTIFIC LABORATORY DIVISION Contract: N/A
Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: N/A
Matrix: (soil/water) Soil Lab Sample ID: OR-94-2372
Sample wt/vol: 11.83 (g/mL) g SLD Batch No: 357
Level: (low/med) Low Date Received: 7/27/94
% Moisture: not dec. 5.3 dec. N/A Date Extracted: N/A
Extraction: (SepF/Cont/Sonc) N/A Date Analyzed: 8/05/94
GPC Cleanup: (Y/N) No pH: _____ Dilution Factor: 200
CONCENTRATION UNITS:
(ug/L or ug/Kg): ug/L

This sample was analyzed for the following compounds
using EPA Methods 601 & 602

(Continued on page 2.)

CAS NO.	COMPOUND	CONC.	Q	PQL
67-64-1	Acetone		U	1000
71-43-2	Benzene		U	200
108-86-1	Bromobenzene		U	200
74-97-5	Bromochloromethane		U	200
75-27-4	Bromodichloromethane		U	200
75-25-2	Bromoform		U	200
78-93-3	2-Butanone (MEK)		U	1000
104-51-8	n-Butylbenzene		U	200
135-98-8	sec-Butylbenzene		U	200
98-06-6	tert-Butylbenzene		U	200
1634-04-4	tert-Butyl methyl ether (MTBE)		U	1000
56-23-5	Carbon tetrachloride		U	200
108-90-7	Chlorobenzene		U	200
67-66-3	Chloroform		U	200
95-49-8	2-Chlorotoluene		U	200
106-43-4	4-Chlorotoluene		U	200
96-12-8	1,2-Dibromo-3-chloropropane		U	200
124-48-1	Dibromochloromethane		U	200
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95-50-1	1,2-Dichlorobenzene		U	200
541-73-1	1,3-Dichlorobenzene		U	200
106-46-7	1,4-Dichlorobenzene		U	200
75-71-8	Dichlorodifluoromethane		U	200
75-34-3	1,1-Dichloroethane		U	200
107-06-2	1,2-Dichloroethane		U	200
75-35-4	1,1-Dichloroethene		U	200
156-59-4	cis-1,2-Dichloroethene		U	200
156-60-5	trans-1,2-Dichloroethene		U	200
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590-20-7	2,2-Dichloropropane		U	200
563-58-6	1,1-Dichloropropene		U	200
1006-01-5	cis-1,3-Dichloropropene		U	200
1006-02-6	trans-1,3-Dichloropropene		U	200
100-41-4	Ethylbenzene		U	200
87-68-3	Hexachlorobutadiene		U	200
98-82-8	Isopropylbenzene		U	200
99-87-6	4-Isopropyltoluene		U	200
75-09-2	Methylene chloride		U	200
90-12-0	1-Methylnaphthalene		U	200

(Continued on page 3.)

91-57-6	2-Methylnaphthalene		U	200
91-20-3	Naphthalene		U	200
103-65-1	n-Propylbenzene		U	200
100-42-5	Styrene		U	200
630-20-6	1,1,1,2-Tetrachloroethane		U	200
79-34-5	1,1,2,2-Tetrachloroethane		U	200
127-18-4	Tetrachloroethene		U	200
109-99-9	Tetrahydrofuran (THF)		U	1000
108-88-3	Toluene		U	200
87-61-5	1,2,3-Trichlorobenzene		U	200
120-82-1	1,2,4-Trichlorobenzene		U	200
71-55-6	1,1,1-Trichloroethane		U	200
79-00-5	1,1,2-Trichloroethane		U	200
79-01-6	Trichloroethene		U	200
75-69-4	Trichlorofluoromethane		U	200
96-18-4	1,2,3-Trichloropropane		U	200
95-63-6	1,2,4-Trimethylbenzene		U	200
108-67-8	1,3,5-Trimethylbenzene		U	200
75-01-4	Vinyl chloride		U	200
95-47-6	o-Xylene		U	200
N/A	p- & m-Xylene		U	200

* CONC = CONCENTRAION DETERMINED
PQL = Practical Quantitation Limit (Approximately 10 times MDL)
* Q = Qualifier Definitions:
B - Indicates compound was detected in the Lab Blank as well as in the sample.
D - Indicates value taken from a secondary (diluted) sample analysis.
E - Indicates compound concentration exceeded the range of the standard curve.
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U - Indicates compound was analyzed for, but not detected above the concentration listed (Quantitation Limit).

QUALITY CONTROL SUMMARY FOR VOLATILES SCREEN

METHOD BLANK: A laboratory method blank was analyzed along with this sample to assure the absence of interfering contaminants

(Continued on page 4.)

from lab reagents, instruments, or the general laboratory environment. Unless listed below, no contaminants were detected in this blank above the reported detection limit.

COMPOUND DETECTED	CONCENTRATION (PPB)
No Compounds Detected	

SURROGATE RECOVERIES:

SURROGATE	CONCENTRATION		% RECOVERY
Bromofluorobenzene	5000	ppb	95.0
2-Bromo-1-chloropropane	5000	ppb	93.0
m-Cl-Toluene	5000	ppb	114.0

SPIKE RECOVERY: The % recoveries for compounds in the batch spike were from 80% to 120% with the exception of the compounds listed below:

COMPOUND	CONCENTRATION	% RECOVERY
Bromoform	10.0 ppb	78.0

Analyst: Patrick Basile
Patrick F. Basile
Analyst, Organic Chemistry

Reviewed By: Richard F. Meyerhein 08/24/94
Supervisor, Organic Chemistry Section

ORGANIC CHEMISTRY ANALYTICAL REQUEST FORM

SCIENTIFIC LABORATORY DIVISION
700 CAMINO DE SALUD N.E., ALBUQUERQUE, NM 87106
Organic Chemistry Section - Telephone: (505) 841-2570

OR94 2372 B

SLD N

Request ID No. 022277-B

Date Received:

2 User Code #: 7 0 3 2 0

3 Request ID No.: Place Form ID Sticker Here

4 Priority Code #: 3 (If "1" or "2", call EID-SLD Coordinator)

5 Facility Name: Giant Bloomfield Refinery

6 County: San Juan

7 City:

8 State: NM

9 Sample Location: FP-NW

10 Collected By: William Olson (First / Last) On: 94/07/26 (Date: YY/MM/DD) At: 1350 hrs. (Time: 24 hr. clock 3:00 pm = 1500 hrs.)

11 Codes: Submitter / WSS # / Organization

12 Latitude (DDMMSS) ° ' "
Longitude (DDDMMSS) ° ' "
2 Digit ID (If needed)

13 Report To: Name: Roger Anderson

14 Phone #: (505) 827-5812

Address: New Mexico Oil Conservation Division
P. O. Box 2088

City, State Zip: Santa Fe, New Mexico 87504-2088

15 Sample Purpose:
- [ ] Compliance
- [x] Check
- [ ] Monitoring
- [ ] Special

Sampling Information:
- [x] Grab
- [ ] Composite _____ (Composite Time Period)
  - [ ] Flow Proportioned
  - [ ] Equal Aliquot
- [x] Sample Split w/Permittee
- [ ] Chain of Custody

16 Field Data: pH: _____, Conductivity: _____ umhos @ _____ °C, Temperature: _____ °C, Chlorine Residual: _____ mg/l, Flow: _____

17 Sample Source:
- [ ] Stream
- [ ] Lake
- [ ] Drain
- [ ] Pool
- [ ] WWTP
- [ ] Well; Depth: _____
- [ ] Spring
- [ ] Distribution
- [ ] Point-of-Entry
- [x] Other: farm fire with pond

18 Field Notes/Sample #:
soil from 1 foot depth
PID = 0 ppm

19 Sample Type: [ ] Water, [ ] Soil, [ ] Food, [ ] Wastewater, [ ] Other _____

This form accompanies a single sample consisting of:
____ - septum vial(s) (volume = _____)
____ - glass jugs (volume = _____)
1 - glass jar (volume = _____)

20 Preservation:
- [ ] NP — No Preservation; Sample stored at room temperature
- [x] P-Ice — Sample stored in an ice bath (Not Frozen)
- [ ] P-TS — Sample Preserved with Sodium Thiosulfate to remove chlorine residual
- [ ] P-HCl — Sample Preserved with Hydrochloric Acid (2 drops/40 ml)
- [ ] Other _____

21 Analyses Requested: Please check the appropriate box(es) below to indicate the type of analytical screen(s) required. Whenever possible, list specific compounds suspected or required.

Volatile Screens:
- [ ] (753) Aliphatic Headspace (1-5 Carbons)
- [x] (754) Aromatic & Halogenated Purgeables (EPA 601 & 602)
- [ ] (765) Mass Spectrometer Purgeables (EPA 624)
- [ ] (766) SDWA Total Trihalomethanes (EPA 501.1)
- [ ] (774) SDWA VOC's I [8 Regulated +] (EPA 502.2)
- [ ] (775) SDWA VOC's II [EDB & DBCP] (EPA 504)

Other Specific Compounds or Classes:
- [ ] ( ) _____
- [ ] ( ) _____
- [ ] ( ) _____

Semivolatile Screens:
- [ ] (763) Acid Extractables
- [ ] (751) Aliphatic Hydrocarbons
- [ ] (755) Base/Neutral Extractables (EPA 625)
- [ ] (756) Base/Neutral/Acid Extractables (EPA 8270)
- [ ] (758) Herbicides, Chlorophenoxy Acid
- [ ] (759) Herbicides, Triazines
- [ ] (760) Organochlorine Pesticides
- [ ] (761) Organophosphate Pesticides
- [ ] (767) Polychlorinated Biphenyls (PCB's)
- [ ] (764) Polynuclear Aromatic Hydrocarbons
- [ ] (762) SDWA Pesticides & Herbicides

Remarks:

This Form Will NOT Be Returned With Your Results. Please RETAIN A COPY!

STATE OF NEW MEXICO DEPARTMENT OF HEALTH

SCIENTIFIC LABORATORY DIVISION

P.O. Box 4700 700 Camino de Salud, NE
Albuquerque, NM 87196-4700 [505]-841-2500
ORGANIC CHEMISTRY SECTION [505]-841-2570

September 6, 1994

Request ID No. 022275

ANALYTICAL REPORT
SLD Accession No. OR-94-2374

Distribution
( ) User 70320
(X) Submitter 260
(x) SLD Files

To: David Boyer
NM Oil Consv. Div.
State Land Office Bldg.
P.O. Box 2088
Santa Fe, NM 87504-2088

From: Organic Chemistry Section
Scientific Laboratory Div.
700 Camino de Salud, N.E.
P.O. Box 4700
Albuquerque, NM 87196-4700

Re: **A soil sample submitted to this laboratory on July 27, 1994**

DEMOGRAPHIC DATA

COLLECTION		*LOCATION*
On: 26-Jul-94	*By:* Ols . . .	FP-SE
At: 11:50 hrs.	*In/Near:* San Juan County	

ANALYTICAL RESULTS: Aromatic & Halogenated Purgeable [EPA-601/2] Screen {754}

Parameter	Value	Note	PQL	Units
EPA 601/2 Volatiles (60)	0.00	N	200.00	ppb

See Laboratory Remarks for Additional Information

Notations & Comments:

PQL = Practical Quantitation Level.

A = Approximate Value; N = None Detected above Detection Limit; P = Compound Present, but not quantified;
T = Trace (<Detection Limit); U = Compound Identity Not Confirmed.

Evidentiary Seals: Not Sealed [✓]; Intact: No [ ], Yes [ ] & Broken By: _____ Date: _____

Laboratory Remarks:

VOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: NM SCIENTIFIC LABORATORY DIVISION Contract: N/A
Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: N/A
Matrix: (soil/water) Soil Lab Sample ID: OR-94-2374
Sample wt/vol: 10.72 (g/mL) g SLD Batch No: 357
Level: (low/med) Low Date Received: 7/27/94
% Moisture: not dec. 0.5 dec. N/A Date Extracted: N/A
Extraction: (SepF/Cont/Sonc) N/A Date Analyzed: 8/05/94
GPC Cleanup: (Y/N) No pH: _____ Dilution Factor: 200
CONCENTRATION UNITS:
(ug/L or ug/Kg): ug/L

This sample was analyzed for the following compounds using EPA Methods 601 & 602

(Continued on page 2.)

CAS NO.	COMPOUND	CONC.	Q	PQL
67-64-1	Acetone		U	1000
71-43-2	Benzene		U	200
108-86-1	Bromobenzene		U	200
74-97-5	Bromochloromethane		U	200
75-27-4	Bromodichloromethane		U	200
75-25-2	Bromoform		U	200
78-93-3	2-Butanone (MEK)		U	1000
104-51-8	n-Butylbenzene		U	200
135-98-8	sec-Butylbenzene		U	200
98-06-6	tert-Butylbenzene		U	200
1634-04-4	tert-Butyl methyl ether (MTBE)		U	1000
56-23-5	Carbon tetrachloride		U	200
108-90-7	Chlorobenzene		U	200
67-66-3	Chloroform		U	200
95-49-8	2-Chlorotoluene		U	200
106-43-4	4-Chlorotoluene		U	200
96-12-8	1,2-Dibromo-3-chloropropane		U	200
124-48-1	Dibromochloromethane		U	200
106-93-4	1,2-Dibromoethane		U	200
74-95-3	Dibromomethane		U	200
95-50-1	1,2-Dichlorobenzene		U	200
541-73-1	1,3-Dichlorobenzene		U	200
106-46-7	1,4-Dichlorobenzene		U	200
75-71-8	Dichlorodifluoromethane		U	200
75-34-3	1,1-Dichloroethane		U	200
107-06-2	1,2-Dichloroethane		U	200
75-35-4	1,1-Dichloroethene		U	200
156-59-4	cis-1,2-Dichloroethene		U	200
156-60-5	trans-1,2-Dichloroethene		U	200
78-87-5	1,2-Dichloropropane		U	200
142-28-9	1,3-Dichloropropane		U	200
590-20-7	2,2-Dichloropropane		U	200
563-58-6	1,1-Dichloropropene		U	200
1006-01-5	cis-1,3-Dichloropropene		U	200
1006-02-6	trans-1,3-Dichloropropene		U	200
100-41-4	Ethylbenzene		U	200
87-68-3	Hexachlorobutadiene		U	200
98-82-8	Isopropylbenzene		U	200
99-87-6	4-Isopropyltoluene		U	200
75-09-2	Methylene chloride		U	200
90-12-0	1-Methylnaphthalene		U	200

(Continued on page 3.)

