Note: This is a reference cited in *AP 42, Compilation of Air Pollutant Emission Factors, Volume I Stationary Point and Area Sources.* AP42 is located on the EPA web site at www.epa.gov/ttn/chief/ap42/

The file name refers to the reference number, the AP42 chapter and section. The file name "ref02_c01s02.pdf" would mean the reference is from AP42 chapter 1 section 2. The reference may be from a previous version of the section and no longer cited. The primary source should always be checked.

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RESULTS OF THE JUNE 1993 AIR EMISSION TESTS AT TWO LOUISIANA PACIFIC WAFERBOARD PLANTS

Submitted to:

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Report Number 3-9202
September 2, 1993
DD/djd

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1 INTRODUCTION

During June 1993 Interpoll Laboratories personnel conducted a series of air emission measurements on the Press and Unloader Vents at the Louisiana Pacific Corporation (LP) Waferboard Plants located in Sagola, Michigan and Two Harbors, Minnesota. These tests were performed on behalf of ICI Polyurethanes (ICI) to characterize various emissions from the board press vents when using a 4,4-methylene bis(phenylisocyanate) (MDI) based resin. Emission tests were performed for MDI, particulates, phenol, formaldehyde, and total hydrocarbons. On-site testing was performed by D. Van Hoever, G. Hove, J. Bergstrom and S. Ertle. Coordination between testing activities and plant operation was provided by Mark Baker and Bill Karoly of ICI.

The primary objective of these tests was to characterize MDI emissions from board press vents and to compare the efficiency of the four MDI methodologies under real world conditions. Four different sampling trains and/or analytical methods for MDI were used in this work:

1. Nitro reagent-impregnated filters following an Interpoll Labs modification of NIOSH Method 347 (Interpoll Labs Method II-8791) with analysis by normal-phase HPLC.

2. Nitro reagent-impregnated filters following Interpoll Labs modification of of NIOSH Method 347 with analysis after solvent exchange by reverse-phase HPLC.

3. 1,2-MP-impregnated filters followed by two impingers containing 1,2-MP in dry toluene with analysis after solvent exchange by reverse-phase HPLC.

4. 1,2-MP in dry toluene in first two impingers followed by a 1,2-MP-impregnated filter with analysis after solvent exchange by reverse-phase HPLC.

The trains were modified (as described above) Method 5 sampling trains. Samples were collected isokinetically with the filters and probes at ambient temperature. The impingers were immersed in a water/salt bath which gave an unstirred temperature of 32-34°F. A special activated charcoal assembly was used after the third impinger (trap) to adsorb

volatilized toluene. Each sample was collected over a sixty minute period using a standard EPA Method 1 particulate traverse procedure.

The press vents tested are the exhaust from general ventilators positioned over the board press and/or unloader areas. The Press and Unloader vents at Sagola are combined and exhaust through a common stack which is 72 inches in diameter. The Press and Unloader vents at the Two Harbors facility each have their own 55-inch square stacks.

Particulate evaluations were performed in accordance with EPA Methods 2-5, CFR Title 40, Part 60, Appendix A (revised July 1, 1992). A preliminary determination of the gas linear velocity profile was made before the first particulate determination to allow selection of the appropriate nozzle diameter for isokinetic sample withdrawal. An Interpoll Labs sampling train which meets or exceeds specifications in the above-cited reference was used to isokinetically extract particulate samples by means of a heated glass-lined probe.

Phenol samples were collected in the back half of the Method 5 sampling train using a neutral-buffered absorbing reagent. The samples were extracted with methylene chloride and analyzed by direct injection GC/MS with no preconcentration. The GC/MS analysis was performed as per EPA Method 8270 (SW 846).

Formaldehyde samples were collected in accordance with EPA Method 0011 (SW 846 3rd Ed.) as requested by ICI. The samples were collected isokinetically using a Method 5 sampling train with an aqueous acidic 2,4-dinitrophenylhydrazine absorbing solution and analyzed by reverse-phase HPLC.

Total gaseous hydrocarbon concentrations were determined instrumentally in accordance with EPA Method 25A using a Ratfisch Model RS55 heated flame ionization detector (HFID) calibrated against propane in air standards. The THC concentration was continuously monitored by extracting a slipstream of exhaust gas by means of a heated probe and filter holder. A heat-traced teflon line was used to transport the sample gas from the filter holder outlet to the analyzer inlet.

Testing on the Press and Unloader Vent at the Sagola plant was conducted from two test ports oriented at 90 degrees on the combined stack. A 24-point traverse was used to

isokinetically collect represenative particulate, phenol, formaldehyde and MDI samples. Each traverse point was sampled 2.5 minutes for a total sampling time of 60 minutes per run.

Testing on the Press and Unloader Vents at Two Harbors was conducted from horizontal rows of four test ports on each stack. 24-point traverses were used to isokinetically collect representative particulate, phenol, formaldehyde and MDI samples. Each point was sampled for 2.5 minutes for a total of 60 minutes per run.

The important results of the test are summarized in Section 2. Detailed results are presented in Section 3. Other supporting information is presented in the appendices.

2 MDI SAMPLING AND ANALYTICAL RESULTS

The results of all of the MDI samplings and analyses together with blanks, audits and field spikes are presented in tabular form. As will be noted, the Interpoll Laboratories Method II-8791 which is based on the use of quartz filters impregnated with N-p-nitrobenzyl-N-propylamine (Nitro Reagent) for collection with analysis by normal phase HPLC gave the highest results and probably the most accurate estimates of MDI. Four Nitro Reagent filters were spiked with MDI at the 100 or 250 ug level (using a technique which ensures that the MDI is uniformly distributed over the entire filter surface) and recovered with the other Nitro Reagent MDI field samples. The results of these recoveries fall within the acceptable range for trace organics (76, 78, 115 and 117%).

In cases where other organics are present in the gas stream, a higher resolution chromatographic separation is preferable. In this study, the Nitro Reagent samples were split, solvent exchanged and also analyzed by reverse phase HPLC which is inherently more efficient in resolving organic compounds in this boiling point range. The results of the reverse phase HPLC are in excellent agreement, in this case, with the results of the normal phase determinations. All but two of the reverse-phase results are less than the normal phase results but too few data are in hand to suggest a statistically significant difference in the two methods. From a theoretical standpoint, the reverse phase analytical method should be the more definitive of the two separations and therefore capable of producing the most accurate and precise data.

The results of the MDI samplings and analyses using N-1,2-methoxyphenyl piperazine (1,2-MP) as a collecting and derivatizing agent are quite inconsistent. Recoveries of filter spikes and impinger spikes are similarly inconsistent suggesting a recovery problem and/or an interference problem. Recovery from filters is extremely poor. Recovery of impinger spikes is better but equally inconsistent. It may be difficult to recover the 1,2-MP urea derivative with toluene, especially since toluene does not wet those surfaces wetted with water. Similar experience in dioxin recoveries from water-wetted XAD-2 resin showed that methanol or acetone rinses and/or extractions were required to dry the resin prior to extraction with toluene. The acetone or methanol was then volatilized; the aqueous residue extracted with methylene chloride; the methylene chloride evaporated and the residue combined with the toluene extract. A similar approach can be imagined for the 1,2-MP urea

adduct which may grossly improve its recovery. Solubility of the urea adduct may also play a role but the occasional presence of several very high masses of MDI (192, 235, 294, and 340 ug) seems to suggest otherwise.

In conclusion it can be safely stated that the Nitro Reagent based sampling and analytical methods outperformed the 1,2-MP based sampling and analytical methods and that additional laboratory work needs to be performed before the 1,2-MP approach can be further field evaluated. It is recommended that a sufficiently large quantity of 1,2-MP urea adduct be synthesized, purified and its physical properties accurately characterized so that an appropriate recovery procedure can be chosen.

INTERPOLL LABORATOR

RESULTS OF HPLC ANALYSES OF 4,4'-METHYLENEBIS(PHENYL ISOCYNATE)

MDI (ug)

		TRAIN N					TF		
			SPIKE	DETECT	NORMAL	REVERSE		SPIKE	DETECT
PLANT/SOURCE	TEST/RUN	LOG #	AMOUNT	LIMIT	PHASE	PHASE	LOG #	AMOUNT	LIMIT
SAG/P&U	6/S	9202-67	100	6.5	86	97	9202-25	100	
SAG/P&U	6/S	9202-68	250	13	295	324	9202-26	250	
SAG/P&U	6/S						9202-27	500	
SAG/P&U	6/S						9202-28	1000	
SAG/P&U	6/0-1	9202-69		13	BDL	BDL	9202-49		
SAG/P&U	6/0-2						9202-53		
SAG/P&U	6/1	9202-70		20	207	226	9202-55		
SAG/P&U	6/2	9202-71		13	220	250	9202-59		
SAG/P&U	6/3	9202-72		13	287	288	9202-63		
2HB/P	7/S	9289-40	100	6.5	76	78	9289-136	100	
2HB/P	7/S	9289-41	250	13	288	279	9289-137	250	
2HB/P	7/S						9289-57	500	
2HB/P	7/S						9289-58	1000	
2HB/P	7/0-1	9289-42		13	BDL	BDL	9289-47		
[illegible]	7/0-2	9289-43		13	BDL	BDL	9289-51		
2HB/P	7/1	9289-44		13	1580	1510	9289-61		
2HS/P	7/2	9289-45		13	1350	1250	9289-65		
2HB/P	7/3	9289-46		20	1560	1530	9289-69		
2HB/U	10/S	9289-97	100	6.5	78	89	9289-112	100	
2HB/U	10/S	9289-98	250	13	292	310	9289-113	250	
	10/S						9289-83	500	
	10/S						9289-84	1000	
2HB/U	10/0-1	9289-99		13	BDL	BDL	9289-104		
2HB/U	10/0-2	9289-100		13	BDL	BDL	9289-108		
2HB/U	10/1	9289-101		13	1080	1040	9289-116		
2HB/U	10/2	9289-102		20	802	790	9289-120		
2HB/U	10/3	9289-103		13	1170	1090	9289-124		
ICI Audit -Sagola			ICI # 7051-198A				9202-29	295	
ICI Audit -Sagola			ICI # 7051-198B				9202-30	177	
CI Audit - 2 Harb			ICI # 7051-205B				9289-59	177	
ICI Audit - 2 Harb			ICI # 7051-205A				9289-60	295	

NOTES:

= Spike

P&U = Press & Unloader Vent Stack

P = Press Vent Stack

= Unloader Vent Stack

AG = Louisiana Pacific Plant in Sagola, Michigan

2HB = Louisiana Pacific Plant in Two Harbors, Minnesota

TRAIN N = Nitro Reagent Modified NIOSH Method P&CAM 347

RAIN F = 1,2-MP Reagent ; Filter first

L = 1,2-MP Reagent ; Filter Last

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)

TRAIN L								TRAIN F				
PW	IMP1	IMP2	FILTER	TOTAL	LOG #	SPIKE AMOUNT	DETECT LIMIT	PW	FILTER	IMP1	IMP2	TOT
	69.2				9202-21	100			63.6			
	202				9202-22	250			135			
	335				9202-23	500			153			
	573				9202-24	1000			186			
<1.2	<2.0	2	<2.0	2	9202-31			<1.2	<2.0	<0.75	<0.60	
<1.2			<2.0		9202-35			<1.2	<2.0			
<1.2	<4.0	<1.8	5.7	9.9	9202-37			<1.2	3.2	<1.5	<0.9	
9.9	58.9	11.5	<2.0	80.3	9202-41			12.4	<2.0	<1.5	<0.90	
8.1	29.4	6.4	<3.0	43.9	9202-45			9.2	<1.2	<1.1	<0.9	
	84.4				9289-81	100			74.4			
	234				9289-82	250			116			
	452				9289-114	500			118			
	301				9289-115	1000			154			
<1.2	<2.0	<2.4	<2.0		9289-73			<1.2	<2.0	<0.75	<0.60	
<1.2	<2.0	<1.2	<2.0		9289-77			<1.2	<2.0	<0.75	<0.60	
<1.2	81.5	294	84	459.5	9289-85			0.66	145	<1.5	1.5	14
21.7	111	192	58.2	382.9	9289-89			31	340	<1.5	<0.90	
30.5	66.8	235	67.3	399.6	9289-93			27.8	38.1	<1.9	<0.90	
	81.1				9289-55	100			75.2			
	236				9289-56	250			140			
	482				9289-138	500			124			
	320				9289-139	1000			169			
<1.2	<2.0	<1.8	<1.0		9289-128			<1.2	<2.0	<0.75	<0.60	
<1.2	<2.0	<1.8	<1.0		9289-132			<1.2	<2.0	<0.75	<0.60	
23.3	45.3	149	78.7	296.3	9289-140			19	28.8	<1.1	2.6	
23.1	32.3	116	62.7	201.8	9289-144			22.4	47.9	<1.5	<0.90	
18.6	41.5	164	76.7	300.8	9289-148			28.2	57.7	<1.9	<1.2	
	285											
			168									
			163									
	289											

INC.

L								TRAIN F				
						SPIKE	DETECT					
/	IMP1	IMP2	FILTER	TOTAL	LOG #	AMOUNT	LIMIT	PW	FILTER	IMP1	IMP2	TOTAL
	69.2				9202-21	100			63.6			
	202				9202-22	250			135			
	335				9202-23	500			153			
	573				9202-24	1000			186			
<1.2	<2.0	2	<2.0	2	9202-31			<1.2	<2.0	<0.75	<0.60	
<1.2			<2.0		9202-35			<1.2	<2.0			
<1.2	<4.0	<1.8	5.7	9.9	9202-37			<1.2	3.2	<1.5	<0.9	3.2
9.9	58.9	11.5	<2.0	80.3	9202-41			12.4	<2.0	<1.5	<0.90	12.4
8.1	29.4	6.4	<3.0	43.9	9202-45			9.2	<1.2	<1.1	<0.9	9.2
	84.4				9289-81	100			74.4			
	234				9289-82	250			116			
	452				9289-114	500			118			
	301				9289-115	1000			154			
<1.2	<2.0	<2.4	<2.0		9289-73			<1.2	<2.0	<0.75	<0.60	
<1.2	<2.0	<1.2	<2.0		9289-77			<1.2	<2.0	<0.75	<0.60	
<1.2	81.5	294	84	459.5	9289-85			0.66	145	<1.5	1.5	147.16
21.7	111	192	58.2	382.9	9289-89			31	340	<1.5	<0.90	371
30.5	66.8	235	67.3	399.6	9289-93			27.8	38.1	<1.9	<0.90	65.9
	81.1				9289-55	100			75.2			
	236				9289-56	250			140			
	482				9289-138	500			124			
	320				9289-139	1000			169			
<1.2	<2.0	<1.8	<1.0		9289-128			<1.2	<2.0	<0.75	<0.60	
<1.2	<2.0	<1.8	<1.0		9289-132			<1.2	<2.0	<0.75	<0.60	
23.3	45.3	149	78.7	296.3	9289-140			19	28.8	<1.1	2.6	50.4
23.1	32.3	116	62.7	201.8	9289-144			22.4	47.9	<1.5	<0.90	70.3
18.6	41.5	164	76.7	300.8	9289-148			28.2	57.7	<1.9	<1.2	85.9
	285											
			168									
			163									
	289											

3 SUMMARY AND DISCUSSION

No difficulties in performing the particulate, phenol, formaldehyde and total hydrocarbons determinations were encountered in the field by Interpoll Labs or in the laboratory evaluation of the samples. On the basis of this fact and a complete review of the data and results, it is our opinion that the results for the determinations reported below are accurate and closely reflect the actual values which existed at the time the test was performed.

In the case of the MDI determinations, the results of the MDI determinations performed using Interpoll Labs Method II-8791 were viewed as the accurate of the four sampling and analytical methods performed and only these values have been converted and reported as exhaust gas concentrations.

The particulate results for the Sagola facility are summarized in Table 1, for the Two Harbors facility in Tables 2 and 3. The average particulate emission rate for the combined Press and Unloader Vent at the Sagola Plant was 6.87 LB/HR. The Press Vent and Unloader Vent at the Two Harbors Plant averaged 2.53 LB/HR and 3.21 LB/HR of particulate.

The results of the phenol determinations are summarized in Table 4, and 5 for the Sagola and Two Harbors facilities respectively. The phenol emission rate averaged 0.001 LB/HR for the combined Press and Unloader Vent at Sagola and 0.0002 LB/HR for the Press Vent, and 0.0001 LB/HR for the Unloader Vent at Two Harbors.

Formaldehyde results are summarized in Tables 6 and 7. Note that the formaldehyde emission rate averaged 0.29 LB/HR for the combined Press and Unloader Vent at Sagola and 0.54 LB/HR at the Press Vent and 0.47 LB/HR for the Unloader Vent at the Two Harbors facility.

The THC results are summarized in Tables 8 and 9. The average THC emission rates for the three sources tested are: 4.19, 0.74 and 0.69 LB/HR for the combined Press and Unloader Vent at Sagola, the Press Vent and the Unloader Vent at Two Harbors respectively.

The MDI concentrations and emission rates for the Two Harbors and Sagola facilities are summarized in Tables 8 and 9 respectively. Note that only the Interpoll Labs Method II-8791 results have been reported here. The average MDI emission rate from the Press and Unloader Vent at the Sagola Plant was 0.070 LB/HR. The average MDI emission rates for the Press vent and Unloader Vent at the Two Harbors Plant were 0.19 and 0.13 LB/HR respectively.

Table 1. Summary of the Results of the June 25, 1993 Particulate Emission Compliance Test on the Press & Unloader Vent Stack at the Louisiana Pacific Plant Located in Sagola, Michigan.

ITEM	Run 1	Run 2	Run 3
Date of test	06-25-93	06-25-93	06-25-93
Time runs were done (HRS)	944/1048	1158/1205	1336/1440
Process rate			
Volumetric flow			
actual (ACFM)	135792	141731	146850
standard (DSCFM)	116269	121332	126152
Gas temperature (DEG-F)	99	99	102
Moisture content (%V/V)	2.52	2.46	1.69
Gas composition (%V/V,dry)			
carbon dioxide	0.03	0.03	0.03
oxygen	20.90	20.90	20.90
nitrogen	79.07	79.07	79.07
Isokinetic variation (%)	101.2	101.4	100.7
Particulate concentration			
actual (GR/ACF)	.00637	.00524	.00543
standard (GR/DSCF)	.00744	.00612	.00632
Part. emission rate (LB/HR)	7.42	6.36	6.84

Note: Dry Catch Only

Table 2. Summary of the Results of the June 29, 1993 Particulate Emission Compliance Test on the Press Vent Stack at the Louisiana Pacific Plant in Two Harbors, Minnesota.

ITEM	Run 1	Run 2	Run 3
Date of test	06-29-93	06-29-93	06-29-93
Time runs were done (HRS)	1322/1423	1448/1549	1617/1629
Process rate			
Volumetric flow			
actual (ACFM)	39395	39828	40501
standard (DSCFM)	35735	35735	36784
Gas temperature (DEG-F)	98	98	96
Moisture content (%V/V)	1.48	1.92	1.73
Gas composition (%V/V,dry)			
carbon dioxide	0.03	0.03	0.03
oxygen	20.90	20.90	20.90
nitrogen	79.07	79.07	79.07
Isokinetic variation (%)	99.9	99.1	100.1
Particulate concentration			
actual (GR/ACF)	.00641	.00803	.00770
standard (GR/DSCF)	.00706	.00896	.00849
Part. emission rate (LB/HR)	2.16	2.74	2.68

Note: Dry Catch Only

Table 3. Summary of the Results of the June 29, 1993 Particulate Emission Compliance Test on the Unoading Vent Stack at the Louisiana Pacific Plant in Two Harbors, Minnesota.

ITEM	Run 1	Run 2	Run 3
Date of test	06-29-93	06-29-93	06-29-93
Time runs were done (HRS)	822/ 922	957/1059	1134/1237
Process rate			
Volumetric flow			
actual (ACFM)	46664	44356	42856
standard (DSCFM)	43354	41027	39544
Gas temperature (DEG-F)	86	88	90
Moisture content (%V/V)	1.40	1.53	1.38
Gas composition (%V/V,dry)			
carbon dioxide	0.03	0.03	0.03
oxygen	20.90	20.90	20.90
nitrogen	79.07	79.07	79.07
Isokinetic variation (%)	99.2	100.0	99.9
Particulate concentration			
actual (GR/ACF)	.0101	.00822	.00663
standard (GR/DSCF)	.0109	.00889	.00719
Part. emission rate (LB/HR)	4.06	3.13	2.44

Note: Dry Catch Only

Table 4. Summary of the June 25, 1993 **Phenol** Determinations on the Press & Unloader Vent at the Louisiana Pacific Waferboard Plant in Sagola, Michigan.

Time (HRS)	Volumetric Flow Rate (DSCFM)	Concentration (ppb,d)	Emission Rate (LB/HR)
0944-1048	116300	0.58	0.00098
1158-1205	121300	0.59	0.00104
1336-1440	126200	0.57	0.00105
Avg.		0.58	0.00102

Table 5. Summary of the June 29, 1993 **Phenol** Determinations on the Press and Unloader Vents at the Louisiana Pacific Waferboard Plant in Two Harbors, Minnesota.

Time (HRS)	Volumetric Flow Rate (DSCFM)	Concentration (ppb,d)	Emission Rate (LB/HR)
Press Vent			
1322-1423	35730	0.44	0.00023
1448-1549	35730	0.49	0.00026
1617-1629	36780	0.43	0.00023
Avg.		0.45	0.00024
Unloader Vent			
0822-0922	43350	0.21	0.00013
0957-1059	41030	0.22	0.00013
1134-1237	39540	0.26	0.00015
Avg.		0.23	0.00014

Table 6. Summary of the June 25, 1993 **Formaldehyde** Determinations on the Press & Unloader Vent at the Louisiana Pacific Waferboard Plant in Sagola, Michigan.

Time (HRS)	Volumetric Flow Rate (DSCFM)	Concentration (ppm,d)	Emission Rate (LB/HR)
0944-1048	122300	0.54	0.31
1158-1258	120100	0.52	0.29
1336-1433	124100	0.45	0.26
Avg.		0.50	0.29

Table 7. Summary of the June 29, 1993 **Formaldehyde** Determinations on the Press and Unloader Vents at the Louisiana Pacific Waferboard Plant in Two Harbors, Minnesota.

Time (HRS)	Volumetric Flow Rate (DSCFM)	Concentration (ppm,d)	Emission Rate (LB/HR)
Press Vent			
0822-0922	39560	3.20	0.59
0957-1058	40890	2.65	0.51
1137-1239	41060	2.72	0.52
Avg.		2.86	0.54
Unloader Vent			
1321-1421	41340	2.19	0.42
1446-1547	43300	2.61	0.53
1617-1720	38400	2.62	0.47
Avg.		2.47	0.47

Table 8. Summary of the Results of the June 25, 1993 **Total Hydrocarbon** Determinations on the Press & Unloader Vent at the Louisiana Pacific Waferboard Plant Located in Sagola, Michigan.

Time (HRS)	Volumetric Flow Rate (DSCFM)	Concentration (ppmC,w)	Emission Rate (LB C/HR)
1241-1341	122000	19.2	4.46
1345-1445	122000	17.5	4.07
1450-1540	122000	17.4	4.04
Avg.		18.0	4.19

Table 9. Summary of the Results of the June 29, 1993 **Total Hydrocarbon** Determinations on the Press and Unloader Vents at the Louisiana Pacific Waferboard Plant Located in Two Harbors, Minnesota.

Time (HRS)	Volumetric Flow Rate (DSCFM)	Concentration (ppmC,w)	Emission Rate (LB C/HR)
Press Vent			
0822-0922	39600	9.9	0.73
0957-1057	40900	10.8	0.83
1137-1237	41100	8.7	0.67
Avg.		9.8	0.74
Unloader Vent			
1321-1421	41300	9.3	0.73
1445-1545	43300	7.5	0.61
1618-1718	38400	10.2	0.74
Avg.		9.0	0.69

Table 10. Summary of the Results of the June 25, 1993 **MDI** Determinations on the Press & Unloader Vent at the Louisiana Pacific Waferboard Plant Located in Sagola, Michigan. (Nitro-reagent, normal phase)

Time (HRS)	Volumetric Flow Rate (DSCFM)	Concentration (ppb.d)	Emission Rate (LB/HR)
0836-0952	122000	12.6	0.0604
1121-1241	124000	13.5	0.0647
1353-1509	124000	17.5	0.0842
Avg.		14.5	0.0698

Table 11. Summary of the Results of the June 29 and July 1, 1993 **MDI** Determinations on the Press and Unloader Vents at the Louisiana Pacific Waferboard Plant Located in Two Harbors, Minnesota. (Nitro-reagent, normal phase)

Time (HRS)	Volumetric Flow Rate (DSCFM)	Concentration (ppb,d)	Emission Rate (LB/HR)
Press Vent (June 29)			
0825-0942	37900	136	0.201
1118-1238	38200	116	0.173
1410-1513	39500	137	0.211
Avg.		130	0.195
Unloader Vent (July 1)			
0754-0856	40100	87.4	0.137
1003-1105	36900	69.5	0.100
1214-1353	36900	101.4	0.146
Avg.		86.1	0.128

APPENDIX A

RESULTS - SAGOLA

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INTERPOLL LABORATORIES EPA METHOD 2 FIELD DATA SHEET

Job Louisiana Pacific/Segola, MI

Source Press + unloader vent-stack

Test 4 Run 1 Date 2-26-92

Stack dimen. 71 1/4 IN.

Dry bulb ____ °F Wet bulb ____ °F

Manometer: ☒ Reg. ☐ Exp. ☐ Elec.

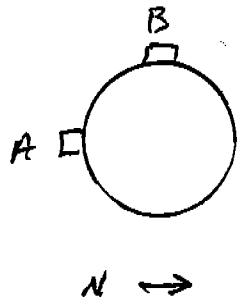
Barometric pressure 28.34 in Hg

Static pressure -1.00 in WC

Operators E. Trowbridge - C. Messer

Pitot No. 22V-6 Cp .840

PM-10



Schematic of Cross Section

Traverse Point No.		Fraction of Diameter	Distance from Stack Wall (in)	Distance from End of Port (in)	Velocity Pressure (in WC)	Temperature of gas (°F)
			Port length: 5 in.		Time start: 0835 hrs	
A	1	.044	3.14	8.14	1.70	84
	2	.146	10.40	15.40	2.40	84
	3	.296	21.09	26.09	2.10	82
	4	.704	50.16	55.16	2.20	80
	5	.854	60.85	65.85	2.30	80
	6	.956	68.12	73.12	2.60	80
B	1				1.30	84
	2				1.70	84
	3				1.80	85
	4				2.20	86
	5				2.10	86
	6				2.00	86
Temp. meas. tool & S/N: VDT-12					Time end: 0845 hrs	

R or nothing= reg. manometer; S= expanded; E = electronic S-392.1

Test No. 1
Press & unloader vent stack

Results of Volumetric Flow Rate Determination-------Method 2

Date of Determination.....	06-25-93
Time of Determination.....(HRS)	840
Barometric pressure.....(IN.HG)	28.44
Pitot tube coefficient.....	.84
Number of sampling ports.....	2
Total number of points.....	24
Shape of duct.....	Round
Stack diameter.....(IN)	71.25
Duct area.....(SQ.FT)	27.69
Direction of flow.....	UP
Static pressure.....(IN.WC)	-8.5
Avg. gas temp.....(DEG-F)	96
Moisture content.....(% V/V)	2.52
Avg. linear velocity.....(FT/SEC)	81.9
Gas density.....(LB/ACF)	.06549
Molecular weight.....(LB/LBMOLE)	28.84
Mass flow of gas.....(LB/HR)	534760
Volumetric flow rate.....	
actual.....(ACFM)	136083
dry standard.....(DSCFM)	117112

Test No. 1
Press & unloader vent stack
Particulate and Phenol Tests

Results of Orsat & Moisture Analyses-----Methods 3 & 4(%v/v)

	Run 1	Run 2	Run 3
Date of run	06-25-93	06-25-93	06-25-93
Dry basis (orsat)			
carbon dioxide.....	0.03	0.03	0.03
oxygen.....	20.90	20.90	20.90
nitrogen.....	79.07	79.07	79.07
Wet basis (orsat)			
carbon dioxide.....	0.03	0.03	0.03
oxygen.....	20.37	20.38	20.55
nitrogen.....	77.08	77.12	77.73
water vapor.....	2.52	2.46	1.69
Dry molecular weight.....	28.84	28.84	28.84
Wet molecular weight.....	28.57	28.57	28.66
Specific gravity.....	0.987	0.987	0.990
Water mass flow.....(LB/HR)	8426	8598	6097

Test No. 2
Press & Unloader vent Stack
Formaldehyde Test

Results of Orsat & Moisture Analyses-----Methods 3 & 4(%v/v)

	Run 1	Run 2	Run 3
Date of run	06-25-93	06-25-93	06-25-93
Dry basis (orsat)			
carbon dioxide.....	0.03	0.03	0.03
oxygen.....	20.90	20.90	20.90
nitrogen.....	79.07	79.07	79.07
Wet basis (orsat)			
carbon dioxide.....	0.03	0.03	0.03
oxygen.....	20.50	20.49	20.52
nitrogen.....	77.56	77.52	77.64
water vapor.....	1.91	1.97	1.81
Dry molecular weight.....	28.84	28.84	28.84
Wet molecular weight.....	28.63	28.63	28.64
Specific gravity.....	0.989	0.989	0.989

Test No. 4
Press & unloader vent stack
MDI Train F

Results of Orsat & Moisture Analyses-----Methods 3 & 4(%v/v)

	Run 1	Run 2	Run 3
Date of run	06-26-93	06-26-93	06-26-93
Dry basis (orsat)			
carbon dioxide.....	0.03	0.03	0.03
oxygen.....	20.90	20.90	20.90
nitrogen.....	79.07	79.07	79.07
Wet basis (orsat)			
carbon dioxide.....	0.03	0.03	0.03
oxygen.....	20.10	20.42	20.42
nitrogen.....	76.06	77.24	77.25
water vapor.....	3.81	2.31	2.30
Dry molecular weight.....	28.84	28.84	28.84
Wet molecular weight.....	28.43	28.59	28.59
Specific gravity.....	0.982	0.988	0.988

Test No. 5
Press & unloader vent stack

MDI Train L

Results of Orsat & Moisture Analyses-----Methods 3 & 4(%v/v)

	Run 1	Run 2	Run 3
Date of run	06-26-93	06-26-93	06-26-93
Dry basis (orsat)			
carbon dioxide.....	0.03	0.03	0.03
oxygen.....	20.90	20.90	20.90
nitrogen.....	79.07	79.07	79.07
Wet basis (orsat)			
carbon dioxide.....	0.03	0.03	0.03
oxygen.....	20.03	20.36	20.37
nitrogen.....	75.77	77.03	77.07
water vapor.....	4.18	2.58	2.53
Dry molecular weight.....	28.84	28.84	28.84
Wet molecular weight.....	28.39	28.56	28.57
Specific gravity.....	0.981	0.987	0.987

Test No. 6
Press & unloader vent stack

MDI Train N

Results of Orsat & Moisture Analyses-----Methods 3 & 4(%v/v)

	Run 1	Run 2	Run 3
Date of run	06-25-93	06-25-93	06-25-93
Dry basis (orsat)			
carbon dioxide.....	0.03	0.03	0.03
oxygen.....	20.90	20.90	20.90
nitrogen.....	79.07	79.07	79.07
Wet basis (orsat)			
carbon dioxide.....	0.03	0.03	0.03
oxygen.....	20.41	20.39	20.40
nitrogen.....	77.23	77.16	77.16
water vapor.....	2.32	2.42	2.41
Dry molecular weight.....	28.84	28.84	28.84
Wet molecular weight.....	28.59	28.58	28.58
Specific gravity.....	0.988	0.987	0.987

Test No. 1
Press & unloader vent stack

Results of Particulate Loading Determinations-------Method 5

	Run 1	Run 2	Run 3
Date of run	06-25-93	06-25-93	06-25-93
Time run start/end.....(HRS)	944/1048	1158/1205	1336/1440
Static pressure.....(IN.WC)	-8.50	-8.50	-8.50
Cross sectional area (SQ.FT)	27.69	27.69	27.69
Pitot tube coefficient.....	.840	.840	.840
Water in sample gas			
condenser.....(ML)	0.0	0.0	0.0
impingers.....(GRAMS)	11.5	13.1	6.8
desiccant.....(GRAMS)	16.0	15.0	13.0
total.....(GRAMS)	27.5	28.1	19.8
Total particulate material..			
.....collected(grams)	0.0242	0.0208	0.0222
Gas meter coefficient.....	0.9970	0.9970	0.9970
Barometric pressure..(IN.HG)	28.44	28.44	28.44
Avg. orif.pres.drop..(IN.WC)	2.36	2.61	2.78
Avg. gas meter temp..(DEF-F)	85.9	92.7	93.1
Volume through gas meter....			
at meter conditions...(CF)	54.44	57.56	59.49
standard conditions.(DSCF)	50.18	52.44	54.18
Total sampling time....(MIN)	60.00	60.00	60.00
Nozzle diameter.....(IN)	.190	.190	.190
Avg.stack gas temp ..(DEG-F)	99	99	102
Volumetric flow rate.....			
actual.....(ACFM)	135792	141731	146850
dry standard.....(DSCFM)	116269	121332	126152
Isokinetic variation.....(%)	101.2	101.4	100.7
Particulate concentration...			
actual.....(GR/ACF)	0.00637	0.00524	0.00543
dry standard.....(GR/DSCF)	0.00744	0.00612	0.00632
Particle mass rate...(LB/HR)	7.415	6.365	6.836

Test No. 2
Press & Unloader Vent Stack

Results of Formaldehyde Tests ---------- EPA Method 0011

	Run 1	Run 2	Run 3
Date of run	06-25-93	06-25-93	06-25-93
Time run start/end.....(HRS)	0944-1048	1158-1258	1336-1433
Barometric pressure..(IN.HG)	28.44	28.44	28.44
Meter temperature....(DEG-F)	99.00	96.00	101.00
Meter correction coefficient	0.9983	0.9983	0.9983
Volume through gas meter....			
at meter conditions...(CF)	54.180	53.310	55.600
standard conditions (DSCF)	48.561	48.039	49.656
Total sampling time....(MIN)	60.0	60.0	60.0
Moisture content.....(%V/V)	1.91	1.97	1.81
Volumetric flow rate (DSCFM)	122301	120102	124055
Formaldehyde in sample..(uG)	927	879	791
CH2O concentration.....			
(GR/DSCF).....	0.0003	0.0003	0.0002
(MG/DSCM).....	0.67	0.65	0.56
(PPM-DRY).....	0.54	0.52	0.45
(PPM-WET).....	0.53	0.51	0.44
CH2O emission rate...(LB/HR)	0.30877	0.29065	0.26136

CH2O = Formaldehyde

A trailing '<' symbol indicates that the true value is less than or equal to the reported value

Test No. 1
Press & Unloader Vent Stack

Results of Phenol Determinations ----------

	Run 1	Run 2	Run 3
Date of run	06-25-93	06-25-93	06-25-93
Time run start/end.....(HRS)	0944-1048	1158-1205	1336-1440
Barometric pressure..(IN.HG)	28.44	28.44	28.44
Meter temperature....(DEG-F)	85.90	92.70	93.10
Meter correction coefficient	0.9970	0.9970	0.9970
Volume through gas meter....			
at meter conditions...(CF)	54.440	57.560	59.490
standard conditions (DSCF)	50.204	52.462	54.206
Total sampling time....(MIN)	60.0	60.0	60.0
Moisture content.....(%V/V)	2.52	2.46	1.69
Volumetric flow rate (DSCFM)	116269	121332	126152
Phenol in sample.....(uG)	3.20	3.40	3.40
Phenol concentration.....			
(GR/10^3DSCF).....	0.0010	0.0010	0.0010
(uG/DSCM).....	2.25	2.29	2.22
(PPB-DRY).....	0.58	0.59	0.57
(PPB-WET).....	0.56	0.57	0.56
Phenol emis. rate(10^{-3}LB/HR)	0.980	1.040	1.046

A trailing '<' symbol indicates that the true value is less than or equal to the reported value

Analysis performed according to NIOSH Method 3502

ICI - LOUISIANA PACIFIC - SAGOLA

PRESS & UNLOADER VENT STACK

June 26, 1993

TRAIN F

Test/Run	Vstd (CF)	Flow (DSCFM)	MDI (ug)	Conc (ug/Nm3)	MDI Conc (ppb)	MDI E-Rate (LB/HR)
4/1	31.73	122175	3.20	3.56	0.34	0.00163
4/2	32.20	124143	12.4	13.60	1.31	0.006324
4/3	32.00	124353	9.20	10.15	0.98	0.004729

TRAIN L

Test/Run	Vstd (CF)	Flow (DSCFM)	MDI (ug)	%	Conc (ug/Nm3)	MDI Conc (ppb)	MDI E-Rate (LB/HR)	*
5/1	29.24	118694	9.90	100	11.96	1.15	0.005316	0.054
5/2	29.01	119565	80.30	150	97.75	9.39	0.043778	0.065
5/3	30.08	123396	43.90	130	51.54	4.95	0.023821	0.051

*corrected for recoveries

TRAIN N

NORMAL PHASE

Test/Run	Vstd (CF)	Flow (DSCFM)	MDI (ug)	Conc (ug/Nm3)	MDI Conc (ppb)	MDI E-Rate (LB/HR)
6/1	55.66	123168	207.00	131	12.6	0.0604
6/2	55.51	123303	220.00	140	13.5	0.0647
6/3	55.60	123467	287.00	182	17.5	0.0842
						Avg 0.0697

REVERSE PHASE

Test/Run	Vstd (CF)	Flow (DSCFM)	MDI (ug)	Conc (ug/Nm3)	MDI Conc (ppb)	MDI E-Rate (LB/HR)
6/1	55.66	123168	226.00	143	13.8	0.0662
6/2	55.51	123303	250.00	159	15.3	0.0735
6/3	55.60	123467	288.00	183	17.6	0.0846
						avg 0.0747

NOTES:

TRAIN N = Nitro Reagent Modified NIOSH Method P&CAM 347

TRAIN F = 1,2-MP Reagent ; Filter First

TRAIN L = 1,2-MP Reagent ; Filter Last

Test No. 4
Press & unloader vent stack

MDI SAMPLING DATA.....TRAIN F

	Run 1	Run 2	Run 3
Date of run	06-26-93	06-26-93	06-26-93
Time run start/end.....(HRS)	836/ 952	1121/1241	1353/1509
Static pressure.....(IN.WC)	-0.85	-0.85	-0.85
Cross sectional area (SQ.FT)	27.69	27.69	27.69
Pitot tube coefficient.....	.840	.840	.840
Water in sample gas			
condenser.....(ML)	0.0	0.0	0.0
impingers.....(GRAMS)	-45.0	-34.0	-30.0
desiccant.....(GRAMS)	70.0	49.0	45.0
total.....(GRAMS)	25.0	15.0	15.0
Gas meter coefficient.....	0.9983	0.9983	0.9983
Barometric pressure..(IN.HG)	28.36	28.36	28.36
Avg. orif.pres.drop..(IN.WC)	0.64	0.65	0.65
Avg. gas meter temp..(DEF-F)	73.8	79.7	73.6
Volume through gas meter....			
at meter conditions...(CF)	31.73	32.20	32.00
standard conditions.(DSCF)	29.74	29.85	30.00
Total sampling time....(MIN)	72.00	72.00	72.00
Nozzle diameter.....(IN)	.130	.130	.130
Avg.stack gas temp ..(DEG-F)	92	97	88
Volumetric flow rate.....			
actual.....(ACFM)	140406	141752	139702
dry standard.....(DSCFM)	122175	124143	124353
Isokinetic variation.....(%)	101.6	100.4	100.7

Test No. 5
Press & unloader vent stack

MDI SAMPLING DATA.....TRAIN L

	Run 1	Run 2	Run 3
Date of run	06-26-93	06-26-93	06-26-93
Time run start/end.....(HRS)	830/ 955	1121/1240	1353/1510
Static pressure.....(IN.WC)	-0.85	-0.85	-0.85
Cross sectional area (SQ.FT)	27.69	27.69	27.69
Pitot tube coefficient.....	.840	.840	.840
Water in sample gas			
condenser.....(ML)	0.0	0.0	0.0
impingers.....(GRAMS)	0.0	-72.0	0.0
desiccant.....(GRAMS)	25.0	87.0	15.0
total.....(GRAMS)	25.0	15.0	15.0
Total particulate material..			
.....collected(grams)	0.0000	0.0000	0.0000
Gas meter coefficient.....	0.9970	0.9970	0.9970
Barometric pressure..(IN.HG)	28.36	28.36	28.00
Avg. orif.pres.drop..(IN.WC)	0.47	0.46	0.49
Avg. gas meter temp..(DEF-F)	80.3	83.5	83.8
Volume through gas meter....			
at meter conditions...(CF)	29.24	29.01	30.08
standard conditions.(DSCF)	27.03	26.65	27.27
Total sampling time....(MIN)	72.00	72.00	72.00
Nozzle diameter.....(IN)	.125	.125	.125
Avg.stack gas temp ..(DEG-F)	94	97	89
Volumetric flow rate.....			
actual.....(ACFM)	137495	136944	141058
dry standard.....(DSCFM)	118694	119565	123396
Isokinetic variation.....(%)	102.8	100.7	99.8

Test No. 6
Press & unloader vent stack

MDI SAMPLING DATA.....TRAIN N

	Run 1	Run 2	Run 3
Date of run	06-25-93	06-25-93	06-25-93
Time run start/end.....(HRS)	836/ 946	1121/1236	1353/1506
Static pressure.....(IN.WC)	-8.50	-8.50	-8.50
Cross sectional area (SQ.FT)	27.69	27.69	27.69
Pitot tube coefficient.....	.840	.840	.840
Water in sample gas			
condenser.....(ML)	0.0	0.0	0.0
impingers.....(GRAMS)	0.0	0.0	0.0
desiccant.....(GRAMS)	26.0	27.0	27.0
total.....(GRAMS)	26.0	27.0	27.0
Gas meter coefficient.....	0.9996	0.9996	0.9996
Barometric pressure..(IN.HG)	28.36	28.36	28.36
Avg. orif.pres.drop..(IN.WC)	2.52	2.52	2.53
Avg. gas meter temp..(DEF-F)	83.6	84.4	83.1
Volume through gas meter....			
at meter conditions...(CF)	55.66	55.51	55.60
standard conditions.(DSCF)	51.54	51.32	51.53
Total sampling time....(MIN)	60.00	60.00	60.00
Nozzle diameter.....(IN)	.187	.187	.187
Avg.stack gas temp ..(DEG-F)	94	97	90
Volumetric flow rate.....			
actual.....(ACFM)	142709	143814	142236
dry standard.....(DSCFM)	123168	123303	123467
Isokinetic variation.....(%)	101.3	100.8	101.0

APPENDIX B

RESULTS - TWO HARBORS

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Test No. 4
Press Vent Stack

Results of Volumetric Flow Rate Determination-------Method 2

Date of Determination.....	06-29-93
Time of Determination.....(HRS)	1310
Barometric pressure.....(IN.HG)	29.19
Pitot tube coefficient.....	.84
Number of sampling ports.....	4
Total number of points.....	24
Shape of duct.....	Rectangular
Duct width.....(IN)	55
Duct length.....(IN)	55
Duct area.....(SQ.FT)	21.01
Direction of flow.....	UP
Static pressure.....(IN.WC)	-.78
Avg. gas temp.....(DEG-F)	0
Moisture content.....(% V/V)	1.48
Avg. linear velocity.....(FT/SEC)	46.5
Gas density.....(LB/ACF)	.08324
Molecular weight.....(LB/LBMOLE)	28.84
Mass flow of gas.....(LB/HR)	292580
Volumetric flow rate.....	
actual.....(ACFM)	58583
dry standard.....(DSCFM)	64501

Test No. 2
Unloader Vent Stack

Results of Volumetric Flow Rate Determination-------Method 2

Date of Determination.....	06-29-93
Time of Determination.....(HRS)	745
Barometric pressure.....(IN.HG)	29.19
Pitot tube coefficient.....	.84
Number of sampling ports.....	4
Total number of points.....	24
Shape of duct.....	Rectangular
Duct width.....(IN)	55
Duct length.....(IN)	55
Duct area.....(SQ.FT)	21.01
Direction of flow.....	UP
Static pressure.....(IN.WC)	-.62
Avg. gas temp.....(DEG-F)	85
Moisture content.....(% V/V)	1.40
Avg. linear velocity.....(FT/SEC)	34.0
Gas density.....(LB/ACF)	.07031
Molecular weight.....(LB/LBMOLE)	28.84
Mass flow of gas.....(LB/HR)	180700
Volumetric flow rate.....	
actual.....(ACFM)	42836
dry standard.....(DSCFM)	39858

Test No. 1
Press Vent Stack

Formaldehyde Test

Results of Orsat & Moisture Analyses-----Methods 3 & 4(%v/v)

	Run 1	Run 2	Run 3
Date of run	06-29-93	06-29-93	06-29-93
Dry basis (orsat)			
carbon dioxide.....	0.03	0.03	0.03
oxygen.....	20.90	20.90	20.90
nitrogen.....	79.07	79.07	79.07
Wet basis (orsat)			
carbon dioxide.....	0.03	0.03	0.03
oxygen.....	20.85	20.63	20.78
nitrogen.....	78.88	78.05	78.61
water vapor.....	0.24	1.29	0.59
Dry molecular weight.....	28.84	28.84	28.84
Wet molecular weight.....	28.81	28.70	28.78
Specific gravity.....	0.995	0.991	0.994

Test No. 4
Press Vent Stack
Particulate and Phenol Tests

Results of Orsat & Moisture Analyses-----Methods 3 & 4(%v/v)

	Run 1	Run 2	Run 3
Date of run	06-29-93	06-29-93	06-29-93
Dry basis (orsat)			
carbon dioxide.....	0.03	0.03	0.03
oxygen.....	20.90	20.90	20.90
nitrogen.....	79.07	79.07	79.07
Wet basis (orsat)			
carbon dioxide.....	0.03	0.03	0.03
oxygen.....	20.59	20.50	20.54
nitrogen.....	77.90	77.55	77.70
water vapor.....	1.48	1.92	1.73
Dry molecular weight.....	28.84	28.84	28.84
Wet molecular weight.....	28.68	28.63	28.65
Specific gravity.....	0.991	0.989	0.990
Water mass flow.....(LB/HR)	1510	1961	1820

Test No. 7
Press Vent Stack

MDI Train N

Results of Orsat & Moisture Analyses-----Methods 3 & 4(%v/v)

	Run 1	Run 2	Run 3
Date of run	06-30-93	06-30-93	06-30-93
Dry basis (orsat)			
carbon dioxide.....	0.03	0.03	0.03
oxygen.....	20.90	20.90	20.90
nitrogen.....	79.07	79.07	79.07
Wet basis (orsat)			
carbon dioxide.....	0.03	0.03	0.03
oxygen.....	20.61	20.59	20.55
nitrogen.....	77.99	77.88	77.76
water vapor.....	1.37	1.50	1.66
Dry molecular weight.....	28.84	28.84	28.84
Wet molecular weight.....	28.69	28.68	28.66
Specific gravity.....	0.991	0.991	0.990

Test No. 8
Press Vent Stack
MDI Train L

Results of Orsat & Moisture Analyses-----Methods 3 & 4(%v/v)

	Run 1	Run 2	Run 3
Date of run	06-30-93	06-30-93	06-30-93
Dry basis (orsat)			
carbon dioxide.....	0.03	0.03	0.03
oxygen.....	20.90	20.90	20.90
nitrogen.....	79.07	79.07	79.07
Wet basis (orsat)			
carbon dioxide.....	0.03	0.03	0.03
oxygen.....	20.58	20.59	20.56
nitrogen.....	77.85	77.90	77.80
water vapor.....	1.54	1.48	1.61
Dry molecular weight.....	28.84	28.84	28.84
Wet molecular weight.....	28.67	28.68	28.67
Specific gravity.....	0.990	0.991	0.990

Test No. 9
Press Vent Stack
MDI Train F

Results of Orsat & Moisture Analyses-----Methods 3 & 4(%v/v)

	Run 1	Run 2	Run 3
Date of run	06-30-93	06-30-93	06-30-93
Dry basis (orsat)			
carbon dioxide.....	0.03	0.03	0.03
oxygen.....	20.90	20.90	20.90
nitrogen.....	79.07	79.07	79.07
Wet basis (orsat)			
carbon dioxide.....	0.03	0.03	0.03
oxygen.....	20.58	20.60	20.59
nitrogen.....	77.86	77.94	77.88
water vapor.....	1.52	1.43	1.51
Dry molecular weight.....	28.84	28.84	28.84
Wet molecular weight.....	28.68	28.69	28.68
Specific gravity.....	0.991	0.991	0.991

Test No. 2
Unloader Vent Stack
Particulate and Phenol Tests

Results of Orsat & Moisture Analyses-----Methods 3 & 4(%v/v)

	Run 1	Run 2	Run 3
Date of run	06-29-93	06-29-93	06-29-93
Dry basis (orsat)			
carbon dioxide.....	0.03	0.03	0.03
oxygen.....	20.90	20.90	20.90
nitrogen.....	79.07	79.07	79.07
Wet basis (orsat)			
carbon dioxide.....	0.03	0.03	0.03
oxygen.....	20.61	20.58	20.61
nitrogen.....	77.96	77.86	77.98
water vapor.....	1.40	1.53	1.38
Dry molecular weight.....	28.84	28.84	28.84
Wet molecular weight.....	28.69	28.67	28.69
Specific gravity.....	0.991	0.990	0.991
Water mass flow.....(LB/HR)	1727	1794	1551

Test No. 5
Unloader Vent Stack
Formaldehyde Test

Results of Orsat & Moisture Analyses-----Methods 3 & 4(%v/v)

	Run 1	Run 2	Run 3
Date of run	06-29-93	06-29-93	06-29-93
Dry basis (orsat)			
carbon dioxide.....	0.03	0.03	0.03
oxygen.....	20.90	20.90	20.90
nitrogen.....	79.07	79.07	79.07
Wet basis (orsat)			
carbon dioxide.....	0.03	0.03	0.03
oxygen.....	20.66	20.60	20.54
nitrogen.....	78.16	77.92	77.71
water vapor.....	1.15	1.46	1.72
Dry molecular weight.....	28.84	28.84	28.84
Wet molecular weight.....	28.72	28.68	28.65
Specific gravity.....	0.992	0.991	0.990

