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TECHNICAL ASSISTANCE TEAM FOR EMERGENCY RESPONSE REMOVAL AND PREVENTION
EPA CONTRACT 68-01-7367

MEMORANDUM

TO : Luis E. Santos, OSC
Caribbean Field Office

FROM : Arnaldo Martinez, TAT II, PM
Douglas Henne, TAT II, QC

DATE : May 1, 1989

SUBJECT : Well sampling results, Tutu well site
February, 1989, sampling period.

The 19 samples collected on February 14, 1989, were analyzed by Region II TAT personnel in Edison, N.J. (see attached results).

Also attached is a comparison of the last four sampling periods. Please note that traces of TCE have been detected consistently in the Dede and Devcon #1 wells. This has also happened at the Dench well, which in addition, is now showing traces of PCE. No TCE was detected in Devcon #3 well in this sampling period. This may be due to sampling errors (the sample was very aereated when collected).

For other wells, the general tendency is an increase in the concentration of PCE and TCE.

259129

Data Summary:

Samples from Turpentine Run Acquifer, VI

Collected: 02/14/89

Analyzed: Diaz / A. Rajani Approved: Diaz

Concentration**(ppb) of

SN	Name	DCE *	Benzene	TCE	Toluene	PCE[1]
200	Travel Blank	ND	ND	<1	5	ND
206	Bryans	ND	ND	ND	ND	ND
217	Steeles	2	ND	66	ND	217
208	Smith	<1	ND	15	ND	120
	Francois	NOT SUBMITTED FOR ANALYSIS				
220	Mathias	<1	ND	5	ND	76
210	Eglin #1	9	ND	88	ND	78
211	Eglin #2	2	ND	34	ND	27
212	Eglin #3	2	ND	45	ND	96
	Harthman Bakery	NOT SUBMITTED FOR ANALYSIS				
	Harthman Estate	NOT SUBMITTED FOR ANALYSIS				

* Estimated

** All Data Based on Acceptable MS/MSD and Duplicate Recoveries (i.e., 72% - 116%).

(continued)

Concentration (ppb) of

SN	Name	DCE	Benzene	TCE	Toluene	PCE[1]
216	Ramsey	ND	ND	2	ND	27
215	4 Winds #1	5	ND	43	ND	120
	Tillet	NOT SUBMITTED FOR ANALYSIS				
202	Devcon #1	ND	ND	<1	ND	ND
203	Devcon #3	ND	ND	ND	ND	ND
205	Rodrieguez	ND	ND	<1	ND	ND
	Harthman Crusher	NOT SUBMITTED FOR ANALYSIS				
201	Dede	ND	ND	<1	ND	ND
209	A. Leonard	ND	ND	<1	ND	ND
204	Dench	ND	ND	1	ND	<1
213	VIHA #1	<1	ND	7	ND	39
214	VIHA #3	<1	ND	<1	ND	1
219	Demitris	ND	ND	<1	ND	<1
	Harveys	NOT SUBMITTED FOR ANALYSIS				

* Estimated

** All Data Based On Acceptable MS/MSD and Duplicate Recoveries (ie., 72% - 116%).

TUTU WELL SITE, MONTHLY SAMPLING SUMMARY

DENCH**	1988 MAY	AUG	NOV	1989 FEB
BEN	0.0	<1	0.0	0.0
TOL	0.0	<1	<1	0.0
PCE	0.0	<1	0.0	<1
TCE	0.0	0.0	10.0	1.0
DCE	NR	NR	NR	0.0

RAMSEY	MAY	AUG	NOV	FEB
BEN	0	<1	NA	0.0
TOL	30.0	<1	NA	0.0
PCE	154.0	<1	NA	27.0
TCE	46.0	0.0	NA	2.0
DCE	NR	NR	NR	0.0

H.CRUSHER	MAY	AUG	NOV	FEB
BEN	0.0	0.0	NA	NA
TOL	38.0	0.0	NA	NA
PCE	130.0	10.0	NA	NA
TCE	46.0	1.0	NA	NA
DCE	NR	NR	NR	NA

H.BAKERY*	MAY	AUG	NOV	FEB
BEN	<1	0.0	0.0	NA
TOL	33.0	4.0	0.0	NA
PCE	0.0	<1	0.0	NA
TCE	5.0	<1	<1	NA
DCE	NR	NR	NR	NA

H.ESTATE*	MAY	AUG	NOV	FEB
BEN	<1	0.0	NA	NA
TOL	0.0	0.0	NA	NA
PCE	2.0	0.0	NA	NA
TCE	0.0	0.0	NA	NA
DCE	NR	NR	NR	NA

LEONARD	MAY	AUG	NOV	FEB
BEN	0.0	0.0	0.0	0.0
TOL	1.0	0.0	0.0	0.0
PCE	3.0	0.0	0.0	0.0
TCE	0.0	<1	0.0	<1
DCE	NR	NR	NR	0.0

FRANCOIS	MAY	AUG	NOV	FEB
BEN	0.0	0.0	0.0	NA
TOL	0.0	1.0	0.0	NA
PCE	>1000	140.0	32.0	NA
TCE	180.0	40.0	100.0	NA
DCE	NR	NR	NR	NA

CONCENTRATIONS IN PPB

TUTU WELL SITE, MONTHLY SAMPLING SUMMARY

DEMITRIS	MAY	AUG	NOV	FEB
BEN	0.0	0.0	0.0	0.0
TOL	0.0	0.0	0.0	0.0
PCE	4.0	0.0	0.0	<1
TCE	2.0	0.0	0.0	<1
DCE	NR	NR	NR	0.0

DEDE	MAY	AUG	NOV	FEB
BEN	0.0	<1	0.0	0.0
TOL	0.0	<1	0.0	0.0
PCE	0.0	<1	0.0	0.0
TCE	0.0	<1	<1	<1
DCE	NR	NR	NR	0.0

DEVCON #1	MAY	AUG	NOV	FEB
BEN	0.0	<1	0.0	0.0
TOL	0.0	0.0	0.0	0.0
PCE	0.0	0.0	0.0	0.0
TCE	0.0	<1	<1	<1
DCE	NR	NR	NR	0.0

DEVCON #3	MAY	AUG	NOV	FEB
BEN	0.0	<1	<1	0.0
TOL	0.0	<1	<1	0.0
PCE	0.0	<1	0.0	0.0
TCE	0.0	<1	<1	0.0
DCE	NR	NR	NR	0.0

VIHA #1	MAY	AUG	NOV	FEB
BEN	0.0	<1	0.0	0.0
TOL	0.0	<1	0.0	0.0
PCE	10.0	20.0	8.0	39.0
TCE	<1	3.0	7.0	7.0
DCE	NR	NR	NR	0.0

VIHA #3	MAY	AUG	NOV	FEB
BEN	0.0	0.0	0.0	0.0
TOL	0.0	0.0	0.0	0.0
PCE	2.0	0.0	0.0	1.0
TCE	<1	0.0	0.0	<1
DCE	NR	NR	NR	<1

EGLIN #1	MAY	AUG	NOV	FEB
BEN	0.0	0.0	<1	0.0
TOL	0.0	0.0	0.0	0.0
PCE	450.0	39.0	6.0	78.0
TCE	300.0	22.0	58.0	88.0
DCE	NR	NR	NR	9.0

CONCENTRATIONS IN PPB

TUTU WELL SITE, MONTHLY SAMPLING SUMMARY

EGLIN #2	MAY	AUG	NOV	FEB
BEN	0.0	NA	NA	0.0
TOL	0.0	NA	NA	0.0
PCE	760.0	NA	NA	27.0
TCE	404.0	NA	NA	34.0
DCE	NR	NA	NR	2.0

EGLIN #3	MAY	AUG	NOV	FEB
BEN	0.0	0.0	0.0	0.0
TOL	0.0	0.0	0.0	0.0
PCE	500.0	12.0	9.0	96.0
TCE	268.0	4.0	36.0	45.0
DCE	NR	NR	NR	2.0

