3R - 321

REPORTS

DATE: 1998 Public Service Company of New Mexico Alvarado Square MS 0408 Albuquerque, NM 87158

April 2, 1998

Mr. William Olson Hydrogeologist Oil Conservation Division 2040 So. Pacheco Santa Fe, New Mexico 87505 C., Conservation Division



RE: 1998 SAN JUAN BASIN ANNUAL GROUNDWATER REPORT

Dear Bill:

PNM is pleased to submit the 1998 Annual Groundwater Report on Unlined Surface Impoundments in the San Juan Basin. Pursuant to PNM's Groundwater Management Program for Unlined Surface Impoundment Closures, the report details the ongoing investigation/remedial activities at unlined surface impoundments having groundwater contamination as identified by PNM. A list of groundwater sites reported in this document is provided below.

Cozzens B1 Dogie Compressor Station East Pit Dogie Compressor Station North Pit Florance 32A Florance Z 40 M Florance 44 Florance 47X Florance 124 Hampton 4M Honolulu Loop Line Drip Ice Canyon Drip Jacques 2A Mangum 1E McClanahan 22 McClanahan A2E McCoy Gas Com A1 Miles Federal 1E Miles Federal 1E Drip Randleman 1

Reid 16 Drip Sammons 2 Turner 1A Turner 3 Zachry 18E

PNM 1998 Groundwater Report

PNM plans to request closure of two of the above sites, the Cozzens B1 and the Sammons 2, in our April 30, 1998 filing of the San Juan Pit Closure Reports to the OCD Santa Fe office. If you have any questions regarding the contents of the report, please contact me at (505) 241-2974.

Sincerely,

Maureen Gannon Project Manager

Attachment

cc:

Ingrid Deklau, WFS

Denny Foust, OCD-Aztec Office

Bill VonDrehle, WFS

PNM 1998 Groundwater Report

Colin Adams (w/o analytical results) bcc:

Kathy Juckes

Ron Johnson (w/o analytical results) Mark Sikelianos

PNMGS Well Site: Honolulu op Line Drip

Groundwater Site Summary Report

Quarter/Year: 2nd/97, 3rd/97, 4th/97 and 1st/98

Copies: WFS(1)
Operator (1)
NMOCD District Office (1)
NMOCD Santa Fe (1)

Telephone: 505-241-2974

Operator: WFS

25 T---- 26 D--- 4 XI---- 4

Sec: 25 Twn: 26 Rng: 4 Unit: B

Canyon: Tapecito

Vulnerable Class: Environmentally Sensitive

OCD Ranking: 50

Lead Agency: NMOCD/JAEPO

PNM has prepared and submitted a site summary report detailing the activities, results and further actions at the Honolulu Loop Line Drip to the OCD under separate cover. The report is titled, "Honolulu Loop Line Drip Site Request for Change in Groundwater Monitoring Program Status," and dated March 31, 1998.

Public Service Company of New Mexico - Gas Services

Environmental Services Division - Alvarado Square, MS-0408 Albuquerque, NM 87158

Contact: Maureen Gannon

PNMGS: 98gwrpt.doc 1-Apr-98

Public Service Company of New Mexico Alvarado Square MS 0408 Albuquerque, NM 87158

March 23, 1998

Bill Olson Hydrogeologist, Environmental Bureau New Mexico Oil Conservation Division 2040 South Pacheco Santa Fe, New Mexico 87505 Francis (1. Actor) Altouristant Avialen

RE:

Honolulu Loop Line Drip Site

Request for Change in Groundwater Monitoring Program Status

Dear Bill:

With regards to the Honolulu Loop Drip site referenced above, PNM requests the following:

- 1. PNM monitoring for hydrocarbons associated with the former PNM drip pit be reduced to quarterly monitoring of MW-1, -2, -10, and -9.
 - These four wells are positioned in the immediate vicinity of the former PNM drip pit and source removal areas and provide the best indicators of how well PNM has remediated its source area.
 - Additional quarterly monitoring of MW-1 will be foregone until a closure petition is submitted, as four consecutive quarters of data less than detection limits and/or NMWQCC standards have already been collected at this well.
- 2. As the potentially responsible party, William Field Services (WFS) be requested by NMOCD to determine the lateral and vertical extent of contamination and perform any remedial actions associated with hydrocarbons released during September 1996 pipeline replacement activities.
 - PNM monitoring wells impacted by this release are identified as follows: MW-3, -4, -5, -6, -7, and -8.
 - PNM monitoring wells MW-4 and MW-6 have had frequent occurrences of clear to strawcolored free product since November 1996.

To further support our request, enclosed are the following data:

Chronology of major site events - Figure 1

Site conditions prior to the September 1996 WFS pipeline replacement indicated that source removal activities were complete and the extent of groundwater contamination had been defined by wells MW-1 through MW-5. The downgradient extent of BTEX contamination was clearly defined in July 1996 and BTEX attenuation with distance was documented by data from wells MW-1 through -5.

Following WFS pipeline replacement on September 10, 1996, PNM performed additional soil removal on September 17, 1996, west of the pipeline between the south end of the replaced pipeline section and Tapecito wash. PNM did not detect any evidence of free product at this time. Black-stained soils were observed and an additional 230 cy of soil were removed from an area west of the pipeline. Monitoring well MW-6 was installed downgradient of the excavated area and the southern end of the pipeline replacement — this well did not exhibit stained soil, hydrocarbon odors, or noticeable organic vapor meter readings during well installation or development.

Upon sampling in November 1996, PNM detected the presence of several inches of clear to straw-colored free product in MW-4 and MW-6. There was no prior indication of high concentrations of hydrocarbons in soil vapors, soils, or groundwater during well installation or prior sampling events. A new source of hydrocarbons exists downgradient of the former PNM drip pit in the vicinity of these wells.

PNM source well, MW-2 (old), was destroyed by WFS during the pipeline replacement process; PNM later replaced the old MW-2 with a new monitoring well (MW-2) sited in the remediated source area (see Figure 2). Post-pipeline replacement monitoring has shown the progressive redistribution of hydrocarbons in the subsurface now impacting downgradient wells MW-3 and MW-5. Installation of two additional wells further downgradient, MW-7 and MW-8, suggests that the hydrocarbons had spread in Tapecito wash. These wells were located by auger test hole surveying to evaluate the extent of hydrocarbon-impacted soil and groundwater.

Acknowledging the impact of this second source of hydrocarbons associated with the pipeline replacement, PNM installed two additional wells, MW-9 and MW-10, downgradient and cross-gradient of the former PNM drip pit, and upgradient of the pipeline release for the purposes of distinguishing dissolved hydrocarbon impacts between the PNM drip pit (east source) and the WFS pipeline (west source). PNM requests NMOCD divide responsibility for groundwater impacts to monitoring wells by proximity to hydrocarbon source as follows.

PNM Drip Pit Wells MW-1, MW-2, MW-9, MW-10 minor contribution to MW-3,-4,-6 WFS Pipeline Release Wells
MW-3, MW-4, MW-5, MW-6, MW-7, MW-8
minor contribution to MW-10

Summary of Site Activity Map - Figure 2

This map details the subsurface investigation performed by PNM to evaluate the nature and sources of hydrocarbons at this site. PNM has attempted to characterize the nature and extent of hydrocarbons associated with both the former PNM drip pit and the recent pipeline release. PNM has installed ten monitoring wells, over fifteen test holes and auger borings, and has excavated almost 800 cubic yards of soil in characterizing and remediating the former PNM drip pit. PNM's investigation activities prior to and during September 1996 did not detect the presence of significant free product in the subsurface, nor did PNM operate any onsite equipment or disposal facilities in the fall of 1996 that could have caused the release of fresh product into the subsurface. To PNM's knowledge, the only such activity was the WFS pipeline replacement on September 10, 1996. Furthermore, the test pit investigation of July 1996 and subsequent removal of additional soil west of the pipeline on September 17, 1996 did not detect the presence of free product in the subsurface.

PNM discovered free product in MW-4 and MW-6 in November 1996, and proceeded to further investigate the lateral extent of hydrocarbons on the water through a series of auger borings. This auger boring investigation lead to the placement of MW-7 (TH-9) and MW-8 (TH-11) as downgradient wells. Upon laboratory characterization of product sampled from MW-4 and MW-6 as unrefined gasoline, PNM ceased further evaluation of extent and focused on the installation and monitoring of those wells between the drip pit and the new hydrocarbon source in order to demonstrate attenuation of contaminants following remediation of the former PNM drip pit. It was clear that a new source of hydrocarbons was present in

MW-4 and MW-6 with the potential to further spread in the subsurface. Monitoring remediation of the former PNM drip pit is accomplished by the network of monitoring wells MW-1,-2,-9, and -10.

Analytical data summary-Table 1

Table 1 summarizes the analytical results. Groundwater concentrations in the open drip pit were approximately 10,000 ppb BTEX. Prior to pipeline replacement, PNM had established the lateral extent of dissolved groundwater contamination attributed to the former drip pit. MW-4 was impacted at less than 500 ppb BTEX. MW-5 was the furthest downgradient well impacted by the PNM drip pit, with BTEX concentrations decreasing from 15.1 to 0.4 ppb by November 1996. There was never evidence of the presence of free product, either during soil excavation and removal, or well installation and sampling, prior to the WFS pipeline replacement in September 1996.

After September 1996, data for monitoring wells MW-3, MW-4, and MW-5 show the clearest impact over time from the input of a new hydrocarbon source. MW-4 detected several inches of free product in November 1996 after two quarters of BTEX concentrations less than 500 ppb; MW-3 showed a one quarter lag period in registering impacts from the fresh hydrocarbon release when BTEX concentrations increased from about 1 ppb to over 8,000 ppb; MW-5 showed a greater lag period given the greater distance from the estimated area of release, with BTEX concentrations increasing from 3 ppb in March 1997 to 352 ppb by June 1997. In total, six monitoring wells are directly impacted by this new hydrocarbon release: MW-3, -4, -5, -6, -7, and -8.

PNM urges NMOCD to consider the baseline conditions established for the former PNM drip pit source area as those quantified in July 1996 by wells MW-1 through MW-5 (prior to the September 1996 pipeline release). Groundwater response to PNM remedial activities associated with the former drip pit are best measured by immediate vicinity monitoring wells not directly impacted by the release: MW-1, -2, -9, and -10. PNM proposes that these four wells be the compliance wells for closure associated with the former PNM drip pit. While MW-6 is a downgradient well, it is impacted by the new release to the degree that any inputs from the former PNM pit are masked by the high hydrocarbon concentrations associated with the new release.

Water level maps from July 1996 through December 1997 - Attachment 1

Groundwater flow direction at the site is primarily from the northeast to the southwest parallel to the main axis of Tapecito Wash. Seasonal variations occur as snowmelt recharges the shallow groundwater system. The effects of snowmelt recharge are observed when the water table is at its maximum, for example in March 1997. In March 1997, groundwater flow in the vicinity of the PNM drip pit shifts to north-northwest and the hydraulic gradient increases as recharge from the adjacent terraces moves towards Tapecito Wash. Groundwater conditions revert to a southwesterly flow by June through December 1997. This seasonal shift in groundwater flow direction indicates that the downgradient well for the PNM drip pit will shift from MW-6 to MW-10 to MW-9, depending on season and groundwater recharge.

Groundwater elevations also bend and converge on areas excavated by PNM, as exemplified by flow contours around MW-2, indicating preferential flushing of the excavated area. This bending is especially pronounced during higher groundwater elevations, as more water is in contact with recently backfilled materials. The high degree of flushing will serve to accelerate natural attenuation of any hydrocarbons remaining in the subsurface near the former PNM drip pit.

Concentration versus distance diagrams - Attachment 2

Concentration versus distance diagrams with the source as MW-2 within the area of the former PNM drip pit (source distance =0) were created to show contaminant attenuation with distance. July 1996 data clearly indicate that hydrocarbons attenuate within 200 feet of the drip pit. No free phase hydrocarbons are detected and maximum non-source concentrations are less than 500 ppb BTEX.

Conditions change abruptly in November 1996. MW-2, the PNM drip pit source well, continues to decline. However, clear to straw-colored free product is now detected in MW-4 and MW-6, approximately 100 feet downgradient of the PNM drip pit and 40 feet downgradient of the WFS pipeline. The only activity at the site between July 1996 and November 1996 capable of releasing fresh product to the subsurface was the WFS pipeline replacement activity of September 10, 1996. Excavations performed by PNM on September 17, 1996, north of the pipeline replacement activity, did not detect the presence of free product. However monitoring wells MW-4 and MW-6 detected several inches of clear to straw-colored free phase in November 1996. This sudden hydrocarbon release is shown graphically as a sharp slug input; concentrations decline rapidly with distance. As time goes on, concentrations at a distance also begin to increase as the hydrocarbons redistribute in the subsurface.

Concentration versus time histories - Attachment 3

Concentration versus time histories are also graphed. MW-1 is the upgradient well and shows only one detected xylene hit through its monitoring history. MW-2 is the PNM drip pit source well. The original MW-2 (old) was located downgradient of the PNM drip pit, immediately adjacent to the WFS pipeline. The original well was likely influenced by both the drip pit and the pipeline. MW-2 (old) was destroyed on September 10, 1996 during WFS pipeline removal activities. PNM reinstalled MW-2 in the area of the remediated drip pit in order to measure remediated source inputs over time. As shown on the concentration vs. time graph, MW-2 source concentrations decrease with time. MW-9 and MW-10 are cross-gradient and downgradient monitoring wells to the PNM drip pit. They are further north than the suspected area of the pipeline hydrocarbon release and were installed to monitor contaminant migration from the remediated former PNM drip pit. Both of these wells also show downward concentration trends over time.

MW-3, -4, and -5 were downgradient wells installed by PNM to investigate the lateral extent of groundwater contamination. Initial sampling in June and July 1996 (pre-pipeline replacement) had maximum BTEX concentrations of less than 500 ppb, with concentrations decreasing with time and distance. However, in November 1996 and later sampling events, the concentrations in all of these monitoring wells rose several orders of magnitude with the presence of free product in MW-4 and continuing redistribution of those hydrocarbons with time and distance.

MW-6 was installed immediately following the WFS pipeline replacement. At the time of installation (September 17, 1996), MW-6 did not have any evidence of hydrocarbon-stained soils, odors, or free product. By November 1996, measurable free product was evident in this well. Concentrations in this well approach BTEX saturation limits in groundwater suggesting that this well is in close proximity to the source of the new hydrocarbon release.

Monitoring wells MW-7 and MW-8 were installed following a test boring program to delineate the extent of the new hydrocarbon release. These monitoring wells are located further downcanyon of the pipeline and serve as sentinel wells for monitoring redistribution of hydrocarbons associated with the new release. MW-8 follows trends similar to MW-4; MW-7 has had sporadic detection of hydrocarbons with excursions occasionally above standards.

Summary

Based on the information cited above, PNM requests that:

- 1. NMOCD concur with PNM's request to modify the monitoring well sampling program to encompass only monitoring wells MW-1, -2, -9, and -10 to evaluate successful closure of the former PNM drip pit.
- 2. NMOCD direct WFS to proceed with further characterization and remediation of hydrocarbons released during September 1996 pipeline replacement activities at locations downgradient of the former PNM drip pit.

If you have any questions about this project or other unlined surface impoundment sites, please contact Maureen Gannon at 505.241.2974.

Sincerely,

Maureen Gannon Project Manager

MaurenGamm_

cc: Denny Foust, OCD Aztec District Office

Keith Manwell, Jicarilla Environmental Office

Colin Adams, PNM Albuquerque

Bill VonDrehle, Williams Field Services Ingrid Deklau, Williams Field Services

Valda Terauds, ESI Albuquerque

Figure 1: Chronology -- Honolulu Site

Jun-96 Jul-96 Aug-96 Sep-96 Oct-96 Nov-96 Dec-96	Jan-97 Feb-97 Mar-97 Apr-97 May-9	7 Jun-97 Jul-97 Aug-	97 Sep-97 Oct-97 Nov-	97 Dec-97	Jan-98 Feb-98	Mar-98 Apr-9	8 May-98
PNM drip pit excavation - 533 cy soil removed incommon and incommon an							
**No sheen or free product detected either in wells or excavation							
PNM establishes lateral extent of dissolved Installed MW-5	STEX						
***No sheen or free product in any well	•						
Survey well locations; windmill sample below sta	andards 						
WFS replaces pipeline (9/10/9 Tanker trucks onsite Pipeline pulled south to north WFS destroys MW-2	6)						
PNM removes 244 cy soil wes ***No sheen/free product (9/17/96) Install MW-6: ***no evidence of stainit Well developed; ***no evidence of odd	ng, odors, free product						
PNM auger boring PNM reinstalls MV Test hole investig Sheen noted 4-8 t Sheen observed i	ree product: MW-4, MW-6 g (near pipeline): free product J-2 (remediated source area): no free product ation & installation of MW-7, MW-8 get bgs along base of terrace n TH2, TH3, TH5 (45 feet from MW-4) onfirmed: MW-4, MW-6 stalled						
Passive	bailers full thru month of December			j			
	Quarterly sampling MW-4: visible sheen			į			
		Quarterly sampling MW-4, MW-6: visible sh Soil gas survey: high wat Tapecito wash sampling Install MW-9 and MW-10 Test borings	ееп				
			Quarterly sampling Free product: MW-4 Visible sheen: MW-6				
			Commission with with		rly sampling: heen: MW-4, MW-	6	
						rly sampling: heen: MW-4,-6,	



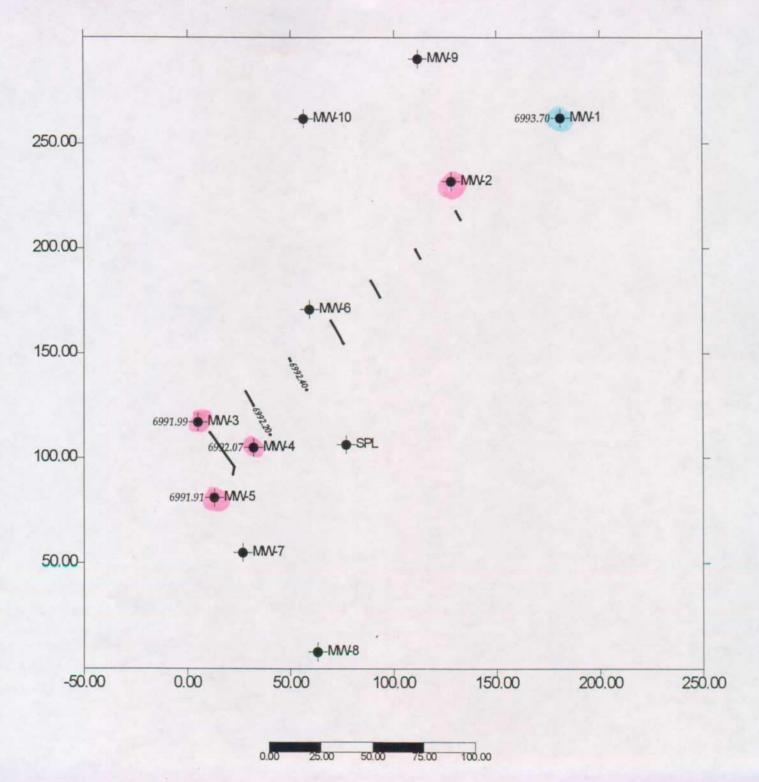
Sample PNM DRIP PIT: SOURCE AR	Matrix PF∆	Date Sampled	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Xylenes (ug/L)	Total BTEX (ug/L)
Groundwater - open pit	Groundwater	06/05/96	1921.4	5671.0	173.3	2678.7	10444.4
• •	Groundwater	06/05/96	1793.0	5426.5	200.4		10014.6
Groundwater - open pit		06/05/96	3707.9	37072.8	5751.4		102517.7
Soil Composite	Soil	06/05/96	3101.9	3/0/2.0	3/31.4	55965.6	102517.7
GROUNDWATER MONITORI	NG DATA		Pontone	Toluene	Ethylbenzene	Yulones	Total BTEX
GROUNDWATER MONITOR	MW-1	06/20/96	<0.2	<0.2	<0.2	•	<0.2
	IA1 A A - 1	07/25/96	<0.2	<0.2	<0.2	<0.2	<0.2
		11/06/96	<0.2	<0.2	<0.2	<0.2	<0.2
		03/07/97	<0.2	<0.2	<0.2	<0.2	<0.2
		06/04/97	<0.2	<0.2	<0.2		0.8
		09/18/97	<0.2	<0.2	<0.2		<0.2
		12/15/97	<0.2	<0.2	<0.2		<0.2
		02/09/98	<0.5	0.7	<0.5	1.6	2.3
	MW-2 (old)	06/20/96	11055.2	396.8	20660.1	3860.4	35972.6
	= (0,4,	07/25/96	10106.4	118.4	17717.5		32317.6
			Well destroyed during				02011.0
	MW-2	11/26/96	39.0	20.6	13.9		304.9
	17177-2	03/07/97	243.6	107.0	194.2	946.3	1491.2
		06/04/97	245.5 37.5	27.8	5.1	91.0	161.2
		09/18/97	72.7	15.9	8.3		156.9
			3.7	6.5	3.0		38.2
		12/15/97 02/09/98	3. <i>1</i> 2.2		5.0 6.1	20.2	30.2 30.7
		02/03/30	2.2	2.2	0.1	20.2	30.1
	MW-3	06/20/96	98.5	1.8	2.0	6.3	108.6
		07/25/96	<0.2	<0.2	0.3	<0.2	0.3
		11/06/96	1.2	<0.2	<0.2	<0.2	1.2
		03/07/97	5325.6	44.0	533.1	2160.9	8063.7
		06/04/97	3989.0	103.0	1678.0	812.0	6583.0
		09/18/97	81.1	1.0	0.5	9.0	91.6
		12/15/97	423.0	11.0	<0.2	80.3	514.0
		02/09/98	2200.0	<2.5	65.0	433.0	2698.0
	MW-4	06/20/96	341.4	26.2	3.2	64.8	435.6
		07/25/96	313.1	22.9	4.4	22.4	326.8
	11/06/96 3 inches of free phase- clear product				i i		
							6842.0
			Not sampled - 0.08 inc			440.0	242.0
		12/15/97	62.0	56.0	90.0	412.0	618.0
		02/09/98	96.0	370.0	75.0	660.0	1201.0
	88\A/ E	07/05/06	12.4	-0.2	1 2	0.4	15.1
	MW-5	07/25/96	13.4 <0.2	<0.2 0.4	1.3 <0.2		
		11/06/96					0.4
		03/07/97	3.0				3.2
		06/04/97	352.0 33.2		<0.2 <0.2		352.0
		12/15/97	33.2 <0.2	<0.2			33.2 <0.2
		12/15/97 02/09/98	<0.2 <0.5		<0.2 <0.5		1.0
		02/03/30			-0.5	1.0	1.0
	MW-6	09/17/96	Well installed; no indic	ations of or	ganic vapors or	hydrocarbo	n staining
	11/06/96 2 -3 inches of free phase - yellow, straw-colored product						
		03/07/97	18358.8	460.4	12030.4	7032.7	37909.2
		06/04/97	16434.0	714.0	9791.0	8841.0	34780.0
		09/18/97	16309.0	588.0	4531.0	6554.0	27981.0
		12/15/97	15061.0	520.0	1526.0	5412.0	22518.0
		02/09/98	15000.0	1000.0	490.0	5100.0	21590.0
	MW-7	11/26/96	<0.2				
		03/07/97	<0.2				
		06/04/97	68.0		<0.2		68.0
		09/18/97	<0.2	<0.2	<0.2		<0.2
		12/15/97	0.6	<0.2	<0.2		0.6
		02/09/98	15.0	<0.5	<0.5	<1	15.0
	MW-8	11/26/96	109.2	0.6	3.8	111.1	224.8
	MAA-O	03/07/97	281.5		3.o 12.8		
		06/04/97	289.0				
		09/18/97	<0.2	29.7			
		12/15/97	<0.2	36.8			297.3
		02/09/98	7.5				
		92,00,00		11.0	J ₂ .0	555.0	720.0

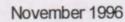
Table 1: SUMMARY OF ANALYTICAL RESULTS

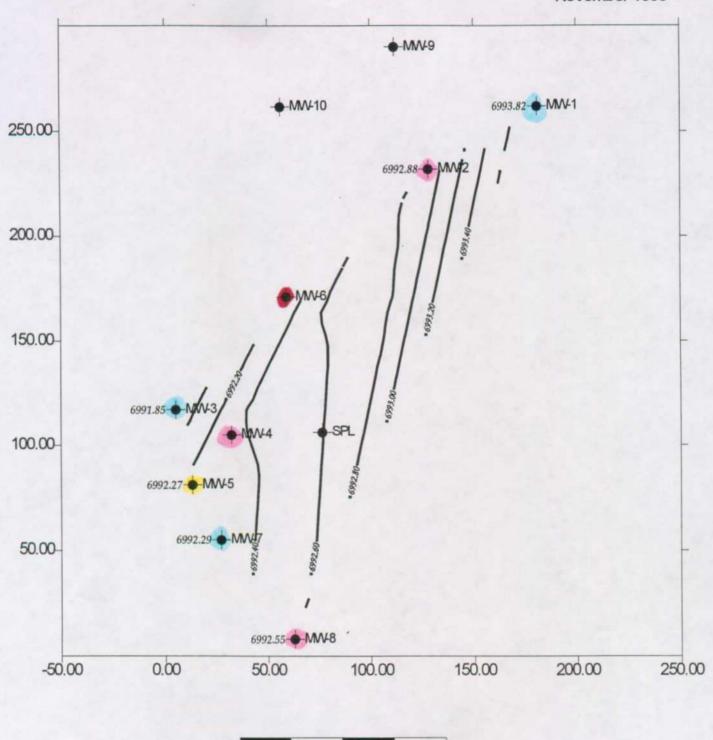
Sample	Matrix	Date Sampled	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Xylenes (ug/L)	Total BTEX (ug/L)
	MW-9	06/11/97	<0.2	<0.2	0.7	0.4	1.1
		09/18/97	<0.2	<0.2	0.3	<0.2	0.3
		12/15/97	<0.2	<0.2	0.2	<0.2	0.2
		02/09/98	<0.5	0.7	<0.5	1.3	2.0
	MW-10	06/11/97	352.0	4.0	5.0	2.0	363.0
		09/18/97	38.4	8.0	3.4	<0.2	42.6
		12/15/97	87.9	3.0	2.5	4.7	98.2
		02/09/98	1.3	3.5	2.7	<1	7.5