Test No. 10
Unloader Vent Stack
MDI Train N

Results of Orsat & Moisture Analyses-----Methods 3 & 4(%v/v)

	Run 1	Run 2	Run 3
Date of run	07-01-93	07-01-93	07-01-93
Dry basis (orsat)			
carbon dioxide.....	0.03	0.03	0.03
oxygen.....	20.90	20.90	20.90
nitrogen.....	79.07	79.07	79.07
Wet basis (orsat)			
carbon dioxide.....	0.03	0.03	0.03
oxygen.....	20.65	20.61	20.63
nitrogen.....	78.13	77.96	78.06
water vapor.....	1.19	1.40	1.28
Dry molecular weight.....	28.84	28.84	28.84
Wet molecular weight.....	28.71	28.69	28.70
Specific gravity.....	0.992	0.991	0.991

Test No. 11
Unloader Vent Stack
MDI Train L

Results of Orsat & Moisture Analyses-----Methods 3 & 4(%v/v)

	Run 1	Run 2	Run 3
Date of run	07-01-93	07-01-93	07-01-93
Dry basis (orsat)			
carbon dioxide.....	0.03	0.03	0.03
oxygen.....	20.90	20.90	20.90
nitrogen.....	79.07	79.07	79.07
Wet basis (orsat)			
carbon dioxide.....	0.03	0.03	0.03
oxygen.....	20.58	20.58	20.63
nitrogen.....	77.86	77.85	78.04
water vapor.....	1.53	1.54	1.30
Dry molecular weight.....	28.84	28.84	28.84
Wet molecular weight.....	28.68	28.67	28.70
Specific gravity.....	0.991	0.990	0.991

Test No. 12
Unloader Vent Stack

MDI Train F

Results of Orsat & Moisture Analyses-----Methods 3 & 4(%v/v)

	Run 1	Run 2	Run 3
Date of run	07-01-93	07-01-93	07-01-93
Dry basis (orsat)			
carbon dioxide.....	0.03	0.03	0.03
oxygen.....	20.90	20.90	20.90
nitrogen.....	79.07	79.07	79.07
Wet basis (orsat)			
carbon dioxide.....	0.03	0.03	0.03
oxygen.....	20.57	20.59	20.60
nitrogen.....	77.83	77.90	77.93
water vapor.....	1.57	1.48	1.44
Dry molecular weight.....	28.84	28.84	28.84
Wet molecular weight.....	28.67	28.68	28.68
Specific gravity.....	0.990	0.991	0.991

Test No. 4
Press Vent Stack

Results of Particulate Loading Determinations-------Method 5

	Run 1	Run 2	Run 3
Date of run	06-29-93	06-29-93	06-29-93
Time run start/end.....(HRS)	1322/1423	1448/1549	1617/1629
Static pressure.....(IN.WC)	-0.78	-0.78	-0.78
Cross sectional area (SQ.FT)	21.01	21.01	21.01
Pitot tube coefficient.....	.840	.840	.840
Water in sample gas			
condenser.....(ML)	0.0	0.0	0.0
impingers.....(GRAMS)	3.1	5.3	5.4
desiccant.....(GRAMS)	8.0	9.0	8.0
total.....(GRAMS)	11.1	14.3	13.4
Total particulate material..			
.....collected(grams)	0.0159	0.0200	0.0197
Gas meter coefficient.....	0.9970	0.9970	0.9970
Barometric pressure..(IN.HG)	29.19	29.00	29.19
Avg. orif.pres.drop..(IN.WC)	1.45	1.45	1.57
Avg. gas meter temp..(DEF-F)	97.2	97.2	90.6
Volume through gas meter....			
at meter conditions...(CF)	37.56	37.51	38.27
standard conditions.(DSCF)	34.73	34.46	35.82
Total sampling time....(MIN)	60.00	60.00	60.00
Nozzle diameter.....(IN)	.250	.250	.250
Avg.stack gas temp ..(DEG-F)	98	98	96
Volumetric flow rate.....			
actual.....(ACFM)	39395	39828	40501
dry standard.....(DSCFM)	35735	35735	36784
Isokinetic variation.....(%)	99.9	99.1	100.1
Particulate concentration...			
actual.....(GR/ACF)	0.00641	0.00803	0.00770
dry standard.....(GR/DSCF)	0.00706	0.00896	0.00849
Particle mass rate...(LB/HR)	2.164	2.743	2.675

Test No. 2
Unloader Vent Stack

Results of Particulate Loading Determinations-------Method 5

	Run 1	Run 2	Run 3
Date of run	06-29-93	06-29-93	06-29-93
Time run start/end.....(HRS)	822/ 922	957/1059	1134/1237
Static pressure.....(IN.WC)	-0.62	-0.62	-0.62
Cross sectional area (SQ.FT)	21.01	21.01	21.01
Pitot tube coefficient.....	.840	.840	.840
Water in sample gas			
condenser.....(ML)	0.0	0.0	0.0
impingers.....(GRAMS)	2.6	3.2	2.4
desiccant.....(GRAMS)	10.0	10.0	9.0
total.....(GRAMS)	12.6	13.2	11.4
Total particulate material..			
.....collected(grams)	0.0296	0.0230	0.0179
Gas meter coefficient.....	0.9970	0.9970	0.9970
Barometric pressure..(IN.HG)	29.19	29.19	29.19
Avg. orif.pres.drop..(IN.WC)	1.79	1.64	1.61
Avg. gas meter temp..(DEF-F)	97.0	97.9	98.9
Volume through gas meter....			
at meter conditions...(CF)	45.19	43.21	41.68
standard conditions.(DSCF)	41.84	39.93	38.44
Total sampling time....(MIN)	60.00	60.00	60.00
Nozzle diameter.....(IN)	.250	.250	.250
Avg.stack gas temp ..(DEG-F)	86	88	90
Volumetric flow rate.....			
actual.....(ACFM)	46664	44356	42856
dry standard.....(DSCFM)	43354	41027	39544
Isokinetic variation.....(%)	99.2	100.0	99.9
Particulate concentration...			
actual.....(GR/ACF)	0.01014	0.00822	0.00663
dry standard.....(GR/DSCF)	0.01092	0.00889	0.00719
Particle mass rate...(LB/HR)	4.056	3.126	2.435

Test No. 1
Press Vent Stack

Results of Formaldehyde Tests ---------- EPA Method 0011

	Run 1	Run 2	Run 3
Date of run	06-29-93	06-29-93	06-29-93
Time run start/end.....(HRS)	0822-0922	0957-1058	1137-1239
Barometric pressure..(IN.HG)	29.19	29.19	29.19
Meter temperature....(DEG-F)	95.00	95.00	99.00
Meter correction coefficient	0.9983	0.9983	0.9983
Volume through gas meter....			
at meter conditions...(CF)	41.910	43.160	43.140
standard conditions (DSCF)	38.832	39.990	39.686
Total sampling time....(MIN)	60.0	60.0	60.0
Moisture content.....(%V/V)	0.24	1.29	0.59
Volumetric flow rate (DSCFM)	39560	40888	41059
Formaldehyde in sample..(uG)	4390	3740	3820
CH2O concentration.....			
(GR/DSCF).....	0.0017	0.0014	0.0015
(MG/DSCM).....	4.00	3.31	3.40
(PPM-DRY).....	3.20	2.65	2.72
(PPM-WET).....	3.19	2.61	2.71
CH2O emission rate...(LB/HR)	0.59149	0.50575	0.52270

CH2O = Formaldehyde

A trailing '<' symbol indicates that the true value is less than or equal to the reported value

Test No. 5
Unloader Vent Stack

Results of Formaldehyde Tests ---------- EPA Method 0011

	Run 1	Run 2	Run 3
Date of run	06-29-93	06-29-93	06-29-93
Time run start/end.....(HRS)	1321-1421	1446-1547	1617-1720
Barometric pressure..(IN.HG)	29.19	29.19	29.19
Meter temperature....(DEG-F)	90.00	88.00	88.00
Meter correction coefficient	0.9983	0.9983	0.9983
Volume through gas meter....			
at meter conditions...(CF)	43.920	45.010	40.700
standard conditions (DSCF)	41.064	42.237	38.180
Total sampling time....(MIN)	60.0	60.0	60.0
Moisture content.....(%V/V)	1.15	1.46	1.72
Volumetric flow rate (DSCFM)	41342	43301	38404
Formaldehyde in sample..(uG)	3180	3900	3540
CH2O concentration.....			
(GR/DSCF).....	0.0012	0.0014	0.0014
(MG/DSCM).....	2.74	3.26	3.28
(PPM-DRY).....	2.19	2.61	2.62
(PPM-WET).....	2.17	2.58	2.58
CH2O emission rate...(LB/HR)	0.42342	0.52879	0.47094

CH2O = Formaldehyde

A trailing '<' symbol indicates that the true value is less than or equal to the reported value

Test No. 4
Press Vent Stack

Results of Phenol Determinations ----------

	Run 1	Run 2	Run 3
Date of run	06-29-93	.6-29-93	06-29-93
Time run start/end.....(HRS)	1322-1423	1448-1549	1617-1629
Barometric pressure..(IN.HG)	29.19	29.19	29.19
Meter temperature....(DEG-F)	97.20	97.20	90.60
Meter correction coefficient	0.9970	0.9970	0.9970
Volume through gas meter....			
at meter conditions...(CF)	37.560	37.510	38.270
standard conditions (DSCF)	34.745	34.699	35.837
Total sampling time....(MIN)	60.0	60.0	60.0
Moisture content.....(%V/V)	1.48	1.92	1.73
Volumetric flow rate (DSCFM)	35735	35735	36784
Phenol in sample.....(uG)	1.70	1.90	1.70
Phenol concentration.....			
(GR/10^3DSCF).....	0.0008	0.0008	0.0007
(uG/DSCM).....	1.73	1.94	1.68
(PPB-DRY).....	0.44	0.49	0.43
(PPB-WET).....	0.44	0.48	0.42
Phenol emis. rate(10^{-3}LB/HR)	0.231	0.259	0.231

A trailing '<' symbol indicates that the true value is less than or equal to the reported value

Analysis performed according to NIOSH Method 3502

Test No. 2
Unloading Vent Stack

Results of Phenol Determinations ----------

	Run 1	Run 2	Run 3
Date of run	06-29-93	06-29-93	06-29-93
Time run start/end.....(HRS)	0822-0922	0957-1059	1134-1237
Barometric pressure..(IN.HG)	29.19	29.19	29.19
Meter temperature....(DEG-F)	97.00	97.90	98.90
Meter correction coefficient	0.9970	0.9970	0.9970
Volume through gas meter....			
at meter conditions...(CF)	45.195	43.210	41.680
standard conditions (DSCF)	41.859	39.941	38.455
Total sampling time....(MIN)	60.0	60.0	60.0
Moisture content.....(%V/V)	1.40	1.53	1.38
Volumetric flow rate (DSCFM)	43354	41027	39544
Phenol in sample.....(uG)	0.96	0.98	1.10
Phenol concentration.....			
(GR/10^3DSCF).....	0.0004	0.0004	0.0004
(uG/DSCM).....	0.81	0.87	1.01
(PPB-DRY).....	0.21	0.22	0.26
(PPB-WET).....	0.20	0.22	0.25
Phenol emis. rate(10^{-3}LB/HR)	0.131	0.133	0.150

A trailing '<' symbol indicates that the true value is less than or equal to the reported value

Analysis performed according to NIOSH Method 3502

Test No. 7
Press Vent Stack

MDI SAMPLING DATA .....TRAIN N

	Run 1	Run 2	Run 3
Date of run	06-30-93	06-30-93	06-30-93
Time run start/end.....(HRS)	825/ 942	1118/1238	1410/1513
Static pressure.....(IN.WC)	-0.78	-0.78	-0.78
Cross sectional area (SQ.FT)	21.01	21.01	21.01
Pitot tube coefficient.....	.840	.840	.840
Water in sample gas			
condenser.....(ML)	0.0	0.0	0.0
impingers.....(GRAMS)	0.0	0.0	0.0
desiccant.....(GRAMS)	11.0	12.0	13.0
total.....(GRAMS)	11.0	12.0	13.0
Gas meter coefficient.....	0.9996	0.9996	0.9996
Barometric pressure..(IN.HG)	29.15	29.15	29.15
Avg. orif.pres.drop..(IN.WC)	1.69	1.66	1.68
Avg. gas meter temp..(DEF-F)	85.5	90.2	89.0
Volume through gas meter....			
at meter conditions...(CF)	39.41	39.50	38.70
standard conditions.(DSCF)	37.29	37.06	36.39
Total sampling time....(MIN)	60.00	60.00	60.00
Nozzle diameter.....(IN)	.251	.251	.251
Avg.stack gas temp ..(DEG-F)	86	87	89
Volumetric flow rate.....			
actual.....(ACFM)	40890	41370	42978
dry standard.....(DSCFM)	37933	38221	39549
Isokinetic variation.....(%)	100.2	98.8	93.8

ICI - LOUISIANA PACIFIC - TWO HARBORS

PRESS VENT STACK

JUNE 30, 1993

TRAIN F

Test/Run	Vstd (CF)	Flow (DSCFM)	MDI (ug)	Conc (ug/Nm3)	MDI Conc (ppb)	MDI E-Rate (LB/HR)
9/1	25.99	37758	147.16	199.95	19.2	0.02828
9/2	27.94	40541	371.00	468.92	45.1	0.071207
9/3	26.64	38143	65.90	87.36	8.4	0.012481

TRAIN L

Test/Run	Vstd (CF)	Flow (DSCFM)	MDI (ug)	* Conc (ug/Nm3)	MDI Conc (ppb)	MDI E-Rate (LB/HR)	
8/1	26.27	38899	459.50	730 617.69	59.4	0.09	0.14
8/2	26.98	40441	382.90	590 501.18	48.2	0.075918	0.12
8/3	25.48	37311	399.60	160 553.83	53.2	0.0774	0.03
							0.097 Ave

*corrected for recoveries

TRAIN N

NORMAL PHASE

Test/Run	Vstd (CF)	Flow (DSCFM)	MDI (ug)	Conc (ug/Nm3)	MDI Conc (ppb)	MDI E-Rate (LB/HR)
7/1	39.41	37933	1580.00	1415.79	136	0.201163
7/2	39.50	38221	1350.00	1206.93	116	0.17279
7/3	38.70	39549	1560.00	1423.51	137	0.210877

REVERSE PHASE

Test/Run	Vstd (CF)	Flow (DSCFM)	MDI (ug)	Conc (ug/Nm3)	MDI Conc (ppb)	MDI E-Rate (LB/HR)
7/1	39.41	37933	1510.00	1353.06	130	0.192251
7/2	39.50	38221	1250.00	1117.53	107	0.159991
7/3	38.70	39549	1530.00	1396.13	134	0.206822

NOTES:

TRAIN N= Nitro Reagent Modified NIOSH Method P&CAM 347

TRAIN F= 1,2-MP Reagent ; Filter First

TRAIN L = 1,2-MP Reagent ; Filter Last

Test No. 8
Press Vent Stack

MDI SAMPLING DATA.....TRAIN L

	Run 1	Run 2	Run 3
Date of run	06-30-93	06-30-93	06-30-93
Time run start/end.....(HRS)	825/ 957	1118/1248	1410/1528
Static pressure.....(IN.WC)	-0.78	-0.78	-0.78
Cross sectional area (SQ.FT)	21.01	21.01	21.01
Pitot tube coefficient.....	.840	.840	.840
Water in sample gas			
condenser.....(ML)	0.0	0.0	0.0
impingers.....(GRAMS)	-29.0	-28.0	-32.0
desiccant.....(GRAMS)	37.0	36.0	40.0
total.....(GRAMS)	8.0	8.0	8.0
Gas meter coefficient.....	0.9978	0.9970	0.9970
Barometric pressure..(IN.HG)	29.15	29.15	29.15
Avg. orif.pres.drop..(IN.WC)	0.48	0.49	0.44
Avg. gas meter temp..(DEF-F)	100.1	92.3	105.8
Volume through gas meter....			
at meter conditions...(CF)	26.27	26.98	25.48
standard conditions.(DSCF)	24.09	25.08	23.11
Total sampling time....(MIN)	72.00	72.00	72.00
Nozzle diameter.....(IN)	.182	.182	.182
Avg.stack gas temp ..(DEG-F)	85	87	90
Volumetric flow rate.....			
actual.....(ACFM)	41905	43763	40636
dry standard.....(DSCFM)	38899	40441	37311
Isokinetic variation.....(%)	100.1	100.2	100.1

Test No. 9
Press Vent Stack

MDI SAMPLING DATA.....TRAIN F

	Run 1	Run 2	Run 3
Date of run	06-30-93	06-30-93	06-30-93
Time run start/end.....(HRS)	825/ 957	1118/1248	1410/1512
Static pressure.....(IN.WC)	-0.78	-0.78	-0.78
Cross sectional area (SQ.FT)	21.01	21.01	21.01
Pitot tube coefficient.....	.840	.840	.840
Water in sample gas			
condenser.....(ML)	0.0	0.0	0.0
impingers.....(GRAMS)	-28.0	-26.0	-29.0
desiccant.....(GRAMS)	36.0	34.0	37.0
total.....(GRAMS)	8.0	8.0	8.0
Gas meter coefficient.....	0.9987	0.9983	0.9983
Barometric pressure..(IN.HG)	29.15	29.15	29.15
Avg. orif.pres.drop..(IN.WC)	0.54	0.61	0.54
Avg. gas meter temp..(DEF-F)	88.6	90.8	95.0
Volume through gas meter....			
at meter conditions...(CF)	25.99	27.94	26.64
standard conditions.(DSCF)	24.36	26.07	24.67
Total sampling time....(MIN)	72.00	72.00	72.00
Nozzle diameter.....(IN)	.185	.185	.185
Avg.stack gas temp ..(DEG-F)	86	88	90
Volumetric flow rate.....			
actual.....(ACFM)	40762	43876	41462
dry standard.....(DSCFM)	37758	40541	38143
Isokinetic variation.....(%)	100.9	100.6	101.1

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UNLOADER VENT STACK
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TRAIN F

Test/Run	Vstd (CF)	Flow (DSCFM)	MDI (ug)	Conc (ug/Nm3)	MDI Conc (ppb)	MDI E-Rate (LB/HR)
12/1	25.37	36952		#VALUE!	#VALUE!	#VALUE!
12/2	27.00	38588		#VALUE!	#VALUE!	#VALUE!
12/3	27.75	39944		#VALUE!	#VALUE!	#VALUE!

TRAIN L

Test/Run	Vstd (CF)	Flow (DSCFM)	MDI (ug)		Conc (ug/Nm3)	MDI Conc (ppb)	MDI E-Rate (LB/HR)	
11/1	26.36	39495	296.30	430	396.95	38.1	0.058723	0.085
11/2	26.18	39109	201.80	370	272.21	26.2	0.039876	0.073
11/3	27.29	40533	300.80	460	389.24	37.4	0.059097	0.090
								0.083 Ave

TRAIN N

NORMAL PHASE

Test/Run	Vstd (CF)	Flow (DSCFM)	MDI (ug)	Conc (ug/Nm3)	MDI Conc (ppb)	MDI E-Rate (LB/HR)
10/1	41.95	40113	1080.00	909.16	87.4	0.136602
10/2	39.15	36872	802.00	723.42	69.5	0.099912
10/3	39.14	36899	1170.00	1055.63	101.4	0.145901

REVERSE PHASE

Test/Run	Vstd (CF)	Flow (DSCFM)	MDI (ug)	Conc (ug/Nm3)	MDI Conc (ppb)	MDI E-Rate (LB/HR)
10/1	41.95	40113	1040.00	875.48	84.1	0.131543
10/2	39.15	36872	790.00	712.59	68.5	0.098417
10/3	39.14	36899	1090.00	983.45	94.5	0.135925

NOTES:

TRAIN N = Nitro Reagent Modified NIOSH Method P&CAM 347

TRAIN F = 1,2-MP Reagent ; Filter First

TRAIN L = 1,2-MP Reagent ; Filter Last

Test No. 10
Unloader Vent Stack

MDI SAMPLING DATA.....TRAIN N

	Run 1	Run 2	Run 3
Date of run	07-01-93	07-01-93	07-01-93
Time run start/end.....(HRS)	754/ 856	1003/1105	1214/1353
Static pressure.....(IN.WC)	-0.62	-0.62	-0.62
Cross sectional area (SQ.FT)	21.01	21.01	21.01
Pitot tube coefficient.....	.840	.840	.840
Water in sample gas			
condenser.....(ML)	0.0	0.0	0.0
impingers.....(GRAMS)	0.0	0.0	0.0
desiccant.....(GRAMS)	10.0	11.0	10.0
total.....(GRAMS)	10.0	11.0	10.0
Gas meter coefficient.....	0.9996	0.9996	0.9996
Barometric pressure..(IN.HG)	29.10	29.10	29.10
Avg. orif.pres.drop..(IN.WC)	1.65	1.51	1.54
Avg. gas meter temp..(DEF-F)	89.9	92.0	93.8
Volume through gas meter....			
at meter conditions...(CF)	41.95	39.15	39.14
standard conditions.(DSCF)	39.31	36.53	36.41
Total sampling time....(MIN)	60.00	60.00	60.00
Nozzle diameter.....(IN)	.251	.251	.251
Avg.stack gas temp ..(DEG-F)	87	88	88
Volumetric flow rate.....			
actual.....(ACFM)	43275	39947	39918
dry standard.....(DSCFM)	40113	36872	36899
Isokinetic variation.....(%)	99.9	101.0	100.6

Test No. 11
Unloader Vent Stack

MDI SAMPLING DATA.....TRAIN L

	Run 1	Run 2	Run 3
Date of run	07-01-93	07-01-93	07-01-93
Time run start/end.....(HRS)	754/ 908	1003/1104	1214/1424
Static pressure.....(IN.WC)	-0.62	-0.62	-0.62
Cross sectional area (SQ.FT)	21.01	21.01	21.01
Pitot tube coefficient.....	.840	.840	.840
Water in sample gas			
condenser.....(ML)	0.0	0.0	0.0
impingers.....(GRAMS)	-32.0	-25.0	-25.0
desiccant.....(GRAMS)	40.0	33.0	32.0
total.....(GRAMS)	8.0	8.0	7.0
Gas meter coefficient.....	0.9970	0.9970	0.9970
Barometric pressure..(IN.HG)	29.10	29.10	29.10
Avg. orif.pres.drop..(IN.WC)	0.42	0.42	0.45
Avg. gas meter temp..(DEF-F)	95.6	95.6	98.7
Volume through gas meter....			
at meter conditions...(CF)	26.36	26.18	27.29
standard conditions.(DSCF)	24.31	24.14	25.03
Total sampling time....(MIN)	72.00	72.00	72.00
Nozzle diameter.....(IN)	.182	.182	.182
Avg.stack gas temp ..(DEG-F)	87	88	88
Volumetric flow rate.....			
actual.....(ACFM)	42770	42485	43919
dry standard.....(DSCFM)	39495	39109	40533
Isokinetic variation.....(%)	99.4	99.7	99.8

Test No. 12
Unloader Vent Stack

MDI SAMPLING DATA.....TRAIN F

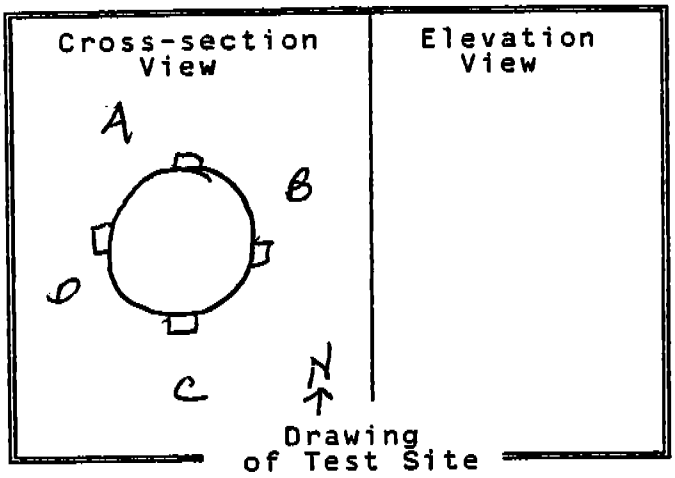
	Run 1	Run 2	Run 3
Date of run	07-01-93	07-01-93	07-01-93
Time run start/end.....(HRS)	754/ 908	1003/1120	1215/1423
Static pressure.....(IN.WC)	-0.80	-0.80	-0.80
Cross sectional area (SQ.FT)	21.01	21.01	21.01
Pitot tube coefficient.....	.840	.840	.840
Water in sample gas			
condenser.....(ML)	0.0	0.0	0.0
impingers.....(GRAMS)	-38.0	-17.0	-35.0
desiccant.....(GRAMS)	46.0	25.0	43.0
total.....(GRAMS)	8.0	8.0	8.0
Gas meter coefficient.....	0.9983	0.9983	0.9983
Barometric pressure..(IN.HG)	29.10	29.10	29.10
Avg. orif.pres.drop..(IN.WC)	0.50	0.51	0.54
Avg. gas meter temp..(DEF-F)	89.3	90.4	92.6
Volume through gas meter....			
at meter conditions...(CF)	25.37	27.00	27.75
standard conditions.(DSCF)	23.70	25.17	25.77
Total sampling time....(MIN)	72.00	72.00	72.00
Nozzle diameter.....(IN)	.185	.185	.185
Avg.stack gas temp ..(DEG-F)	87	89	88
Volumetric flow rate.....			
actual.....(ACFM)	40034	41940	43320
dry standard.....(DSCFM)	36952	38588	39944
Isokinetic variation.....(%)	100.3	102.0	100.9

APPENDIX C

FIELD DATA SHEETS

INTERPOLL LABORATORIES - EPA METHOD 2 FIELD DATA SHEET

Job ICI SAGOLA
Source PRESS & UNLOADER VENT STACK
Test 1 Run 0 Date 6-25-93
Stack dimen. 71.25 IN.
Dry bulb ____ °F Wet bulb ____ °F
Manometer: ☒ Reg. ☐ Exp. ☐ Elec.
Barometric pressure 28.44 in Hg
Static pressure -.85 in WC
Operators GH
Pitot No. 27-U6 Cp .84
PM Phenols



Drawing of Test Site

Traverse Point No.	Fraction of Diameter	Distance from Stack Wall (in)	Distance from End of Port (in)	Velocity Pressure (in WC)	Temperature of gas (°F)
		Port length: 5 in.		Time start: 0840 hrs	
D-1	.021	1.5	6.5	1.1	96
2	.067	4.77	9.77	1.5	
3	.118	8.48	13.48	1.7	
4	.177	12.61	17.61	1.7	
5	.250	17.81	22.81	1.4	
6	.356	25.36	30.36	1.5 ~~1.9~~	
7	.644	45.88	50.88	1.9	
8	.750	52.44	57.44	1.7	
9	.823	58.64	63.64	1.8	
10	.882	62.84	67.84	1.7	
11	.933	66.47	71.47	1.7	
12	.979	69.75	74.75	1.7	
C-1				~~1.5~~ 1.1	96
2				2.5	
3				2.5	
4				2.3	
5				2.3	
6				2.0	
7				1.9	
8				2.3	
9				2.5	
10				2.5	
11				2.2	
12				1.7	
Temp. meas. device & S/N: 24				Time end: 0950 hrs	

C-1

R or nothing = reg. manometer; S= expanded; E=electronic

S-3921

INTERPOLL LABORATORIES EPA METHOD 5/17 SAMPLE LOG SHEET

Job ICI SABOLA Date 6-25-93 Test 1 Run 1
Source PRESS AND UNLOADER VENT No. of traverse points 24
Method 5 Filter holder: GLASS Filter type: GLASS FIBER

Sample Train Leak Check:

Pretest: < 0.02 cfm at 15 in. Hg. (vac) ☒
Postest: < .02 cfm at 15 in. Hg. (vac) ☒
(LESS THAN

Particulate Catch Data:

No.s of filters used: 5427

Recovery solvent(s)
☒ acetone
☐ other(s)

NO OF FILTER WASH BOTTLES 1
No. of probe wash bottles: 1
Sample recovered by: CH

Condensate Data:

Item	Weight(g)		
	Final	Tare	Difference
Impinger No. 1	272	267.5	4.5
Impinger No. 2	272	265	7
Impinger No. 3			
Condenser			
Desiccant	1357	1341	16
Total			22.5

Integrated Gas Sampling Data:

Bag Pump No. N/A Box No. N/A Bag No. N/A

Bag Material: 5-layer Aluminized Tedlar Size: 44 L

Pretest leak check: _____ cc/min at _____ in. Hg.

Time start: _____ (HRS) Time end: _____ (HRS)

Sampling rate: _____ cc/min Operator: _____

S/N of O_2 Analyzer used to monitor train outlet: NA - AMBIENT

CF-023

S-0046RR

INTERPOLL LABORATORIES EPA METHOD 5 FIELD DATA SHEET

Job 151 SAGOLA
Source PRESS AND UNLOADER VENT
Date 6-25-93 Test 1 Run 1

Operators GH & SE
Meter Box No. 3 ΔH@ 1.74 IN WC
Gasmeter coeff. .9970

Pitot No. 27U6 Cp .84
Bar. Press. 28.94 inHg H2O 2 %
Nozzle No. 27-3 Nozzle Dia .120 IN.

Traverse Point No.	Sampling Time (min)	Sample Volume (cf)	Velocity Head (inWC)	Orifice Meter (inWC)	Dec. Vol. (cf)	VAC. inHg	Temperatures (°F) Stack	Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (%v/v)
	(0944)	898.40											
C 12	2.5	900.54	1.7	2.14	0.54	7	96	242	243	39	74	73	20.9
11	5	902.68	1.7	2.13	2.68	8	96	242	244	39	76	74	20.9
10	7.5	904.95	1.9	2.38	4.95	9	95	243	245	39	78	74	20.9
9	10	907.33	2.1	2.62	7.33	10	97	244	248	40	80	75	20.9
8	12.5	909.78	2.2	2.78	9.78	11	101	245	249	42	83	76	20.9
7	15	912.13	2.0	2.54	2.13	11	96	245	249	43	84	77	20.9
6	17.5	914.64	2.3	2.92	4.64	12	96	246	250	44	85	78	20.9
5	20	917.15	2.3	2.88	7.15	12	96	248	250	45	86	79	20.9
4	22.5	919.75	2.4	3.03	9.72	13	105	248	250	44	87	80	20.9
3	25	922.15	2.1	2.68	2.15	13	102	249	250	40	88	85	20.9
2	27.5	924.78	2.5	3.16	4.78	13	100	249	253	41	89	82	20.9
1	30	927.42	2.5	3.16	7.42	14	103	249	254	41	90	82	20.9
D 12	32.5	929.46	1.5	1.90	9.46	8	103	245	250	41	88	84	20.9
11	35	931.51	1.5	1.90	1.51	8	103	246	250	42	89	84	20.9
10	37.5	933.68	1.65	2.14	3.68	7	93	248	251	43	91	84	20.9
9	40	935.85	1.65	2.12	5.85	7	93	247	249	41	93	85	20.9
8	42.5	938.06	1.70	2.20	8.06	7	96	247	250	42	95	86	20.9
7	45	940.21	1.60	2.08	0.21	8	95	246	251	42	96	87	20.9
6	47.5	942.42	1.70	2.21	2.42	10	95	247	252	41	97	88	20.9
5	50	944.44	1.4	1.82	4.44	9	95	247	253	42	97	88	20.9
4	52.5	946.58	1.6	2.05	6.58	10	104	247	253	43	97	89	20.9
3	55	948.78	1.7	2.18	8.78	10	104	245	253	44	97	89	20.9
2	57.5	950.92	1.6	2.05	0.92	9	104	246	254	44	97	89	20.9
1	60	952.84	1.3	1.66	2.84	9	104	245	255	44	97	89	20.9
	(1048)												
	θ = 60	Vm = 54.44		ΔH = 2.36							Avg. = 85.9		

INTERPOLL LABORATORIES EPA METHOD 5/17 SAMPLE LOG SHEET

Job ICI SAGOLA STACK Date 6-25-93 Test 1 Run 2
Source PRESS AND UNLOADER VENT No. of traverse points 24
Method 5 Filter holder: GLASS Filter type: GLASS FIBER

Sample Train Leak Check:

Pretest: < 0.02 cfm at 15 in. Hg. (vac) ☒
Postest: .00 cfm at 15 in. Hg. (vac) ☒

Particulate Catch Data:

No.s of filters used: 5425

Recovery solvent(s)
☒ acetone
☐ other(s)

NO OF FILTER WASH BOTTLES 1
No. of probe wash bottles: 1
Sample recovered by: GH

Condensate Data:

Item	Weight(g)		
	Final	Tare	Difference
Impinger No. 1A	275	267	8
Impinger No. 2B	272	266.9	5.1
Impinger No. 3			
Condenser			
Desiccant	1452	1437	15
Total			26.1

Integrated Gas Sampling Data:

Bag Pump No. N/A Box No. N/A Bag No. N/A

Bag Material: 5-layer Aluminized Tedlar Size: 44 L

Pretest leak check: _____ cc/min at _____ in. Hg.

Time start: _____ (HRS) Time end: _____ (HRS)

Sampling rate: _____ cc/min Operator: _____

S/N of O_2 Analyzer used to monitor train outlet: ___

CF-023

INTERPOLL LABORATORIES A METHOD 5 FIELD DATA SHEET

Job: ICI PACOLA Operators: C HOVE S ERTLE Pitot No. 27 V-6 Cp .84
Source: PRESS + UNLOADER VENT STACK Meter Box No. 3 ΔH@ 2.74 IN WC Bar. Press. 28.44 inHg H2O %
Date: 6-25-93 Test 1 Run 2 Counter coeff. .9970 Nozzle No. 3 Nozzle Dia .190 IN.

Traverse Point No.	Sampling Time (min)	Sample Volume (cf)	Velocity Head (inWC)	Orifice Meter (inWC)	Dec. Vol. (cf)	VAC. inHg	Temperatures (°F) Stack	Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (%v/v)
	2158	953.20											
D 12	2.5	955.37	1.7	2.14	5.37	8	103	242	245	39	84	84	20.9
11	5	957.50	1.6	2.05	7.50	8	95	243	246	40	85	84	20.9
10	7.5	959.74	1.8	2.29	9.74	8	94	244	247	40	85	84	20.9
9	10	961.92	1.7	2.17	1.92	8	99	244	247	40	87	85	20.9
8	12.5	964.12	1.7	2.20	4.12	8	100	249	242	43	90	86	20.9
7	15	966.27	1.6	2.07	6.27	8	94	248	243	44	92	87	20.9
6	17.5	968.48	1.7	2.20	8.48	9	94	246	245	45	94	88	20.9
5	20	970.56	1.5	1.95	0.56	9	94	245	248	39	96	89	20.9
4	22.5	972.77	1.7	2.18	2.77	9	102	249	237	40	97	89	20.9
3	25	974.97	1.7	2.18	4.97	9	103	252	235	42	97	89	20.9
2	27.5	977.18	1.7	2.18	7.18	9	103	253	240	45	97	89	20.9
1	30	979.38	1.7	2.18	9.38	7	104	254	243	46	98	90	20.9
C 12	32.5	982.05	2.5	3.20	2.05	11	104	253	241	47	97	91	20.9
11	35	984.88	2.8	3.59	4.88	13	103	252	241	42	98	91	20.9
10	37.5	987.66	2.7	3.49	7.66	13	99	252	242	42	97	91	20.9
9	40	990.34	2.5	3.22	0.34	13	102	252	243	42	97	91	20.9
8	42.5	992.75	2.0	2.61	2.75	10	94	252	245	41	96	91	20.9
7	45	995.16	2.0	2.61	5.16	10	94	252	247	41	97	92	20.9
6	47.5	997.52	2.0	2.61	7.52	10	94	250	241	43	98	92	20.9
5	50	1000.27	2.5	3.25	0.27	10	98	247	239	39	99	93	20.9
4	52.5	1002.97	2.5	3.25	2.97	12	98	245	238	41	100	97	20.9
3	55	1005.61	2.4	3.12	5.61	12	100	246	240	43	100	97	20.9
2	57.5	1008.31	2.5	3.23	8.31	12	104	247	242	44	100	94	20.9
1	60	1010.76	2.1	2.69	0.76	11	107	246	243	44	100	94	20.9
	(1205)												
	θ = 60	Vm = 57.56		ΔH 2.61							Avg. 92.7		

INTERPOLL LABORATORIES EPA METHOD 5/17 SAMPLE LOG SHEET

Job ICI SACOLA STACK Date 6-25-93 Test 1 Run 3
Source PRESS AND UNLOADER VENT No. of traverse points 24
Method 5 Filter holder: GLASS Filter type: GLASS FIBER

Sample Train Leak Check:

Pretest: < 0.02 cfm at 15 in. Hg. (vac) ☒
Postest: .00 cfm at ____ in. Hg. (vac) ☐

Particulate Catch Data:

No.s of filters used: 5428

Recovery solvent(s)
☒ acetone
☐ other(s)

NO of FILTER WASH BOTTLES 1
No. of probe wash bottles: 1
Sample recovered by: GH

Condensate Data:

Item	Weight (g)		
	Final	Tare	Difference
Impinger No. 1	271	262.2	38
Impinger No. 2			
Impinger No. 3	269	263	3
Condenser			
Desiccant	1387	1374	13
Total			19.8

Integrated Gas Sampling Data:

Bag Pump No. N/A Box No. N/A Bag No. N/A

Bag Material: 5-layer Aluminized Tedlar Size: 44 L

Pretest leak check: _____ cc/min at _____ in. Hg.

Time start: _____ (HRS) Time end: _____ (HRS)

Sampling rate: _____ cc/min Operator: _____

S/N of O_2 Analyzer used to monitor train outlet: ___

CF-023

INTERPOLL LABORATORIES METHOD 5 FIELD DATA SHEET

Job 101 SACOLA STAC Operators QHOVE & SERTLE Pitot No. 27U-6 Cp .84
Source PRESS AND UNLOADER JENI Meter Box No. 1.74 ΔH IN WC Bar. Press. 28.44 inHg H2O %
Date 6-25-93 Test 1 Run 3 Gasmeter coeff. .9970 Nozzle No. 27-3 Nozzle Dia .190 IN.

Traverse Point No.	Sampling Time (min)	Sample Volume (cf)	Velocity Head (inWC)	Orifice Meter (inWC)	Dec. Vol. (cf)	VAC. inHg	Temperatures (°F) Stack	Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (%v/v)
	1336	11.6											
C 12	2.5	14.25	2.5	3.18	4.25	10	107	243	248	39	88	88	20.9
11	5	16.95	2.6	3.30	6.95	10	103	244	248	40	88	88	20.9
10	7.5	19.75	2.8	3.58	9.75	10	98	244	249	41	92	88	20.9
9	10	22.42	2.5	2.42	2.42	12	99	247	246	42	92	89	20.9
8	12.5	25.18	2.7	3.46	5.18	13	100	246	245	43	92	89	20.9
7	15	27.74	2.3	2.95	7.74	14	103	247	242	39	92	89	20.9
6	17.5	30.18	2.1	2.71	0.18	14	100	251	246	40	92	89	20.9
5	20	32.69	2.2	2.83	2.69	13	98	256	251	40	94	90	20.9
4	22.5	35.39	2.6	3.29	5.39	14	109	257	252	40	94	90	20.9
3	25	38.05	2.5	3.18	8.05	14	106	257	252	39	95	91	20.9
2	27.5	40.71	2.5	3.19	0.71	14	106	256	249	40	99	95	20.9
1	30	43.45	2.6	3.36	3.45	14	103	257	243	40	96	90	20.9
D 12	32.5	45.65	1.7	2.18	5.65	9	103	253	239	46	92	89	20.9
11	35	47.85	1.7	2.17	7.85	8	104	256	240	39	95	90	20.9
10	37.5	50.30	2.1	2.72	0.30	10	98	255	242	39	98	91	20.9
9	40	52.71	2.0	2.60	2.71	10	97	248	240	40	99	92	20.9
8	42.5	55.11	2.0	2.59	5.11	10	100	249	240	40	99	92	20.9
7	45	57.58	2.1	2.73	7.58	10	98	243	241	40	99	92	20.9
6	47.5	59.93	1.9	2.46	9.93	9	102	241	247	44	100	92	20.9
5	50	62.33	2.0	2.58	2.33	10	102	241	248	46	100	92	20.9
4	52.5	64.55	1.7	2.20	4.55	8	102	240	249	45	99	92	20.9
3	55	66.77	1.7	2.21	6.77	8	99	240	249	39	100	93	20.9
2	57.5	68.93	1.6	2.07	8.93	8	102	246	251	40	100	93	20.9
1	60	71.09	1.6	2.07	1.09	8	102	247	256	40	100	93	20.9
	(1440)												
	θ = 60	Vm = 59.49		ΔH 2.78							Avg. = 93.1		

INTERPOLL LABORATORIES - EPA METHOD 2 FIELD DATA SHEET

Job L.P. Sagola

Source Press + Unloading Vent Stack

Test 2 Run ___ Date 6/25/93

Stack dimen. 71.25 IN.

Dry bulb ___ °F Wet bulb ___ °F

Manometer: ☒ Reg. ☐ Exp. ☐ Elec.

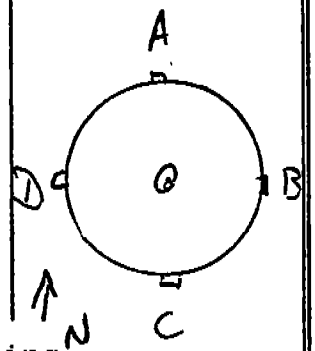
Barometric pressure 28.44 in Hg

Static pressure -.85 in WC

Operators D. Van Hoever & J. Bergstrom

Pitot No. V23-6 C_p .84

CH_2O

Cross-section View	Elevation View
	

Drawing of Test Site

Traverse Point No.	Fraction of Diameter	Distance from Stack Wall (in)	Distance from End of Port (in)	Velocity Pressure (in WC)	Temperature of gas (°F)
		Port length:	in.	Time start:	hrs
A 1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
B 1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					

Temp. meas. device & S/N: PDT #18 Time end: hrs

R or nothing = (reg.) manometer; S= expanded; E=electronic

S-3921

INTERPOLL LABORATORIES EPA METHOD 5/17 SAMPLE LOG SHEET

Job ICI / Sagola Date 6/25/93 Test 2 Run 1
Source PRESS & UNLOADING VENT STACK No. of traverse points 24
Method 0011 Filter holder: NA Filter type: NA

Sample Train Leak Check:

Pretest: < 0.02 cfm at 15 in. Hg. (vac) ☒
Postest: 0 cfm at 10 in. Hg. (vac) ☒

Particulate Catch Data:

No.s of filters used: Recovery solvent(s)

☐ acetone
☒ other(s) $MECl_2$ & DI H_2O

No. of probe wash bottles: 7
Sample recovered by: DAH

Condensate Data:

Item	Weight(g)		
	Final	Tare	Difference
Impinger No. 1			
Impinger No. 2	209	200	9
Impinger No. 3			
Condenser			
Desiccant	1320	1308	12
Total			21

Integrated Gas Sampling Data: - Ambient Air

Bag Pump No. _____ Box No. _____ Bag No. _____

Bag Material: 5-layer Aluminized Tedlar Size: 44 L

Pretest leak check: _____ cc/min at _____ in. Hg.

Time start: _____ (HRS) Time end: _____ (HRS)

Sampling rate: _____ cc/min Operator: _____

S/N of O_2 Analyzer used to monitor train outlet: ___

CF-023

INTERPOLL LABORATORIES EPA METHOD 5 FIELD DATA SHEET

Job: ICI SAGOLA
Source: PRESS AND UNLOADER VENT STACK
Date: 6-25-93 Test 2 Run 1

Operators: DVH & JB
Meter Box No.: 7 ΔH@ 1.97 IN WC
Gasmeter coeff.: .9983

Pitot No.: 23 & 6 Cp: .84
Bar. Press.: 28.47 inHg H2O 2 %
Nozzle No.: 3 Nozzle Dia: .187 IN.

Traverse Point No.	Sampling Time (min)	Sample Volume (cf)	Velocity Head (inWC)	Orifice Meter (inWC)	Dec. Vol. (cf)	VAC. inHg	Temperatures (°F) Stack	Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (%v/v)
	0944	261.83											
D 12	25	263.83	1.50	1.99	3.76	4	96	NO	HEAT	41	68	68	AMBIENT
11	5	266.97	1.95	2.57	5.95	4.5	96				67	66	AIR
10	7.5	268.18	1.90	2.49	8.11	4.5	97			43	71	69	
9	10	270.26	1.85	2.44	0.25	4.5	97				72	69	
8	12.5	272.20	1.40	1.85	2.12	4	97				73	70	
7	15	274.20	1.80	2.39	4.24	4.5	96			42	75	70	
6	17.5	276.36	1.80	2.39	6.37	4.5	96				76	71	
5	20	278.42	1.80	2.36	8.48	4.5	105			43	77	71	
4	22.5	280.49	1.80	2.37	0.61	4.5	102				78	72	
3	25	282.73	1.80	2.38	2.73	4.5	102				78	72	
2	27.5	284.83	1.70	2.25	4.80	4	102			43	78	73	
1	30	286.75	1.60	2.11	6.80	4	102				79	73	
12	32.5	289.27	2.45	3.23	9.27	5	104			43	77	73	
11	35	291.70	2.50	3.29	1.77	6	104				80	74	
10	37.5	294.40	2.50	3.30	4.27	6	104				82	75	
9	40	296.75	2.40	3.22	6.75	6	96			46	83	75	
8	42.5	298.96	1.70	2.29	8.84	6	95				83	76	
7	45	301.16	2.05	2.76	1.14	6	95				85	77	
6	47.5	303.30	1.90	2.57	3.36	5	95			46	86	77	
5	50	305.16	2.3	3.11	5.80	6	95				87	78	
4	52.5	308.20	2.5	3.39	8.35	6	95				88	87	
3	55	310.87	2.6	3.46	0.93	6	104				87	79	
2	57.5	313.44	2.5	3.34	3.46	6	104				87	79	
1	60	316.01	2.5	3.34	5.99	6	104				87	79	
	(1048)												
	θ = 60	Vm = 44.18		ΔH = 2.70							Avg. = 76.3		

INTERPOLL LABORATORIES EPA METHOD 5/17 SAMPLE LOG SHEET

Job ICI / Sagola Date 6/25/93 Test 2 Run 2
Source PRESS & UNLOADING VENT STACK No. of traverse points 24
Method 0011 Filter holder: NA Filter type: NA

Sample Train Leak Check:

Pretest: < 0.02 cfm at 15 in. Hg. (vac) ☒
Postest: 0 cfm at 11 in. Hg. (vac) ☒

Particulate Catch Data:

No.s of filters used: Recovery solvent(s)

☐ acetone
☒ other(s) $MeCl_2$ & DI H_2O

No. of probe wash bottles: 1
Sample recovered by: DUH

Condensate Data:

Item	Weight(g)		
	Final	Tare	Difference
Impinger No. 1			
Impinger No. 2	208	200	8
Impinger No. 3			
Condenser			
Desiccant	1457	1444	13
Total			21

Integrated Gas Sampling Data: – Ambient Air

Bag Pump No. _____ Box No. _____ Bag No. _____

Bag Material: 5-layer Aluminized Tedlar Size: 44 L

Pretest leak check: _____ cc/min at _____ in. Hg.

Time start: _____ (HRS) Time end: _____ (HRS)

Sampling rate: _____ cc/min Operator: _____

S/N of O_2 Analyzer used to monitor train outlet: ___

CF-023

INTERPOLL LABORATORIES EPA METHOD 5 FIELD DATA SHEET

Job: ICI / Sagola MI
Source: Press and unloader vent stack
Date: 6/23/93 Test: 2 Run: 2

Operators: JEFF BERGSTROM
Meter Box No.: 7 ΔH@: 1.2 IN WC
Gasmeter coeff.: .9983

Pitot No.: 23U-6 Cp: .84
Bar. Press.: 28.44 inHg H2O: 3 %
Nozzle No.: 3 Nozzle Dia: .187 IN.

Traverse Point No.	Sampling Time (min)	Sample Volume (cf)	Velocity Head (inWC)	Orifice Meter (inWC)	Dec. Vol. (cf)	VAC. inHg	Temperatures (°F) Stack	Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (%v/v)
	1158	316.24											
C-1	2.5	318.70	2.6	3.43	18.79	9.5	103	NO	Heat	41	78	76	Ambient
2	5	321.16	2.4	3.20	21.25	9	98			41	79	76	Air
3	7.5	323.66	2.2	2.93	23.62	9	99			41	81	77	
4	10	325.60	1.5	2.01	25.58	6	100			42	83	78	
5	12.5	327.62	1.5	2.03	27.55	6	94			42	85	79	
6	15	329.79	2.0	2.71	29.83	7.5	94			43	87	80	
7	17.5	332.28	2.4	3.24	32.33	9	98			43	88	80	
8	20	334.85	2.6	3.51	34.93	9.5	98			43	89	81	
9	22.5	337.18	1.8	2.44	37.10	7.5	99			44	89	81	
10	25	338.90	1.2	1.62	38.87	6	100			44	89	81	
11	27.5	341.60	2.8	3.75	41.56	10	103			44	90	82	
12	30	344.18	2.5	3.35	44.11	10	104			44	90	82	
D-1	32.5	346.24	1.7	2.29	46.21	6.5	103			42	86	81	
2	35	348.39	1.8	2.41	48.37	7	103			42	87	82	
3	37.5	350.56	1.9	2.55	50.59	7	103			43	88	82	
4	40	352.79	1.9	2.55	52.81	7	103			44	88	82	
5	42.5	354.71	1.5	2.03	54.79	6	99			45	89	83	
6	45	356.73	1.5	2.05	56.79	6	94			45	90	83	
7	47.5	358.95	1.8	2.45	58.97	7	98			45	90	83	
8	50	361.15	1.9	2.58	61.20	7.5	98			46	90	84	
9	52.5	363.30	1.7	2.31	63.32	7.5	98			46	90	84	
10	55	365.40	1.6	2.16	5.37	7	104			47	90	84	
11	57.5	367.50	1.7	2.28	7.47	7	107			48	91	84	
12	60	369.55	1.6	2.15	69.51	7	107			48	92	85	
	θ = 60	Vm = 53.31		ΔH = 2.59							Avg. = 84.3		

INTERPOLL LABORATORIES EPA METHOD 5/17 SAMPLE LOG SHEET

Job ICI / Sagola Date 6/25/93 Test 2 Run 3
Source Press + Unloading Vent Stacks No. of traverse points 24
Method 0011 Filter Holder: NA Filter type: NA

Sample Train Leak Check:

Pretest: < 0.02 cfm at 15 in. Hg. (vac) ☒
Postest: 0 cfm at 10 in. Hg. (vac) ☒

Particulate Catch Data:

No.s of filters used: Recovery solvent(s)

☐ acetone
☒ other(s) $MECl_2$ + DI H_2O

No. of probe wash bottles: 1
Sample recovered by: DVH

Condensate Data:

Item	Weight (g)		
	Final	Tare	Difference
Impinger No. 1			
Impinger No. 2	208	200	8
Impinger No. 3			
Condenser			
Desiccant	1332	1320	12
Total			

Integrated Gas Sampling Data: - Ambient Air

Bag Pump No. _____ Box No. _____ Bag No. _____

Bag Material: 5-layer Aluminized Tedlar Size: 44 L

Pretest leak check: _____ cc/min at _____ in. Hg.

