



DEPARTMENT OF THE AIR FORCE  
HEADQUARTERS 377TH AIR BASE WING (AFMC)



ENTERED

DEC 14 2012

Colonel John C. Kubinec  
377 ABW/CC  
2000 Wyoming Blvd SE  
Kirtland AFB NM 87117-5600

Mr. John Kieling, Manager  
RCRA Permits Management Program  
Hazardous Waste Bureau (HWB)  
New Mexico Environment Department (NMED)  
2905 Rodeo Park Road  
Santa Fe New Mexico 87505

Dear Mr. Kieling

On 26 September 2012, Kirtland Air Force Base (KAFB) submitted a letter to your office clarifying procedures, schedules and analyses for the nine well described in your 28 June 2012 letter. KAFB is hereby submitting its '*Analytical Results for 9 Additional Groundwater Monitoring Wells KAFB-106201 through KAFB-106209, Bulk Fuels Facility Spill, Solid Waste Management Units ST-105 and SS-111, dated 6 December 2012*' in compliance with the clarified schedule.

If you have any questions or concerns about the well analyses, please contact Mr. L. Wayne Bitner at (505) 853-3484 or at [ludie.bitner@kirtland.af.mil](mailto:ludie.bitner@kirtland.af.mil) or Ms. Victoria R. Martinez at (505) 846-6362 or at [victoria.martinez@kirtland.af.mil](mailto:victoria.martinez@kirtland.af.mil).

Sincerely

JOHN C. KUBINEC, Colonel, USAF  
Commander

Attachment:

Analytical Results for 9 Additional Groundwater Monitoring Wells KAFB-106201 through KAFB-106209, Bulk Fuels Facility Spill, Solid Waste Management Units ST-105 and SS-111, dated 6 December 2012

cc:

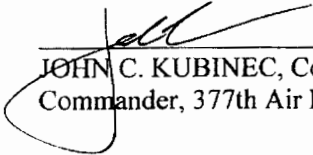
NMED-RPD (Davis), w/out attach  
NMED-HWB (Moats, McDonald, Salem, Brandwein), w/ attach




NMED-GWQB (J. Schoeppner), w/ attach  
NMED-OGC w/out attach  
EPA Region 6 (L. King), w/out attach  
AFCEE/CMSE (Mr. Oyelowo), w/out attach  
/EXEC (Mr. Urrutia), w/out attach  
Public Info Repository (Central New Mexico), w/ attach  
Administrative Record/Information Repository (AR/IR), w/ attach  
File, w/ attach

**40 CFR 270.11  
DOCUMENT CERTIFICATION  
DECEMBER 2012**

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision according to a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

  
\_\_\_\_\_  
JOHN C. KUBINEC, Colonel, USAF  
Commander, 377th Air Base Wing

This document has been approved for public release.

  
\_\_\_\_\_  
KIRTLAND AIR FORCE BASE  
377th Air Base Wing Public Affairs

# **KIRTLAND AIR FORCE BASE ALBUQUERQUE, NEW MEXICO**

**Analytical Results for 9 Additional Groundwater  
Monitoring Wells  
KAFB-106201 through KAFB-106209**

**Bulk Fuels Facility Spill  
Solid Waste Management Units ST-106 and SS-111**

**December 2012**



**377 MSG/CEANR  
2050 Wyoming Blvd. SE  
Kirtland AFB, New Mexico 87117-5270**



DEPARTMENT OF THE AIR FORCE  
HEADQUARTERS 377TH AIR BASE WING (AFMC)

DEC 14 2012

Colonel John C. Kubinec  
377 ABW/CC  
2000 Wyoming Blvd SE  
Kirtland AFB NM 87117-5600

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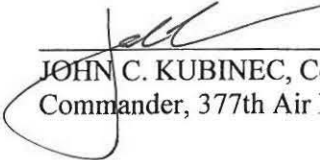
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JOHN C. KUBINEC, Colonel, USAF  
Commander, 377th Air Base Wing