Attachment 1

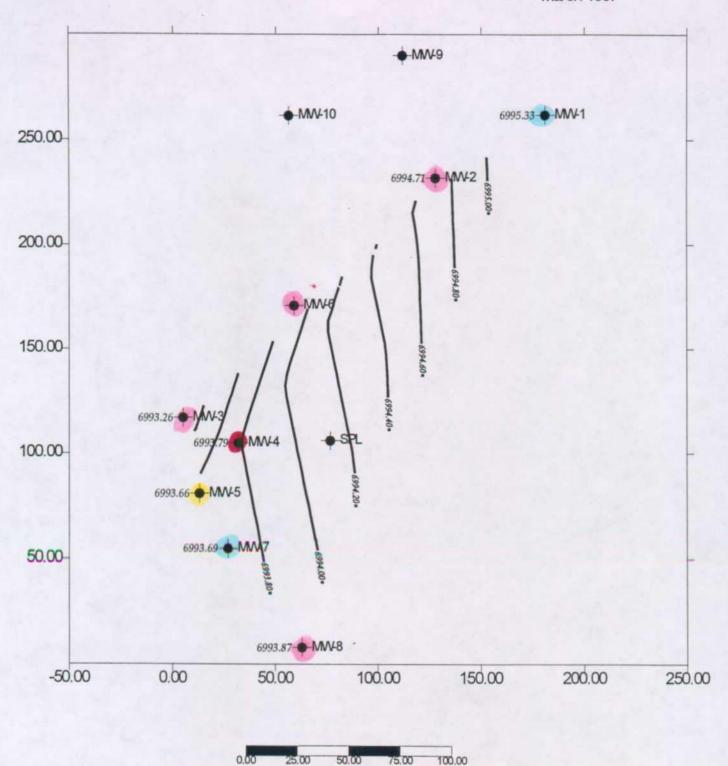
Groundwater Contour Maps July 1996 - February 1998