SMITH	MAY	AUG	NOV	FEB
BEN	1.0	0.0	0.0	0.0
TOL	0.0	0.0	0.0	0.0
PCE	>1000	35.0	17.0	120.0
TCE	130.0	3.0	6.0	15.0
DCE	NR	NR	NR	<1

TILLET	MAY	AUG*	NOV	FEB
BEN	>1000	>1000	NA	NA
TOL	0.0	110.0	NA	NA
PCE	>1000	10.0	NA	NA
TCE	420.0	30.0	NA	NA
DCE	NR	NR	NR	NA

`4 WINDS	MAY	AUG	NOV	FEB
BEN	NA	NA	0.0	0.0
TOL	NA	NA	0.0	0.0
PCE	NA	NA	30.0	120.0
TCE	NA	NA	100.0	43.0
DCE	NA	NA	NR	5.0

STEELE	MAY	AUG	NOV	FEB
BEN	0.0	0.0	0.0	0.0
TOL	0.0	0.0	0.0	0.0
PCE	>1000	41.0	105.0	217.0
TCE	160.0	5.0	42.0	66.0
DCE	NR	NR	NR	2.0

HARVEY	MAY	AUG	NOV	FEB
BEN	0.0	0.0	NA	NA
TOL	0.0	0.0	NA	NA
PCE	>1000	>1000	NA	NA
TCE	350.0	17.0	NA	NA
DCE	NR	NR	NR	NA

CONCENTRATIONS IN PPB

TUTU WELL SITE, MONTHLY SAMPLING SUMMARY

RODRIGUEZ	1988 MAY	AUG	NOV	1989 FEB
BEN	0.0	0.0	0.0	0.0
TOL	0.0	0.0	0.0	0.0
PCE	0.0	0.0	0.0	0.0
TCE	0.0	0.0	0.0	<1
DCE	NR	NR	NR	0.0

BRYAN	MAY	AUG	NOV	FEB
BEN	0.0	0.0	0.0	0.0
TOL	0.0	0.0	0.0	0.0
PCE	0.0	0.0	0.0	0.0
TCE	0.0	<1	<1	0.0
DCE	NR	NR	NR	0.0

MATHIAS	MAY	AUG	NOV	FEB
BEN	0.0	0.0	NA	0.0
TOL	0.0	0.0	NA	0.0
PCE	348.0	25.0	NA	76.0
TCE	16.0	2.0	NA	5.0
DCE	NR	NR	NR	<1

CONCENTRATIONS IN PPB

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TECHNICAL ASSISTANCE TEAM FOR EMERGENCY RESPONSE REMOVAL AND PREVENTION
EPA CONTRACT 68-01-7367

May 1, 1989

Luis E. Santos, OSC
EPA Caribbean Field Office.
San Juan, Puerto Rico

Dear Mr. Santos:

Final results of the November 1988, TCL sampling have been received. This report summarizes those results and compares them to the previous TCL sampling of October 1987.

On November 14-15, 1988, TAT sampled the wells in the Turpentine Run aquifer basin for TCL analysis of volatiles and metals. Of the 24 wells located in the basin, TAT collected a full set of samples (volatiles and metals) from 17 wells. Partial samples (volatiles) were collected from 2 wells and 5 wells could not be sampled at all.

The final results of the sample analysis are summarized in the attached table. This table also shows the results of the previous TCL sampling.

The metal analysis detected the presence of arsenic, barium, cadmium, copper, calcium, iron, magnesium, manganese, mercury, potassium, selenium, sodium, vanadium and zinc in varying concentrations in the sampled wells. The Safe Drinking Water Act establishes maximum contaminant levels only for arsenic (0.05 mg/l), barium (1 mg/l), cadmium (0.010 mg/l), mercury (0.002 mg/l) and selenium (0.01 mg/l). A summary of the metals contamination detected is as follows:

Arsenic was only detected in the Rodriguez well at a concentration of 0.003 mg/l.

Barium was detected in 15 of the sampled wells in concentrations that ranged from a low of 0.0033 mg/l in the VIHA #1 and A. Leonard wells, to 0.0458 mg/l in the Eglin #3 well.

Cadmium was only detected in the Smith well at a concentration of 0.007 mg/l.

Mercury was detected in three wells, these are: Steeles (0.0007 mg/l), Francois (0.0007 mg/l), and Dench (0.0003 mg/l).

Selenium was only detected in the Smith well at a concentration of 0.0026 mg/l.

The concentration at which these metals are present in the well water does not present a risk to the public health. The other metals are commonly present in water and are not a major concern.

The volatile organics analysis reconfirmed the presence of benzene, toluene, perchloroethylene (PCE), trichloroethylene (TCE) and dichloroethylene in the following 8 wells:

Eglin #1	Steele	Smith	VIHA #1
Eglin #3	Francois	Tillet	4 Winds #1

Benzene was detected only in Tillet well at a concentration of 820 ug/l.

Toluene was detected only in Tillet well at a concentration of 22 ug/l.

PCE was detected in 7 of the 8 wells (not detected in Eglin #3) in concentrations that ranged from a low of 28 ug/l in VIHA #1, to a high of 460 ug/l in Steele well.

TCE was detected in 7 of the 8 wells (not detected in Smith) in concentrations that ranged from a low of 6 ug/l in VIHA #1 well, to a high of 37 ug/l in Steele well.

DCE was detected in all the mentioned wells in concentrations that ranged from a low of 17 ug/l in Smith well to a high of 210 ug/l in Four Winds #1 well.

A major finding of the TCL sampling of October, 1987, was the presence of tert-butyl methyl ether (TBME) in many of the sampled wells. This compound is a gasoline additive. TBME was not detected in any of the wells sampled in November, 1988. Thirteen (13) previously undetected hydrocarbons were found in various wells. 2-methyl-1-propene and 2-methoxy-2-methyl propane showed up in several of the wells. The Tillet well sample, however had detectable concentrations of the following compounds:

2-methyl-1-propene
2 butanone
xylene
2-methyl butane
1,1-dimethyl cyclopropane
2,3-dimethyl butane
2,2,3-trimethyl pentane
2-methoxy-2-methyl
ethylbenzene
1,3-pentadiene
methyl cyclobutane
methyl cyclopentane
3-methyl pentane

These compounds might be products of the weathering of gasoline.

Other previously undetected compunds that were detected are as follows:

Tetrahydrofuran was detected in the Dench and H. Bakery wells. These wells were sampled with new vynil tubing for the peristaltic pump. This is the most likely source for this compound.

Vynil chloride was detected in the Dench well. The sampling hose is the most likely source.

An unknown peak (rt. time =1.63) was detected in the VIHA #1 and Demitris wells.

Trimethyl silanol was detected in 4 wells. No source has been determined for this compound.

Volatile organics were not detected in the following 7 wells:

Bryan	H. Estate	VIHA #3
Dede	Rodriguez	Devcon #1
A. Leonard		

We trust that this report covers all the significant aspects related to this sampling activity.

