

June 20, 2008

Ms. Jill Blunden, Esq.
Beazer East, Inc.
One Oxford Centre
Suite 3000
Pittsburgh, PA 15219-6401

FINAL

RE: Columbia Analytical Services, Inc. Analyses Performed for Samples Collected From Well FW-4C at the Cabot Carbon/Koppers Superfund Site, Gainesville, Florida.

Dear Ms. Blunden:

At your request, Environmental Standards, Inc. (Environmental Standards) evaluated the volatile, semivolatile, metals, and bromide data for Well FW-4C generated by Columbia Analytical Services of Jacksonville, Florida (CAS Jacksonville).

The assessment was specifically requested because positive results were reported for a semivolatile compound (*viz.*, naphthalene) that were inconsistent with historical sampling results for groundwater samples collected during the February 2008 groundwater sampling of Well-4C.

The Well FW-4C samples were collected in February 2008 from the Cabot Carbon/Koppers Superfund Site, Gainesville, Florida, as a part of the 2008 First Quarter Floridan Aquifer Groundwater Monitoring Event. The data package was identified as CAS Service Request Number (SRN) J0800697. A full data package was provided; the data package included summary forms and raw data for samples and associated quality control analyses. Environmental Standards evaluated the samples identified on the table below.

Samples Evaluated

Beazer Sample ID	CAS Jacksonville Sample ID
FW4C-02-021108	J0800697-001
FW4C-01-021108	J0800697-002
FW4C-03-021108	J0800697-003

CAS Jacksonville analyzed the samples for the volatile organic compounds (VOCs) benzene; toluene; ethylbenzene; *m,p*-xylenes; and *o*-xylenes by SW-846 Method 8260B; for semivolatile organic compounds (SVOCs) by SW-846 Method 8270C; for the dissolved metals arsenic chromium, copper, and zinc by SW-846 Method 6020; and for bromide by US EPA Method 300.0.

Environmental Standards evaluated the summary forms and raw data in the data package for the VOCs, SVOCs, select metals, and bromide analyses for the samples generated from the February 2008 collection of Well FW-4C. Environmental Standards' review concentrated on the following items:

- Blank contamination.
- Potential instrument carryover.
- Result reporting, including quantitative and qualitative evaluations.
- The possibility of switching/mislabeled samples.

FW-4C Data Evaluation

The purpose of the review was to evaluate the volatile, semivolatile, metals, and bromide data generated by CAS Jacksonville. As a portion of the overall evaluation, Environmental Standards' review focused on determining the validity of reported positive results for SVOCs that were inconsistent with historical sampling results.

Blank Contamination

Environmental Standards evaluated the summary forms and raw data generated by CAS Jacksonville for the Well FW-4C samples. For the VOC, SVOC, and bromide analyses, positive results for target compounds were not reported in the method, preparation, and instrument blanks associated with the FW-4C samples. An equipment blank, sample EB02-021108, was included in the data set; positive results for VOC, SVOC, and bromide target compounds were not observed.

For the metals analysis, positive results for dissolved metals were not observed in the preparation blank, instrument blanks, and the equipment blank (EB02-021108) associated with the Well FW-4C samples with the exception of trace-level positive results for dissolved chromium in the preparation blank (0.17 µg/L) associated with the Well FW-4C samples and in sample EB02-021108 (0.28 µg/L).

- The reported positive results for dissolved chromium in samples FW-4C-01-021108, FW-4C-02-021108, and FW-4C-03-021108 may be the result of laboratory, equipment, or field contamination as the reported concentrations for dissolved chromium in these samples were similar to the concentration reported in the associated blank sample (*i.e.*, sample concentrations < 5× the concentration observed in an associated blank).

Environmental Standards evaluated the blank sample raw data (chromatographs, quantitation reports, *etc.*) to evaluate the possibility of false negatives. There were no observed indications of unreported target compounds in the blank samples associated with the Well FW-4C samples. It is noteworthy that the trip blank collected on the same day as the Well FW-4C samples was

FINAL

reported in SRN J0800698; however, VOCs were not detected in the Well FW-4C samples. The dissolved chromium results notwithstanding, the review of the associated blanks for VOCs, SVOCs, dissolved metals, and bromide analyses did not reveal instances of contamination introduced during the laboratory handling and analytical processes or in the collection of the samples.

Potential Instrument Carryover

Environmental Standards investigated the possibility that positive results reported for target compounds in the evaluated samples were the result of instrument carryover effects or other contamination of the analytical instrumentation. Positive results were not observed in the VOC analyses; therefore, instrument carryover is not a concern for the VOC analyses.

Sample-to-sample contamination is not typically observed for the instrumentation (inductively coupled plasma/mass spectrometry [ICP/MS]) utilized for the metals analysis because ICP/MS auto-sampling apparatus typically acid-rinse the sample intake lines between sample analyses. Nevertheless, Environmental Standards evaluated the sample sequence to determine if reported positive results for dissolved chromium, copper, and zinc could have been the result of contaminant introduction during the analyses. Samples FW-4C-01-021108 and FW-4C-03-021108 were analyzed in sequence immediately following the analysis of an instrument blank. Chromium, copper, and zinc were not detected in the preceding instrument blank, and, therefore, carryover contamination is not suspected. Sample FW-4C-02-021108 was analyzed immediately following a laboratory quality control sample spiked with target compounds (laboratory control sample [LCS]); however, the concentration levels utilized in the LCS were well below the upper limit of the instrument's linear range (essentially its concentration load capacity). Additionally, sample FW-4C-02-021108 was the designated QC sample for the analytical batch and acceptable accuracy and precision were observed. If the concentrations in sample FW-4C-02-021108 were impacted by instrument carryover, diminishing recoveries and poor precision would be observed in the QC samples that utilize sample FW-4C-02-021108 as a background sample. Instrument carryover is not suspected or likely.