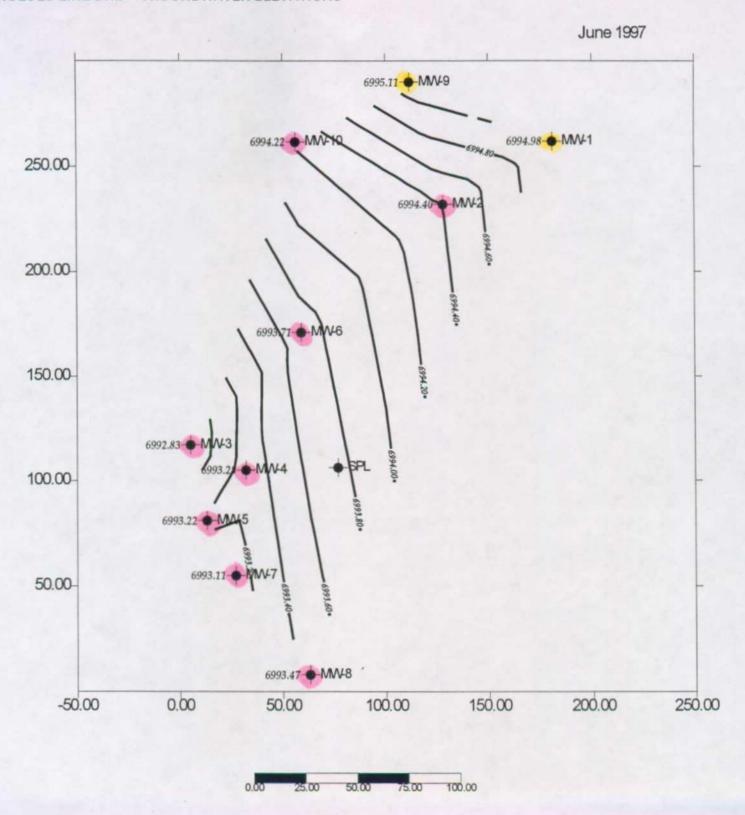


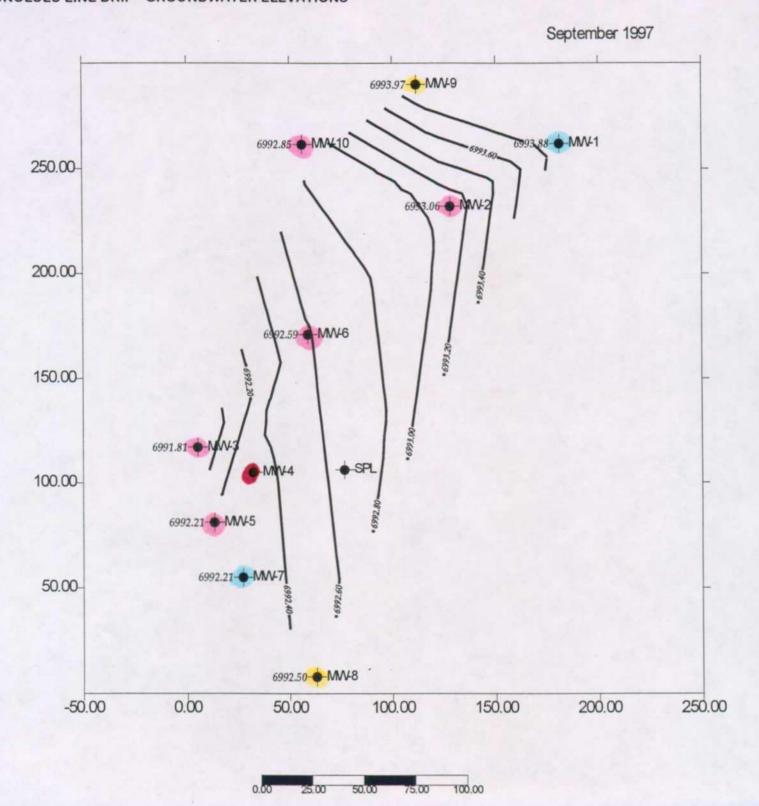


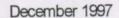


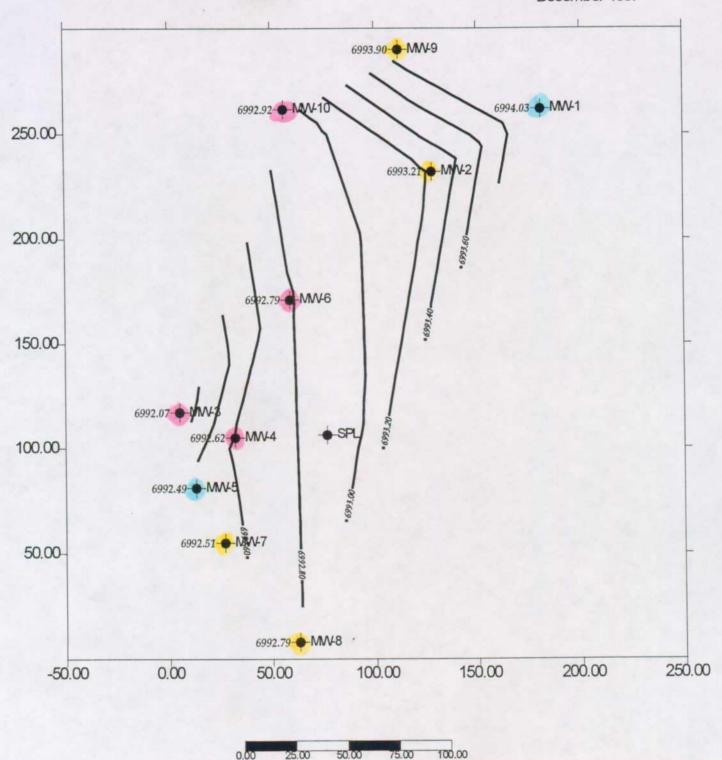
March 1997

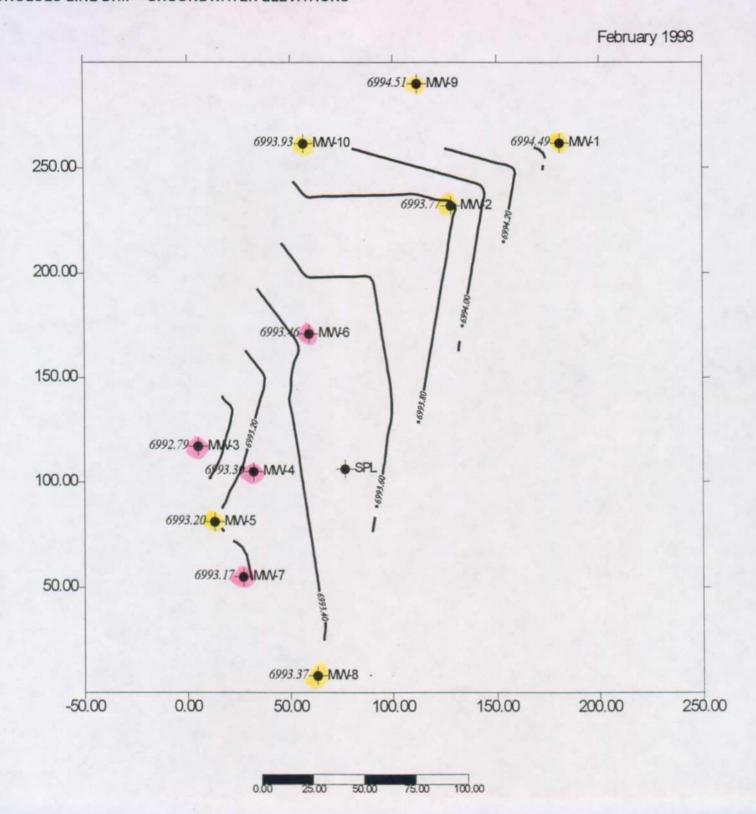




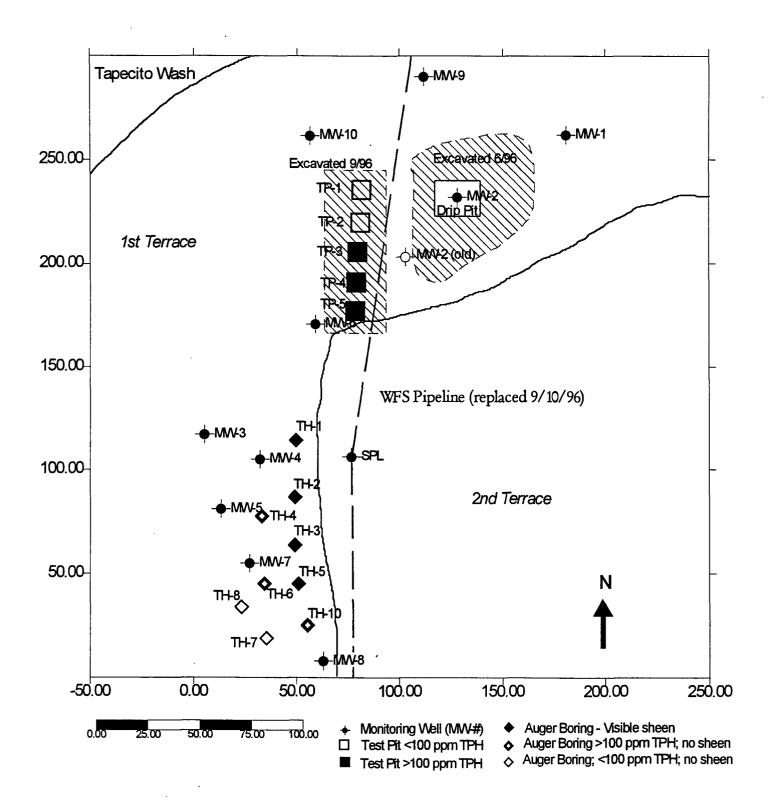


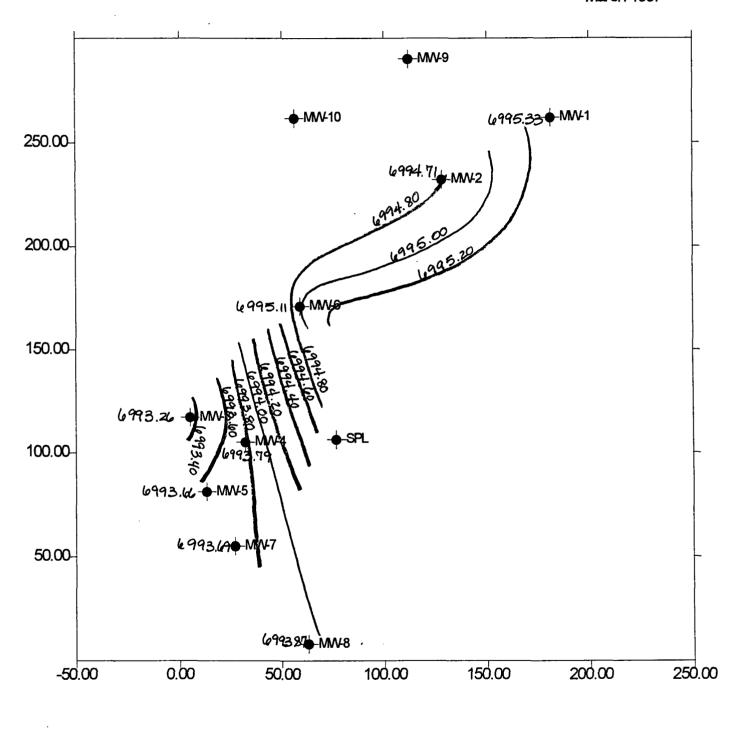






HONOLULU LINE DRIP: Summary of Site Activity

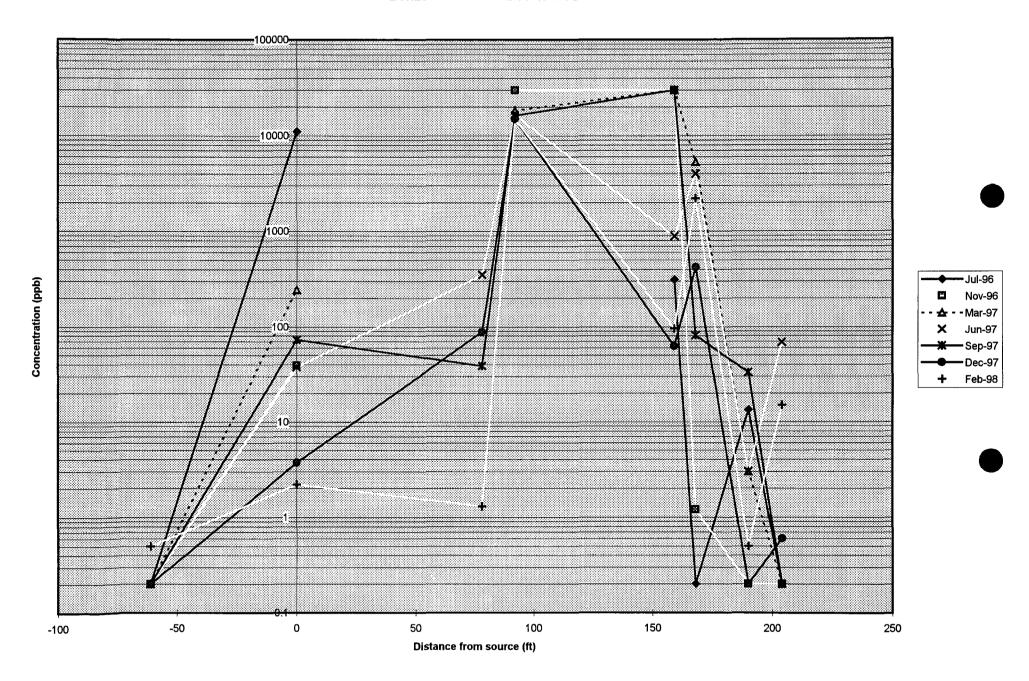




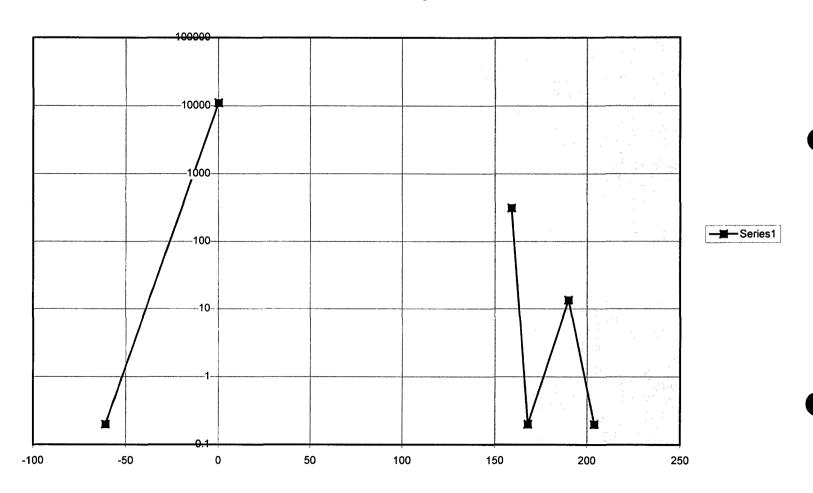
Attachment 2

Concentration vs. Distance

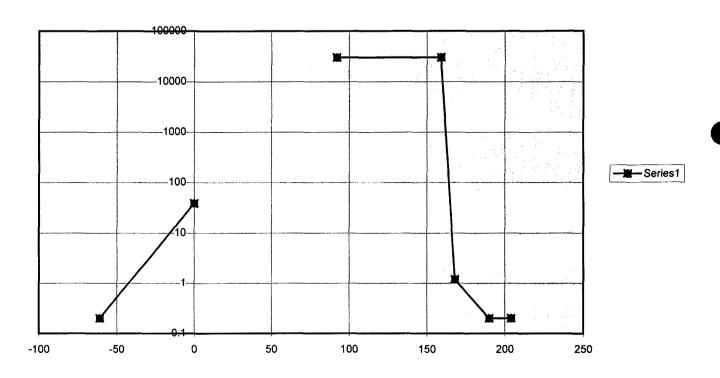
Benzene: Concentration vs. Distance



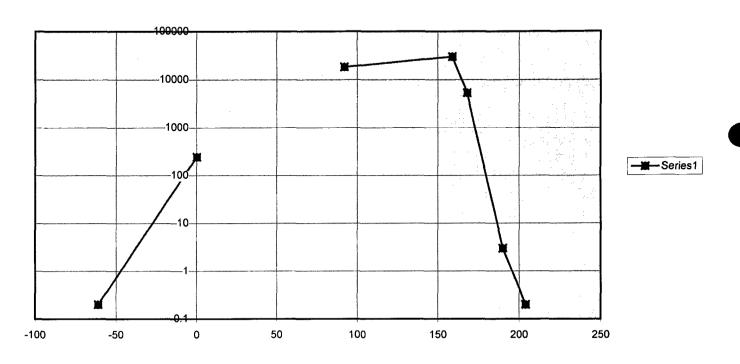
Benzene vs. Distance: July 1996



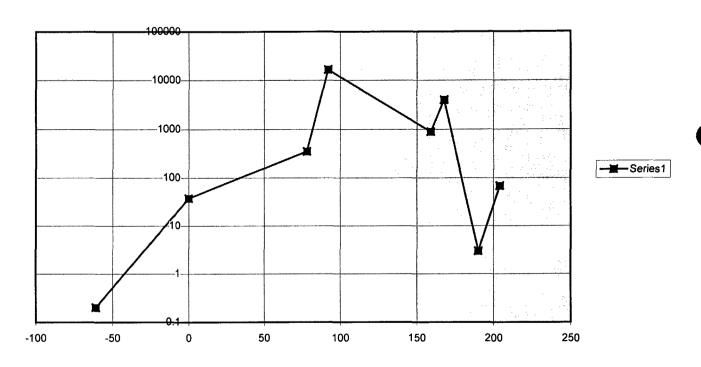
Benzene vs. Distance: November 1996



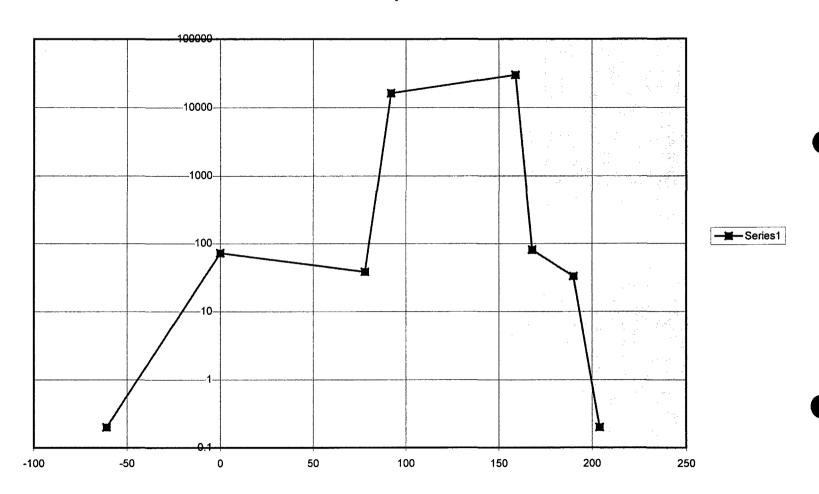
Benzene vs. Distance: March 1997



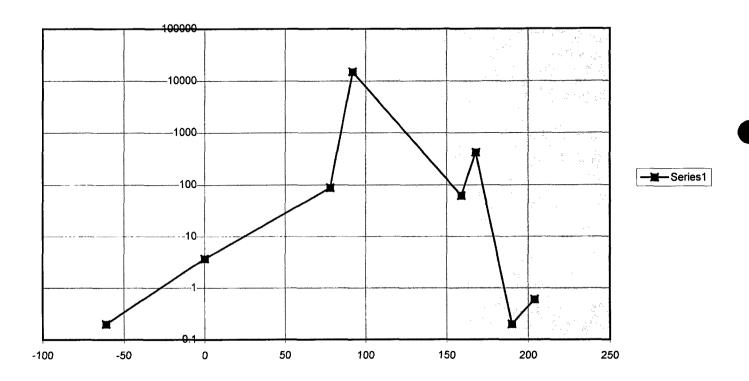
Benzene vs. Distance: June 1997



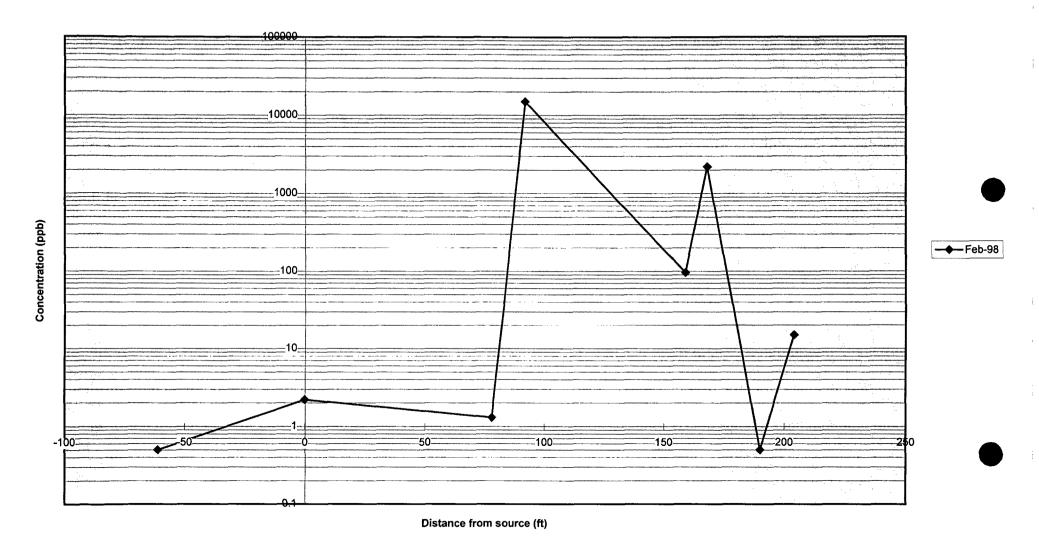
Benzene vs. Distance: September 1997



Benzene vs. Distance: December 1997



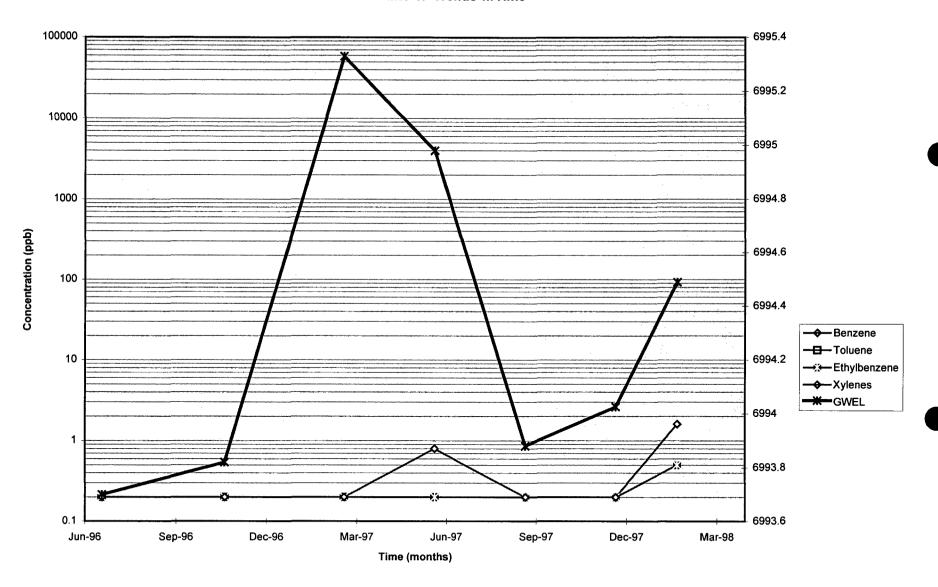
Benzene vs. Distance: February 1998



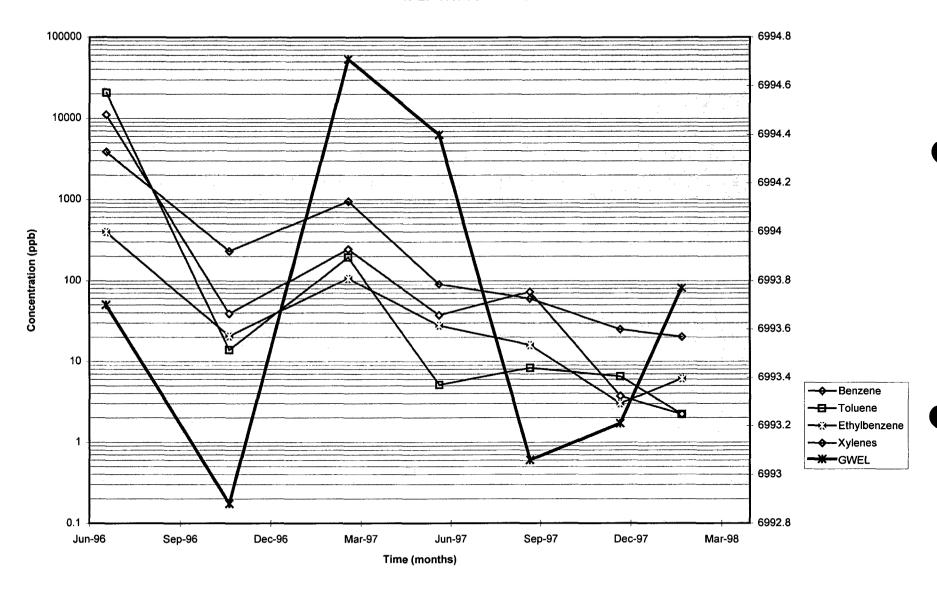
Attachment 3

Concentration vs. Time

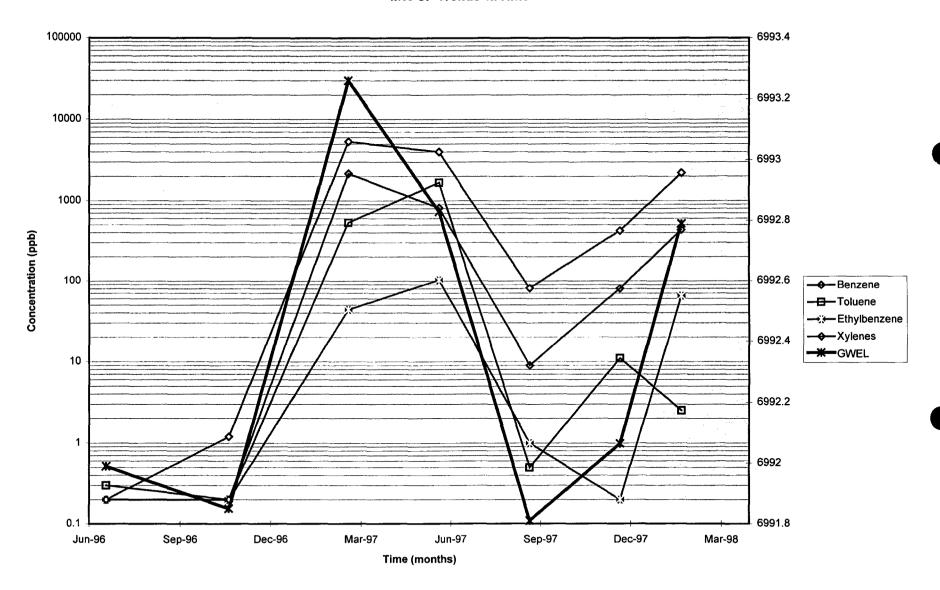
MW-1: Trends w/Time



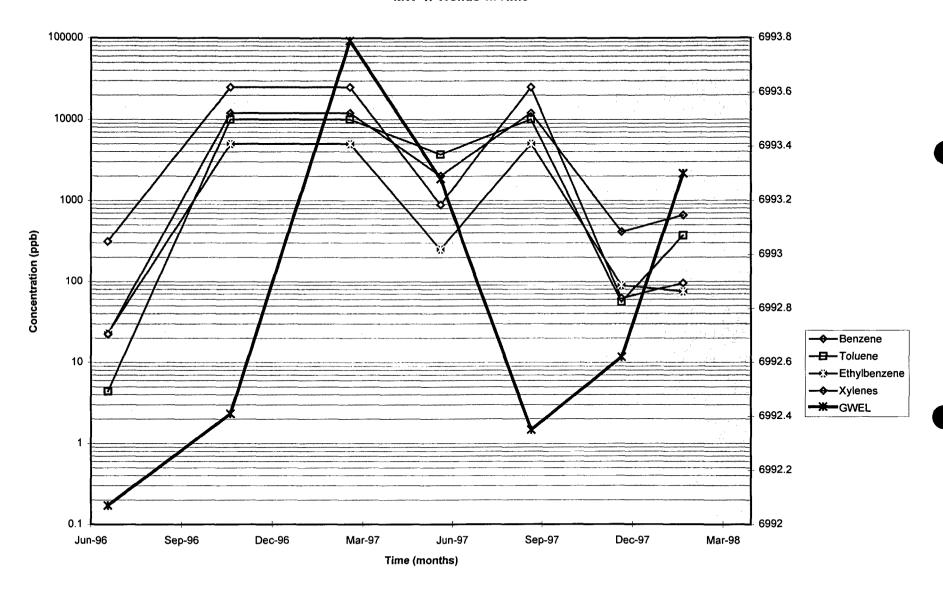
MW-2: Trends w/Time



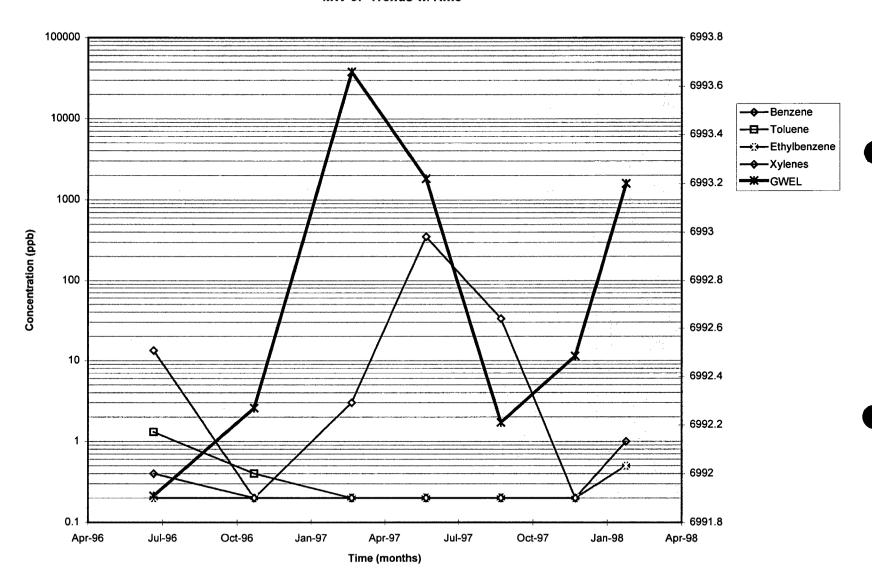
MW-3: Trends w/Time



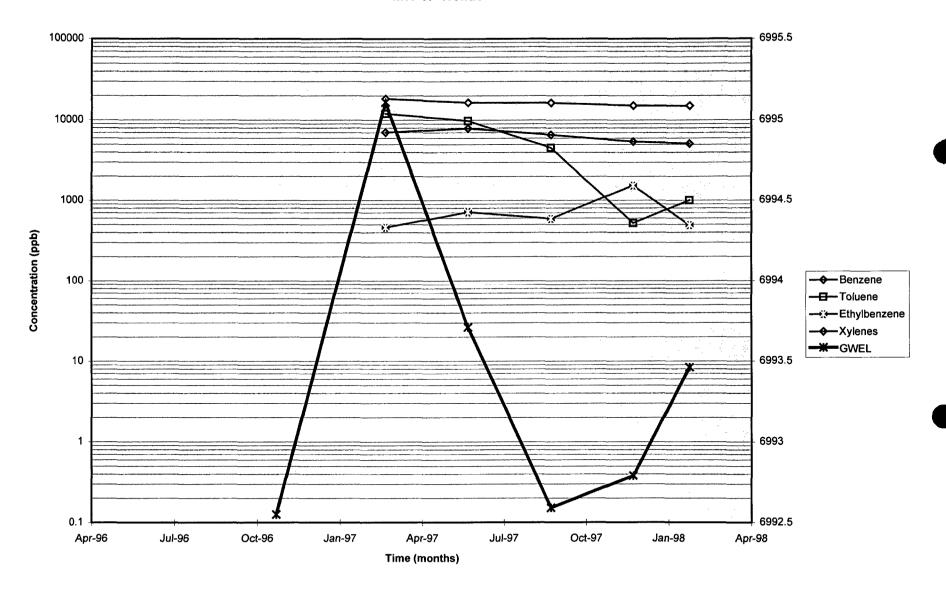
MW-4: Trends w/Time



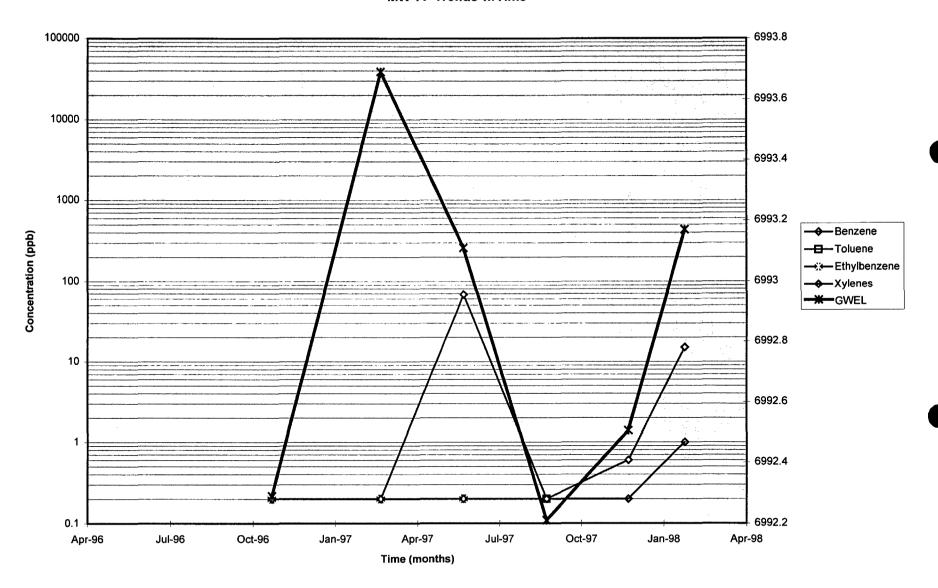
MW-5: Trends w/Time



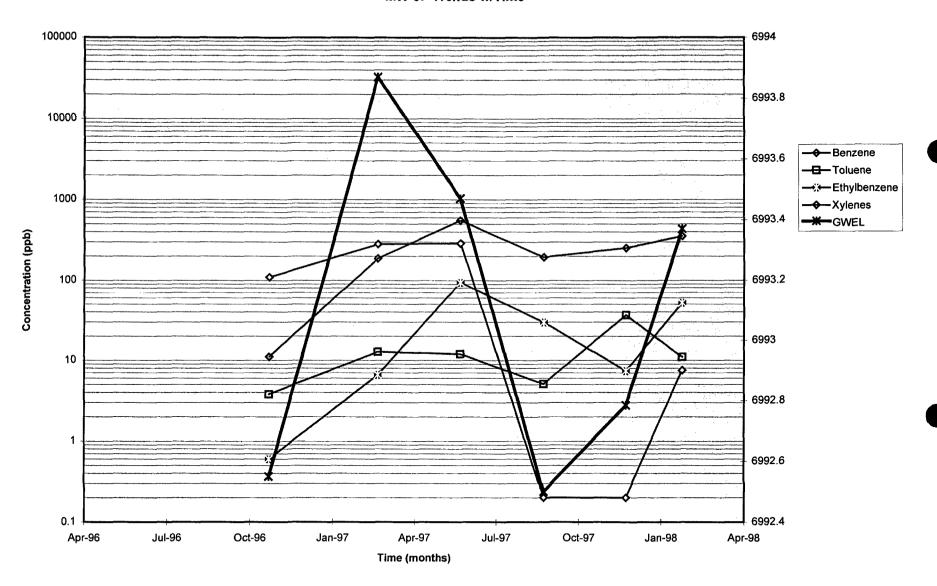
MW-6: Trends w/Time



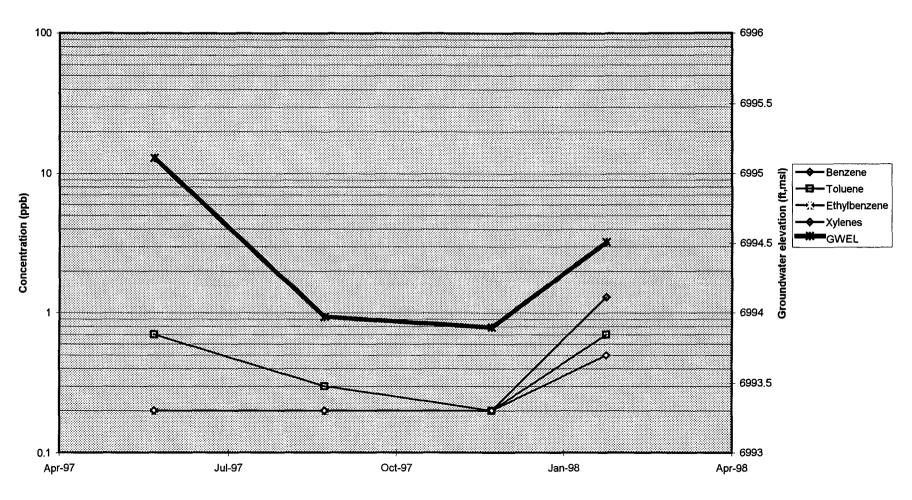
MW-7: Trends w/Time



MW-8: Trends w/Time

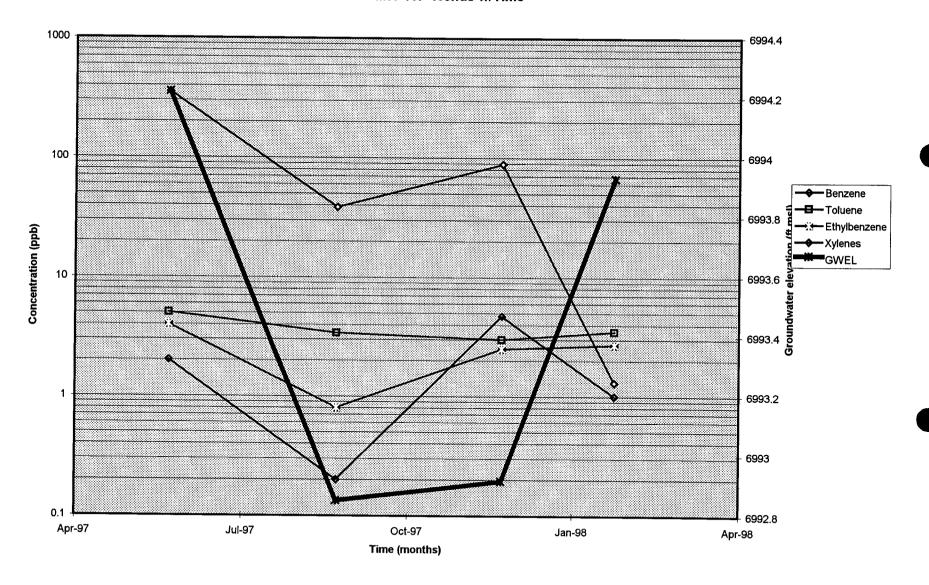


MW-9: Trends w/Time



Time (months)

MW-10: Trends w/Time





February 24, 1998

Maureen Gannon
PNM Gas Services
Alevardo Square, Mail Stop 0408
Albuquerque, NM 87401
TEL: (505) 241-2974
FAX (505) 241-2340

RE: Honolulu Loop Line Drip

Dear Maureen Gannon,

Order No.: 9802002

On Site Technologies, LTD. received 11 samples on 2/11/98 for the analyses presented in the following report.

The Samples were analyzed for the following tests: Aromatic Volatiles by GC-PID (SW8021A)

There were no problems with the analyses and all data for associated QC met EPA or laboratory specifications except where noted in the Case Narrative.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

David Cox



LAB: (505) 325-1556

ANALYTICAL REPORT

Date: 24-Feb-98

Client:

PNM Gas Services

9802002

Client Sample ID: 9802091118; MW-1

Client Sample Info: Honolulu Loop Line Drip

Lab ID:

Work Order:

9802002-01A

Matrix: AQUEOUS

Collection Date: 2/9/98 11:18:00 AM

Project:

Honolulu Loop Line Drip

COC#: 7138

Parameter	Result	Limit Q	ual Units	DF	Date Analyzed
AROMATIC VOLATILES BY GC-PID	S	W8021A		Analyst: DC	
Benzene	ND	0.5	μg/L	1	2/17/98
Toluene	0.7	0.5	µg/L	1	2/17/98
Ethylbenzene	ND	. 0.5	μg/L	1	2/17/98
m,p-Xylene	1.6	· 1	μg/L	1	2/17/98
o-Xylene	ND	0.5	μg/L	1	2/17/98
Surr: Fluorobenzene	99.9	70-130	%REC	1	2/17/98
Surr: 1,4-Difluorobenzene	101.6	70-130	%REC	1	2/17/98
Surr: 4-Bromochlorobenzene	97.0	70-130	%REC	1	2/17/98

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range



LAB: (505) 325-1556

ANALYTICAL REPORT

Date: 24-Feb-98

Client:

Lab ID:

PNM Gas Services

Work Order:

9802002

Surr: 4-Bromochlorobenzene

9802002-02A

Matrix: AQUEOUS

86.4

Client Sample Info: Honolulu Loop Line Drip

Client Sample ID: 9802091135; MW-2

COC#: 7138

Collection Date: 2/9/97 11:35:00 AM

Project: Honolulu Loop Line Drip Limit Qual Units **Parameter** Result DF **Date Analyzed** SW8021A AROMATIC VOLATILES BY GC-PID Analyst: DC Benzene 2.2 2/17/98 0.5 μg/L Toluene 0.5 2/17/98 2.2 μg/L Ethylbenzene . 0.5 2/17/98 6.1 μg/L 2/17/98 m,p-Xylene 17 μg/L o-Xylene 3.2 0.5 µg/L 2/17/98 2/17/98 Surr: Fluorobenzene 89.7 70-130 %REC Surr: 1.4-Difluorobenzene 2/17/98 89.5 70-130 %REC 2/17/98

70-130

%REC

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

* - Value exceeds Maximum Contaminant Level



LAB: (505) 325-1556

ANALYTICAL REPORT

Date: 24-Feb-98

Client:

Lab ID:

Project:

PNM Gas Services

Honolulu Loop Line Drip

Work Order:

9802002

9802002-03A

Matrix: AQUEOUS

Client Sample Info: Honolulu Loop Line Drip

Client Sample ID: 9802091150; MW-3

Collection Date: 2/9/97 11:50:00 AM

COC#: 7138

Parameter	Result	Limit	Qual Units	DF	Date Analyzed	
AROMATIC VOLATILES BY GC-PID	S	W8021A			Analyst: DC	
Benzene	2200	10	μg/L	20	2/18/98	
Toluene	ND	2.5	μg/L	5	2/17/98	
Ethylbenzene	65	. 2.5	μg/L	5	2/17/98	
m,p-Xylene	420	5	μg/L	5	2/17/98	
o-Xylene	13	2.5	µg/L	5	2/17/98	
Surr: Fluorobenzene	100.6	70-130	. %REC	5	2/17/98	
Surr: Fluorobenzene	98.3	70-130	%REC	20	2/18/98	
Surr: 1,4-Difluorobenzene	102.7	70-130	%REC	5	2/17/98	
Surr: 1,4-Difluorobenzene	99.4	70-130	%REC	20	2/18/98	
Surr: 4-Bromochlorobenzene	95.2	70-130	%REC	5	2/17/98	
Surr: 4-Bromochlorobenzene	101.2	70-130	%REC	20	2/18/98	

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range



LAB: (505) 325-1556

ANALYTICAL REPORT

Date: 24-Feb-98

Client:

Lab ID:

Project:

PNM Gas Services

Honolulu Loop Line Drip

Work Order:

9802002

9802002-04A

Matrix: AQUEOUS

Client Sample Info: Honolulu Loop Line Drip

Client Sample ID: 9802091205; MW-4

Collection Date: 2/9/98 12:05:00 PM

COC#: 7138

Parameter	Result	Limit Q	ual Units	DF	Date Analyzed	
AROMATIC VOLATILES BY GC-PID	SI	W8021A			Analyst: DC	
Benzene	96	2.5	μg/L	5	2/18/98	
Toluene	370	2.5	µg/L	5	2/18/98	
Ethylbenzene	75	. 2.5	μg/L	5	2/18/98	
m,p-Xylene	510	5	μg/L	5	2/18/98	
o-Xylene	150	2.5	μg/L	5	2/18/98	
Surr: Fluorobenzene	108.9	70-130	%REC	5	2/18/98	
Surr: 1,4-Difluorobenzene	94.5	70-130	%REC	5	2/18/98	
Surr: 4-Bromochlorobenzene	90.8	70-130	%REC	5	2/18/98	

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

* - Value exceeds Maximum Contaminant Level



LAB: (505) 325-1556

ANALYTICAL REPORT

Date: 24-Feb-98

Client:

Lab ID:

Project:

PNM Gas Services

Honolulu Loop Line Drip

Work Order:

9802002

9802002-05A

Matrix: AQUEOUS

Client Sample Info: Honolulu Loop Line Drip

Client Sample ID: 9802091220; MW-5

Collection Date: 2/9/98 12:20:00 PM

COC#: 7138

Parameter	Result	Limit Q	ual Units	DF	Date Analyzed
AROMATIC VOLATILES BY GC-PID	S	W8021A		Analyst: DC	
Benzene	ND	0.5	μg/L	1	2/17/98
Toluene	ND	0.5	μg/L	1	2/17/98
Ethylbenzene	ND	0.5	μg/L	1	2/17/98
m,p-Xylene	ND	· 1	µg/L	1	2/17/98
o-Xylene	ND	0.5	μg/L	1	2/17/98
Surr: Fluorobenzene	100.3	70-130	. %REC	1	2/17/98
Surr: 1,4-Difluorobenzene	101.0	70-130	%REC	1	2/17/98
Surr: 4-Bromochlorobenzene	97.4	70-130	%REC	1	2/17/98

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range



LAB: (505) 325-1556

ANALYTICAL REPORT

Date: 24-Feb-98

Client:

Lab ID:

Project:

PNM Gas Services

Honolulu Loop Line Drip

Work Order:

9802002

9802002-06A

Matrix: AQUEOUS

Client Sample Info: Honolulu Loop Line Drip

Client Sample ID: 9802091235; MW-6

Collection Date: 2/9/98 12:35:00 PM

COC#: 7138

Parameter	Result	Limit Q	ual Units	DF	Date Analyzed
AROMATIC VOLATILES BY GC-PID	SI	W8021A	•	Analyst: DC	
Benzene	15000	50	μg/L	100	2/17/98
Toluene	1000	50	μg/L	100	2/17/98
Ethylbenzene	490	. 50	μg/L	100	2/17/98
m,p-Xylene	4100	100	μg/L	100	2/17/98
o-Xylene	1000	50	μg/L	100	2/17/98
Surr: Fluorobenzene	98.8	70-130	%REC	100	2/17/98
Surr: 1,4-Difluorobenzene	98.8	70-130	%REC	100	2/17/98
Surr: 4-Bromochlorobenzene	96.2	70-130	%REC	100	2/17/98

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

- Teamningy Blembing Industry



LAB: (505) 325-1556

ANALYTICAL REPORT

Date: 24-Feb-98

Client:

Lab ID:

Project:

PNM Gas Services

Honolulu Loop Line Drip

Work Order:

9802002

9802002-07A

Matrix: AQUEOUS

Client Sample Info: Honolulu Loop Line Drip

Client Sample ID: 9802091254; MW-7

Collection Date: 2/9/98 12:54:00 PM

COC#: 7138

Parameter	Result	Limit (Qual Units	DF	Date Analyzed
AROMATIC VOLATILES BY GC-PID	S	W8021A		Analyst: DC	
Benzene	15	0.5	μg/L	1	2/17/98
Toluene	ND	0.5	μg/L	1	2/17/98
Ethylbenzene	ND	0.5	μg/L	1	2/17/98
m,p-Xylene	ND	1	μg/L	1	2/17/98
o-Xylene	ND	0.5	μg/L	1	2/17/98
Surr: Fluorobenzene	100.0	70-130	%REC	1	2/17/98
Surr: 1,4-Difluorobenzene	101.0	70-130	%REC	1	2/17/98
Surr: 4-Bromochlorobenzene	97.4	70-130	%REC	1	2/17/98

