

**Supplemental Table 2: Task Benzene Air Concentrations by Task Bin and Area**

Task Bin <sup>a</sup>	Area(s)	n	Detection Frequency (%)	Benzene Concentration (ppm)							
				Mean	Std. Dev.	Geometric Mean	Geometric Std. Dev	75th percentile	95th percentile	Minimum Detected	Maximum Detected
Blinding and Breaking	All other areas	572	24%	0.53	2.7	0.031	9.4	0.11	1.8	0.020	39
	Reformer	576	58%	2.7	8.6	0.18	16	1.5	13	0.018	107
	Tank Farm	20	65%	14	30	0.73	21	2.2	80	0.73	105
Sample Collection-Process	All	770	28%	0.51	2.3	0.040	9.2	0.15	2.6	0.010	47
Equipment Cleaning and Repair	All	483	36%	1.1	6.0	0.042	12	0.20	4.2	0.0060	100
Sample Analysis-Laboratory	All	387	44%	1.0	4.4	0.061	12	0.38	4.0	0.025	58
Not Available	All	305	38%	2.0	16	0.044	13	0.21	3.6	0.010	230
Gauging	All	284	11%	0.16	0.95	0.020	6.6	0.078	0.37	0.014	12
Routine	All	243	20%	0.11	0.28	0.020	6.7	0.069	0.55	0.018	2.2
Liquid Transfer	All	187	43%	1.2	5.9	0.059	10	0.29	3.3	0.014	62
Equipment Preparation	All	177	32%	0.32	0.99	0.042	7.5	0.19	1.5	0.020	8.2
Blinding and Breaking (Undrained)	All	53	47%	0.52	0.96	0.055	14	0.53	2.5	0.032	4.7
Waste Treatment Maintenance	All	46	74%	0.85	1.3	0.22	8.2	0.87	3.8	0.099	6.0
Inspection/Observation	All	41	34%	0.27	0.56	0.041	8.7	0.21	1.6	0.048	2.6
Separator Skimmer	All	41	34%	0.22	0.49	0.026	13	0.11	1.2	0.028	2.4
Repair Leak	All	31	48%	3.7	16	0.071	22	0.60	8.3	0.088	91
Industrial Hygiene	All	27	59%	0.66	0.82	0.11	15	1.1	2.2	0.090	2.8
Coke Removal/Transfer	All	21	0%	<0.52	ND	0.0091	ND	ND	ND	ND	ND
Painting	All	19	26%	0.054	0.066	0.020	5.9	0.091	0.21	0.10	0.21
Material Transfer	All	16	19%	0.040	0.050	0.021	3.5	0.050	0.12	0.050	0.20
Catalyst Work	All	13	15%	0.16	0.34	0.011	16	0.11	0.81	0.63	1.1
Miscellaneous	All	13	54%	0.29	0.69	0.028	9.6	0.079	1.5	0.0070	2.4
Insulation	All	11	18%	0.094	0.15	0.031	5.2	0.052	0.39	0.37	0.40
Corrugated Plate Separator	All	10	100%	1.2	1.2	0.77	2.8	1.4	3.2	0.14	3.4
Electrical Repair and Maintenance	All	8	0%	<0.32	ND	0.0063	ND	ND	ND	ND	ND
Hose Connect/Disconnect	All	1	100%	0.10	--	0.099	--	ND	ND	0.10	0.10
Emergency	All	1	0%	<0.05	ND	0.024	--	ND	ND	ND	ND

<sup>a</sup> Definitions of cross-refinery task bins and areas have previously been reported

ND: Geometric mean and geometric standard deviation not calculated because more than 50% of the samples were below the limit of detection. Percentile not calculated because the proportion of results below the detection limit exceeds the selected percentile.