Very truly yours

Arnaldo Martinez
TAT II, Project Manager

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TUTU WELLS

COMPARISON OF ANALYTICAL DATA FROM OCTOBER 1987 AND DECEMBER 1988

	OCTOBER 1987	NOVEMBER 1988	DELTA
BRYAN WELL #1			
Toluene	2.4 M		
Di-N-Octyl phthalate	0.1 M		
Calcium		41500	
Copper		8 B	
Iron		568	
Magnesium		39500	
Manganese		3.7 B	
Potassium		660 B	
Sodium		267000	
Vanadium		29.3 B	
Zinc	30 M	18.3 J	-11.7
HARTMAN ESTATES			
Diethyl phthalate	0.2 M		-0.2
Selinium	4 M		-4
Zinc	20 M		-20
ELGIN WELL #3			
1,2-Dichloroethylene	78	69	-9
Trichloroethylene	8.4	22	13.6
Tetrachloroetylene	40		
1-Propene, 2-methyl		110 J	
Propane, 2-methoxy-2-methyl		270 J	
Tert-butylmethylether	270 J		
Barium		45.8 B	
Calcium		74800	
Iron		77.8 B	
Magnesium		52500	
Manganese		40.9	
Potassium		1880 B	
Sodium		426000	
Vanadium		12.8 B	
Zinc	98	77.8 J	-20.2
Chromium	6 M		
Copper	5 M		
Thallium	3 M		
ELGIN #1			
1,2-Dichloroethene	96	110	14
Trichloroethene	10	21	11
Tetrachloroethene	100	52	-48
1-Propene, 2-methyl		170 J	
Propane, 2-methoxy-2-methyl		480 J	
Tert-butylmethylether	270 J		
Diethyl phthalate	0.1 M		
Barium		8.2 B	
Calcium		48100	
Copper	5 M	6.4 B	1.4
Iron		30.2 B	
Magnesium		40100	

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TUTU WELLS

COMPARISON OF ANALYTICAL DATA FROM OCTOBER 1987 AND DECEMBER 1988

	OCTOBER 1987	NOVEMBER 1988	DELTA
Manganese		80.6	
Potassium		1100 B	
Sodium		259000	
Vanadium		44.5 B	
Zinc	82	16.5 J	-65.5
* Cyanide	0.058		
BRAVO			
1,2-Dichloroethene		10	
Trichloroethene		3 J	
Tetrachloroethene		45	
Propane, 2-methoxy-2-methyl		9 J	
STEELS			
1,2-Dichloroethene	47	73	26
Trichloroethene	15	37	22
Tetrachloroethene	320	460 D	140
1,1,2,2,-Tetrachloroethane		7	
1-Propene, 2-methyl		53 J	
Propane, 2-methoxy-2-methyl		130 J	
Tert-butylmethylether	37 J		
1,2-Dichlorobenzene	1 M		
Di-N-octyl phthalate	0.5 M		
Chromium	20 M		
Barium		21.9 B	
Calcium		45100	
Copper	20 M	5.8 B	-14.2
Iron		270	
Magnesium		43500	
Manganese		25.3	
Mercury		0.7	
Potassium		1110 B	
Sodium		330000	
Vanadium		11.2 B	
Zinc	20 M	763 J	
Antimony	3 M		
Selenium	15 M		
SMITH			
1,2-Dichloroethene	100	17	-83
Tetrachloroethene	150	87	-63
1-Propene, 2-methyl		11 J	
Propane, 2-methoxy-2-methyl		13 J	
Chloroform	0.9 M		
Trichloroethylene	21		
Tert-butylmethylether	34		
Barium		43 B	
Cadmium		7	
Calcium		25900	
Copper	7 M	27.4	20.4
Iron		4750	

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TUTU WELLS

COMPARISON OF ANALYTICAL DATA FROM OCTOBER 1987 AND DECEMBER 1988

	OCTOBER 1987	NOVEMBER 1988	DELTA
Magnesium		15700	
Manganese		41.6	
Potassium		1090 B	
Sodium		152000	
Vanadium		17.2 B	
Zinc	460	1330 J	870
Selenium	3 M	2.6 B	-0.4
VIHA #1			
1,2-Dichloroethene	4.9	26	21.1
Trichloroethene	0.4 M	6	5.6
Tetrachloroethene	5.2	28	22.8
Carbon dioxide (ACN)		67 J	
Unknown (RT=1.63)		110 J	
Furan, tetrahydro		5 J	
Silanol, trimethyl-		5 J	
1,1,1-trichloroethane	1.8		
Benzoic acid	3.3 M		
Barium		3.3 B	
Calcium		44100	
Copper	10 M	215	205
Iron		1120	
Magnesium		29700	
Manganese		25.3	
Potassium		866 B	
Sodium		275000	
Vanadium		61.1	
Zinc	30 M	181 J	151
Selenium	13		
* Cyanide	0.023		
VIHA #3			
Methylene chloride	6.9		
Trichloroethylene	0.3 M		
Benzoic acid	3.2 M		
4-Methoxy-1,1-dimethylethyl phenol	2.1 J		
2-butoxyethyl phosphate	3.1 J		
Barium		7 B	
Calcium		69900	
Copper	22 M	15.8 B	-6.2
Iron		428	
Magnesium		43200	
Manganese		113	
Potassium		1220 B	
Sodium		243000	
Vanadium		42.2 B	
Zinc	30 M	17.4 J	-12.6
Selenium	3 M		
* Cyanide	0.019 M		

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TUTU WELLS

COMPARISON OF ANALYTICAL DATA FROM OCTOBER 1987 AND DECEMBER 1988

	OCTOBER 1987	NOVEMBER 1988	DELTA
RODRIGUEZ			
Arsenic		3 B	
Barium		9.5 B	
Calcium		23600	
Copper	5 M	10.7 B	5.7
Iron		165	
Magnesium		25700	
Manganese		85.8	
Potassium		1130 B	
Sodium		250000	
Vanadium		15 B	
Zinc	30 M	19.1 J	9.1
DEDE			
Pentachlorophenol	0.2 M		
Barium		5.8 B	
Calcium		27000	
Copper	10 M	22.8 B	12.8
Iron		81.4 B	
Magnesium		29200	
Manganese		71	
Potassium		1830 B	
Sodium		360000	
Vanadium		9.8 B	
Zinc	30 M	19.1 J	-10.9
DEVCON #3			
Silanol, trimethyl-		5 J	
Barium		13.2 B	
Calcium		43900	
Copper		5 B	
Magnesium		43200	
Manganese		43.5	
Potassium		1900 B	
Sodium		427000	
Vanadium		2.9 B	
Zinc	20 M	11.7 J	-8.3
Chromium	10 M		
Selenium	7.1		
DEVCON #1			
Phenanthrene	0.1 M		
Di-N-octylphthalate	5.7		
Barium		18.6 B	
Calcium		37800	
Copper		5.7 B	
Magnesium		37900	
Manganese		221	
Potassium		2940 B	
Sodium		319000	

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TUTU WELLS

COMPARISON OF ANALYTICAL DATA FROM OCTOBER 1987 AND DECEMBER 1988

	OCTOBER 1987	NOVEMBER 1988	DELTA
Vanadium		12 B	
Zinc	10 M	11.7 J	1.7
FRANCOIS			
1,2-Dichloroethene	100	170	70
Trichloroethene	15	29	14
Tetrachloroethene	130	120	-10
Tert-butylmethylether	150 J		
1-Propene, 2-methyl		290 J	
Propane, 2-methoxy-2-methyl-		710 J	
Silanol, trimethyl		5 J	
Chromium	9 M		
Barium		7.4 B	
Calcium		50200	
Iron		322	
Magnesium		41200	
Manganese		12.6 B	
Mercury		0.7	
Potassium		1000 B	
Sodium		293000	
Vanadium		33.9 B	
Zinc	100	122 J	22
* Cyanide	0.012 M		
DENCH			
Vinyl chloride		10 J	
1-Propene, 2-methyl		43 J	
Furan, tetrahydro		4 J	
Propane, 2-methoxy-2-methyl-		92 J	
Silanol, trimethyl-		4 J	
1,4-Dichlorobenzene	0.5 M		
Diethyl phthalate	4 M		
Butyl benzyl phthalate	0.8 M		
Barium		7.8 B	
Calcium		39500	
Copper	10 M		
Iron		156	
Magnesium		44200	
Manganese		36.8	
Mercury		0.3	
Potassium		1470 B	
Sodium		480000	
Zinc	**		
Tetrachloroethylene	0.1 M		
Toluene	22		
Di-N-octyl phthalate	1.1 M		
Barium		3.3 B	