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range



LAB: (505) 325-1556

ANALYTICAL REPORT

Date: 24-Feb-98

Client:

Lab ID:

Project:

PNM Gas Services

Honolulu Loop Line Drip

Work Order:

9802002

9802002-08A

Matrix: AQUEOUS

Client Sample Info: Honolulu Loop Line Drip

Client Sample ID: 9802091306; MW-8

Collection Date: 2/9/98 1:06:00 PM

COC#: 7138

Parameter	Result	Limit	Qual Units	DF	Date Analyzed	
AROMATIC VOLATILES BY GC-PID	S	W8021A			Analyst: DC	
Benzene	7.5	0.5	µg/L	1	2/17/98	
Toluene	11	0.5	µg/L₊	1	2/17/98	
Ethylbenzene	52	0.5	μg/L	1	2/17/98	
m,p-Xylene	300	´ 1	µg/L	1	2/17/98	
o-Xylene	53	0.5	µg/L	1	2/17/98	
Surr: Fluorobenzene	103.2	70-130	, %REC	1	2/17/98	
Surr: 1,4-Difluorobenzene	96.1	70-130	%REC	1	2/17/98	
Surr: 4-Bromochlorobenzene	89.9	70-130	%REC	1	2/17/98	

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range



LAB: (505) 325-1556

ANALYTICAL REPORT

Date: 24-Feb-98

Client:

Lab ID:

Project:

PNM Gas Services

Honolulu Loop Line Drip

Work Order:

9802002

9802002-09A

Matrix: AQUEOUS

Client Sample Info: Honolulu Loop Line Drip

Client Sample ID: 9802091320; MW-9

Collection Date: 2/9/98 1:20:00 PM

COC#: 7138

Parameter	Result	Limit	Qual Units	DF	Date Analyzed
AROMATIC VOLATILES BY GC-PID	S	W8021A			Analyst: DC
Benzene	ND	0.5	μg/L	1	2/17/98
Toluene	0.7	0.5	μg/L	1	2/17/98
Ethylbenzene	ND	, 0.5	μg/L	1	2/17/98
m,p-Xylene	1.3	· 1	μg/L	1	2/17/98
o-Xylene	ND	0.5	μg/L	1	2/17/98
Surr: Fluorobenzene	98.4	70-130	%REC	1	2/17/98
Surr: 1,4-Difluorobenzene	99.6	70-130	%REC	1	2/17/98
Surr: 4-Bromochlorobenzene	94.9	70-130	%REC	1	2/17/98

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range



LAB: (505) 325-1556

ANALYTICAL REPORT

Date: 24-Feb-98

Client:

Lab ID:

Project:

PNM Gas Services

Work Order:

9802002

Matrix: AQUEOUS

9802002-10A Honolulu Loop Line Drip Client Sample Info: Honolulu Loop Line Drip

Client Sample ID: 9802091332; MW-10

Collection Date: 2/9/98 1:32:00 PM

COC#: 7138

Parameter	Result	Limit (Qual Units	DF	Date Analyzed	
AROMATIC VOLATILES BY GC-PID	SI	W8021A			Analyst: DC	
Benzene	1.3	0.5	μg/L	1	2/17/98	
Toluene	3.5	0.5	μg/L	1	2/17/98	
Ethỳlbenzene	2.7	. 0.5	µg/L	1	2/17/98	
m,p-Xylene	ND	· 1	µg/L	1	2/17/98	
o-Xylene	ND	0.5	μg/L	1	2/17/98	
Surr: Fluorobenzene	98.0	70-130	%REC	1	2/17/98	
Surr: 1,4-Difluorobenzene	99.1	70-130	%REC	1	2/17/98	
Surr: 4-Bromochlorobenzene	95.0	70-130	%REC	1	2/17/98	

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

* - Value exceeds Maximum Contaminant Level

E - Value above quantitation range

- TECHNOLOGY BLENDING DIQUETRY WITH THE EX



LAB: (505) 325-1556

ANALYTICAL REPORT

Date: 24-Feb-98

Client:

Lab ID:

Project:

PNM Gas Services

Work Order:

9802002

9802002-11A

Honolulu Loop Line Drip

Matrix: AQUEOUS

Client Sample Info: Honolulu Loop Line Drip

Client Sample ID: 9802091352; MW-11

Collection Date: 2/9/98 1:52:00 PM

COC#: 7138

Parameter	Result	Limit Q	Qual Units	DF	Date Analyzed	
AROMATIC VOLATILES BY GC-PID	SW8021A				Analyst: DC	
Benzene	16000	50	μg/L	100	2/17/98	
Toluene	1200	50	μg/L	100	2/17/98	
Ethylbenzene	540	. 50	μg/L	100	2/17/98	
m,p-Xylene	4400	100	μg/L	100	2/17/98	
o-Xylene	1100	50	μg/L	100	2/17/98	
Surr: Fluorobenzene	98.0	70-130	. %REC	100	2/17/98	
Surr: 1,4-Difluorobenzene	98.1	70-130	%REC	100	2/17/98	
Surr: 4-Bromochlorobenzene	95.9	70-130	%REC	100	2/17/98	

Deplace of Mar-6

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

* - Value exceeds Maximum Contaminant Level

E - Value above quantitation range



LAB: (505) 325-1556

ANALYTICAL REPORT

Attn:

Denver Bearden

Date:

30-Dec-97

Company: PNM Gas Services

COC No.:

5619

Address:

603 W. Elm

Sample No.:

17088

City, State: Farmington, NM 87401

Job No.:

2-1000

Project Name:

PNM Gas Services - Honolulu Loop Drip

Project Location:

9712151120; MW-1

RD DC Date: Date:

15-Dec-97 Time: 23-Dec-97

11:20

Sampled by: Analyzed by: Sample Matrix:

Liquid

Parameter		Results as Received	Unit of Measure	Limit of Quantitation	Unit of Measure
Benzene		ND	ug/L	0.2	ug/L_
Toluene		ND	ug/L	, 0.2	ug/L
Ethylbenzene		ND	ug/L	0.2	ug/L
m,p-Xylene		ND	ug/L	0.2	ug/L
o-Xylene		ND	ug/L	0.2	ug/L
	TOTAL	ND	ug/L		

ND - Not Detected at Limit of Quantitation

Method - SW-846 EPA Method 8020A Aromatic Volatile Organics by Gas Chromatography

Approved By:

P.O. BOX 2606 • FARMINGTON, NM 87499

Date: 25-Feb-98

CLIENT:

PNM Gas Services

Work Order:

9802002

Project:

Honolulu Loop Line Drip

QC SUMMARY REPORT

Method Blank

Sample ID: MB1 W	Batch ID: GC-1_980218	Test Code:	SW8021A	SW8021A Units: µg/L		Analysis Date: 2/18/98				Prep Date:		
Client ID:	9802002	Run ID:	GC-1_980218	BA		SeqNo:	257					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Benzene	.1623	0.5									J	
Ethylbenzene	ND	0.5										
m,p-Xylene	ND	1										
o-Xylene	ND	0.5										
Toluene	.0581	0.5									J	

Date: 25-Feb-98

CLIENT:

PNM Gas Services

Work Order:

9802002

Project:

Honolulu Loop Line Drip

QC SUMMARY REPORT

Sample Matrix Spike

Sample ID: 9802002-03AMS	Batch ID: GC-1_980218	Test Code:	SW8021A	Units: µg/L		Analysis	Date: 2/18	/98	Prep Da	ate:	
Client ID: 9802091150; MW-	9802002	Run ID:	GC-1_980218	A		SeqNo:	276				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	3055	10	800	2193	107.8%	57	128				
Ethylbenzene	915	10	800	73.53	105.2%	78	107				
n,p-Xylene	2035	20	1600	425.1	100.6%	67	118				U
o-Xylene	898.6	10	800	38.59	107.5%	78	107				s (
Toluene	856	10	800	3.18	106.6%	74	116				,
Sample ID: 9802002-03AMSD	Batch ID: GC-1_980218	Test Code:	SW8021A	Units: µg/L		Analysis	Date: 2/18	/98	Prep Da	ate:	··· •
Olient ID: 9802091150; MW-	9802002	Run ID:	GC-1_980218	A		SeqNo:	277				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	2927	10	800	2193	91.8%	57	128	3055	4.3%	12	
Ethylbenzene	899	10	800	73.53	103.2%	78	107	915	1.8%	11	
n,p-Xylene	1984	20	1600	425.1	97.4%	67	118	2035	2.5%	10	
-Xylene	842.4	10	800	38.59	100.5%	78	107	898.6	6.5%	14	
oluene	808	10	800	3.18	100.6%	74	116	856	5.8%	14	

ND - Not Detected at the Reporting Limit

B - Analyte detected in the associated Method Blank

Date: 25-Feb-98

CLIENT:

PNM Gas Services

Work Order:

9802002

Project:

Honolulu Loop Line Drip

QC SUMMARY REPORT

Laboratory Control Spike - generic

Sample ID: LCS WATER	Batch ID: GC-1_980218	Test Code	: SW8021A	Units: µg/L		Analysis	Date: 2/18	98	Prep Da	ate:	
Client ID:	9802002	Run ID:	GC-1_980218	BA		SeqNo:	259				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	41.54	0.5	40	0.1623	103.4%	84	114				
Ethylbenzene	44.37	0.5	40	0	110.9%	86	118				
n,p-Xylene	84.33	1	80	0	105.4%	50	150				
o-Xylene	43.43	0.5	40	0	108.6%	49	147				
Toluene	42.69	0.5	40	0.0581	106.6%	87	120				

CLIENT:

PNM Gas Services

Work Order:

9802002

Project:

Honolulu Loop Line Drip

Date: 25-Feb-98

QC SUMMARY REPORT

Continuing Calibration Verification Standard

Sample ID: CCV1 QC0529/30	Batch ID: GC-1_980218	Test Code	: SW8021A	Units: µg/L		Analysis	Date: 2/18	98	Prep Da	ate:	
Client ID:	9802002	Run ID:	GC-1_980218	A		SeqNo:	258				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	21.28	0.5	20	0	106.4%	85	115				
Ethylbenzene	22.72	0.5	20	0	113.6%	85	115				
m,p-Xylene	42.78	1	40	0	107.0%	85	115				
o-Xylene	22.12	0.5	20	0	110.6%	85	115				
Toluene	21.7	0.5	20	0	108.5%	85	115				
1,4-Difluorobenzene	105.5	0	100	0	105.5%	70	130				
4-Bromochlorobenzene	95.89	0	100	0	95.9%	70	130				
Fluorobenzene	99.12	0	100	0	99.1%	70	130				
Sample ID: CCV2 QC0529/30	Batch ID: GC-1_980218	Test Code	SW8021A	Units: µg/L		Analysis	Date: 2/18/	98	Prep Da	ate:	
Client ID:	9802002	Run ID:	GC-1_980218	Α		SeqNo:	267				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	F:PD Ref Val	%RPD	RPDLimit	Qual
Benzene	21.01	0.5	20	0	105.0%	85	115				
Ethylbenzene	22.35	0.5	20	0	111.7%	85	115				
m,p-Xylene	42	1	40	0	105.0%	85	115				
	21.71	0.5	20	0	108.5%	85	115				
o-Xylene	41.71			0	107.1%	85	115				
·	21.42	0.5	20	0	101.170	00					
Toluene		0.5 0	20 100	0	100.8%	70	130				
o-Xylene Toluene 1,4-Difluorobenzene 4-Bromochlorobenzene	21.42			_							

R - RPD outside accepted recovery limits

ND - Not Detected at the Reporting Limit

CLIENT:

PNM Gas Services

Work Order:

9802002

Project:

Honolulu Loop Line Drip

QC SUMMARY REPORT

Continuing Calibration Verification Standard

Sample ID: CCV3 QC0529/30	Batch ID: GC-1_980218	Test Code:	SW8021A	Units: µg/L		Analysis	Date: 2/18/	98	Prep Da	ate:	
Client ID:	9802002	Run ID:	GC-1_980218	A		SeqNo:	279				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	21.04	0.5	20	0	105.2%	85	115				
Ethylbenzene	22.47	0.5	20	0	112.4%	85	115				
m,p-Xylene	42.3	1	40	0	105.8%	85	115				
o-Xylene	22.07	0.5	20	0	110.3%	85	115				
Toluene	21.51	0.5	20	0	107.5%	85	115				
1,4-Difluorobenzene	100.6	0	100	0	100.6%	70	130				
4-Bromochlorobenzene	95.78	0	100	0	95.8%	70	130				
Fluorobenzene	99.07	0	100	0	99.1%	70	130				

Date: 24-Feb-98

CLIENT:

PNM Gas Services

Work Order:

9802002

Project:

Honolulu Loop Line Drip

QC SUMMARY REPORT

Method Blank

Sample ID: MB1 W	Batch ID: GC-1_980217	Test Code:	SW8021A	Units: µg/L		Analysis	Date: 2/17/	98	Prep Da	ate:	
Client ID:	9802002	Run ID:	GC-1_980217	'A		SeqNo:	71				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	.1481	0.5									J
Ethylbenzene	ND	0.5									
m,p-Xylene	ND	1									
o-Xylene	ND	0.5									
Toluene	.0621	0.5									J

CLIENT:

PNM Gas Services

Work Order:

9802002

Project:

Honolulu Loop Line Drip

Date: 24-Feb-98

QC SUMMARY REPORT

Continuing Calibration Verification Standard

Sample ID: CCV2 QC0529/30	Batch ID: GC-1_980217	Test Code:	SW8021A	Units: µg/L		Analysis	Date: 2/17	/98	Prep Da	ate:	
Client ID:	9802002	Run ID:	GC-1_980217	'A		SeqNo:	81				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	21.26	0.5	20	0	106.3%	85	115				
Ethylbenzene	21.77	0.5	20	0	108.8%	85	115				
m,p-Xylene	42.35	1	40	0	105.9%	85	115				
o-Xylene	22.08	0.5	20	0	110.4%	85	115				
Toluene	21.94	0.5	20	0	109.7%	85	115				
1,4-Difluorobenzene	100.6	0	100	0	100.7%	70	130				
4-Bromochlorobenzene	96.82	0	100	0	96.8%	70	130				
Fluorobenzene	99.99	0	100	0	100.0%	70	130				
Sample ID: CCV2 QC0529/30	Batch ID: GC-1_980217	Test Code:	SW8021A	Units: µg/L		Analysis	Date: 2/17	/98	Prep Da	ate:	
Client ID:	9802002	Run ID:	GC-1_980217	'A		SeqNo:	72				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	20.01	0.5	20	0	100.0%	85	115				
Ethylbenzene	21.19	0.5	20	0	105.9%	85	115				
m,p-Xylene	39.98	1	40	0	99.9%	85	115				
o-Xylene	20.82	0.5	20	0	104.1%	85	115				
Toluene	20.3	0.5	20	0	101.5%	85	115				
1,4-Difluorobenzene	101.8	0	100	0	101.8%	70	130				
•	99.27	0	100	0	99.3%	70	130				
4-Bromochlorobenzene	99.21	U		-							

S - Spike Recovery outside accepted recovery limits

ND - Not Detected at the Reporting Limit

B - Analyte detected in the associated Method Blank

J - Analyte detected below quantitation limits

CLIENT:

PNM Gas Services

Work Order:

9802002

Project:

Honolulu Loop Line Drip

QC SUMMARY REPORT

Continuing Calibration Verification Standard

Sample ID: CCV3 QC0529/30	Batch ID: GC-1_980217	Test Code:	SW8021A	Units: µg/L		Analysis	s Date: 2/17	/98	Prep Da	ate:	
Client ID:	9802002	Run ID:	GC-1_980217	'A		SeqNo:	94				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	20.56	0.5	20	0	102.8%	85	115				
Ethylbenzene	21.76	0.5	20	0	108.8%	85	115				4
m,p-Xylene	40.95	1	40	0	102.4%	85	115				•
o-Xylene	21.29	0.5	20	0	106.4%	85	115				
Toluene	20.93	0.5	20	0	104.6%	85	115				
1,4-Difluorobenzene	101.2	0	100	0	101.2%	70	130				
4-Bromochlorobenzene	95.23	0	100	0	95.2%	70	130				
Fluorobenzene	99.96	0	100	0	100.0%	70	130				

Date: 24-Feb-98

CLIENT:

PNM Gas Services

Work Order:

9802002

Project:

Honolulu Loop Line Drip

QC SUMMARY REPORT

Laboratory Control Spike - generic

Sample ID: LCS WATER	Batch ID: GC-1_980217	Test Code:	SW8021A	Units: µg/L		Analysis	Date: 2/17	98	Prep Da	ate:	
Client ID:	9802002	Run ID:	GC-1_980217	'A		SeqNo:	73				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	43.06	0.5	40	0.1481	107.3%	84	114				
Ethylbenzene	45.72	0.5	40	0	114.3%	86	118				
m,p-Xylene	87.09	1	80	0	108.9%	50	150				
o-Xylene	44.73	0.5	40	0	111.8%	49	147				
Toluene	44.06	0.5	40	0.0621	110.0%	87	120				

ON SITE TECHNOLOGIES, LTD.

CHAIN OF CUSTODY RECORD

Date: 12-15-97

Page _____of____

657 W. Maple • P. O. Box 2606 • Farmington NM 87499 LAB: (505) 325-5667 • FAX: (505) 325-6256

Purchase	e Order No.:		Job No.				0	Name		Mau	ıreen G	annon		Title			
	Name	Denver Bearden					ST	Comp	any	PNN	I Gas S	Services	3		_		
SEND INVOICE TO	Company	PNM Gas Services		Dept. 32	24-3763		REPORT RESULTS TO	Mailin	g Addres	s Alve	erado S	quare,	Mail St	op 04	80		
S N	Address	603 W. Elm Street					200	City, S	State, Zip	Aibı	uquerq	ue, NM	87158		_		
	City, State, Zip	Farmington, NM 874	01				"	Telepl	hone No	505	-848-29	74		Telefax I	No.		
Sampling	Location:										A D I	AL VOIO	DEOU	COTE			
							- 0				AN	ALYSIS	HEQU	ESIE	U		
Hor	roluly L	oup Drip					Number of Containers		120	7	7			7	7	77	
Sampler:	_ 1	í					mp	/	/gb /	/ /			/ /	/ /	/ /	′ /	
R	Dedrick	<u>k</u>					2 ડે	1) /			/ /					
	SAMPLE IDENTIFICATION SAMPLE DATE TIME MATRIX P							3	, ogr ^o	/ /					/ /	LAB II	D
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9712	15 1201	MW3	Prist	77/201		iKl	ユ	X								17090	
9712	151218	mw4	12/15/	77/218	H20	IfCI	2	X								17091	
97121	15-1247	MWS	12/15/	7/247	120	HCI	ス	X								17092	
97121	5 /310	mula	12/15/0	97/3/0	Hac	HCI	2	X								17013	
9712	15 1337	mw7	12/15/	12/337	Had	HC1	く	X								17097	
97121	15 1401	MWB	12/15/0	11/1401	HOU	HC1	٦	X								17095	
9712	15/528	MWT	13/15/	4) 1528	Hed	HCI	/	X								17096	
97121	51428	MWID	12/15/	7/428	Hall	HC1	ス	X								A097	
9712	151448	mwil	12/1s/	771448	HOC	HC1	2	X								17098	V
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	of Shipment:						Rush	1	2	24-48 Hou	rs	10 Workir	ng Days	1	al Instruc		
Authorize	ed by: Kan	lient Signature Must Accom	pany Request)	_ Date /ix	115/9	7								1		ts to be se h parties.	nt
				Mhito - On Site	32.0			`	Oulden	d Clien	<u> </u>						



LAB: (505) 325-1556

ANALYTICAL REPORT

Attn:

Denver Bearden

Date:

1-Oct-97

Company: PNM Gas Services

COC No.:

5800

Address:

603 W. Elm

Sample No.:

16229

City, State: Farmington, NM 87401

Job No.:

2-1000

Project Name:

PNM Gas Services - Honolulu Loop Line Drip

Project Location:

9709180900; MW-1

MS/MG

Date:

18-Sep-97 Time:

29-Sep-97

9:00

Sampled by: Analyzed by:

DC

Date:

Sample Matrix:

Liquid

Parameter		Results as Received	Unit of Measure	Limit of Quantitation	Unit of Measure
Benzene		ND	ug/L	0.2	ug/L
Toluene		ND	ug/L	0.2	ug/L
Ethylbenzene		ND	ug/L	0.2	ug/L
m,p-Xylene		ND	ug/L	0.2	ug/L
o-Xylene		ND	ug/L	0.2	ug/L
	TOTAL	ND	ug/L		

ND - Not Detected at Limit of Quantitation

Method - SW-846 EPA Method 8020A Aromatic Volatile Organics by Gas Chromatography

Approved By: Date:

P.O. BOX 2606 • FARMINGTON, NM 87499 The second second second second



LAB: (505) 325-1556

ANALYTICAL REPORT

Attn:

Denver Bearden

Date:

1-Oct-97

Company: PNM Gas Services

COC No.:

5800

Address:

603 W. Elm

Sample No.:

16230

City, State: Farmington, NM 87401

Job No.:

2-1000

Project Name:

PNM Gas Services - Honolulu Loop Line Drip

Project Location:

9709180930; MW-2

MS/MG

Date: Date:

18-Sep-97 Time:

29-Sep-97

9:30

Sampled by: Analyzed by: Sample Matrix:

DC

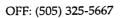
Liquid

Parameter		Results as Received	Unit of Measure	Limit of Quantitation	Unit of Measure
Benzene		72.7	ug/L	0.2	ug/L
Toluene		8.3	ug/L	0.2	ug/L
Ethylbenzene		15.9	ug/L	0.2	ug/L
m,p-Xylene		48.8	ug/L	0.2	ug/L
o-Xylene		11.1	ug/L	0.2	ug/L
	TOTAL	156.9	ug/L		

ND - Not Detected at Limit of Quantitation

Method - SW-846 EPA Method 8020A Aromatic Volatile Organics by Gas Chromatography

Approved By:





LAB: (505) 325-1556

ANALYTICAL REPORT

Attn:

Denver Bearden

Date:

1-Oct-97

Company: PNM Gas Services

COC No.:

5800

Address:

16231

603 W. Elm

Sample No.:

City, State: Farmington, NM 87401

Job No.:

2-1000

Project Name:

PNM Gas Services - Honolulu Loop Line Drip

Project Location:

9709181000; MW-3

Date:

18-Sep-97 Time:

10:00

Sampled by: Analyzed by:

DC

Date:

30-Sep-97

Sample Matrix:

Liquid

MS/MG

Parameter	Results as Received	Unit of Measure	Limit of Quantitation	Unit of Measure
Benzene	81.1	ug/L	0.2	ug/L
Toluene	0.5	ug/L	0.2	ug/L
Ethylbenzene	1.0	ug/L	0.2	ug/L
m,p-Xylene	6.4	ug/L	0.2	ug/L
o-Xylene	2.6	ug/L	0.2	ug/L
TOTAL	91.6	ug/L		

ND - Not Detected at Limit of Quantitation

Method - SW-846 EPA Method 8020A Aromatic Volatile Organics by Gas Chromatography

Approved By:

P.O. BOX 2606 • FARMINGTON, NM 87499 on Beenbase Empleated with the



LAB: (505) 325-1556

ANALYTICAL REPORT

Attn:

Denver Bearden

Date:

1-0ct-97

Company: PNM Gas Services

COC No.:

5800

Address:

603 W. Elm

Sample No.:

16232

City, State: Farmington, NM 87401

Job No.:

2-1000

Project Name:

PNM Gas Services - Honolulu Loop Line Drip

Project Location:

9709181030; MW-5

Date:

18-Sep-97 Time:

0.2

ug/L

10:30

Sampled by: Analyzed by: Sample Matrix:

DC Liquid

MS/MG

Date:

29-Sep-97

o-Xylene

Parameter	Results as Received	Unit of Measure	Limit of Quantitation	Unit of Measure
Benzene	33.2	ug/L	0.2	ug/L
Toluene	ND	ug/L	0.2	ug/L
Ethylbenzene	ND	ug/L	0.2	ug/L
m,p-Xylene	ND	ug/L	0.2	ug/L

ND ug/L 33.2 TOTAL ug/L

ND - Not Detected at Limit of Quantitation

Method - SW-846 EPA Method 8020A Aromatic Volatile Organics by Gas Chromatography

Approved By:

P.O. BOX 2606 • FARMINGTON, NM 87499



LAB: (505) 325-1556

ANALYTICAL REPORT

Attn:

Denver Bearden

Date:

1-Oct-97

Company: PNM Gas Services

COC No.:

5800

Address:

603 W. Elm

Sample No.:

16233

City, State: Farmington, NM 87401

Job No.:

2-1000

Project Name:

PNM Gas Services - Honolulu Loop Line Drip

Project Location:

9709181100; MW-6

Date:

18-Sep-97 Time:

11:00

Sampled by: Analyzed by: MS/MG DC

Date:

29-Sep-97

Sample Matrix:

Liquid

Parameter		Results as Received	Unit of Measure	Limit of Quantitation	Unit of Measure
Benzene		16309	ug/L	20	ug/L
Toluene		4531	ug/L	20	ug/L
Ethylbenzene		588	ug/L	20	ug/L
m,p-Xylene		5211	ug/L	20	ug/L
o-Xylene		1343	ug/L	20	ug/L
	TOTAL	27981	ug/L		

