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EMISSIONS TEST REPORT

FUGITIVE EMISSIONS TESTING AT THE BETHLEHEM STEEL BETHLEHEM PLANT

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SECTION 1

INTRODUCTION

This report presents the results of testing for fugitive VOC (Volatile Organic Compounds) and benzene emissions at the Bethlehem Steel plant in Bethlehem, Pennsylvania. The testing was performed by Radian Corporation on January 20 through January 28, 1981.

This work was funded and administered by the Emission Measurement Branch of the U.S. Environmental Protection Agency under Contract No. 68-02-3542. The results of this testing may be used in support of a National Emissions Standard for Hazardous Air Pollutants for benzene from coke oven by-products recovery units in steel mills.

Potential sources of fugitive benzene emissions in the by-product unit were screened with a portable hydrocarbon detector to estimate the frequency of leak occurrence. The liquid and vapor benzene emission rates were quantified by collecting and analyzing samples from leaking fittings. Also, liquid samples were obtained from process lines to provide data on the proportion of benzene in process lines relative to the proportion of benzene in the vapor emitted from fittings on those lines.

The following sections present a summary of results, a description of the process configuration, the testing methodology, and QA/QC procedures. Example calculations and a full listing of data and other supplemental information are included in the appendices.

SECTION 2

SUMMARY OF RESULTS

This section presents a summary of the fugitive emission data gathered at the Bethlehem Steel plant in Bethlehem. All data are presented in the form of original data sheets in Appendix B.

The plant screening results are presented in Table 2-1. This table presents the distribution of OVA readings for each source type.

The results of the baggable sampling are presented in Table 2-2. The mass emission rates are presented in pounds per day for each source in terms of both benzene and nonmethane hydrocarbons. Mass emission rates are also presented in terms of vapor phase and liquid phase emission rate. Each source was rescreened immediately before and after bagging. The average of these two values is also presented in Table 2-2 for both the OVA and the TLV.

A comparison of the benzene concentration in vapor-phase and total emissions with the benzene concentrations in the liquid lines is presented in Table 2-3. The benzene concentration in the vapor-phase leak and the total leak (vapor plus liquid) is expressed as a ratio of the benzene emission rate to non-methane hydrocarbon emission rate, since bag samples are diluted with air. The benzolized wash oil samples are reported as having no detectable benzene (less than 1 weight percent). The detection limit for benzene in liquid samples analyzed by gas chromatograph can potentially be at the parts per million level. It was decided early in the study, however, that only those streams containing 1 weight percent benzene, or more, were of interest, so no attempt was made to exactly quantify benzene concentrations below that level.

TABLE 2-1. OVA SCREENING VALUE DISTRIBUTION: BETHLEHEM STEEL, BETHLEHEM, PA.

OVA SCREENING VALUE (ppmv)	FLANGES		THREADED FITTINGS		VALVES		PUMPS SEALS		EXHAUSTERS	
	#[a]	%[b]	#	%	#	%	#	%	#	%
0 to 199	151	100.0	0	--	98	90.7	24	85.7	19	79.2
200 to 9,999	0	0.0	0	--	9	8.3	3	10.7	2	8.3
≥ 10,000	0	0.0	0	--	1	0.9	1	3.6	3	12.5
Total Sources Screened	151	100.0	0	--	108	100.0	28	100.0	24	100.0

a) # - number of sources in each category
b) % - percent of total sources screened

TABLE 2-2. SUMMARY OF BENZENE AND NONMETHANE HYDROCARBON LEAK RATES (LBS/HR) FROM SAMPLED SOURCES: BETHLEHEM STEEL, BETHLEHEM, PENNSYLVANIA