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KIRTLAND AIR FORCE BASE  
377th Air Base Wing Public Affairs



December 6, 2012

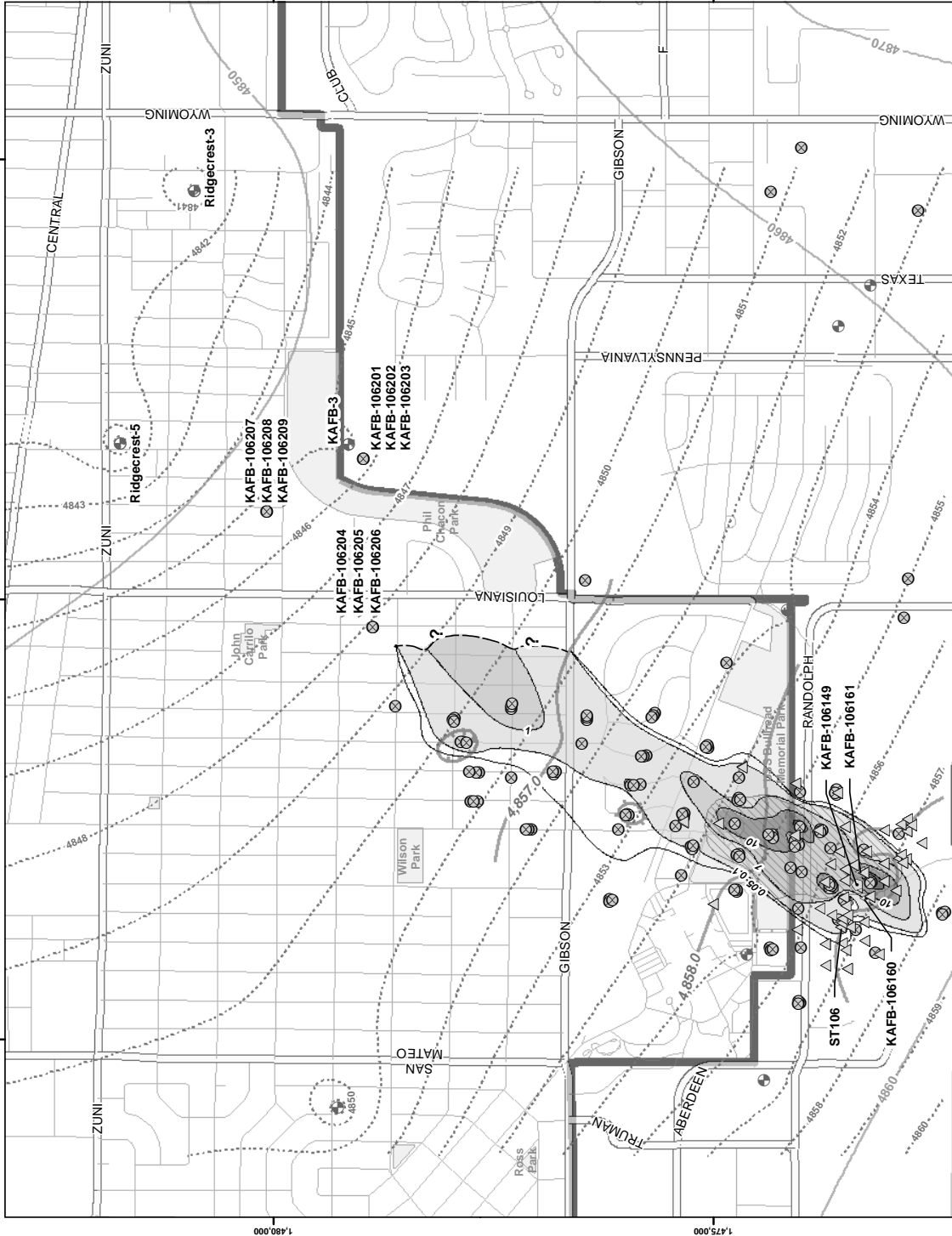
**Subject: Analytical Results for 9 Additional Groundwater Monitoring Wells  
KAFB-106201 through KAFB-106209  
Bulk Fuels Facility Spill, Solid Waste Management Units ST-106 and SS-111  
Kirtland Air Force Base, New Mexico**