Time start: _____ (HRS) Time end: _____ (HRS)

Sampling rate: _____ cc/min Operator: _____

S/N of O_2 Analyzer used to monitor train outlet: ___

CF-023

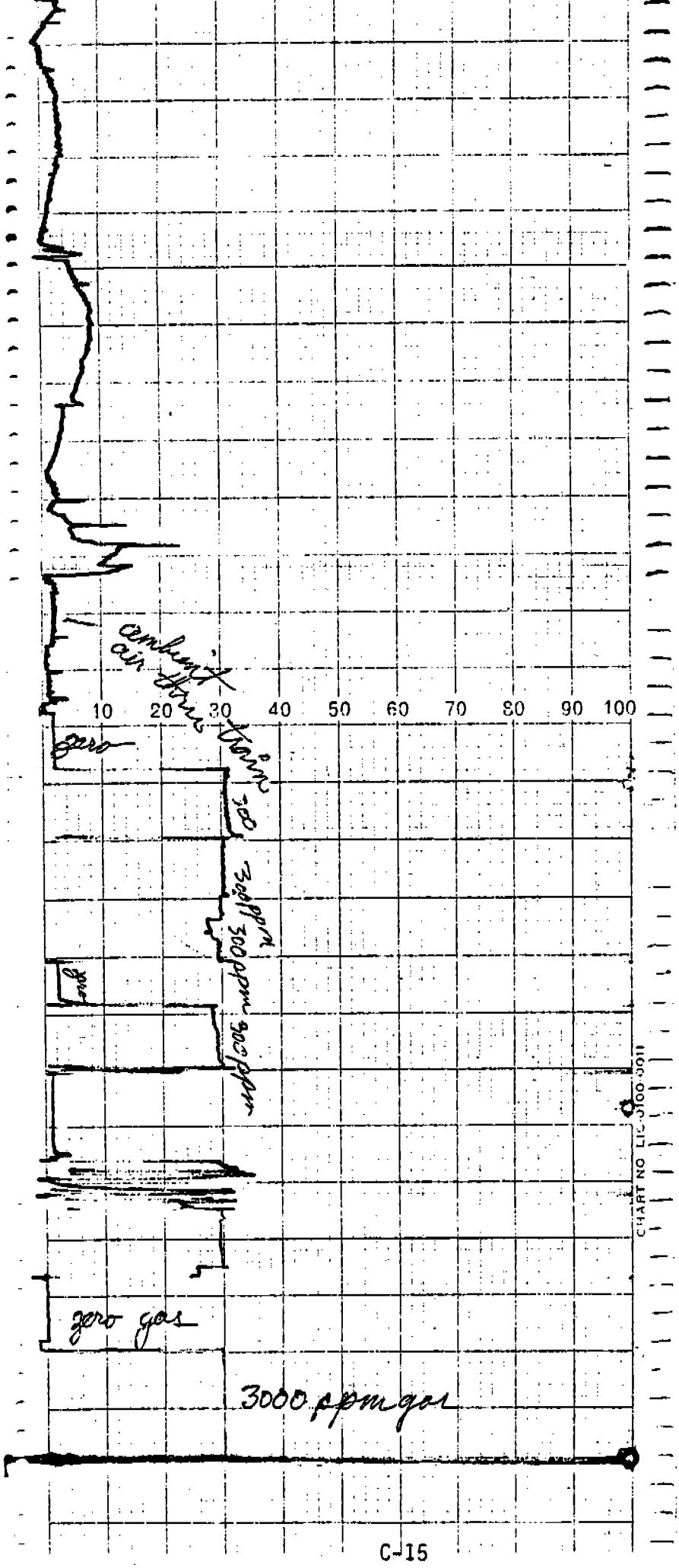
INTERPOLL LABORATORIES EPA METHOD 5 FIELD DATA SHEET

Job: ICI / SAGOLA
Source: PRESS 4 UNLOADING VENT STACK
Date: 6/25/93 Test: 2 Run: 3

Operators: DOH + S.E
Meter Box No.: 7 ΔH: 1.97 IN WC
Gasmeter coeff.: .9983

Pitot No.: V23-6 Cp: .84
Bar. Press.: 28.44 inHg H2O: 2 %
Nozzle No.: 7-3 Nozzle Dia: .182 IN.

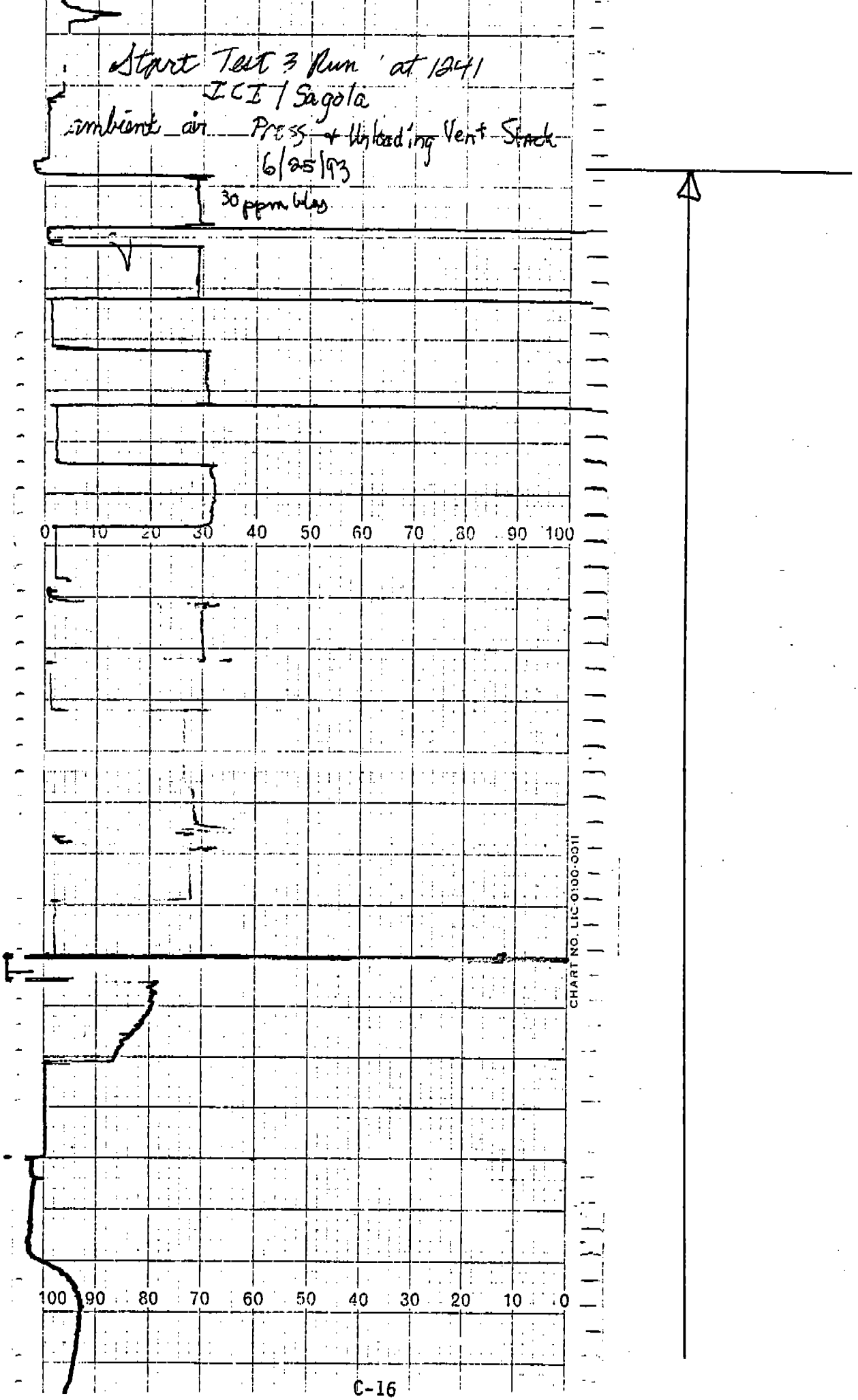
Traverse Point No.	Sampling Time (min)	Sample Volume (cf)	Velocity Head (inWC)	Orifice Meter (inWC)	Dec. Vol. (cf)	VAC. inHg	Temperatures (°F) Stack	Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (%v/v)
	1336	369.90											
(1) 1	2.5	372.30	1.80	2.44	2.06	5	98			44	80	80	AMBIENT
2	5	374.23	1.80	2.42	4.22	5	98				84	82	AIR
3	7.5	376.40	1.75	2.36	6.35	5	99			45	87	82	
4	10	378.46	1.60	2.16	8.39	5	99				90	83	
5	12.5	380.40	1.50	2.04	0.38	5	99			43	91	83	
6	15	382.40	1.55	2.11	2.41	5	99				90	83	
7	17.5	384.60	1.90	2.58	4.64	5	99			45	92	84	
8	20	386.72	1.80	2.45	6.82	5	99				95	85	
9	22.5	389.01	1.90	2.54	9.05	5	109			46	94	85	
10	25	391.20	1.85	2.49	1.25	5	106				94	85	
11	27.5	393.35	1.7	2.30	3.37	4.5	105			45	95	86	
12	30	395.33	1.5	2.03	5.36	4.5	106				96	88	
1	32.5	397.96	2.6	3.52	7.98	7	104			45	96	86	
2	35	400.56	2.6	3.54	0.60	7	98				92	86	
3	37.5	403.25	2.6	3.55	3.23	7	97			46	95	87	
4	40	405.70	2.5	3.43	5.81	7	97				93	86	
5	42.5	408.16	2.15	2.93	8.20	6	100			45	95	87	
6	45	410.21	1.50	2.06	0.20	6	98				97	88	
7	47.5	412.60	2.20	3.0	2.63	6	102			46	98	85	
8	50	415.26	2.5	3.41	5.21	6	102				98	89	
9	52.5	417.80	2.6	3.55	7.84	6	102			46	98	88	
10	55	420.40	2.6	3.54	0.47	6	102				99	89	
11	57.5	423.04	2.6	3.55	3.11	6	102				99	87	
12	60	425.60	2.35	3.21	5.61		102				99	89	
	1433												
	θ = 60	Vm = 55.60		ΔH = 2.80							Avg. = 89.5		

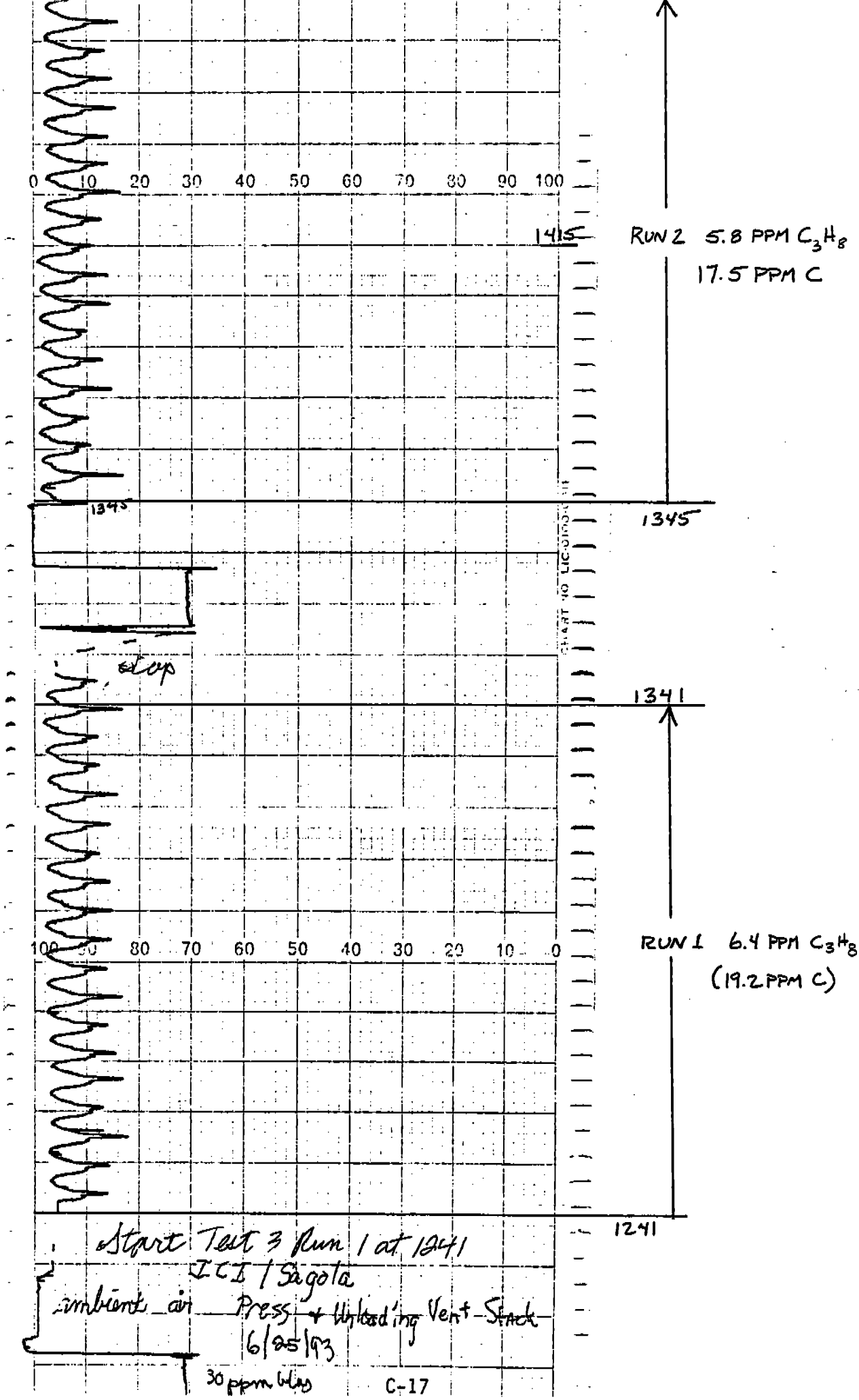


CALIBRATION
(PROPANE STD's)

LP SAGOLA

TEST 3


Start Test 3 Run at 1241
ICI / Sagola
ambient air Press + Unloading Vent Stack
6/25/93
30 ppm blag
0 10 20 30 40 50 60 70 80 90 100
CHART NO. LIC-0100-0011
100 90 80 70 60 50 40 30 20 10 0


0 10 20 30 40 50 60 70 80 90 100
1415
RUN 2 5.8 PPM C_3H_8
17.5 PPM C
1345
1345
stop
1341
100 90 80 70 60 50 40 30 20 10 0
RUN 1 6.4 PPM C_3H_8
(19.2 PPM C)
1241
Start Test 3 Run 1 at 1241
ICI / Sagola
ambient air Press + Unload'ing Vent Stack
6/25/93
30 ppm bias

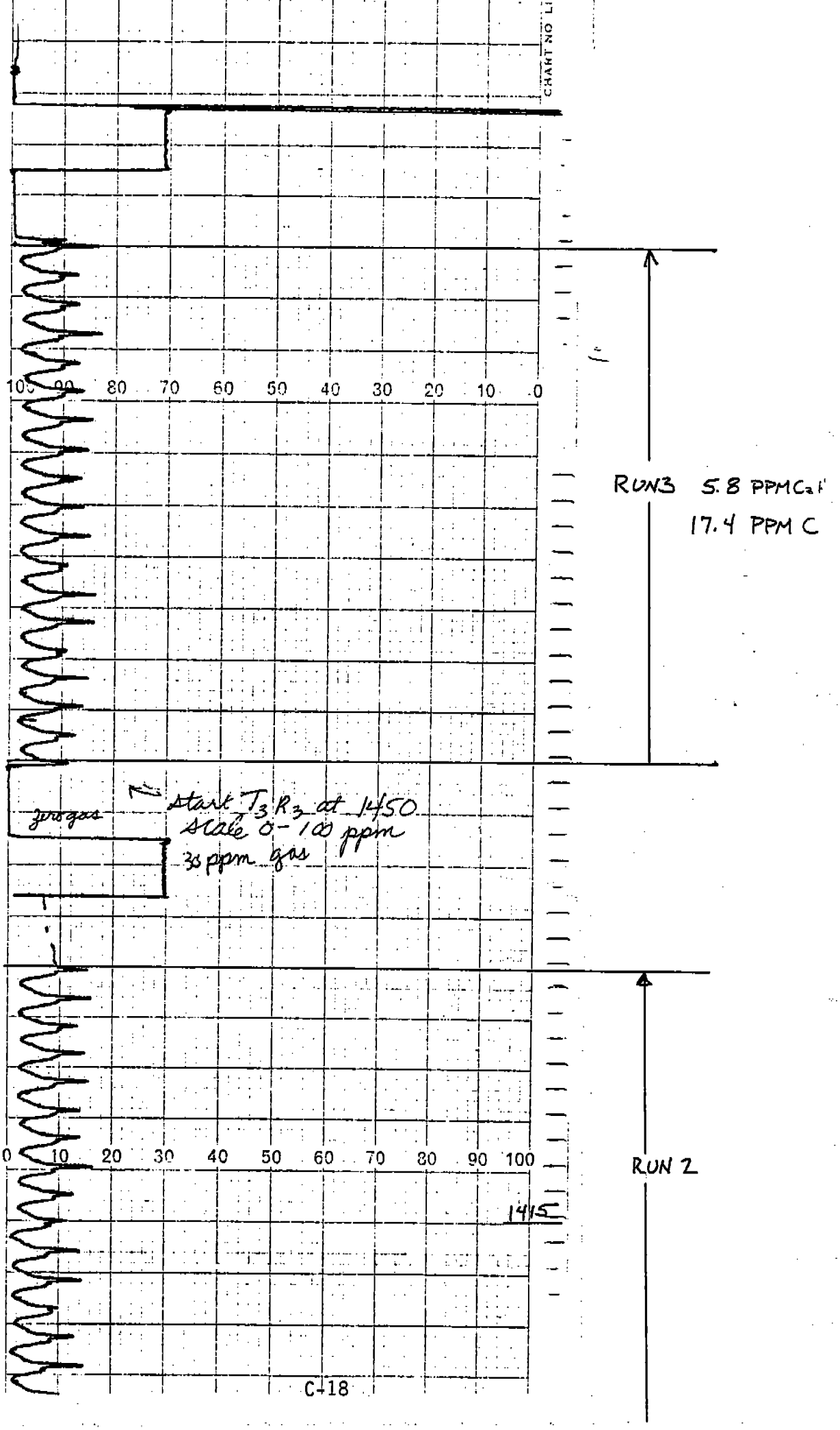


CHART NO. L
100 90 80 70 60 50 40 30 20 10 0
RUN3 5.8 PPMCal
17.4 PPM C
zero gas
Start T3 R3 at 1450
scale 0-100 ppm
35 ppm gas
0 10 20 30 40 50 60 70 80 90 100
1415
RUN 2

INTERPOLL LABORATORIES - EPA METHOD 2 FIELD DATA SHEET

Job ICI / Sagola

Source Press & Unloading Vent Stack

Test 4 Run ___ Date 6/26/93

Stack dimen. 71.25 IN.

Dry bulb 100 °F Wet bulb 76 °F

Manometer: ☒ Reg. ☐ Exp. ☐ Elec.

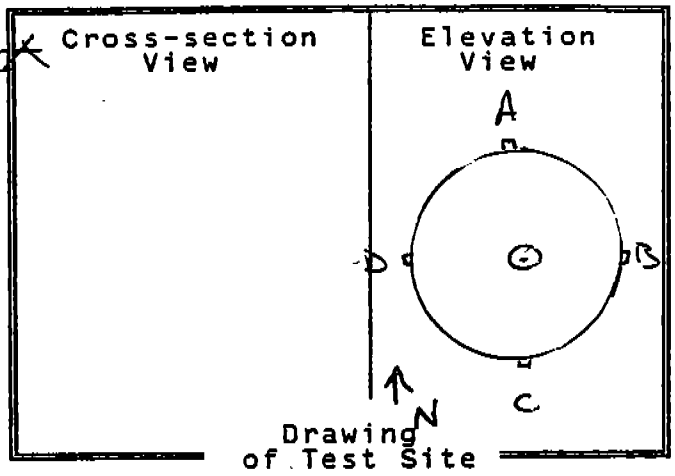
Barometric pressure 28.36 in Hg

Static pressure -.85 in WC

Operators D. Van Hoever & J. Ertle

Pitot No. V23-6 C_p .84

MDI



Traverse Point No.	Fraction of Diameter	Distance from Stack Wall (in)	Distance from End of Port (in)	Velocity Pressure (in WC)	Temperature of gas (°F)
		Port length:	in.	Time start:	hrs
A 1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
B 1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
Temp. meas. device & S/N: PDT #18				Time end:	hrs

R or nothing = reg. manometer; S= expanded; E=electronic

S-3921

INTERPOLL LABORATORIES EPA METHOD 5/17 SAMPLE LOG SHEET

Job ICI / Sagola Date 6/26/93 Test 4 Run 1
Source PRESS + UNLOADING VENT No. of traverse points 24
Method FF Filter holder: glass Filter type: glass fiber

Sample Train Leak Check:

Pretest: < 0.02 cfm at 15 in. Hg. (vac) ☒
Postest: 0 cfm at 15 in. Hg. (vac) ☒

Particulate Catch Data:

No.s of filters used: Recovery solvent(s)

☐ acetone
☒ other(s) 1-2 MP IN TOLUENE

No. of probe wash bottles: 1
Sample recovered by: DWL

Condensate Data:

Item	Weight(g)		
	Final	Tare	Difference
Impinger No. 1	80	122	-42
Impinger No. 2	81	84	-3
Impinger No. 3			
Condenser			
Desiccant			
Total			

Integrated Gas Sampling Data: -Ambient Air

Bag Pump No. _____ Box No. _____ Bag No. _____

Bag Material: 5-layer Aluminized Tedlar Size: 44 L

Pretest leak check: _____ cc/min at _____ in. Hg.

Time start: _____ (HRS) Time end: _____ (HRS)

Sampling rate: _____ cc/min Operator: _____

S/N of O_2 Analyzer used to monitor train outlet: ___

CF-023

INTERPOLL LABORATORIES EPA METHOD 5 FIELD DATA SHEET

Job: ICI / Sagola
Source: PRESS & UNLOADING VENT STACK
Date: 6/26/93 Test: 4 Run: 1
Operators: DVH & S.E
Meter Box No.: 7 ΔH@ 1.97 IN WC
Gasmeter coeff.: .9983
Pitot No.: V23-6 Cp: .8
Bar. Press.: 28.36 inHg H2O: 2 %
Nozzle No.: 3-2 Nozzle Dia: .130 IN.

Traverse Point No.	Sampling Time (min)	Sample Volume (cf)	Velocity Head (inWC)	Orifice Meter (inWC)	Dec. Vol. (cf)	VAC. inHg	Temperatures (°F) Stack	Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (%v/v)
	0836	427.00											
C 1	3	428.54	2.4	.75	8.42	5	86	NO	HEAT	40	64	64	AMBIENT
2	6	429.95	2.6	.81	9.90	5	85				67	65	AIR
3	9	431.40	2.6	.81	1.39	5	86			39	69	66	
4	12	432.90	2.5	.78	2.84	5	89				71	66	
5	15	434.23	2.15	.67	4.20	5	89			40	72	67	
6	18	435.60	2.10	.66	5.54	5	89				74	68	
7	21	436.90	2.2	.69	6.91	5	89			39	74	69	
8	24	438.40	2.3	.72	8.32	5	90				76	69	
9	27	439.80	2.6	.82	9.82	5	90			38	77	70	
10	30	441.36	2.6	.82	1.32	5	91				77	70	
11	33	442.70	2.1	.65	2.66	5	101			38	78	71	
12	36	444.30	2.4	.74	4.09	5	101				79	71	
D 1	39	445.23	1.2	.37	5.10	4	101			40	74	70	
2	42	446.40	1.6	.49	6.26	4	100				77	72	
3	45	447.56	1.9	.59	7.55	4	98			40	79	72	
4	48	448.70	1.7	.53	8.76	4	95				80	73	
5	51	449.88	1.6	.50	9.94	4	95			40	80	73	
6	54	451.20	1.8	.56	1.19	4	95				81	74	
7	57	452.46	1.8	.56	2.44	4	95			43	82	74	
8	60	453.64	1.70	.53	3.66	4	95				82	74	
9	63	454.90	1.70	.54	4.89	4	87			40	83	75	
10	66	456.10	1.7	.54	6.12	4	87				83	75	
11	69	457.46	1.85	.59	7.41	4	87				83	75	
12	72	458.73	1.8	.57	8.67	4	87				84	75	
	0952												
	θ = 72	Vm = 31.73		ΔH = .64							Avg. = 73.8		

INTERPOLL LABORATORIES EPA METHOD 5/17 SAMPLE LOG SHEET

Job ICI Saccola
Source PRESS & UNLOADING VENT
Method FF Filter holder: glass

Date 6/26/93 Test 4 Run 2
No. of traverse points 24
Filter type: glass

Sample Train Leak Check:

Pretest: < 0.02 cfm at 15 in. Hg. (vac) ☒
Postest: 0 cfm at 6 in. Hg. (vac) ☒

Particulate Catch Data:

No.s of filters used: _____

Recovery solvent(s)

☐ acetone _____
☒ other(s) 1-2 MP IN TOLUENE

No. of probe wash bottles: 1
Sample recovered by: FUM.

Condensate Data:

Item	Weight(g)		
	Final	Tare	Difference
Impinger No. 1	93	126	-33
Impinger No. 2	84	85	-1
Impinger No. 3			
Condenser			
Desiccant			
Total			-34

Integrated Gas Sampling Data: -Ambient Air

Bag Pump No. _____ Box No. _____ Bag No. _____

Bag Material: 5-layer Aluminized Tedlar Size: 44 L

Pretest leak check: _____ cc/min at _____ in. Hg.

Time start: _____ (HRS) Time end: _____ (HRS)

Sampling rate: _____ cc/min Operator: _____

S/N of O_2 Analyzer used to monitor train outlet: ___

CF-023

INTERPOLL LABORATORIES A METHOD 5 FIELD DATA SHEET

Job: ICI Sagola
Source: Press & Unloading
Date: 6/26/93 Test: 14 Run: 2

Operators: Dust & S.E
Meter Box No.: 7 ^H@ 1.97 IN WC
Gasmeter coeff.: .9983

Pitot No.: V23-6 Cp: .8
Bar. Press.: 28.36 inHg H2O: 2 x
Nozzle No.: 3-2 Nozzle Dia: .130 IN.

Traverse Point No.	Sampling Time (min)	Sample Volume (cf)	Velocity Head (inWC)	Orifice Meter (inWC)	Des. Vol. (cf)	VAC. inHg	Temperatures (°F) Stack	Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (xv/v)
	1121	459.20											
D 1	3	460.55	1.90	.59	0.47	4.5	101			40	72	72	AMBIENT
2	6	461.70	1.85	.57	1.72	4.5	100				74	72	AIR
3	9	463.09	2.0	.62	3.02	5	100				77	74	
4	12	464.50	1.8	.56	4.27	5	100			40	77	74	
5	15	465.60	1.8	.56	5.51	5	100				79	75	
6	18	466.77	1.7	.53	6.72	5	97				81	76	
7	21	467.96	1.6	.5	7.91	5	97			40	82	76	
8	24	469.12	1.6	.5	9.09	5	97				82	76	
9	27	470.38	1.9	.6	0.38	5	94				83	77	
10	30	471.80	1.7	.54	1.61	5	91			41	84	77	
11	33	472.89	1.70	.54	2.84	5	91				83	78	
12	36	474.15	1.80	.57	4.11	5	91			41	85	78	
C 1	39	475.30	1.6	.50	5.29	5	98				80	78	
2	42	476.75	2.6	.82	6.81	5	93			44	82	78	
3	45	478.26	2.6	.82	8.32	5	92				83	78	
4	48	479.80	2.5	.79	9.81	5	92			43	84	78	
5	51	481.28	2.5	.79	1.30	5	93				85	79	
6	54	482.79	2.4	.76	2.76	5	93				85	79	
7	57	484.30	2.4	.76	4.22	5	94			44	86	79	
8	60	485.53	1.95	.61	5.53	5	99				86	79	
9	63	486.93	2.10	.66	6.89	5	102			45	86	80	
10	66	488.36	2.4	.75	8.34	5	103				87	80	
11	69	489.86	2.6	.81	9.85	5	105				87	80	
12	72	491.40	2.6	.81	1.36		105				87	80	
	1241												
	θ = 72	Vm = 32.20		^H = .65							Avg. = 79.7		

INTERFOLL LABORATORIES EPA METHOD 5/17 SAMPLE LOG SHEET

Job ICI Sagola
Source PRESS & UNLOADING VENT
Method MDI-FF Filter holder: glass

Date 6/26/93 Test 4 Run 3
No. of traverse points - 24
Filter type: glass fiber

Sample Train Leak Check:

Pretest: < 0.02 cfm at 15 in. Hg. (vac) ☒
Postest: 0 cfm at 10 in. Hg. (vac) ☒

Particulate Catch Data:

No.s of filters used:

Recovery solvent(s)

☐ acetone
☒ other(s) 1-2 MP IN TOLUENE

No. of probe wash bottles: 1
Sample recovered by: DVH

Condensate Data:

Item	Weight (g)		
	Final	Tare	Difference
Impinger No. 1	100	130	-30
Impinger No. 2	86	86	—
Impinger No. 3			
Condenser			
Desiccant			
Total			-30

Integrated Gas Sampling Data: Ambient Air

Bag Pump No. _____ Box No. _____ Bag No. _____

Bag Material: 5-layer Aluminized Tedlar Size: 44 L

Pretest leak check: _____ cc/min at _____ in. Hg.

Time start: _____ (HRS) Time end: _____ (HRS)

Sampling rate: _____ cc/min Operator: _____

S/N of O_2 Analyzer used to monitor train outlet: ___

CF-023

S-0046RR

INTERPOLL LABORATORIES A METHOD 5 FIELD DATA SHEET

Job ICI Sagola
Source PRESS + UNLOADING VENT STACK
Date 6/26/93 Test 4 Run 3

Operators DUH & S.E
Meter Box No. 7 ΔH 1.97 IN WC
Counter cont. .9983

Pitot No. U23-6 Cp .8
Bar. Press. 28.36 inHg H2O 2 %
Nozzle No. 3-2 Nozzle Dia .130 IN.

Traverse Point No.	Sampling Time (min)	Sample Volume (cf)	Velocity Head (inWC)	Orifice Meter (inWC)	Dec. Vol. (cf)	VAC. inHg	Temperatures (°F) Stack	Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (%v/v)
	1353	491.82											
C 1	3	493.86	1.4	.44	2.93	6	89			45	74	74	AMB. EN.
2	6	494.46	2.6	.82	4.44	6	86				75	74	AIR
3	9	495.93	2.6	.83	5.95	6	86			43	75	74	
4	12	497.46	2.5	.80	7.43	8	85				75	74	
5	15	498.83	1.8	.58	8.70	8	83			42	75	74	
6	18	500.03	2.1	.67	0.06	8	82				75	74	
7	21	501.66	2.2	.70	1.45	8	82			43	75	74	
8	24	502.90	2.4	.77	2.91	8	82				75	74	
9	27	504.46	2.7	.86	4.45	8	82			40	75	74	
10	30	505.96	2.6	.82	5.95	8	91				75	74	
11	33	507.43	2.5	.79	7.43	8	91			40	75	74	
12	36	508.94	2.6	.82	8.93	8	91				75	74	
D 1	39	510.16	1.6	.50	0.11	8	95			41	75	73	
2	42	511.35	1.9	.60	1.39	8	90				75	73	
3	45	512.66	1.8	.56	2.64	8	93			40	75	73	
4	48	513.90	1.8	.56	3.89	8	93				74	72	
5	51	515.10	1.6	.50	5.06	8	90			41	74	72	
6	54	516.63	1.50	.47	6.20	8	90				74	72	
7	57	517.56	1.90	.60	7.49	8	89			41	73	72	
8	60	518.86	1.80	.57	8.74	8	88				73	71	
9	63	519.96	1.8	.57	9.99	8	88			41	73	71	
10	66	521.30	1.8	.57	1.24	8	88				73	71	
11	69	522.49	1.8	.56	2.48	8	90			40	74	71	
12	72	523.82	1.75	.55	3.71		90				74	72	
	(1509)												
	θ =	Vm = 32.00		ΔH = .65							Avg. = 73.6		

INTERPOLL LABORATORIES - EPA METHOD 2 FIELD DATA SHEET

Job *ICI SAGOLA*

Source *PRESS AND UNLOADER VENT STACK*

Test *5* Run *0* Date *6-26*

Stack dimen. *71.25* IN.

Dry bulb ____ °F Wet bulb ____ °F

Manometer: ☒ Reg. ☐ Exp. ☐ Elec.

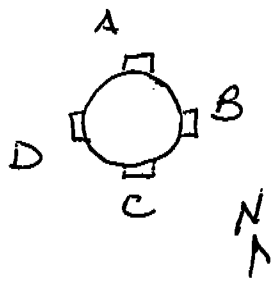
Barometric pressure *28.36* in Hg

Static pressure *-.85* in WC

Operators *GH & SE*

Pitot No. *27 V 6* C_p *.84*

Cross-section View | Elevation View



Drawing of Test Site

MDI - FILTER LAST

Traverse Point No.	Fraction of Diameter	Distance from Stack Wall (in)	Distance from End of Port (in)	Velocity Pressure (in WC)	Temperature of gas (°F)
		Port length: in.		Time start: hrs	
Temp. meas. device & S/N:				Time end: hrs	

C-26

R or nothing = reg. manometer; S= expanded; E=electronic

S-3921

INTERPOLL LABORATORIES EPA METHOD 5/17 SAMPLE LOG SHEET

Job ICI SAGOLA STACK Date 6-26-93 Test 5 Run 1
Source PRESS AND UNLOADER VENT No. of traverse points 24
Method M01 Filter holder: GLASS Filter type: G.F
FILTER LAST

Sample Train Leak Check:

Pretest: < 0.02 cfm at 15 in. Hg. (vac) ☒
Postest: < .02 cfm at 8 in. Hg. (vac) ☐
(LESS THAN

Particulate Catch Data:

No.s of filters used: NA

Recovery solvent(s)
☐ acetone
☒ other(s) 1,2-MPIN TOLUENE

No. of probe wash bottles: 1
Sample recovered by: GH

Condensate Data:

Item	Weight(g)		
	Final	Tare	Difference
Impinger No. 1			
Impinger No. 2			
Impinger No. 3			
Condenser			
Desiccant			
Total			25

Integrated Gas Sampling Data:

Bag Pump No. NA Box No. NA Bag No. N/A

Bag Material: 5-layer Aluminized Tedlar Size: 44 L

Pretest leak check: _____ cc/min at _____ in. Hg.

Time start: _____ (HRS) Time end: _____ (HRS)

Sampling rate: _____ cc/min Operator: _____

S/N of O_2 Analyzer used to monitor train outlet: ___

CF-023

S-0046RR

INTERPOLL LABORATORIES EPA METHOD 5 FIELD DATA SHEET

Job: ICI SAGOLA, MICH
Source: PRESS AND UNLOADER VENT
Date: 6-26-93 Test: 5 Run: 1

Operators: GH & SF
Meter Box No.: 3 ΔH@: 1.74 IN WC
Gasmeter coeff.: .9970

Pitot No.: 27 U 6 Cp: .84
Bar. Press.: 28.36 inHg H2O: 2 %
Nozzle No.: 27-2 Nozzle Dia: .125 IN.

Traverse Point No.	Sampling Time (min)	Sample Volume (cf)	Velocity Head (inWC)	Orifice Meter (inWC)	Des. Vol. (cf)	VAC. inHg	Temperatures (°F) Stack	Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (%v/v)
	0830	73.760											
D - 12	3	74.88	1.7	.40	4.88	4	86	NO	NO	39	72	72	20.9
11	6	75.94	1.5	.36	5.94	3	85			40	73	69	20.9
10	9	77.06	1.7	.40	7.06	4	86			39	75	71	20.9
9	12	78.19	1.7	.40	8.19	4	86			39	78	71	20.9
8	15	79.31	1.7	.40	9.31	4	90			39	78	72	20.9
7	18	80.44	1.7	.40	0.44	4	89			39	80	73	20.9
6	21	81.58	1.7	.40	1.58	4	89			40	81	74	20.9
5	24	82.87	2.2	.53	2.87	5	89			41	83	75	20.9
4	27	84.10	2.0	.48	4.10	5	90			40	82	75	20.9
3	30	85.16	1.5	.36	5.16	4	90			39	83	75	20.9
2	33	86.29	1.7	.40	6.29	4	101			39	85	77	20.9
A 1	36	87.40	1.65	.39	7.40	4	100			40	86	77	20.9
12	39	88.54	1.7	.40	8.54	4	100			40	85	78	20.9
11	42	89.91	2.5	.59	9.91	5	100			41	87	79	20.9
10	45	91.36	2.8	.66	1.36	5	100			39	88	79	20.9
9	48	92.77	2.5	.62	2.77	5	99			39	88	79	20.9
8	51	94.14	2.5	.59	4.14	5	99			39	89	80	20.9
7	54	95.28	1.7	.40	5.28	5	99			39	89	80	20.9
6	57	96.42	1.7	.40	6.42	5	98			40	89	81	20.9
5	60	97.63	1.9	.45	7.63	5	99			41	89	81	20.9
4	63	98.92	2.2	.52	8.92	5	100			40	89	80	20.9
3	66	100.26	2.3	.56	0.26	5	86			40	89	81	20.9
2	69	101.63	2.4	.58	1.63	5	89			41	89	82	20.9
1	72	103.00	2.4	.58	3.00	5	90			39	90	81	20.9
	0955												
	θ = 72	Vm = 29.24		^H = .47							Avg. = 80.3		

INTERPOLL LABORATORIES EPA METHOD 5/17 SAMPLE LOG SHEET

Job ICI SAGOLA Date 6-26-93 Test 5 Run 2
Source PRESS AND UNLOADER VENT No. of traverse points 24
Method M01 Filter holder: GLASS Filter type: 2.5 GF
FL

Sample Train Leak Check:

Pretest: < 0.02 cfm at 15 in. Hg. (vac) ☒
Postest: < .02 cfm at 12 in. Hg. (vac) ☒
LESS THAN

Particulate Catch Data:

No.s of filters used: NA

Recovery solvent(s)
☐ acetone
☒ other(s) 1,2 MP IN TOLUENE

No. of probe wash bottles: 1
Sample recovered by: GH

Condensate Data:

Item	Weight (g)		
	Final	Tare	Difference
Impinger No. 1		131	-69
Impinger No. 2	81	84	-3
Impinger No. 3			
Condenser			
Desiccant			
Total			15

Integrated Gas Sampling Data:

Bag Pump No. NA Box No. NA Bag No. NA

Bag Material: 5-layer Aluminized Tedlar Size: 44 L

Pretest leak check: _____ cc/min at _____ in. Hg.

Time start: _____ (HRS) Time end: _____ (HRS)

Sampling rate: _____ cc/min Operator: _____

S/N of O_2 Analyzer used to monitor train outlet: ___

CF-023

INTERPOLL LABORATORIES EPA METHOD 5 FIELD DATA SHEET

Job: ICI SAGOLA, MICH
Source: PRESS AND UNLOADER VENT
Date: 6-26-93 Test: 5 Run: 2

Operators: GH & S ERTLE
Meter Box No.: 63 ΔH@ 1.74 IN WC
Gasmeter coeff.: .9970

Pitot No.: 27 U 6 Cp: .84
Bar. Press.: 28.36 inHg H2O 2 %
Nozzle No.: 27-2 Nozzle Dia.: .625 IN.

Traverse Point No.	Sampling Time (min)	Sample Volume (cf)	Velocity Head (inWC)	Orifice Meter (inWC)	Dry Gas Vol. (cf)	VAC. inHg	Temperatures (°F) Stack	Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (%v/v)
	1121	103.53											
A 12	3	104.81	2.2	.52	4.81	9	101	NONE	NONE	39	76	76	20.9
11	6	106.05	2.1	.49	6.05	10	100			39	77	76	20.9
10	9	107.38	2.4	.56	7.38	10	100			39	78	76	20.9
9	12	108.74	2.5	.59	8.74	10	100			40	78	76	20.9
8	15	109.96	2.0	.47	9.96	10	100			40	82	78	20.9
7	18	111.25	2.2	.52	1.25	10	97			40	82	78	20.9
6	21	112.38	1.7	.40	2.38	10	101			40	84	78	20.9
5	24	113.54	1.8	.43	3.54	10	97			39	86	80	20.9
4	27	114.75	1.9	.45	4.75	10	94			41	86	80	20.9
3	30	116.04	2.2	.53	6.04	10	95			40	86	80	20.9
2	33	117.34	2.2	.53	7.34	10	91			39	86	80	20.9
1	36	118.64	2.2	.53	8.64	10	93			39	86	81	20.9
D 12	39	119.71	1.5	.36	9.71	8	98			40	82	79	20.9
11	42	120.85	1.7	.40	0.85	7	93			39	88	83	20.9
10	45	122.03	1.8	.43	2.03	7	92			40	89	83	20.9
9	48	123.21	1.8	.43	3.21	10	96			40	90	84	20.9
8	51	124.43	1.9	.46	4.43	10	93			41	90	84	20.9
7	54	125.68	2.0	.48	5.68	10	93			39	91	84	20.9
6	57	126.79	1.6	.39	6.79	10	92			39	90	84	20.9
5	60	127.90	1.6	.38	7.90	10	99			39	91	84	20.9
4	63	129.02	1.6	.38	9.02	10	97			40	91	85	20.9
3	66	130.19	1.8	.43	0.19	10	102			40	91	84	20.9
2	69	131.36	1.8	.43	1.36	10	103			40	91	85	20.9
1	72	132.64	1.7	.40	2.50	10	105			40	91	85	20.9
	(1240)												
	θ = 72	Vm = 29.01		ΔH = .44							Avg. = 83.5		

INTERPOLL LABORATORIES EPA METHOD 5/17 SAMPLE LOG SHEET

Job ICI SAGOLA STACK Date 6 Test 5 Run 3
Source PRESS AND UNLOADER VENT No. of traverse points 24
Method M01 FL Filter holder: GLASS Filter type: 25 GF

Sample Train Leak Check:

Pretest: < 0.02 cfm at 15 in. Hg. (vac) ☒
Postest: < .02 cfm at 12 in. Hg. (vac) ☒
LESS THAN

Particulate Catch Data:

No.s of filters used: NA

Recovery solvent(s)
☐ acetone
☒ other(s) 1,2-MP IN TOLUENE

No. of probe wash bottles: 1
Sample recovered by: GH

Condensate Data:

Item	Weight(g)		
	Final	Tare	Difference
Impinger No. 1			
Impinger No. 2			
Impinger No. 3			
Condenser			
Desiccant			
Total			

189
274
313
Final 284

189
272
Final 272

Integrated Gas Sampling Data:

Bag Pump No. NA Box No. NA Bag No. NA

Bag Material: 5-layer Aluminized Tedlar Size: 44 L

Pretest leak check: _____ cc/min at _____ in. Hg.

Time start: _____ (HRS) Time end: _____ (HRS)

Sampling rate: _____ cc/min Operator: _____

S/N of O_2 Analyzer used to monitor train outlet: ___

CF-023

INTERPOLL LABORATORIES EPA METHOD 5 FIELD DATA SHEET

Job: ICI SAGOLA
Source: PRESS AND UNLOADER VENT
Date: 6-26-93 Test: 5 Run: 3

Operators: GH & SE
Meter Box No.: 3 ΔH@: 1.74 IN WC
Gasmeter coeff.: .9970

Pitot No.: 27 U 6 Cp: .84
Bar. Press.: 28 inHg H2O: 2 %
Nozzle No.: 27-2 Nozzle Dia: .225 IN.

Traverse Point No.	Sampling Time (min)	Sample Volume (cf)	Velocity Head (inWC)	Orifice Meter (inWC)	Dry. Vol. (cf)	VAC. inHg	Temperatures (°F) Stack	Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (%v/v)
	(1353)	133.03											
O - 12	3	134.17	1.7	.41	4.17	5	89	NO	NO	39	80	80	20.9
11	6	135.31	1.7	.44	5.31	5	90			40	82	80	20.9
10	9	136.46	1.7	.41	6.46	5	86			41	83	81	20.9
9	12	137.67	1.9	.46	7.67	5	85			40	84	81	20.9
8	15	138.88	1.9	.46	8.88	6	87			41	84	81	20.9
7	18	140.13	2.0	.49	0.13	6	81			39	85	81	20.9
6	21	141.39	2.0	.49	1.39	6	82			39	85	81	20.9
5	24	142.57	1.8	.44	2.57	6	83			39	86	81	20.9
4	27	143.84	2.1	.50	3.84	5	95			40	87	81	20.9
3	30	145.02	1.8	.43	5.02	5	91			41	87	81	20.9
2	33	146.20	1.8	.43	6.20	5	91			41	87	81	20.9
1	36	147.41	1.9	.46	7.41	5	91			40	87	81	20.9
A 12	39	148.80	2.5	.60	8.80	7	91			40	86	81	20.9
11	42	150.19	2.5	.60	0.19	7	90			39	87	81	20.9
10	45	151.60	2.6	.63	1.60	8	93			42	87	81	20.9
9	48	153.01	2.6	.63	3.01	8	93			41	88	81	20.9
8	51	154.32	2.2	.53	4.32	6	92			39	88	81	20.9
7	54	155.46	1.7	.41	5.46	6	96			39	88	81	20.9
6	57	156.67	1.9	.46	6.67	5	89			39	89	81	20.9
5	60	157.86	1.8	.43	7.86	5	90			40	89	81	20.9
4	63	159.07	1.9	.46	9.07	5	90			39	89	81	20.9
3	66	160.44	2.4	.58	0.44	6	89			40	89	82	20.9
2	69	161.80	2.4	.58	1.80	7	90			41	90	82	20.9
1	72	163.11	2.2	.53	3.11	6	90			41	90	82	20.9
	(1510)												
	θ = 72	Vm = 30.08		ΔH = .49							Avg. = 83		

INTERPOLL LABORATORIES - EPA METHOD 2 FIELD DATA SHEET

Job ICI SAGO1A

Source Press & unloading vent stack

Test 6 Run 0 Date 6-26-93

Stack dimen. 71.25 IN.

Dry bulb ____ °F Wet bulb ____ °F

Manometer: ☐ Reg. ☐ Exp. ☐ Elec.

Barometric pressure 28.36 in Hg

Static pressure -.85 in WC

Operators GH, JB

Pitot No. 236 C_p .84

MDI-Nitro

Cross-section View	Elevation View

Drawing of Test Site

Traverse Point No.		Fraction of Diameter	Distance from Stack Wall (in)	Distance from End of Port (in)	Velocity Pressure (in WC)	Temperature of gas (°F)
			Port length:	in.	Time start:	hrs
Temp. meas. device & S/N:					Time end:	hrs

-33

R or nothing = reg. manometer; S= expanded; E=electronic

S-3921

INTERPOLL LABORATORIES EPA METHOD 5/17 SAMPLE LOG SHEET

Job ICI / Sagola Date 6/26/93 Test 6 Run 1
Source Press + unloading vent stack No. of traverse points
Method Nitro Filter holder: ERC Filter type: Glass fiber

Sample Train Leak Check:

Pretest: < 0.02 cfm at 15 in. Hg. (vac) ☒
Postest: 0 cfm at 15 in. Hg. (vac) ☒

Particulate Catch Data:

No.s of filters used:

Recovery solvent(s)

☐ acetone
☒ other(s) meth. chloride

No. of probe wash bottles: 1
Sample recovered by: DVH/JS

Condensate Data:

Item	Weight(g)		
	Final	Tare	Difference
Impinger No. 1			
Impinger No. 2			
Impinger No. 3			
Condenser			
Desiccant	1362	1336	26
Total			26

Integrated Gas Sampling Data:

Bag Pump No. _____ Box No. _____ Bag No. _____

Bag Material: 5-layer Aluminized Tedlar Size: 44 L

Pretest leak check: _____ cc/min at _____ in. Hg.

Time start: _____ (HRS) Time end: _____ (HRS)

Sampling rate: _____ cc/min Operator: _____

S/N of O_2 Analyzer used to monitor train outlet: ___

CF-023

S-0046RR

INTERPOLL LABORATORIES A METHOD 5 FIELD DATA SHEET

Job: ICI / Sagola
Source: Press + Unloading Vent Stack
Date: 6-26-93 Test: 6 Run: 1

Operators: JEFF BERGSTROM
Meter Box No.: 6 ^H@ 1.77 IN WC
Gasmeter coeff.: .9996

Pitot No.: V-23-6 Cp: .04
Bar. Press.: 28.36 inHg H2O: 2 x
Nozzle No.: 7-3 Nozzle Dia: .182 IN.