	Sampling Date	Source ID	Mean OVA Rescreening Value[a]	Mean TLV Rescreening Value[a]	Benzene Leak Rates			Nonmethane-HC Leak Rates		
					Vapor	Liquid	Total	Vapor	Liquid	Total
Block Valves	01/22/81	108	130	345	0.000000	0.000000	0.000000	.[b]	0.000000	.
		120	24000	10001	0.032253	0.104944	0.137197	.	0.187401	.
	01/23/81	114	2150	850	0.001975	0.000000	0.001975	0.002419	0.000000	0.002419
		116	240	175	0.000000	0.000000	0.000000	0.000309	0.000000	0.000309
		124	123	89	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
	01/26/81	84	75	60	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
		87	320	1335	0.000129	0.000000	0.000129	0.000397	0.000000	0.000397
		91	700	1500	0.002389	0.000000	0.002389	0.003113	0.000000	0.003113
		103	250	550	0.000141	0.000000	0.000141	0.000262	0.000000	0.000262
		104	48	110	0.000290	0.000000	0.000290	0.000462	0.000000	0.000462
		129	205	110	0.000009	0.000000	0.000009	0.000046	0.000000	0.000046
		139	95	58	0.000055	0.000000	0.000055	0.000118	0.000000	0.000118
		141	25000	8851	0.021884	0.000000	0.021884	0.032042	0.000000	0.032042
	01/27/81	40	250	1000	0.000000	0.000000	0.000000	0.000010	0.000000	0.000010
Control Valves	01/23/81	115	325	300	0.000286	0.000000	0.000286	0.000656	0.000000	0.000656
		121	5200	2950	0.002774	0.000000	0.002774	0.003543	0.000000	0.003543
Pumps	01/22/81	109-I[c]	11500	8700	0.079925	0.000000	0.079925	.	0.000000	.
		98-Ø	21500	10001	0.077834	0.000000	0.077834	.	0.000000	.
	01/23/81	109-I[d]	14000	8450	0.072369	0.000000	0.072369	0.112669	0.000000	0.112669
		98-Ø[d]	16000	8801	0.063723	0.000000	0.063723	0.094001	0.000000	0.094001
	01/27/81	26-I	78	362	0.002365	0.000000	0.002365	0.003256	0.116802	0.120058
		334-I	50000	10001	0.203298	8.845081	9.048379	0.171420	13.713304	13.884724
		27-Ø	20	30	0.000119	0.000000	0.000119	0.000259	0.000000	0.000259
		333-Ø	6600	10001	0.284684	0.405399	0.690083	0.291111	0.628526	0.919637
	01/28/81	66-I	30	38	0.000740	0.000000	0.000740	0.001016	0.038463	0.039479
		68-I	15	15	0.000152	0.000000	0.000152	0.000240	0.016731	0.016971
Exhausters	01/21/81	20	42500	10001	0.173869	0.000000	0.173869	.	0.000000	.
	01/27/81	18	87501	10001	0.200168	0.000000	0.200168	0.493436	0.000000	0.493436
		19	100001	10001	0.154939	0.000000	0.154939	0.379242	0.000000	0.379242
		20[d]	34000	7701	0.021283	0.000000	0.021283	0.053182	0.000000	0.053182
		23	9500	8901	0.000648	0.000000	0.000648	0.002784	0.000000	0.002784

a) Average of before and after sampling screening values (given in Appendix B-2)
b) This symbol indicates that no data was taken in that category.
c) I denotes inboard seal and Ø denotes outboard seal of a pump with two seals.
d) Sources 109-I, 98-Ø, and 20 were sampled twice because THC was not operating on 1/21/81 and 1/22/81.

TABLE 2-3. COMPARISON OF BENZENE CONTENT IN EMISSIONS AND IN LIQUID LINES: BETHLEHEM STEEL, BETHLEHEM, PENNSYLVANIA

Line	Temp (°F)	Press (psig)	Wt % Benzene in Line	Source ID	Wt % Benzene[a] in Vapor Leak	Wt % Benzene[b] in Total Leak
Benzolized Wash Oil	80	35	ND[c]	26-I[d]	73	2.0
				27-Ø[d]	46,DS[e]	46.
				66-I	73	1.9
				68-I	63,DS	0.9
	175	0	ND	91	77	77.
Secondary Light Oil	80	10	63	121	78	78.
	80	20	63	98-Ø	68	68.
				109-I	64	64.
				114	82	82.
				115	44,DS	44.
				116	0,DS	0.
	50	10	63	129	20,DS	20.
				139	47,DS	47.
	40	10	63	141	68	68.
	35	20	63	333-Ø	98	75.
				334-I	118[f]	65.