ND - Not Detected at Limit of Quantitation

Method - SW-846 EPA Method 8020A Aromatic Volatile Organics by Gas Chromatography

Approved By:

TO A TO BEINDING INDUSTRY WITH THE



LAB: (505) 325-1556

ANALYTICAL REPORT

Attn:

Denver Bearden

Date:

1-Oct-97

Company: PNM Gas Services

COC No.:

5800

Address:

603 W. Elm

Sample No.:

16234

City, State: Farmington, NM 87401

Job No.:

2-1000

Project Name:

PNM Gas Services - Honolulu Loop Line Drip

Project Location:

9709181130; MW-7

MS/MG

Date: Date: 18-Sep-97 Time: 29-Sep-97

11:30

Sampled by: Analyzed by: Sample Matrix:

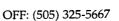
DC Liquid

Parameter		Results as Received	Unit of Measure	Limit of Quantitation	Unit of Measure
Benzene		ND	ug/L	0.2	ug/L
Toluene		ND	ug/L	0.2	ug/L
Ethylbenzene		ND	ug/L	0.2	ug/L
m,p-Xylene		ND	ug/L	0.2	ug/L
o-Xylene		ND	ug/L	0.2	ug/L
	TOTAL	ND	ug/L		

ND - Not Detected at Limit of Quantitation

Method - SW-846 EPA Method 8020A Aromatic Volatile Organics by Gas Chromatography

Approved By:





LAB: (505) 325-1556

ANALYTICAL REPORT

Attn:

Denver Bearden

Date:

1-Oct-97

Company: PNM Gas Services

COC No.:

5800

Address:

603 W. Elm

Sample No.:

16235

City, State: Farmington, NM 87401

Job No.:

2-1000

Project Name:

PNM Gas Services - Honolulu Loop Line Drip

Project Location:

9709181200; MW-8

Sampled by:

MS/MG

Date: Date: 18-Sep-97 Time:

30-Sep-97

12:00

Analyzed by: Sample Matrix:

DC Liquid

Parameter		Results as Received	Unit of Measure	Limit of Quantitation	Unit of Measure
Benzene		ND	ug/L	0.2	ug/L
Toluene	-	5.1	ug/L	0.2	ug/L
Ethylbenzene		29.7	ug/L	0.2	ug/L
m,p-Xylene		171.2	ug/L	0.2	ug/L
o-Xylene		23.2	ug/L	0.2	ug/L
	TOTAL	229.2	ug/L		

ND - Not Detected at Limit of Quantitation

Method - SW-846 EPA Method 8020A Aromatic Volatile Organics by Gas Chromatography

Approved By:

rang and a comparable as the pro-



LAB: (505) 325-1556

ANALYTICAL REPORT

Attn:

Denver Bearden

Date:

1-Oct-97

Company: PNM Gas Services

COC No.:

5800

Address:

603 W. Elm

Sample No.:

16236

City, State: Farmington, NM 87401

Job No.:

2-1000

PNM Gas Services - Honolulu Loop Line Drip

Project Name: **Project Location:**

9709181230; MW-9

Date:

18-Sep-97 Time:

29-Sep-97

12:30

Sampled by: Analyzed by:

DC Liquid

MS/MG

Date:

Sample Matrix:

Parameter		Results as Received	Unit of Measure	Limit of Quantitation	Unit of Measure
Benzene		ND	ug/L	0.2	ug/L
Toluene		0.3	ug/L	0.2	ug/L
Ethylbenzene		ND	ug/L	0.2	ug/L
m,p-Xylene		ND	ug/L	0.2	ug/L
o-Xylene		ND	ug/L	0.2	ug/L
	TOTAL	0.3	ug/L		

ND - Not Detected at Limit of Quantitation

Method - SW-846 EPA Method 8020A Aromatic Volatile Organics by Gas Chromatography

Approved By:



LAB: (505) 325-1556

ANALYTICAL REPORT

Attn:

Denver Bearden

Date:

1-Oct-97

Company: PNM Gas Services

COC No.:

5800

Address:

603 W. Elm

Sample No.:

16237

City, State: Farmington, NM 87401

Job No.:

2-1000

Project Name:

PNM Gas Services - Honolulu Loop Line Drip

Project Location:

9709181300; MW-10

Date:

18-Sep-97 Time:

13:00

Sampled by: Analyzed by: MS/MG DC

Date:

29-Sep-97

Sample Matrix:

Liquid

Parameter	Results as Received	Unit of Measure	Limit of Quantitation	Unit of Measure
Benzene	38.4	ug/L	0.2	ug/L
Toluene	3.4	ug/L	0.2	ug/L
Ethylbenzene	0.8	ug/L	0.2	ug/L
m,p-Xylene	ND	ug/L	0.2	ug/L
o-Xylene	ND	ug/L	0.2	ug/L
το	TAL 42.6	ug/L		

ND - Not Detected at Limit of Quantitation

Method - SW-846 EPA Method 8020A Aromatic Volatile Organics by Gas Chromatography

Approved By:

P.O. BOX 2606 • FARMINGTON, NM 87499



LAB: (505) 325-1556

ANALYTICAL REPORT

Attn:

Denver Bearden

Date:

1-Oct-97

Company: PNM Gas Services

COC No.:

5800

Address:

603 W. Elm

Sample No.:

16238

City, State: Farmington, NM 87401

Job No.:

2-1000

Project Name:

PNM Gas Services - Honolulu Loop Line Drip

Project Location:

9709181330; MW-11

MS/MG

Date:

18-Sep-97 Time:

13:30

Sampled by: Analyzed by:

DC

Date:

29-Sep-97

Sample Matrix:

Liquid

Parameter		Results as Received	Unit of Measure	Limit of Quantitation	Unit of Measure
Benzene		115.4	ug/L	0.2	ug/L
Toluene		0.6	ug/L	0.2	ug/L
Ethylbenzene		1.3	ug/L	0.2	ug/L
m,p-Xylene		9.0	ug/L	0.2	ug/L
o-Xylene		3.6	ug/L	0.2	ug/L
	TOTAL	129 9	ug/I		

ND - Not Detected at Limit of Quantitation

Method - SW-846 EPA Method 8020A Aromatic Volatile Organics by Gas Chromatography

Approved By:

TECHNOLOGIES, LTD.

OFF: (505) 325-5667

LAB: (505) 325-1556

QUALITY ASSURANCE REPORT

for EPA Method 8020

Date Analyzed: 29-Sep-97

Internal QC No.:

0527-STD

Surrogate QC No.: 0528-STD

Reference Standard QC No.: 0529/30-QC

Method Blank

		Unit of
Parameter	Result	Measure
Average Amount of All Analytes In Blank	< 0.2	ppb

Calibration Check

	Unit of	True	Analyzed		
Parameter	Measure	Value	Value	RPD	Limit
Benzene	ppb	20.0	18.9	6	15%
Toluene	ppb	20.0	19.8	1	15%
Ethylbenzene	ppb	20.0	19.6	2	15%
m,p-Xylene	ppb	40.0	38.3	4	15%
o-Xylene	ppb	20.0	19.6	2	15%

Matrix Spike

Mathx Spike						
Parameter	1- Percent Recovered	1		RPD	Limit	
Benzene	89	88	(39-150)	1	20%	
Toluene	94	93	(46-148)	1	20%	
Ethylbenzene	zene 93 92	(32-160)	1	20%		
m,p-Xylene	92	91	(35-145)	1	20%	
o-Xylene	93	93	(35-145)	1	20%	

Surrogate Recoveries

Surroyate	necoveries		<u></u>		
Laboratory Identification	S1 Percent Recovered	S2 Percent Recovered	Laboratory Identification	S1 Percent Recovered	S2 Percent Recovered
Limit Percent Recovered	(70-130)		Limit Percent Recovered	(70-130)	
16229-5800	96		16237-5800	95	
16230-5800	85		16238-5800	94	
16232-5800	94				
16233-5800	94				
16234-5800	96			11/8	(n2)
16236-5800	97			10/8/97	10/1/97

S1: Flourobenzene



LAB: (505) 325-1556

QUALITY ASSURANCE REPORT

for EPA Method 8020

Date Analyzed: 30-Sep-97

Internal QC No.:

0527-STD

Surrogate QC No.:

0528-STD

Reference Standard QC No.: 0529/30-QC

Method Blank

		Unit of
Parameter	Result	Measure
Average Amount of All Analytes In Blank	< 0.2	ppb

Calibration Check

	Unit of	True	Analyzed		
Parameter	Measure	Value	Value	RPD	Limit
Benzene	ppb	20.0	18.9	6	15%
Toluene	ppb	20.0	20.1	0	15%
Ethylbenzene	ppb	20.0	20.1	0	15%
m,p-Xylene	ppb	40.0	39.1	2	15%
o-Xylene	ppb	20.0	20.2	1	15%

Matrix Spike

Wattix Spike						
Parameter	1- Percent Recovered			RPD	Limit	
Benzene	97	92	(39-150)	4	20%	
Toluene	101	97	(46-148)	3	20%	
Ethylbenzene	99	96	(32-160)	3	20%	
m,p-Xylene	100	95	(35-145)	3_	20%	
o-Xylene	98	95	(35-145)	3	20%	

Laboratory Identification	S1 Percent Recovered	S2 Percent Recovered	Laboratory Identification	S1 Percent Recovered	S2 Percent Recovered
Limit Percent Recovered	(70-130)		Limit Percent Recovered	(70-130)	
16231-5800	94				
16235-5800	100				
				TAR	(m)
	<u>'</u>			10/8/97	10/1/2

S1: Flourobenzene

- Tachway on the one operation of the operation

ON SITE TECHNOLOGIES, LTD.

CHAIN OF CUSTODY RECORD

Date: 9/18/97

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	1 .	
Page	of'	

5800

657 W. Maple • P. O. Box 2606 • Farmington NM 87499 LAB: (505) 325-5667 • FAX: (505) 325-6256

Purchas	e Order No.:		Job No.				<u> </u>		Name		Ma	ureen	Ganno	n	Title		
	Name	Denver Bearden	•					S TO	Comp	any	PN	IM Gas	Servic	es			
	Company	PNM Gas Services			Dept. 32	24-3763	}	REPORT RESULTS T	Mailin	g Addre	ss Alv	verado	Squar	e, Mail Sto	p 0408	J	
SEND INVOICE TO	Address	603 W. Elm Street						HESI	City, S	State, Zip	P All	buque	rque, N	M 87158			
	City, State, Zip	Farmington, NM 874	101						Telep	hone No	. 50	5-848-	2974	Т	elefax No		
Sampling Location: HOno Luju Loopline Dr.P					er of ners		7			NALYS	SIS REQUI	ESTED		•			
Sampler: M.S. M.G.						Number of Containers	1	+9	/ /	//							
	SAN	MPLE IDENTIFICATION	-	SAM DATE	PLE TIME	MATRIX	PRES.			6 9			/ /		/_/	LAB ID	
C	17091809	700 MW-1				Ho	HcL	2	X							16229-58	CO
	709 18 0					1)	5	X							16230 -	
9	7091810	000 MW-3						<u>プ</u>	X							16231-	
	709 18 10	JE MW-4	MS.						1	,							
9	709 18 11	180 MW-5						2	X							16232-	
	709 18 110							2	X							16233 -	
9	7091811	30 MW-7						2	X						-	16234-	
	7091812							2	X							16235 -	
	7091812	·						5	X							16276-	
	7091813							7	X							16237-	
	709 13 13					1	4	2	X							16238 -	Y
Polingui	ished by:	5 X/		Di	ate/Time	9/18/9	i Hoo	Rece	eived by	Ren	Bus	mh			Da	te/Time 9/18/52 14	101
	ished by: Ry	Rush			ate/Time	(' , '					ish		<u>.</u>			1 / 1	543
	ished by:	1000			ate/Time	1/18/1	7.101=		eived by							te/Time	
Method of Shipment:					Rusi	h		24-48 H	ours	10 Wo	orking Days	l '	Instructions:				
Authoria	red by Tay	Client Signature Must Accord			Date 9										1	esults to be sent both parties.	
<u> </u>			Distrib	oution: Whi	te – On Sito	Yellov	v – LAB	Pink -	Sampler	Golde	nrod – Cli	ent					



LAB: (505) 325-1556

ANALYTICAL REPORT

Attn:

Denver Bearden

Date:

6-Jun-97

Company: PNM Gas Services

COC No.:

5728

Address:

603 W. Elm

Sample No.:

14866

City, State: Farmington, NM 87401

Job No.:

2-1000

Project Name:

PNM Gas Services - Honolulu Loop Line Drip

Project Location:

9706051300; Centerline

MG

Date: Date:

5-Jun-97 Time:

6-Jun-97

13:00

Sampled by: Analyzed by: Sample Matrix:

DC

Liquid

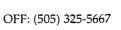
Parameter		Results as Received	Unit of Measure	Limit of Quantitation	Unit of Measure	
Benzene		ND	ug/L	0.2	ug/L	
Toluene		ND	ug/L	0.2	ug/L	
Ethylbenzene		ND	ug/L	0.2	ug/L	
m,p-Xylene		0.2	ug/L	0.2	ug/L	
o-Xylene		ND	ug/L	0.2	ug/L	
	ΤΟΤΑΙ	0.2	119/1.			

ND - Not Detected at Limit of Quantitation

Method - SW-846 EPA Method 8020A Aromatic Volatile Organics by Gas Chromatography

Approved By: / a / Date:

- Thomas of Cambridge Committee and Cambridge





LAB: (505) 325-1556

ANALYTICAL REPORT

Attn:

Denver Bearden

Date:

6-Jun-97

Company: PNM Gas Services

COC No.:

5728

Address:

603 W. Elm

Sample No.:

14867

City, State: Farmington, NM 87401

Job No.:

2-1000

Project Name:

PNM Gas Services - Honolulu Loop Line Drip

Project Location:

9706051330; W. of Centerline

Date: Date:

5-Jun-97 Time:

13:30

Sampled by: Analyzed by: MG DC

6-Jun-97

Sample Matrix:

Liquid

Parameter		Results as Received	Unit of Measure	Limit of Quantitation	Unit of Measure
Benzene		ND	ug/L	0.2	ug/L
Toluene		ND	ug/L	0.2	ug/L
Ethylbenzene		ND	ug/L	0.2	ug/L
m,p-Xylene		ND	ug/L	0.2	ug/L
o-Xylene		ND	ug/L	0.2	ug/L
	TOTAL	ND	uo/I .		

ND - Not Detected at Limit of Quantitation

Method - SW-846 EPA Method 8020A Aromatic Volatile Organics by Gas Chromatography

Approved By:

- Tombers in Remodel Section



LAB: (505) 325-1556

QUALITY ASSURANCE REPORT

for EPA Method 8020

Date Analyzed: 6-Jun-97

Internal QC No.:

0527-STD

Surrogate QC No.:

0528-STD

Reference Standard QC No.: 0529/30-QC

Method Blank

		Unit of
Parameter	Result	Measure
Average Amount of All Analytes In Blank	<0.2	ppb

Calibration Check

	Unit of	True	Analyzed		
Parameter	Measure	Value	Value	% Diff	Limit
Benzene	ppb	20.0	19.7	2	15%
Toluene	ppb	20.0	20.5	3	15%
Ethylbenzene	ppb	20.0	21.0	5	15%
m,p-Xylene	ppb	40.0	39.6	1	15%
o-Xylene	ppb	20.0	21.7	9	15%

Matrix Spike

7714477	Ортко				
Parameter	1- Percent Recovered	2 - Percent Recovered	Limit	%RSD	Limit
Benzene	96	80	(39-150)	3	20%
Toluene	100	90	(46-148)	3	20%
Ethylbenzene	104	98	(32-160)	4	20%
m,p-Xylene	98	92	(35-145)	4	20%
o-Xylene	101	97	(35-145)	3	20%

Surrogate Recoveries

	S1 Percent	S2 Percent		S1	S2
Laboratory Identification	, , , , ,		Laboratory Identification	Percent Recovered	Percent Recovered
Limit Percent Recovered	(70-130)		Limit Percent Recovered	(70-130)	
14866-5728	97		 		
14867-5728	97				
				41/2	·De /
				6/9/97	50 M

S1: Flourobenzene

5728

CHAIN OF CUSTODY RECORD

ON SITE
TECHNOLOGIES, LTD.

Date: 6/05/97

Page _____/ __of___/__

657 W. Maple • P. O. Box 2606 • Farmington NM 87499 LAB: (505) 325-5667 • FAX: (505) 325-6256

Purchas	e Order No.:		Job No.				 -		Name		Ma	aureer	n Gan	non		Title			
	Name	Denver Bearden						RESULTS TO	Comp	any	PI	M Ga	s Ser	vices					
220	Company	PNM Gas Services			Dept. 32	24-3763		12 7	Mailing	g Addres	s Al	verad	o Squ	are, M	ail Sto	p 040	8	=	
SEND INVOICE TO	Address	603 W. Elm Street						ESI	City, S	State, Zip	Al	buque	erque,	NM 8	7158				
	City, State, Zip	Farmington, NM 874	01						Teleph	none No.	50	5-848	-2974		Т	elefax N	0.		
Sampling	g Location:	· A										, -	_ ^ NIAL '	veie E	REQUE	CTED	,		
	Flower	ulu Toop Dir Urannow	e Drip					ir of ners		<u> </u>	7		ANAL	/		7	, 	7 /	
Sampler	: Maure	Clarrow						Number of Containers			/	/ /	/ /	/ /	/ /	//	/		
	SAM	PLE IDENTIFICATION	-	SAM DATE	IPLE TIME	MATRIX	PRES.		\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\							/_/	/ /	LAE	ID
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Relinqui				J D	ate/Time			Rece	eived by:		4-48 H	ours	10	Working	Davs	Specia	ate/Tim		
Method of Shipment:						1 103	,	-] '	····	, 24,5	•		ts to be s	ent		
Authoriz	ed by:	LILLY YALLAY Client Signature Must Accom	pany Request)		Date <u></u>	10519		<u> </u> 										h parties	
			Distrib	bution: Wh	ite - On Site	e Yellow	- I AB	Pink - S	Sampler	Golden	rod - Cl	ient							



LAB: (505) 325-1556

ANALYTICAL REPORT

Attn:

Denver Bearden

Date:

17-Jun-97

Company: PNM Gas Services

COC No.:

5490

Address:

Sample No.:

14932

City, State: Farmington, NM 87401

603 W. Elm

Job No.:

2-1000

Project Name:

PNM Gas Services - Honolulu Loop Line Drip

Project Location:

9706111500; MW-9

Sampled by:

MS/MG

Date: Date:

11-Jun-97 Time:

12-Jun-97

15:00

Analyzed by: Sample Matrix:

Liquid

DC

Parameter		Results as Received	Unit of Measure	Limit of Quantitation	Unit of Measure	
Benzene		ND	ug/L	0.2	ug/L	
Toluene		0.7	ug/L	0.2	ug/L	
Ethylbenzene		ND	ug/L	0.2	ug/L	
m,p-Xylene		0.4	ug/L	0.2	ug/L	
o-Xylene		ND	ug/L	0.2	ug/L	
	TOTAL	1.1	ug/L			

ND - Not Detected at Limit of Quantitation

Method - SW-846 EPA Method 8020A Aromatic Volatile Organics by Gas Chromatography

Approved By: Date:



LAB: (505) 325-1556

ANALYTICAL REPORT

Attn:

Denver Bearden

Date:

17-Jun-97

Company: PNM Gas Services

COC No.:

5490

Address:

603 W. Elm

14933

Sample No.:

City, State: Farmington, NM 87401

Job No.:

2-1000

Project Name:

PNM Gas Services - Honolulu Loop Line Drip

Project Location:

9706111530; MW-10 MS/MG

Date: Date: 11-Jun-97 Time: 13-Jun-97

15:30

Sampled by: Analyzed by: Sample Matrix:

DC Liquid

Parameter	Received	Measure	Quantitation	Measure
Benzene	352	ug/L	2	ug/L
Toluene	5	ug/L	1	ug/L
Ethylbenzene	4	ug/L	1	ug/L
m,p-Xylene	2	ug/L	1	ug/L
o-Xylene	ND	ug/L	1	ug/L
	i i		1	

363

ND - Not Detected at Limit of Quantitation

Method - SW-846 EPA Method 8020A Aromatic Volatile Organics by Gas Chromatography

Approved By: Date:

P.O. BOX 2606 • FARMINGTON, NM 87499

- Technology Brenders & History Scott 1987 I



LAB: (505) 325-1556

QUALITY ASSURANCE REPORT

for EPA Method 8020

Date Analyzed: 12-Jun-97

Internal QC No.: 0527-STD

Surrogate QC No.:

0528-STD

Reference Standard QC No.: 0529/30-QC

Method Blank

		Unit of
Parameter	Result	Measure
Average Amount of All Analytes In Blank	<0.2	ppb

Calibration Check

	Unit of	Unit of True			
Parameter	Measure	Value	Value	% Diff	Limit
Benzene	ppb	20.0	20.0	0	15%
Toluene	ppb	20.0	20.6	3	15%
Ethylbenzene	ppb	20.0	21.2	6	15%
m,p-Xylene	ppb	40.0	39.5	1	15%
o-Xylene	ppb	20.0	20.6	3	15%

Matrix Spike

	1- Percent	2 - Percent			
Parameter	Recovered	Recovered	Limit	%RSD	Limit
Benzene	89	86	(39-150)	2	20%
Toluene	94	88	(46-148)	2	20%
Ethylbenzene	97	94	(32-160)	2	20%
m,p-Xylene	90	86	(35-145)	2	20%
o-Xylene	95	91	(35-145)	2	20%

Surrogate Recoveries

Surroyate	Surroyate necoveries							
	\$1	S2		S1	S2			
	Percent	Percent	1	Percent	Percent			
Laboratory Identification	Recovered	Recovered	Laboratory Identification	Recovered	Recovered			
Limit Percent Recovered	(70-130)		Limit Percent Recovered	(70-130)				
14932-5490	98							
		•						
				THE	(m)			
				16/17/97	6/12/97			

S1: Flourobenzene



LAB: (505) 325-1556

QUALITY ASSURANCE REPORT

for EPA Method 8020

Date Analyzed: 13-Jun-97

Internal QC No.:

0527-STD

Surrogate QC No.:

0528-STD

Reference Standard QC No.: 0529/30-QC

Method Blank

		Unit of
Parameter	Result	Measure
Average Amount of All Analytes In Blank	<0.2	ppb

Calibration Check

	Unit of	True	Analyzed		
Parameter	Measure	Value	Value	% Diff	Limit
Benzene	ppb	20.0	18.9	6	15%
Toluene	ppb	20.0	19.6	2	15%
Ethylbenzene	ppb	20.0	19.7	2	15%
m,p-Xylene	ppb	40.0	37.9	5	15%
o-Xylene	ppb	20.0	19.8	1	15%

Matrix Spike

	1- Percent	2 - Percent			
Parameter	Recovered	Recovered	Limit	%RSD	Limit
Benzene	85	82	(39-150)	2	20%
Toluene	95	95	(46-148)	0	20%
Ethylbenzene	96	93	(32-160)	1	20%
m,p-Xylene	111	106	(35-145)	1	20%
o-Xylene	99	96	(35-145)	1	20%

Surrogate Recoveries

	S1	<i>\$2</i>		S1	<i>\$2</i>
	Percent	Percent		Percent	Percent
Laboratory Identification	Recovered	Recovered	Laboratory Identification	Recovered	Recovered
Limit Percent Recovered	(70-130)		Limit Percent Recovered	(70-130)	
14933-5490	95				
			 		
				JM	(ne)
				6/17/97	6/17/97

S1: Flourobenzene

ON SITE TECHNOLOGIES, LTD.