Traverse Point No.	Sampling Time (min)	Sample Volume (cf)	Velocity Head (inWC)	Orifice Meter (inWC)	Des. Vol. (cf)	VAC. inHg	Temperatures (°F) Stack	Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (xv/v)
	0836	499.85											
A-1	2.5	502.30	2.5	3.02	02.36	9	86	NO	Heat	40	83	83	20.9
2	5	504.75	2.3	2.85	04.83	9	86			41	83	83	
3	7.5	507.28	2.35	2.91	07.33	9	86			41	83	83	
4	10	509.68	2.2	2.71	09.73	9	90			41	84	83	
5	12.5	512.00	2.0	2.47	12.04	9	89			42	85	83	
6	15	514.30	1.9	2.35	14.28	8	89			42	86	84	
7	17.5	516.70	2.3	2.85	16.76	9	88			42	86	84	
8	20	519.00	2.0	2.47	19.06	9	90			43	87	85	
9	22.5	521.19	1.75	2.17	21.23	8	90			43	89	86	
10	25	523.39	1.90	2.36	23.48	8	91			43	88	85	
11	27.5	526.01	2.5	3.09	26.06	10.5	91			44	87	84	
12	30	528.73	2.7	3.27	28.71	12	101			44	86	83	
B-1	32.5	530.80	1.75	2.12	30.85	7	101			45	83	83	
2	35	532.89	1.70	2.05	32.95	7	101			42	86	84	
3	37.5	535.06	1.75	2.13	5.09	7	100			42	85	82	
4	40	537.27	1.85	2.25	7.29	7	98			41	84	81	
5	42.5	539.43	1.8	2.18	9.45	7	98			42	82	79	
6	45	541.40	1.5	1.81	1.42	6.5	98			42	81	79	
7	47.5	543.59	1.9	2.29	3.63	6.5	98			43	82	79	
8	50	545.95	2.15	2.60	5.98	9.5	98			43	84	80	
9	52.5	548.31	2.2	2.68	8.38	9.5	95			44	86	81	
10	55	550.67	2.15	2.62	0.75	9.5	96			45	86	81	
11	57.5	553.05	2.1	2.56	3.09	9.5	96			45	86	81	
12	60	555.51	2.15	2.67	5.48	10	86			45	87	81	
	0946												
	θ = 60	Vm = 5566		^H = 2.52							Avg. = 83.6		

INTERPOLL LABORATORIES EPA METHOD 5/17 SAMPLE LOG SHEET

Job ICI / Sagola Date 6/26/93 Test 6 Run 2
Source Press + Unloading vent Stack No. of traverse points 24
Method Viro Filter holder: ERC Filter type: Glass Fiber

Sample Train Leak Check:

Pretest: < 0.02 cfm at 15 in. Hg. (vac) ☒
Postest: 0 cfm at 15 in. Hg. (vac) ☒

Particulate Catch Data:

No.s of filters used: 1

Recovery solvent(s)
☐ acetone
☒ other(s) Meth. Chloride

No. of probe wash bottles: 1
Sample recovered by: DVH / JB

Condensate Data:

Item	Weight(g)		
	Final	Tare	Difference
Impinger No. 1	—	—	
Impinger No. 2	—	—	
Impinger No. 3	—	—	
Condenser	—	—	
Desiccant	1460	1433	27
Total			27

Integrated Gas Sampling Data:

Bag Pump No. _____ Box No. _____ Bag No. _____

Bag Material: 5-layer Aluminized Tedlar Size: 44 L

Pretest leak check: _____ cc/min at _____ in. Hg.

Time start: _____ (HRS) Time end: _____ (HRS)

Sampling rate: _____ cc/min Operator: _____

S/N of O_2 Analyzer used to monitor train outlet: ___

CF-023

INTERPOLL LABORATORIES METHOD 5 FIELD DATA SHEET

Job: JCI / Sagola
Source: Press + unloading vent stack
Date: 6-26-93 Test: 6 Run: 2

Operators: JEFF BERGSTROM
Meter Box No.: 6 ΔH@ 1.22 IN WC
Gasmeter coeff.: .9996

Pitot No.: V-23-6 Cp: .84
Bar. Press.: 28.36 inHg H2O: 2 %
Nozzle No.: 2-3 Nozzle Dia: .187 IN.

Traverse Point No.	Sampling Time (min)	Sample Volume (cf)	Velocity Head (inWC)	Orifice Meter (inWC)	Dec. Vol. (cf)	VAC. (inHg)	Temperatures (°F) Stack	Probe	Oven	Impy.	Gas/In	Gas/Out	Oxygen (%v/v)
	1121	555.80											
B-1	2.5	557.74	1.5	1.81	7.77	4	101	NO	Heat	39	85	85	20.9
2	5	559.65	1.4	1.69	9.68	4	104			40	87	86	
3	7.5	561.95	1.75	2.13	1.83	4	100			41	87	85	
4	10	564.00	1.85	2.25	4.03	4	100			41	86	84	
5	12.5	566.15	1.80	2.17	6.19	4	103			41	85	83	
6	15	568.40	1.85	2.25	8.39	4	97			42	85	82	
7	17.5	570.04	1.5	1.22	0.02	3	101			42	85	82	
8	20	572.15	1.8	2.18	2.18	4	101			43	86	82	
9	22.5	574.50	2.25	2.72	4.59	5	101			43	85	81	
10	25	576.98	2.2	2.69	6.99	5	94			43	86	82	
11	27.5	579.35	2.15	2.65	9.38	5	91			44	86	82	
12	30	581.63	1.90	2.34	1.62	4.5	92			44	89	84	
A-1	32.5	584.15	2.45	2.99	4.16	5.5	98			41	83	82	
2	35	586.65	2.50	3.05	6.71	5.5	94			42	84	81	
3	37.5	589.12	2.2	2.70	9.11	5.5	92			42	85	81	
4	40	591.46	2.0	2.44	1.40	5	96			43	86	83	
5	42.5	593.55	1.8	2.21	3.58	4.5	93			43	85	80	
6	45	595.70	1.75	2.14	5.72	4.5	93			43	86	81	
7	47.5	598.12	2.20	2.70	8.13	5	93			44	89	82	
8	50	600.77	2.55	3.13	0.72	6	94			45	87	81	
9	52.5	603.35	2.70	3.27	3.37	6	99			45	87	82	
10	55	606.52	2.95	3.59	6.14	6.5	97			46	88	82	
11	57.5	608.80	2.75	3.35	8.82	6.5	97			46	89	83	
12	60	611.31	2.3	2.81	1.28	5.5	98			46	90	84	
	(1236)												
	θ = 60	Vm = 5551		ΔH = 2.52							Avg. = 84.4		

S 00378

INTERPOLL LABORATORIES EPA METHOD 5/17 SAMPLE LOG SHEET

Job FCI / Sagola Date 6/26/93 Test 6 Run 3
Source Press + Unloading vent Stack No. of traverse points 24
Method NSPS Filter holder: ERC Filter type: Glass Fiber

Sample Train Leak Check:

Pretest: < 0.02 cfm at 15 in. Hg. (vac) ☒
Postest: 0 cfm at 15 in. Hg. (vac) ☒

Particulate Catch Data:

No.s of filters used: 1

Recovery solvent(s)
☐ acetone
☒ other(s) meth. Chloride

No. of probe wash bottles: 1
Sample recovered by: DVH/JB

Condensate Data:

Item	Weight(g)		
	Final	Tare	Difference
Impinger No. 1	—	—	
Impinger No. 2	—	—	
Impinger No. 3	—	—	
Condenser	—	—	
Desiccant	1389	1362	27
Total			27

Integrated Gas Sampling Data:

Bag Pump No. _____ Box No. _____ Bag No. _____

Bag Material: 5-layer Aluminized Tedlar Size: 44 L

Pretest leak check: _____ cc/min at _____ in. Hg.

Time start: _____ (HRS) Time end: _____ (HRS)

Sampling rate: _____ cc/min Operator: _____

S/N of O_2 Analyzer used to monitor train outlet: ___

CF-023

INTERPOLL LABORATORIES PA METHOD 5 FIELD DATA SHEET

Job: CI / Sagola
Source: Press + unloading vent stack
Date: 6/26/93 Test 6 Run 3

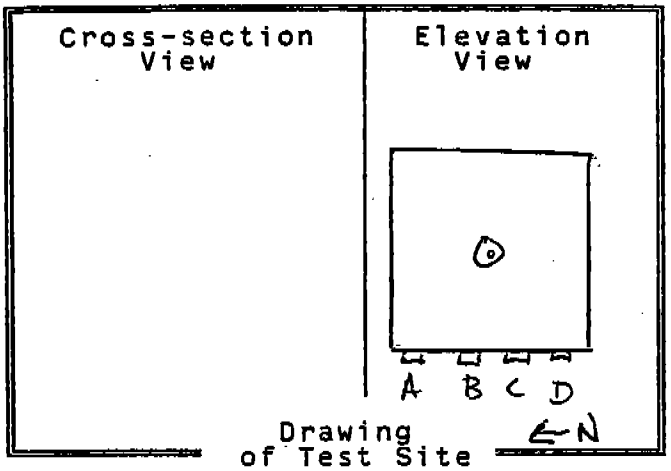
Operators: JEFF BERGSTROM
Meter Box No. 6 ΔH@ 1.72 IN WC
Gasmeter coeff.: .9996

Pitot No. V-23-6 Cp .84
Bar. Press. 28.36 inHg H2O 2.48
Nozzle No. 7-3 Nozzle Dia .187 IN.

Traverse Point No.	Sampling Time (min)	Sample Volume (cf)	Velocity Head (inWC)	Orifice Meter (inWC)	Dec. Vol. (cf)	VAC. inHg	Temperatures (°F) Stack	Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (%v/v)
	1353	611.60											
A-1	2.5	614.17	2.65	3.25	4.24	8	89	120	Heat	40	79	79	20.9
2	5	616.79	2.6	3.16	6.82	8	89			40	79	79	
3	7.5	619.17	2.20	2.69	9.22	7.5	86			41	80	79	
4	10	621.63	2.10	2.57	1.56	7	85			41	80	79	
5	12.5	623.84	1.90	2.33	3.79	7	85			41	81	79	
6	15	625.99	1.75	2.15	5.93	7	86			42	82	79	
7	17.5	628.47	2.35	2.90	8.41	7	82			42	84	79	
8	20	631.10	2.80	3.46	1.13	7	82			42	85	80	
9	22.5	633.81	2.85	3.53	3.87	9	82			43	85	80	
10	25	636.45	2.60	3.14	6.46	9	95			43	85	80	
11	27.5	638.79	2.20	2.66	8.85	8	95			44	85	80	
12	30	640.99	1.70	2.06	0.95	6.5	95			44	85	80	
B-1	32.5	643.30	2.20	2.66	3.34	7	95			44	80	80	
2	35	645.61	1.75	2.11	5.68	6.5	95			41	85	79	
3	37.5	647.60	1.80	2.18	7.62	6	95			42	87	80	
4	40	649.84	1.80	2.20	9.80	6	90			43	87	80	
5	42.5	652.19	1.85	2.26	2.00	6	91			43	89	81	
6	45	653.94	1.50	1.83	3.99	6	93			43	90	82	
7	47.5	656.20	2.0	2.45	6.29	7	93			44	90	82	
8	50	658.60	2.10	2.56	8.64	7	94			44	91	82	
9	52.5	661.03	2.20	2.69	1.05	7.5	94			45	91	83	
10	55	663.10	1.65	2.01	3.13	6.5	96			45	92	83	
11	57.5	665.15	1.55	1.91	5.17	6	90			46	92	84	
12	60	667.21	1.50	1.86	7.18	6	89			46	93	85	
	(1506)												
	θ = 60	Vm = 55.61		ΔH = 2.53							Avg. = 82.1		

INTERPOLL LABORATORIES - EPA METHOD 2 FIELD DATA SHEET

Job ICI / TWO HARBORS
Source PRESS VENT STACK
Test 1 Run ___ Date 6/29/93
Stack dimen. 55 x 55 IN.
Dry bulb ___ °F Wet bulb ___ °F
Manometer: ☒ Reg. ☐ Exp. ☐ Elec.
Barometric pressure 29.19 in Hg
Static pressure -.78 in WC
Operators D. VanHoever + J. Bergstrom
Pitot No. V23-5 Cp .84
CH_2O



Traverse Point No.	Fraction of Diameter	Distance from Stack Wall (in)	Distance from End of Port (in)	Velocity Pressure (in WC)	Temperature of gas (°F)
		Port length: in.		Time start: hrs	
A 1					
2					
3					
4					
5					
6					
B 1					
2					
3					
4					
5					
6					
C 1					
2					
3					
4					
5					
6					
D 1					
2					
3					
4					
5					
6					
Temp. meas. device & S/N: PDT #18				Time end: hrs	

R or nothing = reg. manometer; S= expanded; E=electronic

S-3921

INTERPOLL LABORATORIES EPA METHOD 5/17 SAMPLE LOG SHEET

Job ICI Two Harbors Date 6/29/93 Test 1 Run 1
Source PRESS VENT STACK No. of traverse points 24
Method 0011 Filter holder: NA Filter type: NA

Sample Train Leak Check:

Pretest: < 0.02 cfm at 15 in. Hg. (vac) ☒
Postest: 0 cfm at 7 in. Hg. (vac) ☒

Particulate Catch Data:

No.s of filters used: Recovery solvent(s)

☐ acetone
☒ other(s) $MECL_2$ + DI H_2O

No. of probe wash bottles: 1
Sample recovered by: DWH

Condensate Data:

Item	Weight(g)		
	Final	Tare	Difference
Impinger No. 1			
Impinger No. 2	195	200	-5
Impinger No. 3			
Condenser			
Desiccant	1304	1297	7
Total			2

Integrated Gas Sampling Data: Ambient Air

Bag Pump No. _____ Box No. _____ Bag No. _____

Bag Material: 5-layer Aluminized Tedlar Size: 44 L

Pretest leak check: _____ cc/min at _____ in. Hg.

Time start: _____ (HRS) Time end: _____ (HRS)

Sampling rate: _____ cc/min Operator: _____

S/N of O_2 Analyzer used to monitor train outlet: ___

CF-023

S-0046RR

INTERPOLL LABORATORIES EPA METHOD 5 FIELD DATA SHEET

Job: ICI / TWO HARBORS
Source: Press Vent Stack
Date: 6/29/93 Test: 1 Run: 1

Operators: DWG, GH
Meter Box No.: 1 ΔH: 1.97 IN WC
Gasmeter coeff.: .9983

Pitot No.: V23-5 Cp: .84
Bar. Press.: 29.19 inHg H2O: 2 %
Nozzle No.: 6-4 Nozzle Dia.: .251 IN.

Traverse Point No.	Sampling Time (min)	Sample Volume (cf)	Velocity Head (inWC)	Orifice Meter (inWC)	Dec. Vol. (cf)	VAC. inHg	Temperatures (°F) Stack	Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (%v/v)
	0822	532.70											
A 6	2.5	534.09	.23	1.0	4.06	2.5	93			43	81	80	AMBIENT
5	5	535.50	.26	1.14	5.53	2.5	94				82	80	AIR
4	7.5	536.96	.26	1.14	6.99	2.5	97				83	81	
3	10	537.97	.10	.44	7.96	2.5	97				85	82	
2	12.5	538.59	.03	.13	8.40	2.0	97				87	84	
1	15	538.96	.01	.04	8.70	2	95				88	85	
B 6	17.5	540.94	.65	2.88	1.03	4	93				96	89	
5	20	543.57	.88	3.95	3.77	5.5	93				98	90	
4	22.5	546.00	.60	2.69	6.04	4	96				100	91	
3	25	548.40	.69	3.09	8.47	4.5	98				100	91	
2	27.5	550.58	.51	2.3	0.58	4	95				102	92	
1	30	551.76	.16	.73	1.77	2	88				102	93	
C 6	32.5	554.40	.74	3.39	4.32	5	88				103	94	
5	35	557.16	.90	4.08	7.12	6	93				104	94	
4	37.5	559.85	.84	3.80	9.83	6	95				105	95	
3	40	562.36	.66	2.99	2.23	6	97				106	96	
2	42.5	564.71	.6	2.73	4.53	6	95				106	96	
1	45	565.23	.05	.22	5.20	2	95				103	96	
D 6	47.5	567.26	.44	2.0	7.17	4	95				104	96	
5	50	569.52	.54	2.47	9.36	4	92				105	97	
4	52.5	571.20	.30	1.37	0.99	4	95				103	96	
3	55	572.96	.47	2.04	2.98	4	98				105	97	
2	57.5	573.68	.08	.36	3.82		93				106	97	
1	60	574.61	.08	.36	4.67		93				103	97	
	0922												
	θ = 60	Vm = 41.91		ΔH = 1.89							Avg. = 94.7		

INTERPOLL LABORATORIES EPA METHOD 5/17 SAMPLE LOG SHEET

Job ICI / TWO HARBORS Date 6/29/93 Test 1 Run 2
Source PRESS VENT STACK No. of traverse points 24
Method 0011 Filter holder: NA Filter type: NA

Sample Train Leak Check:

Pretest: < 0.02 cfm at 15 in. Hg. (vac) ☒
Postest: 0 cfm at 8 in. Hg. (vac) ☒

Particulate Catch Data:

No.s of filters used: Recovery solvent(s)

☐ acetone
☒ other(s) $MECL_2$ & DI H_2O

No. of probe wash bottles: 1
Sample recovered by: DAH

Condensate Data:

Item	Weight(g)		
	Final	Tare	Difference
Impinger No. 1			
Impinger No. 2	202	200	2
Impinger No. 3			
Condenser			
Desiccant	1409	1400	9
Total			11

Integrated Gas Sampling Data: – Ambient Air

Bag Pump No. _____ Box No. _____ Bag No. _____

Bag Material: 5-layer Aluminized Tedlar Size: 44 L

Pretest leak check: _____ cc/min at _____ in. Hg.

Time start: _____ (HRS) Time end: _____ (HRS)

Sampling rate: _____ cc/min Operator: _____

S/N of O_2 Analyzer used to monitor train outlet: ___

CF-023

S-0046RR

CF-011

INTERPOLL LABORATORIES EPA METHOD 5 FIELD DATA SHEET

Job: ICI / Two Harbors
Source: Press. Vent Stack
Date: 6/29/93 Test: 1 Run: 2

Operators: DVH & J.B
Meter Box No.: 7 ^H@ 1.97 IN WC
Gasmeter coeff.: .9983

Pitot No.: V23-5 Cp: .84
Bar. Press.: 29.19 inHg H2O: 1 x
Nozzle No.: 6-4 Nozzle Dia: .251 IN.

Traverse Point No.	Sampling Time (min)	Sample Volume (cf)	Velocity Head (inWC)	Orifice Meter (inWC)	Des. Vol. (cf)	VAC. inHg	Temperatures (°F) Stack	Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (xv/v)
	0957	574.90											
D 6	2.5	577.14	.55	2.55	7.11	4.5	88			47	93	93	AMBIENT
5	5	579.57	.67	3.07	9.53	6	93				99	95	AIR
4	7.5	581.36	.34	1.56	1.26	3	96			50	101	95	
3	10	583.48	.56	2.58	3.49	4.5	96				102	96	
2	12.5	584.77	.17	.78	4.73	3.5	95			57	104	96	
1	15	584.83	0	.00	4.73	0	96				99	96	
C 6	17.5	587.57	.77	3.53	7.33	6	96			46	102	96	
5	20	590.40	.96	4.43	0.25	6.5	93				103	97	
4	22.5	592.96	.80	3.70	2.92	6	94			46	102	97	
3	25	592.60	.76	3.49	5.52	6	97				103	97	
2	27.5	597.96	.56	2.59	7.75	4	95			48	103	97	
1	30	598.66	.05	.23	8.42	0	97				102	97	
B 6	32.5	601.40	.79	3.63	1.07	6	97			49	103	97	
5	35	603.96	.91	4.21	3.92	6.5	93				104	97	
4	37.5	606.40	.57	2.63	6.17	4.5	96				105	98	
3	40	608.70	.68	3.14	8.64	4.5	97				106	98	
2	42.5	610.76	.49	2.28	0.74	4	95				107	99	
1	45	611.85	.16	.74	1.95	2.5	96				107	98	
A 6	47.5	613.40	.23	1.07	3.39	3	96				103	97	
5	50	614.73	.23	1.07	4.84	3	94				104	98	
4	52.5	616.40	.21	.97	6.21	3	97				104	98	
3	55	617.60	.18	.83	7.48	3	100				105	98	
2	57.5	618.06	.02	.09	7.91		95				104	98	
1	60	618.06	.00	0.0	7.91		97				104	98	
	(1058)												
	θ = 60	Vm = 43.16		^H = 2.05							Avg. = 99.5		

INTERPOLL LABORATORIES EPA METHOD 5/17 SAMPLE LOG SHEET

Job ILI / TWO HARBORS Date 6/29/93 Test ' Run 3
Source PRESS VENT STACK No. of traverse points 24
Method 0011 Filter holder: NA Filter type: NA

Sample Train Leak Check:

Pretest: < 0.02 cfm at 15 in. Hg. (vac) ☐
Postest: 0 cfm at 10 in. Hg. (vac) ☒

Particulate Catch Data:

No.s of filters used: Recovery solvent(s)

☐ acetone
☒ other(s) MECL, & DI H_2O

No. of probe wash bottles: _____
Sample recovered by: _____

Condensate Data:

Item	Weight(g)		
	Final	Tare	Difference
Impinger No. 1			
Impinger No. 2	199	200	-1
Impinger No. 3			
Condenser			
Desiccant	1310	1304	6
Total			5

Integrated Gas Sampling Data: Ambient Air

Bag Pump No. _____ Box No. _____ Bag No. _____

Bag Material: 5-layer Aluminized Tedlar Size: 44 L

Pretest leak check: _____ cc/min at _____ in. Hg.

Time start: _____ (HRS) Time end: _____ (HRS)

Sampling rate: _____ cc/min Operator: _____

S/N of O_2 Analyzer used to monitor train outlet: ___

CF-023

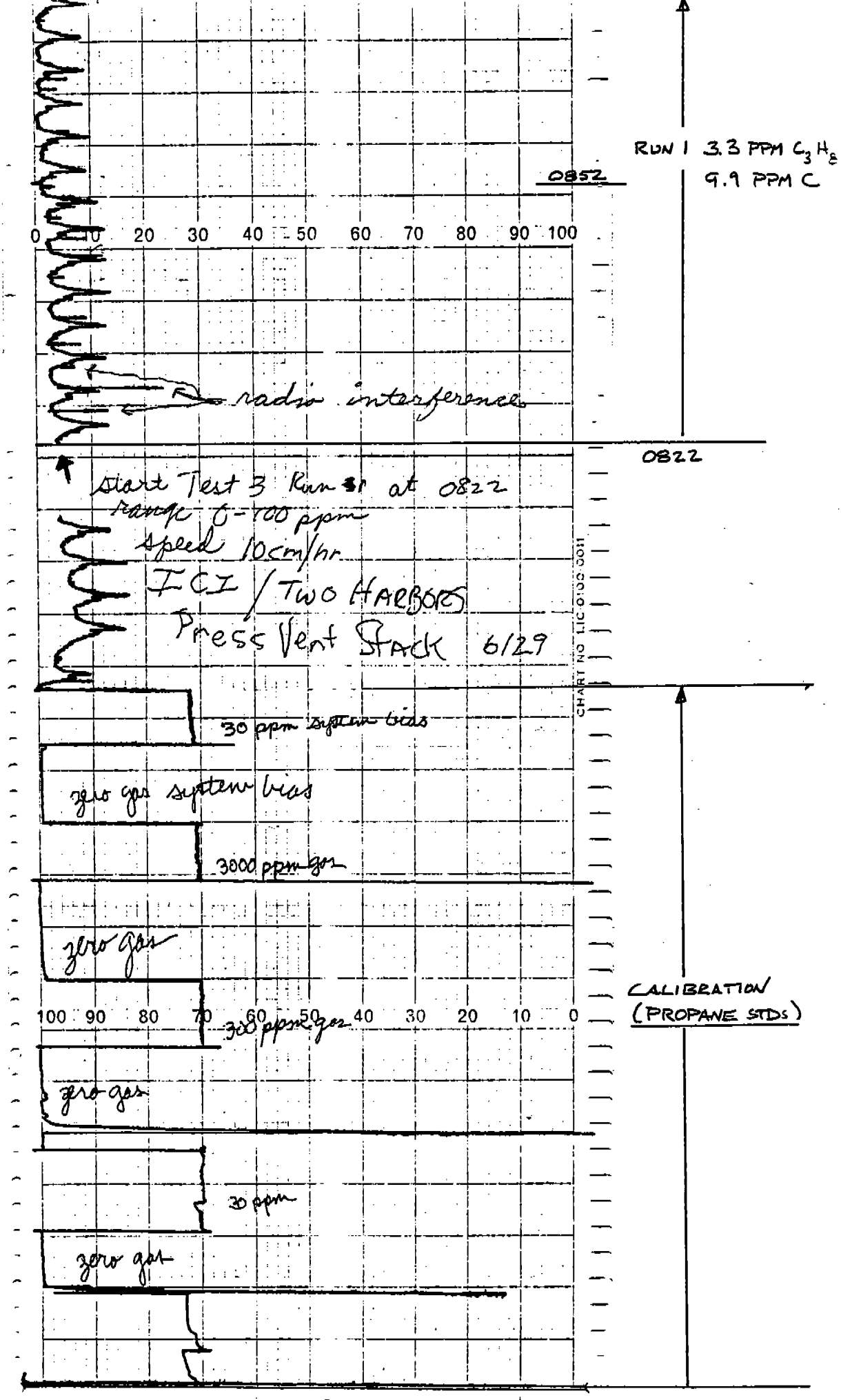
INTERPOLL LABORATORIES EPA METHOD 5 FIELD DATA SHEET

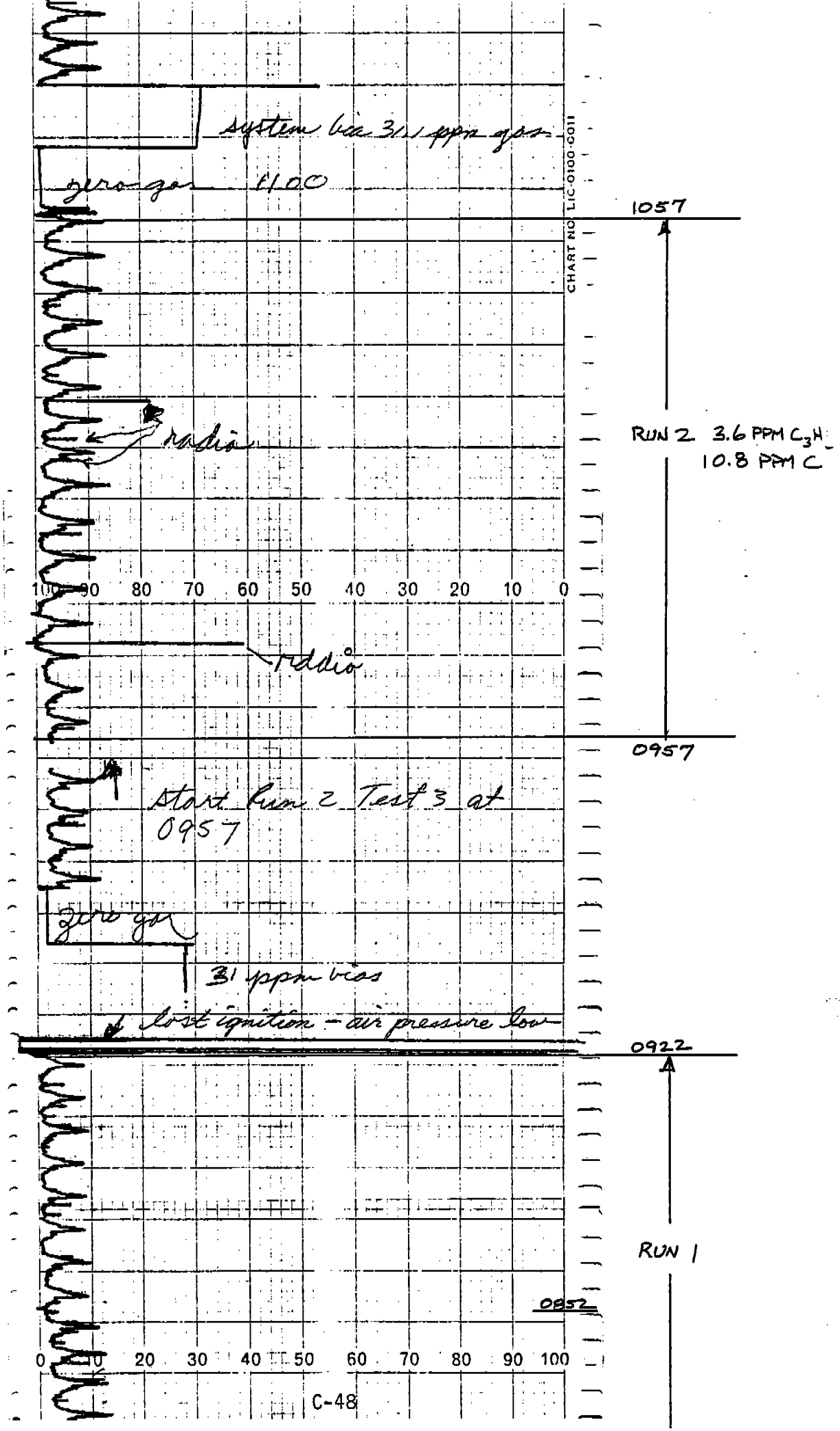
Job: ICI / Two Harbors
Source: Press Vent Stack
Date: 6/29/93 Test: 1 Run: 2

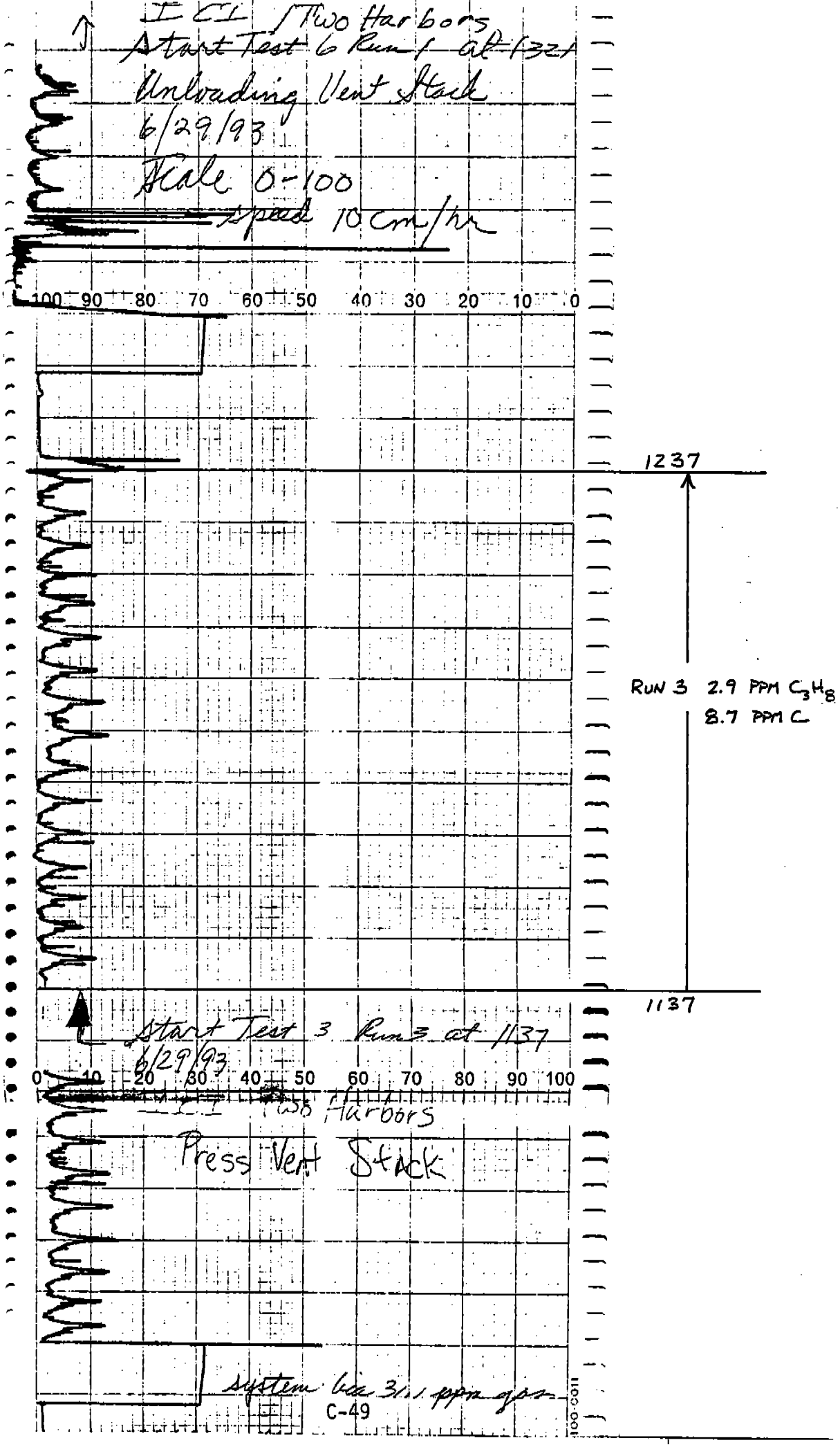
Operators: DCH + J.B
Meter Box No.: 7 ΔH@: 1.97 IN WC
Gasmeter coeff.: .9983

Pitot No.: V23-5 Cp: .84
Bar. Press.: 29.19 inHg H2O: 1.5 %
Nozzle No.: 6-4 Nozzle Dia: .25 IN.

Traverse Point No.	Sampling Time (min)	Sample Volume (cf)	Velocity Head (inWC)	Orifice Meter (inWC)	Des. Vol. (cf)	VAC. inHg	Temperatures (°F) Stack	Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (%v/v)
	137	619.00									91	91	AMBIENT
A 6	2.5	620.64	.30	1.37	0.63	3	99				95	92	AIR
5	5	622.11	.23	1.04	2.03	3	97				96	92	
4	7.5	623.61	.28	1.26	3.59	3	101				97	92	
3	10	625.40	.24	1.03	5.40	3	101				98	92	
2	12.5	625.81	.02	.09	5.45	—	100				94	91	
1	15	625.81	0	0	5.45	—	97				98	93	
B 6	17.5	628.12	.82	3.69	8.10	5	97				102	94	
5	20	630.93	.90	4.09	0.89	6	94				103	95	
4	22.5	633.23	.64	2.91	3.26	5	98				104	95	
3	25	635.56	.65	2.96	5.65	5	97				104	95	
2	27.5	637.80	.54	2.42	7.81	5	98				103	95	
1	30	638.73	.13	.59	8.88	2	101				104	96	
C 6	32.5	641.43	.75	3.39	1.44	6	101				105	96	
5	35	644.16	.92	4.20	4.28	6.5	96				105	96	
4	37.5	647.06	.90	4.0	7.07	6.5	98				105	96	
3	40	649.42	.72	3.26	9.60	6	102				105	96	
2	42.5	651.82	.56	2.57	1.83	5.6	96				104	96	
1	45	652.70	.08	.36	2.68	1	98				103	95	
D 6	47.5	654.43	.35	1.60	4.44	3	98				103	96	
5	50	656.55	.51	2.33	6.56	4	97				105	96	
4	52.5	658.60	.32	1.46	8.24	3	99				105	96	
3	55	660.44	.52	2.36	0.38	4	101				104	97	
2	57.5	661.81	.19	.86	1.68	2	102				101	96	
1	60	662.14	.02	.09	2.10	—	102						
	(1439)												
	θ = 60	Vm = 43.14		ΔH = 2.0							Avg. = 97.9		

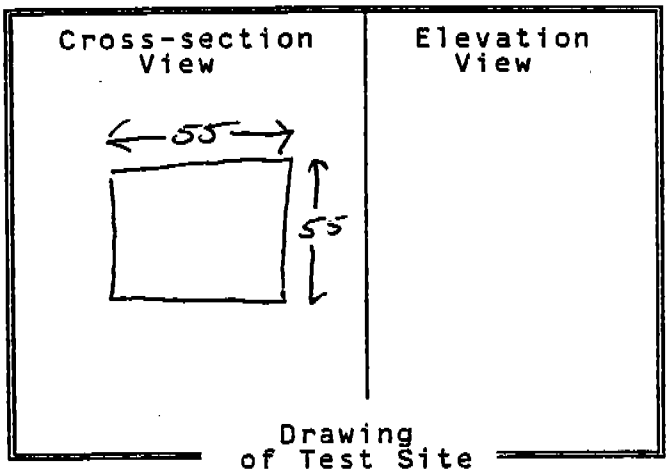

RUN 1 3.3 PPM C_3H_8
9.9 PPM C
0852
0 10 20 30 40 50 60 70 80 90 100
radio interference
0822
start Test 3 Run 1 at 0822
range 0-100 ppm
speed 10cm/hr
ICI / Two Harbors
Press Vent Stack 6/29
CHART NO LIC 0100 0011
30 ppm system bias
zero gas system bias
3000 ppm gas
zero gas
100 90 80 70 60 50 40 30 20 10 0
300 ppm gas
zero gas
30 ppm
zero gas
CALIBRATION
(PROPANE STDS)


system bias 31 ppm gas
zero gas 1100
1057
CHART NO LIC-0100-0011
radio
RUN 2 3.6 PPM C_3H_8
10.8 PPM C
100 90 80 70 60 50 40 30 20 10 0
radio
0957
Start Run 2 Test 3 at
0957
zero gas
31 ppm bias
lost ignition - air pressure low
0922
RUN 1
0952
0 10 20 30 40 50 60 70 80 90 100


I CI / Two Harbors
Start Test 6 Run 1 at 1321
Unloading Vent Stack
6/29/93
Scale 0-100
speed 10 cm/hr
100 90 80 70 60 50 40 30 20 10 0
1237
RUN 3 2.9 PPM C_3H_8
8.7 PPM C
1137
Start Test 3 Run 3 at 1137
6/29/93
0 10 20 30 40 50 60 70 80 90 100
Two Harbors
Press Vent Stack
system bias 3.1 ppm gas

INTERPOLL LABORATORIES - EPA METHOD 2 FIELD DATA SHEET

Job ICI PRESS VENT
Source PRESS VENT
Test 1 Run 0 Date 6-29-93
Stack dimen. 55 x 55 IN.
Dry bulb ____ °F Wet bulb ____ °F
Manometer: ☒ Reg. ☐ Exp. ☐ Elec.
Barometric pressure 29.19 in Hg
Static pressure -.78 in WC
Operators GH & SE
Pitot No. 23-V 6 Cp .84
GM/Phenol



Traverse Point No.	Fraction of Diameter	Distance from Stack Wall (in)	Distance from End of Port (in)	Velocity Pressure (in WC)	Temperature of gas (°F)
		Port length: 4 in.		Time start: 1310 hrs	
A 1		4.58	8.58	.00	
2		13.25	17.25	.00	
3		22.92	26.92	.05	
4			36.08	.11	
5		41.25	44.25	.27	
6		50.41	54.41	.10	
B 1				.40	
2				.44	
3				.55	
4				.52	
5				.82	
4				.83	
C 1				.75	
2				.64	
3				.75	
4				.91	
5				.80	
6				.65	
D 1				.00	
2				.00	
3				.14	
4				.28	
5				.36	
6				.25	
Temp. meas. device & S/N: 24				Time end: 1320 hrs	

R or nothing = reg. manometer; S= expanded; E=electronic

INTERPOLL LABORATORIES EPA METHOD 5/17 SAMPLE LOG SHEET

Job ICI TWO HARBORS
Source PRESS VENT
Method 5 Filter holder: GLASS
PLUS PHENOLS

Date 6-29-93 Test 4 Run 1
No. of traverse points
Filter type: GF
4"

Sample Train Leak Check:

Pretest: < 0.02 cfm at 15 in. Hg. (vac) ☒
Postest: LESS THAN .02 cfm at 15 in. Hg. (vac) ☒

Particulate Catch Data:

No.s of filters used: 5375

Recovery solvent(s)
☒ acetone
☐ other(s)

NO OF FILTER WASH BOTTLES - 1
No. of probe wash bottles: 1
Sample recovered by: GH

Condensate Data:

Item	Weight(g)		
	Final	Tare	Difference
Impinger No. 1	272	268.9	3.1
Impinger No. 2			
Impinger No. 3	261.0	261.0	0
Condenser			
Desiccant	1403	1395	8
Total			11.1

Integrated Gas Sampling Data:

Bag Pump No. NA Box No. NA Bag No. NA

Bag Material: 5-layer Aluminized Tedlar Size: 44 L

Pretest leak check: _____ cc/min at _____ in. Hg.

Time start: _____ (HRS) Time end: _____ (HRS)

Sampling rate: _____ cc/min Operator: _____

S/N of O_2 Analyzer used to monitor train outlet: ___

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INTERPOLL LABORATORIES EPA METHOD 5 FIELD DATA SHEET

Job ICI TWO HARBORS MN
Source PRESS VENT STACK
Date 6-29-93 Test 4 Run 1

Operators GH
Meter Box No. 3 ΔH 2.24 IN WC
Counter cont. 9970

Pitot No. 23-V-6 Cp .84
Bar. Press. 29.19 inHg H2O 7.5 %
Nozzle No. 274 Nozzle Dia .250 IN.

Traverse Point No.	Sampling Time (min)	Sample Volume (cf)	Velocity Head (inWC)	Orifice Meter (inWC)	Dec. Vol. (cf)	VAC. inHg	Temperatures (°F) Stack	Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (%v/v)
	1322	30270											
A 6	2.5	303.59	.09	.36	3.59	1	8.95			39	94	94	AMBIENT
5	5	304.73	.15	.59	4.73	2	95			41	95	93	
4	7.5	305.65	.10	.39	5.65	2	100			41	96	93	
3	10	306.58	.10	.39	6.58	2	100			40	97	94	
2	12.5	306.58	.00	.00	6.58	0	98			39	96	94	
1	15	306.58	.00	.00	6.58	0	96			42	94	90	
B 6	17.5	309.19	.80	3.15	9.19	10	93			42	99	95	
5	20	311.63	.69	2.73	1.63	12	97			40	100	95	
4	22.5	313.85	.57	2.25	3.85	12	98			40	99	95	
3	25	315.82	.45	1.78	5.82	7	97			39	99	95	
2	27.5	317.43	.30	1.18	7.43	5	100			39	100	95	
1	30	319.00	.28	1.11	9.00	4	98			41	100	95	
C 6	32.5	321.61	.80	3.14	1.61	12	100			41	102	96	
5	35	324.25	.80	3.16	4.25	12	98			42	101	96	
4	37.5	327.02	.89	3.55	7.03	13	92			43	99	95	
3	40	329.57	.75	2.95	9.57	13	99			39	99	95	
2	42.5	332.15	.78	3.06	2.15	13	101			40	99	95	
1	45	333.47	.20	.79	3.47	3	100			39	100	95	
D 6	47.5	334.94	.25	.98	4.94	4	100			39	100	95	
5	50	336.55	.30	1.18	6.55	5	100			41	102	96	
4	52.5	337.94	.22	.87	7.94	5	101			41	102	96	
3	55	339.32	.22	.87	9.32	5	101			40	103	100	
2	57.5	340.26	.10	.39	0.26	3	101			40	103	100	
1	60	340.26	.00	.00	0.26	0	100			41	103	100	
	(1423)												
	θ = 60	Vm = 37.56		ΔH = 1.45							Avg. = 97.5		

INTERPOLL LABORATORIES EPA METHOD 5/17 SAMPLE LOG SHEET

Job ICI TWO HARBORS Date 6-29-93 Test 4 Run 2
Source PRESS VENT No. of traverse points 24
Method 5 PLUS PHENOLS Filter holder: GLASS Filter type: GLASS FIBER 4"

Sample Train Leak Check:

Pretest: < 0.02 cfm at 15 in. Hg. (vac) ☒
Postest: < .02 cfm at 14 in. Hg. (vac) ☐
LESS THAN

Particulate Catch Data:

No.s of filters used: 5374

Recovery solvent(s)
☐ acetone
☐ other(s)

NO of FILTER WASH BOTTLES 1
No. of probe wash bottles: 1
Sample recovered by: GH

Condensate Data:

Item	Weight (g)		
	Final	Tare	Difference
Impinger No. 1	274	268.7	5.3
Impinger No. 2			
Impinger No. 3			
Condenser	267	267	0
Desiccant	1460	1451	9
Total			14.3

Integrated Gas Sampling Data:

Bag Pump No. NA Box No. _____ Bag No. _____

Bag Material: 5-layer Aluminized Tedlar Size: 44 L

Pretest leak check: _____ cc/min at _____ in. Hg.

Time start: _____ (HRS) Time end: _____ (HRS)

Sampling rate: _____ cc/min Operator: _____

S/N of O_2 Analyzer used to monitor train outlet: ___

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INTERPOLL LABORATORIES EPA METHOD 5 FIELD DATA SHEET

Job: ICI TWO HARBORS
Source: PRESS VENT STACK
Date: 6-29-93 Test: 4 Run: 2

Operators: C HOVE S. ERTLE
Meter Box No.: 3 ΔH@: 1.77 IN WC
Gasmeter coeff.: .9970

Pitot No.: 23 V 8 Cp: .84
Bar. Press.: 29. inHg H2O: 1.5 %
Nozzle No.: 27-4 Nozzle Dia.: .250 IN.

Traverse Point No.		Sampling Time (min)	Sample Volume (cf)	Velocity Head (inWC)	Orifice Meter (inWC)	Dec. Vol. (cf)	VAC. inHg	Temperatures (°F) Stack	Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (%v/v)
		(148)	340.60											
A	6	2.5	341.48	.09	.35	1.48	2	99				96	96	AMBIENT
	5	5	342.62	.15	.59	2.62	2	96				97	95	
	4	7.5	343.55	.10	.39	3.55	2	100				98	95	
	3	10	344.57	.12	.47	4.57	2	99				99	95	
	2	12.5	344.57	.00	.00	4.57	0	99				99	95	
	1	15	344.57	.00	.00	4.57	0	99				99	95	
B	6	17.5	349.11	.75	2.96	7.11	13	98				100	95	
	5	20	349.87	.88	3.47	9.87	13	97				101	95	
	4	22.5	352.57	.85	3.36	3.57	10	97				101	96	
	3	25	355.03	.70	2.75	5.03	9	101				100	95	
	2	27.5	357.43	.67	2.64	7.43	7	98				100	96	
	1	30	358.58	.15	.59	8.58	2	99				101	97	
C	6	32.5	361.28	.85	3.35	1.28	10	99				101	95	
	5	35	363.98	.84	3.31	3.98	9	98				102	95	
	4	37.5	366.35	.65	2.57	6.35	8	99				101	96	
	3	40	368.70	.64	2.52	8.70	8	100				101	96	
	2	42.5	370.78	.50	1.98	0.78	8	99				101	96	
	1	45	372.10	.20	.79	2.10	3	97				101	95	
D	6	47.5	373.92	.38	1.51	3.92	5	97				102	95	
	5	50	375.49	.28	1.11	5.49	4	98				101	99	
	4	52.5	376.97	.25	.99	6.97	4	98				101	99	
	3	55	378.11	.15	.59	8.11	4	100				102	96	
	2	57.5	378.11	.00	.00	8.11	0	98				102	96	
	1	60	378.11	.00	.00	8.11	0	98				102	96	
		(1549)												
		θ = 60	Vm = 37.51		ΔH = 1.45							Avg. = 97.5		

INTERPOLL LABORATORIES EPA METHOD 5/17 SAMPLE LOG SHEET

Job ICI TWO HARBORS Date 6-29-93 Test 4 Run 3
Source PRESS VENT STACK No. of traverse points 24
Method 5 Filter holder: GLASS Filter type: GF
PLUS PHENOLS

Sample Train Leak Check:

Pretest: < 0.02 cfm at 15 in. Hg. (vac) ☐
Postest: ____ cfm at ____ in. Hg. (vac) ☐

Particulate Catch Data:

No.s of filters used: 5378

Recovery solvent(s)
☒ acetone
☐ other(s) ____

NO OF FILTER WASH BOTTLES - 1
No. of probe wash bottles: 1
Sample recovered by: GH

Condensate Data:

Item	Weight(g)		
	Final	Tare	Difference
Impinger No. 1	271	265.6	5.4
Impinger No. 2			
Impinger No. 3			0
Condenser			
Desiccant	1411	1403	8
Total			13.4

Integrated Gas Sampling Data:

Bag Pump No. NA Box No. NA Bag No. NA

Bag Material: 5-layer Aluminized Tedlar Size: 44 L

Pretest leak check: ____ cc/min at ____ in. Hg.

Time start: ____ (HRS) Time end: ____ (HRS)

Sampling rate: ____ cc/min Operator: ____

S/N of O_2 Analyzer used to monitor train outlet: ____

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INTERPOLL LABORATORIES EPA METHOD 5 FIELD DATA SHEET

Job 101
Source UNLOADING VENT STACK
Date 6-29-93 Test 4 Run 3

Operators GH / SE
Meter Box No. 3 ΔH@ 1.74 IN WC
Gasmeter coeff. .9970

Pitot No. 23U-6 Cp .84
Bar. Press. 29.19 inHg ΔH@ 1.5 x
Nozzle No. 27-4 Nozzle Dia .250 IN.