91-57-6	2-Methylnaphthalene		U	200
91-20-3	Naphthalene		U	200
103-65-1	n-Propylbenzene		U	200
100-42-5	Styrene		U	200
630-20-6	1,1,1,2-Tetrachloroethane		U	200
79-34-5	1,1,2,2-Tetrachloroethane		U	200
127-18-4	Tetrachloroethene		U	200
109-99-9	Tetrahydrofuran (THF)		U	1000
108-88-3	Toluene		U	200
87-61-5	1,2,3-Trichlorobenzene		U	200
120-82-1	1,2,4-Trichlorobenzene		U	200
71-55-6	1,1,1-Trichloroethane		U	200
79-00-5	1,1,2-Trichloroethane		U	200
79-01-6	Trichloroethene		U	200
75-69-4	Trichlorofluoromethane		U	200
96-18-4	1,2,3-Trichloropropane		U	200
95-63-6	1,2,4-Trimethylbenzene		U	200
108-67-8	1,3,5-Trimethylbenzene		U	200
75-01-4	Vinyl chloride		U	200
95-47-6	o-Xylene		U	200
N/A	p- & m-Xylene		U	200

* CONC = CONCENTRAION DETERMINED
PQL = Practical Quantitation Limit (Approximately 10 times MDL)
* Q = Qualifier Definitions:
B - Indicates compound was detected in the Lab Blank as well as in the sample.
D - Indicates value taken from a secondary (diluted) sample analysis.
E - Indicates compound concentration exceeded the range of the standard curve.
J - Indicates an estimated value for tentatively identified compounds, or for compounds detected and identified but present at a concentration less than the quantitation limit.
N - Indicates that more than one peak was used for quantitation.
U - Indicates compound was analyzed for, but not detected above the concentration listed (Quantitation Limit).

QUALITY CONTROL SUMMARY FOR VOLATILES SCREEN

METHOD BLANK: A laboratory method blank was analyzed along with this sample to assure the absence of interfering contaminants

(Continued on page 4.)

from lab reagents, instruments, or the general laboratory environment. Unless listed below, no contaminants were detected in this blank above the reported detection limit.

COMPOUND DETECTED	CONCENTRATION (PPB)
No Compounds Detected	

SURROGATE RECOVERIES:

SURROGATE	CONCENTRATION		% RECOVERY
Bromofluorobenzene	5000	ppb	94.0
2-Bromo-1-chloropropane	5000	ppb	88.0
m-Cl-Toluene	5000	ppb	97.6

SPIKE RECOVERY: The % recoveries for compounds in the batch spike were from 80% to 120% with the exception of the compounds listed below:

COMPOUND	CONCENTRATION	% RECOVERY
Bromoform	10.0 ppb	78.0

Analyst: Patrick F. Basile
Analyst, Organic Chemistry

Reviewed By: Richard F. Meyerhein 08/24/94
Supervisor, Organic Chemistry Section

ORGANIC CHEMISTRY ANALYTICAL REQUEST FORM

SCIENTIFIC LABORATORY DIVISION
700 CAMINO DE SALUD N.E., ALBUQUERQUE, NM 87106
Organic Chemistry Section - Telephone: (505) 841-2570

OR94 2374 B

SLD No Request ID No. 022275-B

Date Received:

2 User Code #: 7 0 3 2 0

3 Request ID No.: Place Form ID Sticker Here

4 Priority Code #: 3 (If "1" or "2", call EIO-SLD Coordinator)

5 Facility Name: Giant Bloomfield Refinery

6 County: San Juan

7 City:

8 State: NM

9 Sample Location: FP-SE

10 Collected By: William Olson (First, Middle Initial) On: 94/07/26 (Date: YY/MM/DD) At: 1150 hrs. (Time: 24 hr. clock 3:00 pm = 1500 hrs.)

11 Codes: Submitter | WSS # | Organization

12 Latitude (DDMMSS) ° ' "
Longitude (DDDMMSS) ° ' "
2 Digit ID (If needed)

13 Report To: Name: Roger Anderson

14 Phone #: (505) 827-5812

Address: New Mexico Oil Conservation Division
P. O. Box 2088

City, State Zip: Santa Fe, New Mexico 87504-2088

15 Sampling Information:
Sample Purpose:
- [ ] Compliance
- [x] Check
- [ ] Monitoring
- [ ] Special

- [x] Grab
- [ ] Composite ____ (Composite Time Period)
  - [ ] Flow Proportioned
  - [ ] Equal Aliquot
- [x] Sample Split w/Permittee
- [ ] Chain of Custody

16 Field Data: pH: ____, Conductivity: ____ umhos @ ____ °C, Temperature: ____ °C, Chlorine Residual: ____ mg/l, Flow: ____

17 Sample Source:
- [ ] Stream
- [ ] Lake
- [ ] Drain
- [ ] Pool
- [ ] WWTP
- [ ] Well; Depth: ____
- [ ] Spring
- [ ] Distribution
- [ ] Point-of-Entry
- [x] Other: former fire water pond

18 Field Notes/Sample #:
soil from 1 foot depth
PID = 0 ppm

19 Sample Type: [ ] Water, [x] Soil, [ ] Food, [ ] Wastewater, [ ] Other ____

This form accompanies a single sample consisting of:
____ - septum vial(s) (volume = ____)
____ - glass jugs (volume = ____)
1 - glass jar (volume = ____)

20 Preservation:
- [ ] NP — No Preservation; Sample stored at room temperature
- [x] P-Ice — Sample stored in an ice bath (Not Frozen)
- [ ] P-TS — Sample Preserved with Sodium Thiosulfate to remove chlorine residual
- [ ] P-HCl — Sample Preserved with Hydrochloric Acid (2 drops/40 ml)
- [ ] Other ____

21 Analyses Requested: Please check the appropriate box(es) below to indicate the type of analytical screen(s) required. Whenever possible, list specific compounds suspected or required.

Volatile Screens:

- [ ] (753) Aliphatic Headspace (1-5 Carbons)
- [x] (754) Aromatic & Halogenated Purgeables (EPA 601 & 602)
- [ ] (765) Mass Spectrometer Purgeables (EPA 624)
- [ ] (766) SDWA Total Trihalomethanes (EPA 501.1)
- [ ] (774) SDWA VOC's I [8 Regulated +] (EPA 502.2)
- [ ] (775) SDWA VOC's II [EDB & DBCP] (EPA 504)

Other Specific Compounds or Classes:

- [ ] ( ) ____
- [ ] ( ) ____
- [ ] ( ) ____

Semivolatile Screens:

- [ ] (763) Acid Extractables
- [ ] (751) Aliphatic Hydrocarbons
- [ ] (755) Base/Neutral Extractables (EPA 625)
- [ ] (756) Base/Neutral/Acid Extractables (EPA 8270)
- [ ] (758) Herbicides, Chlorophenoxy Acid
- [ ] (759) Herbicides, Triazines
- [ ] (760) Organochlorine Pesticides
- [ ] (761) Organophosphate Pesticides
- [ ] (767) Polychlorinated Biphenyls (PCB's)
- [ ] (764) Polynuclear Aromatic Hydrocarbons
- [ ] (762) SDWA Pesticides & Herbicides

Remarks:

STATE OF NEW MEXICO DEPARTMENT OF HEALTH

SCIENTIFIC LABORATORY DIVISION

P.O. Box 4700 700 Camino de Salud, NE
Albuquerque, NM 87196-4700 [505]-841-2500
ORGANIC CHEMISTRY SECTION [505]-841-2570

September 6, 1994

Request ID No. 022274

ANALYTICAL REPORT
SLD Accession No. OR-94-2375

Distribution
( ) User 70320
(X) Submitter 260
(x) SLD Files

To: David Boyer
NM Oil Consv. Div.
State Land Office Bldg.
P.O. Box 2088
Santa Fe, NM 87504-2088

From: Organic Chemistry Section
Scientific Laboratory Div.
700 Camino de Salud, N.E.
P.O. Box 4700
Albuquerque, NM 87196-4700

Re: **A soil sample submitted to this laboratory on July 27, 1994**

DEMOGRAPHIC DATA

COLLECTION		*LOCATION*
On: 26-Jul-94	*By:* Ols . . .	FP-SW
At: 10:50 hrs.	*In/Near:* San Juan County	

ANALYTICAL RESULTS: Aromatic & Halogenated Purgeable [EPA-601/2] Screen {754}

Parameter	Value	Note	PQL	Units
EPA 601/2 Volatiles (60)	0.00	N	200.00	ppb

See Laboratory Remarks for Additional Information

Notations & Comments:

PQL = Practical Quantitation Level.

A = Approximate Value; N = None Detected above Detection Limit; P = Compound Present, but not quantified;
T = Trace (<Detection Limit); U = Compound Identity Not Confirmed.

Evidentiary Seals: Not Sealed [✓]; Intact: No [ ], Yes [ ] & Broken By: _____ Date: _____

Laboratory Remarks:

VOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: NM SCIENTIFIC LABORATORY DIVISION Contract: N/A
Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: N/A
Matrix: (soil/water) Soil Lab Sample ID: OR-94-2375
Sample wt/vol: 9.96 (g/mL) g SLD Batch No: 357
Level: (low/med) Low Date Received: 7/27/94
% Moisture: not dec. 4.9 dec. N/A Date Extracted: N/A
Extraction: (SepF/Cont/Sonc) N/A Date Analyzed: 8/05/94
GPC Cleanup: (Y/N) No pH: _____ Dilution Factor: 200
CONCENTRATION UNITS:
(ug/L or ug/Kg): ug/L

This sample was analyzed for the following compounds
using EPA Methods 601 & 602

(Continued on page 2.)

CAS NO.	COMPOUND	CONC.	Q	PQL
67-64-1	Acetone		U	1000
71-43-2	Benzene		U	200
108-86-1	Bromobenzene		U	200
74-97-5	Bromochloromethane		U	200
75-27-4	Bromodichloromethane		U	200
75-25-2	Bromoform		U	200
78-93-3	2-Butanone (MEK)		U	1000
104-51-8	n-Butylbenzene		U	200
135-98-8	sec-Butylbenzene		U	200
98-06-6	tert-Butylbenzene		U	200
1634-04-4	tert-Butyl methyl ether (MTBE)		U	1000
56-23-5	Carbon tetrachloride		U	200
108-90-7	Chlorobenzene		U	200
67-66-3	Chloroform		U	200
95-49-8	2-Chlorotoluene		U	200
106-43-4	4-Chlorotoluene		U	200
96-12-8	1,2-Dibromo-3-chloropropane		U	200
124-48-1	Dibromochloromethane		U	200
106-93-4	1,2-Dibromoethane		U	200
74-95-3	Dibromomethane		U	200
95-50-1	1,2-Dichlorobenzene		U	200
541-73-1	1,3-Dichlorobenzene		U	200
106-46-7	1,4-Dichlorobenzene		U	200
75-71-8	Dichlorodifluoromethane		U	200
75-34-3	1,1-Dichloroethane		U	200
107-06-2	1,2-Dichloroethane		U	200
75-35-4	1,1-Dichloroethene		U	200
156-59-4	cis-1,2-Dichloroethene		U	200
156-60-5	trans-1,2-Dichloroethene		U	200
78-87-5	1,2-Dichloropropane		U	200
142-28-9	1,3-Dichloropropane		U	200
590-20-7	2,2-Dichloropropane		U	200
563-58-6	1,1-Dichloropropene		U	200
1006-01-5	cis-1,3-Dichloropropene		U	200
1006-02-6	trans-1,3-Dichloropropene		U	200
100-41-4	Ethylbenzene		U	200
87-68-3	Hexachlorobutadiene		U	200
98-82-8	Isopropylbenzene		U	200
99-87-6	4-Isopropyltoluene		U	200
75-09-2	Methylene chloride		U	200
90-12-0	1-Methylnaphthalene		U	200

(Continued on page 3.)

91-57-6	2-Methylnaphthalene		U	200
91-20-3	Naphthalene		U	200
103-65-1	n-Propylbenzene		U	200
100-42-5	Styrene		U	200
630-20-6	1,1,1,2-Tetrachloroethane		U	200
79-34-5	1,1,2,2-Tetrachloroethane		U	200
127-18-4	Tetrachloroethene		U	200
109-99-9	Tetrahydrofuran (THF)		U	1000
108-88-3	Toluene		U	200
87-61-5	1,2,3-Trichlorobenzene		U	200
120-82-1	1,2,4-Trichlorobenzene		U	200
71-55-6	1,1,1-Trichloroethane		U	200
79-00-5	1,1,2-Trichloroethane		U	200
79-01-6	Trichloroethene		U	200
75-69-4	Trichlorofluoromethane		U	200
96-18-4	1,2,3-Trichloropropane		U	200
95-63-6	1,2,4-Trimethylbenzene		U	200
108-67-8	1,3,5-Trimethylbenzene		U	200
75-01-4	Vinyl chloride		U	200
95-47-6	o-Xylene		U	200
N/A	p- & m-Xylene		U	200

* CONC = CONCENTRAION DETERMINED
PQL = Practical Quantitation Limit (Approximately 10 times MDL)
* Q = Qualifier Definitions:
B - Indicates compound was detected in the Lab Blank as well as in the sample.
D - Indicates value taken from a secondary (diluted) sample analysis.
E - Indicates compound concentration exceeded the range of the standard curve.
J - Indicates an estimated value for tentatively identified compounds, or for compounds detected and identified but present at a concentration less than the quantitation limit.
N - Indicates that more than one peak was used for quantitation.
U - Indicates compound was analyzed for, but not detected above the concentration listed (Quantitation Limit).

QUALITY CONTROL SUMMARY FOR VOLATILES SCREEN

METHOD BLANK: A laboratory method blank was analyzed along with this sample to assure the absence of interfering contaminants

(Continued on page 4.)

from lab reagents, instruments, or the general laboratory environment. Unless listed below, no contaminants were detected in this blank above the reported detection limit.

COMPOUND DETECTED	CONCENTRATION (PPB)
No Compounds Detected	

SURROGATE RECOVERIES:

SURROGATE	CONCENTRATION		% RECOVERY
Bromofluorobenzene	5000	ppb	93.0
2-Bromo-1-chloropropane	5000	ppb	85.0
m-Cl-Toluene	5000	ppb	106.2

SPIKE RECOVERY: The % recoveries for compounds in the batch spike were from 80% to 120% with the exception of the compounds listed below:

COMPOUND	CONCENTRATION	% RECOVERY
Bromoform	10.0 ppb	78.0

Analyst: Patrick F. Basile
Analyst, Organic Chemistry

Reviewed By: Richard F. Meyerhein 08/24/94
Supervisor, Organic Chemistry Section

ORGANIC CHEMISTRY ANALYTICAL REQUEST FORM

SCIENTIFIC LABORATORY DIVISION
700 CAMINO DE SALUD N.E., ALBUQUERQUE, NM 87106
Organic Chemistry Section - Telephone: (505) 841-2570

OR94 2375 B

SLD No Request ID No. 022274-B

Date Received:

2 User Code #: 7 0 3 2 0

3 Request ID No.: Place Form ID Sticker Here

4 Priority Code #: 3 (If "1" or "2", call EID-SLD Coordinator)

5 Facility Name: Giant Bloomfield Refinery

6 County: San Juan

7 City:

8 State: NM

9 Sample Location: FP-SW

10 Collected By: William Olson (First, Initials) On: 94/07/26 (Date: YY/MM/DD) At: 1050 hrs. (Time: 24 hr. clock 3:00 pm = 1500 hrs.)