CHAIN OF CUSTODY RECORD

5490

Date: 6-11-97

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Page		ot_		

657 W. Maple • P. O. Box 2606 • Farmington NM 87499 LAB: (505) 325-5667 • FAX: (505) 325-6256

Purchase Order No.: Maureen Gannon Title Joh No Name RESULTS TO Denver Bearden Name **PNM Gas Services** Company Company **PNM Gas Services** Alverado Square, Mail Stop 0408 Dept. 324-3763 Mailing Address Address 603 W. Fim Street City. State, Zip Albuquerque, NM 87158 City, State, Zip Farmington, NM 87401 Telefax No. Telephone No. 505-848-2974 Sampling Location: **ANALYSIS REQUESTED** Horolulu Loop Suie Dip Mark Sikuianos / Mauruen Gann Number of Containers Sampler: SAMPLE IDENTIFICATION I AR ID MATRIX PRES. DATE TIME 9706111500 MW9 6/11/47 HLO HCL 9706 111530 MW10 6/11/97 HCI HZO Received by: Reg Brunh Date/Time 6/11/97 Date/Time 4 Relinquished by: Date/Time 4/12/87/452 Received by: Date/Time Relinquished by: Date/Time Received by: Date/Time Relinquished by: Rush 24-48 Hours 10 Working Days **Special Instructions:** Method of Shipment: Results to be sent Date 6/11/97 Authorized by: __ to both parties. (Client Signature Must Accompany Request)

Yellow - LAB

Distribution: White - On Site

Pink - Sampler



LAB: (505) 325-1556

6-Jun-97

5485

14838

2-1000

12:30

ANALYTICAL REPORT

Attn:

Denver Bearden

Company: PNM Gas Services Address:

603 W. Elm

City, State: Farmington, NM 87401

Project Name:

PNM Gas Services - Honolulu Loop Line Drip

Date:

Date:

Project Location: Sampled by:

MS/MG DC

9706041230; MW-1

4-Jun-97 Time: 6-Jun-97

Date:

COC No.:

Job No.:

Sample No.:

Analyzed by: Sample Matrix:

Liquid

Parameter		Results as Received	Unit of Measure	Limit of Quantitation	Unit of Measure
Benzene		ND	ug/L	0.2	ug/L
Toluene		ND	ug/L	0.2	ug/L
Ethylbenzene		ND	ug/L	0.2	ug/L
m,p-Xylene		0.3	ug/L	0.2	ug/L
o-Xylene		0.5	ug/L	0.2	ug/L
	TOTAL	0.8	ug/L		

ND - Not Detected at Limit of Quantitation

Method - SW-846 EPA Method 8020A Aromatic Volatile Organics by Gas Chromatography



LAB: (505) 325-1556

ANALYTICAL REPORT

Attn:

Denver Bearden

Date:

6-Jun-97

Company: PNM Gas Services

COC No.:

5485

Address:

Sample No.:

14839

603 W. Elm

Job No.:

2-1000

City, State: Farmington, NM 87401

PNM Gas Services - Honolulu Loop Line Drip

Project Name: **Project Location:**

9706041300; MW-2

MS/MG

Date: Date:

4-Jun-97 Time:

6-Jun-97

13:00

Sampled by: Analyzed by: Sample Matrix:

DC Liquid

Parameter	Results as	Unit of Measure	Limit of Quantitation	Unit of Measure
	Hecolog	Measure	- Cuantitation	Micabaro
Benzene	37.5	ug/L	0.2	ug/L
Toluene	5.1	ug/L	0.2	ug/L
Ethylbenzene	27.8	ug/L	0.2	ug/L
m,p-Xylene	79.7	ug/L	0.2	ug/L
o-Xylene	11.3	ug/L	0.2	ug/L

161.2

ND - Not Detected at Limit of Quantitation

Method - SW-846 EPA Method 8020A Aromatic Volatile Organics by Gas Chromatography

TOTAL

Approved By:



LAB: (505) 325-1556

ANALYTICAL REPORT

Attn:

Denver Bearden

Date:

6-Jun-97

Company: PNM Gas Services

COC No.:

5485

Address:

14840

603 W. Elm

Sample No.:

City, State: Farmington, NM 87401

Job No.:

2-1000

Project Name:

PNM Gas Services - Honolulu Loop Line Drip

Project Location:

9706041330; MW-3 MS/MG

Date:

4-Jun-97 Time:

13:30

Sampled by: Analyzed by:

DC

6-Jun-97 Date:

Sample Matrix:

Liquid

Parameter		Results as Received	Unit of Measure	Limit of Quantitation	Unit of Measure
Benzene		3989	ug/L	20	ug/L
Toluene		1678	ug/L	20	ug/L
Ethylbenzene		103	ug/L	20	ug/L
m,p-Xylene		630	ug/L	20	ug/L
o-Xylene		182	ug/L	20	ug/L
	TOTAL	6583	ug/L		

ND - Not Detected at Limit of Quantitation

Method - SW-846 EPA Method 8020A Aromatic Volatile Organics by Gas Chromatography

Approved By:



LAB: (505) 325-1556

ANALYTICAL REPORT

Attn:

Denver Bearden

Date:

6-Jun-97

Company: PNM Gas Services

COC No.:

5485

Address:

603 W. Elm

Sample No.:

14841

City, State: Farmington, NM 87401

Job No.:

2-1000

Project Name: **Project Location:** PNM Gas Services - Honolulu Loop Line Drip

9706041400; MW-4 MS/MG

Date:

4-Jun-97 Time:

6-Jun-97

14:00

Sampled by: Analyzed by:

DC Liquid Date:

ug/L

Sample Matrix:

	Results as	Unit of	Limit of	Unit of Measure	
Parameter	Received	Measure	Quantitation		
Benzene	889	ug/L	10	ug/L	
Toluene	3697	ug/L	10	ug/L	
Ethylbenzene	249	ug/L	10	ug/L	
m,p-Xylene	1579	ug/L	10	ug/L	
o-Xylene	428	ug/L	10	ug/L	

ND - Not Detected at Limit of Quantitation

Method - SW-846 EPA Method 8020A Aromatic Volatile Organics by Gas Chromatography

TOTAL

Approved By:



LAB: (505) 325-1556

ANALYTICAL REPORT

Attn:

Denver Bearden

Company: PNM Gas Services

Address:

603 W. Elm

City, State: Farmington, NM 87401

Date:

6-Jun-97

COC No.:

5485

Sample No.:

14842

Job No.:

2-1000

Project Name:

PNM Gas Services - Honolulu Loop Line Drip

Project Location:

9706041430; MW-5 MS/MG

Date: Date:

4-Jun-97 Time:

6-Jun-97

14:30

Sampled by: Analyzed by: Sample Matrix:

DC

Liquid

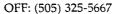
Parameter		Results as Received	Unit of Measure	Limit of Quantitation	Unit of Measure
Benzene		352	ug/L	1	ug/L
Toluene		ND	ug/L	1	ug/L
Ethylbenzene		ND	ug/L	1	ug/L
m,p-Xylene		ND	ug/L	1	ug/L
o-Xylene		ND	ug/L	1	ug/L
	TOTAL	352	ug/L		

ND - Not Detected at Limit of Quantitation

Method - SW-846 EPA Method 8020A Aromatic Volatile Organics by Gas Chromatography

Approved By: Date:

enne er er de lagren i dan iser er errette 🚉





LAB: (505) 325-1556

ANALYTICAL REPORT

Attn:

Denver Bearden

Date:

6-Jun-97

Company: PNM Gas Services

COC No.:

5485

Address:

603 W. Elm

Sample No.:

14843

City, State: Farmington, NM 87401

Job No.:

2-1000

Project Name:

PNM Gas Services - Honolulu Loop Line Drip

Project Location:

9706041500; MW-6

MS/MG DC

Date: Date:

4-Jun-97 Time:

6-Jun-97

15:00

Sampled by: Analyzed by: Sample Matrix:

Liquid

Parameter	Results as Received	Unit of Measure	Limit of Quantitation	Unit of Measure	
Benzene	16434	ug/L	40	ug/L	
Toluene	9791	ug/L	40	ug/L	
Ethylbenzene	714	ug/L	40	ug/L	
m,p-Xylene	6113	ug/L	40	ug/L	
o-Xylene	1728	ug/L	40	ug/L	
TOTA	34780	ug/L			

ND - Not Detected at Limit of Quantitation

Method - SW-846 EPA Method 8020A Aromatic Volatile Organics by Gas Chromatography

Approved By:

P.O. BOX 2606 • FARMINGTON, NM 87499

and the state of t



LAB: (505) 325-1556

ANALYTICAL REPORT

Attn:

Denver Bearden

Date:

6-Jun-97

Company: PNM Gas Services

COC No.:

5485

Address:

603 W. Elm

Sample No.:

14844

City, State: Farmington, NM 87401

Job No.:

2-1000

Project Name:

PNM Gas Services - Honolulu Loop Line Drip

Project Location:

9706041530; MW-7

Date:

4-Jun-97 Time:

15:30

Sampled by: Analyzed by: MS/MG DC

Date:

6-Jun-97

Sample Matrix:

Liquid

Parameter		Results as Received	Unit of Measure	Limit of Quantitation	Unit of Measure
Benzene		68.0	ug/L	0.2	ug/L
Toluene		ND	ug/L	0.2	ug/L
Ethylbenzene		ND	ug/L	0.2	ug/L
m,p-Xylene		ND	ug/L	0.2	ug/L
o-Xylene		ND	ug/L	0.2	ug/L
	TOTAL	68.0	ug/Ī		

ND - Not Detected at Limit of Quantitation

Method - SW-846 EPA Method 8020A Aromatic Volatile Organics by Gas Chromatography

- Florida in Richard April - Control C



LAB: (505) 325-155-

ANALYTICAL REPORT

Attn:

Denver Bearden

Date:

6-Jun-97

Company: PNM Gas Services

COC No.:

5485

Address:

603 W. Elm

Sample No.:

14845

City, State: Farmington, NM 87401

Job No.:

2-1000

Project Name:

PNM Gas Services - Honolulu Loop Line Drip

Project Location:

9706041600; MW-8

Date:

4-Jun-97 Time:

6-Jun-97

16:00

Sampled by: Analyzed by:

DC

MS/MG

Date:

Sample Matrix: Liquid

Parameter		Results as Received	Unit of Measure	Limit of Quantitation	Unit of Measure	
Benzene		289	ug/L	1	ug/L	
Toluene		12	ug/L	1	ug/L	
Ethylbenzene		94	ug/L	1	ug/L	
m,p-Xylene		462	ug/L	1	ug/L	
o-Xylene		92	ug/L	1	ug/L	
	TOTAL	948	ug/L			

ND - Not Detected at Limit of Quantitation

Method - SW-846 EPA Method 8020A Aromatic Volatile Organics by Gas Chromatography

Approved By: Date:



LAB: (505) 325-1556

ANALYTICAL REPORT

Attn:

Denver Bearden

Date:

6-Jun-97

Company: PNM Gas Services

COC No.:

5485

Address:

14846

603 W. Elm

Sample No.: Job No.:

2-1000

City, State: Farmington, NM 87401

PNM Gas Services - Honolulu Loop Line Drip

Project Name: **Project Location:**

9706041630; MW-9

Date:

4-Jun-97 Time:

16:30

Sampled by: Analyzed by: M\$/MG DC

Date:

6-Jun-97

Sample Matrix:

Liquid

		Results as	Unit of Measure	Limit of	Unit of	
Parameter		Received		Quantitation	Measure	
Benzene		4743	ug/L	10	ug/L	
Toluene		1956	ug/L	10	ug/L	
Ethylbenzene		113	ug/L	10	ug/L	
m,p-Xylene		702	ug/L	10	ug/L	
o-Xylene		201	ug/L	10	ug/L	
	TOTAL	7715	ug/I			

ND - Not Detected at Limit of Quantitation

Method - SW-846 EPA Method 8020A Aromatic Volatile Organics by Gas Chromatography

Approved By:

Date:

P.O. BOX 2606 • FARMINGTON, NM 87499

- Tombook on Blembing Industry, with the Doctor of the se



LAB: (505) 325-1556

QUALITY ASSURANCE REPORT

for EPA Method 8020

Date Analyzed: 6-Jun-97

Internal QC No.:

0527-STD

Surrogate QC No.:

0528-STD

Reference Standard QC No.: 0529/30-QC

Method Blank

		Unit of
Parameter	Result	Measure
Average Amount of All Analytes In Blank	<0.2	ppb

Calibration Check

	Unit of	True	Analyzed		Limit	
Parameter	Measure	Value	Value	% Diff		
Benzene	ppb	20.0	19.7	2	15%	
Toluene	ppb	20.0	20.5	3	15%	
Ethylbenzene	ppb	20.0	21.0	5	15%	
m,p-Xylene	ppb	40.0	39.6	1	15%	
o-Xylene	ppb	20.0	21.7	9	15%	

Matrix Spike

	1- Percent	2 - Percent				
Parameter	Recovered	Recovered Recovered		%RSD	Limit	
Benzene	96	80	(39-150)	3	20%	
Toluene	100	90	(46-148)	3	20%	
Ethylbenzene	104	98	(32-160)	4	20%	
m,p-Xylene 9		92	(35-145)	4	20%	
o-Xylene	101	97	(35-145)	3	20%	

Surrogate Recoveries

Surrogate	Surrogate Recoveries										
	S1 S2 Percent Percent Recovered Recovered L.			S1 Percent	S2 Percent						
Laboratory Identification			Laboratory Identification	Recovered	Recovered						
Limit Percent Recovered	(70-130)		Limit Percent Recovered	(70-130)							
14838-5485	97		14844-5485	96							
1.4839-5485	86		14845-5485	98							
14840-5485	96		14846-5485	96							
14841-5485	95										
14842-5485	96			HR	m/						
14843-5485	96			6/9/97	51375						

\$1: Flourobenzene

ON SITE TECHNOLOGIES, LTD.

CHAIN OF CUSTODY RECORD

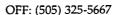
5485

Date: 6-65-97

Pageof	Page		of		
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657 W. Maple • P. O. Box 2606 • Farmington NM 87499 LAB: (505) 325-5667 • FAX: (505) 325-6256

Purchas	e Order No.:			Job No.						Name		Maure	n Gan	non		Title			
	Name	Denver	Bearden						ST S	Compa	ny	PNM G	as Ser	vices					
550	Company	PNM G	as Services			Dept. 32	24-3763		27	Mailing	Address	Alvera	do Squ	are, N	iail Sto	p 04	08		
SEND INVOICE TO	Address	603 W.	Elm Street						RESULTS TO	City, St	City, State, Zip Albuquerque, NM 87158								
	City, State, Zip	Farmin	gton, NM 8740)1					C	Telepho	one No.	505-84	3-2974		T	elefax	No.		
Sampling	Sampling Location:												A N I A I	V010 1	25011	-OTE			
HONOLULU LOOP LINE DRIP								_ "				ANAL	10101	REQUE	:51E	ט			
										7	7	\mathcal{T}	/	7 /					
Sampler: M Sikeuanos/M Gannon								Number of Containers				/ /	/ /	/ /	/	/ /	/ /_		
	SAM	APLE IDENT	TIFICATION		SA DATE	MPLE TIME	MATRIX	PRES.		Bie			/_					LAE	3 ID
97	0604123	30	mw/		6/04/9	7 -	HzO	HCR	2	X								14838-	52105
970	0604 130C) .	MWZ						2	X								4839	
<u> </u>	0604 1330	2	mw3			-			2	Х			<u></u> .					4840	
97	0604140		mw4						Z	X			<u></u>					14841	
97	0604143	<i>BO</i>	mw5						2	Х								1-1842	
97	06 04 150		MWG						2	X								14843	
97	060415		MW7						2	X								14/1841/	
97	0604/60		MWB		<u>\</u>	_	V	<u> </u>	2	X								14845	
97	0604 163	30	mw9		6/04/9	12 -	H20	HCL	2	X								14846	V
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<u></u> -						<u> </u>							 						
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		Que 15	im			Date/Time	6/5/97	1245	Rece	ived by:		60					Date/Tim	ne 6/5/17	1245
Relinquished by: Date/Time 4/5/97*27 Relinquished by: Date/Time							ived by:	(.	57					Date/Tim					
									Rush	1	24	-48 Hours	10	Working	Days	Spec	ial Instru	ctions:	
	Authorized by: Reg Brunhon Date 4/5/97 **Client Signature Must Accompany Request**									X						ts to be s h parties			
				Dietrih	ution: W	hite - On Site	y Vallou	LAR	Pink - 9	Sampler	Goldenro	od - Client			 	L		······································	





LAB: (505) 325-1556

ANALYTICAL REPORT

Attn:

Denver Bearden

Date:

13-Mar-97

Company: PNM Gas Services

COC No.:

5744

Address:

Sample No.:

13843

City, State: Farmington, NM 87401

603 W. Elm

Job No.:

2-1000

Project Name:

PNM Gas Services - Honolulu Loop Line Drip

Project Location:

9703071000; MW-1

Sampled by:

MS/MG

Date:

7-Mar-97 Time:

10:00

Analyzed by: Sample Matrix: DC Liquid Date:

11-Mar-97

Unit of Detection Unit of Limit Parameter Result Measure Measure Benzene 0.2 < 0.2 ug/L ug/L Toluene < 0.2 0.2 ug/L ug/L Ethylbenzene < 0.2 0.2 ug/L ug/L m,p-Xylene < 0.2 ug/L 0.2 ug/L o-Xylene < 0.2 ug/L ug/L

> TOTAL < 0.2 ug/L

Method - SW-846 EPA Method 8020 Aromatic Volatile Organics by Gas Chromatography

Approved By: Date:

P.O. BOX 2606 • FARMINGTON, NM 87499

- Tabination Biending highstic with the Couronal to



LAB: (505) 325-1556

ANALYTICAL REPORT

Attn:

Denver Bearden

Date:

13-Mar-97

Company: PNM Gas Services

COC No.:

5744

Address:

Sample No.:

13844

603 W. Elm

City, State: Farmington, NM 87401

Job No.:

2-1000

Project Name: Project Location:

PNM Gas Services - Honolulu Loop Line Drip

9703071030; MW-2

7-Mar-97 Time:

10:30

Sampled by: Analyzed by:

MS/MG DC

Date: Date:

11-Mar-97

Sample Matrix:

Liquid

Parameter	Result	Unit of Measure	Detection Limit	Unit of Measure
Benzene	243.6	ug/L	0.2	ug/L
Toluene	194.2	ug/L	0.2	ug/L
Ethylbenzene	107.0	ug/L	0.2	ug/L
m,p-Xylene	839.0	ug/L	0.2	ug/L
o-Xylene	107.3	ug/L	0.2	ug/L
TOTAL	1491.2	ug/L		

Method - SW-846 EPA Method 8020 Aromatic Volatile Organics by Gas Chromatography

Approved By:



LAB: (505) 325-1556

ANALYTICAL REPORT

Attn:

Denver Bearden

Date:

13-Mar-97

Company: PNM Gas Services

COC No.:

5744

Address:

603 W. Elm

Sample No.:

13845

Job No.:

2-1000

City, State: Farmington, NM 87401

Project Name: Project Location: PNM Gas Services - Honolulu Loop Line Drip 9703071100; MW-3

7-Mar-97 Time:

11:00

Sampled by: Analyzed by: MS/MG DC

Date: Date:

11-Mar-97

Sample Matrix:

Liquid

Parameter		Result	Unit of Measure	Detection Limit	Unit of Measure
Benzene		5325.6	ug/L	0.2	ug/L
Toluene		533.1	ug/L	0.2	ug/L
Ethylbenzene		44.0	ug/L	0.2	ug/L
m,p-Xylene		1750.4	ug/L	0.2	ug/L
o-Xylene		410.5	ug/L	0.2	ug/L
	ΤΟΤΑΙ	8063.7	ng/L		

Method - SW-846 EPA Method 8020 Aromatic Volatile Organics by Gas Chromatography

Approved By: Date:



LAB: (505) 325-1556

ANALYTICAL REPORT

Attn:

Denver Bearden

Date:

13-Mar-97

Company: PNM Gas Services

COC No.:

5744

Address:

Sample No.:

13846

603 W. Elm

City, State: Farmington, NM 87401

Job No.:

2-1000

Project Name:

PNM Gas Services - Honolulu Loop Line Drip

Project Location:

9703071200; MW-5

Sampled by:

MS/MG

Date:

7-Mar-97 Time:

12:00

Analyzed by:

DC

Date:

11-Mar-97

Sample Matrix:

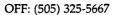
Liquid

Parameter		Result	Unit of Measure	Detection Limit	Unit of Measure
Benzene		3.0	ug/L	0.2	ug/L
Toluene		0.2	ug/L	0.2	ug/L
Ethylbenzene		<0.2	ug/L	0.2	ug/L
m,p-Xylene		<0.2	ug/L	0.2	ug/L
o-Xylene		<0.2	ug/L	0.2	ug/L
o-Xylene	TOTAL	<0.2	ug/L	0.2	ug/

Method - SW-846 EPA Method 8020 Aromatic Volatile Organics by Gas Chromatography

Approved By: Date:

- Talah isi ing palah matalah at-





LAB: (505) 325-1556

ANALYTICAL REPORT

Attn:

Denver Bearden

Date:

13-Mar-97

Company: PNM Gas Services

COC No.:

5744

Address:

Sample No.:

13847

City, State: Farmington, NM 87401

603 W. Elm

Job No.:

2-1000

Project Name:

PNM Gas Services - Honolulu Loop Line Drip

Project Location: Sampled by:

9703071230; MW-6 MS/MG

Date:

7-Mar-97 Time:

12:30

Analyzed by:

DC

Date:

11-Mar-97

Sample Matrix:

Liquid

Parameter		Result	Unit of Measure	Detection Limit	Unit of Measure
Benzene		18385.8	ug/L	0.2	ug/L
Toluene		12030.4	ug/L	0.2	ug/L
Ethylbenzene		460.4	ug/L	0.2	ug/L
m,p-Xylene		5562.2	ug/L	0.2	ug/L
o-Xylene		1470.5	ug/L	0.2	ug/L
	τοται	37909.2	υ σ/ Ϊ.		

Method - SW-846 EPA Method 8020 Aromatic Volatile Organics by Gas Chromatography

Approved By:

-Tony to an Albanda Abarda

P.O. BOX 2606 • FARMINGTON, NM 87499

THE ELECTION SAME OF



LAB: (505) 325-1556

ANALYTICAL REPORT

Attn:

Denver Bearden

Date:

13-Mar-97

Company: PNM Gas Services

COC No.:

5744

Address:

603 W. Elm

Sample No.:

13848

City, State: Farmington, NM 87401

Job No.:

2-1000

Project Name:

PNM Gas Services - Honolulu Loop Line Drip

Project Location:

9703071300; MW-7

Date:

7-Mar-97 Time:

13:00

Sampled by: Analyzed by: MS/MG DC

Date:

11-Mar-97

Sample Matrix:

Liquid

		Unit of	Detection	Unit of
Parameter	Resuit	Measure	Limit	Measure
Benzene	<0.2	ug/L	0.2	ug/L
Toluene	<0.2	ug/L	0.2	ug/L
Ethylbenzene	<0.2	ug/L	0.2	ug/L
m,p-Xylene	<0.2	ug/L	0.2	ug/L
o-Xylene	<0.2	ug/L	0.2	ug/L
TOTAL	<0.2	ug/L		

Method - SW-846 EPA Method 8020 Aromatic Volatile Organics by Gas Chromatography

Approved By: Date:



LAB: (505) 325-1556

ANALYTICAL REPORT

Attn:

Denver Bearden

Date:

13-Mar-97

Company: PNM Gas Services

COC No.:

5744

Address:

Sample No.:

13849

603 W. Elm

City, State: Farmington, NM 87401

Job No.:

2-1000

Project Name:

PNM Gas Services - Honolulu Loop Line Drip

Project Location:

9703071330; MW-8

Date:

7-Mar-97 Time:

13:30

Sampled by: Analyzed by:

MS/MG DC

Date:

11-Mar-97

Sample Matrix:

Liquid

		Unit of	Detection	Unit of	
Parameter	Result	Measure	Limit	Measure	
Benzene	281.5	ug/L	0.2	ug/L	
Toluene	12.8	ug/L	0.2	ug/L	
Ethylbenzene	6.6	ug/L	0.2	ug/L	
m,p-Xylene	127.1	ug/L	0.2	ug/L	
o-Xylene	60.5	ug/L	0.2	ug/L	
TOTAL	488.6	ug/L			

Method - SW-846 EPA Method 8020 Aromatic Volatile Organics by Gas Chromatography



LAB: (505) 325-1556

ANALYTICAL REPORT

Attn:

Denver Bearden

Date:

13-Mar-97

Company: PNM Gas Services

COC No.:

5744

Address:

603 W. Elm

Sample No.:

13850

City, State: Farmington, NM 87401

Job No.:

2-1000

Project Name:

PNM Gas Services - Honolulu Loop Line Drip

Project Location:

9703071400; MW-9

Date:

7-Mar-97 Time:

14:00

Sampled by: Analyzed by: MS/MG DC

Date:

11-Mar-97

Sample Matrix:

Liquid

BRUK

Parameter	Result	Unit of Measure	Detection Limit	Unit of Measure
Benzene	287.6	ug/L	0.2	ug/L
Toluene	12.6	ug/L	0.2	ug/L
Ethylbenzene	6.2	ug/L	0.2	ug/L
m,p-Xylene	117.2	ug/L	0.2	ug/L
o-Xylene	61.8	ug/L	0.2	ug/L
TOTAL	485.5	ug/L		

Method - SW-846 EPA Method 8020 Aromatic Volatile Organics by Gas Chromatography

Approved By: Date:

- Technologiam Beenomer end ethic of the the Court



LAB: (505) 325-1556

QUALITY ASSURANCE REPORT

for EPA Method 8020

Date Analyzed: 11-Mar-97

Internal QC No.:

0527-STD

Surrogate QC No.:

0528-STD

Reference Standard QC No.:

0417-QC

Method Blank

		Unit of
Parameter	Result	Measure
Average Amount of All Analytes In Blank	<0.2	ppb

Calibration Check

	Unit of	True	Analyzed		
Perameter	Measure	Value	Value	% Diff	Limit
Benzene	ppb	20.0	19.9	0	15%
Toluene	ppb	20.0	20.4	2	15%
Ethylbenzene	ppb	20.0	21.1	5	15%
m,p-Xylene	ppb	40.0	40.3	1	15%
o-Xylene	ppb	20.0	20.6	3	15%

Matrix Spike

	1- Percent	nt 2 - Percent			
Parameter	Recovered	Recovered	Limit	%RSD	Limit
Benzene	102	95	(39-150)	5	20%
Toluene	104	98	(46-148)	5	20%
Ethylbenzene	107	100	(32-160)	5	20%
m,p-Xylene	102	96	(35-145)	5	20%
o-Xylene	105	98	(35-145)	5	20%

Surrogate Recoveries

Laboratory Identification	S1 Percent Recovered	S2 Percent Recovered	Laboratory Identification	S1 Percent Recovered	S2 Percent Recovered
Limit Percent Recovered	(70-130)		Limit Percent Recovered	(70-130)	
13843-5744	97		13849-5744	115	
13844-5744	96		13850-5744	114	
13845-5744	97				
13846-5744	97				
13847-5744	96				
13848-5744	97				

S1: Flourobenzene

ON SITE TECHNOLOGIES, LTD.