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TUTU WELLS

COMPARISON OF ANALYTICAL DATA FROM OCTOBER 1987 AND DECEMBER 1988

	OCTOBER 1987	NOVEMBER 1988	DELTA
Calcium		35400	
Copper		48.5	
Iron		30.1 B	
Magnesium		23600	
Manganese		2.2 B	
Potassium		894 B	
Selenium	8.5		
Sodium		341000	
Zinc	10 M	12.1 J	2.1
Vanadium		119	
TILLET			
Vinyl chloride		8 J	
1,2-Dichloroethene	600	50	-550
2-Butanone		11	
Trichloroethene	25	12	-13
Benzene		820 D	
Tetrachloroethene	140	39	-101
Tert-butylmethylether	470 J		
Toluene		22	
Ethylbenzene		25	
Xylene (total)		180	
1-Propene, 2-methyl		170 J	
1,3-Pentadiene		22 J	
Butane, 2-methyl-		200 J	
Cyclobutane, methyl		23 J	
Cyclopropane, 1,1-dimethyl-		30 J	
Propane, 2-methoxy-2-methyl-		410 J	
Cyclopentane, methyl		140 J	
Butane, 2,3-dimethyl-		68 J	
Pentane, 2,2,3-trimethyl-		71 J	
Pentane, 3-methyl-		48 J	
1,2-Dichlorobenzene	0.3 M		
1,2,4-Trichlorobenzene	0.2 M		
Chromium	8 M		
Copper	10 M		
Zinc	10 M		
* Cyanide	0.015 M		
HARTHMAN BAKERY			
Furan, tetrahydro		31 J	
1,2-Trans-dichloroethylene	0.2 M		
Trichloroethylene	0.5 M		
1,4-Dichlorobenzene	0.5 M		
Diethyl Phthalate	2.5 M		
Di-N-butylphthalate	3 M		
Di-N-octylphthalate	1.1 M		
Benzoic acid	4.4 M		
Antimony	1 M		
Barium		6.2 B	
Calcium		8610	

**

TUTU WELLS

COMPARISON OF ANALYTICAL DATA FROM OCTOBER 1987 AND DECEMBER 1988

	OCTOBER 1987	NOVEMBER 1988	DELTA
Iron		449	
Magnesium		6730	
Manganese		153	
Sodium		133000	
Vanadium		7.5 B	
Zinc	20 M	11.7 J	-8.3
FOUR WINDS #1			
1,2-Dichloroethene	260	210 D	-50
Trichloroethene	18	31	13
Tetrachloroethene	140	140	0
Carbon dioxide (ACN)		75 J	
Unknown (RT=1.63)		84 J	
1-Propene, 2-methyl		240 J	
Propane, 2-methoxy-2-methyl-		640 J	
Tert-butylmethylether	470 J		
Barium		26.8 B	
Calcium		52300	
Chromium	6 M		
Copper	5 M		
Iron		53.2 B	
Magnesium		37000	
Manganese		4.8 B	
Potassium		16600	
Sodium		224000	
Vanadium		49 B	
Zinc	51	75.2 J	24.2
DIMITRIS			
Carbon dioxide		77 J	
Unknown (RT=1.63)		190 J	
Tetrachloroethylene	0.8 M		
Diethyl phthalate	0.1 M		
Calcium		39200	
Copper	20 J		
Iron		66.6 B	
Magnesium		29800	
Manganese		2.2 B	
Potassium		1050 B	
Selenium	3 M		
Sodium		340000	
Vanadium		75.5	
Zinc	40 J	11.7 J	-28.3
ELGIN #2			
1,2-Dichloroethene	37		
Trichloroethylene	7.5		
Tetrachloroethylene	22		
Tert-butylmethylether	260 J		
Copper	8 M		
Zinc	200		

** TUTU WELLS

COMPARISON OF ANALYTICAL DATA FROM OCTOBER 1987 AND DECEMBER 1988

	OCTOBER 1987	NOVEMBER 1988	DELTA
RAMSEY MOTORS			
1,2-Dichloroethene	6.3		
Trichloroethylene	1.7	M	
Tetrachloroethylene	22		
Di-N-octyl phthalate	0.2	M	
Antimony	2	M	
Zinc	10	M	
* Cyanide	0.018	M	
HARTHMAN CRUSHER			
Methylene chloride	0.1		
1,2-Dichloroethene	8.1	M	
Trichloroethylene	0.7	M	
Tetrachloroethylene	6.2		
Diethyl phthalate	3.1	M	
Arsenic	15		
Zinc	10	M	
MATHAIS			
Trichloroethylene	0.4	M	
Tetrachloroethylene	3.8		
1,4-Dichlorobenzene	0.3	M	
Di-N-octyl phthalate	1.2	M	
Bis(2-ethylhexyl) phthalate	91		
2-Ethyl-1-hexanol	4.7	J	
N,2-Dimethyl-1-propaneamine	32	J	
Copper	9	M	
Selenium	5.6		
Zinc	10	M	
HARVEY CLEANERS			
Tetrachloroethylene	2000		
Chromium	10	M	
Copper	8	M	
Zinc	340		

**

TUTU WELLS

COMPARISON OF ANALYTICAL DATA FROM OCTOBER 1987 AND DECEMBER 1988

OCTOBER 1987 NOVEMBER 1988 DELTA

REMARK CODE	EXPLANATION
B	COMPOUND DETECT IN BLANK
J	ESTIMATED VALUE
K	ACTUAL VALUE KNOWN TO BE LESS THAN VALUE GIVEN
L	ACTUAL VALUE KNOWN TO BE GREATER THAN VALUE GIVEN
M	PRESENCE OF MATERIAL VERIFIED BUT NOT QUANTIFIED
O	SAMPLED BUT NOT ANALYZED DUE TO LAB ACCIDENT
T	REPORTED VALUE LESS THAN CRITERIA OF DETECTION
U	MATERIAL ANALYZED FOR, BUT NOT DETECTED
*	CONCENTRATION IN mg/L
**	DATA USED ARE THOSE ACCEPTED BY MMB ONLY, THEREFORE THE BLANK SPACES DO NOT NECESSARILY IMPLY A NON-HIT

WESTON • SPER
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TECHNICAL ASSISTANCE TEAM FOR EMERGENCY RESPONSE REMOVAL AND PREVENTION
EPA CONTRACT 68-01-7367

TO: Carlos O'Neill, EPA CFO

FROM: Iván García, TAT-21

SUBJECT: Documentation of Transmittal

SITE: Tutu wells, St. Thomas

TDD#: 8908-07A (Task 2792)

DATE: 17 April 1990

The purpose of this memo is to document the transmittal of the following:

_____ Letter Report DCN#_____

_____ OSC Report Draft/Final DCN#_____

_____ Photographs

_____ Analytical Data

_____ POLREP

_____ Safety Plan DCN#_____

_____ Community Relations Plan DCN#_____

__X__ Sampling Plan DCN#_____

_____ Sampling Report DCN#_____

_____ Action Memorandum DCN#_____

_____ SPCC Report

__X__ Site Maps

__X__ Other Photovac results 1987-90

cc: TAT PM
TDD File

Roy F. Weston, Inc.
SPILL PREVENTION & EMERGENCY RESPONSE DIVISION
In Association with ICF Technology, Inc., C.C. Johnson & Malhotra, P.C., Resource Applications, Inc., Geo/Resource Consultants, Inc., and Environmental Toxicology International, Inc.