This letter is being submitted to present the analytical data results from the sampling of the nine additional groundwater monitoring wells, KAFB-106201 through KAFB-106209 (Figure 1). The nine groundwater monitoring wells were drilled and installed starting on July 11, 2012, with the last well (KAFB-106201) completed on October 4, 2012. The wells were developed in accordance with the approved Groundwater Investigation Work Plan (Shaw, 2011). Following well development, slug tests were performed on the wells and dedicated sampling pumps were installed. Details and results on the slug testing will be included in the Fourth Quarter 2012 report to be delivered to the New Mexico Environment Department (NMED) on March 29, 2012.

The nine additional groundwater monitoring wells were sampled in accordance with the Quality Assurance Project Plan (Shaw, 2011) and the Pre-Remedy Monitoring and Soil-Vapor Extraction System Operation and Maintenance Work Plan (Shaw, 2011). Wells KAFB-106205, KAFB-106206, and KAFB-106209 were re-sampled on November 6 and 7, 2012 as requested by the NMED; the samples from the re-sample event were only analyzed for volatile organic compounds (VOCs) and ethylene dibromide (EDB), EPA method 8011. Table 1 presents the analytical results from the nine groundwater monitoring wells, including the re-sample results.

The data from the nine new groundwater monitoring wells will also be included in the Fourth Quarter 2012 Report. The nine wells are now incorporated into the monitoring program and will be sampled as part of the regular groundwater monitoring program in First Quarter 2013.





**Legend**

- Pneu Log
- ⊗ Monitor Well
- △ SVE Monitor Well
- ⊕ Water Supply Well
- ⊖ SVE Extraction Well
- ⊗ Proposed Monitor Well
- Groundwater Level Contour (ft msl)
- Groundwater High
- Regional Water Level Contour 2002 (ft)
- Groundwater Model Water Level Contour (ft)
- EDB Concentration Contour (ug/L)
- ▭ NAPL Area

**EDB Concentration (ug/L)**

- 0.014 - 0.1
- 0.11 - 1
- 1.1 - 10
- 11 - 100
- 110 - 310

Major Road  
Road  
Park  
Installation  
Boundary

**SITE LOCATION**

Revision Date: 12/02/12

0 600 1,200 2,400  
Feet  
1 inch = 1,200 feet

Projection: NAD83 State Plane New Mexico Central FIPS3022 Feet

BULK FUELS FACILITY  
KIRTLAND AIR FORCE BASE, NEW MEXICO

FIGURE 1

GROUNDWATER MONITORING WELLS





Table 1 Groundwater Analytical Results  
Nine Additional Groundwater Monitoring Wells