11 Codes: Submitter / WSS # / Organization

12 Latitude (DDMMSS) Longitude (DDDMMSS) 2 Digit ID (If needed)

13 Report To: Roger Anderson

14 Phone #: (505) 827-5812

Address: New Mexico Oil Conservation Division
P. O. Box 2088

City, State Zip: Santa Fe, New Mexico 87504-2088

15 Sampling Information:
Sample Purpose: ☐ - Compliance ☒ - Check ☐ - Monitoring ☐ - Special
☒ - Grab ☐ - Composite (Composite Time Period) ☐ - Flow Proportioned ☐ - Equal Aliquot ☒ - Sample Split w/Permittee ☐ - Chain of Custody

16 Field Data: pH: _____, Conductivity: _____ umhos @ _____ °C, Temperature: _____ °C, Chlorine Residual: _____ mg/l, Flow: _____

17 Sample Source:
☐ -Stream ☐ -Lake ☐ -Drain ☐ -Pool ☐ -WWTP
☐ -Well; Depth: _____ ☐ -Spring ☐ -Distribution ☐ -Point-of-Entry ☒ -Other: former fire water pond

18 Field Notes/Sample #:
Soil sample from 1 foot depth
PID = 0 ppm

19 Sample Type: ☐ -Water, ☒ -Soil, ☐ -Food, ☐ -Wastewater, ☐ -Other _____
This form accompanies a single sample consisting of:
____ - septum vial(s) (volume = _____)
____ - glass jugs (volume = _____)
1 - glass jar (volume = _____)

20 Preservation:
☐ - NP No Preservation; Sample stored at room temperature
☒ - P-Ice Sample stored in an ice bath (Not Frozen)
☐ - P-TS Sample Preserved with Sodium Thiosulfate to remove chlorine residual
☐ - P-HCl Sample Preserved with Hydrochloric Acid (2 drops/40 ml)
☐ - Other _____

21 Analyses Requested: Please check the appropriate box(es) below to indicate the type of analytical screen(s) required. Whenever possible, list specific compounds suspected or required.

Volatile Screens:

☐ - (753) Aliphatic Headspace (1-5 Carbons)
☒ - (754) Aromatic & Halogenated Purgeables (EPA 601 & 602)
☐ - (765) Mass Spectrometer Purgeables (EPA 624)
☐ - (766) SDWA Total Trihalomethanes (EPA 501.1)
☐ - (774) SDWA VOC's I [8 Regulated +] (EPA 502.2)
☐ - (775) SDWA VOC's II [EDB & DBCP] (EPA 504)

Other Specific Compounds or Classes:

☐ - ( ) _____
☐ - ( ) _____
☐ - ( ) _____

Semivolatile Screens:

☐ - (763) Acid Extractables
☐ - (751) Aliphatic Hydrocarbons
☐ - (755) Base/Neutral Extractables (EPA 625)
☐ - (756) Base/Neutral/Acid Extractables (EPA 8270)
☐ - (758) Herbicides, Chlorophenoxy Acid
☐ - (759) Herbicides, Triazines
☐ - (760) Organochlorine Pesticides
☐ - (761) Organophosphate Pesticides
☐ - (767) Polychlorinated Biphenyls (PCB's)
☐ - (764) Polynuclear Aromatic Hydrocarbons
☐ - (762) SDWA Pesticides & Herbicides

Remarks:

SLD 8912-OR Form New 12/89 This Form Will NOT Be Returned With Your Results. Please RETAIN A COPY!

86-0814-C

SCIENTIFIC LABORATORY DIVISION

700 Camino de Salud NE
Albuquerque, NM 87106 841-2570

HEALTH & ENVIRONMENT — STATE OF NEW MEXICO

WPU

REPORT TO: David Boyer
N.M. Oil Conservation Division
P. O. Box 2088
Santa Fe, N.M. 87504-2088

S.L.D. No. OR- 814 -A-B
DATE REC. 7-11-86
PRIORITY

PHONE(S): 827-5812
USER CODE: 8 2 2 3 5

SUBMITTER: David Boyer
CODE: 2 6 0

SAMPLE COLLECTION CODE: (YYMMDDHHMMIII) 8 6 0 7 0 8 1 0 4 0 R C A

SAMPLE TYPE: WATER [X], SOIL [ ], FOOD [ ], OTHER: CODE:

COUNTY: SAN JUAN ; CITY: BLOOMFIELD CODE:

LOCATION CODE: (Township-Range-Section-Tracts) 2 9 N + 1 2 W + 2 7 + 1 1 1 (10N06E24342)

ANALYSES REQUESTED: Please check the appropriate box(es) below to indicate the type of analytical screens required. Whenever possible list specific compounds suspected or required.

PURGEABLE SCREENS

- [ ] (753) Aliphatic Purgeables (1-3 Carbons)
- [X] (754) Aromatic & Halogenated Purgeables
- [ ] (765) Mass Spectrometer Purgeables
- [ ] (766) Trihalomethanes

Other Specific Compounds or Classes

- [ ]
- [ ]
- [ ]
- [ ]
- [ ]

EXTRACTABLE SCREENS

- [ ] (751) Aliphatic Hydrocarbons
- [ ] (760) Organochlorine Pesticides
- [ ] (755) Base/Neutral Extractables
- [ ] (758) Herbicides, Chlorophenoxy acid
- [ ] (759) Herbicides, Triazines
- [ ] (760) Organochlorine Pesticides
- [ ] (761) Organophosphate Pesticides
- [ ] (767) Polychlorinated Biphenyls (PCB's)
- [ ] (764) Polynuclear Aromatic Hydrocarbons
- [ ] (762) SDWA Pesticides & Herbicides

Remarks:

FIELD DATA:

pH= ; Conductivity= umho/cm at °C; Chlorine Residual= mg/l

Dissolved Oxygen= mg/l; Alkalinity= mg/l; Flow Rate /

Depth to water ft.; Depth of well ft.; Perforation Interval - ft.; Casing:

Sampling Location, Methods and Remarks (i.e. odors, etc.)

GIANT REFINERY, BLOOMFIELD - RAW WATER POND

I certify that the results in this block accurately reflect the results of my field analyses, observations and activities.(signature collector): R. C. Anderson Method of Shipment to the Lab:

This form accompanies 2 Septum Vials, Glass Jugs, and/or

Samples were preserved as follows:

- [ ] NP: No Preservation; Sample stored at room temperature.
- [X] P-Ice Sample stored in an ice bath (Not Frozen).
- [ ] P-$Na_2S_2O_3$ Sample Preserved with Sodium Thiosulfate to remove chlorine residual.

CHAIN OF CUSTODY

I certify that this sample was transferred from to

at (location) on / / - : and that

the statements in this block are correct. Evidentiary Seals: Not Sealed [ ] Seals Intact: Yes [ ] No [ ]

Signatures

For OCD Use: Date Owner Notified Phone or Letter? Initials

ANALYSES PERFORMED

LAB. No.: OR- 814

THIS PAGE FOR LABORATORY RESULTS ONLY

This sample was tested using the analytical screening method(s) checked below:

PURGEABLE SCREENS

- [ ] (753) Aliphatic Purgeables (1-3 Carbons)
- [x] (754) Aromatic & Halogenated Purgeables
- [ ] (765) Mass Spectrometer Purgeables
- [ ] (766) Trihalomethanes

Other Specific Compounds or Classes

- [ ] _____
- [ ] _____
- [ ] _____
- [ ] _____
- [ ] _____

EXTRACTABLE SCREENS

- [ ] (751) Aliphatic Hydrocarbons
- [ ] (760) Organochlorine Pesticides
- [ ] (755) Base/Neutral Extractables
- [ ] (758) Herbicides, Chlorophenoxy acid
- [ ] (759) Herbicides, Triazines
- [ ] (760) Organochlorine Pesticides
- [ ] (761) Organophosphate Pesticides
- [ ] (767) Polychlorinated Biphenyls (PCB's)
- [ ] (764) Polynuclear Aromatic Hydrocarbons
- [ ] (762) SDWA Pesticides & Herbicides

ANALYTICAL RESULTS

COMPOUND(S) DETECTED	CONC. [PPB]	COMPOUND(S) DETECTED	CONC. [PPB]
aromatic purgeables	ND		
halogenated purgeables	ND		
* DETECTION LIMIT *	* ~~15 ppb~~	+ DETECTION LIMIT +	+ 1 ppb

ABBREVIATIONS USED:

N D = NONE DETECTED AT OR ABOVE THE STATED DETECTION LIMIT

T R = DETECTED AT A LEVEL BELOW THE STATED DETECTION LIMIT (NOT CONFIRMED)

[RESULTS IN BRACKETS] ARE UNCONFIRMED AND/OR WITH APPROXIMATE QUANTITATION

LABORATORY REMARKS: _____

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes [ ] No [x]. Seal(s) broken by: _____ date: _____

I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: 15 July 86 16 July 86. Analyst's signature: [signature]

I certify that I have reviewed and concur with the analytical results for this sample and with the statements in this block.

Reviewers signature: R Meyerhen

New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (5[illegible]41-2555

859
2

GENERAL WATER CHEMISTRY
NITROGEN ANALYSIS

DATE RECEIVED 6 10 86	LAB NO. WC-25[illegible]	USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235	
Collection DATE 86 06 05	SITE INFORMATION ►	Sample location: RAW WATER POND	
Collection TIME 1510		Collection site description: GIANT BLOOMFIELD REFINERY	
Collected by — Person/Agency: Boyer /OCD			

SEND FINAL REPORT TO ►

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87504-2088

Attn: David Boyer

Phone: 827-5812

Station/well code

Owner

SAMPLING CONDITIONS

☐ Bailed ☒ Dipped ☐ Pump ☐ Tap	Water level	Discharge	Sample type: GRAB
pH (00400): 7	Conductivity (Uncorrected): 350 µmho	Water Temp. (00010): 26 °C	Conductivity at 25°C (00094): µmho

Field comments

SAMPLE FIELD TREATMENT — *Check proper boxes*

No. of samples submitted: 1

☐ NF: Whole sample (Non-filtered) ☒ F: Filtered in field with 0.45 µmembrane filter ☐ A: 2 ml H_2SO_4/L added

☒ NA: No acid added ☐ Other-*specify:* ☐ A: 5ml conc. HNO_3 added ☐ A: 4ml fuming HNO_3 added

ANALYTICAL RESULTS from SAMPLES

NF, NA		Units	Date analyzed
☐ Conductivity (Corrected) 25°C (00095)		µmho	
☐ Total non-filterable residue (suspended) (00530)		mg/l	
☐ Other:			
☐ Other:			
☐ Other:			

F, NA		Units	Date analyzed
☒ Calcium (00915)	36	mg/l	6/11
☒ Magnesium (00925)	9.76	mg/l	"
☒ Sodium (00930)	16.1	mg/l	"
☒ Potassium (00935)	1.95	mg/l	"
☒ Bicarbonate (00440)	103	mg/l	6/13
☒ Chloride (00940)	8	mg/l	6/17
☒ Sulfate (00945)	86	mg/l	6/19
☒ Total filterable residue (dissolved) (70300)	253	mg/l	6/18
☒ Other: CO_3	0		6/13

NF, A-H_2SO_4			
☐ Nitrate-N +, Nitrate-N total (00630)		mg/l	
☐ Ammonia-N total (00610)		mg/l	
☐ Total Kjeldahl-N ( )		mg/l	
☐ Chemical oxygen demand (00340)		mg/l	
☐ Total organic carbon ( )		mg/l	
☐ Other:			
☐ Other:			

F, A-H_2SO_4			
☐ Nitrate-N +, Nitrate-N dissolved (00631)		mg/l	
☐ Ammonia-N dissolved (00608)		mg/l	
☐ Total Kjeldahl-N ( )		mg/l	
☐ Other:			

Analyst	Date Reported	Reviewed by
	7 10 86	[illegible]

Laboratory remarks

FOR OCD USE -- Date Owner Notified _____ Phone or Letter? _____ Initals _____

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New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

HEAVY METALS
~~GENERAL WATER CHEMISTRY~~
and NITROGEN ANALYSIS

DATE RECEIVED 7 / 16 / 86	LAB NO. HM-1358	USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235	
Collection DATE 86/06/05	SITE INFORMATION ►	Sample location: RAW WATER POND	
Collection TIME 1510		Collection site description: GIANT BLOOMFIELD REFINERY	
Collected by — Person/Agency: Boyer /OCD			

SEND FINAL REPORT TO ►

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87504-2088

Attn: David Boyer

Phone: 827-5812

Station/well code

Owner

SAMPLING CONDITIONS

☐ Bailed ☒ Dipped ☐ Pump ☐ Tap	Water level	Discharge	Sample type: GRAB
pH (00400): 7	Conductivity (Uncorrected): 350 µmho	Water Temp. (00010): 26 °C	Conductivity at 25°C (00094): µmho

Field comments

SAMPLE FIELD TREATMENT — *Check proper boxes*

No. of samples submitted: 1

☐ **NF:** Whole sample (Non-filtered) ☒ **F:** Filtered in field with 0.45 µmembrane filter ☐ **A:** 2 ml H_2SO_4/L added

☐ **NA:** No acid added ☐ Other-*specify:* ☐ A: 5ml conc. HNO_3 added ☒ A: 4ml fuming HNO_3 added

ANALYTICAL RESULTS from SAMPLES

~~NF, NA~~	Units	Date analyzed
☐ Conductivity (Corrected) 25°C (00095)	µmho	
☐ Total non-filterable residue (suspended) (00530)	mg/l	
☒ Other: ICAP		
~~☐ AS~~		
☐ Other:		

F, NA	Units	Date analyzed
☐ Calcium (00915)	mg/l	
☐ Magnesium (00925)	mg/l	
☐ Sodium (00930)	mg/l	
☐ Potassium (00935)	mg/l	
☐ Bicarbonate (00440)	mg/l	
☐ Chloride (00940)	mg/l	
☐ Sulfate (00945)	mg/l	
☐ Total filterable residue (dissolved) (70300)	mg/l	
☐ Other:		

NF, A-H_2SO_4

☐ Nitrate-N +, Nitrate-N total (00630)	mg/l	
☐ Ammonia-N total (00610)	mg/l	
☐ Total Kjeldahl-N ( )	mg/l	
☐ Chemical oxygen demand (00340)	mg/l	
☐ Total organic carbon ( )	mg/l	
☐ Other:		
☐ Other:		

F, A-H_2SO_4

☐ Nitrate-N +, Nitrate-N dissolved (00631)	mg/l	
☐ Ammonia-N dissolved (00608)	mg/l	
☐ Total Kjeldahl-N ( )	mg/l	
☐ Other:		

Analyst	Date Reported	Reviewed by
	7 / 23 / 86	Jim Ashby

Laboratory remarks

FOR OCD USE -- Date Owner Notified _____ Phone or Letter? _____ Initals _____

Lab Number: HM 1358

Date Submitted: 7/16/86

By: Boyer

Sample Code: Raw Water Pond

Date Analyzed: 7/18/86

Reviewed By: Jim Rathley

Date Reported: 7/23/86

Element	ICAP VALUE (MG/L)	AA VALUE (MG/L)
Aluminum	<0.1	
Barium	<0.1	
Berylium	<0.1	
Boron	<0.1	
Cadmium	<0.1	
Calcium	39.	
Chromium	<0.1	
Cobalt	<0.1	
Copper	<0.1	
Iron	<0.1	
Lead	<0.1	
Magnesium	8.2	
Manganese	<0.05	
Molybdenum	<0.1	
Nickel	<0.1	
Silicon	0.6	
Silver	<0.1	
Strontium	0.5	
Tin	<0.1	
Vanadium	<0.1	
Zinc	<0.1	
Arsenic		
Selenium		
Mercury		

Giant Refining Company
Radian Work Order: S0-04-020

Method:Aromatics by SW8020 (1)
List:Complete analyte list

Sample ID:	TRIP BLANK #5	REAGENT BLANK	REAGENT BLANK	REAGENT BLANK
Factor:	1	1	1	1
Results in:	ug/L	ug/L	ug/L	ug/L
	05A	07A	07B	07C
Matrix:	water	water	water	water

	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit
Benzene	ND	0.20	ND	0.20	ND	0.20	ND	0.20
Chlorobenzene	ND	0.20	ND	0.20	ND	0.20	ND	0.20
1,2-Dichlorobenzene	ND	0.40	ND	0.40	ND	0.40	ND	0.40
1,3-Dichlorobenzene	ND	0.40	ND	0.40	ND	0.40	ND	0.40
1,4-Dichlorobenzene	ND	0.30	ND	0.30	ND	0.30	ND	0.30
Ethylbenzene	ND	0.20	ND	0.20	ND	0.20	ND	0.20
Toluene	ND	0.20	ND	0.20	ND	0.20	ND	0.20
Xylenes (total)	ND	0.20	ND	0.20	ND	0.20	ND	0.20
Surrogate Recovery(%)								
1-Bromo-4-fluorobenzene	99		101		100		98	
Control Limits: 40 to 140								

ND Not detected at specified detection limit

(1) For a detailed description of flags and technical terms in this report refer to Appendix A in this report.