For the bromide analysis, CAS Jacksonville analyzed samples FW-4C-02-021108, FW-4C-01-021108, and FW-4C-03-021108 in laboratory sample number order. Bromide was not detected in samples FW-4C-02-021108 and FW-4C-01-021108. Therefore, the positive result observed in sample FW-4C-03-021108 could not have been carryover as the preceding sample analysis yielded a "not-detected" result.

For the SVOC analysis, samples FW-4C-02-021108, FW-4C-01-021108, and FW-4C-03-021108 were extracted in a batch with samples from other projects and analyzed in sequence with samples from other projects. It was not possible to determine the analytical results of the other samples included in the preparation and analytical batches to evaluate carryover possibilities from the data package provided. Samples FW-4C-02-021108,

FINAL

FW-4C-01-021108, and FW-4C-03-021108 were analyzed in sequence immediately following unknown samples. The similarity in the target compounds and their reported concentrations in samples FW-4C-02-021108, FW-4C-01-021108, and FW-4C-03-021108 do not suggest carryover contamination. The possibility of carryover contamination cannot be eliminated without an evaluation of the analytical profiles of the samples that immediately precede in sequence. In the absence of historical precedent for the target compounds detected, the similarity in the target compounds and their reported concentrations in samples FW-4C-02-021108, FW-4C-01-021108, and FW-4C-03-021108 are more suggestive of either glassware or laboratory equipment contamination or actual field conditions. Generally speaking, very large instrument concentrations are needed for semivolatile instrument carryover. It is noteworthy that target compounds were not detected in the associated method blank that accompanied samples FW-4C-02-021108, FW-4C-01-021108, and FW-4C-03-021108 through the preparation and analytical process. Environmental Standards does not anticipate that carryover is the cause of the naphthalene results in these samples.

Result Reporting

Environmental Standards evaluated the raw data for the samples and the associated LCS, matrix spikes, duplicates, matrix spike duplicates, and calibrations to assess the qualitative and quantitative accuracy of the reported results. Environmental Standards evaluated the sample data for the possibility of false positive and false negative results. All sample analyses were performed undiluted.

For the metals and bromide data, all reported positive results met qualitative identification criteria. Retention times for bromide in the samples were compared with the retention times in calibration standards and spikes. The percent recoveries, percent differences, and/or precision observed in the associated LCS, matrix spikes, duplicates, matrix spike duplicates, and calibrations were within or near acceptance ranges and do not suggest a bias. Environmental Standards recalculated all positive results to confirm the quantitative results reported.

Similarly for the VOC and SVOC analyses, the possibility of bias was apparent on the basis of the associated laboratory QC samples or calibration standards. The retention times for positive results were consistent with the retention times observed in associated spikes and calibration standards. Mass spectra for the reported GC/MS positive results were evaluated against reference spectra to confirm the reported qualitative identifications and sample chromatograms were evaluated to confirm detections and general chromatography quality and to evaluate the possibility of false negatives. Environmental Standards confirmed the laboratory-reported results based on the information provided with one possible caveat.

- The SVOC target compound naphthalene is also frequently analyzed as a target VOC. For the VOC analyses, naphthalene was included in the LCS and calibration standards. The absence of a chromatographic peak for naphthalene in the VOC analysis

FINAL

chromatograms for samples FW-4C-02-021108, FW-4C-01-021108, and FW-4C-03-021108 is noteworthy because positive results were reported for naphthalene in the semivolatile analyses of these same samples. Chromatograms from the VOC analysis LCS, calibration standards, and samples are included as Attachment 1 as an illustration. Environmental Standards did not observe a peak at the naphthalene retention line for these samples. The concentrations of naphthalene in the SVOC samples should be visible on the volatile chromatograms. The presence of naphthalene in the SVOC analysis may be due to sample matrix (*i.e.*, sediment in the sample) or may be an indication of an inadvertent switching/mislabeled of samples either in the field or in the laboratory. The SVOC preparation utilizes the entire sample using an organic solvent extraction, whereas VOC preparation utilizes only 5 mL of sample; therefore, the possibility exists that naphthalene could have been extracted from any sediment particulates as part of the SVOC analysis that may not have been efficiently purged from the sediment particulates as part of the VOC analysis.

The Possibility of Switched/Mislabeled Samples

Environmental Standards evaluated sample Chain-of-Custody records, sample log-in and receipt paperwork, and raw laboratory documentation to evaluate the possibility of sample switching or labeling errors.

The samples were collected on 2/11/08, relinquished to the laboratory on 2/12/08, and opened in the laboratory on 2/13/08. Laboratory paperwork indicated that custody seals were not utilized on sample coolers; samples were relinquished directly to the laboratory courier from the field sampling team. Samples were assigned laboratory identification numbers in sequential order, consistent with the order that samples were listed on the Chain-of-Custody. The SVOC samples were extracted in a batch with non-Beazer samples; consequently, a possible sample switch during the extraction process could not be confirmed or ruled out. The raw data and run logs did not provide an apparent indication of switched sample identifiers. Based on the information available, clear evidence of sample switching or mislabeling was not apparent.

Conclusions

Based on the information reviewed, the results for dissolved chromium in samples may be due to contamination. The naphthalene in the semivolatile analysis may be due to the matrix (*i.e.*, the inclusion of sediment in the SVOC samples) but the fact that naphthalene was not also observed in the volatile fraction of these samples may suggest the possibility sample switching; however, laboratory documentation did not include additional information to definitely support the possibility of sample switching.

FINAL

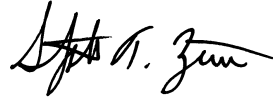
If you have any questions or comments, please do not hesitate to call.

Assessment prepared by:



Kyle R. Clay
Senior Quality Assurance Chemist

Assessment reviewed by:



Stephen T. Zeiner, CEAC
Senior Quality Assurance Chemist/
Project Manager

Assessment concurred by:



Rock J. Vitale, CEAC. CPC
Technical Director of Chemistry/
Principal

KRC/STZ/RJV:hm
Enc.