Traverse Point No.	Sampling Time (min)	Sample Volume (cf)	Velocity Head (inWC)	Orifice Meter (inWC)	Dec. Vol. (cf)	VAC. inHg	Temperatures (°F) Stack	Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (%v/v)
	1617	37870											
A- 6	2.5	379.59	.09	.36	9.59	2	83			39	93	92	AMBIENT
5	5	381.14	.28	1.10	1.14	5	95			40	96	92	
4	7.5	382.08	.10	.39	2.08	2	96			40	~~97~~ 97	93	
3	10	382.80	.06	.23	2.80	1	95			40	96	93	
2	12.5	382.80	.00	.00	2.80	0	94			39	94	92	
1	15	382.80	.00	.00	2.80	0	95			42	93	92	
B- 6	17.5	385.40	.80	3.14	5.40	13	95			41	98	93	
5	20	388.11	.85	3.36	8.11	13	94			40	97	92	
4	22.5	390.22	.52	2.05	10.22	13	96			40	96	92	
3	25	392.05	.52	2.05	12.33	8	96			39	95	92	
2	27.5	394.29	.45	1.76	4.29	7	100			40	95	92	
1	30	396.12	.39	1.54	6.12	6	96			40	96	92	
C- 6	32.5	398.51	.67	2.63	8.51	11	97			39	98	92	
5	35	401.24	.87	3.41	1.24	13	98			41	98	92	
4	37.5	404.01	.90	3.56	4.01		94			39	97	93	
3	40	406.54	.75	2.95	6.54	12	98			39	97	92	
2	42.5	408.90	.65	2.55	8.90	10	100			39	97	93	
1	45	411.41	.74	2.90	1.41	11	99			41	97	93	
D- 6	47.5	412.88	.25	.98	2.88	5	99			41	97	93	
5	50	414.61	.35	1.37	4.61	5	100			40	99	94	
4	52.5	415.83	.25	.82	5.83	4	94			41	100	94	
3	55	416.97	.15	.59	6.97	2	98			40	99	94	
2	57.5	416.97	.00	.00	6.97	0	94			39	99	93	
1	60	416.97	.00	.00	6.97	0	94			39	99	93	
	(1629)												
	θ = 60	Vm = 38.27		ΔH = 1.57							Avg. = 90.6		

INTERPOLL LABORATORIES - EPA METHOD 2 FIELD DATA SHEET

Job ICI / TWO HARBORS
Source Press Vent Stack
Test 7 Run ___ Date 6/30/93
Stack dimen. 55 x 55 IN.
Dry bulb ___ °F Wet bulb ___ °F
Manometer: ☒ Reg. ☐ Exp. ☐ Elec.
Barometric pressure 29.15 in Hg
Static pressure -.78 in WC
Operators D. Van Hoever & J. Bergstrom
Pitot No. V23-5 C_p .84

Cross-section View	Elevation View

Drawing of Test Site

MDI NITRO

Traverse Point No.	Fraction of Diameter	Distance from Stack Wall (in)	Distance from End of Port (in)	Velocity Pressure (in WC)	Temperature of gas (°F)
		Port length:	in.	Time start:	hrs
A 1					
2					
3					
4					
5					
6					
B 1					
2					
3					
4					
5					
6					
C 1					
2					
3					
4					
5					
6					
D 1					
2					
3					
4					
5					
6					
Temp. meas. device & S/N: PDT #18				Time end:	hrs

R or nothing = (reg.) manometer; S= expanded; E=electronic

INTERPOLL LABORATORIES EPA METHOD 5/17 SAMPLE LOG SHEET

Job ILI / TWO HARBORS Date 6/30/93 Test 7 Run 1
Source PRESS VENT STACK No. of traverse points 24
Method MOE-N Filter holder: SS - ERC Filter type: glass fiber

Sample Train Leak Check:

Pretest: < 0.02 cfm at 15 in. Hg. (vac) ☒
Postest: 0 cfm at 10 in. Hg. (vac) ☒

Particulate Catch Data:

No.s of filters used: Recovery solvent(s)

☐ acetone
☒ other(s) $MeCl_2$

No. of probe wash bottles: 1
Sample recovered by: DWH

Condensate Data:

Item	Weight(g)		
	Final	Tare	Difference
Impinger No. 1			
Impinger No. 2			
Impinger No. 3			
Condenser			
Desiccant	1307	1296	11
Total			11

Integrated Gas Sampling Data: Ambient Air

Bag Pump No. _____ Box No. _____ Bag No. _____

Bag Material: 5-layer Aluminized Tedlar Size: 44 L

Pretest leak check: _____ cc/min at _____ in. Hg.

Time start: _____ (HRS) Time end: _____ (HRS)

Sampling rate: _____ cc/min Operator: _____

S/N of O_2 Analyzer used to monitor train outlet: ___

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INTERPOLL LABORATORIES — METHOD 5 FIELD DATA SHEET

Job: ICI TWO HARBORS
Source: PRESS VENT STACK
Date: 6/30/93 Test: 1 Run: 1

Operators: DUHA J.B
Meter Box No.: 6 ΔH@ 1.77 IN WC
Gasmeter coeff.: .9996

Pitot No.: MDE-6 Cp .84
Bar. Press.: 29.15 inHg H2O 1 %
Nozzle No.: 6-4 Nozzle Dia .201 IN.

Traverse Point No.	Sampling Time (min)	Sample Volume (cf)	Velocity Head (inWC)	Orifice Meter (inWC)	Dec. Vol. (cf)	VAC. inHg	Temperatures (°F) Stack	Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (%v/v)
	0825	676.10											
C 6	2.5	678.76	.83	3.42	8.77	6.5	83	NA	NA	NA	84	84	AMBIENT
5	5	681.53	.90	3.69	1.54	6	85				84	83	AIR
4	7.5	683.60	.63	2.59	3.86	6	85				85	83	
3	10	686.30	.72	2.94	6.34	6	88				85	84	
2	12.5	687.71	.25	1.03	7.81	2.5	86				86	85	
1	15	687.71	0	0	7.81	—	86				86	85	
1 6	17.5	690.40	.75	3.08	0.35	5	86				86	84	
5	20	691.96	.29	1.19	1.94	2.5	86				86	84	
4	22.5	693.42	.30	1.24	3.56	2.5	82				86	84	
3	25	695.43	.45	1.83	5.52	3	92				87	84	
2	27.5	696.58	.08	.33	6.35	1	88				86	84	
1	30	696.36	0	0	6.35	—	88				86	84	
A 6	32.5	697.85	.18	.74	7.60	1	88				86	84	
5	35	698.90	.14	.57	8.70	1	88				86	84	
4	37.5	699.90	.18	.74	9.45	1	88				86	84	
3	40	701.02	.15	.61	1.08	1	91				86	84	
2	42.5	701.21	.00	0	1.08	—	82				86	85	
1	45	701.21	0	0	1.08	—	87				85	85	
B 6	47.5	703.80	.83	3.40	3.75	6	87				87	85	
5	50	706.40	.81	3.34	6.39		84				87	85	
4	52.5	708.86	.69	2.85	8.87		83				89	86	
3	55	710.91	.40	1.83	0.80		83				89	86	
2	57.5	713.39	.70	2.90	3.27	5	83				90	87	
1	60	715.51	.56	2.33	5.48	4	83				91	87	
	0942												
	θ = 60	Vm = 39.41		ΔH = 1.69							Avg. = 85.5		

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INTERPOLL LABORATORIES EPA METHOD 5/17 SAMPLE LOG SHEET

Job ICI / TWO HARBORS Date 6/30/93 Test 7 Run 2
Source PRESS VENT STACK No. of traverse points 24
Method MDI-SS Filter holder: ERC-SS Filter type: glass fiber

Sample Train Leak Check:

Pretest: < 0.02 cfm at 15 in. Hg. (vac) ☒
Postest: 0 cfm at 13 in. Hg. (vac) ☒

Particulate Catch Data:

No.s of filters used: Recovery solvent(s)

☐ acetone
☒ other(s) $MECL_2$

No. of probe wash bottles: 1
Sample recovered by: DUA

Condensate Data:

Item	Weight(g)		
	Final	Tare	Difference
Impinger No. 1			
Impinger No. 2			
Impinger No. 3			
Condenser			
Desiccant	1433	1421	12
Total			12

Integrated Gas Sampling Data: Ambient Air

Bag Pump No. _____ Box No. _____ Bag No. _____

Bag Material: 5-layer Aluminized Tedlar Size: 44 L

Pretest leak check: _____ cc/min at _____ in. Hg.

Time start: _____ (HRS) Time end: _____ (HRS)

Sampling rate: _____ cc/min Operator: _____

S/N of O_2 Analyzer used to monitor train outlet: ___

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INTERPOLL LABORATORIES METHOD 5 FIELD DATA SHEET

Job ICI / TWO HARBORS
Source PRESS VENT STACK
Date 6/30/93 Test 7 Run 2

Operators DUH & JB
Meter Box No. 6 ^H@ 1.77 IN WC
Gasmeter coeff. .9996

Pitot No. 023-5 Cp .84
Bar. Press. 29.15 inHg H2O 15 x
Nozzle No. 6-4 Nozzle Dia .257 IN.

Traverse Point No.	Sampling Time (min)	Sample Volume (cf)	Velocity Head (inWC)	Orifice Meter (inWC)	Des. Vol. (cf)	VAC. inHg	Temperatures (°F) Stack	Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (xv/v)
	1118	715.70											
C 6	2.5	718.41	.79	3.21	8.29	6	87	NA	NA	NA	85	85	AMBIENT
5	5	720.45	.50	2.04	0.36	4	85				88	87	AIR
4	7.5	722.70	.65	2.65	2.72	5	88				91	85	
3	10	724.91	.34	1.39	4.43	4	88				86	87	
2	12.5	726.91	.44	1.80	6.38	5	85				87	87	
1	15	726.91	.01	.04	6.67	–	85				88	87	
D 6	17.5	729.01	.79	3.22	9.27	1	85				85	82	
5	20	730.73	.25	1.01	0.73	35	88				92	88	
4	22.5	732.28	.34	1.40	2.46	4	86				86	85	
3	25	734.50	.51	2.08	4.55	5	86				89	84	
2	27.5	735.41	.08	.32	5.38	2	87				87	85	
1	30	735.40	0	0	5.38	–	87				86	85	
A 6	32.5	737.40	.48	1.96	7.41	4	87				86	85	
5	35	738.58	.16	.65	8.58	2	87				87	85	
4	37.5	740.03	.24	.98	0.02	2	86				87	86	
3	40	740.96	.10	.41	0.95	–	88				87	85	
2	42.5	741.08	.0	0	0.95	–	87				87	85	
1	45	741.08	0	0	0.95	–	87				86	85	
B 6	47.5	743.81	.87	3.50	3.75	6	92				86	85	
5	50	746.54	.93	3.76	6.45	6	90				89	86	
4	52.5	748.1	.70	2.85	8.90		89				90	86	
3	55	751.23	.70	2.85	1.35		89				90	86	
2	57.5	753.30	.47	1.92	3.36		88				90	88	
1	60	755.20	.45	1.84	5.34		88				90	87	
	(1238)												
	θ = 60	Vm = 39.50		^H = 1.66							Avg. = 90.2		

S-0037R

INTERPOLL LABORATORIES EPA METHOD 5/17 SAMPLE LOG SHEET

Job ICI / TWO HARBORS Date 6/30/93 Test 7 Run 3
Source PRESS VENT STACK No. of traverse points 24
Method MDI-Nitro Filter holder: ERC-SS Filter type: glass fiber

Sample Train Leak Check:

Pretest: < 0.02 cfm at 15 in. Hg. (vac) ☒
Postest: 0 cfm at 14 in. Hg. (vac) ☒

Particulate Catch Data:

No.s of filters used: Recovery solvent(s)

☐ acetone
☒ other(s) $MeCl_2$

No. of probe wash bottles: 1
Sample recovered by: DVW

Condensate Data:

Item	Weight(g)		
	Final	Tare	Difference
Impinger No. 1			
Impinger No. 2			
Impinger No. 3			
Condenser			
Desiccant	1320	1307	13
Total			13

Integrated Gas Sampling Data: -Ambient Air

Bag Pump No. _____ Box No. _____ Bag No. _____

Bag Material: 5-layer Aluminized Tedlar Size: 44 L

Pretest leak check: _____ cc/min at _____ in. Hg.

Time start: _____ (HRS) Time end: _____ (HRS)

Sampling rate: _____ cc/min Operator: _____

S/N of O_2 Analyzer used to monitor train outlet: ___

CF-023

INTERPOLL LABORATORIES METHOD 5 FIELD DATA SHEET

Job: ICI / Two Harbors
Source: Process Heat Stack
Date: 6/30/93 Test: 4 Run: 3

Operators: DOH + J.B
Meter Box No.: 6 ΔH@: 1.77 IN WC
Gasmeter coeff.: .9996

Pitot No.: U23-6 Cp: .84
Bar. Press.: 29.15 inHg H2O: 1.5 %
Nozzle No.: 6-4 Nozzle Dia: .254 IN.

Traverse Point No.	Sampling Time (min)	Sample Volume (cf)	Velocity Head (inWC)	Orifice Meter (inWC)	Dec. Vol. (cf)	VAC. inHg	Temperatures (°F) Stack	Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (%v/v)
	1410	755.10											
C 6	2.5	757.91	.81	3.34	7.75	6	84	NA	NA	NA	86	86	Ambient
5	5	760.65	.91	3.69	0.52	6	89				89	87	AIR
4	7.5	763.30	.81	3.28	3.15	6	92				89	87	
3	10	765.43	.6	2.45	5.42	5	89				90	88	
2	12.5	767.60	.55	2.25	7.60	5	87				90	88	
1	15	768.09	.02	.08	8.02	—	87				90	87	
B 6	17.5	770.59	.75	3.07	0.56	6	87				89	87	
5	20	772.40	.36	1.47	2.37	2.5	89				89	88	
4	22.5	774.83	.25	1.02	3.79	2.5	89				89	89	
3	25	775.89	.50	2.04	5.87	5	88				89	88	
2	27.5	776.68	.05	.20	6.53	1	93				89	88	
1	30	776.68	0	0	6.53	—	89				90	89	
A 6	32.5	778.30	.28	1.14	8.08	3	89				89	88	
5	35	779.60	.26	1.06	9.58	3	89				90	88	
4	37.5	780.60	.10	.41	0.52	2	83				90	88	
3	40	782.00	.51	2.08	2.62	6	90				90	85	
2	42.5	782.00	0	0	2.62	—	90				90	88	
1	45	782.00	0	0	2.62	—	90				90	88	
B 6	47.5	784.17	.76	3.09	5.17	6	90				91	89	
5	50	786.40	.83	3.36	7.83	6	94				91	89	
4	52.5	788.82	.53	2.19	9.98	5	84				92	90	
3	55	791.06	.50	2.07	2.08		84				92	90	
2	57.5	793.75	.40	1.63	3.96		92				92	90	
1	60	793.85	.09	.37	4.83	7	90				93	90	
	15.3												
	θ = 60	Vm = 38.70		ΔH = 1.68							Avg. = 89		

INTERPOLL LABORATORIES - EPA METHOD 2 FIELD DATA SHEET

Job IC1

Source PRESS VENT STACK

Test 8-FL Run ① Date 6-30-93

Stack dimen. 55X55 IN.

Dry bulb ____ °F Wet bulb ____ °F

Manometer: ☒ Reg. ☐ Exp. ☐ Elec.

Barometric pressure 29.15 in Hg

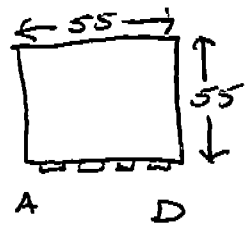
Static pressure -.78 in WC

Operators GHOVE & SE

Pitot No. 23 V-6 C_p .84

MDI - TRAIN L

Cross-section View | Elevation View



Drawing of Test Site

Traverse Point No.	Fraction of Diameter	Distance from Stack Wall (in)	Distance from End of Port (in)	Velocity Pressure (in WC)	Temperature of gas (°F)
		Port length:	4 in.	Time start:	hrs
Temp. meas. device & S/N:				Time end:	hrs

R or nothing = reg. manometer; S= expanded; E=electronic

S-3921

INTERPOLL LABORATORIES EPA METHOD 5/17 SAMPLE LOG SHEET

FL

Job ICI
Source PRESS VENT
Method MDI Filter holder: GLASS
FL

Date 6-30-93 Test 8 Run 1
No. of traverse points 24
Filter type: GF

Sample Train Leak Check:

Pretest: < 0.02 cfm at 15 in. Hg. (vac) ☒
Postest: .02 cfm at 10 in. Hg. (vac) ☒
LESS THAN

Particulate Catch Data:

No.s of filters used: _____

Recovery solvent(s)

☐ acetone
☒ other(s) 1,2NP IN TOLUENE

No. of probe wash bottles: 1
Sample recovered by: CH

Condensate Data:

Item	Weight (g)		
	Final	Tare	Difference
Impinger No. 1	100	129	-29
Impinger No. 2	81	86	-5
Impinger No. 3			
Condenser			
Desiccant			
Total			-34

8

Integrated Gas Sampling Data: AMBIENT

Bag Pump No. NA Box No. NA Bag No. NA

Bag Material: 5-layer Aluminized Tedlar Size: 44 L

Pretest leak check: _____ cc/min at _____ in. Hg.

Time start: _____ (HRS) Time end: _____ (HRS)

Sampling rate: _____ cc/min Operator: _____

S/N of O_2 Analyzer used to monitor train outlet: ___

CF-023

S-0046RR

PRESS VENT

INTERPOLL LABORATORIES EPA METHOD 5 FIELD DATA SHEET

CF-D11

Job 181 - TWO HARBORS
Source PRESS VENT
Date 6-30-93 Test 8 Run 1

Operators C HOVE & SERTIE
Meter Box No. 3 ΔH@ 1.77 IN WC
Gasmeter coeff. .9976

Pitot No. 23 U 6 Cp .84
Bar. Press. 29.15 inHg H2O 1.5%
Nozzle No. 27-3 Nozzle Dia .182 IN.

FL

Traverse Point No.	Sampling Time (min)	Sample Volume (cf)	Velocity Head (inWC)	Orifice Meter (inWC)	Dec. Vol. (cf)	VAC. inHg	Temperatures (°F) Stack	Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (%v/v)
	(0825)	417.51											
A 6	3	418.30	.18	.20	8.30	1	83			39	96	95	AMBIENT
5	6	419.18	.22	.25	9.18	2	85			40	97	96	
4	9	419.84	.12	.13	9.84	1	85			41	97	97	
3	12	420.27	.05	.05	0.27	1	85			39	97	97	
2	15	420.27	.00	.00	0.27	0	86			42	98	97	
1	18	420.27	.00	.00	0.27	0	86			42	98	97	
B 6	21	421.91	.75	.85	1.91	7	87			40	101	97	
5	24	423.56	.75	.86	3.56	7	83			41	102	98	
4	27	424.98	.55	.63	4.98	5	82			43	102	99	
3	30	426.40	.55	.62	6.40	5	88			39	102	98	
2	33	427.61	.40	.45	7.61	3	86			39	103	98	
1	36	428.04	.05	.05	8.04	0	81			40	103	98	
C 6	39	429.52	.60	.69	9.52	5	83			42	103	98	
5	42	431.28	.85	.97	1.28	5	83			44	104	98	
4	45	433.05	.86	.98	3.05	7	87			39	104	101	
3	48	434.49	.56	.64	4.49	6	87			40	105	99	
2	51	436.02	.64	.73	6.02	5	84			41	105	100	
1	54	436.60	.09	.10	6.60	1	83			42	106	99	
D 6	57	438.08	.60	.68	8.08	5	83			44	104	99	
5	60	439.74	.75	.75	9.74	5	83			46	105	99	
4	63	441.10	.50	.57	1.10	5	83			43	106	100	
3	66	442.65	.65	.75	2.65	5	83			44	105	100	
2	69	443.78	.35	.40	3.78	4	88			39	105	102	
1	72	443.78	.00	.00	3.78	0	85			40	102	99	
	(0957)												
	θ = 72	Vm = 26.27		ΔH = .48							Avg. = 100.1		

INTERPOLL LABORATORIES EPA METHOD 5/17 SAMPLE LOG SHEET

FL

Job 1C1 Date 6-30-93 Test 8 Run 2
Source PRESS VENT No. of traverse points 24
Method M01 Filter holder: GLASS Filter type: GF

Sample Train Leak Check:

Pretest: < 0.02 cfm at 15 in. Hg. (vac) ☒
Postest: .02 cfm at 12 in. Hg. (vac) ☐
LESS THAN

Particulate Catch Data:

No.s of filters used: Recovery solvent(s)

☐ acetone
☐ other(s) 1,2 MP IN TOLUENE

NO of FILTER WASH BOTTLES
No. of probe wash bottles: 1
Sample recovered by: GH

Condensate Data:

Item	Weight(g)		
	Final	Tare	Difference
Impinger No. 1	104	129	-25
Impinger No. 2	81	84	- 3
Impinger No. 3			
Condenser			
Desiccant			
Total			-28

8

Integrated Gas Sampling Data:

Bag Pump No. NA Box No. NA Bag No. NA

Bag Material: 5-layer Aluminized Tedlar Size: 44 L

Pretest leak check: _____ cc/min at _____ in. Hg.

Time start: _____ (HRS) Time end: _____ (HRS)

Sampling rate: _____ cc/min Operator: _____

S/N of O_2 Analyzer used to monitor train outlet: ___

CF-023

CF-011

INTERPOLL LABORATORIES EPA METHOD 5 FIELD DATA SHEET

Job ICI - PRESS VENT
Source TWO HARBORS, MN
Date 6-30-93 Test 8 FL Run 2

Operators O HOVE - S EARLE
Meter Box No. 3 ^H@ .74 IN WC
Gasmeter coeff. .9970

Pitot No. 23 V-6 Cp .84
Bar. Press. 29.15 inHg H2O 1.5 x
Nozzle No. 27-3 Nozzle Dia .182 IN.

Traverse Point No.	Sampling Time (min)	Sample Volume (cf)	Velocity Head (inWC)	Orifice Meter (inWC)	Des. Vol. (cf)	VAC. inHg	Temperatures (°F) Stack	Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (xv/v)
	(1118)	444.135											
B 6	3	445.78	.75	.85	5.78	7	87				100	100	AMBIENT
5	6	447.32	.65	.75	7.32	8	85				101	100	
4	9	448.66	.49	.56	8.66	8	85				103	100	
3	12	450.20	.65	.74	0.20	6	87				104	100	
2	15	451.28	.32	.36	1.28	7	91				104	101	
1	18	451.85	.09	.10	1.85	5	87				104	100	
C 6	21	453.54	.78	.89	3.54	7	88				103	100	
5	24	455.31	.86	.98	5.31	10	88				106	101	
4	27	457.02	.80	.91	7.02	10	87				106	101	
3	30	458.62	.70	.80	8.62	9	87				106	102	
2	33	460.21	.68	.78	0.21	8	86				106	102	
1	36	460.95	.15	.17	0.95	1	91				105	101	
D 6	39	462.32	.51	.58	2.32	5	87				105	101	
5	42	463.80	.60	.68	3.80	6	88				107	102	
4	45	464.84	.29	.33	4.84	6	87				107	102	
3	48	466.26	.55	.63	6.26	6	88				107	102	
2	51	467.68	.65	.68	7.68	6	87				107	102	
1	54	469.17	.60	.68	9.17	6	89				107	102	
A 6	57	469.71	.08	.09	9.71	1	87				105	101	
5	60	470.32	.10	.11	0.32	1	88				105	102	
4	63	470.93	.10	.11	0.93	0	88				102	101	
3	66	471.12	.07	.01	1.12	0	88				102	101	
2	69	471	.00	.00	1.12		87				102	102	
1	72	471.12	.00	.00	1.12		87				102	102	
	(1248)												
	θ = 72	Vm = 26.985		^H = .49							Avg. = 92.3		

INTERPOLL LABORATORIES EPA METHOD 5/17 SAMPLE LOG SHEET

Job ICI TWO HARBORS
Source PRESS VENT
Method MDI Filter holder: GLASS

Date 6-30-93 Test 8 Run 3
No. of traverse points 24
Filter type: GF

Sample Train Leak Check:

Pretest: < 0.02 cfm at 15 in. Hg. (vac) ☒
Postest: .02 cfm at 15 in. Hg. (vac) ☒
LESS THAN

Particulate Catch Data:

No.s of filters used: _____

Recovery solvent(s)

☐ acetone _____
☒ other(s) 1,2 MP 2N TOLUENE

No. of probe wash bottles: 1
Sample recovered by: GH

Condensate Data:

Item	Weight (g)		
	Final	Tare	Difference
Impinger No. 1	98	126	-28
Impinger No. 2	81	85	-4
Impinger No. 3			
Condenser			
Desiccant			
Total			-32

8

Integrated Gas Sampling Data: - AMBIENT

Bag Pump No. NA Box No. NA Bag No. NA

Bag Material: 5-layer Aluminized Tedlar Size: 44 L

Pretest leak check: _____ cc/min at _____ in. Hg.

Time start: _____ (HRS) Time end: _____ (HRS)

Sampling rate: _____ cc/min Operator: _____

S/N of O_2 Analyzer used to monitor train outlet: ___

CF-023

S-0046RR

INTERPOLL LABORATORIES EPA METHOD 5 FIELD DATA SHEET

Job: ICI - TWO HARBORS
Source: PRESS VENT STACK
Date: 6-30-93 Test: 8 Run: 3

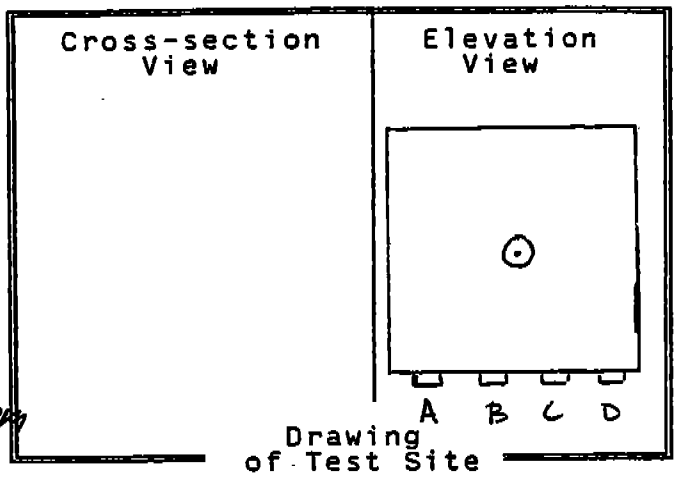
Operators: G HOUE - S ERTLE
Meter Box No.: 3 ΔH@: 1.74 IN WC
Gasmeter coeff.: .9970

Pitot No.: 23 V6 Cp: .84
Bar. Press.: 29.15 inHg H2O: 1.5 %
Nozzle No.: 27-3 Nozzle Dia: .182 IN.

Traverse Point No.	Sampling Time (min)	Sample Volume (cf)	Velocity Head (inWC)	Orifice Meter (inWC)	Dec. Vol. (cf)	VAC. inHg	Temperatures (°F) Stack	Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (%v/v)
	(1410)	471.490											
B - 6	3	472.08	.1	.11	2.08	1	84				101	101	AMBIENT
5	6	472.82	.15	.17	2.82	1	89				104	102	
4	9	473.29	.06	.06	3.29	1	92				104	102	
3	12	473.29	.00	.00	3.29	0	91				103	102	
2	15	473.29	.00	.00	3.29	0	91				102	102	
1	18	473.29	.00	.00	3.29	0	90				102	102	
C 6	21	474.84	.66	.75	4.84	7	91				107	103	
5	24	476.39	.65	.74	6.39	7	88				108	104	
4	27	477.81	.55	7.81	7.81	7	90				109	104	
3	30	479.29	.60	.68	9.29	8	93				109	104	
2	33	480.49	.39	.44	0.49	7	93				109	104	
1	36	481.34	.15	.17	1.34	1	89				110	105	
D 6	39	482.73	.60	.69	2.73	6	89				109	105	
5	42	484.48	.80	.92	4.45	8	90				110	104	
4	45	486.29	.88	1.01	6.26	10	89				110	104	
3	48	487.79	.64	.73	7.79	6	94				110	104	
2	51	489.15	.50	.57	9.15	5	89				110	105	
1	54	490.04	.20	.23	0.02	3	88				110	105	
A 6	57	491.51	.60	.69	1.51	5	89				110	105	
5	60	492.80	.48	.55	2.85	5	88				110	105	
4	63	493.62	.30	.34	3.90	4	91				110	105	
3	66	494.83	.25	.28	4.87	2	90				110	105	
2	69	496.22	.50	.57	6.22	5	93				110	105	
1	72	496.97	.15	.17	6.97	1	93				110	105	
	(1528)												
	θ = 72	Vm = 25.48		ΔH = .44							Avg. = 105.5		

INTERPOLL LABORATORIES - EPA METHOD 2 FIELD DATA SHEET

Job ICI / TWO HARBORS
Source PRESS VENT STACK
Test 9 Run ___ Date 6/30/93
Stack dimen. 55 x 55 IN.
Dry bulb ___ °F Wet bulb ___ °F
Manometer: ☒ Reg. ☐ Exp. ☐ Elec.
Barometric pressure 29.15 in Hg
Static pressure -.78 in WC
Operators D. Van Hoever & J. Berg Strom
Pitot No. V23-5 C_p .84



MDI - FILTER FIRST

Traverse Point No.	Fraction of Diameter	Distance from Stack Wall (in)	Distance from End of Port (in)	Velocity Pressure (in WC)	Temperature of gas (°F)
		Port length:	in.	Time start:	hrs
A 1					
2					
3					
4					
5					
6					
B 1					
2					
3					
4					
5					
6					
C 1					
2					
3					
4					
5					
6					
D 1					
2					
3					
4					
5					
6					
Temp. meas. device & S/N: PDT #18				Time end:	hrs

R or nothing = reg. manometer; S= expanded; E=electronic

S-3921

INTERPOLL LABORATORIES EPA METHOD 5/17 SAMPLE LOG SHEET

Job ICI / TWO HARBORS Date 6/30/93 Test 9 Run 1
Source PRESS VENT STACK No. of traverse points 24
Method M5I Filter holder: Filter First Filter type: Glass Fiber

Sample Train Leak Check:

Pretest: < 0.02 cfm at 15 in. Hg. (vac) ☒
Postest: 0 cfm at 10 in. Hg. (vac) ☒

Particulate Catch Data:

No.s of filters used: Recovery solvent(s)

☐ acetone
☒ other(s) $MeCl_2$ + DI H_2O

No. of probe wash bottles: 1
Sample recovered by: DVA

Condensate Data:

Item	Weight(g)		
	Final	Tare	Difference
Impinger No. 1	101	129	-28
Impinger No. 2			
Impinger No. 3	81	86	-5
Condenser			
Desiccant			
Total			-33

Integrated Gas Sampling Data: – Ambient Air

Bag Pump No. _____ Box No. _____ Bag No. _____

Bag Material: 5-layer Aluminized Tedlar Size: 44 L

Pretest leak check: _____ cc/min at _____ in. Hg.

Time start: _____ (HRS) Time end: _____ (HRS)

Sampling rate: _____ cc/min Operator: _____

S/N of O_2 Analyzer used to monitor train outlet: ___

CF-023

S-0046RR

F-

CF-

INTERPOLL LABORATORIES 'A' METHOD 5 FIELD DATA SHEET

Job: ICI Two Harbors
Source: PRESS VENT STACK
Date: 6/30/93 Test: 1 Run: 1
Operators: DWH + J.B + SE
Meter Box No.: 7 ΔH@ .97 IN WC
Counter coeff.: .9983
Pitot No.: V23-5 Cp: .01
Bar. Press.: 29.75 inHg H2O 1 %
Nozzle No.: 1-3 Nozzle Dia: .155 IN.

Traverse Point No.	Sampling Time (min)	Sample Volume (cf)	Velocity Head (inWC)	Orifice Meter (inWC)	Dry. Vol. (cf)	VAC. inHg	Temperatures (°F) Stack	Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (%v/v)
	0825	793.63											
B 6	3	794.50	.63	.85	5.14	5	83				81	81	AMBIENT
5	6	796.73	.73	.98	6.77	5	85				83	82	AIR
4	9	798.20	.45	.60	8.06	4	85				86	83	
3	12	799.72	.60	.81	9.54	2	88				87	83	
2	15	800.53	.26	.35	0.53	1	86				89	84	
1	18	801.16	.11	.15	1.17	—	84				89	85	
C 6	21	802.96	.78	1.06	2.87	5	84				91	85	
5	24	804.89	.90	1.23	4.71	5	83				93	86	
4	27	806.50	.90	1.22	6.54	5	82				93	86	
3	30	808.05	.65	.90	8.10	5	88				95	87	
2	33	809.61	.62	.84	9.63	5	88				95	87	
1	36	810.40	.08	.10	0.17	—	91				95	88	
D 6	39	811.93	.68	.92	1.77	5	91				95	88	
5	42	813.40	.68	.93	3.35	5	83				95	88	
4	45	814.65	.34	.46	4.51	2	87				96	89	
3	48	816.03	.50	.68	5.89	2	87				95	88	
2	51	816.79	.13	.17	6.60	1	84				94	88	
1	54	816.79	0	0	0.60	1	84				91	88	
A 6	57	817.23	.10	.13	7.21	1	84				92	88	
5	60	818.19	.18	.24	8.04	1	83				92	88	
4	63	818.96	.20	.27	8.91	1	83				92	88	
3	66	819.62	.08	.11	9.46	1	83				92	88	
2	69	819.62	0	0	9.46	—	88				90	88	
1	72	819.62	0	0	9.46	—	88				89	88	
	0957												
	θ = 72	Vm = 25.99		ΔH = .34							Avg. = 88.6		

S 00370

INTERPOLL LABORATORIES EPA METHOD 5/17 SAMPLE LOG SHEET

Job ICI / Two Harbors
Source PRESS VENT STACK
Method MDI Filter holder: glass

Date 6/30/93 Test 9 Run 2
No. of traverse points 24
Filter type: glass fiber

Sample Train Leak Check:

Pretest: < 0.02 cfm at 15 in. Hg. (vac) ☒
Postest: 0 cfm at 14 in. Hg. (vac) ☒

Particulate Catch Data:

No.s of filters used: Recovery solvent(s)

☐ acetone
☒ other(s) 1-2 MP IN TOLUENE

No. of probe wash bottles: 1
Sample recovered by: DWH

Condensate Data:

Item	Weight(g)		
	Final	Tare	Difference
Impinger No. 1	103	126	-23
Impinger No. 2	81	84	-3
Impinger No. 3			
Condenser			
Desiccant			
Total			-26

Integrated Gas Sampling Data: - Ambient Air

Bag Pump No. _____ Box No. _____ Bag No. _____

Bag Material: 5-layer Aluminized Tedlar Size: 44 L

Pretest leak check: _____ cc/min at _____ in. Hg.

Time start: _____ (HRS) Time end: _____ (HRS)

Sampling rate: _____ cc/min Operator: _____

S/N of O_2 Analyzer used to monitor train outlet: ___

CF-023

S-0046RR

INTERPOLL LABORATORIES EPA METHOD 5 FIELD DATA SHEET

Job: ICI / Two Harbors
Source: Press Vent Stack
Date: 6/30/93 Test: 9 Run: 2

Operators: DVW & J.B.
Meter Box No.: 7 ΔH@ 1.87 IN WC
Counter cont.: 9983

Pitot No.: V23-5 Cp: .84
Bar. Press.: 29.15 inHg H2O 1.5 %
Nozzle No.: 7-3 Nozzle Dia: .185 IN.

Traverse Point No.	Sampling Time (min)	Sample Volume (cf)	Velocity Head (inWC)	Orifice Meter (inWC)	Dec. Vol. (cf)	VAC. inHg	Temperatures (°F) Stack	Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (xx/v)
	118	821.115											
A-6	3	821.87	.10	.13	1.72	4	87				84	84	AMBIENT
5	6	822.61	.16	.21	2.49	4	85				87	85	AIR
4	9	823.31	.15	.20	3.23	4	85				88	85	
3	12	823.82	.06	.08	3.70	4	87				88	86	
2	15	823.82	0	0	3.70	—	91				86	86	
1	18	823.82	0	0	3.70	—	91				86	86	
B 6	21	825.42	.76	1.02	5.37	14	88				92	88	
5	24	827.50	.73	.98	7.02	13	88				89	87	
4	27	828.70	.63	.85	8.55	12	86				92	88	
3	30	830.30	.66	.89	0.12	12	86				93	88	
2	33	831.60	.45	.61	1.41	11	86				94	89	
1	36	832.40	.08	.10	1.96	2	91				93	89	
C 6	39	833.63	.70	.94	3.57	12	91				95	90	
5	42	835.51	.87	1.18	5.38	12	88				96	90	
4	45	837.19	.91	1.24	7.23	13	87				97	90	
3	48	838.76	.63	.86	8.71	13	87				97	91	
2	51	840.40	.69	.94	0.38	13	87				97	91	
1	54	842.12	.68	.92	1.99	13	87				97	91	
D 6	57	843.62	.65	.88	3.55	13	89				97	91	
5	60	845.04	.58	.78	5.03	13	89				96	91	
4	63	846.21	.40	.54	6.26	8	88				96	91	
3	66	847.79	.65	.88	7.83	10	87				96	91	
2	69	849.05	.30	.41	8.89	7	87				97	91	
1	72	849.05	.0	0	8.89	—	82				96	92	
	1248												
	θ = 2.0	Vm = 27.93		ΔH = .61							Avg. = 90.8		

INTERPOLL LABORATORIES EPA METHOD 5/17 SAMPLE LOG SHEET

Job ICI / TWO HARBORS Date 6/30/93 Test 9 Run 3
Source PRESS VENT STACK No. of traverse points 24
Method MDI-FC Filter holder: glass Filter type: glass fiber

Sample Train Leak Check:

Pretest: ≤ 0.02 cfm at 15 in. Hg. (vac) ☒
Postest: 0 cfm at 15 in. Hg. (vac) ☒

Particulate Catch Data:

No.s of filters used: Recovery solvent(s)

☐ acetone
☒ other(s) 1-2 MP IN TOLUENE

No. of probe wash bottles: 1
Sample recovered by: DVP

Condensate Data:

Item	Weight (g)		
	Final	Tare	Difference
Impinger No. 1	101	128	-27
Impinger No. 2	82	84	-2
Impinger No. 3			
Condenser			
Desiccant			
Total			-29

Integrated Gas Sampling Data: - Ambient Air

Bag Pump No. _____ Box No. _____ Bag No. _____

Bag Material: 5-layer Aluminized Tedlar Size: 44 L

Pretest leak check: _____ cc/min at _____ in. Hg.

Time start: _____ (HRS) Time end: _____ (HRS)

Sampling rate: _____ cc/min Operator: _____

S/N of O_2 Analyzer used to monitor train outlet: ___

CF-023

S-0046RR

INTERPOLL LABORATORIES EPA METHOD 5 FIELD DATA SHEET

Job: ICI / Two Harbors
Source: Press Vent Stack
Date: 6/30/93 Test: 4 Run: 3

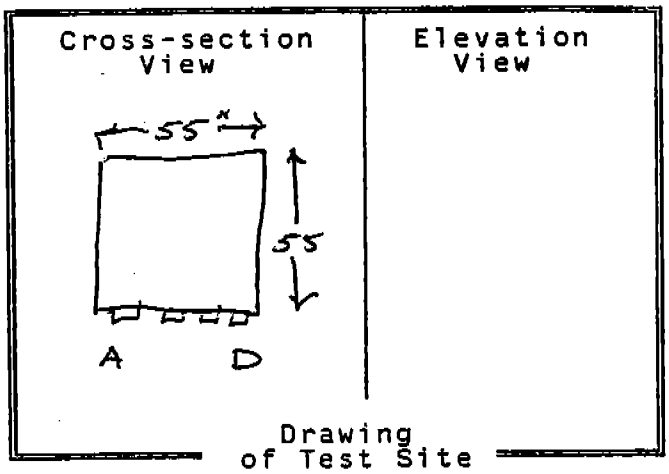
Operators: DUW & J.B
Meter Box No.: 7 ΔH@: 1.97 IN WC
Counter coeff.: .9983

Pitot No.: U23-5 Cp: .8
Bar. Press.: 29.15 inHg H2O: 1.3 %
Nozzle No.: 7-3 Nozzle Dia: .185 IN.

Traverse Point No.	Sampling Time (min)	Sample Volume (cf)	Velocity Head (inWC)	Orifice Meter (inWC)	Dec. Vol. (cf)	VAC. inHg	Temperatures (°F) Stack	Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (%v/v)
	1410	849.435											
A 6	3	850.87	.51	.69	0.82	10	84				89	89	AMBIENT
5	6	852.32	.63	.85	2.35	11	84				95	91	AIR
4	9	853.73	.49	.66	3.70	10	92				96	91	
3	12	855.30	.66	.89	5.27	11	92				97	92	
2	15	856.83	.51	.69	6.66	10	92				97	92	
1	18	857.96	.37	.50	7.84	9	92				97	92	
B 6	21	859.50	.73	.99	9.49	11	90				99	93	
5	24	861.32	.86	1.17	1.30	12	90				99	93	
4	27	862.49	.69	.94	2.91	12	90				98	93	
3	30	864.55	.58	.78	4.39	12	93				98	93	
2	33	865.93	.60	.81	5.90	12	90				98	93	
1	36	866.69	.13	.17	6.60	12	90				98	93	
C 6	39	868.60	.55	.74	8.04	8	90				97	93	
5	42	869.93	.59	.80	9.53	8	90				98	93	
4	45	870.93	.37	.50	0.72	5	92				99	93	
3	48	872.09	.51	.69	2.10	5	94				99	94	
2	51	873.30	.38	.51	3.30	5	94				100	94	
1	54	874.38	.26	.35	4.29	2	94				100	94	
D 6	57	874.99	.11	.15	4.94	1	84				98	94	
5	60	875.69	.06	.08	5.42	1	88				99	94	
4	63	876.07	.06	.08	5.90	—	91				97	94	
3	66	876.07	0	0	5.90	—	85				96	94	
2	69	876.07	0	0	5.90	—	85				95	94	
1	72	876.07	0	0	5.90		85				95	94	
	θ = 72	Vm =		ΔH = .54							Avg. =	95.0	

INTERPOLL LABORATORIES - EPA METHOD 2 FIELD DATA SHEET

Job ICI TWO HARBORS, MN
Source UNLOADING VENT
Test 2 Run 0 Date 6-29-93
Stack dimen. 55 x 55 IN.
Dry bulb ____ °F Wet bulb ____ °F
Manometer: ☒ Reg. ☐ Exp. ☐ Elec.
Barometric pressure 29.19 in Hg
Static pressure - .62 in WC
Operators GH & SE
Pitot No. 23 V-6 C_p .84
PMT Thermal



Traverse Point No.	Fraction of Diameter	Distance from Stack Wall (in)	Distance from End of Port (in)	Velocity Pressure (in WC)	Temperature of gas (°F)
		Port length: 4 in.		Time start: 0745 hrs	
A 1		4.58	8.58	.08	
2		13.25	17.25	.17	
3		22.92	26.92	.15	
4		32.08	36.08	.16	
5		41.25	44.25	.00	
6		50.41	54.41	.05	
B 1				.15	
2				.70	
3				.60	
4				.66	
5				.65	
6				.61	
C 1				.10	
2				.68	
3				.65	
4				.64	
5				.61	
6				.55	
D 1				.10	
2				.31	
3				.63	
4				.40	
5				.41	
6				.57	
Temp. meas. device & S/N: NO 24				Time end: 0755 hrs	

R or nothing = reg. manometer; S= expanded; E=electronic

S-3921

INTERPOLL LABORATORIES EPA METHOD 5/17 SAMPLE LOG SHEET

Job UN'
Source UNLOADER VENT STACK
Method 5 Filter holder: GLASS
PLUS PHENOLS

Date 6-29 Test 2 Run 1
No. of traverse points 24
Filter type: GLASS FIBER

Sample Train Leak Check:

Pretest: < 0.02 cfm at 15 in. Hg. (vac) ☒
Postest: < .02 cfm at 15 in. Hg. (vac) ☒
(LESS THAN

Particulate Catch Data:

No.s of filters used: 5373

Recovery solvent(s)
☒ acetone
☐ other(s)

NO OF FILTER WASH BOTTLES 1
No. of probe wash bottles: 1
Sample recovered by: QH

Condensate Data:

Item	Weight(g)		
	Final	Tare	Difference
Impinger No. 1A	277.0	274.4	2.6
Impinger No. 2B	266.7	266.7	0
Impinger No. 3B			
Condenser			
Desiccant	1442	1432	10
Total			12.6

Integrated Gas Sampling Data:

Bag Pump No. NA Box No. NA Bag No. NA

Bag Material: 5-layer Aluminized Tedlar Size: 44 L

Pretest leak check: _____ cc/min at _____ in. Hg.

Time start: _____ (HRS) Time end: _____ (HRS)

Sampling rate: _____ cc/min Operator: _____

S/N of O_2 Analyzer used to monitor train outlet: ___

CF-023

INTERPOLL LABORATORIES EPA METHOD 5 FIELD DATA SHEET

Job ICI TWO HARBORS
Source UNLOADER VENT
Date 6-29-93 Test 2 Run 1

Operators G HOVE / S KERTLE
Meter Box No. 3 ΔH@ 1.74 IN WC
Gasmeter coeff. .9970

Pitot No. 23-V-6 Cp .84
Bar. Press. 29.19 inHg H2O 2 %
Nozzle No. 27-4 Nozzle Dia. .250 IN.

Traverse Point No.		Sampling Time (min)	Sample Volume (cf)	Velocity Head (inWC)	Orifice Meter (inWC)	Dry. Vol. (cf)	VAC. inHg	Temperatures (°F) Stack	Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (%v/v)
		0822	171.845											
A	6	2.5	173.94	.56	2.14	3.94	6	87			39	93	93	AMBIENT
	5	5	176.10	.54	2.14	6.10	6	86			39	96		
	4	7.5	177.36	.18	.72	7.36	4	85			40	97	93	
	3	10	178.92	.28	1.12	8.92	5	86			41	97	93	
	2	12.5	180.86	.43	1.72	0.86	5	85			40	98	92	
	1	15	180.86	.00	.00	.86	0	88			42	97	92	
B	6	17.5	183.13	.60	2.38	3.13	6	88			39	98	92	
	5	20	185.51	.65	2.59	5.51	8	85			40	99	92	
	4	22.5	187.88	.65	2.59	7.88	8	86			41	100	92	
	3	25	190.15	.59	2.39	0.15	7	88			43	100	93	
	2	27.5	192.53	.65	2.59	2.53	8	87			39	100	94	
	1	30	193.92	.22	.88	3.92	5	84			40	99	94	
C	6	32.5	196.13	.56	2.24	6.13	5	85			41	100	93	
	5	35	198.52	.65	2.61	8.52	8	84			41	101	93	
	4	37.5	200.79	.59	2.36	.79	7	87			42	101	98	
	3	40	203.12	.62	2.49	3.12	8	87			43	102	94	
	2	42.5	205.51	.65	2.61	5.51	9	84			39	103	94	
	1	45	206.67	.15	.60	6.67	9	88			40	102	94	
D	6	47.5	208.70	.47	1.88	8.70	5	88			40	102	95	
	5	50	210.22	.26	1.05	0.22	4	83			40	102	95	
	4	52.5	212.17	.43	1.73	2.17	4	85			43	102	95	
	3	55	214.54	.64	2.57	4.54	8	86			39	102	96	
	2	57.5	216.31	.35	1.42	6.31	5	85			39	104	99	
	1	60	217.04	.06	.24	7.04	2	86			40	104	97	
		0922												
		θ = 60	Vm = 45.195		ΔH = 1.79							Avg. = 97.0		

INTERPOLL LABORATORIES EPA METHOD 5/17 SAMPLE LOG SHEET

Job ICI TWO HARBORS
Source UNLOADER VENT
Method 5 PLUS PHENOLS Filter holder: GLASS

Date _____ Test 2 Run 5
No. of traverse points 24
Filter type: 4" GLASS FIBER

Sample Train Leak Check:

Pretest: < 0.02 cfm at 15 in. Hg. (vac) ☐
Postest: .02 cfm at 15 in. Hg. (vac) ☒
LESS THAN

Particulate Catch Data:

No.s of filters used: 5429

Recovery solvent(s)
☒ acetone
☐ other(s)

NO OF FILTER WASH BOTTLES 1
No. of probe wash bottles: 1
Sample recovered by: GPF

Condensate Data:

Item	Weight(g)		
	Final	Tare	Difference
Impinger No. 1	271.0	267.8	3.2
Impinger No. 2			
Impinger No. 3	264.6	264.6	0
Condenser			
Desiccant	1395	1385	10
Total			13.2

Integrated Gas Sampling Data:

Bag Pump No. NA Box No. NA Bag No. NA

Bag Material: 5-layer Aluminized Tedlar Size: 44 L

Pretest leak check: _____ cc/min at _____ in. Hg.

Time start: _____ (HRS) Time end: _____ (HRS)

Sampling rate: _____ cc/min Operator: _____

S/N of O_2 Analyzer used to monitor train outlet: ___

CF-023

INTERPOLL LABORATORIES EPA METHOD 5 FIELD DATA SHEET

Job ICI TWO HARBORS
Source UNLOADER VENT
Date 6-29-93 Test 2 Run 2

Operators CHOVE
Meter Box No. 3 ΔH@ 1.74 IN WC
Gasmeter coeff. .9970

Pitot No. 2306 Cp .84
Bar. Press. 29.19 inHg H2O 1.5 %
Nozzle No. 27-4 Nozzle Dia .250 IN.