Chemical Class & Analytical Method <sup>a</sup>	EPA MCL <sup>b,c,d</sup>	NEMED Approved Baseline <sup>e</sup>	Parameter	KAFB-1062001		KAFB-1062002		KAFB-1062003		KAFB-1062004		KAFB-1062005		KAFB-1062006			
				Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL		
PAHs (MSU) Method 8270C	30	N/A	1-METHYLNAPHTHALENE	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
			2-METHYLNAPHTHALENE	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
			ACENAPHTHYLENE	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
			BENZOFLANTHRACENE	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
			ANTHRACENE	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
			BENZOAANTHRACENE	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
			BENZOPYRENE	0.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
			BENZOFLURANTHENE	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
			CHRYSENE	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
			DIBENZOPHANTHACENE	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
			FLUORANTHENE	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
			FLUORENE	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
			INDENOTRIZOPYRENE	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
			PERYLENE	30	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
PHENANTHRENE	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A			
Pyrene	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A			
Metals (mg/L) Method 8010B																	
LEAD	0.015	N/A	N/A	75.7	5	35.7	5	41.2	5	133	5	52.2	5	57.2			
MAGNESIUM	N/A	N/A	N/A	9.91	5	10.7	5	5	5	17.9	5	6.95	5	7.34			
POTASSIUM	N/A	N/A	N/A	3.49	5	2.25	J	2.28	J	4.45	J	3.04	J	3.13			
SODIUM	N/A	N/A	N/A	35.1	5	20.7	J	21.4	J	44.4	J	31.8	J	33.4			
IRON (DISSOLVED)	0.3	N/A	N/A	ND	0.1	ND	U	ND	U	ND	U	ND	U	ND			
MANGANESE (DISSOLVED)	0.05	N/A	N/A	0.0283	0.015	0.0342	J	0.0465	0.015	0.068	0.015	0.0371	0.015	0.0595			
SULFATE	250	N/A	N/A	95.3	2.5	124	U	30.2	2.5	198	2.5	55	2.5	52.9			
NITROGEN (AS N)	N/A	N/A	N/A	1.85	1.5	2.61	U	1.5	1.5	3.55	U	1.5	1.01	J			
AMMONIA (AS N)	N/A	N/A	N/A	0.333	0.3	0.361	U	0.3	0.3	ND	U	0.3	ND	U			
SULFIDE (TOTAL)	N/A	N/A	N/A	ND	3.39	ND	U	3.39	ND	U	3.39	ND	U	3.7			
ALKALINITY (AS CaCO3)	N/A	N/A	N/A	98.9	1	103	U	109	1	78.7	U	101	1	92.8			
ALKALINITY (AS CaCO3)	N/A	N/A	N/A	ND	1	ND	U	1	1	ND	U	1	1	ND			
Temperature (°C)	N/A	N/A	N/A	18.16	18.51	18.38	U	18.38	U	18.44	U	18.33	U	18.9			
pH (SD)	N/A	N/A	N/A	7.54	7.66	7.78	U	7.78	U	7.57	U	7.88	U	7.77			
Spec Cond (µS/cm2)	N/A	N/A	N/A	595.8	600.3	623	U	623	U	1011	U	93.4	U	46.1			
ORP (mV)	N/A	N/A	N/A	69	159	188	U	188	U	176	U	187	U	208			
Turbidity (NTU)	N/A	N/A	N/A	0.97	0.61	2.08	U	2.08	U	0.73	U	1.11	U	0.53			
Alkalinity (mg/L as CaCO3)	N/A	N/A	N/A	84	110	102	U	102	U	88	U	120	U	104			

The NMWQC standard and EPA MCL for m,p-xylene and o-xylene is for total xylenes.  
a. EPA analytical methods listed are for the most recent sampling event.  
b. The NMWQC regulation for PAHs of 30 µg/L is a total of the concentrations of naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene.  
c. EPA National Primary Drinking Water Standards - Maximum Contaminant Levels (MCLs), or if more stringent, New Mexico  
d. EPA National Primary Drinking Water Standards - Maximum Contaminant Levels (MCLs), or if more stringent, New Mexico  
e. Sample collected to test for gas bubbles, VOC and EDB data only  
Shading indicates the analyte was detected.  
**Bold** indicates analyte detected greater than regulatory standard  
J = estimated value, concentration is less than RL, but greater than laboratory method detection limit (MDL); biased high.  
+ = estimated value, concentration is less than RL, but greater than laboratory method detection limit (MDL); biased low.  
U = Analyte was tentatively not detected. The reported numerical value is at or below the RL.  
N/A = Not applicable or Not available  
ND = Not detected  
NR = Not measured due to equipment malfunction.  
NR = Not recorded or reported due to operational error

Table 1 Groundwater Analytical Results  
Nine Additional Groundwater Monitoring Wells