TABLE 1. LIST OF WELLS SAMPLED AND THEIR LOCATION

NO.	WELL NAME	LOCATION
1	Bryans	Donoe lot C
2	Rodriguez	Charlotte Amalie Estate #7
3.1	Harthman bakery	Charlotte Amalie Estate #3
3.2	Harthman crusher	Charlotte Amalie Estate #3
3.3	Harthman estate	Charlotte Amalie Estate #3
4.1	Gene Eglin 1	Anna's Retreat #2
4.2	Gene Eglin 2	Anna's Retreat #2
4.3	Gene Eglin 3	Anna's Retreat #2
5	Harvey's	Anna's Retreat #5c
6	Steele's	Anna's Retreat #5a
7	Mathia's	Charlotte Amalie Estate #12
8	Smith's	Charlotte Amalie Estate #110
9	Francois	Anna's Retreat #385
10	Tillet's	Anna's Retreat #126
11	Ramsey's	Anna's Retreat #405
12	4 winds 1	Anna's retreat #392
13.1	VIHA 3	Anna's Retreat #387
13.2	VIHA 1	Anna's retreat #387
14	Alpha Leonard	Anna's Retreat #129-45
15	Demitri	Anna's Retreat #215
16	Dench	Mariendahl #10
17.1	Devcon 1	Mariendahl #11
17.2	Devcon 3	Mariendahl #11
18	Dede's	Mariendahl

TABLE 2. PHOTOVAC SAMPLING RESULTS, 1987. ALL CONCENTRATIONS IN UG/L

DENCH**	JUL	AUG	1987 SEP	OCT	NOV	DEC
BEN		0.0	0.0	0.0	0.0	0.0
TOL		0.0	0.0	0.0	0.0	0.0
PCE		0.0	0.0	0.0	0.0	0.0
TCE		0.0	0.0	0.0	0.0	0.0
DCE		0.0	0.0	1.0	0.0	0.0

RAMSEY	JUL	AUG	SEP	OCT	NOV	DEC
BEN		0.0	0.0	4.5	0.0	0.0
TOL		0.0	0.0	0.0	0.0	0.0
PCE		7.0	7.5	>50	16.0	4.0
TCE		0.0	<1	0.0	<1	0.0
DCE		1.0	0.0	2.7	0.0	0.0

H.CRUSHER	JUL	AUG	SEP	OCT	NOV	DEC
BEN	0.0	0.0	0.0	5.0	0.0	0.0
TOL	5.7	0.0	0.0	0.0	0.0	0.0
PCE	102.0	26.0	14.0	29.5	5.0	0.0
TCE	7.0	3.0	1.0	0.0	7.0	0.0
DCE	0.0	12.0	<1	4.0	0.0	0.0

H.BAKERY*	JUL	AUG	SEP	OCT	NOV	DEC
BEN	0.0	0.0	0.0	<1	0.0	0.0
TOL	6.3	0.0	0.0	0.0	0.0	0.0
PCE	2.9	3.0	1.0	0.0	0.0	0.0
TCE	0.0	0.0	<1	<1	<1	0.0
DCE	0.0	1.0	0.0	<1	0.0	0.0

H.ESTATE*	JUL	AUG	SEP	OCT	NOV	DEC
BEN		0.0	0.0	0.0	NA	0.0
TOL		0.0	0.0	1.0	NA	0.0
PCE		1.0	0.0	2.5	NA	0.0
TCE		0.0	0.0	0.0	NA	0.0
DCE		0.0	0.0	0.0	NA	0.0

LEONARD	JUL	AUG	SEP	OCT	NOV	DEC
BEN		0.0	0.0	0.0	0.0	0.0
TOL		0.0	0.0	0.0	0.0	0.0
PCE		1.0	0.0	0.0	0.0	0.0
TCE		0.0	0.0	0.0	0.0	0.0
DCE		0.0	0.0	0.0	0.0	0.0

TABLE 2 (CONTINUED). PHOTOVAC SAMPLING RESULTS, 1987.

FRANCOIS	JUL	AUG	SEP	OCT	NOV	DEC
BEN		0.0	0.0	0.0	0.0	0.0
TOL		0.0	1.0	0.0	0.0	0.0
PCE		120.0	180.0	>50	80.0	25.0
TCE		28.0	25.0	70.0	20.0	7.0
DCE		140.0	5.0	3.6	2.0	1.0

DEMITRIS	JUL	AUG	SEP	OCT	NOV	DEC
BEN		0.0	0.0	<1	0.0	0.0
TOL		0.0	0.0	0.0	0.0	0.0
PCE		2.0	0.0	<1	0.0	0.0
TCE		0.0	0.0	<1	0.0	0.0
DCE		0.0	0.0	<1	0.0	0.0

DEDE	JUL	AUG	SEP	OCT	NOV	DEC
BEN		0.0	0.0	<1	0.0	0.0
TOL		0.0	0.0	0.0	0.0	0.0
PCE		0.0	0.0	0.0	0.0	0.0
TCE		0.0	0.0	<1	0.0	0.0
DCE		0.0	0.0	1.0	0.0	0.0

DEVCON #1	JUL	AUG	SEP	OCT	NOV	DEC
BEN		0.0	0.0	0.0	0.0	0.0
TOL		0.0	0.0	0.0	0.0	0.0
PCE		0.0	0.0	0.0	0.0	0.0
TCE		0.0	0.0	0.0	<1	0.0
DCE		0.0	0.0	<1	<1	0.0

DEVCON #3	JUL	AUG	SEP	OCT	NOV	DEC
BEN		0.0	0.0	0.0	0.0	0.0
TOL		0.0	0.0	0.0	0.0	0.0
PCE		0.0	0.0	0.0	0.0	0.0
TCE		0.0	0.0	0.0	0.0	0.0
DCE		0.0	0.0	<1	0.0	0.0

VIHA #1	JUL	AUG	SEP	OCT	NOV	DEC
BEN	15.3	0.0	0.0	0.0	0.0	0.0
TOL	6.0	1.0	0.0	0.0	0.0	0.0
PCE	35.7	10.0	14.0	8.0	2.0	1.0
TCE	9.4	3.0	<1	0.0	<1	0.0
DCE	0.0	12.0	0.0	2.3	0.0	0.0

TABLE 2 (CONTINUED). PHOTOVAC SAMPLING RESULTS, 1987.

VIHA #3	JUL	AUG	SEP	OCT	NOV	DEC
BEN		0.0	0.0	<1	0.0	0.0
TOL		0.0	0.0	0.0	0.0	2.5
PCE		0.0	0.0	1.0	0.0	0.0
TCE		0.0	<1	1.0	<1	0.0
DCE		7.0	0.0	<1	0.0	0.0

EGLIN #1	JUL	AUG	SEP	OCT	NOV	DEC
BEN		0.0	0.0	0.0	0.0	2.0
TOL		0.0	1.0	0.0	0.0	5.0
PCE		38.0	60.0	104.0	25.0	14.0
TCE		11.0	<10	26.0	10.0	8.0
DCE		63.0	<5	4.5	2.0	1.3

EGLIN #2	JUL	AUG	SEP	OCT	NOV	DEC
BEN	3.1	0.0	0.0	0.0	0.0	0.0
TOL	5.9	0.0	<5	0.0	0.0	0.0
PCE	57.6	43.0	40.0	62.0	22.0	8.6
TCE	16.5	13.0	10.0	21.8	12.0	5.8
DCE	0.0	74.0	<5	4.5	2.0	1.4

EGLIN #3	JUL	AUG	SEP	OCT	NOV	DEC
BEN		0.0	0.0	0.0	0.0	0.0
TOL		0.0	1.0	0.0	0.0	0.0
PCE		57.0	105.0	104.0	55.0	24.0
TCE		16.0	<20	30.5	20.0	9.2
DCE		66.0	<5	7.5	1.0	1.7

SMITH	JUL	AUG	SEP	OCT	NOV	DEC
BEN		0.0	0.0	0.0	0.0	0.0
TOL		1.0	0.0	0.0	0.0	0.0
PCE		120.0	135.0	>500	50.0	9.6
TCE		17.0	10.0	70.0	3.0	1.4
DCE		81.0	<5	3.6	<1	ND

TILLET	JUL	AUG	SEP	OCT	NOV	DEC
BEN	6950.0	1400.0	250.0	46.0	>1000	>500
TOL	492.0	33.0	0.0	0.0	30.0	180.0
PCE	2040.0	120.0	475.0	>500	350.0	85.0
TCE	711.0	36.0	75.0	110.0	200.0	0.0
DCE	327.0	620.0	<10	19.0	45.0	0.0

TABLE 2 (CONTINUED). PHOTOVAC SAMPLING RESULTS, 1987.