a) Weight percent benzene in the vapor = $\frac{\text{Vapor mass emissions of benzene}}{\text{Vapor mass emissions of NMHC}} \times 100$

b) Weight percent benzene in the total leak = $\frac{\text{Total mass emissions of benzene}}{\text{Total mass emissions of NMHC}} \times 100$

c) ND denotes no benzene detected, benzene < 1 weight percent

d) I denotes inboard seal, Ø denotes outboard seal of a pump with two seals

e) DS denotes dilute sample, NMHC < 100 ppmv

f) Analysis of benzene and NMHC were performed on separate instruments; this sample was probably almost pure benzene

SECTION 3

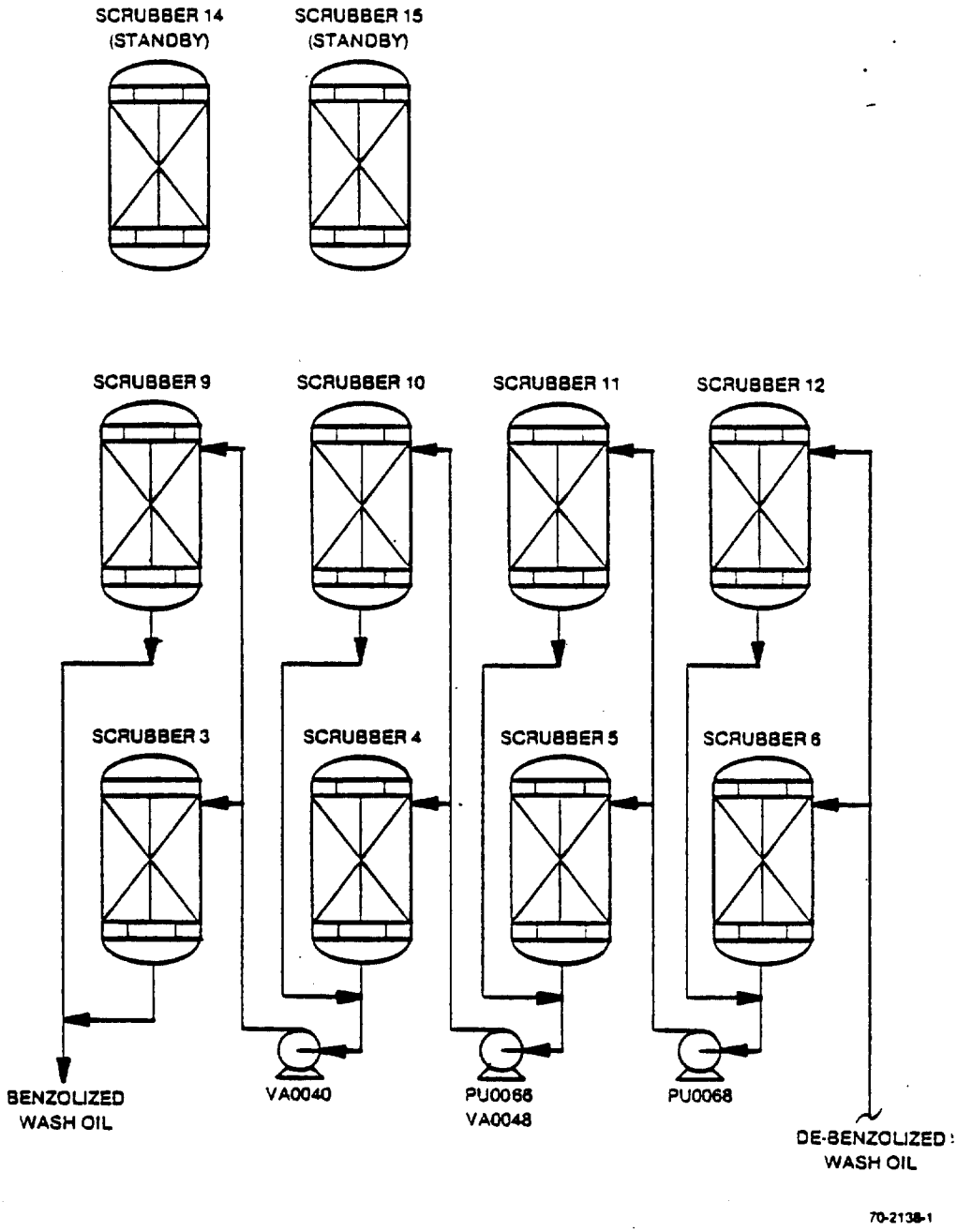
PROCESS DESCRIPTION

The Bethlehem Steel plant at Bethlehem, Pennslyvania operates with a wash oil absorption system to recover light oil from the coke oven gas. The crude light oil product is sent to the Sparrow's Point plant for refining.