RADIAN CORPORATION

Analytical Data Summary

Giant Refining Company
Radian Work Order: S0-04-020

Method:Halocarbons by SW8010 (1)
List:Table 3 analyte list

Sample ID:	TRIP BLANK #5	REAGENT BLANK	REAGENT BLANK	REAGENT BLANK
Factor:	1	1	1	1
Results in:	ug/L	ug/L	ug/L	ug/L
	05A	06A	06B	06C
Matrix:	water	water	water	water

	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit
Bromodichloromethane	ND	0.10	ND	0.10	ND	0.10	ND	0.10
Bromoform	ND	0.50	ND	0.50	ND	0.50	ND	0.50
Bromomethane	ND	1.2	ND	1.2	ND	1.2	ND	1.2
Carbon tetrachloride	ND	0.12	ND	0.12	ND	0.12	ND	0.12
Chlorobenzene	ND	0.25	ND	0.25	ND	0.25	ND	0.25
Chloroethane	ND	0.52	ND	0.52	ND	0.52	ND	0.52
2-Chloroethylvinylether	ND	0.50	ND	0.50	ND	0.50	ND	0.50
Chloroform	ND	0.10	ND	0.10	ND	0.10	ND	0.10
Chloromethane	ND	0.30	ND	0.30	ND	0.30	ND	0.30
Dibromochloromethane	ND	0.20	ND	0.20	ND	0.20	ND	0.20
1,2-Dichlorobenzene	ND	0.50	ND	0.50	ND	0.50	ND	0.50
1,3-Dichlorobenzene	ND	0.32	ND	0.32	ND	0.32	ND	0.32
1,4-Dichlorobenzene	ND	0.24	ND	0.24	ND	0.24	ND	0.24
1,1-Dichloroethane	ND	0.50	ND	0.50	ND	0.50	ND	0.50
1,2-Dichloroethane	ND	0.10	ND	0.10	ND	0.10	ND	0.10
1,1-Dichloroethene	ND	0.20	ND	0.20	ND	0.20	ND	0.20
cis-1,2-Dichloroethene	ND	0.20	ND	0.20	ND	0.20	ND	0.20
trans-1,2-Dichloroethene	ND	0.20	ND	0.20	ND	0.20	ND	0.20
1,2-Dichloropropane	ND	0.10	ND	0.10	ND	0.10	ND	0.10
cis-1,3-Dichloropropene	ND	0.20	ND	0.20	ND	0.20	ND	0.20
trans-1,3-Dichloropropene	ND	0.34	ND	0.34	ND	0.34	ND	0.34
Methylene chloride	ND	0.40	ND	0.40	ND	0.40	ND	0.40
1,1,2,2-Tetrachloroethane	ND	0.15	ND	0.15	ND	0.15	ND	0.15
Tetrachloroethene	ND	0.10	ND	0.10	ND	0.10	ND	0.10
1,1,1-Trichloroethane	ND	0.20	ND	0.20	ND	0.20	ND	0.20
1,1,2-Trichloroethane	ND	0.20	ND	0.20	ND	0.20	ND	0.20
Trichloroethene	ND	0.20	ND	0.20	ND	0.20	ND	0.20
Trichlorofluoromethane	ND	0.20	ND	0.20	ND	0.20	ND	0.20
Vinyl chloride	ND	0.20	ND	0.20	ND	0.20	ND	0.20

ND Not detected at specified detection limit

(1) For a detailed description of flags and technical terms in this report refer to Appendix A in this report.

Giant Refining Company
Radian Work Order: S0-04-013

Method:Aromatics by SW8020 (1)
List:Complete analyte list

Sample ID:	9004021255 /STRIPPER EFFL	9004021430 /GRW-13	TRIP BLANK #2	REAGENT BLANK
Factor:	1	1	1	1
Results in:	ug/L	ug/L	ug/L	ug/L
	05C	06C	07A	09A
Matrix:	water	water	water	water

	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit
Benzene	ND	0.20	ND	0.20	ND	0.20	ND	0.20
Chlorobenzene	ND	0.20	ND	0.20	ND	0.20	ND	0.20
1,2-Dichlorobenzene	ND	0.40	ND	0.40	ND	0.40	ND	0.40
1,3-Dichlorobenzene	ND	0.40	ND	0.40	ND	0.40	ND	0.40
1,4-Dichlorobenzene	ND	0.30	ND	0.30	ND	0.30	ND	0.30
Ethylbenzene	ND	0.20	ND	0.20	ND	0.20	ND	0.20
Toluene	ND	0.20	ND	0.20	ND	0.20	ND	0.20
Xylenes (total)	ND	0.20	ND	0.20	ND	0.20	ND	0.20
Surrogate Recovery(%)								
1-Bromo-4-fluorobenzene	92		89		89		101	
Control Limits: 40 to 140								

ND Not detected at specified detection limit

(1) For a detailed description of flags and technical terms in this report refer to Appendix A in this report.

Giant Refining Company
Radian Work Order: S0-04-013

Method:Halocarbons by SW8010 (1)
List:Table 3 analyte list

Sample ID:	9004021255 /STRIPPER EFFL	9004021430 /GRW-13	TRIP BLANK #2	REAGENT BLANK
Factor:	1	1	1	1
Results in:	ug/L	ug/L	ug/L	ug/L
	05A	06A	07A	08A
Matrix:	water	water	water	water

	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit
Bromodichloromethane	ND	0.10	ND	0.10	ND	0.10	ND	0.10
Bromoform	ND	0.50	ND	0.50	ND	0.50	ND	0.50
Bromomethane	ND	1.2	ND	1.2	ND	1.2	ND	1.2
Carbon tetrachloride	ND	0.12	ND	0.12	ND	0.12	ND	0.12
Chlorobenzene	ND	0.25	ND	0.25	ND	0.25	ND	0.25
Chloroethane	ND	0.52	ND	0.52	ND	0.52	ND	0.52
2-Chloroethylvinylether	ND	0.50	ND	0.50	ND	0.50	ND	0.50
Chloroform	ND	0.10	ND	0.10	ND	0.10	ND	0.10
Chloromethane	ND	0.30	ND	0.30	ND	0.30	ND	0.30
Dibromochloromethane	ND	0.20	ND	0.20	ND	0.20	ND	0.20
1,2-Dichlorobenzene	ND	0.50	ND	0.50	ND	0.50	ND	0.50
1,3-Dichlorobenzene	ND	0.32	ND	0.32	ND	0.32	ND	0.32
1,4-Dichlorobenzene	ND	0.24	ND	0.24	ND	0.24	ND	0.24
1,1-Dichloroethane	ND	0.50	ND	0.50	ND	0.50	ND	0.50
1,2-Dichloroethane	ND	0.10	4.5 C	0.10	ND	0.10	ND	0.10
1,1-Dichloroethene	ND	0.20	ND	0.20	ND	0.20	ND	0.20
cis-1,2-Dichloroethene	ND	0.20	ND	0.20	ND	0.20	ND	0.20
trans-1,2-Dichloroethene	ND	0.20	ND	0.20	ND	0.20	ND	0.20
1,2-Dichloropropane	ND	0.10	ND	0.10	ND	0.10	ND	0.10
cis-1,3-Dichloropropene	ND	0.20	ND	0.20	ND	0.20	ND	0.20
trans-1,3-Dichloropropene	ND	0.34	ND	0.34	ND	0.34	ND	0.34
Methylene chloride	ND	0.40	ND	0.40	ND	0.40	ND	0.40
1,1,2,2-Tetrachloroethane	ND	0.15	ND	0.15	ND	0.15	ND	0.15
Tetrachloroethene	ND	0.10	ND	0.10	ND	0.10	ND	0.10
1,1,1-Trichloroethane	ND	0.20	ND	0.20	ND	0.20	ND	0.20
1,1,2-Trichloroethane	ND	0.20	ND	0.20	ND	0.20	ND	0.20
Trichloroethene	ND	0.20	ND	0.20	ND	0.20	ND	0.20
Trichlorofluoromethane	ND	0.20	ND	0.20	ND	0.20	ND	0.20
Vinyl chloride	ND	0.20	ND	0.20	ND	0.20	ND	0.20

ND Not detected at specified detection limit

C Confirmed on second column or by GC/MS

(1) For a detailed description of flags and technical terms in this report refer to Appendix A in this report.

Giant Refining Company
Radian Work Order: S0-05-045

Method:Aromatics by SW8020 (1)
List:Complete analyte list

Sample ID:	9004041025 /GBR-33	9004041120 /GBR-31	TRIP BLANK	REAGENT BLANK
Factor:	1	1	1	1
Results in:	ug/L	ug/L	ug/L	ug/L
	01C	02C	06A	08A
Matrix:	water	water	water	water

	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit
Benzene	ND	0.20	0.98 Ca	0.20	ND	0.20	ND	0.20
Chlorobenzene	ND	0.20	ND	0.20	ND	0.20	ND	0.20
1,2-Dichlorobenzene	ND	0.40	ND	0.40	ND	0.40	ND	0.40
1,3-Dichlorobenzene	ND	0.40	ND	0.40	ND	0.40	ND	0.40
1,4-Dichlorobenzene	ND	0.30	ND	0.30	ND	0.30	ND	0.30
Ethylbenzene	ND	0.20	ND	0.20	ND	0.20	ND	0.20
Toluene	ND	0.20	ND	0.20	ND	0.20	ND	0.20
Xylenes (total)	ND	0.20	6.0 C	0.20	ND	0.20	ND	0.20
Surrogate Recovery(%)								
1-Bromo-4-fluorobenzene	98		29 Q		100		101	
Control Limits: 40 to 140								

ND Not detected at specified detection limit
@ Est. result less that 5 times detection limit
C Confirmed on second column or by GC/MS
Q Outside control limits

(1) For a detailed description of flags and technical terms in this report refer to Appendix A in this report.

Giant Refining Company
Radian Work Order: S0-05-045

Method:Halocarbons by SW8010 (1)
List:Table 3 analyte list

Sample ID:	9004041025 /GBR-33	9004041120 /GBR-31	TRIP BLANK	REAGENT BLANK
Factor:	1	1	1	1
Results in:	ug/L 01A	ug/L 02A	ug/L 06A	ug/L 07A
Matrix:	water	water	water	water

	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit
Bromodichloromethane	ND	0.10	ND	0.10	ND	0.10	ND	0.10
Bromoform	ND	0.50	ND	0.50	ND	0.50	ND	0.50
Bromomethane	ND	1.2	ND	1.2	ND	1.2	ND	1.2
Carbon tetrachloride	ND	0.12	ND	0.12	ND	0.12	ND	0.12
Chlorobenzene	ND	0.25	ND	0.25	ND	0.25	ND	0.25
Chloroethane	ND	0.52	ND	0.52	ND	0.52	ND	0.52
2-Chloroethylvinylether	ND	0.50	ND	0.50	ND	0.50	ND	0.50
Chloroform	ND	0.10	ND	0.10	ND	0.10	ND	0.10
Chloromethane	ND	0.30	ND	0.30	ND	0.30	ND	0.30
Dibromochloromethane	ND	0.20	ND	0.20	ND	0.20	ND	0.20
1,2-Dichlorobenzene	ND	0.50	ND	0.50	ND	0.50	ND	0.50
1,3-Dichlorobenzene	ND	0.32	ND	0.32	ND	0.32	ND	0.32
1,4-Dichlorobenzene	ND	0.24	ND	0.24	ND	0.24	ND	0.24
1,1-Dichloroethane	1.3 C@	0.50	ND	0.50	ND	0.50	ND	0.50
1,2-Dichloroethane	0.21 C@	0.10	1.0 C	0.10	ND	0.10	ND	0.10
1,1-Dichloroethene	ND	0.20	ND	0.20	ND	0.20	ND	0.20
cis-1,2-Dichloroethene	12 C	0.20	6.2 C	0.20	ND	0.20	ND	0.20
trans-1,2-Dichloroethene	ND	0.20	ND	0.20	ND	0.20	ND	0.20
1,2-Dichloropropane	ND	0.10	ND	0.10	ND	0.10	ND	0.10
cis-1,3-Dichloropropene	ND	0.20	ND	0.20	ND	0.20	ND	0.20
trans-1,3-Dichloropropene	ND	0.34	ND	0.34	ND	0.34	ND	0.34
Methylene chloride	ND	0.40	ND	0.40	ND	0.40	ND	0.40
1,1,2,2-Tetrachloroethane	ND	0.15	ND	0.15	ND	0.15	ND	0.15
Tetrachloroethene	2.5 C	0.10	0.64 C	0.10	ND	0.10	ND	0.10
1,1,1-Trichloroethane	0.24 C@	0.20	ND	0.20	ND	0.20	ND	0.20
1,1,2-Trichloroethane	ND	0.20	ND	0.20	ND	0.20	ND	0.20
Trichloroethene	1.1 C	0.20	0.86 C@	0.20	ND	0.20	ND	0.20
Trichlorofluoromethane	ND	0.20	ND	0.20	ND	0.20	ND	0.20
Vinyl chloride	ND	0.20	ND	0.20	ND	0.20	ND	0.20

ND Not detected at specified detection limit
@ Est. result less that 5 times detection limit
C Confirmed on second column or by GC/MS

(1) For a detailed description of flags and technical terms in this report refer to Appendix A in this report.