CHAIN OF CUSTODY RECORD

5744

Date: 3-04-97

Pageof	
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657 W. Maple • P. O. Box 2606 • Farmington NM 87499 LAB: (505) 325-5667 • FAX: (505) 325-6256

Purchas	e Order No.:		Job No.					Name		Ma	ureer	n Gan	non		Title				7
	Name	Denver Bearden					F 5	Comp	any	PN	IM Ga	s Ser	vices						1
SEND INVOICE TO	Company	PNM Gas Services		Dept. 3	24-3763		REPORT ESULTS T	Mailin	g Addres	s Ai	verad	o Squ	are, N	Mail St	op 040	08			1
N N	Address	603 W. Elm Street					ESI ESI	City, S	State, Zip	Al	buque	erque,	NM 8	7158					1
	City, State, Zip	Farmington, NM 874	01				~	Telepi	Telephone No. 505-848-2974 Telefax No.						1				
	g Location:			· · · · · · · · · · · · · · · · · · ·		"									COTE				7
440) ko lu lu	- hoop hime	Drip				ir of	-	/0	7	7	ANAL	75151	REQU	-/	- 7-	7 7		1
Sampler	Hoikei	anos/Qburnha	on/Mytanion				Number of Containers		600	/ /	/ /	/ /	/ /	/ /		/ /			
	SAM	APLE IDENTIFICATION	DAT	SAMPLE E TIME	MATRIX	PRES.		180					_				LAB	ID	
970	3071000	mw1			H20	ICE	2	X									13843 -	5744	
970	3071030	NW2				1	2	Х									13844		
970	3071100	mw3		4			2	X]							13845	<u> </u>	
77 (3091130	mwa				<u> </u>													46
970	307 1200	nw5					2	×									13846-	5744	
920	3071230	mw6	*				2	X									13847		_
970	3071300	mw7					2	×					-				13848		
970	3071330	MWB			 	<u> </u>	2	X									13849		1
970	3071400	MW9			H20	166	2	X									13850		
																	13657		1
							<u> </u>			}]]		.,]
					<u> </u>							i]		L]			
Relinquis	shed by: Hen	Bunh		Date/Time	3/7/9	1337	Rece	eived by:	'(} <	£_					Date/Tin	ne 3/7/57	1337	4
Relinquished by: Date/Time				Rece	eived by:	$\underline{}$							Date/Tin						
Relinquis	shed by:			Date/Time			Rece	eived by:								Date/Tin	ne		
Method o	of Shipment:						Rust	ו	2	4-48 H	ours	10	Working	g Days	1	ial Instru			
Authorize	ed by: Ry 1	Suru Client Signature <u>Must</u> Accom	pany Request)	Date3/	7/97			, 			A				•		ts to be s th parties.		



LAB: (505) 325-1556

ANALYTICAL REPORT

Attn:

Denver Bearden

Date:

6-Jun-97

Company: PNM Gas Services

COC No.:

5485

Address:

Sample No.:

14839

603 W. Elm

Job No.:

City, State: Farmington, NM 87401

2-1000

Project Name:

PNM Gas Services - Honolulu Loop Line Drip

Project Location:

9706041300; MW-2 MS/MG

Date:

4-Jun-97 Time:

13:00

Sampled by: Analyzed by:

DC

Date:

6-Jun-97

Sample Matrix:

Liquid

Parameter		Results as Received	Unit of Measure	Limit of Quantitation	Unit of Measure
Benzene		37.5	ug/L	0.2	ug/L
Toluene		5.1	ug/L	0.2	ug/L
Ethylbenzene		27.8	ug/L	C.2	ug/L
m,p-Xylene		79.7	ug/L	0.2	ug/L
o-Xylene		11.3	ug/L	0.2	ug/L
	TOTAL	161.2	ug/L		

ND - Not Detected at Limit of Quantitation

Method - SW-846 EPA Method 8020A Aromatic Volatile Organics by Gas Chromatography

Approved By:



LAB: (505) 325-1556

ANALYTICAL REPORT

Attn:

Denver Bearden

Date:

6-Jun-97

Company: PNM Gas Services

COC No.:

5485

Address:

Sample No.:

14840

City, State: Farmington, NM 87401

603 W. Elm

Job No.:

2-1000

PNM Gas Services - Honolulu Loop Line Drip

Project Name: **Project Location:**

9706041330; MW-3 MS/MG

Date: Date:

4-Jun-97 Time:

6-Jun-97

13:30

Sampled by: Analyzed by: Sample Matrix:

DC

Liquid

Parameter		Results as Received	Unit of Measure	Limit of Quantitation	Unit of Measure
Benzene		3989	ug/L	20	ug/L
Toluene		1678	ug/L	20	ug/L
Ethylbenzene		103	ug/L	20	ug/L
m,p-Xylene		630	ug/L	20	ug/L
o-Xylene		182	ug/L	20	ug/L
	TOTAL	6583	ug/L		

ND - Not Detected at Limit of Quantitation

Method - SW-846 EPA Method 8020A Aromatic Volatile Organics by Gas Chromatography



LAB: (505) 325-1556

ANALYTICAL REPORT

Attn:

Denver Bearden

Date:

6-Jun-97

Company: PNM Gas Services

COC No.:

5485

Address:

Sample No.:

14841

603 W. Elm

City, State: Farmington, NM 87401

Job No.:

2-1000

Project Name:

PNM Gas Services - Honolulu Loop Line Drip

Project Location:

9706041400; MW-4 MS/MG

Date:

4-Jun-97 Time:

14:00

Sampled by: Analyzed by:

DC

Date:

6-Jun-97

Sample Matrix:

Liquid

Parameter		Results as Received	Unit of Measure	Limit of Quantitation	Unit of Measure
Benzene		889	ug/L	10	ug/L
Toluene		3697	ug/L	10	ug/L
Ethylbenzene		249	ug/L	10	ug/L
m,p-Xylene		1579	ug/L	10	ug/L
o-Xylene		428	ug/L	10	ug/L
	TOTAL	6842	ug/L		

ND - Not Detected at Limit of Quantitation

Method - SW-846 EPA Method 8020A Aromatic Volatile Organics by Gas Chromatography

Approved By:



CHAIN OF CUSDDY RECORD



Date: 6-05-97

	1	1	1
Page		of	

657 W. Maple • P. O. Box 2606 • Farmington NM 87499 LAB: (505) 325-5667 • FAX: (505) 325-6256

Purchas	e Order No.:		Job No.						Name		Mauree	n Gann	on	Title		
	Name	Denver Bearden				-		STC	Compa	ıny	PNM Ga	s Serv	ices			
SEND INVOICE TO	Company	PNM Gas Services		De	pt. 32	4-3763		RESULTS TO	Mailing	Address	Alverad	o Squa	re, Mail Sto	op 0408	8	
N N	Address	603 W. Elm Street						E SE	City, S	tate, Zip	Albuque	erque, l	NM 87158			
	City, State, Zip	Farmington, NM 87	7401	,					Teleph	one No.	505-848	-2974	т	elefax No	0.	
Samplin	g Location:											ANIALV	SIS REQUI	CTED		
	Hono	LULU LOOP	LING DEL	2				r of iers		 -	/ /	ANALT	7 7		7 / /	
Sampler: M Sike Lands / M Gannon SAMPLE							Number of Containers				/ /		/ /			
	SAN	MPLE IDENTIFICATION	DA		E TIME	MATRIX	PRES.		(B)					/ /	LAB	ID
97	7060412	30 MW/	6/0	197		HZO	HCR	2	X						14838 -	52/05
97	06041300				-			2	X						14839	
970	0604 1336	$m\omega 3$			-			2	X						14840	
97	0604140	0 mw4			-			2	_X						[4]	
97	0604143	10 mw5			-			2	Х						14847	!
97	06 09 157	TO MUG						2	X						14842	
97	060415	30 MW7			_			2	X						14/841/	
	10004160	•		/	_	V	V	2	*						14845	
97	10004 103	30 MW9	6/0	4/47	-	H20	HCL	2	×						14846	V
							-		,							
Relinqui	shed by: M.	Garan M		Date	/ <i>05/9</i> Time	77	1:08	Rece	ived by:	Ros	Bus	nh		Di	ate/Time 6/5/95	7007
Relinquished by: Ray Birry Date/Time 6/5/971243				1245	Rece	ived by:	-3	60				ate/Time 6/5/57-	1245			
Relinquished by: Date/Time						Rece	ived by:	(5				ate/Time			
	of Shipment:							Rush	1	24	-48 Hours	10 V	Vorking Days		Instructions:	
Authoriz	red by:	g Birrnho Client Signature <u>Must</u> Acc		Da	ateC	/5/4	7				\times			ļ	esults to be so both parties.	1
			Distributio	\A/b.is-	On Cite	Valleur	1.40	Dinte 6	Samalas		d - Client					



LAB: (505) 325-1556

ANALYTICAL REPORT

Attn:

Denver Bearden

Date:

17-Jun-97

Company: PNM Gas Services

COC No.:

5490

Address:

Sample No.:

14932

City, State: Farmington, NM 87401

603 W. Elm

Job No.:

2-1000

PNM Gas Services - Honolulu Loop Line Drip

Project Name: **Project Location:**

9706111500; MW-9

MS/MG

Liquid

Date:

ug/L

11-Jun-97 Time:

15:00

Sampled by: Analyzed by: Sample Matrix:

DC

Date:

12-Jun-97

	Results as	Unit of	Limit of	Unit of	
Parameter	Received	Measure	Quantitation	Measure	
Benzene	ND	ug/L	0.2	ug/L	
Toluene	0.7	ug/L	0.2	ug/L	
Ethylbenzene	ND	ug/L	0.2	ug/L	
m,p-Xylene	0.4	ug/L	0.2	ug/L	
m,p-Xylene o-Xylene	ND	ug/L	0.2	ug/L	

ND - Not Detected at Limit of Quantitation

Method - SW-846 EPA Method 8020A Aromatic Volatile Organics by Gas Caromatography

TOTAL

Approved By: Date:

P.O. BOX 2606 • FARMINGTON, NM 87499

- Tarretten Britanic Springer and Artificial Con-



LAB: (505) 325-1556

ANALYTICAL REPORT

Attn:

Denver Bearden

Date:

17-Jun-97

Company: PNM Gas Services

COC No.:

5490

Address:

603 W. Elm

Sample No.:

14933

City, State: Farmington, NM 87401

Job No.:

2-1000

Project Name:

PNM Gas Services - Honolulu Loop Line Drip 9706111530; MW-10

Project Location:

MS/MG

Date: Date: 11-Jun-97 Time:

15:30

Sampled by: Analyzed by: Sample Matrix:

DC Liquid

13-Jun-97

	Results as	Unit of	Limit of	Unit of
Parameter	Received	Measure	Quantitation	Measure
Benzene	352	ug/L	2	ug/L
Toluene	5	ug/L	1	ug/L
Ethylbenzene	4	ug/L	1	ug/L
m,p-Xylene	2	ug/L	1	ug/L
o-Xylene	ND	ug/L	1	ug/L

363

ug/L

ND - Not Detected at Limit of Quantitation

Method - SW-846 EPA Method 8020A Aromatic Volatile Organics by Gas Chromatography

Approved By:



LAB: (505) 325-1556

QUALITY ASSURANCE REPORT

for EPA Method 8020

Date Analyzed: 12-Jun-97

Internal QC No.:

0527-STD

Surrogate QC No.:

0528-STD

Reference Standard QC No.: 0529/30-QC

Method Blank

		Unit of
Parameter	Result	Measure
Average Amount of All Analytes In Blank	<0.2	ppb

Calibration Check

- Canada Ciri	Unit of	True	Analyzed			
Parameter	Measure	Value	Value	% Diff	Limit	
Benzene	ppb	20.0	20.0	0	15%	
Toluene	ppb	20.0	20.6	3	15%	
Ethylbenzene	ppb	20.0	21.2	6	15%	
m,p-Xylene	ppb	40.0	39.5	1	15%	
o-Xylene	ppb	20.0	20.6	3	15%	

Matrix Snike

IVIAUIX	Opike				
Parameter	1- Percent Recovered	2 - Percent Recovered	Limit	%RSD	Limit
r arameter	Necovered	Necovered	Linit	7071010	Linit
Benzene	89	86	(39-150)	2	20%
Toluene	94	88	(46-148)	2	20%
Ethylbenzene	97	94	(32-160)	2	20%
m,p-Xylene	90	86	(35-145)	2	20%
o-Xylene	95	91	(35-145)	2	20%

Surrogate Recoveries

	S1	<i>S2</i>		S1	S2
	Percent	Percent		Percent	Percent
Laboratory Identification	Recovered	Recovered	Laboratory Identification	Recovered	Recovered
Limit Percent Recovered	(70-130)		Limit Percent Recovered	(70-130)	
14932-5490	98				
				1 SER	(pe)
	1			6/17/97	6/17/97

S1: Flourobenzene

- Polites (Colo Stomer a India-mainsmooth), the Colors



LAB: (505) 325-1556

QUALITY ASSURANCE REPORT

for EPA Method 8020

Date Analyzed: 13-Jun-97

Internal QC No.:

0527-STD

Surrogate QC No.:

0528-STD

Reference Standard QC No.: 0529/30-QC

Method Blank

		Unit of
Parameter	Result	Measure
Average Amount of All Analytes In Blank	<0.2	ppb

Calibration Check

Parameter	Unit of Measure	True Value	Analyzed Value	% Diff	Limit
7 4/4/11010/	11/010010	74740		70 2	
Benzene	ppb	20.0	18.9	6	15%
Toluene	ppb	20.0	19.6	2	15%
Ethylbenzene	ppb	20.0	19.7	2	15%
m,p-Xylene	ppb	40.0	37.9	5	15%
o-Xylene	ppb	20.0	19.8	1	15%

Matrix Spike

	1- Percent	2 - Percent			
Parameter	Recovered	Recovered	Limit	%RSD	Limit
Benzene	85	82	(39-150)	2	20%
Toluene	95	95	(46-148)	0	20%
Ethylbenzene	96	93	(32-160)	1	20%
m,p-Xylene	111	106	(35-145)	1	20%
o-Xylene	99	96	(35-145)	1	20%

Surrogate Recoveries

	S1	\$2		S1	S2
	Percent	Percent		Percent	Percent
Laboratory Identification	Recovered	Recovered	Laboratory Identification	Recovered	Recovered
Limit Percent Recovered	(70-130)		Limit Percent Recovered	(70-130)	
14933-5490	95				
				JM	(pe)
				6/17/97	6/17/97

S1: Flourobenzene

- Tremming British a factor in a day of the first



CHAIN OF CUSDDY RECORD



Date: 6-11-97

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Page	/ of /	
	VIVI	

657 W. Maple • P. O. Box 2606 • Farmington NM 87499 LAB: (505) 325-5667 • FAX: (505) 325-6256

Purchas	e Order No.:		Job No.		· · · · · · · · · · · · · · · · · · ·			Name		Ma	aureei	n Gan	non		Title			
104	Name	Denver Bearden					RT S TO	Comp	any	PN	IM Ga	s Ser	vices					
SEND INVOICE TO	Company	PNM Gas Services		Dept. 3	24-3763		REPORT ESULTS T	Mailing	Addres	s Al	verad	o Squ	are, N	lail Sto	op 04	08		
N N	Address	603 W. Elm Street					RESI	City, S	tate, Zip	All	buque	erque,	NM 8	7158				
	City, State, Zip	Farmington, NM 874	01					Teleph	one No.	50	5-848	2974		T	elefax	No.		
Samplin	g Location:												V010	DCO!!!	-0			
	Horolul	le Loop Live	Drip				er of ners		<u>/</u> \\	7	7	ANAL	7515	REQUI	-SIE	<u></u>		
Sample:	: Mark Su	lu Loop Suice Ruinns / 7	Kauren G	lapar	<u> </u>		Number of Containers		72007	/	/ /	/ /	/	/ /	/	/ /	/ /	
		MPLE IDENTIFICATION	DATI	SAMPLE	MATRIX	PRES.		/Q									LAB	3 ID
970	6111500	MW9	6/11K	î7 —	H2O	HICL	2	X									1-1932 -	5490
970	16 111530	mw10	6/11/	97 —	H20	HCL	2	X									14933	\overline{V}
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Relinqui	shed by: Mû	und trans		Date/Time	<u> </u> 6/11/97	l	Rece	ived by:	Rig	Bi	un	ha		L,l		L Date/Tir	 me <i>⊆ j ()</i>	19-1700
Relinqui	shed by: Ro	Bunh	<u> </u>	Date/Time	4/12/8-	7/452	Rece	ived by:	\nearrow	~//					- 1	Date/Tir	/ //	1452
Relinqui	shed by:			Date/Time			Rece	ived by:								Date/Tir	me	
Method	of Shipment:						Rush)	2	4-48 H	ours	10	Workin	g Days	١,	ial Instru		
Authoriz	red by:	Client Signature Must Accom	npany Request)	Date _	/ii/9 7	·									1		Its to be s th parties.	
			B: . :	White On Sit	- 17-11	1.40	Diele C	\\	<u> </u>	. 1 00					L			j



LAB: (505) 325-1556

ANALYTICAL REPORT

Attn:

Denver Bearden

Date:

6-Jun-97

Company: PNM Gas Services

COC No.:

5485

Address:

14838

603 W. Elm

Sample No.:

City, State: Farmington, NM 87401

Job No.:

2-1000

Project Name:

PNM Gas Services - Honolulu Loop Line Drip

Project Location:

9706041230; MW-1

Date: Date: 4-Jun-97 Time:

6-Jun-97

12:30

Sampled by: Analyzed by: Sample Matrix:

DC

Liquid

MS/MG

Parameter	Results as Received	Unit of Measure	Limit of Quantitation	Unit of Measure
Benzene	ND	ug/L	0.2	ug/L
Toluene	ND	ug/L	0.2	ug/L
Ethylbenzene	ND	ug/L	0.2	ug/L
m,p-Xylene	0.3	ug/L	0.2	ug/L
o-Xylene	0.5	ug/L	0.2	ug/L
TOTA	٥.8	ug/L		

ND - Not Detected at Limit of Quantitation

Method - SW-846 EPA Method 8020A Aromatic Volatile Organics by Gas Chromatography

Approved By:



LAB: (505) 325-1556

ANALYTICAL REPORT

Attn:

Denver Bearden

Date:

1-Oct-97

Company: PNM Gas Services

COC No.:

5800

Address:

603 W. Elm

Sample No.:

16229

City, State: Farmington, NM 87401

Job No.:

2-1000

Project Name:

PNM Gas Services - Honolulu Loop Line Drip

Project Location:

9709180900; MW-1 MS/MG

Date:

18-Sep-97 Time:

9:00

Sampled by: Analyzed by:

DC

Date:

29-Sep-97

Sample Matrix:

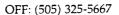
Liquid

-	Results as	Unit of	Limit of	Unit of
Parameter	Received	Measure	Quantitation	Measure
Benzene	ND	ug/L	0.2	ug/L
Toluene	ND	ug/L	0.2	ug/L
Ethylbenzene	ND	ug/L	0.2	ug/L
m,p-Xylene	ND	ug/L	0.2	ug/L
o-Xylene	ND	ug/L	0.2	ug/L
ΤΟΤΑ	ر ND	ug/L		

ND - Not Detected at Limit of Quantitation

Method - SW-846 EPA Method 8020A Aromatic Volatile Organics by Gas Chromatography

Approved By:





ANALYTICAL REPORT

Attn:

Denver Bearden

Date:

1-Oct-97

Company: PNM Gas Services

COC No.:

5800

16230

Address:

603 W. Elm

Sample No.:

City, State: Farmington, NM 87401

Job No.:

2-1000

Project Name:

PNM Gas Services - Honolulu Loop Line Drip

Project Location:

9709180930; MW-2

Date:

18-Sep-97 Time:

9:30

Sampled by: Analyzed by:

DC

Date:

29-Sep-97

Sample Matrix:

Liquid

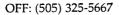
MS/MG

Parameter		Results as Received	Unit of Measure	Limit of Quantitation	Unit of Measure
Benzene		72.7	ug/L	0.2	ug/L
Toluene		8.3	ug/L	0.2	ug/L
Ethylbenzene		15.9	ug/L	0.2	ug/L
m,p-Xylene		48.8	ug/L	0.2	ug/L
o-Xylene		11.1	ug/L	0.2	ug/L
	TOTAL	156.9	ug/L		

ND - Not Detected at Limit of Quantitation

Method - SW-846 EPA Method 8020A Aromatic Volatile Organics by Gas Chromatography

Approved By:





ANALYTICAL REPORT

Attn:

Denver Bearden

Date:

1-Oct-97

Company: PNM Gas Services

COC No.:

5800

Address:

603 W. Elm

Sample No.:

16231

City, State: Farmington, NM 87401

Job No.:

2-1000

Project Name:

PNM Gas Services - Honolulu Loop Line Drip

Project Location:

9709181000; MW-3

Date:

18-Sep-97 Time:

10:00

Sampled by: Analyzed by: Sample Matrix:

DC Liquid

MS/MG

Date:

30-Sep-97

Parameter	Results as Received	Unit of Measure	Limit of Quantitation	Unit of Measure
Benzene	81.1	ug/L	0.2	ug/L
Toluene	0.5	ug/L	0.2	ug/L
Ethylbenzene	1.0	ug/L	0.2	ug/L
m,p-Xylene	6.4	ug/L	0.2	ug/L
o-Xylene	2.6	ug/L	0.2	ug/L

91.6

ug/L

ND - Not Detected at Limit of Quantitation

TOTAL

Method - SW-846 EPA Method 8020A Aromatic Volatile Organics by Gas Chromatography

Approved By:



LAB: (505) 325-155e

ANALYTICAL REPORT

Attn:

Denver Bearden

Date:

1-Oct-97

Company: PNM Gas Services

COC No.:

5800

Address:

603 W. Elm

Sample No.:

16232

City, State: Farmington, NM 87401

Job No.:

2-1000

PNM Gas Services - Honolulu Loop Line Drip

Project Name: Project Location:

9709181030; MW-5

Sampled by:

MS/MG

Date:

18-Sep-97 Time:

10:30

Analyzed by: Sample Matrix: DC Liquid Date:

29-Sep-97

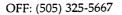
Parameter	Results as Received	Unit of Measure	Limit of Quantitation	Unit of Measure
Benzene	33.2	ug/L	0.2	ug/L
Toluene	ND	ug/L	0.2	ug/l,
Ethylbenzene	ND	ug/L	0.2	ug/L
m,p-Xylene	ND	ug/L	0.2	ug/L
o-Xylene	ND	ug/L	0.2	ug/L

33.2

ND - Not Detected at Limit of Quantitation

Method - SW-846 EPA Method 8020A Aromatic Volatile Organics by Gas Chromatography

Approved by:





ANALYTICAL REPORT

Attn:

Denver Bearden

Date:

1-Oct-97

Company: PNM Gas Services

COC No.:

5800

Address:

Sample No.:

16233

603 W. Elm

City, State: Farmington, NM 87401

Job No.:

2-1000

Project Name:

PNM Gas Services - Honolulu Loop Line Drip

Project Location:

9709181100; MW-6 MS/MG

Date:

18-Sep-97 Time:

11:00

Sampled by: Analyzed by: Sample Matrix:

DC

Liquid

Date:

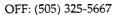
29-Sep-97

	Results as	Unit of	Limit of	Unit of
Parameter	Received	Measure	Quantitation	Measure
				-
Benzene	16309	ug/L	20	ug/L
Toluene	4531	ug/L	20	ug/L
Ethylbenzene	588	ug/L	20	ug/L
m,p-Xylene	5211	ug/L	20	ug/L
o-Xylene	1343	ug/L	20	ug/L
TOTAL	27981	ug/L		

ND - Not Detected at Limit of Quantitation

Method - SW-846 EPA Method 8020A Aromatic Volatile Organics by Gas Chromatography

Approved By:





ANALYTICAL REPORT

Attn:

Denver Bearden

Date:

1-Oct-97

Company: PNM Gas Services

COC No.:

5800

Sample No.:

16234

Address: City, State: Farmington, NM 87401

603 W. Elm

Job No.:

2-1000

Project Name:

PNM Gas Services - Honolulu Loop Line Drip

Project Location:

9709181130; MW-7

Date:

18-Sep-97 Time:

11:30

Sampled by: Analyzed by:

DC

Date:

29-Sep-97

Sample Matrix:

Liquid

MS/MG

		Results as	Unit of	Limit of	Unit of
Parameter		Received	Measure	Quantitation	Measure
Benzene		ND	ug/L	0.2	ug/L
Toluene		ND	ug/L	0.2	ug/L
Ethylbenzene		ND	ug/L	0.2	ug/L
m,p-Xylene		ND	ug/L	0.2	ug/L
o-Xylene		ND	ug/L	0.2	ug/L
	TOTAL	ND	ug/L		

ND - Not Detected at Limit of Quantitation

Method - SW-846 EPA Method 8020A Aromatic Volatile Organics by Gas Chromatography

Approved By:



LAB: (505) 325-1556

ANALYTICAL REPORT

Attn:

Denver Bearden

Date:

1-Oct-97

Company: PNM Gas Services

COC No.:

5800

Address:

603 W. Elm

Sample No.:

16235

City, State: Farmington, NM 87401

Job No.:

2-1000

Project Name:

PNM Gas Services - Honolulu Loop Line Drip

Project Location:

9709181200; MW-8 MS/MG

Date:

18-Sep-97 Time:

12:00

Sampled by: Analyzed by: Sample Matrix:

DC

Liquid

Date:

30-Sep-97

Parameter		Results as Received	Unit of Measure	Limit of Quantitation	Unit of Measure
Benzene		ND	ug/L	0.2	ug/L
Toluene		5.1	ug/L	0.2	ug/L
Ethylbenzene		29.7	ug/L	0.2	ug/L
m,p-Xylene		171.2	ug/L	0.2	ug/L
o-Xylene		23.2	ug/L	0.2	ug/L
	TOTAL	229.2	ug/L		

ND - Not Detected at Limit of Quantitation

Method - SW-846 EPA Method 8020A Aromatic Volatile Organics by Gas Chromatography

Approved By:



LAB: (505) 325-1556

ANALYTICAL REPORT

Attn:

Denver Bearden

Date:

1-Oct-97

Company: PNM Gas Services

COC No.:

5800

Address:

Sample No.:

16236

603 W. Elm

City, State: Farmington, NM 87401

Job No.:

2-1000

Project Name:

PNM Gas Services - Honolulu Loop Line Drip

Project Location:

9709181230; MW-9

Sampled by:

MS/MG

Date:

18-Sep-97 Time:

12:30

Analyzed by:

DC

Date:

29-Sep-97

Sample Matrix:

Liquid

		Results as	Unit of	Limit of	Unit of
Parameter		Received		Quantitation	Measure
Benzene		ND	ug/L	0.2	ug/L
Toluene		0.3	ug/L	0.2	ug/L
Ethylbenzene		ND	ug/L	0.2	ug/L
m,p-Xylene		ND	ug/L	0.2	ug/L
o-Xylene		ND	ug/L	0.2	ug/L
	TOTAL	0.3	ug/L		

ND - Not Detected at Limit of Quantitation

Method - SW-846 EPA Method 8020A Aromatic Volatile Organics by Gas Chromatography

Approved By:



LAB: (505) 325-1556

ANALYTICAL REPORT

Attn:

Denver Bearden

Date:

1-Oct-97

Company: PNM Gas Services

COC No.:

5800

Address:

603 W. Elm

Sample No.:

16237

City, State: Farmington, NM 87401

Job No.:

2-1000

Project Name:

PNM Gas Services - Honolulu Loop Line Drip

Project Location:

9709181300; MW-10 MS/MG

Date:

18-Sep-97 Time:

13:00

Sampled by: Analyzed by: Sample Matrix:

DC

Liquid

Date:

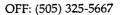
29-Sep-97

Parameter		Results as Received	Unit of Measure	Limit of Quantitation	Unit of Measure
Benzene		38.4	ug/L	0.2	ug/L
Toluene		3.4	ug/L	0.2	ug/L
Ethylbenzene		0.8	ug/L	0.2	ug/L
m,p-Xylene		ND	ug/L	0.2	ug/L
o-Xylene		ND	ug/L	0.2	ug/L_
	TOTAL	42.6	ug/L		

ND - Not Detected at Limit of Quantitation

Method - SW-846 EPA Method 8020A Aromatic Volatile Organics by Gas Chromatography

Approved By:





ANALYTICAL REPORT

Attn:

Denver Bearden

Date:

1-Oct-97

Company: PNM Gas Services

COC No.:

5800

Address:

603 W. Elm

Sample No.:

16238

City, State: Farmington, NM 87401

Job No.:

2-1000

Project Name:

PNM Gas Services - Honolulu Loop Line Drip

Project Location:

9709181330; MW-11

MS/MG

Date:

18-Sep-97 Time:

13:30

Sampled by: Analyzed by:

DC

Date:

29-Sep-97

Sample Matrix:

Liquid

		Results as	Unit of	Limit of	Unit of	
Parameter		Received	Measure	Quantitation	Measure	
Benzene		115.4	ug/L	0.2	ug/L	
Toluene		0.6	ug/L	0.2	ug/L	
Ethylbenzene		1.3	ug/L	0.2	ug/L	
m,p-Xylene		9.0	ug/L	0.2	ug/L	
o-Xylene		3.6	ug/L	0.2	ug/L	
	TOTAL	129.9	ug/L			

ND - Not Detected at Limit of Quantitation

Method - SW-846 EPA Method 8020A Aromatic Volatile Organics by Gas Chromatography

Approved By:



LAB: (505) 325-1556

QUALITY ASSURANCE REPORT

for EPA Method 8020

Date Analyzed: 29-Sep-97

Internal QC No.:

0527-STD

Surrogate QC No.: 0528-STD

Reference Standard QC No.: 0529/30-QC

Method Blank

		Unit of
Parameter	Result	Measure
Average Amount of All Analytes In Blank	< 0.2	ppb

Calibration Check

	Unit of	True	Analyzed		
Parameter	Measure	Value	Value	RPD	Limit
Benzene	ppb	20.0	18.9	6	15%
Toluene	ppb	20.0	19.8	1	15%
Ethylbenzene	ppb	20.0	19.6	2	15%
m,p-Xylene	ppb	40.0	38.3	4	15%
o-Xylene	ppb	20.0	19.6	2	15%

Matrix Spike

Mulix	1- Percent	2 - Percent			
Parameter	Recovered Recovered		Limit	RPD	Limit
Benzene	89	88	(39-150)	1	20%
Toluene	94	93	(46-148)	1	20%
Ethylbenzene	93	92	(32-160)	1	20%
m,p-Xylene	92	91	(35-145)	1	20%
o-Xylene	93	93	(35-145)	1	20%

Surrogate Recoveries

Laboratory Identification	S1 Percent Recovered	S2 Percent Recovered	Laboratory Identification	S1 Percent Recovered	S2 Percent Recovered
Limit Percent Recovered	(70-130)	necovered	Limit Percent Recovered	(70-130)	Necovered
16229-5800	96		16237-5800	95	
16230-5800	85		16238-5800	94	
16232-5800	94				
16233-5800	94				
16234-5800	96			11/2	(n2)
16236-5800	97			10/8/97	10/1/97

S1: Flourobenzene



LAB: (505) 325-1556

QUALITY ASSURANCE REPORT

for EPA Method 8020

Date Analyzed: 30-Sep-97

Internal QC No.: 0527-STD

Surrogate QC No.:

0528-STD

Reference Standard QC No.: 0529/30-QC

Method Blank

		Unit of
Parameter	Result	Measure
Average Amount of All Analytes In Blank	< 0.2	ppb

Calibration Check

	Unit of	True	Analyzed		
Parameter	Measure	Value	Value	RPD	Limit
Benzene	ppb	20.0	18.9	6	15%
Toluene	ppb	20.0	20.1	0	15%
Ethylbenzene	ppb	20.0	20.1	0	15%
m,p-Xylene	ppb	40.0	39.1	2	15%
o-Xylene	ppb	20.0	20.2	1	15%

Matrix Spike

Parameter	1- Percent Recovered	2 - Percent Recovered	Limit	RPD	Limit
Benzene	97	92	(39-150)	4	20%
Toluene	101	97	(46-148)	3	20%
Ethylbenzene	99	96	(32-160)	3	20%
m,p-Xylene	100	95	(35-145)	3	20%
o-Xylene	98	95	(35-145)	3	20%

Surrogate Recoveries

Laboratory Identification	\$1 Percent Recovered	S2 Percent Recovered	Laboratory Identification	S1 Percent Recovered	S2 Percent Recovered
Limit Percent Recovered	(70-130)		Limit Percent Recovered	(70-130)	
16231-5800	94				
16235-5800	100				
				TAIR.	(m)
				10/8/97	10/1/72

S1: Flourobenzene



LAB: (505) 325-1556

ANALYTICAL REPORT

Attn:

Denver Bearden

Date:

30-Dec-97

Company: PNM Gas Services

COC No.:

5619

Address:

Sample No.:

17088

City, State: Farmington, NM 87401

603 W. Elm

Job No.:

2-1000

Project Name:

PNM Gas Services - Honolulu Loop Drip

Project Location:

9712151120: MW-1

Sampled by:

RD

Date:

ug/L

15-Dec-97 Time:

11:20

Analyzed by: Sample Matrix: DC Liquid Date:

23-Dec-97

	Results as	Unit of	Limit of	Unit of
Parameter	Received	Measure	Quantitation	Measure
Benzene	ND	ug/L	0.2	ug/L
Toluene	ND	ug/L	0.2	ug/L
Ethylbenzene	ND	ug/L	0.2	ug/L
m,p-Xylene	ND	ug/L	0.2	ug/L
o-Xylene	ND	ug/L	0.2	ug/L

ND - Not Detected at Limit of Quantitation

Method - SW-846 EPA Method 8020A Aromatic Volatile Organics by Gas Chromatography

Approved By:



LAB: (505) 325-1556

ANALYTICAL REPORT

Attn:

Denver Bearden

Date:

30-Dec-97

Company: PNM Gas Services

COC No.:

5619

Address:

603 W. Elm

Sample No.:

17089

City, State: Farmington, NM 87401

Job No.:

2-1000

Project Name:

PNM Gas Services - Honolulu Loop Drip

Project Location:

9712151139; MW-2

Sampled by:

RD DC Date: Date:

15-Dec-97 Time:

23-Dec-97

11:39

Analyzed by: Sample Matrix:

Liquid

Parameter	Results as Received	Unit of Measure	Limit of Quantitation	Unit of Measure
Benzene	3.7	ug/L	0.2	ug/L
Toluene	3.0	ug/L	0.2	ug/L
Ethylbenzene	6.5	ug/L	0.2	ug/L
m,p-Xylene	21.3	ug/L	0.2	ug/L
o-Xylene	3.7	ug/L	0.2	ug/L

9-16-42

72.7

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159

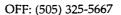
48 8

ND - Not Detected at Limit of Quantitation

Method - SW-846 EPA Method 8020A Aromatic Volatile Organics by Gas Chromatography

P.O. BOX 2606 • FARMINGTON, NM 87499

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ANALYTICAL REPORT

Attn:

Denver Bearden

Date: 30-Dec-97

Company: PNM Gas Services

COC No.:

5619

Address:

17090

City, State: Farmington, NM 87401

603 W. Elm

Sample No.:

2-1000

Job No.:

Project Name:

PNM Gas Services - Honolulu Loop Drip

Project Location: Sampled by:

9712151201; MW-3

RD DC

Date: Date: 15-Dec-97 Time:

24-Dec-97

12:01

Analyzed by: Sample Matrix:

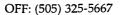
Liquid

Parameter		Results as Received	Unit of Measure	Limit of Quantitation	Unit of Measure
Benzene		423	ug/L	2	ug/L
Toluene		ND	ug/L	0.2	ug/L
Ethylbenzene		11.0	ug/L	0.2	ug/L
m,p-Xylene		72.4	ug/L	0.2	ug/L
o-Xylene		7.9	ug/L	0.2	ug/L
	TOTAL	514	υσ/Ι.		

ND - Not Detected at Limit of Quantitation

Method - SW-846 EPA Method 8020A Aromatic Volatile Organics by Gas Chromatography

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ANALYTICAL REPORT

Attn:

Denver Bearden

Date:

30-Dec-97

Company: PNM Gas Services

COC No.:

5619

Address:

603 W. Elm

Sample No.:

17091

City, State: Farmington, NM 87401

Job No.:

2-1000

Project Name:

PNM Gas Services - Honolulu Loop Drip

Project Location:

9712151218; MW-4

RD

Date:

15-Dec-97 Time:

12:18

Sampled by: Analyzed by:

DC

Date: 23-Dec-97

Sample Matrix:

Liquid

	Results as	Unit of	Limit of	Unit of
Parameter	Received	Measure	Quantitation	Measure
Benzene	62	ug/L	2	ug/L
Toluene	90	ug/L	2	ug/L
Ethylbenzene	56	ug/L	2	ug/L
m,p-Xylene	313	ug/L	2	ug/L
o-Xylene	99	ug/L	2	ug/L
	1		1	

618

ug/L

9-19-17

ND - Not Detected at Limit of Quantitation

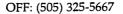
Method - SW-846 EPA Method 8020A Aromatic Volatile Organics by Gas Chromatography

TOTAL

Approved By:

P.O. BOX 2606 • FARMINGTON, NM 87499

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ANALYTICAL REPORT

Attn:

Denver Bearden

Date: 30-Dec-97

Company: PNM Gas Services

COC No.:

5619

Address:

603 W. Elm

Sample No.:

17092

City, State: Farmington, NM 87401

Job No.:

2-1000

Project Name:

PNM Gas Services - Honolulu Loop Drip

Project Location:

9712151247; MW-5

Sampled by: Analyzed by:

RD DC Date: Date:

ug/L

15-Dec-97 Time:

23-Dec-97

12:47

Sample Matrix:

Liquid

Parameter	Results as Received	Unit of Measure	Limit of Quantitation	Unit of Measure
Benzene	ND	ug/L	0.2	ug/L
Toluene	ND	ug/L	0.2	ug/L
Ethylbenzene	ND	ug/L	0.2	ug/L
m,p-Xylene	ND	ug/L	0.2	ug/L
o-Xylene	ND	ug/L	0.2	ug/L

4-1=

33 2 ppb

ND - Not Detected at Limit of Quantitation

Method - SW-846 EPA Method 8020A Aromatic Volatile Organics by Gas Chromatography

Approved By:

P.O. BOX 2606 • FARMINGTON, NM 87499

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LAB: (505) 325-1556

ANALYTICAL REPORT

Attn:

Denver Bearden

Date:

30-Dec-97

Company: PNM Gas Services

COC No.:

5619

Address:

603 W. Elm

Sample No.:

17093

City, State: Farmington, NM 87401

Job No.:

2-1000

Project Name:

PNM Gas Services - Honolulu Loop Drip

Project Location:

9712151310; MW-6

Sampled by:

RD DC

ND - Not Detected at Limit of Quantitation

Date: Date:

15-Dec-97 Time:

24-Dec-97

13:10

Analyzed by: Sample Matrix:

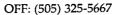
Liquid

	Results as	Unit of	Limit of	Unit of	1 - 1 - 1
Parameter	Received	Measure	Quantitation	Measure	9/18/93
	1				
Benzene	15061	ug/L	40	ug/L	14304
Toluene	1526	ug/L	40	ug/L	453 i
Ethylbenzene	520	ug/L	40	ug/L	=8£
m,p-Xylene	4293	ug/L	40	ug/L	5211
o-Xylene	1119	ug/L	40	ug/L	1343

22518

Method - SW-846 EPA Method 8020A Aromatic Volatile Organics by Gas Chromatography

Approved By:





ANALYTICAL REPORT

Attn:

Denver Bearden

Date:

30-Dec-97

Company: PNM Gas Services

COC No.:

5619

Address:

603 W. Elm

Sample No.:

17094

City, State: Farmington, NM 87401

Job No.:

2-1000

Project Name:

PNM Gas Services - Honolulu Loop Drip

Project Location:

9712151337; MW-7

RD DC

Date: Date: 15-Dec-97 Time:

23-Dec-97

13:37

Sampled by: Analyzed by: Sample Matrix:

Liquid

Parameter	Results as Received	Unit of Measure	Limit of Quantitation	Unit of Measure
Benzene	0.6	ug/L	0.2	ug/L
Toluene	ND	ug/L	0.2	ug/L
Ethylbenzene	ND	ug/L	0.2	ug/L
m,p-Xylene	ND	ug/L	0.2	ug/L
o-Xylene	ND	ug/L	0.2	ug/L

ND - Not Detected at Limit of Quantitation

Method - SW-846 EPA Method 8020A Aromatic Volatile Organics by Gas Chromatography

TOTAL

P.O. BOX 2606 • FARMINGTON, NM 87499

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LAB: (505) 325-1556

ANALYTICAL REPORT

Attn:

Denver Bearden

Date:

30-Dec-97

Company: PNM Gas Services

COC No.:

Job No.:

5619

Address:

603 W. Elm

Sample No.:

17095 2-1000

City, State: Farmington, NM 87401

PNM Gas Services - Honolulu Loop Drip

Project Name: **Project Location:**

9712151401; MW-8

Sampled by:

RD DC Date: Date: 15-Dec-97 Time: 23-Dec-97

14:01

Analyzed by: Sample Matrix:

Liquid

Parameter		Results as Received	Unit of Measure	Limit of Quantitation	Unit of Measure
Benzene		ND	ug/L	0.2	ug/L
Toluene		7.4	ug/L	0.2	ug/L
Ethylbenzene		36.8	ug/L	0.2	ug/L
m,p-Xylene		214.1	ug/L	0.2	ug/L
o-Xylene		39.0	ug/L	0.2	ug/L
	TOTAL	297.3	ug/L		

ND - Not Detected at Limit of Quantitation

Method - SW-846 EPA Method 8020A Aromatic Volatile Organics by Gas Chromatography

Approved By:



LAB: (505) 325-1556

ANALYTICAL REPORT

Attn:

Denver Bearden

Date:

30-Dec-97

Company: PNM Gas Services

COC No.:

5619

Address:

603 W. Elm

Sample No.:

17096

City, State: Farmington, NM 87401

Job No.:

2-1000

Project Name:

PNM Gas Services - Honolulu Loop Drip

Project Location:

9712151528; MW-9

Sampled by:

RD DC Date: Date:

15-Dec-97 Time:

23-Dec-97

15:28

Analyzed by: Sample Matrix:

Liquid

Parameter		Results as Received	Unit of Measure	Limit of Quantitation	Unit of Measure
Benzene		ND	ug/L	0.2	ug/L
Toluene		0.2	ug/L	0.2	ug/L
Ethylbenzene		ND	ug/L	0.2	ug/L
m,p-Xylene		ND	ug/L	0.2	ug/L
o-Xylene		ND	ug/L	0.2	ug/L
	TOTAL	0.2	ug/L		

ND - Not Detected at Limit of Quantitation

Method - SW-846 EPA Method 8020A Aromatic Volatile Organics by Gas Chromatography

P.O. BOX 2606 • FARMINGTON, NM 87499

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LAB: (505) 325-1556

ANALYTICAL REPORT

Attn:

Denver Bearden

Date:

30-Dec-97

Company: PNM Gas Services

COC No.:

5619

Address:

603 W. Elm

Sample No.:

17097

City, State: Farmington, NM 87401

Job No.:

2-1000

Project Name:

PNM Gas Services - Honolulu Loop Drip

Project Location:

9712151428; MW-10

Sampled by:

RD

Date:

15-Dec-97 Time:

14:28

Analyzed by:

DC

23-Dec-97 Date:

Sample Matrix:

Liquid

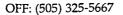
		Results as	Unit of	Limit of	Unit of
Parameter		Received	Measure	Quantitation	Measure
Benzene		87.9	ug/L	0.2	ug/L
Toluene		2.5	ug/L	0.2	ug/L
Ethylbenzene		3.0	ug/L	0.2	ug/L
m,p-Xylene		4.7	ug/L	0.2	ug/L
o-Xylene		ND	ug/L	0.2	ug/L
	T074	00.0	(*		
	TOTAL	98.2	ug/L	1	

ND - Not Detected at Limit of Quantitation

Method - SW-846 EPA Method 8020A Aromatic Volatile Organics by Gas Chromatography

P.O. BOX 2606 • FARMINGTON, NM 87499

- Technology Blending Industry with the Term





ANALYTICAL REPORT

Attn:

Denver Bearden

Date:

30-Dec-97

Company: PNM Gas Services

COC No.:

5619

Address:

603 W. Elm

Sample No.:

17098

City, State: Farmington, NM 87401

Job No.:

2-1000

Project Name:

PNM Gas Services - Honolulu Loop Drip

Project Location:

9712151448; MW-11

Sampled by:

RD

Date:

15-Dec-97 Time:

14:48

Analyzed by:

DC

Date:

24-Dec-97

Sample Matrix:

Liquid

Parameter		Results as Received	Unit of Measure	Limit of Quantitation	Unit of Measure
Benzene		ND	ug/L	0.2	ug/L
Toluene		7.5	ug/L	0.2	ug/L
Ethylbenzene		37.3	ug/L	0.2	ug/L
m,p-Xylene		217.3	ug/L	0.2	ug/L
o-Xylene		38.9	ug/L	0.2	ug/L
	TOTAL	301.0	ug/L		

ND - Not Detected at Limit of Quantitation

Method - SW-846 EPA Method 8020A Aromatic Volatile Organics by Gas Chromatography

Approved By:

P.O. BOX 2606 • FARMINGTON, NM 87499

- Technology Brending Industry of the the Co



LAB: (505) 325-1556

QUALITY ASSURANCE REPORT

for EPA Method 8020

Date Analyzed: 23-Dec-97

Internal QC No.:

0559-STD

Surrogate QC No.:

0567-STD

Reference Standard QC No.: 0529/30-QC

Method Blank

		Unit of
Parameter	Result	Measure
Average Amount of All Analytes In Blank	< 0.2	ppb

Calibration Check

Parameter	Unit of Measure	True Value	Analyzed Value	RPD	Limit
Benzene	ppb	40.0	39.7	1	15%
Toluene	ppb	40.0	41.7	4	15%
Ethylbenzene	ppb	40.0	41.5	4	15%
m,p-Xylene	ppb	80.0	80.1	0	15%
o-Xylene	ppb	40.0	42.1	5	15%

Matrix Snike

MULLIX	matrix Spike										
Parameter	1- Percent Recovered	2 - Percent Recovered	Limit	RPD	Limit						
Benzene	85	84	(39-150)	1	20%						
Toluene	89	89	(46-148)	1	20%						
Ethylbenzene	87	86	(32-160)	1	20%						
m,p-Xylene	84	83	(35-145)	1	20%						
o-Xylene	84	85	(35-145)	1	20%						

Surrogate Recoveries

	\$1	S2		S1	S2
	Percent	Percent		Percent	Percent
Laboratory Identification	Recovered	Recovered	Laboratory Identification	Recovered	Recovered
Limit Percent Recovered	(70-130)		Limit Percent Recovered	(70-130)	
17088-5619	93		17096-5619	92	<u> </u>
17089-5619	84		17097-5619	91	
17091-5619	93				
17092-5619	94				
17094-5619	93			YN	(pe)
17095-5619	98			12/30/97	12/30/97

S1: Flourobenzene



LAB: (505) 325-1556

QUALITY ASSURANCE REPORT

for EPA Method 8020

Date Analyzed: 24-Dec-97

Internal QC No.:

0559-STD

Surrogate QC No.:

0567-STD

Reference Standard QC No.: 0529/30-QC

Method Blank

		Unit of
Parameter	Result	Measure
Average Amount of All Analytes In Blank	<0.2	ppb

Calibration Check

<u> </u>	Unit of	True	Analyzed		Τ
Parameter	Measure Measure	Value_	Value	RPD	Limit
Benzene	ppb	20.0	18.2	9	15%
Toluene	ppb	20.0	19.1	4	15%
Ethylbenzene	ppb	20.0	19.2	4	15%
m,p-Xylene	ppb	40.0	36.9	8	15%
o-Xylene	ppb	20.0	19.0	5	15%

Matrix Spike

	1- Percent	2 - Percent			
Parameter	Recovered	Recovered	Limit	RPD	Limit
Benzene	101	88	(39-150)	6	20%
Toluene	100	94	(46-148)	6	20%
Ethylbenzene	100	93	(32-160)	6	20%
m,p-Xylene	97	90	(35-145)	6	20%
o-Xylene	99	93	(35-145)	6	20%

Surrogate Recoveries

	\$1	S2		\$1	\$2
	Percent	Percent		Percent	Percent
Laboratory Identification	Recovered	Recovered	Laboratory Identification	Recovered	Recovered
Limit Percent Recovered	(70-130)		Limit Percent Recovered	(70-130)	,
17090-5619	93				
17093-5619	93				
17098-5619	99				
		 	 	J.K.	(pr)
				12/30/97	12/30/97

S1: Flourobenzene

CHAIN OF CUSTODY RECORD ÒN SITE Date: ___

TECHNOLOGIES, LTD.

3-07-97

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657 W. Maple • P. O. Box 2606 • Farmington NM 87499 LAB: (505) 325-5667 • FAX: (505) 325-6256

Purchase	Purchase Order No.: Job No.							Name		M	auree	n Gan	non		Title						
	Name	Denver Bearden							STO	Comp	any	PI	VM Ga	s Ser	vices					,]
550	Company	PNM Gas Services		Dept.	32	4-376	3		REPORT ESULTS T	Mailin	g Addre	ss Al	verad	o Squ	are, N	Mail Sto	op 040	80]
SEND INVOICE TO	Address	603 W. Elm Street							ESE ES	City, State, Zip Albuquerque, NM 87158											
	City, State, Zip	Farmington, NM 874	01							Telep	hone No	o. 5 0	5-848	-2974		Т	elefax l	No.			
	ampling Location:												ΛΝΑΙ	Vele	ם בייוו	ECTE	D				
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	The care of						er o		\s												
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Authorized by: Ry 15ww Date 3/7/97 (Client Signature Must Accompany Request)												1		lts to be se th parties.	nt						
Dietribution: White - On Site Vallow - LAR P						<u> </u>								<u> </u>				J			



CHAIN OF CUSTODY RECORD Date: 4/1/12

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612 E. Murphy Dr. • P.O. Box 2606 • Farmington, NM 87499 LAB: (505) 325-5667 • FAX: (505) 325-6256

Purchase Order No.: Job No.						_ 2	Name Maureen Gannon Title										
ш	Name	Denver Bearden						Company PNM Gas Services									
SEND INVOICE TO	Company	PNM Gas Services		Dept.	324-3763	3		REPORT ESULTS	Mailing	Address	Alve	ado S	quare,	Mail S	top 04	08	
SE	Address	603 W. Elm Street	· · · · · · · · · · · · · · · · · · ·					E SS	City, State, Zip Albuquerque, NM 87158								
=	City, State, Zip	Farmington, NM 87	401					E	Teleph	one No.	505-8	48-29	74	Te	elefax N	lo.	
Sampling Location:																	
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Sampler: [문설] / / / / / / / / / / / / / / / / / / /									/ /								
1 Declarite SAMPLE							źŏ										
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Relinquished by:			Date/T	Date/Time			Receiv	Received by: Date/Time									
Relinquished by: Date			Date/T	Date/Time			Receiv	eceived by: Date/T					ate/Tim	ie			
				Rush	Rush 24-48 Hours 10 Working Days Special Instructions:						ctions:						
														Segult.	s to be sent		
Authorized by: Date Date												r		th parties.			
(Client Signature Must Accompany Request) Distribution: White - On Site Yellow - LAB Pink - Sampler Goldentod - Client																	