'4 WINDS	JUL	AUG	SEP	OCT	NOV	DEC
BEN	6.7	2.0	0.0	0.0	0.0	1.0
TOL	5.9	1.0	2.0	0.0	0.0	0.0
PCE	64.2	72.0	125.0	202.0	104.0	50.0
TCE	18.8	21.0	<15	75.0	34.0	22.2
DCE	0.0	213.0	5.0	13.0	4.0	2.8

STEELE	JUL	AUG	SEP	OCT	NOV	DEC
BEN		0.0	0.0	0.0	0.0	0.0
TOL		0.0	0.0	0.0	0.0	0.0
PCE		270.0	575.0	>500	300.0	130.0
TCE		20.0	9.0	27.0	12.0	14.6
DCE		61.0	<5	1.8	<1	0.8

HARVEY	JUL	AUG	SEP	OCT	NOV	DEC
BEN		0.0	0.0	0.0	0.0	0.0
TOL		1.0	0.0	0.0	0.0	0.0
PCE		7600.0	>1000	>500	>1000	>500
TCE		61.0	25.0	20.0	40.0	50.0
DCE		56.0	5.0	14.0	<1	0.0

RODRIGUEZ	JUL	AUG	SEP	OCT	NOV	DEC
BEN		0.0	0.0	0.0	0.0	0.0
TOL		0.0	0.0	0.0	0.0	0.0
PCE		1.0	0.0	0.0	0.0	0.0
TCE		0.0	0.0	0.0	<1	0.0
DCE		0.0	0.0	<1	0.0	0.0

BRYAN	JUL	AUG	SEP	OCT	NOV	DEC
BEN		0.0	0.0	0.0	0.0	NA
TOL		0.0	0.0	0.0	0.0	NA
PCE		0.0	0.0	0.0	0.0	NA
TCE		0.0	0.0	0.0	<1	NA
DCE		0.0	0.0	0.0	0.0	NA

MATHIAS	JUL	AUG	SEP	OCT	NOV	DEC
BEN		0.0	0.0	0.0	0.0	0.0
TOL		1.0	0.0	0.0	0.0	0.0
PCE		66.0	118.0	17.8	88.0	35.0
TCE		4.0	3.0	0.0	14.0	2.8
DCE		9.0	<1	<1	2.0	0.0

TABLE 3. PHOTOVAC SAMPLING RESULTS, 1988. ALL CONCENTRATIONS IN UG/L

DENCH**	JAN	FEB	1988 MAY	AUG	NOV
BEN	0.0	0.0	0.0	<1	0.0
TOL	0.0	0.0	0.0	<1	<1
PCE	0.0	0.0	0.0	<1	0.0
TCE	0.0	0.0	0.0	0.0	10.0
DCE	NR	<1	NR	NR	NR

RAMSEY	JAN	FEB	MAY	AUG	NOV
BEN	0.0	0.0	0	0.0	NA
TOL	0.0	0.0	30.0	0.0	NA
PCE	6.0	4.0	154.0	17.0	NA
TCE	1.0	<1	46.0	1.0	NA
DCE	NR	0.0	NR	NR	NR

H.CRUSHER	JAN	FEB	MAY	AUG	NOV
BEN	0.0	0.0	0.0	0.0	NA
TOL	0.0	0.0	38.0	0.0	NA
PCE	4.0	3.0	130.0	10.0	NA
TCE	1.0	2.0	46.0	1.0	NA
DCE	NR	<1	NR	NR	NR

H.BAKERY*	JAN	FEB	MAY	AUG	NOV
BEN	0.0	0.0	<1	0.0	0.0
TOL	0.0	0.0	33.0	4.0	0.0
PCE	0.0	0.0	0.0	<1	0.0
TCE	0.0	<1	5.0	<1	<1
DCE	NR	0.0	NR	NR	NR

H.ESTATE*	JAN	FEB	MAY	AUG	NOV
BEN	0.0	0.0	<1	0.0	NA
TOL	0.0	0.0	0.0	0.0	NA
PCE	0.0	0.0	2.0	0.0	NA
TCE	0.0	0.0	0.0	0.0	NA
DCE	NR	0.0	NR	NR	NR

LEONARD	JAN	FEB	MAY	AUG	NOV
BEN	0.0	0.0	0.0	0.0	0.0
TOL	0.0	0.0	1.0	0.0	0.0
PCE	0.0	0.0	3.0	0.0	0.0
TCE	0.0	0.0	0.0	<1	0.0
DCE	NR	0.0	NR	NR	NR

TABLE 3 (CONTINUED). PHOTOVAC SAMPLING RESULTS, 1988.

FRANCOIS	JAN	FEB	MAY	AUG	NOV
BEN	0.0	0.0	0.0	0.0	0.0
TOL	0.0	0.0	0.0	1.0	0.0
PCE	275.0	82.0	>1000	140.0	32.0
TCE	100.0	29.0	180.0	40.0	100.0
DCE	NR	4.0	NR	NR	NR

DEMITRIS	JAN	FEB	MAY	AUG	NOV
BEN	0.0	0.0	0.0	0.0	0.0
TOL	3.0	0.0	0.0	0.0	0.0
PCE	0.0	0.0	4.0	0.0	0.0
TCE	0.0	0.0	2.0	0.0	0.0
DCE	NR	0.0	NR	NR	NR

DEDE	JAN	FEB	MAY	AUG	NOV
BEN	0.0	0.0	0.0	<1	0.0
TOL	0.0	0.0	0.0	<1	0.0
PCE	0.0	0.0	0.0	<1	0.0
TCE	0.0	0.0	0.0	<1	<1
DCE	NR	0.0	NR	NR	NR

DEVCON #1	JAN	FEB	MAY	AUG	NOV
BEN	0.0	0.0	0.0	<1	0.0
TOL	0.0	0.0	0.0	0.0	0.0
PCE	0.0	0.0	0.0	0.0	0.0
TCE	0.0	0.0	0.0	<1	<1
DCE	NR	0.0	NR	NR	NR

DEVCON #3	JAN	FEB	MAY	AUG	NOV
BEN	0.0	0.0	0.0	<1	<1
TOL	0.0	0.0	0.0	<1	<1
PCE	0.0	0.0	0.0	<1	0.0
TCE	0.0	0.0	0.0	<1	<1
DCE	NR	0.0	NR	NR	NR

VIHA #1	JAN	FEB	MAY	AUG	NOV
BEN	0.0	0.0	0.0	<1	0.0
TOL	0.0	0.0	0.0	<1	0.0
PCE	3.0	1.0	10.0	20.0	8.0
TCE	0.0	0.0	<1	3.0	7.0
DCE	NR	0.0	NR	NR	NR

VIHA #3	JAN	FEB	MAY	AUG	NOV
BEN	0.0	0.0	0.0	0.0	0.0
TOL	0.0	0.0	0.0	0.0	0.0
PCE	0.0	0.0	2.0	0.0	0.0
TCE	0.0	0.0	<1	0.0	0.0
DCE	NR	0.0	NR	NR	NR

TABLE 3 (CONTINUED). PHOTOVAC SAMPLING RESULTS, 1988.