Giant Refining Company
Radian Work Order: SO-02-151

Method:Aromatics by SW8020 (1)
List:Complete analyte list

Sample ID:	9002121558	9002121618	TB-4	REAGENT BLANK
	STRIPPER EFFL	STRIPPER INFL		
Factor:	1	10	1	1
Results in:	ug/L	ug/L	ug/L	ug/L
	01A	02A	05A	06A
Matrix:	water	water	water	water

	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit
Benzene	5.3 C	0.20	240 C	2.0	ND	0.20	ND	0.20
Chlorobenzene	ND	0.20	ND	2.0	ND	0.20	ND	0.20
1,2-Dichlorobenzene	ND	0.40	ND	4.0	ND	0.40	ND	0.40
1,3-Dichlorobenzene	ND	0.40	ND	4.0	ND	0.40	ND	0.40
1,4-Dichlorobenzene	ND	0.30	ND	3.0	ND	0.30	ND	0.30
Ethylbenzene	ND	0.20	19 C	2.0	ND	0.20	ND	0.20
Toluene	ND	0.20	ND	2.0	ND	0.20	ND	0.20
Xylenes (total)	ND	0.20	ND	2.0	ND	0.20	ND	0.20
Surrogate Recovery(%)								
1-Bromo-4-fluorobenzene	83		86		87		112	
Control Limits: 40 to 140								

C Confirmed on second column

ND Not detected at specified detection limit

(1) For a detailed description of flags and technical terms in this report refer to Appendix A in this report.

Giant Refining Company
Radian Work Order: S0-02-151

Method:Halocarbons by SW8010 (1)
List:Table 3 analyte list

Sample ID:	9002121620 STRIPPER INFL	9002126002 STRIPPER EFFL	TB-4	REAGENT BLANK
Factor:	10	1	1	1
Results in:	ug/L	ug/L	ug/L	ug/L
	03A	04A	05A	06A
Matrix:	water	water	water	water

	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit
Bromodichloromethane	ND	1.0	ND	0.10	ND	0.10	ND	0.10
Bromoform	ND	5.0	ND	0.50	ND	0.50	ND	0.50
Bromomethane	ND	12	ND	1.2	ND	1.2	ND	1.2
Carbon tetrachloride	ND	1.2	ND	0.12	ND	0.12	ND	0.12
Chlorobenzene	ND	2.5	ND	0.25	ND	0.25	ND	0.25
Chloroethane	ND	5.2	ND	0.52	ND	0.52	ND	0.52
2-Chloroethylvinylether	ND	5.0	ND	0.50	ND	0.50	ND	0.50
Chloroform	ND	1.0	ND	0.10	ND	0.10	ND	0.10
Chloromethane	ND	3.0	ND	0.30	ND	0.30	ND	0.30
Dibromochloromethane	ND	2.0	ND	0.20	ND	0.20	ND	0.20
1,2-Dichlorobenzene	ND	5.0	ND	0.50	ND	0.50	ND	0.50
1,3-Dichlorobenzene	ND	3.2	ND	0.32	ND	0.32	ND	0.32
1,4-Dichlorobenzene	ND	2.4	ND	0.24	ND	0.24	ND	0.24
1,1-Dichloroethane	ND	5.0	ND	0.50	ND	0.50	ND	0.50
1,2-Dichloroethane	6.3 C	1.0	0.84 C	0.10	ND	0.10	ND	0.10
1,1-Dichloroethene	ND	2.0	ND	0.20	ND	0.20	ND	0.20
cis-1,2-Dichloroethene	28 C	2.0	0.70 C*	0.20	ND	0.20	ND	0.20
trans-1,2-Dichloroethene	ND	2.0	ND	0.20	ND	0.20	ND	0.20
1,2-Dichloropropane	ND	1.0	ND	0.10	ND	0.10	ND	0.10
cis-1,3-Dichloropropene	ND	2.0	ND	0.20	ND	0.20	ND	0.20
trans-1,3-Dichloropropene	ND	3.4	ND	0.34	ND	0.34	ND	0.34
Methylene chloride	ND	4.0	ND	0.40	ND	0.40	ND	0.40
1,1,2,2-Tetrachloroethane	ND	1.5	ND	0.15	ND	0.15	ND	0.15
Tetrachloroethene	ND	1.0	ND	0.10	ND	0.10	ND	0.10
1,1,1-Trichloroethane	4.5 C*	2.0	ND	0.20	ND	0.20	ND	0.20
1,1,2-Trichloroethane	ND	2.0	ND	0.20	ND	0.20	ND	0.20
Trichloroethene	2.0 C*	2.0	ND	0.20	ND	0.20	ND	0.20
Trichlorofluoromethane	ND	2.0	ND	0.20	ND	0.20	ND	0.20
Vinyl chloride	ND	2.0	ND	0.20	ND	0.20	ND	0.20

ND Not detected at specified detection limit
* Est. result less than 5 times detection limit

C Confirmed on second column

(1) For a detailed description of flags and technical terms in this report refer to Appendix A in this report.

Geoscience Consultants, Ltd.
Radian Work Order: 89-12-112

Method:Volatile aromatics (1) List:SW8020	GRW-13	GBR-13	GBR-8	12/12/89
Sample ID:	8912121200	8912121530	8912121600	TRIP BLANK
Factor:	1	500	250	1
Results in:	ug/L	ug/L	ug/L	ug/L
	09B	10B	11B	12A
Matrix:	water	water	water	water

	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit
Benzene	ND	0.20	710	100	2000	50	ND	0.20
Chlorobenzene	ND	0.20	ND	100	ND	50	ND	0.20
1,2-Dichlorobenzene	ND	0.40	ND	200	ND	100	ND	0.40
1,3-Dichlorobenzene	ND	0.40	ND	200	ND	100	ND	0.40
1,4-Dichlorobenzene	ND	0.30	ND	150	ND	75	ND	0.30
Ethylbenzene	ND	0.20	820	100	560	50	ND	0.20
Toluene	ND	0.20	130 *	100	ND	50	ND	0.20
Total xylenes	ND	0.20	3100	100	2200	50	ND	0.20
Surrogate Recovery(%)								
1-Bromo-4-fluorobenzene	92		98		105		94	
Control Limits: 76 to 140								

ND Not detected at specified detection limit

* Est. result less than 5 times detection limit

(1) For a detailed description of flags and technical terms in this report refer to Appendix A in this report.

Geoscience Consultants, Ltd.
Radian Work Order: 89-12-089

Method:Halogenated volatiles (1)
List:SW8010

12/12/89

Sample ID:	GBR-17	GBR-32	GBR-49	GBR-50	Trip Blank	Reagent Blank
Factor:	1	1	5	1	1	1
Results in:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
	01A	02A	03A	04A	05A	06A
Matrix:	water	water	water	water	water	water
Bromodichloromethane	<0.10	<0.10	<0.50	<0.10	<0.10	<0.10
Bromoform	<0.50	<0.50	<2.5	<0.50	<0.50	<0.50
Bromomethane	<1.2	<1.2	<5.9	<1.2	<1.2	<1.2
Carbon Tetrachloride	<0.12	<0.12	<0.60	<0.12	<0.12	<0.12
Chlorobenzene	<0.25	<0.25	<1.3	<0.25	<0.25	<0.25
Chloroethane	<0.52	<0.52	<2.6	<0.52	<0.52	<0.52
2-Chloroethylvinylether	<0.50	<0.50	<2.5	<0.50	<0.50	<0.50
Chloroform	<0.10	<0.10	<0.50	<0.10	<0.10	<0.10
Chloromethane	<0.30	<0.30	<1.5	<0.30	<0.30	<0.30
Dibromochloromethane-(2)	<0.20	<0.20	<1.0	<0.20	<0.20	<0.20
1,2-Dichlorobenzene	<0.50	<0.50	<2.5	<0.50	<0.50	<0.50
1,3-Dichlorobenzene	<0.32	<0.32	<1.6	<0.32	<0.32	<0.32
1,4-Dichlorobenzene	<0.24	<0.24	<1.2	<0.24	<0.24	<0.24
1,1-Dichloroethane	<0.50	3.0	2.8 *	<0.50	<0.50	<0.50
1,2-Dichloroethane	<0.10	<0.10	<0.50	<0.10	<0.10	<0.10
1,1-Dichloroethene	<0.20	<0.20	<1.0	<0.20	<0.20	<0.20
trans-1,2-Dichloroethene	<0.20	140 D	150	0.27 *	<0.20	<0.20
1,2-Dichloropropane	<0.10	<0.10	<0.50	<0.10	<0.10	<0.10
cis-1,3-Dichloropropene-(2)	N\A	N\A	N\A	N\A	N\A	N\A
trans-1,3-Dichloropropene	<0.30	<0.30	<1.5	<0.30	<0.30	<0.30
Methylene Chloride	<0.40	1.2 *	<2.0	<0.40	7.2	<0.40
1,1,2,2-Tetrachloroethane-(3)	<0.15	<0.15	<0.75	<0.15	<0.15	<0.15
Tetrachloroethene-(3)	0.13 *	17	25	1.2	<0.10	<0.10
1,1,2-Trichloroethane-(2)	<0.20	<0.20	<1.0	<0.20	<0.20	<0.20
1,1,1-Trichloroethane	1.0	1.3	1.0 *	0.26 *	<0.20	<0.20
Trichloroethene	<0.20	10	14	<0.20	<0.20	<0.20
Trichlorofluoromethane	<0.20	<0.20	<1.0	<0.20	<0.20	<0.20
Vinyl Chloride	<0.20	<0.20	<1.0	<0.20	<0.20	<0.20

N\A Not available
D Sample diluted for this analyte

* Est. result less than 5 times detection limit

(1) For a detailed description of flags and technical terms in this report refer to Appendix A in this report.
(2) Dibromochloromethane, 1,1,2-Trichloroethane, and cis-1,3-Dichloropropene coleute. Quantitated as Dibromochloromethane unless otherwise noted.
(3) Tetrachloroethene and 1,1,2,2-Tetrachloroethane coelute. Quantitated as Tetrachloroethene unless otherwise noted.

Geoscience Consultants, Ltd.
Radian Work Order: 89-12-089

Method:Volatile aromatics (1) List:SW8020					12/12/89	
Sample ID:	GBR-17	GBR-32	GBR-49	GBR-50	Trip Blank	Reagent Blank
Factor:	1	1	5	1	1	1
Results in:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
	01C	02C	03C	04C	05A	06A
Matrix:	water	water	water	water	water	water
Benzene	<0.20	96	74	<0.20	<0.20	<0.20
Chlorobenzene	<0.20	<0.20	<1.0	<0.20	<0.20	<0.20
1,2-Dichlorobenzene	<0.40	<0.40	<2.0	<0.40	<0.40	<0.40
1,3-Dichlorobenzene	<0.40	<0.40	<2.0	<0.40	<0.40	<0.40
1,4-Dichlorobenzene	<0.30	<0.30	<1.5	<0.30	<0.30	<0.30
Ethylbenzene	<0.20	<0.20	<1.0	<0.20	<0.20	<0.20
Toluene	<0.20	<0.20	<1.0	<0.20	<0.20	<0.20
Total xylenes	<0.20	<0.20	<1.0	<0.20	<0.20	<0.20
Surrogate Recovery(%)						
1-Bromo-4-fluorobenzene	98	101	111	104	112	N\A
Control Limits: 76 to 140						

N\A Not available

(1) For a detailed description of flags and technical terms in this report refer to Appendix A in this report.

RAS Sacramento REPORT Work Order # S9-09-082

Received: 09/14/89

Results by Sample

SAMPLE ID 8909131400 H2O Field Blank FRACTION 05C TEST CODE 602B NAME Purgeable Aromatics - H2O

Date & Time Collected 09/13/89 Category

ORGANICS ANALYSIS DATA SHEET - PURGEABLE AROMATICS (1)

ANALYST MQ FILE # EB092817 VERIFIED JD

INSTRMT B INJECTD 09/28/89 FACTOR 1 UNITS ug/L

CAS#	COMPOUND	RESULT	DET LIMIT	FACTOR
71-43-2	Benzene	ND	0.10	1
108-88-3	Toluene	ND	0.30	1
100-41-4	Ethylbenzene	ND	0.10	1
108-90-7	Chlorobenzene	ND	0.10	1
1330-20-7	Total Xylenes	ND	0.20	1
106-46-7	1,4-Dichlorobenzene	ND	0.20	1
541-73-1	1,3-Dichlorobenzene	ND	0.40	1
95-50-1	1,2-Dichlorobenzene	ND	0.20	1

SURROGATE

460-00-4 1-Bromo-4-Fluorobenzene 101% recovery

(1) See Appendix A for Glossary of Report and Data Flag Definitions

CORPORATION

RAS Sacramento REPORT

Work Order # S9-09-082

Received: 09/14/89

Results by Sample

SAMPLE ID 8909131400 H2O Field Blank FRACTION 05A TEST CODE 601 NAME Purgeable Halocarbons H2O

Date & Time Collected 09/13/89 Category

ORGANICS ANALYSIS DATA SHEET - PURGEABLE HALOCARBONS (1)

ANALYST MG FILE # DB092816 VERIFIED JD

INSTRMT B INJECTD 09/28/89 FACTOR 1 UNITS ug/L

CAS#	COMPOUND	RESULT	DET LIMIT	FACTOR
74-87-3	Chloromethane	ND	0.50	1
74-83-9	Bromomethane	ND	1.0	1
75-01-4	Vinyl Chloride	ND	0.20	1
75-00-3	Chloroethane	ND	0.50	1
75-09-2	Methylene Chloride	ND	0.40	1
75-69-4	Trichlorofluoromethane	2.2 C	0.10	1
75-35-4	1,1-Dichloroethene	ND	0.10	1
75-34-3	1,1-Dichloroethane	ND	0.10	1
540-59-0	Total 1,2-Dichloroethene (2)	ND	0.10	1
67-66-3	Chloroform	ND	0.10	1
107-06-2	1,2-Dichloroethane	ND	0.10	1
71-55-6	1,1,1-Trichloroethane	ND	0.20	1
56-23-5	Carbon Tetrachloride	ND	0.20	1
75-27-4	Bromodichloromethane	ND	0.10	1
78-87-5	1,2-Dichloropropane	ND	0.10	1
10061-01-5	cis-1,3-Dichloropropene	ND	0.40	1
79-01-6	Trichloroethene	ND	0.20	1
124-48-1	Dibromochloromethane (3)	ND	0.20	1
79-00-5	1,1,2-Trichloroethane (3)	ND	0.20	1
10061-02-6	trans-1,3-Dichloropropene (3)	ND	0.40	1
110-75-8	2-Chloroethylvinyl Ether	ND	2.0	1
75-25-2	Bromoform	ND	2.0	1
79-34-5	1,1,2,2-Tetrachloroethane (4)	ND	0.20	1
127-18-4	Tetrachloroethene (4)	ND	0.10	1
108-90-7	Chlorobenzene	ND	0.20	1
541-73-1	1,3-Dichlorobenzene	ND	0.50	1
95-50-1	1,2-Dichlorobenzene	ND	0.20	1
106-46-7	1,4-Dichlorobenzene	ND	0.20	1

Received: 09/14/89

RAS Sacramento REPORT
Results by Sample

Work Order # 89-09-082
Continued From Above

SAMPLE ID 8909131400 H2O Field Blank FRACTION 05A TEST CODE 601 NAME Purgeable Halocarbons H2O
Date & Time Collected 09/13/89 Category

SURROGATES

540-36-3	1-4-Difluorobenzene	NA	% Recovery
460-00-4	1-Bromo-4-Fluorobenzene	104	% Recovery

(1) See Appendix A for Glossary of Report and Data Flag Definitions
(2) Quantitated as the Trans-isomer
(3) Dibromochloromethane, 1,1,2-Trichloroethane and Trans-1,3-dichloropropene co-elute.
(4) 1,1,2,2-Tetrachloroethane and tetrachloroethene co-elute.