FINAL

ATTACHMENT 1

Data File:	J:\MS53\DATA\MS538B14.B\0214-03.D	Instrument:	MS53.i
Acqu Date:	02/14/2008 10:44	Quant Date:	02/14/2008 11:10
Run Type:	LCS	Vial:	3
Lab ID:	JWG0800566-3	Dilution:	1.0
		Soln Conc. Units:	ug/L

Target Compounds

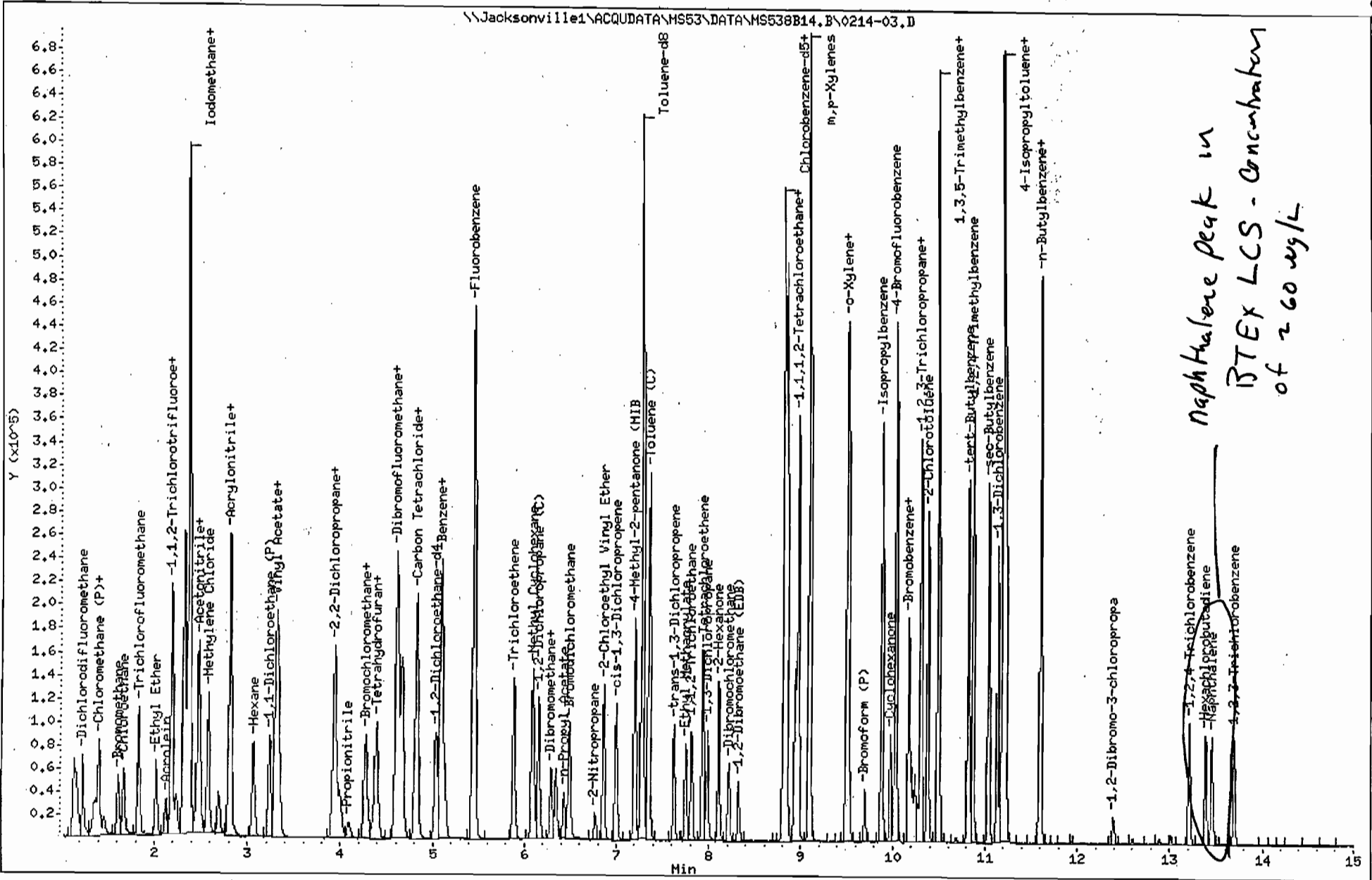
						Final Conc. Units:		ug/L		
IS Ref	Parameter Name	RT	RT Dev	RRT Dev	Quant Mass	Response	Solution Conc	Final Conc	Q	Rpt?
2	1,3-Dichloropropane	7.98	0.00	0.00	76	53585	19.93	19.9		
2	2-Hexanone	8.10	-0.01	0.00	43	96935	114.70	115		
2	Dibromochloromethane	8.22	0.00	0.00	129	35865	20.28	20.3		
2	1,2-Dibromoethane (EDB)	8.32	0.00	0.00	107	34913	21.80	21.8		
2	1-Chlorohexane	8.85	0.00	0.00	91	79689	24.71	24.7		
2	Chlorobenzene	8.85	0.00	0.00	112	163524	21.50	21.5		
2	1,1,1,2-Tetrachloroethane	8.94	0.00	0.00	131	38304	19.64	19.6		
2	Ethylbenzene	8.97	0.00	0.00	91	265719	22.55	22.5		
2	m,p-Xylenes	9.10		0.00	106	223901	45.79	45.8		
2	o-Xylene	9.50	0.00	0.00	91	200153	21.69	21.7		
2	Styrene	9.52	0.00	0.00	104	179284	22.78	22.8		
2	Bromoform	9.70	0.00	0.00	173	21450	22.30	22.3		
3	Isopropylbenzene	9.88	0.00	0.00	105	238887	21.13	21.1		
2	Cyclohexanone	9.98	0.00	0.00	55	38202	1,022	1020		
3	Bromobenzene	10.18	0.00	0.00	77	76168	19.63	19.6		
2	1,1,2,2-Tetrachloroethane	10.21	0.00	0.00	83	32294	23.39	23.4		
2	1,2,3-Trichloropropane	10.24	0.00	0.00	110	10491	22.42	22.4		
3	trans-1,4-Dichloro-2-butene	10.27	0.00	0.00	53	7348	19.29	19.3	J	
3	n-Propylbenzene	10.31	0.00	0.00	91	259068	20.29	20.3		
3	2-Chlorotoluene	10.38	0.00	0.00	126	52869	20.93	20.9		
3	1,3,5-Trimethylbenzene	10.49	0.00	0.00	105	194489	21.90	21.9		
3	4-Chlorotoluene	10.49	0.00	0.00	91	187575	21.15	21.1		
3	tert-Butylbenzene	10.82	0.00	0.00	119	162794	21.75	21.8		
3	1,2,4-Trimethylbenzene	10.87	0.00	0.00	105	207268	23.55	23.5		
3	sec-Butylbenzene	11.04	-0.01	0.00	105	221261	24.41	24.4		
3	1,3-Dichlorobenzene	11.14	0.00	0.00	146	111973	22.11	22.1		
3	4-Isopropyltoluene	11.19	0.00	0.00	119	206756	25.86	25.9		
3	1,4-Dichlorobenzene	11.23		0.00	146	108666	21.89	21.9		
3	n-Butylbenzene	11.60	0.00	0.00	91	148712	28.30	28.3		
3	1,2-Dichlorobenzene	11.60	0.00	0.00	146	93781	22.45	22.5		
3	1,2-Dibromo-3-chloropropane (E	12.39		0.00	157	7650	34.43	34.4		
3	1,2,4-Trichlorobenzene	13.22	0.00	0.00	180	31861	32.04	32.0		
3	Hexachlorobutadiene	13.39	-0.01	0.00	225	13973	25.69	25.7		
3	Naphthalene	13.46	0.01	0.00	128	72094	60.60	60.6		
3	1,2,3-Trichlorobenzene	13.70		0.00	180	27453	47.49	47.5		
	1,2-Dichloro-1,1,2-trifluoroetha				0	0		10	U	NR
	Ethyl Acetate				0	0		10	U	NR
	Bis(chloromethyl) Ether				0	0		10	U	NR