EGLIN #1	JAN	FEB	MAY	AUG	NOV
BEN	NA	0.0	0.0	0.0	<1
TOL	NA	0.0	0.0	0.0	0.0
PCE	NA	22.0	450.0	39.0	6.0
TCE	NA	11.0	300.0	22.0	58.0
DCE	NA	3.0	NR	NR	NR

EGLIN #2	JAN	FEB	MAY	AUG	NOV
BEN	NA	0.0	0.0	NA	NA
TOL	NA	0.0	0.0	NA	NA
PCE	NA	25.0	760.0	NA	NA
TCE	NA	14.0	404.0	NA	NA
DCE	NA	3.0	NR	NA	NR

EGLIN #3	JAN	FEB	MAY	AUG	NOV
BEN	NA	0.0	0.0	0.0	0.0
TOL	NA	0.0	0.0	0.0	0.0
PCE	NA	41.0	500.0	12.0	9.0
TCE	NA	20.0	268.0	4.0	36.0
DCE	NA	2.0	NR	NR	NR

SMITH	JAN	FEB	MAY	AUG	NOV
BEN	0.0	0.0	1.0	0.0	0.0
TOL	0.0	0.0	0.0	0.0	0.0
PCE	>50	28.0	>1000	35.0	17.0
TCE	5.0	5.0	130.0	3.0	6.0
DCE	NR	<1	NR	NR	NR

TILLET	JAN	FEB	MAY	AUG*	NOV
BEN	NA	49.0	>1000	>1000	NA
TOL	NA	0.0	0.0	110.0	NA
PCE	NA	254.0	>1000	10.0	NA
TCE	NA	12.0	420.0	30.0	NA
DCE	NA	3.0	NR	NR	NR

'4 WINDS	JAN	FEB	MAY	AUG	NOV
BEN	0.0	0.0	NA	NA	0.0
TOL	0.0	0.0	NA	NA	0.0
PCE	450.0	159.0	NA	NA	30.0
TCE	100.0	56.0	NA	NA	100.0
DCE	NR	3.0	NA	NA	NR

STEELE	JAN	FEB	MAY	AUG	NOV
BEN	0.0	0.0	0.0	0.0	0.0
TOL	0.0	0.0	0.0	0.0	0.0
PCE	500.0	49.0	>1000	41.0	105.0
TCE	100.0	11.0	160.0	5.0	42.0
DCE	NR	1.0	NR	NR	NR

TABLE 3 (CONTINUED). PHOTOVAC SAMPLING RESULTS, 1988.

HARVEY	JAN	FEB	MAY	AUG	NOV
BEN	0.0	0.0	0.0	0.0	NA
TOL	0.0	0.0	0.0	0.0	NA
PCE	>500	>1000	>1000	>1000	NA
TCE	90.0	9.0	350.0	17.0	NA
DCE	NR	3.0	NR	NR	NR

RODRIGUEZ	JAN	FEB	MAY	AUG	NOV
BEN	0.0	0.0	0.0	0.0	0.0
TOL	0.0	0.0	0.0	0.0	0.0
PCE	0.0	0.0	0.0	0.0	0.0
TCE	0.0	0.0	0.0	0.0	0.0
DCE	NR	0.0	NR	NR	NR

BRYAN	JAN*	FEB	MAY	AUG	NOV
BEN	0.0	0.0	0.0	0.0	0.0
TOL	0.0	0.0	0.0	0.0	0.0
PCE	0.0	0.0	0.0	0.0	0.0
TCE	0.0	0.0	0.0	<1	<1
DCE	NR	0.0	NR	NR	NR

MATHIAS	JAN	FEB	MAY	AUG	NOV
BEN	0.0	0.0	0.0	0.0	NA
TOL	0.0	0.0	0.0	0.0	NA
PCE	100.0	49.0	348.0	25.0	NA
TCE	<55	4.0	16.0	2.0	NA
DCE	NR	<1	NR	NR	NR

TABLE 4. PHOTOVAC SAMPLING RESULTS, 1989. ALL CONCENTRATIONS IN UG/L

DENCH**	FEB	1989 MAY	AUG	DEC
BEN	0.0	0.0	15.0	1.0
TOL	0.0	<1	<1	<1
PCE	<1	0.0	0.0	0.0
TCE	1.0	3.0	1.0	0.0
DCE	0.0	0.0	1.0	0.0

RAMSEY	FEB	MAY	AUG	DEC
BEN	0.0	0.0	0.0	0.0
TOL	0.0	0.0	0.0	0.0
PCE	27.0	7.0	30.0	2.0
TCE	2.0	6.0	1.4	1.0
DCE	0.0	0.0	0.0	0.0

H.CRUSHER	FEB	MAY	AUG	DEC
BEN	NA	NA	NA	NA
TOL	NA	NA	NA	NA
PCE	NA	NA	NA	NA
TCE	NA	NA	NA	NA
DCE	NA	NA	NA	NA

H.BAKERY*	FEB	MAY	AUG	DEC
BEN	NA	NA	NA	0.0
TOL	NA	NA	NA	<1
PCE	NA	NA	NA	0.0
TCE	NA	NA	NA	0.0
DCE	NA	NA	NA	0.0

H.ESTATE*	FEB	MAY	AUG	DEC
BEN	NA	NA	NA	NA
TOL	NA	NA	NA	NA
PCE	NA	NA	NA	NA
TCE	NA	NA	NA	NA
DCE	NA	NA	NA	NA

LEONARD	FEB	MAY	AUG	DEC
BEN	0.0	0.0	0.0	0.0
TOL	0.0	0.0	0.0	0.0
PCE	0.0	0.0	0.0	0.0
TCE	<1	0.0	<1	0.0
DCE	0.0	0.0	1.0	0.0

TABLE 4 (CONTINUED). PHOTOVAC SAMPLING RESULTS, 1989.

FRANCOIS	FEB	MAY	AUG	DEC
BEN	NA	NA	NA	NA
TOL	NA	NA	NA	NA
PCE	NA	NA	NA	NA
TCE	NA	NA	NA	NA
DCE	NA	NA	NA	NA

DEMITRIS	FEB	MAY	AUG	DEC
BEN	0.0	NA	NA	NA
TOL	0.0	NA	NA	NA
PCE	<1	NA	NA	NA
TCE	<1	NA	NA	NA
DCE	0.0	NA	NA	NA

DEDE	FEB	MAY	AUG	DEC
BEN	0.0	0.0	0.0	0.0
TOL	0.0	0.0	0.0	0.0
PCE	0.0	0.0	0.0	0.0
TCE	<1	0.0	<1	0.0
DCE	0.0	0.0	1.4	0.0

DEVCON #1	FEB	MAY	AUG	DEC
BEN	0.0	0.0	3.0	0.0
TOL	0.0	0.0	0.0	0.0
PCE	0.0	0.0	0.0	0.0
TCE	<1	0.0	1.3	0.0
DCE	0.0	0.0	<1	0.0

DEVCON #3	FEB	MAY	AUG	DEC
BEN	0.0	0.0	NA	0.0
TOL	0.0	0.0	NA	0.0
PCE	0.0	0.0	NA	0.0
TCE	0.0	0.0	NA	0.0
DCE	0.0	0.0	NA	0.0

VIHA #1	FEB	MAY	AUG	DEC
BEN	0.0	0.0	0.0	0.0
TOL	0.0	0.0	0.0	0.0
PCE	39.0	27.0	316.0	11.0
TCE	7.0	9.0	80.0	5.0
DCE	<1	0.0	0.0	0.0

TABLE 4 (CONTINUED). PHOTOVAC SAMPLING RESULTS, 1989.