RAS Sacramento REPORT

Work Order # S9-09-049

eceived: 09/08/89

Results by Sample

AMPLE ID 8909070750 H2O Blank FRACTION OSC TEST CODE 602B NAME Purgeable Aromatics - H2O

Date & Time Collected 09/07/89 Category

ORGANICS ANALYSIS DATA SHEET - PURGEABLE AROMATICS (1)

ANALYST MG FILE # EB092011 VERIFIED JD

INSTRMT B INJECTD 09/20/89 FACTOR 1 UNITS ug/L

CAS#	COMPOUND	RESULT	DET LIMIT	FACTOR
71-43-2	Benzene	ND	0.10	1
108-88-3	Toluene	ND	0.30	1
100-41-4	Ethylbenzene	0.27 C	0.10	1
108-90-7	Chlorobenzene	ND	0.10	1
1330-20-7	Total Xylenes	ND	0.20	1
106-46-7	1,4-Dichlorobenzene	ND	0.20	1
541-73-1	1,3-Dichlorobenzene	ND	0.40	1
95-50-1	1,2-Dichlorobenzene	ND	0.20	1

SURROGATE

460-00-4 1-Bromo-4-Fluorobenzene 76% recovery

(1) See Appendix A for Glossary of Report and Data Flag Definitions

RAS Sacramento REPORT Work Order # S9-09-049

eceived: 09/08/89 Results by Sample

AMPLE ID 8909070750 H20 Blank FRACTION 05A TEST CODE 601 NAME Purgeable Halocarbons H20

Date & Time Collected 09/07/89 Category

ORGANICS ANALYSIS DATA SHEET - PURGEABLE HALOCARBONS (1)

ANALYST MG FILE # DB092010 VERIFIED JD

INSTRMT B INJECTD 09/20/89 FACTOR 1 UNITS ug/L

CAS#	COMPOUND	RESULT	DET LIMIT	FACTOR
74-87-3	Chloromethane	ND	0.50	1
74-83-9	Bromomethane	ND	1.0	1
75-01-4	Vinyl Chloride	ND	0.20	1
75-00-3	Chloroethane	ND	0.50	1
75-09-2	Methylene Chloride	ND	0.40	1
75-69-4	Trichlorofluoromethane	ND	0.10	1
75-35-4	1,1-Dichloroethene	ND	0.10	1
75-34-3	1,1-Dichloroethane	ND	0.10	1
540-59-0	Total 1,2-Dichloroethene (2)	ND	0.10	1
67-66-3	Chloroform	ND	0.10	1
107-06-2	1,2-Dichloroethane	ND	0.10	1
71-55-6	1,1,1-Trichloroethane	ND	0.20	1
56-23-5	Carbon Tetrachloride	ND	0.20	1
75-27-4	Bromodichloromethane	ND	0.10	1
78-87-5	1,2-Dichloropropane	ND	0.10	1
10061-01-5	cis-1,3-Dichloropropene	ND	0.40	1
79-01-6	Trichloroethene	ND	0.20	1
124-48-1	Dibromochloromethane (3)	ND	0.20	1
79-00-5	1,1,2-Trichloroethane (3)	ND	0.20	1
10061-02-6	trans-1,3-Dichloropropene (3)	ND	0.40	1
110-75-8	2-Chloroethylvinyl Ether	ND	2.0	1
75-25-2	Bromoform	ND	2.0	1
79-34-5	1,1,2,2-Tetrachloroethane (4)	ND	0.20	1
127-18-4	Tetrachloroethene (4)	ND	0.10	1
108-90-7	Chlorobenzene	ND	0.20	1
541-73-1	1,3-Dichlorobenzene	ND	0.50	1
95-50-1	1,2-Dichlorobenzene	ND	0.20	1
106-46-7	1,4-Dichlorobenzene	ND	0.20	1

Received: 09/14/89

RAS Sacramento REPORT
Results by Sample

Work Order # S9-09-082

SAMPLE ID TRIP BLANK #2 H2O FRACTION 07A TEST CODE 602B NAME Purgeable Aromatics - H2O
Date & Time Collected 08/22/89 Category

ORGANICS ANALYSIS DATA SHEET - PURGEABLE AROMATICS (1)

ANALYST MG
INSTRMT B
INJECTD 09/28/89
FILE # EB092819 VERIFIED JD
FACTOR 1 UNITS ug/L

CAS#	COMPOUND	RESULT	DET LIMIT	FACTOR
71-43-2	Benzene	ND	0.10	1
108-88-3	Toluene	ND	0.30	1
100-41-4	Ethylbenzene	ND	0.10	1
108-90-7	Chlorobenzene	ND	0.10	1
1330-20-7	Total Xylenes	ND	0.20	1
106-46-7	1,4-Dichlorobenzene	ND	0.20	1
541-73-1	1,3-Dichlorobenzene	ND	0.40	1
95-50-1	1,2-Dichlorobenzene	ND	0.20	1

SURROGATE

460-00-4 1-Bromo-4-Fluorobenzene 74% recovery

(1) See Appendix A for Glossary of Report and Data Flag Definitions

Received: 09/14/89

RAS Sacramento REPORT
Results by Sample

Work Order # S9-09-082

SAMPLE ID TRIP BLANK #1 H2O FRACTION 06A TEST CODE 601 NAME Purgeable Halocarbons H2O
Date & Time Collected 08/22/89 Category

ORGANICS ANALYSIS DATA SHEET - PURGEABLE HALOCARBONS (1)

ANALYST MG
INSTRMT B
INJECTD 09/28/89
FILE # DB092818
FACTOR 1
VERIFIED JD
UNITS ug/L

CAS#	COMPOUND	RESULT	DET LIMIT	FACTOR
74-87-3	Chloromethane	ND	0.50	1
74-83-9	Bromomethane	ND	1.0	1
75-01-4	Vinyl Chloride	ND	0.20	1
75-00-3	Chloroethane	ND	0.50	1
75-09-2	Methylene Chloride	ND	0.40	1
75-69-4	Trichlorofluoromethane	ND	0.10	1
75-35-4	1,1-Dichloroethene	ND	0.10	1
75-34-3	1,1-Dichloroethane	ND	0.10	1
540-59-0	Total 1,2-Dichloroethene (2)	ND	0.10	1
67-66-3	Chloroform	ND	0.10	1
107-06-2	1,2-Dichloroethane	ND	0.10	1
71-55-6	1,1,1-Trichloroethane	ND	0.20	1
56-23-5	Carbon Tetrachloride	ND	0.20	1
75-27-4	Bromodichloromethane	ND	0.10	1
78-87-5	1,2-Dichloropropane	ND	0.10	1
10061-01-5	cis-1,3-Dichloropropene	ND	0.40	1
79-01-6	Trichloroethene	ND	0.20	1
124-48-1	Dibromochloromethane (3)	ND	0.20	1
79-00-5	1,1,2-Trichloroethane (3)	ND	0.20	1
10061-02-6	trans-1,3-Dichloropropene (3)	ND	0.40	1
110-75-8	2-Chloroethylvinyl Ether	ND	2.0	1
75-25-2	Bromoform	ND	2.0	1
79-34-5	1,1,2,2-Tetrachloroethane (4)	ND	0.20	1
127-18-4	Tetrachloroethene (4)	ND	0.10	1
108-90-7	Chlorobenzene	ND	0.20	1
541-73-1	1,3-Dichlorobenzene	ND	0.50	1
95-50-1	1,2-Dichlorobenzene	ND	0.20	1
106-46-7	1,4-Dichlorobenzene	ND	0.20	1

Received: 09/14/89

RAS Sacramento REPORT
Results by Sample

Work Order # S9-09-082
Continued From Above

SAMPLE ID TRIP BLANK #1 H2O FRACTION 06A TEST CODE 601 NAME Purgeable Halocarbons H2O
Date & Time Collected 08/22/89 Category

SURROGATES

540-36-3	1-4-Difluorobenzene	NA	% Recovery
460-00-4	1-Bromo-4-Fluorobenzene	114	% Recovery

(1) See Appendix A for Glossary of Report and Data Flag Definitions
(2) Quantitated as the Trans-isomer
(3) Dibromochloromethane, 1,1,2-Trichloroethane and Trans-1,3-dichloropropene co-elute.
(4) 1,1,2,2-Tetrachloroethane and tetrachloroethene co-elute.

Inter-Mountain Laboratories, Inc.

2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326 4737

Client: GCL #8906131700
Site: Blank
IML #: F1571

Date of report: 06/23/89
Date sampled: 06/13/89
Date received: 06/14/89

Parameter	Concentration	Units
BENZENE	ND (0.2)	ug/l
TOLUENE	ND (0.2)	ug/l
ETHYLBENZENE	ND (0.2)	ug/l
CHLOROBENZENE	ND (0.2)	ug/l
m,p-XYLENE	ND (0.2)	ug/l
o-XYLENE	ND (0.2)	ug/l
1,4-DICHLOROBENZENE	ND (0.2)	ug/l
1,3-DICHLOROBENZENE	ND (0.2)	ug/l
1,2-DICHLOROBENZENE	ND (0.2)	ug/l

Method: 8020 Aromatic Volatile Organics, SW-846, USEPA (1982)
602 Purgeable Aromatics, 40 CFR, Part 136

Note: Method Detection Limit (MDL) is given in parenthesis.
ND means analyte was not detected.

C. Neal Schaeffer
Senior Organic Chemist

Inter-Mountain Laboratories, Inc.

2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

Client: GCL #8906131700
Site: Blank
IML #: F1571

Date of report: 06/23/89
Date sampled: 06/13/89
Date received: 06/14/89

Parameter	Concentration	Units
CHLOROMETHANE	ND (1.0)	ug/l
BROMOMETHANE	ND (1.0)	ug/l
DICHLORODIFLUOROMETHANE	ND (1.0)	ug/l
VINYL CHLORIDE	ND (1.0)	ug/l
CHLOROETHANE	ND (1.0)	ug/l
METHYLENE CHLORIDE	ND (1.0)	ug/l
TRICHLOROFLUOROMETHANE	ND (1.0)	ug/l
1,1-DICHLOROETHENE	ND (1.0)	ug/l
1,1-DICHLOROETHANE	ND (1.0)	ug/l
TRANS-1,2-DICHLOROETHENE	ND (1.0)	ug/l
CHLOROFORM	ND (1.0)	ug/l
1,2-DICHLOROETHANE	ND (1.0)	ug/l
1,1,1-TRICHLOROETHANE	ND (1.0)	ug/l
CARBON TETRACHLORIDE	ND (1.0)	ug/l
BROMODICHLOROMETHANE	ND (1.0)	ug/l
1,2-DICHLOROPROPANE	ND (1.0)	ug/l
CIS-1,3-DICHLOROPROPENE	ND (1.0)	ug/l
TRICHLOROETHENE	ND (1.0)	ug/l
DIBROMOCHLOROMETHANE	ND (1.0)	ug/l
1,1,2-TRICHLOROETHANE	ND (1.0)	ug/l
TRANS-1,3-DICHLOROPROPENE	ND (1.0)	ug/l
2-CHLOROETHYLVINYL ETHER	ND (1.0)	ug/l
BROMOFORM	ND (1.0)	ug/l
1,1,2,2-TETRACHLOROETHANE	ND (1.0)	ug/l
TETRACHLOROETHENE	ND (1.0)	ug/l
CHLOROBENZENE	ND (1.0)	ug/l
1,3-DICHLOROBENZENE	ND (1.0)	ug/l
1,2-DICHLOROBENZENE	ND (1.0)	ug/l
1,4-DICHLOROBENZENE	ND (1.0)	ug/l

Methods: 8020 Aromatic Volatile Organics, SW-846, USEPA (1982)
601 Purgeable Halocarbons, 40 CFR Part 136, USEPA (1984).

Note: Method Detection Limit (MDL) is given in parenthesis.
ND means analyte was not detected.

C. Neal Schaefer
Senior Organic Chemist

Inter-Mountain Laboratories, Inc.

2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326 4737

** Quality Assurance Report
Travel Blank Analysis

Date: April 01, 1989

Client: Geoscience Consultants, Ltd.

GCL Sample No:	NA		
Sample Site:	NA	Date Sampled:	NA
IML Lab No:	NA	Date Received:	03/14/89
Analysis Requested:	Purgeable Aromatic	Date Extracted:	NA
Sample Matrix:	Water	Date Analyzed:	03/15/89

Parameter	Concentration	Units
BENZENE	0.2 (0.2)	ug/l
TOLUENE	0.4 (0.2)	ug/l
ETHYLBENZENE	ND (0.2)	ug/l
m,p-XYLENE	ND (0.2)	ug/l
o-XYLENE	ND (0.2)	ug/l

Method: 8020 Aromatic Volatile Organics, SW-846, USEPA (1982)
602 Purgeable Aromatics, 40 CFR, Part 136

Note: Method Detection Limit (MDL) is given in parenthesis.
ND means analyte was not detected.

Jack M. Morgan
Senior Organic Chemist

Inter-Mountain Laboratories, Inc.

2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

** Quality Assurance Report
Travel Blank Analysis

Date: April 02, 1989

Client: Geoscience Consultants, Ltd.
GCL Sample No: NA
Sample Site: NA
IML Sample No: NA
Analysis Requested: Purgeable Halocarbons
Sample Matrix: Water

Date Sampled: NA
Date Received: 03/16/89
Date Extracted: N/A
Date Analyzed: 03/29/89

Parameter	Concentration	Units
CHLOROMETHANE	ND (1.0)	ug/l
BROMOMETHANE	ND (1.0)	ug/l
DICHLORODIFLUOROMETHANE	ND (1.0)	ug/l
VINYL CHLORIDE	ND (1.0)	ug/l
CHLOROETHANE	ND (1.0)	ug/l
METHYLENE CHLORIDE	9.4 (0.1)	ug/l
TRICHLOROFLUOROMETHANE	ND (0.1)	ug/l
1,1-DICHLOROETHENE	ND (0.1)	ug/l
1,1-DICHLOROETHANE	ND (0.05)	ug/l
TRANS-1,2-DICHLOROETHENE	ND (0.1)	ug/l
CHLOROFORM	ND (0.1)	ug/l
1,2-DICHLOROETHANE	0.42 (0.03)	ug/l
1,1,1-TRICHLOROETHANE	ND (0.03)	ug/l
CARBON TETRACHLORIDE	ND (0.1)	ug/l
BROMODICHLOROMETHANE	ND (0.1)	ug/l
1,2-DICHLOROPROPANE	1.2 (0.1)	ug/l
CIS-1,3-DICHLOROPROPENE	ND (0.1)	ug/l
TRICHLOROETHENE	ND (0.1)	ug/l
DIBROMOCHLOROMETHANE	ND (0.1)	ug/l
1,1,2-TRICHLOROETHANE	ND (0.02)	ug/l
TRANS-1,3-DICHLOROPROPENE	ND (0.1)	ug/l
2-CHLOROETHYLVINYL ETHER	ND (0.1)	ug/l
BROMOFORM	ND (0.2)	ug/l
1,1,2,2-TETRACHLOROETHANE	ND (0.03)	ug/l
TETRACHLOROETHENE	ND (0.03)	ug/l
CHLOROBENZENE	ND (0.1)	ug/l
1,2-DICHLOROBENZENE	ND (0.1)	ug/l
1,3-DICHLOROBENZENE	ND (0.1)	ug/l
1,4-DICHLOROBENZENE	ND (0.1)	ug/l

Method: 601 Purgeable Halocarbons, 40 CFR Part 136, USEPA (1984).