Traverse Point No.	Sampling Time (min)	Sample Volume (cf)	Velocity Head (inWC)	Orifice Meter (inWC)	Dec. Vol. (cf)	VAC. (inHg)	Temperatures (°F) Stack	Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (%v/v)
	0957	217.330											
D-6	2.5	218.48	.15	.60	8.48	3	88				94	94	AMBIENT
5	5	220.78	.61	2.44	0.78	7	88				97	94	
4	7.5	222.11	.20	2.11	2.11	3	84				98	94	
3	10	223.26	.15	.60	3.26	3	87				98	94	
2	12.5	224.41	.15	.60	4.41	3	85				100	95	
1	15	225.71	.19	.76	5.71	3	88				101	95	
C-6	17.5	227.83	.51	2.05	7.83	9	88				102	96	
5	20	230.25	.66	2.66	0.25	9	88				103	96	
4	22.5	232.68	.67	2.71	2.68	9	87				102	96	
3	25	234.97	.59	2.38	4.97	9	88				102	96	
2	27.5	237.18	.55	2.23	7.18	8	86				102	96	
1	30	239.45	.58	2.34	9.45	8	87				102	96	
B 6	32.5	241.77	.61	2.46	1.77	9	87				102	96	
5	35	244.12	.62	2.51	4.12	9	86				102	96	
4	37.5	246.49	.64	2.58	6.49	6	88				102	96	
3	40	248.82	.61	2.46	8.82	8	88				102	96	
2	42.5	251.22	.65	2.62	1.22	8	87				102	96	
1	45	253.40	.54	2.18	3.40	8	87				102	95	
A 6	47.5	254.50	.15	.60	4.50	3	87				101	95	
5	50	255.41	.08	.32	5.41	2	88				100	95	
4	52.5	256.00	.04	.16	6.00	1	90				98	94	
3	55	257.48	.25	.99	7.48	5	93				100	95	
2	57.5	259.24	.35	1.41	9.24	5	87				101	95	
1	60	260.54	.19	.76	0.54	3	88				101	95	
	(1059)												
	θ = 60	Vm = 43.21		ΔH = 1.64							Avg. = 97.9		

INTERPOLL LABORATORIES EPA METHOD 5/17 SAMPLE LOG SHEET

Job ICI TWO HARBORS
Source UNLOADER VENT
Method 5 Filter holder: GLASS

Date 6-29-93 Test 2 Run 3
No. of traverse points 24
Filter type: GLASS FIBER 4"

Sample Train Leak Check:

Pretest: < 0.02 cfm at 15 in. Hg. (vac) ☒
Postest: .02 cfm at ____ in. Hg. (vac) ☐
LESS THAN

Particulate Catch Data:

No.s of filters used: 5374

Recovery solvent(s)
☒ acetone
☐ other(s)

NO OF FILTER WASH BOTTLES - 1
No. of probe wash bottles: 1
Sample recovered by: GH

Condensate Data:

Item	Weight (g)		
	Final	Tare	Difference
Impinger No. 1 A	270	267.6	2.4
Impinger No. 2			
Impinger No. 3 B	263.1	263.1	0
Condenser			
Desiccant	1451	1442	9
Total			11.4

Integrated Gas Sampling Data:

Bag Pump No. NA Box No. NA Bag No. NA

Bag Material: 5-layer Aluminized Tedlar Size: 44 L

Pretest leak check: _____ cc/min at _____ in. Hg.

Time start: _____ (HRS) Time end: _____ (HRS)

Sampling rate: _____ cc/min Operator: _____

S/N of O_2 Analyzer used to monitor train outlet: ____

CF-023

INTERPOLL LABORATORIES EPA METHOD 5 FIELD DATA SHEET

Job: ICI TWO HARBORS
Source: UNLOADER VENT
Date: 6-29-93 Test: 2 Run: 3

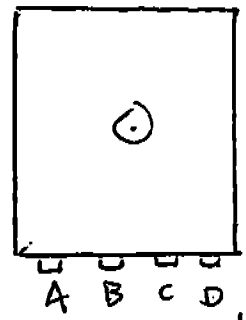
Operators: GH
Meter Box No.: 3 ΔH@: 1.74 IN WC
Counter cont.: 9970

Pitot No.: 23 U6 Cp: .84
Bar. Press.: 29.79 inHg H2O 1.5 %
Nozzle No.: 27-4 Nozzle Dia: .250 IN.

Traverse Point No.	Sampling Time (min)	Sample Volume (cf)	Velocity Head (inWC)	Orifice Meter (inWC)	Dry. Vol. (cf)	VAC. inHg	Temperatures (°F) Stack	Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (%v/v)
	1134	260.80											
A-6	2.5	261.63	.08	.32	1.63	2	95				94	94	AMBIENT
5	5	262.78	.15	.60	2.78	2	88				98	95	
4	7.5	263.93	.15	.60	3.93	2	93				100	95	
3	10	265.08	.15	.60	5.08	2	93				101	96	
2	12.5	265.08	.09	.100	5.08	2	94				101	96	
1	15	265.74	.05	.20	5.74	2	91				101	96	
B-6	17.5	268.04	.60	2.40	8.04	9	91				102	95	
5	20	270.45	.66	2.65	0.45	9	90				103	100	
4	22.5	272.87	.66	2.68	2.87	9	87				102	95	
3	25	275.17	.60	2.40	5.17	9	91				102	95	
2	27.5	277.63	.69	2.78	7.63	10	88				102	95	
1	30	278.78	.15	.60	8.78	2	89				102	95	
C-6	32.5	280.98	.15	2.20	0.98	7	93				103	95	
5	35	283.29	.60	2.42	3.29	7	87				104	97	
4	37.5	285.69	.65	2.63	5.69	8	88				104	96	
3	40	288.09	.65	2.62	8.09	10	89				104	97	
2	42.5	290.53	.67	2.72	0.53	10	86				103	97	
1	45	291.48	.10	.40	1.48	1	90				101	96	
D-6	47.5	293.72	.57	2.29	3.72	6	90				103	98	
5	50	295.66	.42	1.71	5.66	5	86				103	97	
4	52.5	297.52	.39	1.58	7.52	5	88				103	97	
3	55	299.90	.64	2.58	9.90	7	89				103	97	
2	57.5	301.54	.30	1.22	1.54	5	87				102	96	
1	60	302.48	.10	.40	2.48	2	90				102	96	
	(1237)												
	θ = 60	Vm = 41.68		ΔH = 1.61							Avg. = 98.9		

INTERPOLL LABORATORIES - EPA METHOD 2 FIELD DATA SHEET

Job ICI / TWO HARBORS
Source Unloading Vent Stack
Test 5 Run ___ Date 6/29/93
Stack dimen. 55 x 55 IN.
Dry bulb ___ °F Wet bulb ___ °F
Manometer: ☐ Reg. ☐ Exp. ☐ Elec.
Barometric pressure 29.19 in Hg
Static pressure -.78 in WC
Operators D. Van Hoever + J. Bergstrom
Pitot No. V23-5 Cp .84
CH_2O

Cross-section View	Elevation View
	

Drawing of Test Site

Traverse Point No.	Fraction of Diameter	Distance from Stack Wall (in)	Distance from End of Port (in)	Velocity Pressure (in WC)	Temperature of gas (°F)
		Port length:	in.	Time start:	hrs
A 1					
2					
3					
4					
5					
6					
B 1					
2					
3					
4					
5					
6					
C 1					
2					
3					
4					
5					
6					
D 1					
2					
3					
4					
5					
6					
Temp. meas. device & S/N: PDT #18				Time end:	hrs

R or nothing = (reg.) manometer; S= expanded; E=electronic

S-3921

INTERPOLL LABORATORIES EPA METHOD 5/17 SAMPLE LOG SHEET

Job ICI / TWO HARBORS Date 6/29/93 Test 5 Run 1
Source UNLOADING VENT No. of traverse points 24
Method 0011 Filter holder: NA Filter type: NA

Sample Train Leak Check:

Pretest: < 0.02 cfm at 15 in. Hg. (vac) ☒
Postest: 0 cfm at 6.5 in. Hg. (vac) ☒

Particulate Catch Data:

No.s of filters used: Recovery solvent(s)

☐ acetone
☒ other(s) MeCl₂ + DI H_2O

No. of probe wash bottles: 1
Sample recovered by: DCH

Condensate Data:

Item	Weight (g)		
	Final	Tare	Difference
Impinger No. 1	199	200	-1
Impinger No. 2			
Impinger No. 3			
Condenser			
Desiccant	1420	1409	11
Total			10

Integrated Gas Sampling Data: Ambient Air

Bag Pump No. _____ Box No. _____ Bag No. _____

Bag Material: 5-layer Aluminized Tedlar Size: 44 L

Pretest leak check: _____ cc/min at _____ in. Hg.

Time start: _____ (HRS) Time end: _____ (HRS)

Sampling rate: _____ cc/min Operator: _____

S/N of O_2 Analyzer used to monitor train outlet: ___

CF-023

S-0046RR

INTERPOLL LABORATORIES 'A METHOD 5 FIELD DATA SHEET

Job: ICI / Two Harbors
Source: UNLOADING VENT STACK
Date: 6/29/93 Test: 5 Run: 1

Operators: DVH & J.B
Meter Box No.: 7 ΔH@: 1.97 IN WC
Gasmeter coeff.: .9783

Pitot No.: V23-5 Cp: .84
Bar. Press.: 29.19 inHg H2O: 7 %
Nozzle No.: 6-4 Nozzle Dia: .25 IN.

Traverse Point No.	Sampling Time (min)	Sample Volume (cf)	Velocity Head (inWC)	Orifice Meter (inWC)	Dry Vol. (cf)	VAC. inHg	Temperatures (°F) Stack	Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (%v/v)
	134	662.90											
A 6	2.5	664.60	.32	1.49	4.59	4	90				96	93	AMBIENT
5	5	665.80	.16	.74	5.79	3	90				98	94	AIR
4	7.5	667.60	.40	1.85	7.68	5	91				100	94	
3	10	669.70	.54	2.50	9.87	4	91				101	94	
2	12.5	670.55	.06	.28	0.61	4	89				101	94	
1	15	670.55	0	0	0.61	—	89				98	93	
B 6	17.5	672.91	.60	2.78	2.92	5	89				101	94	
5	20	675.20	.63	2.92	5.29	5	90				102	94	
4	22.5	677.77	.70	3.25	7.79	5.5	90				103	95	
3	25	680.35	.68	3.16	0.26	5.5	90				104	95	
2	27.5	682.86	.72	3.36	2.81	5.5	88				105	96	
1	30	684.20	.17	.79	4.05	2	91				104	96	
C 6	32.5	686.53	.56	2.61	6.30	5	91				103	96	
5	35	688.90	.68	3.18	8.78	6	87				104	96	
4	37.5	690.96	.52	2.44	0.95	6	88				105	96	
3	40	693.60	.68	3.17	3.43	6	90				105	97	
2	42.5	695.90	.61	2.84	5.77	6	91				106	98	
1	45	696.83	.10	.47	6.73	2	90				106	98	
D 6	47.5	698.90	.51	2.39	8.89	5	90				104	98	
5	50	700.46	.30	1.40	0.54	3	90				106	98	
4	52.5	702.36	.42	1.98	2.51	4	87				105	98	
3	55	704.64	.55	2.58	4.74	4.5	89				106	100	
2	57.5	706.35	.30	1.41	6.40	4	88				106	98	
1	60	706.82	.02	.09	6.83	—	89				106	98	
	1421												
	θ = 60	Vm = 43.92		ΔH = 1.97							Avg. = 99.5		

INTERFOLL LABORATORIES EPA METHOD 5/17 SAMPLE LOG SHEET

Job ICI Two Harbors Date 6/29/93 Test 5 Run 2
Source Unloading Heat Stack No. of traverse points 24
Method 0011 Filter holder: NA Filter type: NA

Sample Train Leak Check:

Pretest: < 0.02 cfm at 15 in. Hg. (vac) ☒
Postest: 0 cfm at 8 in. Hg. (vac) ☒

Particulate Catch Data:

No.s of filters used: Recovery solvent(s)

☐ acetone
☒ other(s) $MeCl_2$ + DI H_2O

No. of probe wash bottles: 1
Sample recovered by: DW

Condensate Data:

Item	Weight(g)		
	Final	Tare	Difference
Impinger No. 1	204	200	4
Impinger No. 2			
Impinger No. 3			
Condenser			
Desiccant	1319	1310	9
Total			13

Integrated Gas Sampling Data: Ambient Air

Bag Pump No. _____ Box No. _____ Bag No. _____

Bag Material: 5-layer Aluminized Tedlar Size: 44 L

Pretest leak check: _____ cc/min at _____ in. Hg.

Time start: _____ (HRS) Time end: _____ (HRS)

Sampling rate: _____ cc/min Operator: _____

S/N of O_2 Analyzer used to monitor train outlet: ___

CF-023

S-0046RR

INTERPOLL LABORATORIES 'A METHOD 5 FIELD DATA SHEET

Job: J.C.I. Two Harbors
Source: Unloading Vent Stack
Date: 6/29/93 Test: 5 Run: 2

Operators: DUH & J.B
Meter Box No.: 7 ΔH@: 1.97 IN WC
Gasmeter coeff.: .9983

Pitot No.: U23-5 Cp: .84
Bar. Press.: 29.19 inHg H2O: I X
Nozzle No.: 6-7 Nozzle Dia.: .257 IN.

Traverse Point No.	Sampling Time (min)	Sample Volume (cf)	Velocity Head (inWC)	Orifice Meter (inWC)	Dry Gas Vol. (cf)	VAC. inHg	Temperatures (°F) Stack	Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (v/v)
	1446	707.20											
A 6	2.5	709.63	.65	3.04	9.62	4	88				100	95	AMBIENT
5	5	711.45	.34	1.68	1.42	2.5	87				102	96	AIR
4	7.5	713.55	.44	2.05	3.42	3	89				103	96	
3	10	715.54	.52	2.43	5.58	3.0	88				104	97	
2	12.5	716.93	.17	.80	6.83	2	89				104	97	
1	15	717.50	.04	.18	7.44	—	89				101	96	
B 6	17.5	719.99	.68	3.17	9.91	5	89				103	96	
5	20	722.56	.75	3.51	2.51	5.5	87				104	97	
4	22.5	724.65	.50	2.34	4.64	4	89				105	97	
3	25	727.11	.67	3.13	7.10	5	90				105	97	
2	27.5	729.71	.64	3.01	9.51	5	86				106	98	
1	30	730.69	.13	.61	0.61	2	86				106	98	
C 6	32.5	733.21	.61	2.88	2.97	4	86				104	98	
5	35	735.67	.70	3.28	5.49	5	88				105	98	
4	37.5	738.09	.67	3.15	7.96	5	87				106	99	
3	40	740.60	.73	3.42	0.53	5	89				107	99	
2	42.5	743.10	.78	3.66	3.20	5	88				107	99	
1	45	745.00	.36	1.70	5.02	4	88				107	99	
D 6	47.5	746.60	.23	1.08	6.48	3	88				104	99	
5	50	747.93	.2	.94	7.83	3	88				105	99	
4	52.5	749.42	.24	1.13	9.32	3	88				104	98	
3	55	751.45	.49	2.28	1.42	4	92				105	98	
2	57.5	752.21	.06	.28	2.17		88				104	98	
1	60	752.21	0	0	2.17		88				102	97	
	1547												
	θ = 60	Vm = 45.01		ΔH = 2.07							Avg. = 100.9		

INTERPOLL LABORATORIES EPA METHOD 5/17 SAMPLE LOG SHEET

Job ICI Tyo Harbor Date 6/29/93 Test 5 Run 3
Source Unloading Vent Stack No. of traverse points 2d
Method 0011 Filter holder: NA Filter type: NA

Sample Train Leak Check:

Pretest: < 0.02 cfm at 15 in. Hg. (vac) ☒
Postest: 0 cfm at 6 in. Hg. (vac) ☒

Particulate Catch Data:

No.s of filters used: Recovery solvent(s)

☐ acetone
☒ other(s) $MeCl_2$ + DI H_2O

No. of probe wash bottles: 1
Sample recovered by: Dirt

Condensate Data:

Item	Weight(g)		
	Final	Tare	Difference
Impinger No. 1	369	200	6
Impinger No. 2			
Impinger No. 3			
Condenser			
Desiccant	1428	1420	8
Total			14

Integrated Gas Sampling Data: Ambient Air

Bag Pump No. _____ Box No. _____ Bag No. _____

Bag Material: 5-layer Aluminized Tedlar Size: 44 L

Pretest leak check: _____ cc/min at _____ in. Hg.

Time start: _____ (HRS) Time end: _____ (HRS)

Sampling rate: _____ cc/min Operator: _____

S/N of O_2 Analyzer used to monitor train outlet: ___

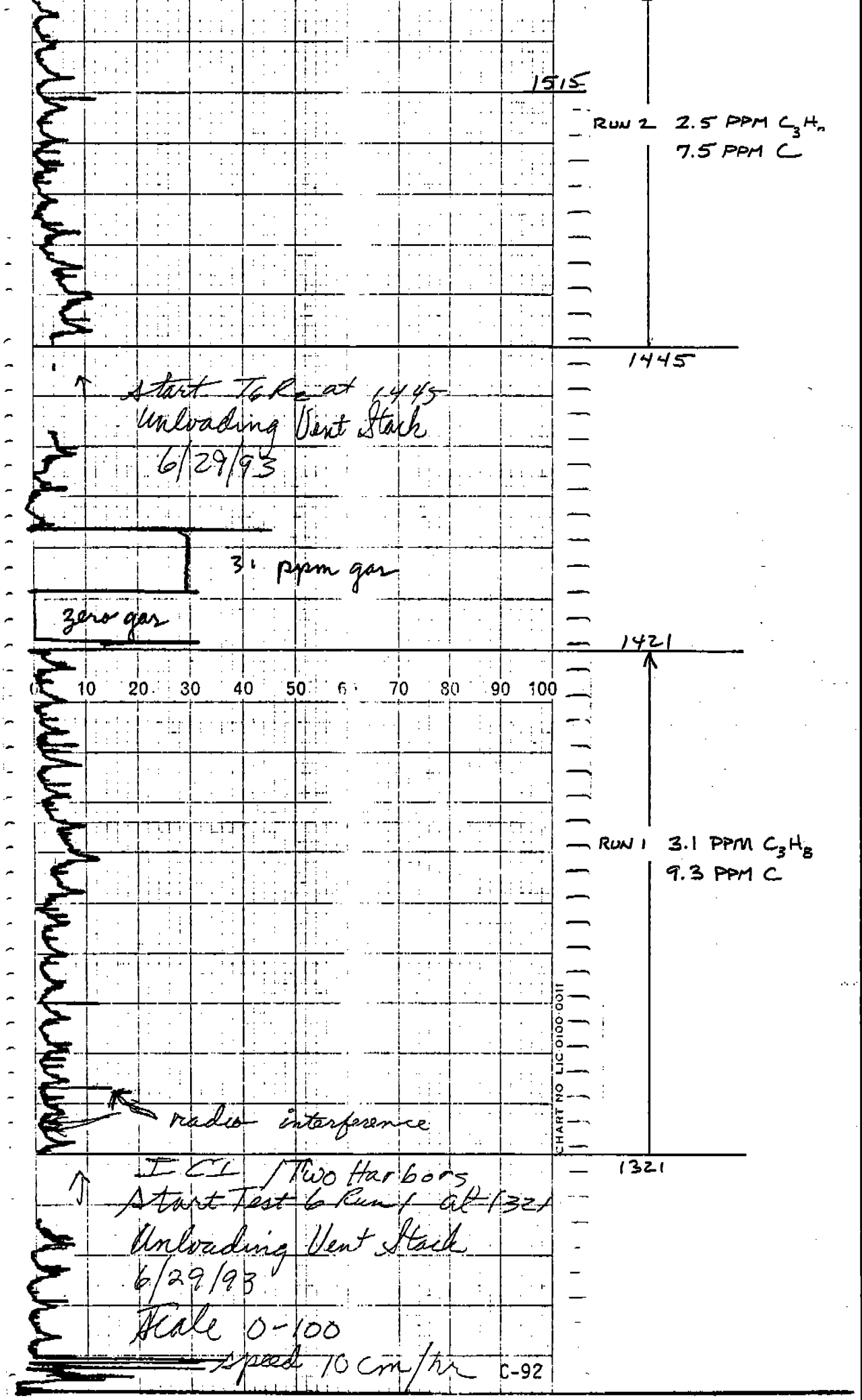
CF-023

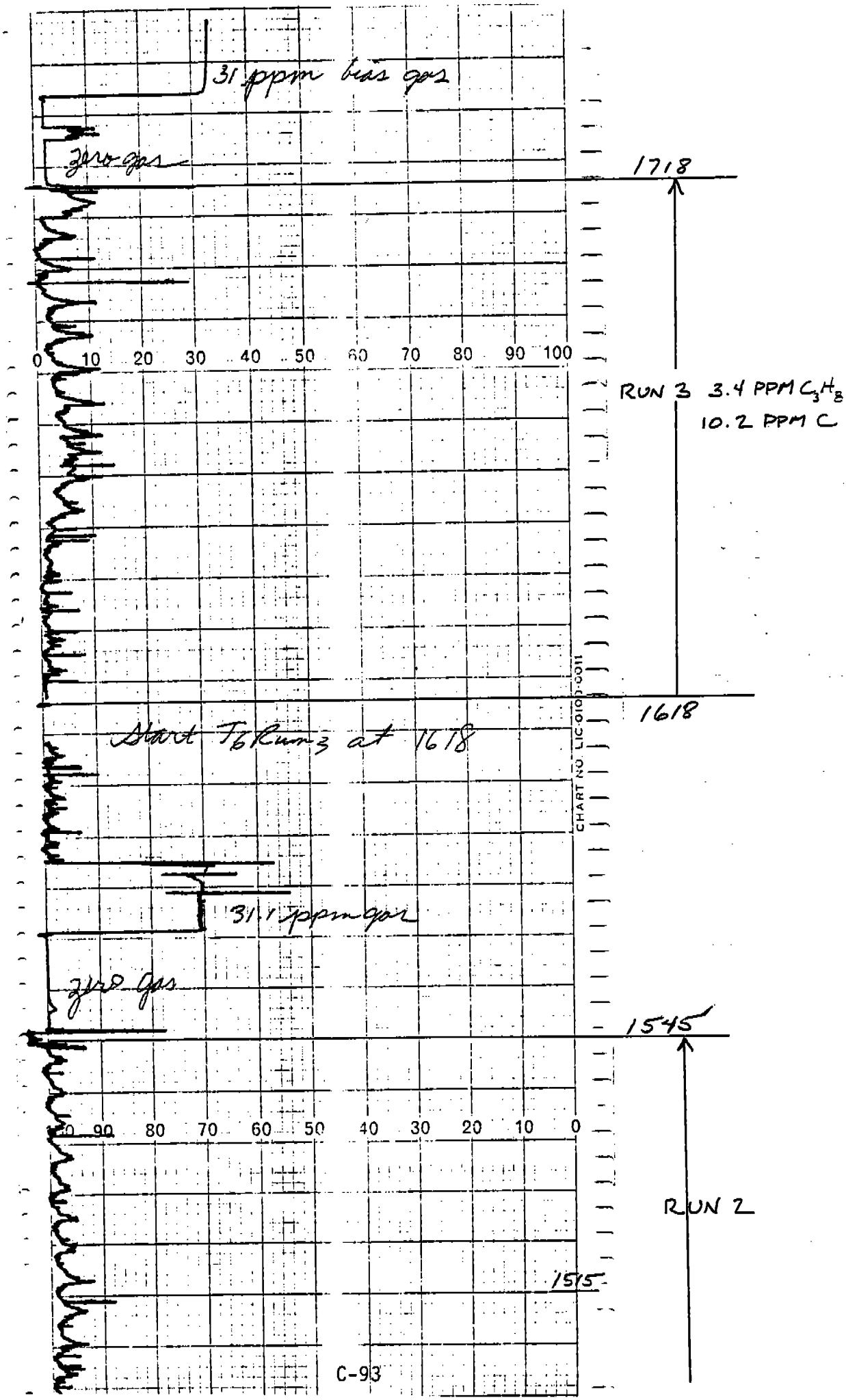
INTERPOLL LABORATORIES 'A METHOD 5 FIELD DATA SHEET

Job: JCI / Two Harbors
Source: UNLOADING VENT STACK
Date: 6/29/93 Test: 5 Run: 3
Operators: Dutt & JB
Meter Box No.: 7 ^H@ 1.97 IN WC
Gasmeter coeff.: .9985
Pitot No.: V23-5 Cp: .04
Bar. Press.: 29.9 inHg H2O: 1.5%
Nozzle No.: 6-4 Nozzle Dia.: 25 IN.

Traverse Point No.	Sampling Time (min)	Sample Volume (cf)	Velocity Head (inWC)	Orifice Meter (inWC)	Des. Vol. (cf)	VAC. inHg	Temperatures (°F) Stack	Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (%v/v)
	1617	752.51											
A 6	2.5	754.10	.25	1.19	4.03	4	78				91	91	AMBIENT
5	5	755.40	.18	.82	5.28	3	87				95	92	AIR
4	7.5	756.99	.29	1.33	6.88	4	89				96	92	
3	10	758.90	.51	2.32	8.99	4	93				97	93	
2	12.5	759.96	.07	.32	9.78	24	87				98	93	
1	15	759.96	.0	0	9.79	–	89				99	93	
B 6	17.5	761.96	.48	2.21	1.85	3	89				96	92	
5	20	764.06	.56	2.58	4.07	5	87				100	93	
4	22.5	766.57	.70	3.23	6.56	5.5	88				100	94	
3	25	768.66	.47	2.15	8.59	5	93				102	94	
2	27.5	770.36	.3	1.39	6.24	4	87				102	94	
1	30	771.46	.16	.74	1.44	2	88				102	94	
C 6	32.5	773.60	.5	2.32	3.55	5	88				102	94	
5	35	775.31	.27	1.25	5.11	4	87				103	94	
4	37.5	776.96	.37	1.72	6.93	4	87				101	94	
3	40	779.40	.63	2.90	9.29	5	91				102	94	
2	42.5	780.48	.13	.60	0.37	2	87				103	95	
1	45	780.48	0	0	0.37	–	88				101	94	
D 6	47.5	782.61	.56	2.59	2.61	4.5	88				101	95	
5	50	785.16	.72	3.33	5.14	5	88				102	95	
4	52.5	787.35	.58	2.70	7.42	5	85				104	95	
3	55	789.83	.67	3.11	9.87	5	88				104	96	
2	57.5	792.34	.65	3.04	2.29	5	84				104	96	
1	60	793.21	.09	.42	3.20		84				104	96	
	(1720)												
	θ = 60	Vm = 40.70		^H = 1.70							Avg. = 97		

S.00370


1515
RUN 2 2.5 PPM C_3H_n
7.5 PPM C
1445
Start TGR at 1445
Unloading Vent Stack
6/29/93
3.1 ppm gas
zero gas
1421
0 10 20 30 40 50 60 70 80 90 100
RUN 1 3.1 PPM C_3H_8
9.3 PPM C
CHART NO LIC 0100-0011
radio interference
1321
ICI / Two Harbors
Start Test 6 Run 1 at 1321
Unloading Vent Stack
6/29/93
Scale 0-100
Speed 10 cm/hr


31 ppm bias gas
zero gas
1718
0 10 20 30 40 50 60 70 80 90 100
RUN 3 3.4 PPM C_3H_8
10.2 PPM C
1618
Start T6 Run 3 at 1618
CHART NO. LIC-0100-0011
31.1 ppm gas
zero gas
1545
90 80 70 60 50 40 30 20 10 0
RUN 2
1515

INTERPOLL LABORATORIES - EPA METHOD 2 FIELD DATA SHEET

Job ICI / TWO HARBORS

Source UNLOADING VENT STACK

Test 10 Run ___ Date 7/1/93

Stack dimen. 55 x 55 IN.

Dry bulb ___ °F Wet bulb ___ °F

Manometer: ☒ Reg. ☐ Exp. ☐ Elec.

Barometric pressure 29.10 in Hg

Static pressure ___ in WC

Operators D. VanHoever & J. Bergstrom

Pitot No. 1123-5 C_p .84

MDI - NITRO

Cross-section View	Elevation View

Drawing of Test Site

Traverse Point No.	Fraction of Diameter	Distance from Stack Wall (in)	Distance from End of Port (in)	Velocity Pressure (in WC)	Temperature of gas (°F)
		Port length:	in.	Time start:	hrs
A 1					
2					
3					
4					
5					
6					
B 1					
2					
3					
4					
5					
6					
C 1					
2					
3					
4					
5					
6					
D 1					
2					
3					
4					
5					
6					
Temp. meas. device & S/N:				Time end:	hrs

R or nothing = reg. manometer; S= expanded; E=electronic

S-3921

INTERFOLL LABORATORIES EPA METHOD 5/17 SAMPLE LOG SHEET

Job ICI / TWO HARBOR Date 7/6/93 Test 10 Run 1
Source UNLOADING VENT STACK No. of traverse points 24
Method MDI-NITRO Filter holder: ERC Filter type: glass fiber

Sample Train Leak Check:

Pretest: < 0.02 cfm at 15 in. Hg. (vac) ☒
Postest: 0 cfm at 14 in. Hg. (vac) ☒

Particulate Catch Data:

No.s of filters used: Recovery solvent(s)

☐ acetone
☒ other(s) MECL2

No. of probe wash bottles: 1
Sample recovered by: DUH

Condensate Data:

Item	Weight(g)		
	Final	Tare	Difference
Impinger No. 1			
Impinger No. 2			
Impinger No. 3			
Condenser			
Desiccant	1414	1406	10
Total			10

Integrated Gas Sampling Data: – Ambient Air

Bag Pump No. _____ Box No. _____ Bag No. _____

Bag Material: 5-layer Aluminized Tedlar Size: 44 L

Pretest leak check: _____ cc/min at _____ in. Hg.

Time start: _____ (HRS) Time end: _____ (HRS)

Sampling rate: _____ cc/min Operator: _____

S/N of O_2 Analyzer used to monitor train outlet: ___

CF-023

S-0046RR

Nitro

CF-011

INTERPOLL LABORATORIES EPA METHOD 5 FIELD DATA SHEET

Job ICI Two HARBOR
Source Unloading Vent
Date 6/1/93 Test 10 Run 1

Operators DVH & J.B
Meter Box No. 6 ΔH@ .9996 IN WC
Counter cont. 177

Pitot No. 023-5 Cp .84
Bar. Press. 29.10 inHg HZD 1 X
Nozzle No. Nozzle Dia .251 IN.

Traverse Point No.	Sampling Time (min)	Sample Volume (cf)	Velocity Head (inWC)	Orifice Meter (inWC)	Dec. Vol. (cf)	VAC. inHg	Temperatures (°F) Stack	Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (%v/v)
	0754	794.10											
C 6	2.5	796.36	.61	2.47	6.36	4	88	NA	NA	NA	88	88	AMBIENT
5	5	798.57	.60	2.47	8.65	4	88				88	88	AIR
4	7.5	800.54	.49	2.02	0.71	4	89				88	87	
3	10	802.78	.58	2.38	2.95	4	89				89	88	
2	12.5	805.00	.54	2.24	5.12	4	85				89	87	
1	15	806.05	.09	.37	6.01	1	85				89	88	
D 6	17.5	807.97	.43	1.79	7.96	1	84				90	89	
5	20	809.40	.21	.87	9.32	1	87				90	89	
4	22.5	811.46	.51	2.11	1.43	4	87				90	89	
3	25	813.54	.48	1.98	3.48	4	89				89	89	
2	27.5	814.97	.20	.82	4.81	2	89				89	90	
1	30	815.86	.12	.50	5.84	2	86				90	89	
A 6	32.5	817.80	.48	1.99	7.89	4	86				90	90	
5	35	819.46	.27	1.12	9.44	4	85				91	90	
4	37.5	821.06	.30	1.26	1.07	4	82				91	90	
3	40	822.68	.33	1.37	2.78	4	87				92	91	
2	42.5	823.48	.02	.08	3.20	1	87				92	91	
1	45	823.48	0	00	3.20		90				91	91	
B 6	47.5	825.60	.63	2.60	5.55	5	90				92	91	
5	50	827.99	.65	2.68	7.93	5	90				92	91	
4	52.5	830.30	.60	2.49	0.23	5	86				92	91	
3	55	832.66	.66	2.74	2.64	5	87				92	91	
2	57.5	835.00	.64	2.66	5.02	5	87				92	91	
1	60	836.05	.12	.50	6.05		85				92	91	
	0856												
	θ = 60	Vm = 39.95		ΔH = 1.65							Avg. = 89.9		

INTERPOLL LABORATORIES EPA METHOD 5/17 SAMPLE LOG SHEET

Job TCI / TWO HARBOR
Source UNLOADING VENT STACK
Method MDE-NITRO Filter holder: ERC

Date 7/1/92 Test 10 Run 2
No. of traverse points 24
Filter type: glass fiber

Sample Train Leak Check:

Pretest: < 0.02 cfm at 15 in. Hg. (vac) ☒
Postest: 0 cfm at 11 in. Hg. (vac) ☒

Particulate Catch Data:

No.s of filters used:

Recovery solvent(s)

☐ acetone
☒ other(s) MECL2

No. of probe wash bottles: 1
Sample recovered by: DWH

Condensate Data:

Item	Weight(g)		
	Final	Tare	Difference
Impinger No. 1			
Impinger No. 2			
Impinger No. 3			
Condenser			
Desiccant	1372	1361	11
Total			11

Integrated Gas Sampling Data: -Ambient Air

Bag Pump No. _____ Box No. _____ Bag No. _____

Bag Material: 5-layer Aluminized Tedlar Size: 44 L

Pretest leak check: _____ cc/min at _____ in. Hg.

Time start: _____ (HRS) Time end: _____ (HRS)

Sampling rate: _____ cc/min Operator: _____

S/N of O_2 Analyzer used to monitor train outlet: ___

CF-023

S-0046RR

INTERPOLL LABORATORIES EPA METHOD 5 FIELD DATA SHEET

Job: ICI / TWO HARBOR
Source: UNLOADING VENT STACK
Date: 7/1/93 Test: 10 Run: 1

Operators: DUH & J.B
Meter Box No.: 6 ΔH@ 1.77 IN WC
Counter confir.: .9996

Pitot No.: V23-5 Cp: .84
Bar. Press.: 29.10 inHg H2O: 1 %
Nozzle No.: Nozzle Dia: .257 IN.

Traverse Point No.	Sampling Time (min)	Sample Volume (cf)	Velocity Head (inWC)	Orifice Meter (inWC)	Dec. Vol. (cf)	VAC. inHg	Temperatures (°F) Stack	Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (%v/v)
	1003	836.20											
C 6	2.5	838.46	.58	2.41	8.45	5	85				91	91	AMBIENT
5	5	840.69	.61	2.53	0.77	5	86				91	91	AIR
4	7.5	842.76	.45	1.87	2.77	5	86				92	91	
3	10	844.99	.56	2.33	4.99	5	86				93	92	
2	12.5	847.22	.54	2.23	7.23	5	91				93	92	
1	15	848.21	.12	.49	8.20	3	90				93	92	
D 6	17.5	850.30	.48	1.99	0.26	5	90				93	92	
5	20	851.75	.25	1.04	1.75	4	86				93	92	
4	22.5	853.27	.25	1.04	3.24	4	87				93	92	
3	25	855.21	.46	1.91	5.26	4	88				93	92	
2	27.5	856.74	.24	1.00	6.72	4	89				94	92	
1	30	856.74	0	0	6.77	—	86				94	93	
A 6	32.5	858.02	.20	.83	8.06	3	86				93	93	
5	35	859.52	.24	1.0	9.52	4	88				93	92	
4	37.5	861.11	.27	1.12	1.07	4	85				93	92	
3	40	862.95	.38	1.58	2.90	4	89				93	92	
2	42.5	863.19	0	.00	2.90	—	87				92	91	
1	45	863.19	0	.00	2.90	—	86				91	91	
B 6	47.5	865.04	.52	2.16	5.05	5	86				91	91	
5	50	867.40	.63	2.61	7.40	5	88				92	91	
4	52.5	869.76	.67	2.77	9.82	5	88				92	91	
3	55	872.16	.60	2.48	2.12	5	89				92	91	
2	57.5	874.45	.62	2.56	4.45	5	89				92	91	
1	60	875.35	.06	.24	5.18		91						
	1105												
	θ = 60	Vm = 39.15		ΔH = 1.37							Avg. = 92		

INTERPOLL LABORATORIES EPA METHOD 5/17 SAMPLE LOG SHEET

Job ICI / Two Harbors Date 2/1/93 Test D Run 3
Source Unloading Vent Stack No. of traverse points 24
Method MDI-Nitro Filter holder: ERC Filter type: glass fiber

Sample Train Leak Check:

Pretest: < 0.02 cfm at 15 in. Hg. (vac) ☒
Postest: 0 cfm at 13 in. Hg. (vac) ☒

Particulate Catch Data:

No.s of filters used: Recovery solvent(s)

☐ acetone
☒ other(s) MECL

No. of probe wash bottles: 1
Sample recovered by: Dubb

Condensate Data:

Item	Weight(g)		
	Final	Tare	Difference
Impinger No. 1			
Impinger No. 2			
Impinger No. 3			
Condenser			
Desiccant	1426	1416	10
Total			10

Integrated Gas Sampling Data: — Ambient Air

Bag Pump No. _____ Box No. _____ Bag No. _____

Bag Material: 5-layer Aluminized Tedlar Size: 44 L

Pretest leak check: _____ cc/min at _____ in. Hg.

Time start: _____ (HRS) Time end: _____ (HRS)

Sampling rate: _____ cc/min Operator: _____

S/N of O_2 Analyzer used to monitor train outlet: ___

CF-023

NITRO

CF-D11

INTERPOLL LABORATORIES EPA METHOD 5 FIELD DATA SHEET

Job: ICI / Two Harbors
Source: Unloading Tent Stack
Date: 7/1/93 Test: 10 Run: 3

Operators: DWH & J.B
Meter Box No.: 6 ΔH@ 1.77 IN WC
Gasmeter coeff.: .9996

Pitot No.: V23-5 Cp: .84
Bar. Press.: 29.10 inHg H2O: .7 %
Nozzle No.: Nozzle Dia: .251 IN.

Traverse Point No.	Sampling Time (min)	Sample Volume (cf)	Velocity Head (inWC)	Orifice Meter (inWC)	Dec. Vol. (cf)	VAC. inHg	Temperatures (°F) Stack	Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (%v/v)
	1214	825.71									93	93	AMBIENT
C 6	2.5	878.16	.66	2.75	8.13	4	88				95	94	AIR
5	5	880.40	.64	2.66	0.51	4	88				96	94	
4	7.5	882.56	.47	1.96	2.55	4	89				96	94	
3	10	884.82	.60	2.50	4.86	4	89				96	95	
2	12.5	887.17	.61	2.55	7.20	4	87				96	95	
1	15	887.90	.05	.21	7.87	1	83				95	94	
D 6	17.5	889.66	.35	1.46	9.64	3	88				96	94	
5	20	890.95	.15	.63	0.81	2	83				96	95	
4	22.5	892.54	.31	1.29	2.47	3	88				96	95	
3	25	894.80	.56	2.34	4.71	5	88				97	95	
2	27.5	896.36	.27	1.12	6.26	3	91				96	95	
1	30	896.36	0	00	6.26	—	92				96	94	
A 6	32.5	897.93	.33	1.38	7.98	3	89				96	94	
5	35	898.98	.10	.42	8.93	1	87				96	96	
4	37.5	900.71	.35	1.47	0.71	3	86				91	91	
3	40	903.20	.29	1.21	2.32	3	87				91	91	
2	42.5	903.54	.00	0	2.32	—	91				91	91	
1	45	903.54	0	0	2.32	—	86				91	91	
B 6	47.5	905.78	.62	2.57	4.65	5	88				93	91	
5	50	908.30	.66	2.73	7.05	5	89				93	91	
4	52.5	910.40	.50	2.08	9.16	5	87				93	92	
3	55	912.73	.64	2.67	1.54		84				93	92	
2	57.5	915.05	.59	2.45	3.82		87				94	93	
1	60	916.09	.12	.49	4.85		86						
	1353												
	θ = 60	Vm = 39.14		ΔH = 1.34							Avg. = 93.5		

METER STOPPED → RESTART 901.94 (-1.24)

C-100

C-00270

INTERPOLL LABORATORIES - EPA METHOD 2 FIELD DATA SHEET

Job ICI TWO HARBORS

Source UNLOADING VENT STACK

Test 11 Run 0 Date 7-1-93

Stack dimen. 55X55 IN.

Dry bulb ____ °F Wet bulb ____ °F

Manometer: ☒ Reg. ☐ Exp. ☐ Elec.

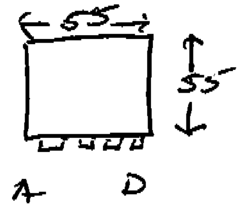
Barometric pressure 29.10 in Hg

Static pressure -.62 in WC

Operators QH - SE

Pitot No. 23U-4 C_p .84

MDI TRAIN L

Cross-section View	Elevation View
	

Drawing of Test Site

Traverse Point No.	Fraction of Diameter	Distance from Stack Wall (in)	Distance from End of Port (in)	Velocity Pressure (in WC)	Temperature of gas (°F)
		Port length: 4 in.		Time start: hrs	
Temp. meas. device & S/N:				Time end: hrs	

C-101

R or nothing = reg. manometer; S= expanded; E=electronic

S-3921

INTERPOLL LABORATORIES EPA METHOD 5/17 SAMPLE LOG SHEET

FL

Job ICI - TWO HARBORS
Source UNLOADING VENT
Method M01 FL Filter holder: GLASS

Date 7-1-93 Test 11 Run 1
No. of traverse points
Filter type:

Sample Train Leak Check:

Pretest: < 0.02 cfm at 15 in. Hg. (vac) ☒
Postest: < .02 cfm at 10 in. Hg. (vac) ☐
LESS THAN

Particulate Catch Data:

No.s of filters used:

Recovery solvent(s)

☐ acetone
☒ other(s) 1,2 MP IN TOLUENE

No. of probe wash bottles: 1
Sample recovered by: GH

Condensate Data:

Item	Weight(g)		
	Final	Tare	Difference
Impinger No. 1	100	128	-28
Impinger No. 2	81	85	-4
Impinger No. 3			
Condenser			
Desiccant			
Total			-32

Integrated Gas Sampling Data: AMBIENT

Bag Pump No. NA Box No. NA Bag No. NA

Bag Material: 5-layer Aluminized Tedlar Size: 44 L

Pretest leak check: _____ cc/min at _____ in. Hg.

Time start: _____ (HRS) Time end: _____ (HRS)

Sampling rate: _____ cc/min Operator: _____

S/N of O_2 Analyzer used to monitor train outlet: ___

CF-023

CF-011

INTERPOLL LABORATORIES A METHOD 5 FIELD DATA SHEET

Job ICI TWO HARBORS
Source UNLOADER VENT STACK
Date 7-1-93 Test 11 FL Run 1

Operators GH & SE
Meter Box No. 3 ΔH@ 1.74 IN WC
Gasmeter coeff. .9970

Pitot No. 23J Cp .84
Bar. Press. 29.10 inHg H2O 1.5 x
Nozzle No. 27-3 Nozzle Dia .112 IN.

Traverse Point No.	Sampling Time (min)	Sample Volume (cf)	Velocity Head (inWC)	Orifice Meter (inWC)	Des. Vol. (cf)	VAC. inHg	Temperatures (°F) Stack	Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (xv/v)
	(0754)	497.35											
B 6	3	498.68	.50	.56	8.67	6	88			39	89	89	AMBIENT
5	6	499.96	.48	.53	9.96	6	87			40	89	89	
4	9	501.39	.61	.68	1.42	6	87			41	90	89	
3	12	502.70	.62	.69	2.90	8	89			42	91	90	
2	15	504.27	.55	.61	4.28	8	90			42	92	90	
1	18	505.03	.15	.16	5.01	1	84			40	93	90	
C 6	21	506.21	.42	.47	6.23	5	85			41	95	90	
5	24	507.60	.60	.67	7.69	5	89			39	94	90	
4	27	508.98	.48	.54	8.99	5	88			39	95	91	
3	30	510.48	.60	.67	0.45	7	88			40	95	91	
2	33	511.73	.45	.50	1.71	6	87			40	95	91	
1	36	513.05	.48	.54	3.02	6	85			39	98	91	
D 6	39	514.19	.38	.43	4.19	5	85			39	96	92	
5	42	515.15	.25	.28	5.13	4	85			41	97	93	
4	45	516.29	.40	.45	6.33	4	87			42	97	93	
3	48	517.67	.50	.56	7.67	4	86			40	97	95	
2	51	518.62	.28	.31	8.67	3	87			40	98	92	
1	54	519.21	.08	.09	9.21	1	85			40	98	92	
A 6	57	520.25	.30	.34	0.24	4	85			40	96	92	
5	60	521.09	.20	.22	1.09	3	85			39	97	92	
4	63	521.96	.20	.22	1.93	3	88			40	98	93	
3	66	523.05	.35	.39	3.05	1	88			41	97	93	
2	67	523.71	.12	.13	3.71	1	87			42	98	93	
1	72	523.71	.00	.00	3.71	1	87			40	95	92	
	0908												
	θ = 72	Vm = 26.36		ΔH = .42							Avg. = 95.6		

S-0037R

INTERFOLL LABORATORIES EPA METHOD 5/17 SAMPLE LOG SHEET

Job ICI TWOHARBORS
Source UNLOADING VENT STACK
Method M01 Filter holder: GLASS

Date 7-1-93 Test 11 Run 2
No. of traverse points 4
Filter type: GF

Sample Train Leak Check:

Pretest: < 0.02 cfm at 15 in. Hg. (vac) ☒
Postest: .02 cfm at 10 in. Hg. (vac) ☒
LESS THAN

Particulate Catch Data:

No.s of filters used: _____

Recovery solvent(s)

☐ acetone
☒ other(s) 1,2 MP INTOLUENE

No. of probe wash bottles: 1
Sample recovered by: GH

Condensate Data:

Item	Weight (g)		
	Final	Tare	Difference
Impinger No. 1	106	127	-21
Impinger No. 2	82	85	-3
Impinger No. 3			
Condenser			
Desiccant			
Total			-25

Integrated Gas Sampling Data: -AMBIENT

Bag Pump No. NA Box No. _____ Bag No. _____

Bag Material: 5-layer Aluminized Tedlar Size: 44 L

Pretest leak check: _____ cc/min at _____ in. Hg.

Time start: _____ (HRS) Time end: _____ (HRS)

Sampling rate: _____ cc/min Operator: _____

S/N of O_2 Analyzer used to monitor train outlet: ___

CF-023

S-0046RR

INTERPOLL LABORATORIES METHOD 5 FIELD DATA SHEET

Job ICI TWO HARBORS
Source UNLOADER VENT STACK
Date 7-1-93 Test 1L Run 2

Operators GH & SE
Meter Box No. 3 ΔH@ 1.74 IN WC
Gasmeter coeff. .9970

Pitot No. 23 1.6 Cp .87
Bar. Press. 29.10 inHg H2O 1.5 %
Nozzle No. 27-3 Nozzle Dia .182 IN.

Traverse Point No.	Sampling Time (min)	Sample Volume (cf)	Velocity Head (inWC)	Orifice Meter (inWC)	Dec. Vol. (cf)	VAC. inHg	Temperatures (°F) Stack	Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (%v/v)
	(1003)	524.280											
A 6	3	525.10	.20	.22	5.12	1	85			41	95	95	
5	6	526.00	.22	.25	6.01	2	86			42	95	95	
4	9	526.74	.15	.16	6.74	1	88			43	95	94	
3	12	527.92	.39	.43	7.92	4	91			40	96	95	
2	15	528.36	.05	.05	8.34	1	90			41	97	95	
1	18	528.34	.00	.00	8.34	0	86			40	96	94	
B 6	21	529.61	.45	.51	9.61	5	86			40	96	93	
B 5	24	530.95	.48	.54	0.92	5	86			41	98	94	
4	27	532.40	.61	.69	2.40	5	88			39	99	94	
3	30	533.93	.63	.71	3.90	6	91			39	99	94	
2	33	535.30	.55	.62	5.30	7	90			40	99	94	
1	36	536.25	.35	.28	6.25	7	88			39	98	93	
C 6	39	537.59	.50	.56	7.59	5	88			40	98	94	
5	42	539.05	.60	.68	9.05	6	87			40	98	94	
4	45	540.39	.50	.56	0.39	6	86			39	98	93	
3	48	541.85	.60	.67	1.85	6	89			39	98	93	
2	51	543.32	.60	.67	3.32	6	88			40	99	95	
1	54	543.74	.05	.05	3.74	1	88			39	96	93	
D 6	57	545.07	.50	.56	5.07	5	88			40	97	93	
5	60	546.25	.38	.42	6.24	5	89			40	99	94	
4	63	547.37	.35	.39	7.36	5	91			43	99	94	
3	66	548.68	.50	.56	8.69	5	89			41	99	94	
2	69	549.86	.38	.42	9.86	5	91			41	98	93	
1	72	550.46	.10	.11	0.46	3	91			41	99	93	
	(1104)												
Σ	θ = 72	Vm = 26.18		ΔH = .42							Avg. 95.6		

INTERPOLL LABORATORIES EPA METHOD 5/17 SAMPLE LOG SHEET

Job ICI TWO HARBORS Date 7-1-93 Test 11 Run 3
Source UNLOADER VENT STACK No. of traverse points 24
Method MP1 Filter holder: GLASS Filter type: GF

Sample Train Leak Check:

Pretest: < 0.02 cfm at 15 in. Hg. (vac) ☒
Postest: .00 cfm at 10 in. Hg. (vac) ☒

Particulate Catch Data:

No.s of filters used: Recovery solvent(s)

☐ acetone
☒ other(s) 1:2 MC IN TOLUENE

No. of probe wash bottles: 1
Sample recovered by: GA

Condensate Data:

Item	Weight(g)		
	Final	Tare	Difference
Impinger No. 1	106 10	128	-22
Impinger No. 2	82	85	-3
Impinger No. 3			
Condenser			
Desiccant			
			-25
Total			

Integrated Gas Sampling Data:

Bag Pump No. NA Box No. NA Bag No. NA

Bag Material: 5-layer Aluminized Tedlar Size: 44 L

Pretest leak check: _____ cc/min at _____ in. Hg.

Time start: _____ (HRS) Time end: _____ (HRS)

Sampling rate: _____ cc/min Operator: _____

S/N of O_2 Analyzer used to monitor train outlet: ___

CF-023

S-0046RR

INTERPOLL LABORATORIES 'A METHOD 5 FIELD DATA SHEET

Job ICI TWO HARBORS
Source UNLOADER VENT STACK
Date 7-1-93 Test 11 Run 3

Operators GH & SE
Meter Box No. 3 ΔH@ 1.74 IN WC
Gasmeter coeff. .9970

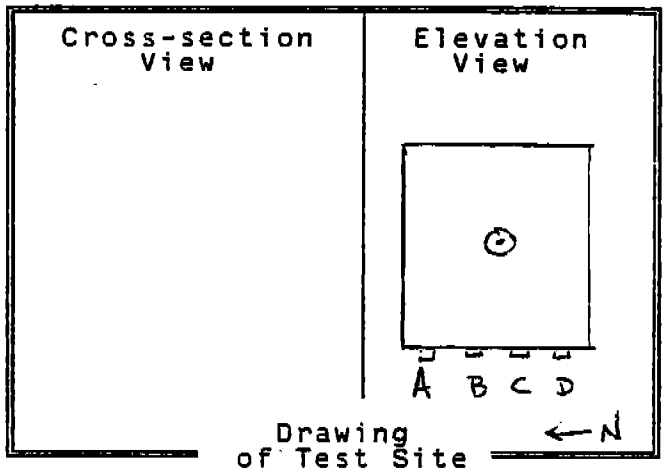
Pitot No. 23 16 Cp .84
Bar. Press. 29.10 inHg H2O %
Nozzle No. ____ Nozzle Dia .182 IN.