VIHA #3	FEB	MAY	AUG	DEC
BEN	0.0	0.0	0.0	0.0
TOL	0.0	0.0	0.0	0.0
PCE	1.0	0.0	0.0	0.0
TCE	<1	0.0	1.0	0.0
DCE	<1	0.0	1.0	0.0

EGLIN #1	FEB	MAY	AUG	DEC
BEN	0.0	0.0	NA	NA
TOL	0.0	0.0	NA	NA
PCE	78.0	90.0	NA	NA
TCE	88.0	34.0	NA	NA
DCE	9.0	0.0	NA	NA

EGLIN #2	FEB	MAY	AUG	DEC
BEN	0.0	0.0	NA	NA
TOL	0.0	0.0	NA	NA
PCE	27.0	23.0	NA	NA
TCE	34.0	14.0	NA	NA
DCE	2.0	2.0	NA	NR

EGLIN #3	FEB	MAY	AUG	DEC
BEN	0.0	0.0	NA	NA
TOL	0.0	0.0	NA	NA
PCE	96.0	109.0	NA	NA
TCE	45.0	28.0	NA	NA
DCE	2.0	3.0	NA	NA

SMITH	FEB	MAY	AUG	DEC
BEN	0.0	0.0	0.0	0.0
TOL	0.0	0.0	0.0	0.0
PCE	120.0	337.0	181.0	119.0
TCE	15.0	21.0	73.0	17.0
DCE	<1	2.0	0.0	<1

TILLET	FEB	MAY	AUG	DEC
BEN	NA	680.0	>1000	NA
TOL	NA	24.0	0.0	NA
PCE	NA	88.0	13.0	NA
TCE	NA	62.0	135.0	NA
DCE	NA	87.0	0.0	NA

TABLE 4 (CONTINUED). PHOTOVAC SAMPLING RESULTS, 1989.

'4 WINDS	FEB	MAY	AUG	DEC
BEN	0.0	0.0	NA	0.0
TOL	0.0	0.0	NA	0.0
PCE	120.0	136.0	NA	27.0
TCE	43.0	28.0	NA	21.0
DCE	5.0	10.0	NA	4.0

STEELE	FEB	MAY	AUG	DEC
BEN	0.0	0.0	0.0	0.0
TOL	0.0	0.0	0.0	0.0
PCE	217.0	967.0	>1000	61.0
TCE	66.0	93.0	280.0	50.0
DCE	2.0	6.0	0.0	2.0

HARVEY	FEB	MAY	AUG	DEC
BEN	NA	NA	NA	NA
TOL	NA	NA	NA	NA
PCE	NA	NA	NA	NA
TCE	NA	NA	NA	NA
DCE	NA	NA	NA	NA

RODRIGUEZ	FEB	MAY	AUG	DEC
BEN	0.0	0.0	0.0	0.0
TOL	0.0	0.0	0.0	0.0
PCE	0.0	0.0	0.0	0.0
TCE	<1	0.0	<1	0.0
DCE	0.0	0.0	1.1	0.0

BRYAN	FEB	MAY	AUG	DEC
BEN	0.0	0.0	0.0	NA
TOL	0.0	0.0	0.0	NA
PCE	0.0	0.0	0.0	NA
TCE	0.0	5.0	<1	NA
DCE	0.0	0.0	2.0	NA

MATHIAS	FEB	MAY	AUG	DEC
BEN	0.0	0.0	0.0	0.0
TOL	0.0	0.0	0.0	0.0
PCE	76.0	66.0	720.0	9.0
TCE	5.0	7.0	48.0	6.0
DCE	<1	0.0	0.0	<1

TABLE 5. PHOTOVAC SAMPLING RESULTS, 1990. ALL CONCENTRATIONS IN UG/L

	1990	
DENCH**	FEB	MAY
BEN	0.0	
TOL	0.0	
PCE	0.0	
TCE	0.0	
DCE	0.0	
RAMSEY	FEB	MAY
BEN	0.0	
TOL	0.0	
PCE	8.0	
TCE	<1	
DCE	<1	
H.CRUSHER	FEB	MAY
BEN	NA	
TOL	NA	
PCE	NA	
TCE	NA	
DCE	NA	
H.BAKERY*	FEB	MAY
BEN	NA	
TOL	NA	
PCE	NA	
TCE	NA	
DCE	NA	
H.ESTATE*	FEB	MAY
BEN	NA	
TOL	NA	
PCE	NA	
TCE	NA	
DCE	NA	
LEONARD	FEB	MAY
BEN	0.0	
TOL	0.0	
PCE	0.0	
TCE	0.0	
DCE	0.0	

TABLE 5 (CONTINUED). PHOTOVAC SAMPLING RESULTS, 1990.

FRANCOIS	FEB	MAY
BEN	NA	
TOL	NA	
PCE	NA	
TCE	NA	
DCE	NA	

DEMITRIS	FEB	MAY
BEN	NA	
TOL	NA	
PCE	NA	
TCE	NA	
DCE	NA	

DEDE	FEB	MAY
BEN	0.0	
TOL	0.0	
PCE	0.0	
TCE	0.0	
DCE	0.0	

DEVCON #1	FEB	MAY
BEN	<1	
TOL	0.0	
PCE	0.0	
TCE	0.0	
DCE	0.0	

DEVCON #3	FEB	MAY
BEN	NA	
TOL	NA	
PCE	NA	
TCE	NA	
DCE	NA	

VIHA #1	FEB	MAY
BEN	NA	
TOL	NA	
PCE	NA	
TCE	NA	
DCE	NA	

TABLE 5 (CONTINUED). PHOTOVAC SAMPLING RESULTS, 1990.

VIHA #3	FEB	MAY
BEN	0.0	
TOL	0.0	
PCE	0.0	
TCE	<1	
DCE	0.0	

EGLIN #1	FEB	MAY
BEN	0.0	
TOL	0.0	
PCE	46.0	
TCE	13.0	
DCE	3.0	

EGLIN #2	FEB	MAY
BEN	0.0	
TOL	0.0	
PCE	58.0	
TCE	15.0	
DCE	<1	

EGLIN #3	FEB	MAY
BEN	0.0	
TOL	0.0	
PCE	83.0	
TCE	17.0	
DCE	<1	

SMITH	FEB	MAY
BEN	<1	
TOL	0.0	
PCE	300.0	
TCE	16.0	
DCE	<1	

TILLET	FEB	MAY
BEN	37.0	
TOL	0.0	
PCE	89.0	
TCE	21.0	
DCE	8.0	

TABLE 5 (CONTINUED). PHOTOVAC SAMPLING RESULTS, 1990.

'4 WINDS	FEB	MAY
BEN	NA	
TOL	NA	
PCE	NA	
TCE	NA	
DCE	NA	

STEELE	FEB	MAY
BEN	0.0	
TOL	0.0	
PCE	95.0	
TCE	54.0	
DCE	2.0	

HARVEY	FEB	MAY
BEN	NA	
TOL	NA	
PCE	NA	
TCE	NA	
DCE	NA	

RODRIGUEZ	FEB	MAY
BEN	0.0	
TOL	0.0	
PCE	0.0	
TCE	0.0	
DCE	0.0	

BRYAN	FEB	MAY
BEN	0.0	
TOL	<1	
PCE	0.0	
TCE	0.0	
DCE	0.0	

MATHIAS	FEB	MAY
BEN	2.0	
TOL	0.0	
PCE	58.0	
TCE	4.0	
DCE	<1	