(Detection limit in parenthesis.)
ND - Parameter not detected at the stated detection limit.

Jack M. Morgan
Senior Organic Chemist

Inter-Mountain Laboratories, Inc.

2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

** Quality Assurance Report
Travel Blank Analysis

Date: April 02, 1989

Client: Geoscience Consultants, Ltd.
GCL Sample No: NA
Sample Site: NA
IML Sample No: NA
Analysis Requested: Purgeable Halocarbons
Sample Matrix: Water

Date Sampled: NA
Date Received: 03/14/89
Date Extracted: N/A
Date Analyzed: 03/29/89

Parameter	Concentration		Units
CHLOROMETHANE	ND	(1.0)	ug/l
BROMOMETHANE	ND	(1.0)	ug/l
DICHLORODIFLUOROMETHANE	ND	(1.0)	ug/l
VINYL CHLORIDE	ND	(1.0)	ug/l
CHLOROETHANE	ND	(1.0)	ug/l
METHYLENE CHLORIDE	3.1	(0.1)	ug/l
TRICHLOROFLUOROMETHANE	ND	(0.1)	ug/l
1,1-DICHLOROETHENE	ND	(0.1)	ug/l
1,1-DICHLOROETHANE	ND	(0.05)	ug/l
TRANS-1,2-DICHLOROETHENE	ND	(0.1)	ug/l
CHLOROFORM	ND	(0.1)	ug/l
1,2-DICHLOROETHANE	0.21	(0.03)	ug/l
1,1,1-TRICHLOROETHANE	ND	(0.03)	ug/l
CARBON TETRACHLORIDE	ND	(0.1)	ug/l
BROMODICHLOROMETHANE	ND	(0.1)	ug/l
1,2-DICHLOROPROPANE	ND	(0.1)	ug/l
CIS-1,3-DICHLOROPROPENE	ND	(0.1)	ug/l
TRICHLOROETHENE	ND	(0.1)	ug/l
DIBROMOCHLOROMETHANE	ND	(0.1)	ug/l
1,1,2-TRICHLOROETHANE	ND	(0.02)	ug/l
TRANS-1,3-DICHLOROPROPENE	ND	(0.1)	ug/l
2-CHLOROETHYLVINYL ETHER	ND	(0.1)	ug/l
BROMOFORM	ND	(0.2)	ug/l
1,1,2,2-TETRACHLOROETHANE	ND	(0.03)	ug/l
TETRACHLOROETHENE	ND	(0.03)	ug/l
CHLOROBENZENE	ND	(0.1)	ug/l
1,2-DICHLOROBENZENE	ND	(0.1)	ug/l
1,3-DICHLOROBENZENE	ND	(0.1)	ug/l
1,4-DICHLOROBENZENE	ND	(0.1)	ug/l

Method: 601 Purgeable Halocarbons, 40 CFR Part 136, USEPA (1984).

(Detection limit in parenthesis.)
ND - Parameter not detected at the stated detection limit.

Jack M. Morgan
Senior Organic Chemist

AnalyticalTechnologies,Inc.

8801201800
TRIP BLANK

EPA METHOD 601/602
PROJECT: M & A

SAMPLE DATE: 1/20/88
LAB RECEIPT DATE: 1/22/88
ANALYSIS DATE: 1/26/88
MATRIX: WATER
ANALYST: TMG

SAMPLE ID: 8801201800
LOCATION: GBR 100
LAB SAMPLE #: 3873-4
UNITS: ug/l
DILUTION FACTOR: 1

CONSTITUENT NAME	DETECTION LIMIT	RESULT
CHLOROMETHANE	0.2	ND
BROMOMETHANE	0.2	ND
DICHLORODIFLUOROMETHANE	0.2	ND
VINYL CHLORIDE	0.2	ND
CHLOROETHANE	0.2	ND
METHYLENE CHLORIDE	2.0	ND
TRICHLOROFLUOROMETHANE	2.0	ND
1,1-DICHLOROETHENE	0.2	ND
1,1-DICHLOROETHANE	0.2	ND
TRANS-1,2-DICHLOROETHENE	0.2	ND
CHLOROFORM	0.2	ND
1,2-DICHLOROETHANE	0.2	ND
1,1,1-TRICHLOROETHANE	0.2	ND
CARBON TETRACHLORIDE	0.2	ND
BROMODICHLOROMETHANE	0.2	ND
1,2-DICHLOROPROPANE	0.2	ND
TRANS-1,3-DICHLOROPROPENE	0.2	ND
TRICHLOROETHENE	0.2	ND
DIBROMOCHLOROMETHANE	0.2	ND
1,1,2-TRICHLOROETHANE	0.2	ND
CIS-1,3-DICHLOROPROPENE	0.2	ND
2-CHLOROETHYLVINYL ETHER	0.5	ND
BROMOFORM	0.5	ND
1,1,2,2-TETRACHLOROETHANE	0.2	ND
TETRACHLOROETHENE	0.2	ND
BENZENE	0.5	ND
TOLUENE	0.5	ND
CHLOROBENZENE	0.5	ND
ETHYLBENZENE	0.5	ND
1,3-DICHLOROBENZENE	0.5	ND
1,2-DICHLOROBENZENE	0.5	ND
1,4-DICHLOROBENZENE	0.5	ND
M-XYLENE	0.5	ND
O,P-XYLENE	0.5	ND

COMMENTS: ND = NOT DETECTED

% SURROGATE RECOVERY
84.2% BROMOCHLOROMETHANE
72.2% BROMOFLUOROBENZENE

PROJECT MANAGER: [illegible]

DATE: 2/9/88

21

AnalyticalTechnologies,Inc.

EPA METHOD 601/602
PROJECT: M & A

SAMPLE DATE: N/A
LAB RECEIPT DATE: N/A
ANALYSIS DATE: 1/26/88
MATRIX: WATER
ANALYST: TMG

SAMPLE ID: SYSTEM BLANK
LOCATION:
LAB SAMPLE #: 3873
UNITS: ug/l
DILUTION FACTOR: 1

CONSTITUENT NAME	DETECTION LIMIT	RESULT
CHLOROMETHANE	0.2	ND
BROMOMETHANE	0.2	ND
DICHLORODIFLUOROMETHANE	0.2	ND
VINYL CHLORIDE	0.2	ND
CHLOROETHANE	0.2	ND
METHYLENE CHLORIDE	2.0	2.3
TRICHLOROFLUOROMETHANE	2.0	ND
1,1-DICHLOROETHENE	0.2	ND
1,1-DICHLOROETHANE	0.2	ND
TRANS-1,2-DICHLOROETHENE	0.2	ND
CHLOROFORM	0.2	ND
1,2-DICHLOROETHANE	0.2	ND
1,1,1-TRICHLOROETHANE	0.2	ND
CARBON TETRACHLORIDE	0.2	ND
BROMODICHLOROMETHANE	0.2	ND
1,2-DICHLOROPROPANE	0.2	ND
TRANS-1,3-DICHLOROPROPENE	0.2	ND
TRICHLOROETHENE	0.2	ND
DIBROMOCHLOROMETHANE	0.2	ND
1,1,2-TRICHLOROETHANE	0.2	ND
CIS-1,3-DICHLOROPROPENE	0.2	ND
2-CHLOROETHYLVINYL ETHER	0.5	ND
BROMOFORM	0.5	ND
1,1,2,2-TETRACHLOROETHANE	0.2	ND
TETRACHLOROETHENE	0.2	ND
BENZENE	0.5	ND
TOLUENE	0.5	ND
CHLOROBENZENE	0.5	ND
ETHYLBENZENE	0.5	ND
1,3-DICHLOROBENZENE	0.5	ND
1,2-DICHLOROBENZENE	0.5	ND
1,4-DICHLOROBENZENE	0.5	ND
M-XYLENE	0.5	ND
O,P-XYLENE	0.5	ND

COMMENTS: ND = NOT DETECTED

% SURROGATE RECOVERY
81.6% BROMOCHLOROMETHANE
81.7% BROMOFLUOROBENZENE

PROJECT MANAGER: [illegible]

DATE: 2/9/88

(21)

8111110000

AnalyticalTechnologies, Inc.

EPA METHOD 601/602
PROJECT: GIANT MONITOR WELLS

SAMPLE DATE:
LAB RECEIPT DATE:
ANALYSIS DATE: 11/17/87
MATRIX: WATER
ANALYST: MGB

SAMPLE ID: TRIP BLANK
LOCATION:
LAB SAMPLE #: 3574
UNITS: ug/l
DILUTION FACTOR: 1

CONSTITUENT NAME	DETECTION LIMIT	RESULT
CHLOROMETHANE	0.2	ND
BROMOMETHANE	0.2	ND
DICHLORODIFLUOROMETHANE	0.2	ND
VINYL CHLORIDE	0.2	ND
CHLOROETHANE	0.2	ND
METHYLENE CHLORIDE	2.0	ND
TRICHLOROFLUOROMETHANE	2.0	ND
1,1-DICHLOROETHENE	0.2	ND
1,1-DICHLOROETHANE	0.2	ND
TRANS-1,2-DICHLOROETHENE	0.2	ND
CHLOROFORM	0.2	ND
1,2-DICHLOROETHANE	0.2	ND
1,1,1-TRICHLOROETHANE	0.2	ND
CARBON TETRACHLORIDE	0.2	ND
BROMODICHLOROMETHANE	0.2	ND
1,2-DICHLOROPROPANE	0.2	ND
TRANS-1,3-DICHLOROPROPENE	0.2	ND
TRICHLOROETHENE	0.2	ND
DIBROMOCHLOROMETHANE	0.2	ND
1,1,2-TRICHLOROETHANE	0.2	ND
CIS-1,3-DICHLOROPROPENE	0.2	ND
2-CHLOROETHYLVINYL ETHER	0.2	ND
BROMOFORM	0.2	ND
1,1,2,2-TETRACHLOROETHANE	0.2	ND
TETRACHLOROETHENE	0.2	ND
BENZENE	0.5	ND
TOLUENE	1.0	ND
CHLOROBENZENE	0.5	ND
ETHYLBENZENE	0.5	ND
1,3-DICHLOROBENZENE	0.5	ND
1,2-DICHLOROBENZENE	0.5	ND
1,4-DICHLOROBENZENE	0.5	ND
M-XYLENE	0.5	ND
O,P-XYLENE	0.5	ND

95.5 % SURROGATE RECOVERY

COMMENTS: ND = NOT DETECTED

PROJECT MANAGER: M. Pally

DATE: 12/10/87

8710071600

AnalyticalTechnologies, Inc.

EPA METHOD 601/602
PROJECT: GBR

SAMPLE DATE: 10-6-787
LAB RECEIPT DATE: 10/09/87
ANALYSIS DATE/TIME: 10/13/87, 15:52
MATRIX: WATER
ANALYST: MGB

SAMPLE ID: TRIP BLANK
LOCATION:
LAB SAMPLE #: 3439
UNITS: ug/l
DILUTION FACTOR: 1

CONSTITUENT NAME	DETECTION LIMIT	RESULT
CHLOROMETHANE	0.02	ND
BROMOMETHANE	0.06	ND
DICHLORODIFLUOROMETHANE	0.04	ND
VINYL CHLORIDE	0.05	ND
CHLOROETHANE	0.1	ND
METHYLENE CHLORIDE	0.02	ND
TRICHLOROFLUOROMETHANE	0.07	ND
1,1-DICHLOROETHENE	0.07	ND
1,1-DICHLOROETHANE	0.05	ND
TRANS-1,2-DICHLOROETHENE	0.09	ND
CHLOROFORM	0.05	ND
1,2-DICHLOROETHANE	0.07	ND
1,1,1-TRICHLOROETHANE	0.03	ND
CARBON TETRACHLORIDE	0.08	ND
BROMODICHLOROMETHANE	0.04	ND
1,2-DICHLOROPROPANE	0.03	ND
TRANS-1,3-DICHLOROPROPENE	0.11	ND
TRICHLOROETHENE	0.06	ND
DIBROMOCHLOROMETHANE	0.07	ND
1,1,2-TRICHLOROETHANE	0.03	ND
CIS-1,3-DICHLOROPROPENE	0.07	ND
2-CHLOROETHYLVINYL ETHER	0.03	ND
BROMOFORM	0.09	ND
1,1,2,2-TETRACHLOROETHANE	0.03	ND
TETRACHLOROETHENE	0.03	ND
BENZENE	0.2	ND
TOLUENE	0.4	ND
CHLOROBENZENE	0.16	ND
ETHYLBENZENE	0.1	ND
1,3-DICHLOROBENZENE	0.4	ND
1,2-DICHLOROBENZENE	0.4	ND
1,4-DICHLOROBENZENE	0.6	ND
M-XYLENE	0.18	ND
O,P-XYLENE	0.15	ND

126 % SURROGATE RECOVERY

COMMENTS: ND = NOT DETECTED
NA = NOT ANALYZED

346

PROJECT MANAGER: [illegible]

DATE: 10/28/87

8710071604

ACCESSION: 3439

QUALITY CONTROL DATA
METHOD 601 & 602

CLIENT: GEOSCIENCE CONSULTANTS, LTD.
UNITS: ug/l

	MATRIX SPIKE % RECOVERY	
	SAMPLE	DUPLICATE
METHYLENE CHLORIDE	87.0	95.6
TRICHLOROFLUOROMETHANE	87.2	94.4
1,1-DICHLOROETHENE	95.4	99.3
1,1-DICHLOROETHANE	89.3	94.9
CHLOROFORM	107	112
CARBON TETRACHLORIDE	104	113
1,2-DICHLOROPROPANE	102	108
TRICHLOROETHENE	98.4	103
TETRACHLOROETHENE	99.6	99.4
CHLOROBENZENE	99.3	95.5

346

8710071604

ACCESSION: 3439

QUALITY CONTROL DATA: 781-3
METHOD 601 & 602

CLIENT: GEOSCIENCE CONSULTANTS, LTD.
UNITS: ug/l

	FOUND	TRUE VALUE
METHYLENE CHLORIDE	13.4	9.2
1,1-DICHLOROETHENE	8.3	10.0
TRANS-1,2-DICHLOROETHENE	4.7	5.4
1,2-DICHLOROETHANE	5.1	5.4
CARBON TETRACHLORIDE	12.5	10.0
1,2-DICHLOROPROPANE	8.3	8.0
TRICHLOROETHENE	12.8	10.2
1,1,2,2-TETRACHLOROETHANE	13.0	10.0
CHLOROBENZENE	8.3	8.2

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AnalyticalTechnologies,Inc.