Naphthalene Retention Time in BTEX LCS Sample

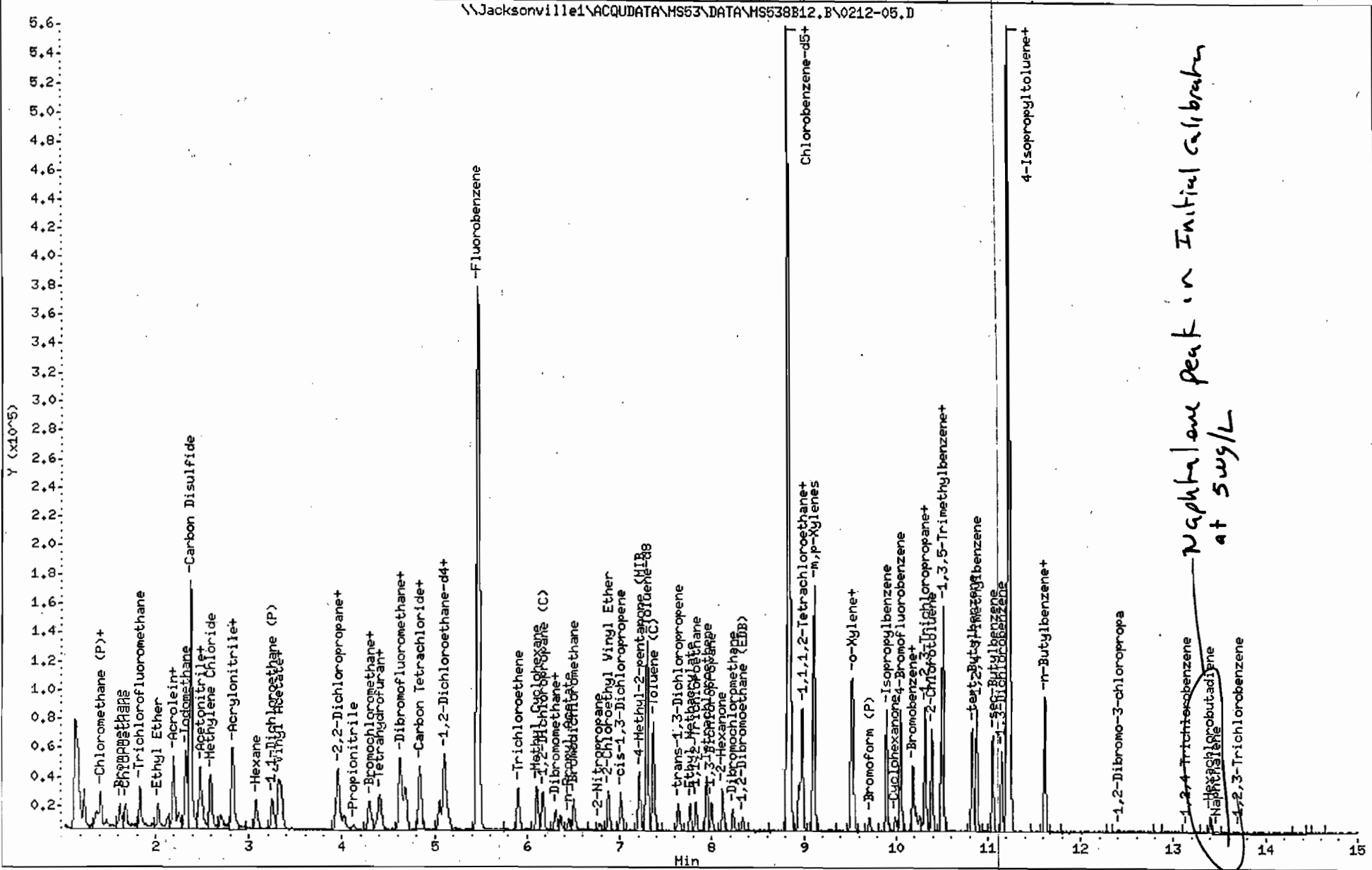
U: Undetected at or above MDL
 J: Analyte detected above MDL, but below MRL
 B: Hit above MRL also found in Method Blank
 E: Analyte concentration above high point of ICAL
 N: Presumptive evidence of compound