Traverse Point No.	Sampling Time (min)	Sample Volume (cf)	Velocity Head (inWC)	Orifice Meter (inWC)	Dec. Vol. (cf)	VAC. inHg	Temperatures (°F) Stack	Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (%v/v)
	(1214)	551.3											
B 6	3	552.72	.57	.64	2.72	5	88			40	98	97	AMBIENT
5	6	554.15	.57	.64	4.15	5	89			41	98	97	
4	9	555.64	.61	.69	5.63	6	90			40	99	96	
3	12	557.10	.60	.68	7.10	6	87			40	100	97	
2	15	558.63	.64	.73	8.63	7	93			39	101	99	
1	18	560.03	.58	.65	0.08	6	90			39	101	97	
C 6	21	561.47	.54	.61	1.47	5	90			40	101	97	
5	24	562.89	.60	.68	2.94	5	88			39	101	96	
4	27	564.22	.50	.56	4.28	5	91			40	101	96	
3	30	565.68	.54	.61	5.68	5	92			42	101	97	
2	33	567.08	.55	.62	7.09	6	89			43	101	96	
1	36	567.68	.09	.10	7.66	6	87			40	102	97	
D 6	39	568.89	.40	.48	8.87	5	85			41	102	97	
5	42	569.92	.30	.34	9.91	5	87			40	97	99	
4	45	571.09	.38	.43	1.08	5	89			39	100	97	
3	48	572.42	.50	.56	2.42	5	88			40	101	97	
2	51	573.60	.38	.43	3.60	3	89			42	101	97	
1	54	574.20	.10	.11	4.20	1	87			40	101	97	
A 6	57	575.31	.34	.38	5.31	1	87			40	100	98	
5	60	576.09	.17	.19	6.09	1	91			41	100	98	
4	63	577.08	.27	.30	7.08	2	86			41	100	97	
3	66	578.16	.32	.36	8.16	4	88			39	101	98	
2	69	578.59	.05	.05	8.59	1	90			39	103	99	
1	72	578.59	.00	.00	8.59	0	90			39	100	99	
	(1424)												
	θ = 72	Vm = 27.29		ΔH = .45							Avg. = 98.7		

S-0037R

INTERPOLL LABORATORIES - EPA METHOD 2 FIELD DATA SHEET

Job ICI / TWO HARBORS
Source UNLOADING VENT STACK
Test 12 Run ___ Date 7/1/93
Stack dimen. 55 x 55 IN.
Dry bulb ___ °F Wet bulb ___ °F
Manometer: ☒ Reg. ☐ Exp. ☐ Elec.
Barometric pressure 29.15 in Hg
Static pressure -.80 in WC
Operators D. Van Hoever & J. Bergstrom
Pitot No. V23-5 Cp .84



MDI TRAIN F

Traverse Point No.	Fraction of Diameter	Distance from Stack Wall (in)	Distance from End of Port (in)	Velocity Pressure (in WC)	Temperature of gas (°F)
		Port length:	in.	Time start:	hrs
A 1					
2					
3					
4					
5					
6					
B 1					
2					
3					
4					
5					
6					
C 1					
2					
3					
4					
5					
6					
D 1					
2					
3					
4					
5					
6					
Temp. meas. device & S/N: DDT #18				Time end:	hrs

R or nothing = reg. manometer; S= expanded; E=electronic

S-3921

INTERPOLL LABORATORIES EPA METHOD 5/17 SAMPLE LOG SHEET

Job ICI / TWO HARBORS
Source UNLOADING VENT STACK
Method MDL-FF Filter holder: glass

Date 7/1/93 Test 12 Run 1
No. of traverse points 24
Filter type: glass fiber

Sample Train Leak Check:

Pretest: < 0.02 cfm at 15 in. Hg. (vac) ☒
Postest: 0 cfm at 15 in. Hg. (vac) ☒

Particulate Catch Data:

No.s of filters used: _____

Recovery solvent(s)

☐ acetone
☒ other(s) 1-2 MP IN TOLUENE

No. of probe wash bottles: 1
Sample recovered by: DCRT

Condensate Data:

Item	Weight (g)		
	Final	Tare	Difference
Impinger No. 1	95	126	-31
Impinger No. 2	78	85	-7
Impinger No. 3			
Condenser			
Desiccant			
Total			-38

Integrated Gas Sampling Data: -Ambient Air

Bag Pump No. _____ Box No. _____ Bag No. _____

Bag Material: 5-layer Aluminized Tedlar Size: 44 L

Pretest leak check: _____ cc/min at _____ in. Hg.

Time start: _____ (HRS) Time end: _____ (HRS)

Sampling rate: _____ cc/min Operator: _____

S/N of O_2 Analyzer used to monitor train outlet: ___

CF-023

S-0046RR

FF

CF-D11

INTERPOLL LABORATORIES EPA METHOD 5 FIELD DATA SHEET

Job ICI TWO HARBORS
Source UNLOADER VENT STACK
Date 7-1-93 Test 12 Run 1

Operators SE
Meter Box No. ^H@ 17 IN WC
Gasmeter coeff.

Pitot No. 23 11 0 Cp .84
Bar. Press. 29.10 inHg H2O 15 x
Nozzle No. Nozzle Dia IN.

Traverse Point No.	Sampling Time (min)	Sample Volume (cf)	Velocity Head (inWC)	Orifice Meter (inWC)	Des. Vol. (cf)	VAC. inHg	Temperatures (°F) Stack	Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (xv/v)
	0754	876.60											
A 6	3	877.53	.23	.30	7.51	4	88			46	82	82	AMBIENT
5	6	878.40	.15	.20	8.25	4	87				83	83	AIR
4	9	879.23	.27	.36	9.25	4	87			46	84	83	
3	12	880.50	.46	.61	0.55	7	89				85	83	
2	15	880.5	0	.00	0.55	—	85			47	87	84	
1	18	880.50	0	.00	0.55		84				85	84	
B 6	21	882.00	.60	.81	2.03	9	87			46	88	85	
5	24	883.44	.61	.82	3.54	9	89				90	86	
4	27	885.03	.62	.84	5.06	9	88			45	92	86	
3	30	886.67	.65	.88	6.62	8	89				92	87	
2	33	888.10	.59	.80	8.10	8	89			44	93	88	
1	36	888.96	.19	.26	8.95	5	85				94	88	
C 6	39	890.65	.55	.76	0.40	8	82			43	94	88	
5	42	891.99	.64	.88	1.96	8	85				94	88	
4	45	893.46	.53	.72	3.37	8	87			42	95	88	
3	48	894.80	.53	.72	4.79	8	87				95	89	
2	51	896.20	.60	.82	6.30	8	85			41	95	90	
1	54	897.10	.13	.17	7.01	4	85				96	90	
D 6	57	898.42	.41	.56	8.26	5	85			43	94	90	
5	60	899.46	.30	.41	9.33	4	85				95	90	
4	63	900.27	.22	.30	0.24	4	85			42	96	90	
3	66	901.48	.45	.61	1.55	6	88				94	90	
2	69	901.97	.05	.06	1.99		88			41	96	91	
1	72	901.97	0	.00	1.99		88				94	91	
	C0908												
	θ = 72	Vm = 25.37		^H = .50							Avg. = 89.7		

INTERFOLL LABORATORIES EPA METHOD 5/17 SAMPLE LOG SHEET

Job ICI TWO HARBORS Date 7-1-93 Test 12 Run 2
Source No. of traverse points 34
Method M01 Filter holder: Filter type:

Sample Train Leak Check:

Pretest: < 0.02 cfm at 15 in. Hg. (vac) ☐
Postest: ____ cfm at ____ in. Hg. (vac) ☐

Particulate Catch Data:

No.s of filters used: Recovery solvent(s)

☐ acetone
☐ other(s)

No. of probe wash bottles:
Sample recovered by:

Condensate Data:

Item	Weight(g)		
	Final	Tare	Difference
Impinger No. 1	116	129	-13
Impinger No. 2	77	81	-4
Impinger No. 3			
Condenser			
Desiccant			
Total			-17

Integrated Gas Sampling Data:

Bag Pump No. ____ Box No. ____ Bag No. ____

Bag Material: 5-layer Aluminized Tedlar Size: 44 L

Pretest leak check: ____ cc/min at ____ in. Hg.

Time start: ____ (HRS) Time end: ____ (HRS)

Sampling rate: ____ cc/min Operator: ____

S/N of O_2 Analyzer used to monitor train outlet: ____

CF-023

S-0046RR

INTERPOLL LABORATORIES EPA METHOD 5 FIELD DATA SHEET

Job: ICI TWO HARBORS
Source: Unloading Vent Stack
Date: 7/1/93 Test: 12 Run: 2

Operators: DWH & JB
Meter Box No.: 7 ΔH@: 1.97 IN WC
Computer contl.: 9983

Pitot No.: V23-5 Cp: .84
Bar. Press.: 29.10 inHg H2O X
Nozzle No.: Nozzle Dia.: .183 IN.

Traverse Point No.	Sampling Time (min)	Sample Volume (cf)	Velocity Head (inWC)	Orifice Meter (inWC)	Dec. Vol. (cf)	VAC. inHg	Temperatures (°F) Stack	Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (%v/v)
	1003	902.32											
B 6	3	903.75	.56	.76	3.77	13	85			41	86	86	AMBIENT
5	6	905.26	.58	.78	5.24	14	86				88	86	AIR
4	9	906.75	.58	.79	6.71	14	86			42	89	87	
3	12	908.27	.63	.85	8.24	14	91				90	87	
2	15	909.66	.51	.69	9.61	13	90			42	90	87	
1	18	910.43	.17	.23	0.41	4	90				90	88	
C 6	21	911.77	.40	.54	1.63	11	90			43	91	88	
5	24	913.32	.66	.90	3.21	14	87				92	88	
4	27	914.80	.63	.86	4.75	14	88			40	93	89	
3	30	916.27	.57	.77	6.21	14	91				93	89	
2	33	917.91	.60	.81	7.71	14	90			42	93	89	
1	36	918.48	.1	.13	8.32	5	90				93	89	
D 6	39	919.86	.40	.54	9.56	6	88			43	92	89	
5	42	920.78	.26	.35	0.55	6	87				92	89	
4	45	921.81	.36	.49	1.71	6	87			42	92	89	
3	48	923.20	.58	.79	3.19	14	89				91	90	
2	51	924.77	.35	.89	4.76	14	88			41	94	90	
1	54	925.40	.08	.10	5.31	4	88				95	90	
A 6	57	926.17	.20	.27	6.18	4	88			40	95	90	
5	60	927.03	.16	.21	6.96	4	89				93	90	
4	63	927.96	.26	.35	7.85	4	91			40	94	90	
3	66	929.32	.48	.65	9.30	10	89				94	90	
2	69	929.32	0	0	9.30		91				95	91	
1	72	929.32	0	0	9.30		91				91	91	
	1120												
	θ = 72	Vm = 27.00		ΔH = .51							Avg. = 90.4		

INTERFOLL LABORATORIES EPA METHOD 5/17 SAMPLE LOG SHEET

Job ICI TWO HARBORS
Source UNLOADING VENT STACK
Method MDI Filter holder: glass

Date 7/1/93 Test 12 Run 3
No. of traverse points _____
Filter type: _____

Sample Train Leak Check:

Pretest: < 0.02 cfm at 15 in. Hg. (vac) ☒
Postest: 0 cfm at 15 in. Hg. (vac) ☒

Particulate Catch Data:

No.s of filters used: _____

Recovery solvent(s)

☐ acetone
☒ other(s) 1-2 MP IN TOLUENE

No. of probe wash bottles: 1
Sample recovered by: Duff

Condensate Data:

Item	Weight (g)		
	Final	Tare	Difference
Impinger No. 1	107	139	-32
Impinger No. 2	83	86	-3
Impinger No. 3			
Condenser			
Desiccant			
Total			-35

Integrated Gas Sampling Data: - Ambient Air

Bag Pump No. _____ Box No. _____ Bag No. _____

Bag Material: 5-layer Aluminized Tedlar Size: 44 L

Pretest leak check: _____ cc/min at _____ in. Hg.

Time start: _____ (HRS) Time end: _____ (HRS)

Sampling rate: _____ cc/min Operator: _____

S/N of O_2 Analyzer used to monitor train outlet: ___

CF-023

INTERPOLL LABORATORIES EPA METHOD 5 FIELD DATA SHEET

Job: ICI / Two Harbor
Source: Unloading Vent Stack
Date: 7/1/93 Test: 2 Run: 3

Operators: DWH & J.B
Meter Box No.: 7 ΔH@: 1.97 IN WC
Gasmeter coeff.: .9983

Pitot No.: V23-5 Cp: .84
Bar. Press.: 29.10 inHg H2O I X
Nozzle No.: ____ Nozzle Dia.: .185 IN.

Traverse Point No.	Sampling Time (min)	Sample Volume (cf)	Velocity Head (inWC)	Orifice Meter (inWC)	Dec. Vol. (cf)	VAC. inHg	Temperatures (°F) Stack	Probe	Oven	Impg.	Gas/In	Gas/Out	Oxygen (%v/v)
	1215	929.69											
A 6	3	930.75	.23	.31	0.62	6	88			41	91	91	AMBIENT
5	6	931.60	.17	.21	1.36	6	88				95	92	AIR
4	9	932.25	.23	.31	2.29	5	90			43	95	92	
3	12	933.56	.39	.53	3.51	10	87				95	92	
2	15	934.82	.47	.65	4.86	10	83			44	98	93	
1	18	934.82	0	00	4.86	—	96				98	93	
B 6	21	936.26	.50	.69	6.25	12	83			44	97	93	
5	24	937.83	.63	.86	7.80	15	88				98	93	
4	27	939.19	.54	.80	9.30	15	91			43	98	94	
3	30	940.83	.62	.84	0.84	15	92				98	94	
2	33	942.25	.63	.86	2.39	15	89			42	98	94	
1	36	943.41	.22	.30	3.31	5	87				98	94	
C 6	39	944.85	.51	.70	4.72	13	87			42	98	94	
5	42	946.37	.62	.85	6.26	15	87				91	91	
4	45	947.57	.45	.61	7.56	13	89			42	95	92	
3	48	949.06	.56	.76	9.02	13	88				95	92	
2	51	950.61	.58	.79	0.51	13	89			41	96	92	
1	54	951.11	.07	.09	1.02	5	87				96	93	
D 6	57	952.46	.47	.64	2.37	10	87			42	95	92	
5	60	953.60	.37	.50	3.55	10	87				95	92	
4	63	954.93	.43	.59	4.84	10	86			42	95	92	
3	66	956.19	.56	.76	6.30		88				97	93	
2	69	957.30	.27	.37	7.31		88			42	98	93	
1	72	957.44	.0	0	7.31		88				97	93	
	(1423)												
	θ = 72	Vm = 27.75		ΔH = .54							Avg. = 92.6		

APPENDIX D

INTERPOLL LABORATORIES ANALYTICAL DATA

TABLE OF CONTENTS

Particulate 1
Formaldehyde 10
Phenol 15

Note: MDI results presented in Section 2
THC results (strip charts) presented in Appendix C

Interpoll Laboratories
(612) 786-6020

EPA Method 5 Data Reporting Sheet
Probe/Cyclone Wash
(Filter wash)

Job ICI Two Harbors Mn.
Team Leader G.H.
Date Submitted 7-6-93
Test No. 4
Date of Analysis 7-13-93
Transport Leakage [X] None [ ] _____ ml

Source Press Vent
Test Site Stack
Date of Test 6-29-93
No. of Runs Completed 3
Technician C. Helgeson
Solvent Acetone

0	Test ____ Run 0 Field Blank Log Number ____ Vol. of Solvent ____ ml *Solvent Residue 3.0 ug/ml	Dish No. ____ Dish Tare Wt. ____ g Dish+Sample Wt. ____ g Sample Wt. ____ g
1	Test 4 Run 1 Vol. of Solvent 20 ml Log Number 9289-23 Comments ____	Dish No. 601 Dish Tare Wt. 47.6657 g Dish+Sample Wt. 47.6662 g Sample Wt. 0.0005 g
2	Test 4 Run 2 Vol. of Solvent 35 ml Log Number -26 Comments ____	Dish No. 602 Dish Tare Wt. 47.2210 g Dish+Sample Wt. 47.2217 g Sample Wt. 0.0007 g
3	Test 4 Run 3 Vol. of Solvent 30 ml Log Number -29 Comments ____	Dish No. 604 Dish Tare Wt. 50.1445 g Dish+Sample Wt. 50.1451 g Sample Wt. 0.0006 g
4	Test ____ Run ____ Vol. of Solvent ____ ml Log Number ____ Comments ____	Dish No. ____ Dish Tare Wt. ____ g Dish+Sample Wt. ____ g Sample Wt. ____ g
5	Test ____ Run ____ Vol. of Solvent ____ ml Log Number ____ Comments ____	Dish No. ____ Dish Tare Wt. ____ g Dish+Sample Wt. ____ g Sample Wt. ____ g

*Solvent Residue ____ ug/ml=[(Sample Wt. ____ g)(10^6)]/Vol. of Sol. ____ ml
EPA-M5 Acetone Residue Blank Spec. $\leq$ 7.8 ug/ml

Results:

Field Blk.	Run 1	Run 2	Run 3	Run 4	Run 5
	0.0004	0.0006	0.0005		

D-1

Interpoll Laboratories
(612) 786-6020

EPA Method 5 Data Reporting Sheet
Probe/Cyclone Wash

Job ICI Two Harbors MN
Team Leader OH
Date Submitted 7-6-93
Test No. 4
Date of Analysis 7-13-93
Transport Leakage [X] None [ ] _____ ml

Source Press Vent
Test Site Stack
Date of Test 6-29-93
No. of Runs Completed 3
Technician C. Helgeson
Solvent Acetone

0	Test ____ Run 0 Field Blank Log Number ____ Vol. of Solvent ____ ml *Solvent Residue 3.0 ug/ml	Dish No. ____ Dish Tare Wt. ____ g Dish+Sample Wt. ____ g Sample Wt. ____ g
1	Test 4 Run 1 Vol. of Solvent 100 ml Log Number 9289-22 Comments ____	Dish No. 606 Dish Tare Wt. 48.5721 g Dish+Sample Wt. 48.5782 g Sample Wt. 0.0061 g
2	Test 4 Run 2 Vol. of Solvent 125 ml Log Number -25 Comments ____	Dish No. 607 Dish Tare Wt. 47.3960 g Dish+Sample Wt. 47.4056 g Sample Wt. 0.0096 g
3	Test 4 Run 3 Vol. of Solvent 90 ml Log Number -28 Comments ____	Dish No. 611 Dish Tare Wt. 50.0090 g Dish+Sample Wt. 50.0157 g Sample Wt. 0.0067 g
4	Test ____ Run ____ Vol. of Solvent ____ ml Log Number ____ Comments ____	Dish No. ____ Dish Tare Wt. ____ g Dish+Sample Wt. ____ g Sample Wt. ____ g
5	Test ____ Run ____ Vol. of Solvent ____ ml Log Number ____ Comments ____	Dish No. ____ Dish Tare Wt. ____ g Dish+Sample Wt. ____ g Sample Wt. ____ g

*Solvent Residue ___ ug/ml = [(Sample Wt. ____ g)(10⁶)]/Vol. of Sol. ____ ml
EPA-M5 Acetone Residue Blank Spec. ≤ 7.8 ug/ml

Results:

Field Blk.	Run 1	Run 2	Run 3	Run 4	Run 5
	0.0058	0.0042	0.0064		

D-2

LSC-01YR

Interpoll Laboratories
(612) 786-6020

EPA Method 5 Data Reporting Sheet
Filter Gravimetrics

Job ICI Two Harbors Mn.
Team Leader GH
Date Submitted 7-6-93
Test No. 4
Date of Analysis 7-13-93

Source Unloader Vent
Test Site Stack
Date of Test 6.29.93
No. of Runs Completed 3
Technician C. Helgeson

0	Test 4 Run 0 Field Blank Log Number 9289-152 Comments	Filter No. 5377 Filter Type 4"6F Filter Tare Wt. .9466 g Filter+Sample Wt. .9470 g Sample Wt. 0.0004 g
1	Test 4 Run 1 Log Number -24 Comments	Filter No. 5375 Filter Type 4"6F Filter Tare Wt. .9497 g Filter+Sample Wt. .9594 g Sample Wt. 0.0097 g
2	Test 4 Run 2 Log Number -27 Comments	Filter No. 5376 Filter Type 4"6F Filter Tare Wt. .9378 g Filter+Sample Wt. .9480 g Sample Wt. 0.0102 g
3	Test 4 Run 3 Log Number -30 Comments	Filter No. 5378 Filter Type 4"6F Filter Tare Wt. .9310 g Filter+Sample Wt. .9438 g Sample Wt. 0.0128 g
4	Test ____ Run ____ Log Number ____ Comments	Filter No. ____ Filter Type ____ Filter Tare Wt. ____ g Filter+Sample Wt. ____ g Sample Wt. ____ g
5	Test ____ Run ____ Log Number ____ Comments	Filter No. ____ Filter Type ____ Filter Tare Wt. ____ g Filter+Sample Wt. ____ g Sample Wt. ____ g

Results:

Field Blk.	Run 1	Run 2	Run 3	Run 4	Run 5
	0.0097	0.0102	0.0128		

Field Blk.	Run 1	Run 2	Run 3	Run 4	Run 5

LSC-02PR

Interpoll Laboratories
(612) 786-6020

EPA Method 5 Data Reporting Sheet
Probe/Cyclone Wash
(Filter wash)

Job ICI Two Harbors Mn.
Team Leader GH
Date Submitted 7-6-93
Test No. 2
Date of Analysis 7-13-93
Transport Leakage ☒ None ☐ _____ ml

Source Unloader Vent
Test Site Stack
Date of Test 6-29-93
No. of Runs Completed 3
Technician C. Helgeson
Solvent Acetone

0	Test ____ Run 0 Field Blank Log Number ____ Vol. of Solvent ____ ml *Solvent Residue 3.0 ug/ml	Dish No. ____ Dish Tare Wt. ____ g Dish+Sample Wt. ____ g Sample Wt. ____ g
1	Test 2 Run 1 Vol. of Solvent 30 ml Log Number 9289-10 Comments ____	Dish No. 612 Dish Tare Wt. 49.6249 g Dish+Sample Wt. 49.6258 g Sample Wt. 0.0009 g
2	Test 2 Run 2 Vol. of Solvent 20 ml Log Number -13 Comments ____	Dish No. 614 Dish Tare Wt. 44.4103 g Dish+Sample Wt. 44.4109 g Sample Wt. 0.0006 g
3	Test 2 Run 3 Vol. of Solvent 30 ml Log Number -16 Comments ____	Dish No. 615 Dish Tare Wt. 48.1014 g Dish+Sample Wt. 48.1059 g Sample Wt. 0.0045 g
4	Test ____ Run ____ Vol. of Solvent ____ ml Log Number ____ Comments ____	Dish No. ____ Dish Tare Wt. ____ g Dish+Sample Wt. ____ g Sample Wt. ____ g
5	Test ____ Run ____ Vol. of Solvent ____ ml Log Number ____ Comments ____	Dish No. ____ Dish Tare Wt. ____ g Dish+Sample Wt. ____ g Sample Wt. ____ g

*Solvent Residue ____ ug/ml = [(Sample Wt. ____ g)(10^6)]/Vol. of Sol. ____ ml
EPA-M5 Acetone Residue Blank Spec. ≤ 7.8 ug/ml

Results:

Field Blk.	Run 1	Run 2	Run 3	Run 4	Run 5
	0.0008	0.0005	0.0044 D-4		

LSC-01YR

Interpoll Laboratories
(612) 786-6020

EPA Method 5 Data Reporting Sheet
Probe/Cyclone Wash

Job ICI Two Harbors MN.
Team Leader G H
Date Submitted 7-6-93
Test No. 2
Date of Analysis 7-13-93
Transport Leakage ☐ None ☐ _____ ml

Source Unloader vent
Test Site Stack
Date of Test 6-29-93
No. of Runs Completed 3
Technician C. Helgeson
Solvent Acetone

0	Test 2 Run 0 Field Blank Log Number 9289-07 Vol. of Solvent 100 ml *Solvent Residue 3.0 ug/ml	Dish No. 605 Dish Tare Wt. 49.6843 g Dish+Sample Wt. 49.6846 g Sample Wt. 0.0003 g
1	Test 2 Run 1 Vol. of Solvent 100 ml Log Number -09 Comments	Dish No. 304 Dish Tare Wt. 60.5531 g Dish+Sample Wt. 60.5744 g Sample Wt. 0.0213 g
2	Test 2 Run 2 Vol. of Solvent 100 ml Log Number -12 Comments	Dish No. 305 Dish Tare Wt. 56.0206 g Dish+Sample Wt. 56.0356 g Sample Wt. 0.0150 g
3	Test 2 Run 3 Vol. of Solvent 120 ml Log Number -15 Comments	Dish No. 518 Dish Tare Wt. 48.1020 g Dish+Sample Wt. 48.1098 g Sample Wt. 0.0078 g
4	Test ____ Run ____ Vol. of Solvent ____ ml Log Number Comments	Dish No. Dish Tare Wt. g Dish+Sample Wt. g Sample Wt. g
5	Test ____ Run ____ Vol. of Solvent ____ ml Log Number Comments	Dish No. Dish Tare Wt. g Dish+Sample Wt. g Sample Wt. g

*Solvent Residue 3.0 ug/ml = [(Sample Wt. 0.0003 g)(10^6)]/Vol. of Sol. 100 ml
EPA-M5 Acetone Residue Blank Spec. ≤ 7.8 ug/ml

Results:

Field Blk.	Run 1	Run 2	Run 3	Run 4	Run 5
	0.0210	0.0147	0.0074 D-5		

LSC-01YR

Interpoll Laboratories
(612) 786-6020

EPA Method 5 Data Reporting Sheet
Filter Gravimetrics

Job ICI Two Harbors Mn.
Team Leader GH
Date Submitted 7-6-93
Test No. 2
Date of Analysis 7-14-93

Source Unloader Vent
Test Site Stack
Date of Test 6-29-93
No. of Runs Completed 3
Technician C. Helgeson

0	Test ____ Run 0 Field Blank Log Number ____ Comments ____	Filter No. ____ Filter Type ____ Filter Tare Wt. ____ g Filter+Sample Wt. ____ g Sample Wt. ____ g
1	Test 2 Run 1 Log Number 9289-11 Comments ____	Filter No. 5373 Filter Type 4" GF Filter Tare Wt. .9404 g Filter+Sample Wt. .9482 g Sample Wt. 0.0078 g
2	Test 2 Run 2 Log Number -14 Comments ____	Filter No. 5429 Filter Type 4" GF Filter Tare Wt. .9236 g Filter+Sample Wt. .9314 g Sample Wt. 0.0078 g
3	Test 2 Run 3 Log Number -17 Comments ____	Filter No. 5374 Filter Type 4" GF Filter Tare Wt. .9478 g Filter+Sample Wt. .9539 g Sample Wt. 0.0061 g
4	Test ____ Run ____ Log Number ____ Comments ____	Filter No. ____ Filter Type ____ Filter Tare Wt. ____ g Filter+Sample Wt. ____ g Sample Wt. ____ g
5	Test ____ Run ____ Log Number ____ Comments ____	Filter No. ____ Filter Type ____ Filter Tare Wt. ____ g Filter+Sample Wt. ____ g Sample Wt. ____ g

Results:

Field Blk.	Run 1	Run 2	Run 3	Run 4	Run 5
	0.0078	0.0078	0.0061		

Field Blk.	Run 1	Run 2	Run 3	Run 4	Run 5

LSC-02PR

Interpoll Laboratories
(612) 786-6020

EPA Method 5 Data Reporting Sheet
Probe/Cyclone Wash
(Filter wash)

Job ICI Sagola Mich
Team Leader GH
Date Submitted 6-29-93
Test No. 1
Date of Analysis 7-13-93
Transport Leakage ☒ None ☐ _____ ml

Source Press unloader vent
Test Site stack
Date of Test 6-25-93
No. of Runs Completed 3
Technician C. Helgeson
Solvent Acetone

0	Test ____ Run 0 Field Blank Log Number ____ Vol. of Solvent ____ ml *Solvent Residue 3.0 ug/ml	Dish No. ____ Dish Tare Wt. ____ g Dish+Sample Wt. ____ g Sample Wt. ____ g
1	Test 1 Run 1 Vol. of Solvent 25 ml Log Number 9202-18 Comments ____	Dish No. 519 Dish Tare Wt. 49.0521 g Dish+Sample Wt. 49.0534 g Sample Wt. 0.0013 g
2	Test 1 Run 2 Vol. of Solvent 20 ml Log Number -19 Comments ____	Dish No. 521 Dish Tare Wt. 50.5953 g Dish+Sample Wt. 50.5970 g Sample Wt. 0.0017 g
3	Test 1 Run 3 Vol. of Solvent 30 ml Log Number -20 Comments ____	Dish No. 520 Dish Tare Wt. 48.5267 g Dish+Sample Wt. 48.5286 g Sample Wt. 0.0019 g
4	Test ____ Run ____ Vol. of Solvent ____ ml Log Number ____ Comments ____	Dish No. ____ Dish Tare Wt. ____ g Dish+Sample Wt. ____ g Sample Wt. ____ g
5	Test ____ Run ____ Vol. of Solvent ____ ml Log Number ____ Comments ____	Dish No. ____ Dish Tare Wt. ____ g Dish+Sample Wt. ____ g Sample Wt. ____ g

*Solvent Residue ____ ug/ml=[(Sample Wt. ____ g)(10^6)]/Vol. of Sol. ____ ml
EPA-M5 Acetone Residue Blank Spec. ≤7.8 ug/ml

Results:

Field Blk.	Run 1	Run 2	Run 3	Run 4	Run 5
	0.0012	0.0016	0.0018		

D-7

Interpoll Laboratories
(612) 786-6020

EPA Method 5 Data Reporting Sheet
Probe/Cyclone Wash

Job ICI Sogola MT.
Team Leader GH
Date Submitted 6-29-93
Test No. 1
Date of Analysis 7-14-93
Transport Leakage [X] None [ ] _____ ml

Source Press Unloading Vent
Test Site Stack
Date of Test 6-25-93
No. of Runs Completed 3
Technician C. Helgeson
Solvent Acetone

0	Test 1 Run 0 Field Blank Log Number Vol. of Solvent 100 ml *Solvent Residue 3.0 ug/ml	Dish No. 1 Dish Tare Wt. 51.9667 g Dish+Sample Wt 51.9870 g Sample Wt. 0.0003 g
1	Test 1 Run 1 Vol. of Solvent 85 ml Log Number Comments	Dish No. 6 Dish Tare Wt. 44.5276 g Dish+Sample Wt. 44.5460 g Sample Wt. 0.0184 g
2	Test 1 Run 2 Vol. of Solvent 85 ml Log Number Comments	Dish No. 18 Dish Tare Wt. 49.9831 g Dish+Sample Wt. 49.9972 g Sample Wt. 0.0141 g
3	Test 1 Run 3 Vol. of Solvent 90 ml Log Number Comments	Dish No. 27 Dish Tare Wt. 52.4403 g Dish+Sample Wt 52.4554 g Sample Wt. 0.0151 g
4	Test ____ Run ____ Vol. of Solvent ____ ml Log Number Comments	Dish No. Dish Tare Wt. g Dish+Sample Wt. g Sample Wt. g
5	Test ____ Run ____ Vol. of Solvent ____ ml Log Number Comments	Dish No. Dish Tare Wt. g Dish+Sample Wt. g Sample Wt. g

*Solvent Residue 3.0 ug/ml=[(Sample Wt. 0.0003 g)(10⁶)]/Vol. of Sol. 100 ml
EPA-M5 Acetone Residue Blank Spec. < 7.8 ug/ml

Results:

Field Blk.	Run 1	Run 2	Run 3	Run 4	Run 5
	0.0181	0.0138	0.0148	D-8	

LSC-01YR

Interpoll Laboratories
(612) 786-6020

EPA Method 5 Data Reporting Sheet
Filter Gravimetrics

Job ICI Sagola MI
Team Leader OH
Date Submitted 6-29-93
Test No. 1
Date of Analysis 7-14-93

Source Press unloader vent
Test Site Stack
Date of Test 6-25-93
No. of Runs Completed 3
Technician C. Helgeson

0	Test 1 Run 0 Field Blank Log Number 9202-02 Comments	Filter No. 5372 Filter Type 4"GF Filter Tare Wt. .9387 g Filter+Sample Wt. .9390 g Sample Wt. 0.0003 g
1	Test 1 Run 1 Log Number -05 Comments	Filter No. 5427 Filter Type 4"GF Filter Tare Wt. .9178 g Filter+Sample Wt. .9227 g Sample Wt. 0.0049 g
2	Test 1 Run 2 Log Number -09 Comments	Filter No. 5425 Filter Type 4"GF Filter Tare Wt. .9203 g Filter+Sample Wt. .9257 g Sample Wt. 0.0054 g
3	Test 1 Run 3 Log Number -09 Comments	Filter No. 5428 Filter Type 4"GF Filter Tare Wt. .9160 g Filter+Sample Wt. .9216 g Sample Wt. 0.0056 g
4	Test ____ Run ____ Log Number ____ Comments	Filter No. ____ Filter Type ____ Filter Tare Wt. ____ g Filter+Sample Wt. ____ g Sample Wt. ____ g
5	Test ____ Run ____ Log Number ____ Comments	Filter No. ____ Filter Type ____ Filter Tare Wt. ____ g Filter+Sample Wt. ____ g Sample Wt. ____ g

Results:

Field Blk.	Run 1	Run 2	Run 3	Run 4	Run 5
	0.0049	0.0054	0.0056		

Field Blk.	Run 1	Run 2	Run 3	Run 4	Run 5

LSC-02PR

7/14/93

Due Date: _____

Interpoll Laboratories
(612)786-6020

Data Reporting Sheet

CLIENT: Internal /Dept. 020

JOB: ICI Polyurethanes /LP-Sagola
CLIENT NO:
P.O. NO:
PROJECT MGR:

PHONE:

DATE:

CONTACT:

Press & Unloader Vent Stack

LABORATORY REPORT #: 9202
SAMPLES COLLECTED: 6-25-93
SAMPLES RECEIVED: 6-29-93

	Invoicing	Signature	Report Routing
PL	☐	☐	☐
Lab Mgr	☐	☐	☐
Ino Mgr	☐	☐	☐
Org Mgr	☐	☐	☐

SAMPLE ID:	T_2R_0	T_2R_1	T_2R_2	T_2R_3
	Field Blank			
SAMPLE TYPE:	Impinger catch			
LOG NO:	9202-14	-15	-16	-17

PARAMETER	UNITS	DETECT LIMIT	ANALYSIS DATE & INITIALS	METHOD				
Formaldehyde	µg	0.050	8/24/93 MM	0011	x 11.4	MM x ~~927~~	x	x
↓	↓	2.5*	↓	↓		927	979	
↓	↓	5.0†	↓	↓				791

Footnotes: * 50X dilution † 100X dilution

In-House Comments: See Gregg before starting analysis
There are 2 Bottles each for 9202-15, 16 & 17

Talked to Gregg 7/19/93 MM

LCI-01R Normal 001.

7/20/93

Due Date: _____

Interpoll Laboratories
(612)786-6:20

Data Reporting Sheet

CLIENT: Internal / Dept. 020

JOB: ICI Polyurethanes / LP-Two Harbors
CLIENT NO:
P.O. NO:
PROJECT MGR:

PHONE:

DATE:

CONTACT:

Press Vent Stack

LABORATORY REPORT #: 9289
SAMPLES COLLECTED: 6-28-93
SAMPLES RECEIVED: 7-6-93

	Invoicing	Signature	Report Routing
PL	☐	☐	☐
Lab Mgr	☐	☐	☐
Ino Mgr	☐	☐	☐
Org Mgr	☐	☐	☐

SAMPLE ID:	Test 1	Test 1		
	Trip Blank	Field Spike		
SAMPLE TYPE:				
LOG NO:	9289-01	-02		

PARAMETER	UNITS	DETECT LIMIT	ANALYSIS DATE & INITIALS	METHOD				
Formaldehyde	µg	0.050	8/27/93 MH	0011	x 12.9	x 89.7*		

after Blank subtraction.

Footnotes: * Spike Level ⇒ 75.0 µg % Rec ⇒ 100%

In-House Comments: see Gregg before starting analysis

Talked to Gregg 7/19/93 MH Normal 0011

LC1-01R

Due Date: _____

Interpoll Laboratories
(612)786-6020

Data Reporting Sheet

CLIENT: Internal / Dept. 020

JOB: ICI Polyurethanes / LP-Two Hur

CLIENT NO:

P.O. NO:

PROJECT MGR:

PHONE:

DATE:

CONTACT:

Press Vent Stack

LABORATORY REPORT #: 9289
SAMPLES COLLECTED: 6-28-93
SAMPLES RECEIVED: 7-6-93

	Invoicing	Signature	Report Routing
PL	☐	☐	☐
Lab Mgr	☐	☐	☐
Ino Mgr	☐	☐	☐
Org Mgr	☐	☐	☐

SAMPLE ID:	T1R0	T1R1	T1R2	T1R3
	Field Blank			
SAMPLE TYPE:	Impinger catch →			
LOG NO:	9289-03	-04	-05	-06

PARAMETER	UNITS	DETECT LIMIT	ANALYSIS DATE & INITIALS	METHOD				
Formaldehyde		0.050	8/27/93 [initials]	0011	x 13.2	x	x	x
↓	↓	2.5	↓	↓		4390 *	3740 *	3820 *

Footnotes: * 50X dilution

In-House Comments: see Gregg before starting analysis
There are 2 Bottles each for samples 9289-04, 05 & 06

Talked to Greg
7/19/93 [initials] Normal

LC1-01R

Due Date: _____

Interpoll Laboratories
(612)786-6020

Data Reporting Sheet

CLIENT: Internal / Dept. 020

JOB: ICI Polyurethanes / LP-Two Harbo

CLIENT NO:

P.O. NO:

PROJECT MGR:

PHONE:

DATE:

CONTACT:

Unloading Vent Stack

LABORATORY REPORT #: 9289

SAMPLES COLLECTED: 6-29-93

SAMPLES RECEIVED: 7-6-93

	Invoicing	Signature	Report Routing
PL	☐	☐	☐
Lab Mgr	☐	☐	☐
Ino Mgr	☐	☐	☐
Org Mgr	☐	☐	☐

SAMPLE ID:	Test 5	Test 5		
	Trip Blank	Field Spike		
SAMPLE TYPE:				
LOG NO:	9289-35	-36		

PARAMETER	UNITS	DETECT LIMIT	ANALYSIS DATE & INITIALS	METHOD				
Formaldehyde	µg	0.050	8/28/93 mJ	0011	x 14.6	x 68.2 *		

Footnotes: * Spike Level ⇒ 75.0 µg % Rec ⇒ 71%

In-House Comments: See Gregg before starting analysis

Talked to Gregg 7/14/93 mJ Normal 0011

LC1-01R

Due Date: _____

Interpoll Laboratories
(612)786-6020

Data Reporting Sheet

CLIENT: Internal / Dept. 020

JOB: ICI Polyurethanes / LP-Two Harbor
CLIENT NO:
P.O. NO:
PROJECT MGR:

PHONE:

DATE:

CONTACT:

unloading Vent Stack

LABORATORY REPORT #: 9289
SAMPLES COLLECTED: 6-29-93
SAMPLES RECEIVED: 7-6-93

	Invoicing	Signature	Report Routing
PL	☐	☐	☐
Lab Mgr	☐	☐	☐
Ino Mgr	☐	☐	☐
Org Mgr	☐	☐	☐

SAMPLE ID:	T5R1	T5R2	T5R3	
SAMPLE TYPE:	Impinger catch →			
LOG NO:	9289-37	-38	-39	

PARAMETER	UNITS	DETECT LIMIT	ANALYSIS DATE & INITIALS	METHOD				
Formaldehyde	µg	2.5	8/28/93 [illegible]	0011	x 3180*	x 3900*	x 3540*	

Footnotes: * 50X dilution

In-House Comments: See Gregg before starting analysis
There are 2 Bottles each for 9289-37, 38 & 39

Talked to Gregg 7/19/93 [illegible]
Normal 0011

LC1-01R

INTERPOLL LABORA

PHENOL RESULTS

MASS OF ANALYTE (ug

	LP - SAGOLA					
	PRESS & UNLOADER COMMON VENT					F
	Spike	Field Blank	Run 1	Run 2	Run 3	Spike
2-fluorophenol	59.8	46.7	27.4	31.4	28.4	59.8
phenol-d6	5.33	3.32	3.3	3.54	3.36	5.33
2,4,6-tribromophenol	19.6	15.9	17.4	16.0	16.8	19.6
phenol	NA	<0.84	3.2	3.4	3.4	NA

NA = not applicable

% RECOVERY OF SURRO

2-fluorophenol	78	46	53	47	
phenol-d6	62	62	66	63	
2,4,6-tribromophenol	81	89	82	86	

ATORIES

FOR ICI

) IN SAMPLE

LP - TWO HARBORS								
RESS VENT STACK				UNLOADER STACK				
Run 1	Run 2	Run 3		Spike	Field Blank	Run 1	Run 2	Run 3
29.4	35.3	30.7		49.8	34.8	28.8	27.5	28.7
3.68	3.7	3.4		5.33	3.12	3.4	3.08	3.22
15.4	15.9	15.9		19.6	16.9	16.9	15.6	16.3
1.7	1.9	1.7		NA	<0.84	0.96	0.98	1.1

GATES

49	59	51			70	58	55	58
69	69	64			59	64	58	60
79	81	81			86	86	80	83

APPENDIX E

PROCESS INFORMATION

PRODUCTION DATA (FROM REG. REPORTS)

SAGOLA 6-25-93

DAILY TONS F.P. = 586.86 24.7 TONS/HR

RUNTIME = 23.75 HOURS

RESIN USED : MDI = 12487 LBS

528 LB/HR

1.06 %

LIQUID PHENOLIC - 100% SOLIDS

19994 LBS

842 LB/HR

1.70 %

TWO HARBORS 6-29

PRODUCTION 532,038 LBS

266 TONS 11.66 TONS/HR

RUNTIME = 22.82 HR

RESIN = 3.4% MDI (MONTHLY AVERAGE)

793 LBS/HR

PRESS VENT PROCESS DATA

9:43 AM – 10:15 AM traverse 1

Date: 6/25/93 Time: 10:17 AM

Run #: 1 Traverse #: 2

12 points

Press temp = 396°F

Surface Resin Type: LS-96B % Application: 2.95

Core Resin Type: Rubinate 1840 % Application: 1.9

Wax Content & Type Surface: EW 58 LV 0.68% Core: EW 58 LV 0.5%

Lbs Furnish Across Weigh Belt per hr

Surface: Ave 30,045

Core: Ave 30,045

Surface to Core Former Ratio: 50 Surface 50 Core

Board Thickness Produced: 7/16 (6.72/16)

Line Speed 89 Press Cycle (sec/1/16) 19 (30)

Line Moisture Content

Surface: M = 4 Ave 6.89

Core: M = 4 Ave 5.65

Start run time: 10:17 AM Stop: 10:48 AM ⇒ 31 MIN

Press load # start: 37 Stop: 45

Number of Press Loads During Run: 9

Footage During Run: #1 51,073 FT² as 3/8"

Delays During Run: none

Total # press loads for run #1 = 19

Total time for run #1 = 32+31 = 63 MIN

Materials used during run #1 (lbs). as 100% solids (63 min)

PF resin = 936

MDI = 604

Wax

Surface = 217

Core = 160 } 377

PRESS VENT PROCESS DATA

11:58 AM – 12:29 PM – traverse #1

Date: 6/25/93 Time: 12:32PM

Run #: 2 Traverse #: 2

PT ≈396°F

Surface Resin Type: _____ % Application: _____

Core Resin Type: _____ % Application: _____

Wax Content & Type Surface: 0.68 Core: 0.5

Lbs Furnish Across Weigh Belt per hr

Surface: ~~_____~~ Ave 29,628

Core: ~~_____~~ Ave 29,628

Surface to Core Former Ratio: 50 Surface 50 Core

Board Thickness Produced: 7/16

Line Speed 89 Press Cycle (sec/1/16) 202 sec.

Line Moisture Content

Surface: _____ Ave 7.61 %

Core: _____ Ave 5.3 %

Start run time: 12:32PM Stop: 1:02PM ∴ 30 (min)

Press load # start: 77 Stop: 86

Number of Press Loads During Run: 10

Footage During Run: 51,073 FT² (as 3/8") both traverses

Delays During Run: _____

Total # press loads for run #2 (both traverses) = 19+

Total time net = 31+30 = 61 MIN

Materials used during run #2 – lbs.

PF = 908 #'s as 100% solid

MDI = 585 #'s

Wax

core = ~~215~~ 155

surface = ~~155~~ 210 > 365 #'s

PRESS VENT PROCESS DATA

1:37PM → 2:08 traverse 1

Date: 6/25/93 Time: 2:13PM

Run #: 3 Traverse #: 2

Surface Resin Type: LS-96B % Application: 2.95

Core Resin Type: Rubinate 1840 % Application: 1.9

Wax Content & Type Surface: EN 58LV 0.68% Core: EN 58LV 0.5%

Lbs Furnish Across Weigh Belt per hr

Surface: Ave 29,404

Core: Ave 29,404

Surface to Core Former Ratio: 50 Surface 50 Core

Board Thickness Produced: 7/16

Line Speed 89 Press Cycle (sec/1/16) ~~[illegible]~~ ?

202 sec

Line Moisture Content

Surface: Ave 6.58

Core: Ave 4.6

Start run time: 2:13 PM Stop: 2:43PM ∴ 30 MIN

Press load # start: 107 Stop: 115

Number of Press Loads During Run: 9

Footage During Run: 51,073 FT² based on 3/8" both traverses

Delays During Run: —

Total press loads for run #3 = 19-20

Total net time for run #3 = 61 MIN

Materials used run #3 LBS

PF = 908

MDI = 585

Wax

Surface = 210

Core = 155 > 365

PRESS VENT PROCESS DATA

Date: 6/26/93 Time: 9:16 AM

Run #: 1 Traverse #: 2

Press temp 397°F

Surface Resin Type: LS-96B % Application: 2.95

Core Resin Type: Rubinate 1840 % Application: 1.9

Wax Content & Type Surface: EW 58LV 0.68% Core: EW 58LV 0.5%

Lbs Furnish Across Weigh Belt per hr

Surface: Ave 29,753

Core: Ave 29,753

Surface to Core Former Ratio: 50 Surface 50 Core

Board Thickness Produced: 7/16 (nominal) [6.72/16]

Line Speed 89 Press Cycle (sec/1/16) 19 [30]

Line Moisture Content

Surface: Ave 8.0

Core: Ave 5.5

Start run time: Stop:

Press load # start: Stop:

Number of Press Loads During Run:

Footage During Run:

Delays During Run:

Nitro train

loads = 19

Footage = 51,093 FT² (as 3/8)

~~time = 61 MIN~~

PF #5 = ~~[illegible]~~ 906

MDI #'s = ~~[illegible]~~ 526

48,385?

1,2 MP Trains

loads = 22

Footage = 59,138 FT²

time = 72 MIN

PF = ~~[illegible]~~ 1069

MDI = ~~[illegible]~~ 651

~~[illegible]~~ = ~~[illegible]~~ 429

PRESS VENT PROCESS DATA

Date: 6/26/93

Run #: 2

Time: 11:20 AM – 11:56 AM ⇒ 36 MIN
12:05 PM – 12:41 PM ⇒ 36 MIN

Traverse #: 2

press temp ~397°F

Surface Resin Type: LS-96B % Application: 2.95

Core Resin Type: Rubinate 1840 % Application: 1.9

Wax Content & Type Surface: EW 58LV 0.68% Core: EW 58LV 0.5%

Lbs Furnish Across Weigh Belt per hr

Surface: Ave 30,392

Core: Ave 30,392

Surface to Core Former Ratio: 50 Surface 50 Core

Board Thickness Produced: 7/16 nominal (6.72/16)

Line Speed 89 Press Cycle (sec/1/16) 19 (30)
2 of 2 sec/press load

Line Moisture Content

Surface: Ave 8.5

Core: Ave 6.0

Start run time: Stop:

Press load # start: Stop:

Number of Press Loads During Run:

Footage During Run:

Delays During Run:

Nitro train		1,2 MP trains	
Press loads	= 18	Press loads	= 22
Footage	= 48,385 FT² (or 3/8)	Footage	= 59,137 FT² (or 3/8)
Time	= 61 MIN	Time	= 72 MIN
PF #'s	= 906	PF #'s	= 1069
MDI #'s	= 585	MDI #'s	= 691
Wax #'s	= 363	Wax #'s	= 429

PRESS VENT PROCESS DATA

Date: 6/26/93

Run #: 3

Time: 1:52PM - 2:28PM ⇒ 36 MIN
2:33PM - 3:10PM ⇒ 37 MIN

Traverse #: 2

press temp ≈ 396°F

Surface Resin Type: LS-96B % Application: 2.95

Core Resin Type: Rubinate 1840 % Application: 1.9

Wax Content & Type Surface: EW 58LV 0.68 Core: EW 58LV 0.5

Lbs Furnish Across Weigh Belt per hr

Surface: _____ Ave 29,532

Core: _____ Ave 29,532

Surface to Core Former Ratio: 50 Surface 50 Core

Board Thickness Produced: 7/16 nom. (6.72/16)

Line Speed 89 Press Cycle (sec/1/16) 19 (30)

Line Moisture Content

Surface: _____ Ave 9.6

Core: _____ Ave 5.7

Start run time: _____ Stop: _____

Press load # start: _____ Stop: _____

Number of Press Loads During Run: _____

Footage During Run: _____

Delays During Run: _____

Nitro train	1,2 MP Trains
Press loads = 18	Press loads = 22
Footage = ~~59,137~~ 48,385 FT²	Footage = ~~48,385~~ 59,137 FT²
Time = 60 MIN	Time = 73 MIN
PF #'s = 891	PF #'s = 1084
MDI #'s = 601	MDI #'s = 701
Wax = 358	Wax " = 436

APPENDIX F

SAMPLING TRAIN CALIBRATION DATA

INTERPOLL LABORATORIES
EPA Method 5 Gas Metering System
Quality Control Check Data Sheet

Job L.P. SAGOLA Date 6-25-93

Operator G HOVE Module No. 3

Instructions: Operate the control module at a flow rate equal to ^H@ for 10 minutes before attaching the umbilical. Record the following data:

Bar press 28.44 in. Hg. Υ = .9970 ^H@ 1.74 in. W.C.