Chemical Class & Analytical Method	Parameter	EPA MCLs <sup>1,2</sup> or	NMED Approved Background	KAFB-1062007		KAFB-1062008		KAFB-1062009		KAFB-1062007		
				Result	VAL/QUAL	Result	VAL/QUAL	Result	VAL/QUAL	Result	VAL/QUAL	
TPH (ug/L)	1,2-DIBROMOETHANE	0.05	N/A	ND	U	0.0279	U	0.0288	U	0.0274	U	0.0278
Method 801/85	DIESEL RANGE ORGANICS	N/A	N/A	N/A	N/A	392	U	400	U	400	N/A	N/A
	GASOLINE RANGE ORGANICS	N/A	N/A	N/A	N/A	150	U	150	U	150	N/A	N/A
Method 828/88	1,1,1,2-TETRACHLOROETHANE	N/A	N/A	ND	U	1	ND	U	1	ND	U	1
	1,1,1-TRICHLOROETHANE	60	N/A	ND	U	1	ND	U	1	ND	U	1
Method 828/88	1,1,2,2-TETRACHLOROETHANE	10	N/A	ND	U	1	ND	U	1	ND	U	1
	1,1,2-TRICHLOROETHANE	5	N/A	ND	U	1	ND	U	1	ND	U	1
Method 828/88	1,1-DICHLOROETHANE	2	N/A	ND	U	1	ND	U	1	ND	U	1
	1,1-DICHLOROPROPANE	2	N/A	ND	U	1	ND	U	1	ND	U	1
Method 828/88	1,2,3-TRICHLOROBENZENE	N/A	N/A	ND	U	2	ND	U	2	ND	U	2
	1,2,3-TRICHLOROPROPANE	N/A	N/A	ND	U	2	ND	U	2	ND	U	2
Method 828/88	1,2,4-TRICHLOROBENZENE	70	N/A	ND	U	2	ND	U	2	ND	U	2
	1,2,4-TRIME THYL BENZENE	N/A	N/A	ND	U	1	ND	U	1	ND	U	1
Method 828/88	1,2-DIBROMO-CHLOROPROPANE	0.2	N/A	ND	U	2	ND	U	2	ND	U	2
	1,2-DIBROMOETHANE	0.05	N/A	ND	U	1	ND	U	1	ND	U	1
Method 828/88	1,2-DICHLOROETHANE	60	N/A	ND	U	1	ND	U	1	ND	U	1
	1,2-DICHLOROPROPANE	5	N/A	ND	U	1	ND	U	1	ND	U	1
Method 828/88	1,3,5-TRIME THYL BENZENE	N/A	N/A	ND	U	1	ND	U	1	ND	U	1
	1,3-DICHLOROBENZENE	N/A	N/A	ND	U	1	ND	U	1	ND	U	1
Method 828/88	1,3-DICHLOROPROPANE	N/A	N/A	ND	U	1	ND	U	1	ND	U	1
	1,4-DICHLOROBENZENE	75	N/A	ND	U	1	ND	U	1	ND	U	1
Method 828/88	2,2-DICHLOROPROPANE	N/A	N/A	ND	U	10	ND	U	10	ND	U	10
	2,3-DICHLOROPROPANE	N/A	N/A	ND	U	10	ND	U	10	ND	U	10
Method 828/88	2,4-DICHLOROTOLUENE	N/A	N/A	ND	U	5	ND	U	5	ND	U	5
	2-HEXANONE	N/A	N/A	ND	U	1	ND	U	1	ND	U	1
Method 828/88	4-CHLOROTOLUENE	N/A	N/A	ND	U	1	ND	U	1	ND	U	1
	4-CHLOROTOLUENE	N/A	N/A	ND	U	5	ND	U	5	ND	U	5
Method 828/88	4-HE THYL-2-PENTANONE	N/A	N/A	ND	U	10	ND	U	10	ND	U	10
	ACETONE	N/A	N/A	ND	U	1	ND	U	1	ND	U	1
Method 828/88	BENZENE	5	N/A	ND	U	1	ND	U	1	ND	U	1