D: Result from dilution
 m: Manual integration performed
 d: Compound manually deleted
 NR: Analyte not reported from this analysis

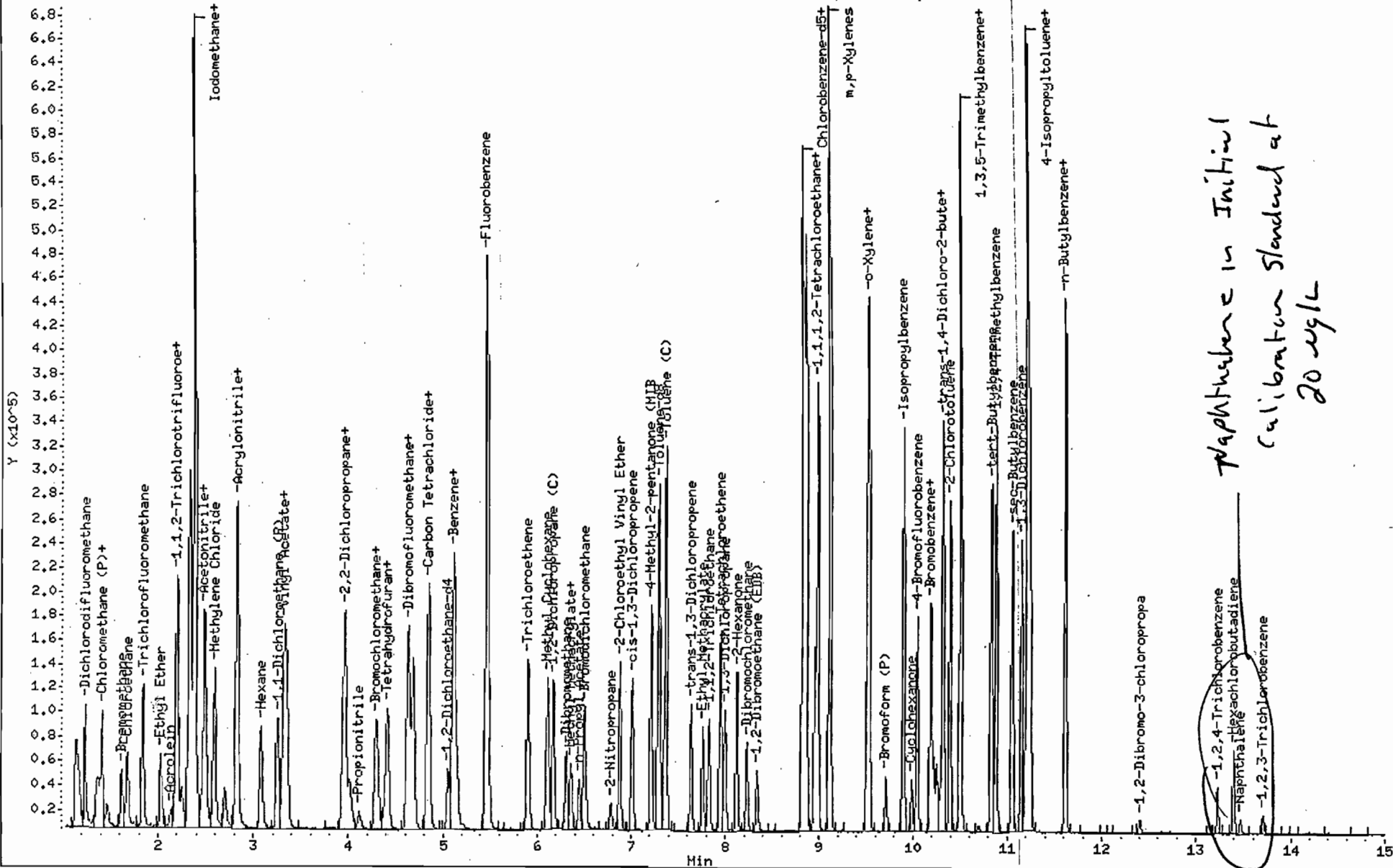
*: Result fails acceptance criteria
 #: Acceptance criteria not applicable
 ?: Insufficient information to determine acceptance
 e: Result >= MRL, but MRL less than low point of ICAL
 c: check for co-elution