During the testing period, the coke ovens were producing 3520 tons per day of coke and 67.4 MMSCFD of coke oven gas. The light oil recovery unit was recovering 12,678 gallons per day of crude light oil.

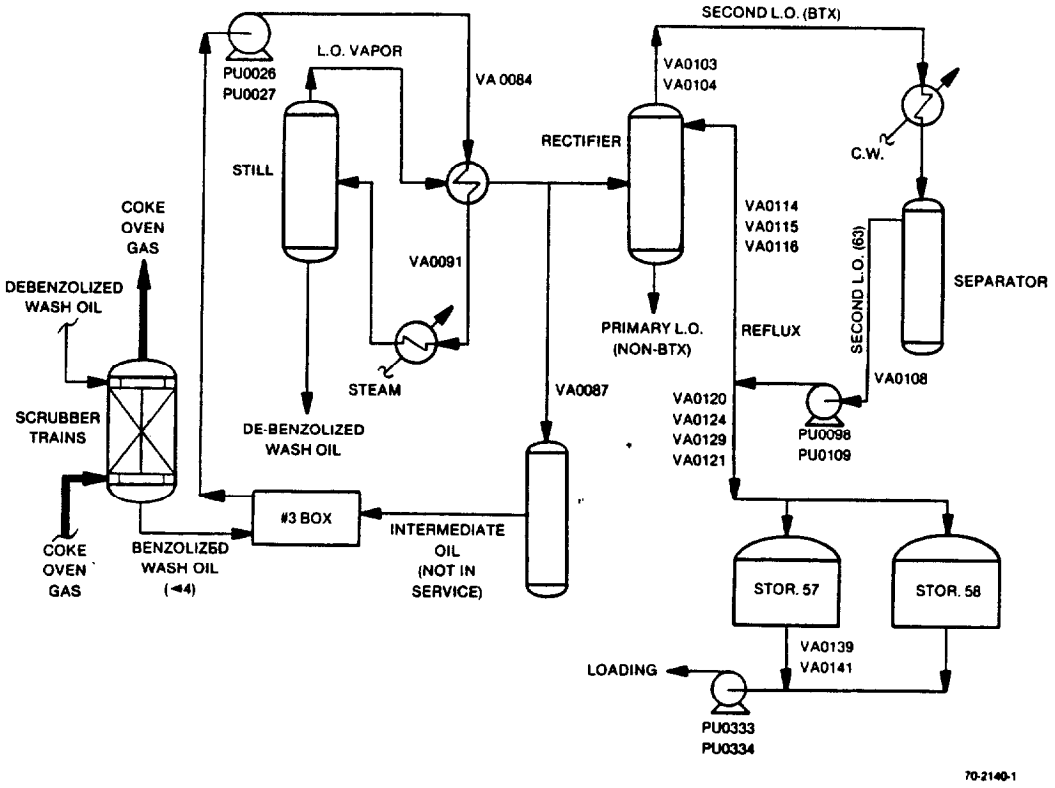
The configuration of the wash oil scrubbers in the light oil recovery section is shown in Figure 3-1. There are two trains of four scrubbers in series in each train. A third train on standby has two scrubbers. These standby scrubbers contained no wash oil during the survey and are operated only when production levels necessitate.

The remainder of the light oil recovery section is shown in Figure 3-2. The benzolized wash oil streams from scrubbers 3 and 9 are combined in the number 3 box. The benzolized wash oil is transferred from this box to the still, where it is steam stripped to separate the light oil from the wash oil. The light oil vapor from the still goes to the rectifier, where it is split into two fractions: an overhead stream called secondary or BTX light oil, and a bottoms stream called primary light oil. Essentially all benzene is in the secondary light oil. A portion of the light oil vapor from the still condenses in the line before it reaches the rectifier. This oil, referred to as intermediate oil, can be sent to the number 3 box to be combined with the benzolized wash oil; however, the line that does this had not been used for at least a month prior to testing.