Time (min)	Volume (CF)	Meter Temp. (°F)	
		Inlet	Outlet
[redacted]	890.40	[redacted]	
2.5	892.34	66	65
5.0	894.28	68	66
7.5	896.20	70	67
10	898.12	73	68
[redacted]	V_m= 7.72	Avg(t_m)= 67.87 °F	

Calculate Y_{cn} as follows:

$$Y_{cn} = \frac{1.786}{\Upsilon V_m}\left[\frac{(t_m + 460)}{P_b}\right]^{0.5}$$

$$Y_{cn} = \frac{1.786}{(.9970)(7.72)}\left[\frac{(67.87) + 460}{(28.44)}\right]^{0.5}$$

Y_{cn} = .996

If Y_{cn} is not within the range of 0.97 to 1.03, "the volume metering system should be investigated before beginning."

CFR Title 40, Part 60, Appendix A, Method 5, Section 4.4.1

S-432

INTERPOLL LABORATORIES
EPA Method 5 Gas Metering System
Quality Control Check Data Sheet

Job L.P. / Gagola MI Date 6/25/93
Operator DWH Module No. 7

Instructions: Operate the control module at a flow rate equal to ^H@ for 10 minutes before attaching the umbilical. Record the following data:

Bar press 28.44 in. Hg. τ = .9983 ^H@ 1.97 in. W.C.

Time (min)	Volume (CF)	Meter Temp. (°F) Inlet	Meter Temp. (°F) Outlet
[redacted]	(254.25)	[redacted]	
2.5	256.08	67	66
5.0	257.99	67	67
7.5	259.91	68	67
10	261.83	68	67
[redacted]	V_m= 7.58	Avg(t_m)= 67.125°F	

Calculate Y_{cn} as follows:

$$Y_{cn} = \frac{1.786}{\tau\ V_m}\left[\frac{(t_m + 460)}{P_b}\right]^{0.5}$$

$$Y_{cn} = \frac{1.786}{(.9983)(1.97)}\left[\frac{(67.125) + 460}{(28.44)}\right]^{0.5}$$

Y_{cn} = 1.01

If Y_{cn} is not within the range of 0.97 to 1.03, "the volume metering system should be investigated before beginning."

CFR Title 40, Part 60, Appendix A, Method 5, Section 4.4.1

S-432

INTERPOLL LABORATORIES
EPA Method 5 Gas Metering System
Quality Control Check Data Sheet

Job ICI SAGOLA MICH Date 6-25-93

Operator CH Module No. 3

Instructions: Operate the control module at a flow rate equal to ^H@ for 10 minutes before attaching the umbilical. Record the following data:

Bar press _____ in. Hg. τ = _____ ^H@ _____ in. W.C.

Time (min)	Volume (CF)	Meter Temp. (°F)	
		Inlet	Outlet
[redacted]	890.60	[redacted]	
2.5	892.34	66	65
5.0	894.28	68	66
7.5	896.20	70	67
10	898.12	73	68
[redacted]	V_m= 7.72	Avg(t_m)= 67.87 °F	

Calculate Y_{cn} as follows:

$$Y_{cn} = \frac{1.786}{\tau\ V_m}\left[\frac{(t_m + 460)}{P_b}\right]^{0.5}$$

$$Y_{cn} = \frac{1.786}{(.9970)(7.72)}\left[\frac{(67.87) + 460}{(28.44)}\right]^{0.5}$$

Y_{cn} = .996

If Y_{cn} is not within the range of 0.97 to 1.03, "the volume metering system should be investigated before beginning."

CFR Title 40, Part 60, Appendix A, Method 5, Section 4.4.1

S-432

Interpoll Laboratories, Inc.
(612) 786-6020

Meter Box Calibration and Usage Status

Date of Report: June 28, 1993

Meter Box No. : 3 (Rockwell Dry Test Meter Serial No. 35302)

Date of Last Calibration: June 4, 1993
Calibration Technician: B. Aschenbach
Wet Test Meter No.: American Meter AL-20

Date of Use	Report No.	Initial Meter Reading	Final Meter Reading	Volume/Job (cu. ft.)	Total Volume* (cu. ft.)
June 21, 1993	3-9191	743.90	890.02	146.12	146.12
June 25, 1993	3-9202	890.40	1163.11	272.71	418.83

* Total volume through meter since last calibration.

Interpoll Laboratories, Inc.
(612) 786-6020

Meter Box Calibration and Usage Status

Date of Report: June 28, 1993

Meter Box No. : 6 (Rockwell Dry Test Meter Serial No. 712852)

Date of Last Calibration: June 22, 1993
Calibration Technician: D. Van Hoever
Wet Test Meter No.: American Meter AL-20

Date of Use	Report No.	Initial Meter Reading	Final Meter Reading	Volume/Job (cu. ft.)	Total Volume* (cu. ft.)
June 26, 1939	3-9202	499.85	667.21	167.36	167.36

* Total volume through meter since last calibration.

Interpoll Laboratories, Inc.
(612) 786-6020

Meter Box Calibration and Usage Status

Date of Report: June 28, 1993

Meter Box No. : 7 (Rockwell Dry Test Meter Serial No. 965550)

Date of Last Calibration: June 23, 1993
Calibration Technician: E. Trowbridge
Wet Test Meter No.: American Meter AL-20

Date of Use	Report No.	Initial Meter Reading	Final Meter Reading	Volume/Job (cu. ft.)	Total Volume* (cu. ft.)
June 23, 1993	3-9197	218.30	225.20	6.90	6.90
June 25, 1993	3-9202	254.25	523.82	269.57	276.47

* Total volume through meter since last calibration.

Date 6-4-93

Bar. Press. 29.10 in. Hg

INTE[illegible]L LABORATORIES, INC.
METER CALIBRATION SHEET
EPA METHOD 5

Control Module No. 5
Serial No. DTM 35302
Wet Test Meter No. AL-20
Technician B. ASCHENBACH

ΔH (in. WC)		Gas Volume Wet Test Meter (ft³)	* Cal. Index Φ (%)	* Diff. Wet Test Meter ΔP_w (in.WC)	Gas Volume Dry test meter (ft³)		Gas temperatures			Time θ (min/sec)	Meter Coeff. Y	Orifice Const. ΔHΦ	C_f
							Wet Test t_w (°F)	Dry Test t_{di} (°F)	Dry Test t_{do} (°F)				
nominal	actual				V_{di}	V_{df}							
0.5	.50	2	99.85	0.01	726.500	728.553	68.5	87.0	79.0	4.55	.9981	1.70	
1.2	1.20	3	99.91	0.025	718.000	721.066	68.5	87.0	78.0	4.44	1.0003	1.67	
2.0	2.00	3	99.93	0.055	722.500	725.580	68.5	91.0	79.0	3.44	.9985	1.73	
3.3	3.30	5	100.00	0.09	737.000	742.169	68.5	91.0	81.0	4.56	.9908	1.79	
4.7	4.70	5	100.02	0.12	730.000	735.128	68.5	94.0	80.0	4.09	.9972	1.80	
	2	3	4	5	6	7	8	9	10	11/12	.9970	1.74	

Positive leak check performed by BA
Meter was in tolerance ■
Meter was not in tolerance ☐; readjusted linkage
Meter was not in tolerance ☐; changed dry test meters

Approved by Daniel J. Dezan Date 6/4/93

* Based on AL-20 wet test meter calibration in Nov. 1991 against Bell Prover (NBS Traceable) - Carl Poe Co.

S0102RR 11/91

Date 6/22/93

Bar. Press. 28.98 in. Hg

INTERPOLL LABORATORIES, INC.
METER CALIBRATION SHEET
EPA METHOD 5

Control Module No. 6
Serial No. DTM 712852
Wet Test Meter No. AL-20
Technician D. VAN Hoever

ΔH (in. WC) nominal	ΔH (in. WC) actual	Gas Volume Wet Test Meter (ft^3)	* Cal. Index Φ (%)	* Diff. Wet Test Meter ΔP_w (in.WC)	Gas Volume Dry test meter (ft^3) V_{di}	Gas Volume Dry test meter (ft^3) V_{df}	Gas temperatures Wet Test t_w (°F)	Gas temperatures Dry Test t_{di} (°F)	Gas temperatures Dry Test t_{do} (°F)	Time θ (min/sec)	Meter Coeff. Y	Orifice Const. ΔHθ	C_f
0.5	.5	21	99.85	0.01	397.03	400.05	71	86	81	2:27:09	1.0006	1.71	
1.2	1.2	3	99.91	0.025	395.46	398.52	71	88	81	4:49.59	1.0013	1.76	
2.0	2.0	3	99.93	0.055	385.79	388.85	70.7	87	83	3:45.90	.9981	1.79	
3.3	3.3	5	100.00	0.09	379.695	384.77	70.6	87	79	4:53.11	.9996	1.79	
4.7	4.7	5	100.02	0.12	389.35	394.44	70.7	91	81	4:07.84	.9986	1.81	
	2	3	4	5	6	7	8	9	10	11/12	.9996	1.77	

Positive leak check performed by [illegible]
Meter was in tolerance ☒
Meter was not in tolerance ☐; readjusted linkage
Meter was not in tolerance ☐; changed dry test meters

Approved by [illegible] Date 6/28/93

* Based on AL-20 wet test meter calibration in Nov. 1991 against Bell Prover (NBS Traceable) - Carl Poe Co.

S0102RR 11/91

Date 6-23-93

Bar. Press. 28.95 in. Hg

INTERPOLL LABORATORIES, INC.
METER CALIBRATION SHEET
EPA METHOD 5

Control Module No. _____
Serial No. DTM 965550
Wet Test Meter No. AL-20
Technician E. Trowbridge

ΔH (in. WC) nominal	ΔH (in. WC) actual	Gas Volume Wet Test Meter (ft^3)	* Cal. Index Φ (%)	* Diff. Wet Test Meter ΔP_w (in.WC)	Gas Volume Dry test meter (ft^3) V_{di}	Gas Volume Dry test meter (ft^3) V_{df}	Gas temperatures Wet Test t_w (°F)	Gas temperatures Dry Test t_{di} (°F)	Gas temperatures Dry Test t_{do} (°F)	Time θ (min/sec)	Meter Coeff. Y	Orifice Const. ΔHθ	C_f
0.5	.5	2	99.85	0.01	237.000	239.035	72	80	76	5/05	.9911	1.87	
1.2	1.2	3	99.91	0.025	233.000	236.050	72	82	76	5/05	.9925	1.98	
2.0	2.0	3	99.93	0.055	239.500	242.550	72	86	79	3/58	.9971	2.00	
3.3	3.3	5	100.00	0.09	243.000	248.060	72	91	81	5/09	1.0054	1.88	
4.7	4.7	5	100.02	0.12	249.000	254.070	72	95	83	4/22	1.0055	2.02	
	3	3	4	5	6	7	8	9	10	11/12	.9983	1.97	

Positive leak check performed by ET
Meter was in tolerance ☒
Meter was not in tolerance ☐; readjusted linkage
Meter was not in tolerance ☐; changed dry test meters

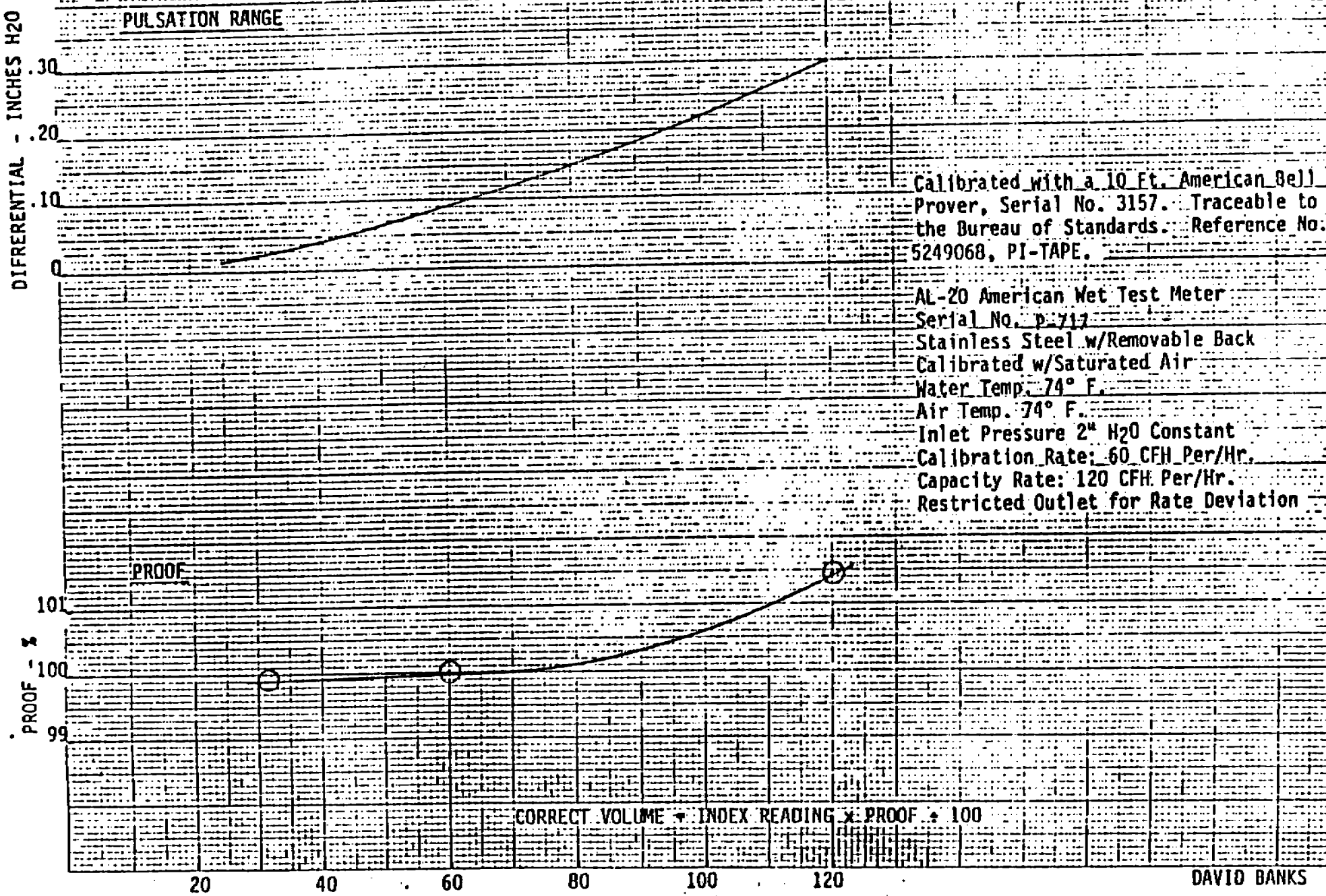
Approved by [signature] Date 6/25/93

* Based on AL-20 wet test meter calibration in Nov. 1991 against Bell Prover (NBS Traceable) - Carl Poe Co.

S0102RR 11/91

DIFFERENTIAL PRESSURE AND PROOF CALIBRATION CURVES

WET TEST METER



Calibrated with a 10 Ft. American Bell Prover, Serial No. 3157. Traceable to the Bureau of Standards. Reference No. 5249068, PI-TAPE.

AL-20 American Wet Test Meter
Serial No. P 717
Stainless Steel w/Removable Back
Calibrated w/Saturated Air
Water Temp. 74° F.
Air Temp. 74° F.
Inlet Pressure 2" H_2O Constant
Calibration Rate: 60 CFH Per/Hr.
Capacity Rate: 120 CFH Per/Hr.
Restricted Outlet for Rate Deviation

CORRECT VOLUME ÷ INDEX READING x PROOF ÷ 100

DAVID BANKS

November, 1991

Interpoll Laboratories, Inc.
(612) 786-6020

Nozzle Calibration
Data Sheet

Date of Calibration: 6-25-93 Nozzle Number 27-3
Technician: Gary Hove

The nozzle is rotated in 60 degree increments and the diameter at each point is measured to the nearest 0.001 inch. The observed readings and average are shown below.

Position	Diameter (inches)
1	.188
2	.194
3	.190
Average:	.190

Interpoll Laboratories, Inc.
(612) 786-6020

Nozzle Calibration
Data Sheet

Date of Calibration: 6-25-93 Nozzle Number 1-6
Technician: Duane Van Hoever

The nozzle is rotated in 60 degree increments and the diameter at each point is measured to the nearest 0.001 inch. The observed readings and average are shown below.

Position	Diameter (inches)
1	.185
2	.187
3	.189
Average:	.187

Interpoll Laboratories, Inc.
(612) 786-6020

Nozzle Calibration
Data Sheet

Date of Calibration: 6-26-93 Nozzle Number 3-2
Technician: Duane Van Hoever

The nozzle is rotated in 60 degree increments and the diameter at each point is measured to the nearest 0.001 inch. The observed readings and average are shown below.

Position	Diameter (inches)
1	.130
2	.130
3	.131
Average:	.130

Interpoll Laboratories, Inc.
(612) 786-6020

Nozzle Calibration
Data Sheet

Date of Calibration: 6-26-93 Nozzle Number 3-3
Technician: Gary Hove

The nozzle is rotated in 60 degree increments and the diameter at each point is measured to the nearest 0.001 inch. The observed readings and average are shown below.

Position	Diameter (inches)
1	.125
2	.123
3	.125
Average:	.125

Interpoll Laboratories, Inc.

Temperature Measurement Device
Calibration Sheet

Unit under test:
Vendor Beckman Industrial
Model HD 110 T
Serial Number POT #18
Range -1999 °F
Thermocouple Type K
Date of Calibration 4/7/93
Technician D. VAN Hoever

Method of Calibration:

☐ Comparison against ASTM mercury in glass thermometer using a thermostatted and insulated aluminum block designed to provide uniform temperature. The temperature is adjusted by adjusting the voltage on the block heater cartridge.

☒ Omega Model CL-300 Type K Thermocouple Simulator which provides 22 precise temperature equivalent millivolt signals. The CL-300 is cold junction compensated. Calibration accuracy is ± 0.1% of span (2100 °F) ± 1 degree (for negative temperatures add ± 2 degrees. The CL-300 simulates exactly the millivoltage of a Type K thermocouple at the indicated temperature.

Desired Temp (°F) Nominal	Temperature of Standard or Simulated Temp (°F)	Response of Unit Under Test (°F)	Deviation Δt (°F)	Deviation (%)
0		0	0	0
100		96	4	.71
200		199	1	.15
300		298	2	.26
400		395	5	.58
500		495	5	.52
600		597	3	.28
700		698	2	.25
800		803	3	.24
900		906	6	.38
1000		1011	11	.75
1100		1114	14	.89
1200		1220	20	1.20
1300		1321	21	1.19
1400		1426	26	1.39
1500		1524	24	1.22
1600		1625	25	1.21
1700		1721	21	.97
1800		1819	19	.84
1900		1912	12	.51
2000				
2100				
		Averages:		.68

OF = off scale response by unit under test (°F)
% dev = 100 Δt / (460 + t)

☒ Unit in tolerance
☐ Unit was not in tolerance; recalibrated - See new calibration sheet.

S-433

Interpoll Laboratories, Inc.

Temperature Measurement Device
Calibration Sheet

Unit under test:
Vendor OMEGA
Model OMEGA SIMULATO
Range 0 - 2100 °F
Date of Calibration 1-4-93
Serial Number 34
Thermocouple Type OMEGA
Technician GA

Method of Calibration:

☐ Comparison against ASTM mercury in glass thermometer using a thermostatted and insulated aluminum block designed to provide uniform temperature. The temperature is adjusted by adjusting the voltage on the block heater cartridge.

☐ Omega Model CL-300 Type K Thermocouple Simulator which provides 22 precise temperature equivalent millivolt signals. The CL-300 is cold junction compensated. Calibration accuracy is ± 0.1% of span (2100 °F) ± 1 degree (for negative temperatures add ± 2 degrees. The CL-300 simulates exactly the millivoltage of a Type K thermocouple at the indicated temperature.

Desired Temp (°F) Nominal	Temperature of Standard or Simulated Temp (°F)	Response of Unit Under Test (°F)	Deviation Δt (°F)	Deviation (%)
0			.1	.2
100	100	98.1	1.9	.33
200	200	200.3	.3	.045
300	300	298.3	1.7	.23
400	400	398.0	2.0	.23
500	500	499.3	.7	.07
600	600	~~600.3~~ 600.7	.7	.066
700	700	699.3	.7	.060
800	800	801.1	1.1	.087
900	900	899.3	.7	.05
1000	1000	1000.1	.1	.007
1100	1100	1099.5	.5	.032
1200	1200	1201.5	1.5	.090
1300	1300	1299.2	.8	.045
1400	1400	1402.2	2.2	.118
1500	1500	1498.8	1.2	.06
1600	1600	1601.3	1.3	.063
1700	1700	1698.8	1.2	.056
1800	1800	1800	0	0
1900	1900	1898.2	1.2	.051
2000	2000	1999.6	.4	.016
2100	2100	2098.0	2.0	.078
		Averages:		

OF = off scale response by unit under test (°F)
% dev = 100 Δt / (460 + t)

☒ Unit in tolerance
☐ Unit was not in tolerance; recalibrated - See new calibration sheet.

S-433

(612)786-6020

S-Type Pitot Tube Inspection Sheet

Pitobe No. 23-6

Pitot tube dimensions:

1. External tubing diameter (D_t) .316 IN.
2. Base to Side A opening plane (P_A) .460 IN.
3. Base to Side B opening plane (P_B) .461 IN.

Alignment:

4. $\alpha_1 < 10^0$ 1
5. $\alpha_2 < 10^0$ 1

6. $B_1 < 5^0$ 1
7. $B_2 < 5^0$ 2

8. Z <.125" .02
9. W <.0625" .02

Distance from Pitot to Probe Components:

10. Pitot to 0.500 IN. nozzle .750 IN.
11. Pitot to probe sheath 3.00 IN.
12. Pitot to thermocouple (parallel to probe) 3.00 IN.
13. Pitot to thermocouple (perpendicular to probe) .760 IN.

☒ Meets all EPA design criteria thus C_p = 0.84

☐ Does not meet EPA design criteria - thus calibrate in wind tunnel
C_p = _____

Date of Inspection: 4-7-93

Inspected by: [signature]

CFR Title 40 Part 60 Appendix A Method 2

Interpoll Laboratories, Inc.
(612) 786-6020

S-Type Pitot Tube Inspection Sheet

Pitot Tube No. 27-6

Pitot tube dimensions:

1. External tubing diameter (D_t) .316 IN.
2. Base to Side A opening plane (P_A) .460 IN.
3. Base to Side B opening plane (P_B) .462 IN.

Alignment:

4. α_1 < 10° 0
5. α_2 < 10° 0

6. B_1 < 5° 0
7. B_2 < 5° 0

8. Z <.125" 0
9. W <.0625" .02

Distance from Pitot to Probe Components:

10. Pitot to 0.500 IN. nozzle .750 IN.
11. Pitot to probe sheath 3.0 IN.
12. Pitot to thermocouple (parallel to probe) 3.0 IN.
13. Pitot to thermocouple (perpendicular to probe) .760 IN.

☒ Meets all EPA design criteria thus C_p = 0.84
☐ Does not meet EPA design criteria - thus calibrate in wind tunnel.
C_p = _____

Date of Inspection: 4-8-93

Inspected by: [signature]

CFR Title 40 Part 60 Appenidix A Method 2

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4-7-93 G:\STACK\WP\FORMS\S-348

INTERPOLL LABORATORIES
(612)786-6020

Stack Sampling Department - QA
Aneroid Barometer Calibration Sheet

Date 1-4-93
Technician G HOUE
Mercury Column Barometer No.
Aneroid Barometer No. 636235

Actual Mercury Barometer Read	Ambient Temp.	Temperature Correction Factor	Adjsted Mercury Barometer Read	Initial Aneriod Barometer Read	Difference (P_{ba}-P_{bm})
29.27	73	-.114	29.155	29.30	.185

Has this barometer shown any consistent problems with calibration? Yes/No. If yes, explain. NO

Has problem been alleviated? Yes/No. How?

I ADJUSTED THE ANEROID TO MATCH THE Hg

*Note

Aneroid barometers will be calibrated periodically against a mercury column barometer. The aneroid barometer to be calibrated should be placed in close proximity to the mercury barometer and left to equilibrate for 20-30 minutes before calibrating. Aneriod barometer will be calibrated to the adjusted mercury barometer readings.

S-312

INTERPOLL LABORATORIES
(612)786-6020

Stack Sampling Department - QA
Aneroid Barometer Calibration Sheet

Date 4/7/93

Technician D. Van Hoever

Mercury Column Barometer No. _____

Aneroid Barometer No. 861216

Actual Mercury Barometer Read	Ambient Temp.	Temperature Correction Factor	Adjsted Mercury Barometer Read	Initial Aneriod Barometer Read	Difference (P_{ba}-P_{bm})
29.11	72	.110	29.00	28.94	.06

Has this barometer shown any consistent problems with calibration? Yes/No. If yes, explain. NO

Has problem been alleviated? Yes/No. How? _____

*Note

Aneroid barometers will be calibrated periodically against a mercury column barometer. The aneroid barometer to be calibrated should be placed in close proximity to the mercury barometer and left to equilibrate for 20-30 minutes before calibrating. Aneriod barometer will be calibrated to the adjusted mercury barometer readings.

S-312

INTERPOLL LABORATORIES
EPA Method 5 Gas Metering System
Quality Control Check Data Sheet

Job ICI-L9-TWO HARBORS Date 6-25-93

Operator GH Module No. 7

Instructions: Operate the control module at a flow rate equal to ^H@ for 10 minutes before attaching the umbilical. Record the following data:

Bar press 29.05 in. Hg. Υ = .9983 ^H@ 1.97 in. W.C.

Time (min)	Volume (CF)	Meter Temp. (°F)	
		Inlet	Outlet
[redacted]	(524.60)	[redacted]	
2.5	526.55	90	88
5.0	528.50	92	87
7.5	530.40	94	88
10	532.29	95	89
[redacted]	V_m= 7.69	Avg(t_m)= 90.375 °F	

Calculate Y_{cn} as follows:

$$Y_{cn} = \frac{1.786}{\Upsilon\ V_m}\left[\frac{(t_m + 460)}{P_b}\right]^{0.5}$$

$$Y_{cn} = \frac{1.786}{(.9983)(7.69)}\left[\frac{(90.375 + 460}{(29.05)}\right]^{0.5}$$

Y_{cn} = 1.012

If Y_{cn} is not within the range of 0.97 to 1.03, "the volume metering system should be investigated before beginning."

CFR Title 40, Part 60, Appendix A, Method 5, Section 4.4.1

S-432

INTERPOLL LABORATORIES
EPA Method 5 Gas Metering System
Quality Control Check Data Sheet

Job ICI TWO HARBORS Date 6-29-93
Operator G HOVE Module No. 3

Instructions: Operate the control module at a flow rate equal to ^H@ for 10 minutes before attaching the umbilical. Record the following data:

Bar press 29.05 in. Hg. τ = .9970 ^H@ 1.74 in. W.C.

Time (min)	Volume (CF)	Meter Temp. (°F)	
		Inlet	Outlet
[redacted]	(163.98)	[redacted]	
2.5	165.88	87	84
5.0	167.72	84	84
7.5	169.70	88	85
10	171.51	92	86
[redacted]	V_m=7.61	Avg(t_m)=86.75 °F	

Calculate Y_{cn} as follows:

$$Y_{cn} = \frac{1.786}{\tau\ V_m}\left[\frac{(t_m + 460)}{P_b}\right]^{0.5}$$

$$Y_{cn} = \frac{1.786}{(\ \ )(7.61)}\left[\frac{(86.75) + 460}{(29.05)}\right]^{0.5}$$

.9970

Y_{cn} = 1.021

If Y_{cn} is not within the range of 0.97 to 1.03, "the volume metering system should be investigated before beginning."

CFR Title 40, Part 60, Appendix A, Method 5, Section 4.4.1

S-432

INTERPOLL LABORATORIES
EPA Method 5 Gas Metering System
Quality Control Check Data Sheet

Job #C1 Date 6-30-93

Operator DVH Module No. 6

Instructions: Operate the control module at a flow rate equal to ^H@ for 10 minutes before attaching the umbilical. Record the following data:

Bar press 29.15 in. Hg. τ = .9996 ^H@ 1.77 in. W.C.

Time (min)	Volume (CF)	Meter Temp. (°F)	
		Inlet	Outlet
[redacted]	(668.10)	[redacted]	
2.5	670.26	83	82
5.0	672.03	85	82
7.5	674.05	85	83
10	675.84	86	83
[redacted]	V_m= 7.74	Avg(t_m)= 83.6 °F	

Calculate Y_{cn} as follows:

$$Y_{cn} = \frac{1.786}{\tau\ V_m}\left[\frac{(t_m + 460)}{P_b}\right]^{0.5}$$

$$Y_{cn} = \frac{1.786}{(.9996)(7.74)}\left[\frac{(83.6) + 460}{(29.15)}\right]^{0.5}$$

Y_{cn} = .9968

If Y_{cn} is not within the range of 0.97 to 1.03, "the volume metering system should be investigated before beginning."

CFR Title 40, Part 60, Appendix A, Method 5, Section 4.4.1

S-432

INTERPOLL LABORATORIES
EPA Method 5 Gas Metering System
Quality Control Check Data Sheet

Job ICI TWO HARBORS Date 6-29-93
Operator G HOVE Module No. 3

Instructions: Operate the control module at a flow rate equal to ^H@ for 10 minutes before attaching the umbilical. Record the following data:

Bar press 29.05 in. Hg. τ = .9970 ^H@ 1.74 in. W.C.

Time (min)	Volume (CF)	Meter Temp. (°F) Inlet	Meter Temp. (°F) Outlet
[redacted]	(163.90)	[redacted]	
2.5	165.88	87	84
5.0	167.72	88	84
7.5	169.70	88	85
10	171.51	92	86
[redacted]	V_m= 7.61	Avg(t_m)=86.75 °F	

Calculate Y_{cn} as follows:

$$Y_{cn} = \frac{1.786}{\tau\ V_m}\left[\frac{(t_m + 460)}{P_b}\right]^{0.5}$$

$$Y_{cn} = \frac{1.786}{(.9970)(7.61)}\left[\frac{(86.75) + 460}{(29.05)}\right]^{0.5}$$

Y_{cn} = 1.021

If Y_{cn} is not within the range of 0.97 to 1.03, "the volume metering system should be investigated before beginning."

CFR Title 40, Part 60, Appendix A, Method 5, Section 4.4.1

S-432

Interpoll Laboratories, Inc.
(612) 786-6020

Meter Box Calibration and Usage Status

Date of Report: July 8, 1993

Meter Box No. : 3 (Rockwell Dry Test Meter Serial No. 35302)

Date of Last Calibration: June 4, 1993
Calibration Technician: B. Aschenbach
Wet Test Meter No.: American Meter AL-20

Date of Use	Report No.	Initial Meter Reading	Final Meter Reading	Volume/Job (cu. ft.)	Total Volume* (cu. ft.)
June 21, 1993	3-9191	743.90	890.02	146.12	146.12
June 25, 1993	3-9202	890.40	1163.11	272.71	418.83
June 29, 1993	3-9289	1163.90	1578.59	414.69	833.52

* Total volume through meter since last calibration.

Interpoll Laboratories, Inc.
(612) 786-6020

Meter Box Calibration and Usage Status

Date of Report: July 8, 1993

Meter Box No. : 6 (Rockwell Dry Test Meter Serial No. 712852)

Date of Last Calibration: June 22, 1993
Calibration Technician: D. Van Hoever
Wet Test Meter No.: American Meter AL-20

Date of Use	Report No.	Initial Meter Reading	Final Meter Reading	Volume/Job (cu. ft.)	Total Volume* (cu. ft.)
June 26, 1939	3-9202	499.85	667.21	167.36	167.36
June 30, 1993	3-9289	668.10	916.09	247.99	415.35

* Total volume through meter since last calibration.

Interpoll Laboratories, Inc.
(612) 786-6020

Meter Box Calibration and Usage Status

Date of Report: July 8, 1993

Meter Box No. : 7 (Rockwell Dry Test Meter Serial No. 965550)

Date of Last Calibration: June 23, 1993
Calibration Technician: E. Trowbridge
Wet Test Meter No.: American Meter AL-20

Date of Use	Report No.	Initial Meter Reading	Final Meter Reading	Volume/Job (cu. ft.)	Total Volume* (cu. ft.)
June 23, 1993	3-9197	218.30	225.20	6.90	6.90
June 25, 1993	3-9202	254.25	523.82	269.57	276.47
June 25, 1993	3-9289	524.60	957.44	432.84	709.31

* Total volume through meter since last calibration.

Date 6-4-93

Bar. Press. 29.10 in. Hg

INTERPOLL LABORATORIES, INC.
METER CALIBRATION SHEET
EPA METHOD 5

Control Module No. 3
Serial No. DTM 35302
Wet Test Meter No. AL-20
Technician B. ASCHENBACH

ΔH (in. WC) nominal	ΔH (in. WC) actual	Gas Volume Wet Test Meter (ft^3)	* Cal. Index Φ (%)	* Diff. Wet Test Meter ΔP_w (in.WC)	Gas Volume Dry test meter (ft^3) V_{di}	Gas Volume Dry test meter (ft^3) V_{df}	Gas temperatures Wet Test t_w (°F)	Gas temperatures Dry Test t_{di} (°F)	Gas temperatures Dry Test t_{do} (°F)	Time θ (min/sec)	Meter Coeff. Y	Orifice Const. ΔHθ	C_f
0.5	.50	2	99.85	0.01	726.500	728.553	68.5	87.0	79.0	4.55	.9981	1.70	
1.2	1.20	3	99.91	0.025	718.000	721.066	68.5	87.0	78.0	4.44	1.0003	1.67	
2.0	2.00	3	99.93	0.055	722.500	725.580	68.5	91.0	79.0	3.44	.9985	1.73	
3.3	3.30	5	100.00	0.09	737.000	742.169	68.5	91.0	81.0	4.51	.9908	1.79	
4.7	4.70	5	100.02	0.12	730.000	735.128	68.5	94.0	80.0	4.09	.9972	1.80	
3	3	4	8	4	7	8	8	16	11/11		.9970	1.74	

Positive leak check performed by BA
Meter was in tolerance ■
Meter was not in tolerance ☐; readjusted linkage
Meter was not in tolerance ☐; changed dry test meters

Approved by Daniel L Dessa Date 6/4/93

* Based on AL-20 wet test meter calibration in Nov. 1991 against Bell Prover (NBS Traceable) - Carl Poe Co.

SO'''2RR 11/91

Date 6/22/93

Bar. Press. 28.98 in. Hg

INTERPOLL LABORATORIES, INC.
METER CALIBRATION SHEET
EPA METHOD 5

Control Module No. 6
Serial No. DTM 712852
Wet Test Meter No. AL-20
Technician D. VAN Hoever

ΔH (in. WC) nominal	ΔH (in. WC) actual	Gas Volume Wet Test Meter (ft³)	* Cal. Index Φ (%)	* Diff. Wet Test Meter ΔP_w (in.WC)	Gas Volume Dry test meter (ft³) V_{di}	Gas Volume Dry test meter (ft³) V_{df}	Gas temperatures Wet Test t_w (°F)	Gas temperatures Dry Test t_{di} (°F)	Gas temperatures Dry Test t_{do} (°F)	Time θ (min/sec)	Meter Coeff. Y	Orifice Const. ΔHθ	C_f
0.6	.5	~~2~~ 1	99.85	0.01	399.03	400.05	71	86	81	2:27:09	1.0006	1.71	
1.2	1.2	3	99.91	0.025	395.46	398.52	71	88	81	4:49.59	1.0013	1.76	
2.0	2.0	3	99.93	0.055	385.79	388.85	70.7	87	80	3:45.90	.9981	1.79	
3.3	3.3	5	100.00	0.09	379.695	384.77	70.6	87	79	4:53.11	.9996	1.79	
4.7	4.7	5	100.02	0.12	389.35	394.44	70.7	91	81	4:07.84	.9986	1.81	
	2	3	4	5	6	7	8	9	10	11/12	.9996	1.77	

Positive leak check performed by [signature]
Meter was in tolerance ☒
Meter was not in tolerance ☐; readjusted linkage
Meter was not in tolerance ☐; changed dry test meters

Approved by [signature] Date 6/28/93

* Based on AL-20 wet test meter calibration in Nov. 1991 against Bell Prover (NBS Traceable) - Carl Poe Co

S0102RR 11/91

Date 6-23-93

Bar. Press. 28.95 in. Hg

INTERPOLL LABORATORIES, INC.
METER CALIBRATION SHEET
EPA METHOD 5

Control Module No. 7
Serial No. DTM 965550
Wet Test Meter No. AL-20
Technician E. Trowbridge

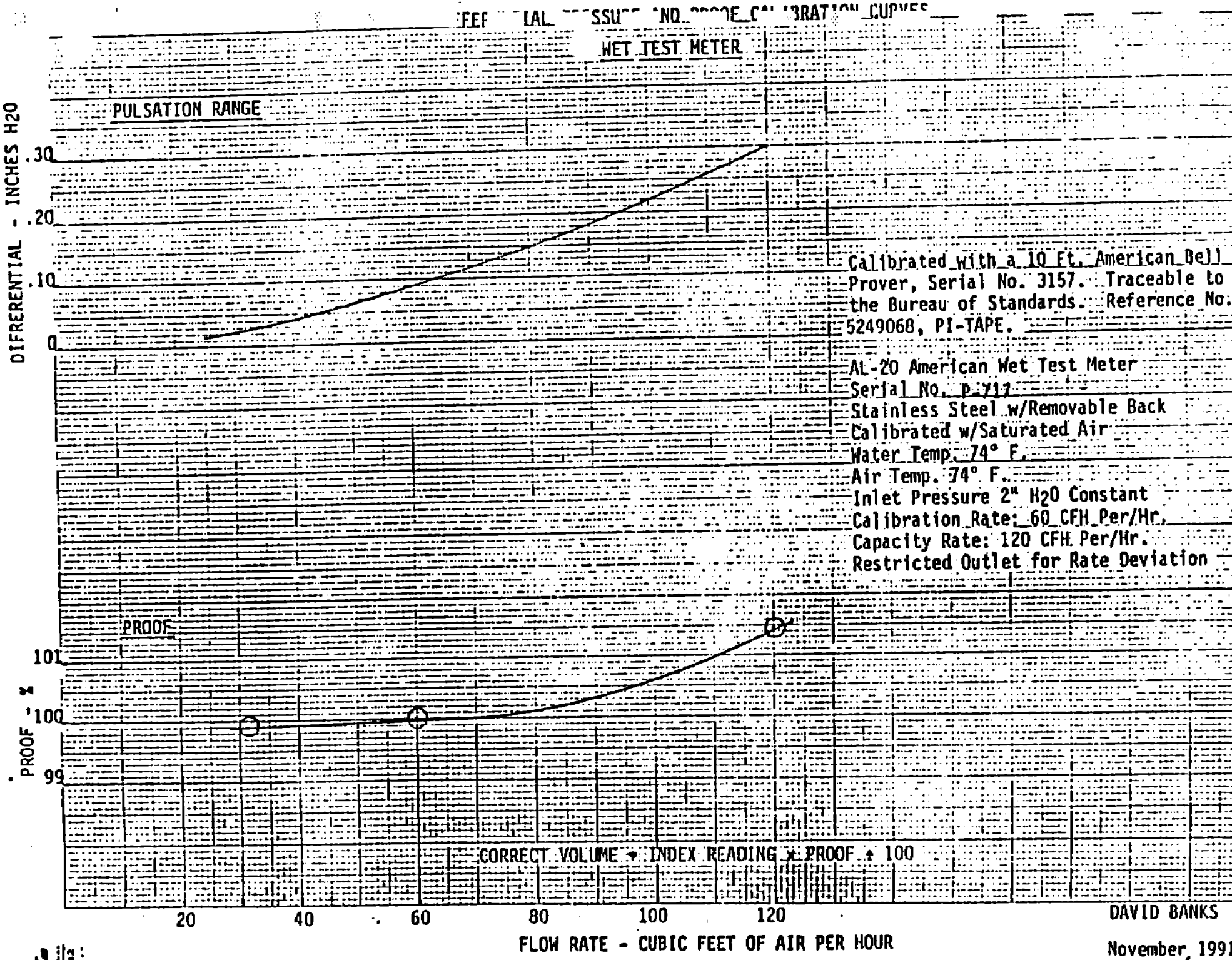
ΔH (in. WC) nominal	ΔH (in. WC) actual	Gas Volume Wet Test Meter (ft^3)	* Cal. Index ♦ (%)	* Diff. Wet Test Meter ΔP_w (in.WC)	Gas Volume Dry test meter (ft^3) V_{di}	Gas Volume Dry test meter (ft^3) V_{df}	Gas temperatures Wet Test t_w (°F)	Gas temperatures Dry Test t_{di} (°F)	Gas temperatures Dry Test t_{do} (°F)	Time θ (min/sec)	Meter Coeff. Y	Orifice Const. ΔHθ	C_f
0.5	.5	2	99.85	0.01	237.000	239.035	72	80	76	5/05	.9911	1.87	
1.2	1.2	3	99.91	0.025	233.000	236.050	72	82	76	5/05	.9925	1.98	
2.0	2.0	3	99.93	0.055	239.500	242.550	72	86	79	3/58	.9971	2.00	
3.3	3.3	5	100.00	0.09	243.000	248.060	72	91	81	5/09	1.0054	1.98	
4.7	4.7	5	100.02	0.12	249.000	254.070	72	95	83	4/22	1.0055	2.02	
	2	3	4	5	6	7	8	9	10	11/12	.9983	1.97	

Positive leak check performed by ET
Meter was in tolerance ☒
Meter was not in tolerance ☐; readjusted linkage
Meter was not in tolerance ☐; changed dry test meters

Approved by [signature] Date 6/25/93

* Based on AL-20 wet test meter calibration in Nov. 1991 against Bell Prover (NBS Traceable) - Carl Poe Co

S0102RR 11/91


WET TEST METER
PULSATION RANGE
DIFFERENTIAL - INCHES H2O
.30
.20
.10
0
Calibrated with a 10 Ft. American Bell Prover, Serial No. 3157. Traceable to the Bureau of Standards. Reference No. 5249068, PI-TAPE.
AL-20 American Wet Test Meter
Serial No. P-717
Stainless Steel w/Removable Back
Calibrated w/Saturated Air
Water Temp. 74° F.
Air Temp. 74° F.
Inlet Pressure 2" H2O Constant
Calibration Rate: 60 CFH Per/Hr.
Capacity Rate: 120 CFH Per/Hr.
Restricted Outlet for Rate Deviation
PROOF
101
100
99
PROOF - %
CORRECT VOLUME = INDEX READING x PROOF ÷ 100
20
40
60
80
100
120
FLOW RATE - CUBIC FEET OF AIR PER HOUR
DAVID BANKS
November, 1991

Interpoll Laboratories, Inc.
(612) 786-6020

Nozzle Calibration
Data Sheet

Date of Calibration: 6-29-93 Nozzle Number 6-4
Technician: Duane Van Hoever

The nozzle is rotated in 60 degree increments and the diameter at each point is measured to the nearest 0.001 inch. The observed readings and average are shown below.

Position	Diameter (inches)
1	.251
2	.249
3	.252
Average:	.251

Interpoll Laboratories, Inc.
(612) 786-6020

Nozzle Calibration
Data Sheet

Date of Calibration: 6-29-93 Nozzle Number 23-4
Technician: Gary Hove

The nozzle is rotated in 60 degree increments and the diameter at each point is measured to the nearest 0.001 inch. The observed readings and average are shown below.

Position	Diameter (inches)
1	.251
2	.250
3	.249
Average:	.250

Interpoll Laboratories, Inc.
(612) 786-6020

Nozzle Calibration
Data Sheet

Date of Calibration: 6-30-93 Nozzle Number 27-3
Technician: Gary Hove

The nozzle is rotated in 60 degree increments and the diameter at each point is measured to the nearest 0.001 inch. The observed readings and average are shown below.

Position	Diameter (inches)
1	.183
2	.182
3	.182
Average:	.182

Interpoll Laboratories, Inc.
(612) 786-6020

Nozzle Calibration
Data Sheet

Date of Calibration: 7-3-93 Nozzle Number 7-3
Technician: Duane Van Hoever

The nozzle is rotated in 60 degree increments and the diameter at each point is measured to the nearest 0.001 inch. The observed readings and average are shown below.

Position	Diameter (inches)
1	.186
2	.185
3	.185
Average:	.185

Interpoll Laboratories, Inc.

Temperature Measurement Device
Calibration Sheet

Unit under test:
Vendor Beckman Industrial
Model HD 110 T
Serial Number POT #18
Range -1999 °F
Thermocouple Type K
Date of Calibration 4/7/93
Technician D. VAN Hoever

Method of Calibration:

☐ Comparison against ASTM mercury in glass thermometer using a thermostatted and insulated aluminum block designed to provide uniform temperature. The temperature is adjusted by adjusting the voltage on the block heater cartridge.

☒ Omega Model CL-300 Type K Thermocouple Simulator which provides 22 precise temperature equivalent millivolt signals. The CL-300 is cold junction compensated. Calibration accuracy is ± 0.1% of span (2100 °F) ± 1 degree (for negative temperatures add ± 2 degrees. The CL-300 simulates exactly the millivoltage of a Type K thermocouple at the indicated temperature.

Desired Temp (°F) Nominal	Temperature of Standard or Simulated Temp (°F)	Response of Unit Under Test (°F)	Deviation Δt (°F)	Deviation (%)
0		0	0	0
100		96	4	.71
200		199	1	.15
300		298	2	.26
400		395	5	.58
500		495	5	.52
600		597	3	.28
700		698	2	.25
800		803	3	.24
900		906	6	.38
1000		1011	11	.75
1100		1114	14	.89
1200		1220	20	1.20
1300		1321	21	1.19
1400		1426	26	1.39
1500		1524	24	1.22
1600		1625	25	1.21
1700		1721	21	.97
1800		1819	19	.84
1900		1912	12	.51
2000				
2100				
		Averages:		.68

OF = off scale response by unit under test (°F)
% dev = 100 Δt / (460 + t)

☒ Unit in tolerance
☐ Unit was not in tolerance; recalibrated - See new calibration sheet.

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(612)786-6020

S-Type Pitot Tube Inspection Sheet

Pitobe No. 23-5

Pitot tube dimensions:

1. External tubing diameter (D_t) .316 IN.
2. Base to Side A opening plane (P_A) .455 IN.
3. Base to Side B opening plane (P_B) .460 IN.

Alignment:

4. $\alpha_1 < 10^0$ 1
5. $\alpha_2 < 10^0$ 1

6. $B_1 < 5^0$ 2
7. $B_2 < 5^0$ 2

8. Z <.125" .04
9. W <.0625" .02

Distance from Pitot to Probe Components:

10. Pitot to 0.500 IN. nozzle .760 IN.
11. Pitot to probe sheath 3.00 IN.
12. Pitot to thermocouple (parallel to probe) 3.00 IN.
13. Pitot to thermocouple (perpendicular to probe) .750 IN.

☒ Meets all EPA design criteria thus C_p = 0.84

☐ Does not meet EPA design criteria - thus calibrate in wind tunnel
C_p = _____

Date of Inspection: 4-7-93

Inspected by: [signature]

CFR Title 40 Part 60 Appendix A Method 2

(612)786-6020

S-Type Pitot Tube Inspection Sheet

Pitobe No. 23-6

Pitot tube dimensions:

1. External tubing diameter (D_t) .316 IN.
2. Base to Side A opening plane (P_A) .460 IN.
3. Base to Side B opening plane (P_B) .461 IN.

Alignment:

4. $\alpha_1 < 10^o$ 1
5. $\alpha_2 < 10^o$ 1

6. $B_1 < 5^o$ 1
7. $B_2 < 5^o$ 2

8. Z <.125" .02
9. W <.0625" .02

Distance from Pitot to Probe Components:

10. Pitot to 0.500 IN. nozzle .750 IN.
11. Pitot to probe sheath 3.00 IN.
12. Pitot to thermocouple (parallel to probe) 3.00 IN.
13. Pitot to thermocouple (perpendicular to probe) .760 IN.

☑ Meets all EPA design criteria thus C_p = 0.84

☐ Does not meet EPA design criteria - thus calibrate in wind tunnel C_p = _____

Date of Inspection: 4-7-93

Inspected by: [signature]

CFR Title 40 Part 60 Appendix A Method 2

INTERPOLL LABORATORIES
(612)786-6020

Stack Sampling Department - QA
Aneroid Barometer Calibration Sheet

Date 4/7/93

Technician D. Van Hoever

Mercury Column Barometer No. _____

Aneroid Barometer No. 861216

Actual Mercury Barometer Read	Ambient Temp.	Temperature Correction Factor	Adjsted Mercury Barometer Read	Initial Aneriod Barometer Read	Difference (P_{ba}-P_{bm})
29.11	72	.110	29.00	28.94	.06

Has this barometer shown any consistent problems with calibration? Yes/No. If yes, explain. NO

Has problem been alleviated? Yes/No. How? _____

*Note

Aneroid barometers will be calibrated periodically against a mercury column barometer. The aneroid barometer to be calibrated should be placed in close proximity to the mercury barometer and left to equilibrate for 20-30 minutes before calibrating. Aneriod barometer will be calibrated to the adjusted mercury barometer readings.

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