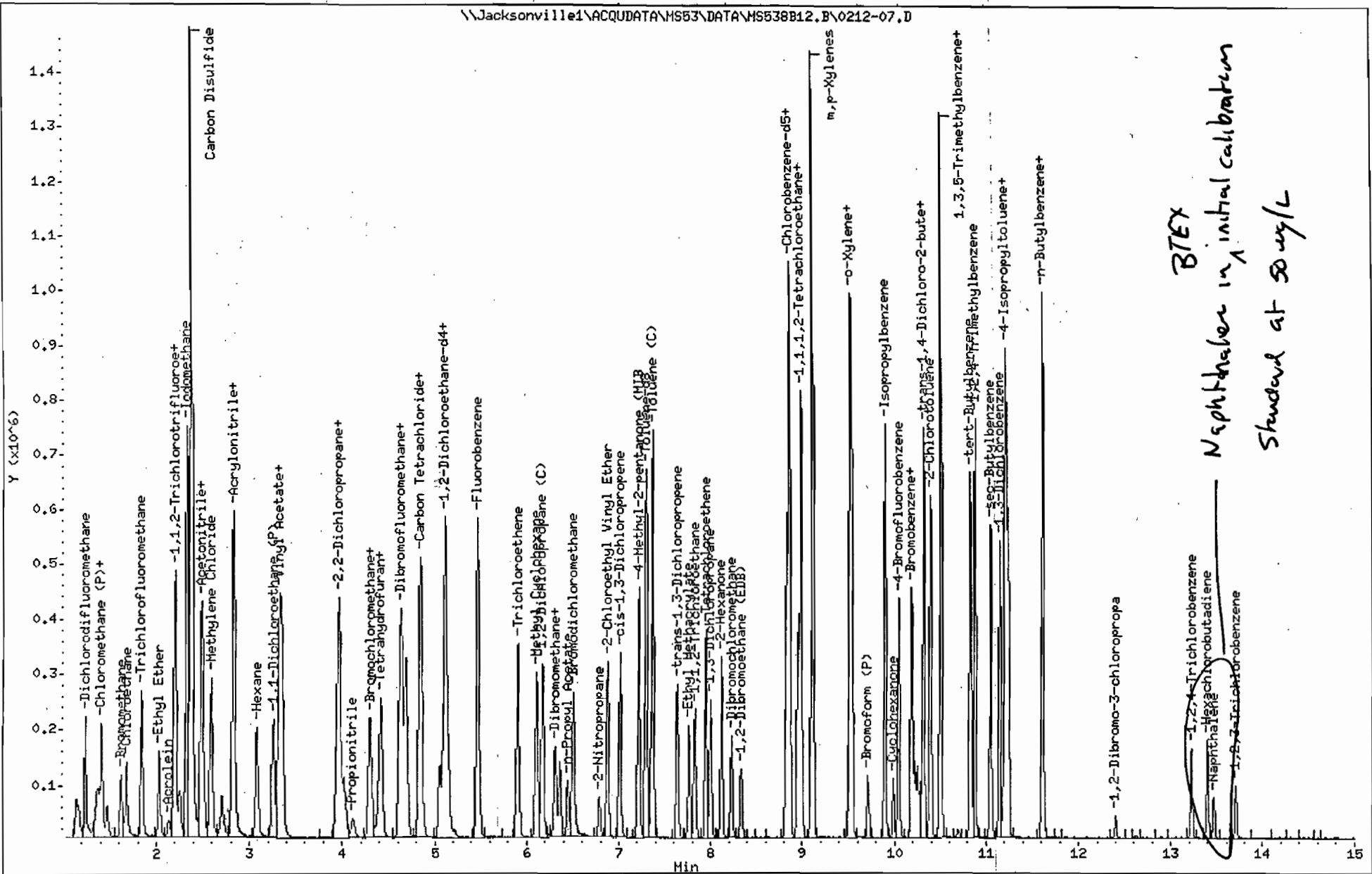
Naphthalene peak in
BTEX LCS - Concentration
of 260 ug/L



\\Jacksonville1\ACQUADATA\MS53\DATA\MS538B12.B\0212-06.D



Naphthalene in Initial
Calibration Standard at
20 ug/L



BTEX
Naphthalene in initial calibration
Standard at 50 ug/L

1,2,4-Trichlorobenzene
Naphthalene
1,2,3-Trichlorobenzene

Data File: \\Jacksonville1\ACQUATA\MS53\DATA\MS538B14.B\0214-06.D

Date : 14-FEB-2008 12:04

Client ID:

Sample Info: J0800697-001.01

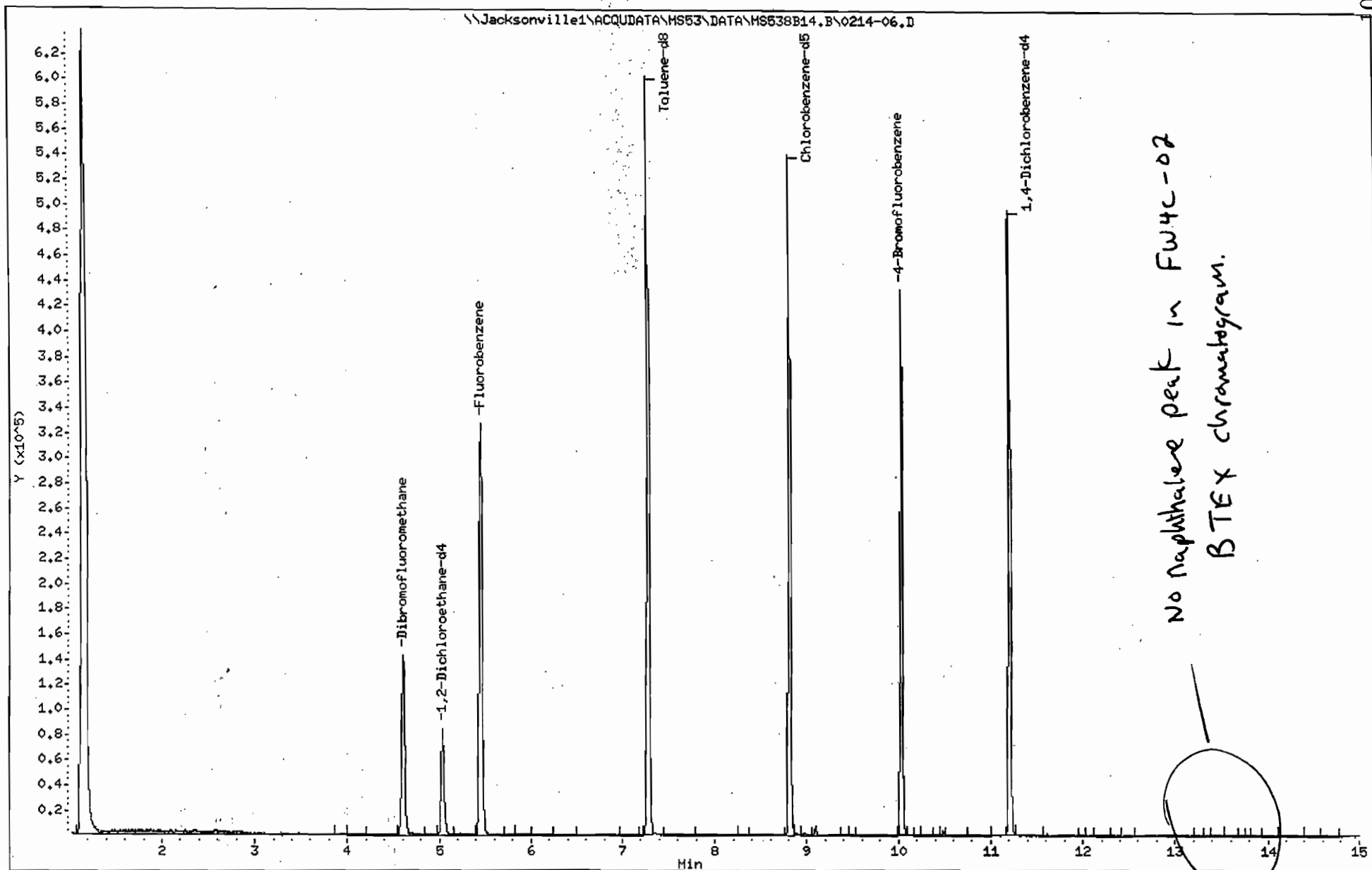
Purge Volume: 10.0

Column phase: DB-VRX

Instrument: MS53.1

Operator: ABW

Column diameter: 0.18



Data File: \\Jacksonville1\ACQDATA\MS53\DATA\MS538B14.B\0214-07.D

Date : 14-FEB-2008 12:30

Client ID:

Sample Info: J0800697-002.01

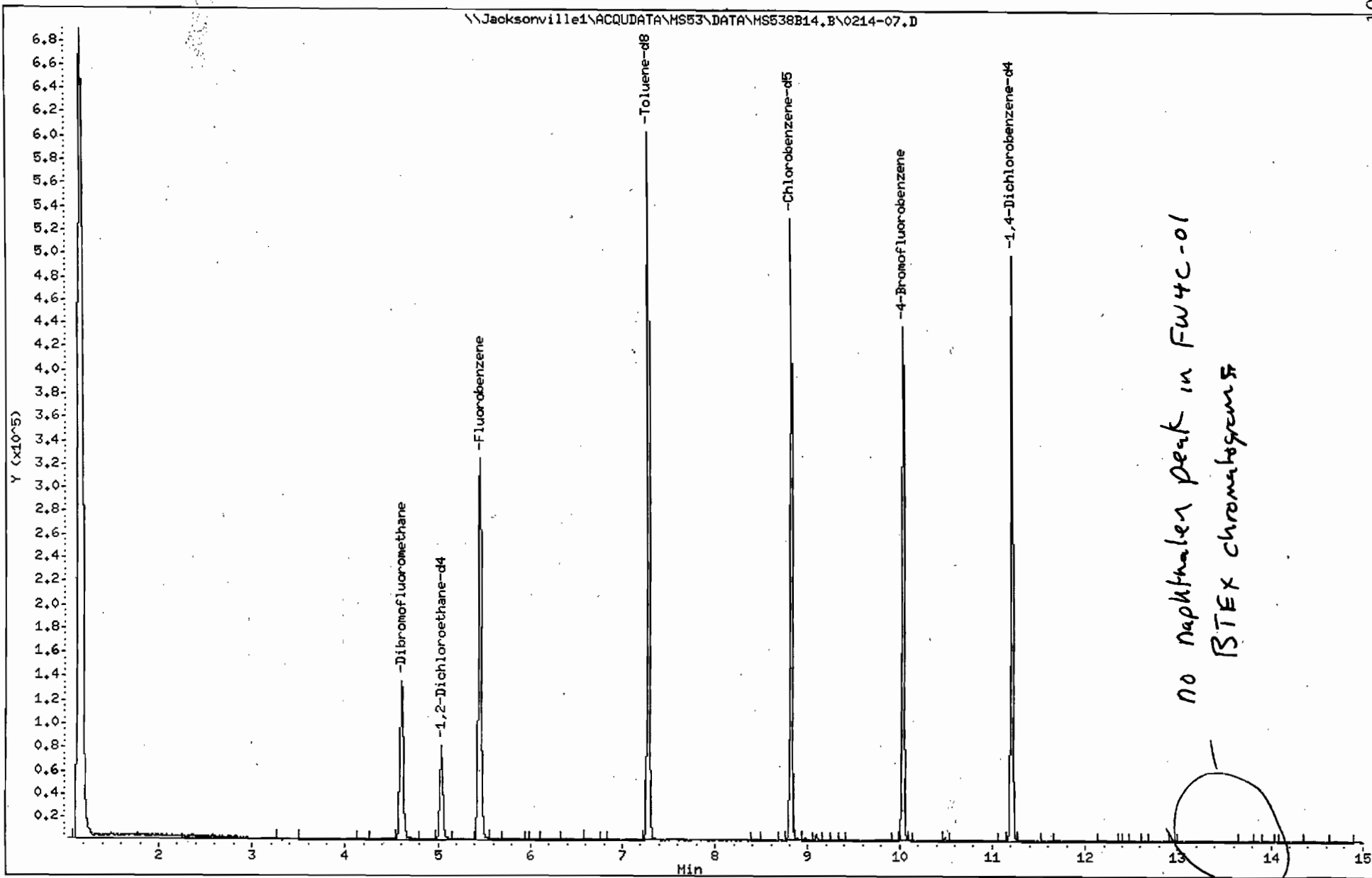
Purge Volume: 10.0

Column phase: DB-VRX

Instrument: MS53.i

Operator: ABW

Column diameter: 0.18



Data File: \\Jacksonville1\ACQDATA\MS53\DATA\MS538B14.B\0214-08.D

Date : 14-FEB-2008 12:57

Client ID:

Sample Info: J0800697-003.01

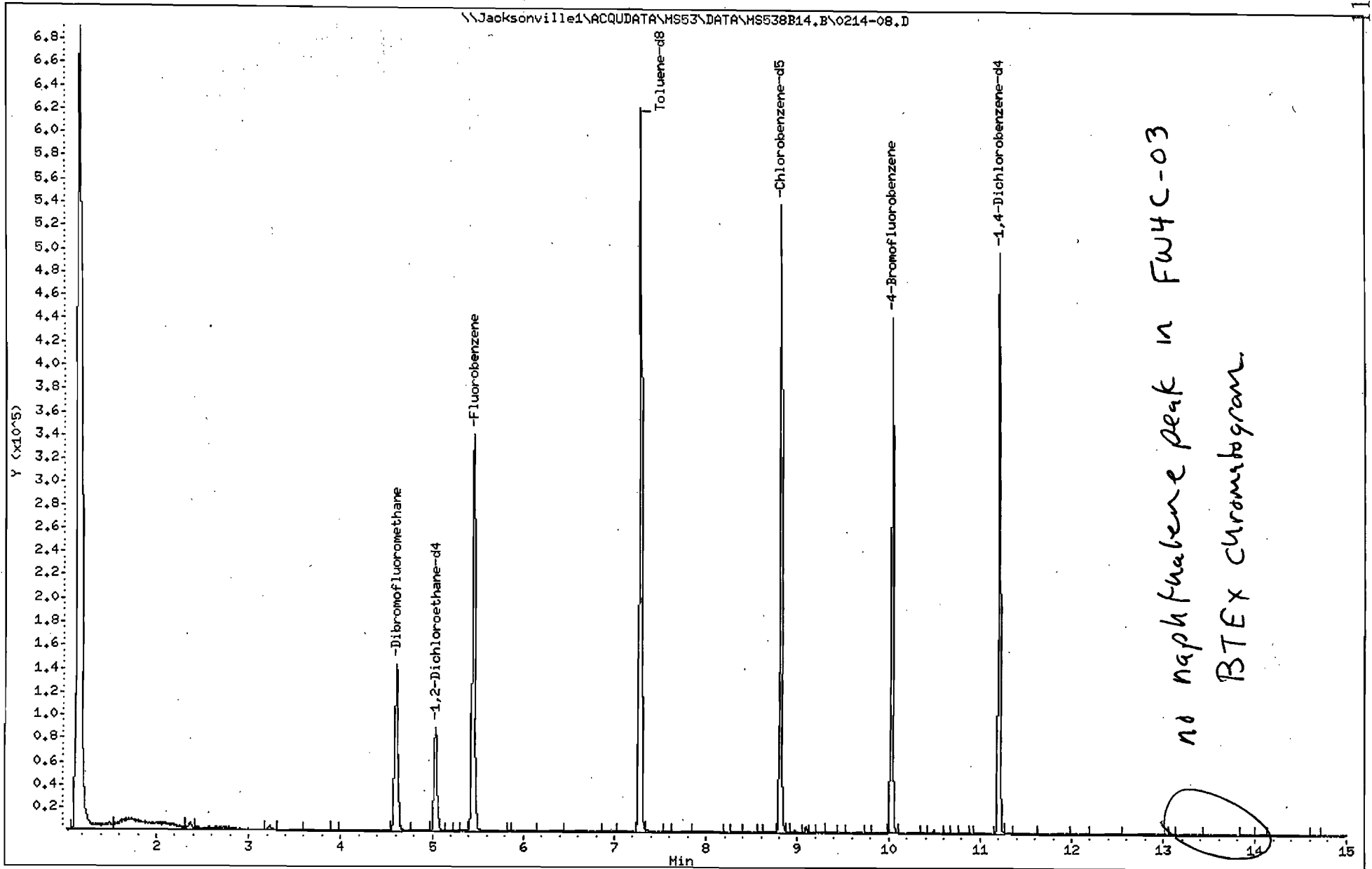
Purge Volume: 10.0

Column phase: DB-VRX

Instrument: MS53.1

Operator: ABW

Column diameter: 0.18



Prep technique: 3510C/Method Analysis method: 625/8270 Matrix: H₂O

Sample ID	Initial amt.	Final vol.	pH			Spike volumes			Emul sion	Cleanup	Comments
			Initial	Adj 1	Adj 2	Surr	Spike	Witness			
1. MB	1000	1.0ml	5	←2	11.12	1ml		987			
2. LCS							1ml				
3. LCSD											
4. 0648-1	960		7						S/M	625	
5. 0655-1	910		5						S/M		
6. -2	870		6						S/M		
7. -3	860		9						S		
8. -4	980		9						S		
9. -5	860		9						S		
10. -6	900		5						S/S		
11. -7	840		5						S/S		
12. -8	830		5						S		
13. 0683-1	980							PV	S/S	625	
14. 0697-1	980								S		
15. -2	840								S		
16. -3	870								S		
17. -4	860								S		
18. -5	790								S		
19. -6	880								S/S		
20. -7	920								S		
21. -8	820								S		
22.											
23.											
24.											
25.											

General comments:

SOLVENTS		
Extraction	Source	Lot
DCM	EMD	47311
Exchange	Source	Lot

SPIKE SOLUTIONS IDs	
Surrogate	
08-SVP-0040	
Spike	
08-SVP-0023	

REAGENTS	
Name	ID
H ₂ SO ₄	K27617702
NaOH	E36509
Na ₂ SO ₄	2/13

RapidVap temp:	°C
KD water temp:	°C
N-evap water temp:	°C

Extraction by: JS
 Concentration by: SPZ
 Review by: W

Prep start date: 2/14/08
 Prep start time: 1415
 Prep end date: 2/18/08

Batch No.: JWG0800580

LIMS No.: 62570