8709101045

EPA METHOD 601/602
PROJECT: GIANT MONITOR WELLS

ANALYSIS DATE: 9/17/87
MATRIX: WATER
ANALYST: MGB

SAMPLE ID: TRIP BLANK
LAB SAMPLE #: 3328
UNITS: ug/l
DILUTION FACTOR: 1

CONSTITUENT NAME	DETECTION LIMIT	RESULT
CHLOROMETHANE	0.02	ND
BROMOMETHANE	0.06	ND
DICHLORODIFLUOROMETHANE	0.04	ND
VINYL CHLORIDE	0.05	ND
CHLOROETHANE	0.1	ND
METHYLENE CHLORIDE	0.02	ND
TRICHLOROFLUOROMETHANE	0.07	ND
1,1-DICHLOROETHENE	0.07	ND
1,1-DICHLOROETHANE	0.05	ND
TRANS-1,2-DICHLOROETHENE	0.09	ND
CHLOROFORM	0.05	ND
1,2-DICHLOROETHANE	0.07	ND
1,1,1-TRICHLOROETHANE	0.03	ND
CARBON TETRACHLORIDE	0.08	ND
BROMODICHLOROMETHANE	0.04	ND
1,2-DICHLOROPROPANE	0.03	ND
TRANS-1,3-DICHLOROPROPENE	0.11	ND
TRICHLOROETHENE	0.06	ND
DIBROMOCHLOROMETHANE	0.07	ND
1,1,2-TRICHLOROETHANE	0.03	ND
CIS-1,3-DICHLOROPROPENE	0.07	ND
2-CHLOROETHYLVINYL ETHER	0.03	ND
BROMOFORM	0.09	ND
1,1,2,2-TETRACHLOROETHANE	0.03	ND
TETRACHLOROETHENE	0.03	ND
BENZENE	0.2	ND
TOLUENE	0.4	ND
CHLOROBENZENE	0.16	ND
ETHYLBENZENE	0.1	ND
1,3-DICHLOROBENZENE	0.4	ND
1,2-DICHLOROBENZENE	0.4	ND
1,4-DICHLOROBENZENE	0.6	ND
M-XYLENE	0.18	ND
O,P-XYLENE	0.15	ND

103 % SURROGATE RECOVERY

COMMENTS: ND = NOT DETECTED
NA = NOT ANALYZED

PROJECT MANAGER: [illegible]

DATE: 27 SEPTEMBER 1987

8704211205

ASSAIGAI ANALYTICAL LABORATORIES

8704211205

TO: Geoscience Consultants
ATTN: Kaszuba
500 Copper NW Suite 200
Albuquerque, NM 87102

DATE: 14 May 1987
0678

SAMPLE ID: 8704211205, GBR, casing rinse water.

ANALYTE	ANALYTICAL RESULTS	NOMINAL DETECTION LIMITS
Benzene	<0.001 mg/l	0.001 mg/l
Toluene	<0.001 mg/l	0.001 mg/l
Ethyl Benzene	<0.001 mg/l	0.001 mg/l
Xylenes	<0.001 mg/l	0.001 mg/l
GC Scan	ND	0.001 mg/l

REFERENCE" Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," USEPA, SW 846, EMSL-Cincinnati, 1982.

An invoice for services is enclosed. Thank you for contacting Assaigai Laboratories.

Sincerely,

Jennifer V. Smith, Ph.D.
Laboratory Director

7300 Jefferson, NE • Albuquerque, New Mexico 87109 • (505) 345-8964

8704211100

ASSAIGAI ANALYTICAL LABORATORIES

8704211100

87-367-401

TO: Geoscience Consultants
ATTN: Kaszuba
500 Copper NW Suite 200
Albuquerque, NM 87102

DATE: 14 May 1987
0678

SAMPLE ID: 8704211100, GBR, equipment rinse water.

ANALYTE	ANALYTICAL RESULTS	NOMINAL DETECTION LIMITS
Benzene	<0.001 mg/l	0.001 mg/l
Toluene	<0.001 mg/l	0.001 mg/l
Ethyl Benzene	<0.001 mg/l	0.001 mg/l
Xylenes	<0.001 mg/l	0.001 mg/l
GC Scan	ND	0.001 mg/l

REFERENCE" Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," USEPA, SW 846, EMSL-Cincinnati, 1982.

An invoice for services is enclosed. Thank you for contacting Assaigai Laboratories.

Sincerely,

Jennifer V. Smith, Ph.D.
Laboratory Director

7300 Jefferson, NE • Albuquerque, New Mexico 87109 • (505) 345-8964

278

754

STATE OF NEW MEXICO
ENVIRONMENT

SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 841-2570

86-0681-C

REPORT TO: DAVID G. BOYER
PLEASE PRINT
NEW MEXICO OIL CONSERVATION DIV.
P.O. BOX 2088
SANTA FE, NM 87504-2088

S.L.D. No.: OR-681-HB
DATE REC.: 06/09/86
SLD PRIORITY #:

PHONE(S): 827-5812
USER CODE: 8 2 2 3 5

SUBMITTER: DAVID BOYER
SUBMITTER CODE:

SAMPLE TYPE: WATER ☒, SOIL ☐, OTHER
SAMPLE TYPE CODE:

COLLECTED: 86/06/05 - 11:15 BY AYB
DATE TIME INITIALS
CODE: Y Y M M D D H H M M I I I

SOURCE: BLANK
CODE: AQUIFER DEPTH

NEAREST CITY:
CODE:

LOCATION:
CODE: TOWNSHIP RANGE SECTION TRACTS

pH=____; Conductivity=____umho/cm at ____°C; Chlorine Residual=____
Dissolved Oxygen=____mg/l; Alkalinity=____; Flow Rate=____
Sampling Location, Methods and Remarks (i.e. odors, etc.)

Deionized water from E/D

I certify that the statements in this block accurately reflect the results of my field analyses, observations and activities. David G. Boyer
Method of shipment to the Laboratory Hand carried
This form accompanies 2 Septum Vials, ___ Glass Jugs, ___
Containers are marked as follows to indicate preservation:
☐ NP: No preservation; sample stored at room temperature.
☒ P-Ice Sample stored in an ice bath (not frozen).
☐ P-$Na_2S_2O_3$; Sample preserved with $Na_2S_2O_3$ to remove chlorine residual.

I (we) certify that this sample was transferred from David G. Boyer
to R Meyerhein at (location) SLD on
6/9/86 - 16:21 and that the statements in this block are correct.
DATE AND TIME
Evidentiary Seals: Not Sealed ☐ Seals Intact: Yes ☒ No ☐
Signatures R Meyerhein David G. Boyer

(we) certify that this sample was transferred from
to ____ at (location) ____ on
__/__/__ - __:__ and that the statements in this block are correct.
DATE AND TIME
Evidentiary Seals: Not Sealed ☐ Seals Intact: Yes ☐ No ☐
Signatures

ANALYSES REQUESTED

LAB. No.: ORG- 681

PLEASE CHECK THE APPROPRIATE BOXES BELOW TO INDICATE THE TYPE OF ANALYTICAL SCREENS REQUIRED. WHENEVER POSSIBLE LIST SPECIFIC COMPOUNDS SUSPECTED OR REQUIRED.

QUALITATIVE	QUANTITATIVE	PURGEABLE SCREENS	QUALITATIVE	QUANTITATIVE	EXTRACTABLE SCREENS
		ALIPHATIC HYDROCARBON SCREEN			ALIPHATIC HYDROCARBONS
X	X	AROMATIC HYDROCARBON SCREEN			CHLORINATED HYDROCARBON PESTICIDES
X	X	HALOGENATED HYDROCARBON SCREEN			CHLOROPHENOXY ACID HERBICIDES
		GAS CHROMATOGRAPH/MASS SPECTROMETER			HYDROCARBON FUEL SCREEN
					ORGANOPHOSPHATE PESTICIDES
					POLYCHLORINATED BIPHENYLS (PCB's)
					POLYNUCLEAR AROMATIC HYDROCARBONS
					TRIAZINE HERBICIDES
		SPECIFIC COMPOUNDS			SPECIFIC COMPOUNDS

REMARKS:

ANALYTICAL RESULTS

COMPOUND	[PPB]	COMPOUND	[PPB]
aromatic purgeables	none detected		
$CHCl_3$	3		
$CHCl_2Br$	1		
		* DETECTION LIMIT	1 ugm/l

REMARKS:

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes X NO___. Seal(s) broken by: JAF date: 12 June 86

I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements in this block and the analytical data on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: 12 June 86. Analyst's signature: [illegible]

I certify that I have reviewed and concur with the analytical results for this sample and with the statements in this block. Reviewers signature: R Meyerhem

FOR OCD USE -- Date Owner Notified_____ Phone or letter?_____ Initials_____

Inter-Mountain Laboratories, Inc.

2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

CLIENT: Geoscience Consultants, Ltd DATE REPORTED: 09/21/89
SAMPLE: 8909070750
SITE: Field Blank DATE RECEIVED: 09/07/89
LAB NO: F3126 DATE COLLECTED: 09/07/89

Lab pH	6.79
Lab Conductivity, umhos/cm	6.21
Lab resistivity, ohm-m	N/A
Total Dissolved Solids (180), mg/l	2
Total Dissolved Solids (calc), mg/l	3
Total Alkalinity as CaCO3, mg/l	0.95
Total Acidity as CaCO3, mg/l	0.00
Total Hardness as CaCO3, mg/l	2.02
Sodium Absorption Ratio	0.03
Nitrate, mg/l	0.08

	mg/l	meq/l
Bicarbonate as HCO3	1.16	0.02
Carbonate as CO3	0.00	0.00
Chloride	0.00	0.00
Sulfate	1.65	0.03
Calcium	0.42	0.02
Magnesium	0.23	0.02
Potassium	0.10	0.00
Sodium	0.10	0.00
Major Cations		0.05
Major Anions		0.05
Cation/Anion Difference		6.03 %*

* All analytes have been rerun with no significant change. It is virtually impossible to balance as the EC is extremely low. Essentially there is nothing in the sample to analyze.

C. Neal Schaeffer
Senior Chemist

RAS Sacramento REPORT Work Order # S9-09-051

Received: 09/08/89

Results By Test

SAMPLE Sample Id	Test: 301SWS Date Completed	Test: AG EM mg/L	Test: AS EM mg/Kg	Test: BA EM mg/L	Test: CD EM mg/L
SHS-1 01 8909061455 H2O	09/12/89 DATE COMPLETED	<0.007	<0.053 mg/L	0.27	<0.004
SHS-2 02 8909061535 H2O	09/12/89 DATE COMPLETED	<0.007	<0.053 mg/L	1.5	<0.004
BLM-37 03 8909061600 H2O	09/12/89 DATE COMPLETED	<0.007	<0.053 mg/L	0.36	<0.004
BLM-30 04 8909070830 H2O	09/12/89 DATE COMPLETED	<0.007	<0.053 mg/L	0.57	<0.004
Blank 05 8909070750 H2O	09/12/89 DATE COMPLETED	<0.007	<0.053 mg/L	<0.002	<0.004
BLM-27 06 8909071100 H2O	09/12/89 DATE COMPLETED	<0.007	<0.053 mg/L	1.4	<0.004
07 REAGENT BLANK H	09/12/89 DATE COMPLETED	<0.007	<0.053 mg/L	<0.002	<0.004

SAMPLE Sample Id	Test: CR EM mg/L	Test: HG CV mg/L	Test: PB EM mg/L	Test: SE EM mg/Kg
SHS-1 01 8909061455 H2O	0.011 *	<0.0002	<0.042	<0.075 mg/L
SHS-2 02 8909061535 H2O	0.029 *	<0.0002	0.062 *	<0.075 mg/L
BLM-37 03 8909061600 H2O	0.043	<0.0002	8.7	<0.075 mg/L
BLM-30 04 8909070830 H2O	0.043	<0.0002	0.056 *	<0.075 mg/L
Blank 05 8909070750 H2O	<0.007	<0.0002	<0.042	<0.075 mg/L

RadCheck CORPORATION

 RAS Sacramento REPORT Work Order # S9-09-051

Received: 09/08/89 Results by Sample

SAMPLE ID 8909070830 H2O BLM-30 SAMPLE # 04 FRACTIONS: A
Date & Time Collected 09/07/89 Category

301SWS 09/12/89 (DATE COMPLETED) AG_EM <0.007 mg/L AS_EM <0.053 mg/L BA_EM 0.57 mg/L CD_EM <0.004 mg/L CR_EM 0.043 mg/L

HG_CV <0.0002 mg/L PB_EM 0.056 * mg/L SE_EM <0.075 mg/L

SAMPLE ID 8909070750 H2O Blank SAMPLE # 05 FRACTIONS: A
Date & Time Collected 09/07/89 Category

301SWS 09/12/89 (DATE COMPLETED) AG_EM <0.007 mg/L AS_EM <0.053 mg/L BA_EM <0.002 mg/L CD_EM <0.004 mg/L CR_EM <0.007 mg/L

HG_CV <0.0002 mg/L PB_EM <0.042 mg/L SE_EM <0.075 mg/L

SAMPLE ID 8909071100 H2O BLM-27 SAMPLE # 06 FRACTIONS: A
Date & Time Collected 09/07/89 Category

301SWS 09/12/89 (DATE COMPLETED) AG_EM <0.007 mg/L AS_EM <0.053 mg/L BA_EM 1.4 mg/L CD_EM <0.004 mg/L CR_EM 0.074 mg/L

HG_CV <0.0002 mg/L PB_EM 0.13 * mg/L SE_EM <0.075 mg/L

Page 2 RAS Sacramento REPORT Work Order # S9-09-051

Received: 09/08/89 Results By Test

TEST CODE default units	Sample 01 (entered units) SHS-1	Sample 02 (entered units) SHS-2	Sample 03 (entered units) BLM37	Sample 04 (entered units) BLM30	Sample 05 (entered units) Blank
301SWS Date Completed	09/12/89 DATE COMPLETED	09/12/89 DATE COMPLETED	09/12/89 DATE COMPLETED	09/12/89 DATE COMPLETED	09/12/89 DATE COMPLETED
AG_EM .05 mg/L	<0.007	<0.007	<0.007	<0.007	<0.007
AS_EM .1 mg/Kg	<0.053 mg/L	<0.053 mg/L	<0.053 mg/L	<0.053 mg/L	<0.053 mg/L
BA_EM 1.0 mg/L	0.27	1.5	0.36	0.57	<0.002
CD_EM .01 mg/L	<0.004	<0.004	<0.004	<0.004	<0.004
CR_EM .05 mg/L	0.011 *	0.029 *	0.043	0.043	<0.007
HG_CV .002 mg/L	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
PB_EM .05 mg/L	<0.042	0.062 *	8.7	0.056 *	<0.042
SE_EM .05 mg/Kg	<0.075 mg/L	<0.075 mg/L	<0.075 mg/L	<0.075 mg/L	<0.075 mg/L

TEST CODE default units	Sample 06 (entered units) BLM27	Sample 07 (entered units) Blank
301SWS Date Completed	09/12/89 DATE COMPLETED	09/12/89 DATE COMPLETED
AG_EM .05 mg/L	<0.007	<0.007
AS_EM .1 mg/Kg	<0.053 mg/L	<0.053 mg/L

Received: 09/08/89

RAS Sacramento REPORT
Results By Test

Work Order # 89-09-051
Continued From Above

BLM-27 Blank

TEST CODE default units	Sample 06 (entered units)	Sample 07 (entered units)
BA_EM mg/L	1.4	<0.002
CD_EM mg/L	<0.004	<0.004
CR_EM mg/L	0.074	<0.007
HG_CV mg/L	<0.0002	<0.0002
PB_EM mg/L	0.13 *	<0.042
SE_EM mg/Kg	<0.075 mg/L	<0.075 mg/L