	BROMOBENZENE	N/A	N/A	ND	U	1	ND	U	1	ND	U	1
Method 828/88	BROMOCHLOROMETHANE	N/A	N/A	ND	U	1	ND	U	1	ND	U	1
	BROMODICHLOROMETHANE	N/A	N/A	ND	U	1	ND	U	1	ND	U	1
Method 828/88	BROMOFORM	N/A	N/A	ND	U	1	ND	U	1	ND	U	1
	BROMOMETHANE	N/A	N/A	ND	U	2	ND	U	2	ND	U	2
Method 828/88	CARBON DISULFIDE	N/A	N/A	ND	U	1	ND	U	1	ND	U	1
	CARBON TETRACHLORIDE	N/A	N/A	ND	U	1	ND	U	1	ND	U	1
Method 828/88	CHLOROBENZENE	100	N/A	ND	U	1	ND	U	1	ND	U	1
	CHLOROETHANE	N/A	N/A	ND	U	2	ND	U	2	ND	U	2
Method 828/88	CHLOROPHANE	100	N/A	ND	U	1	ND	U	1	ND	U	1
	CHLOROPHANE	100	N/A	ND	U	1	ND	U	1	ND	U	1
Method 828/88	CIS-1,2-DICHLOROETHENE	70	N/A	ND	U	1	ND	U	1	ND	U	1
	CIS-1,3-DICHLOROPROPENE	N/A	N/A	ND	U	1	ND	U	1	ND	U	1
Method 828/88	DIBROMOCHLOROMETHANE	N/A	N/A	ND	U	1	ND	U	1	ND	U	1
	DIBROMOMETHANE	N/A	N/A	ND	U	1	ND	U	1	ND	U	1
Method 828/88	DICHLORODIFLUOROMETHANE	N/A	N/A	ND	U	2	ND	U	2	ND	U	2
	ETHYLBENZENE	750	N/A	ND	U	1	ND	U	1	ND	U	1
Method 828/88	HEXACHLOROCYCLOHEPTADIENE	N/A	N/A	ND	U	2	ND	U	2	ND	U	2
	HEXACHLOROCYCLOHEPTADIENE	N/A	N/A	ND	U	1	ND	U	1	ND	U	1
Method 828/88	METHYL TERT-BUTYL ETHER	N/A	N/A	ND	U	1	ND	U	1	ND	U	1
	METHYLENE CHLORIDE	100	N/A	ND	U	2	ND	U	2	ND	U	2
Method 828/88	NAPHTHALENE	30	N/A	ND	U	2	ND	U	2	ND	U	2
	N-BUTYLBENZENE	N/A	N/A	ND	U	1	ND	U	1	ND	U	1
Method 828/88	N-PROPYLBENZENE	N/A	N/A	ND	U	1	ND	U	1	ND	U	1
	P-ISOPROPYLTOLUENE	N/A	N/A	ND	U	1	ND	U	1	ND	U	1
Method 828/88	SEC-BUTYLBENZENE	N/A	N/A	ND	U	1	ND	U	1	ND	U	1
	TERT-BUTYLBENZENE	100	N/A	ND	U	1	ND	U	1	ND	U	1
Method 828/88	TETRAHYDROTHIOPHENE	N/A	N/A	ND	U	1	ND	U	1	ND	U	1
	TETRAHYDROTRENE	5	N/A	ND	U	1	ND	U	1	ND	U	1
Method 828/88	TOLUENE	750	N/A	ND	U	1	ND	U	1	ND	U	1
	TRANS-1,2-DICHLOROETHENE	100	N/A	ND	U	1	ND	U	1	ND	U	1
Method 828/88	TRANS-1,3-DICHLOROPROPENE	N/A	N/A	ND	U	1	ND	U	1	ND	U	1
	TRICHLOROETHENE	5	N/A	ND	U	1	ND	U	1	ND	U	1
Method 828/88	TRICHLOROFUOROMETHANE	N/A	N/A	ND	U	2	ND	U	2	ND	U	2
	VINYL CHLORIDE	1	N/A	ND	U	1	ND	U	1	ND	U	1
Method 828/88	XYLENES	10000	N/A	ND	U	3	ND	U	3	ND	U	3