- Coke Oven Gas (not shown) flows counter-current to the wash oil.
- Numbers following the letters VA and PU are source ID numbers for valves and pumps, respectively, from which fugitive emissions were detected.

Figure 3-1. Wash oil scrubber configuration at Bethlehem Steel, Bethlehem, Pennsylvania.



- Numbers following the letters VA and PU are source ID numbers for valves and pumps, respectively, from which fugitive emissions were detected.
- Numbers in parentheses are the weight percent benzene in that line.
- The symbol labelled "Scrubber Trains" represents the wash oil scrubber trains shown in Figure 3-1.

Figure 3-2. Light oil recovery unit at Bethlehem Steel, Bethlehem, Pennsylvania.

Fugitive emissions testing was to be performed in all areas of the plant with at least 4 weight percent or more benzene. This included the benzolized wash oil, still overhead, rectifier overhead, intermediate oil, and secondary oil line, and the secondary oil storage and loading areas. The benzolized wash oil line and the exhausters were screened, although they contained less than 4 percent benzene. The exhausters are upstream from the light oil recovery on the coke oven gas line, and are not shown in Figures 3-1 and 3-2.

SECTION 4

METHODOLOGY

The fugitive emissions testing at the Bethlehem Steel plant in Bethlehem included both "screening" and "bagging" operations. Screening is a generic term covering any quick portable method of detecting fugitive emissions. Bagging refers to a quantitative emission measurement achieved by enclosing the source in a Mylar® shroud and analyzing an equilibrium flow of air through the enclosure.

4.1 SCREENING PROCEDURES

Screening was done according to the procedures specified in EPA's proposed Method 21, a copy of which may be found in Appendix A-2. The instrument used in performing this screening was the Century Systems Organic Vapor Analyzer (OVA) Model 108. Method 21 requires the results of the screening to be recorded (as specified in the applicable regulation) only if the leak definition is met or exceeded. Since this effort was more oriented to standards development than to regulatory monitoring, the exact screening value was recorded for all sources.

The screening methods were used to survey every accessible valve and pump, and a portion of the flanges, on lines handling at least 4 weight percent benzene. Only one-third of the flanges were screened because of their large population. Exhausters were also screened, although they are not in the light oil recovery section of the plant and the coke oven gas they handle contains less than 4 weight percent benzene. Exhausters were included because they can potentially have high emissions.

The survey was conducted on a line-by-line basis with plant flow diagrams to ensure that no sources were missed and to group sources subject to similar process conditions. Plant personnel corroborated the identification of process lines and supplied data that was not otherwise immediately available, such as the composition and phase of the material in the line.

One source was not screened due to physical inaccessibility, but this source was recorded to insure that a complete source inventory was obtained. All leaking valves, pump seals, and exhauster seals were tagged with their respective ID numbers and were subsequently bagged.

4.2 SAMPLING PROCEDURES

Bagging procedures were carried out according to methods developed in previous petroleum refinery testing. Before and after a source was sampled, it was again screened. This time, however, a J.W. Bacharach "TLV Sniffer" (TLV) was used in addition to the OVA. The OVA uses a flame ionization detector and has a quick response time that makes it ideal for the initial screening. The TLV uses a catalytic oxidation detector and has a slower response than the OVA.

The leaking area of the source was completely enclosed in a shroud of Mylar® plastic to contain any emissions. Mylar® is well suited to this function, because it does not absorb significant amounts of hydrocarbons and has a high melting point (250°C). The enclosures were kept as small as possible, generally less than one cubic foot in volume except for enclosures of exhauster seals. A small enclosure provided a more effective seal, minimized the time required to make the enclosure and reach steady-state conditions, and minimized the condensation of heavy hydrocarbons within the enclosure.

The enclosure was connected to the sampling train shown in Figure 4-1. The sampling train included a cold trap, a dry gas meter, and a vacuum pump. The vacuum pump induced a flow of air, plus any fugitive emissions contained

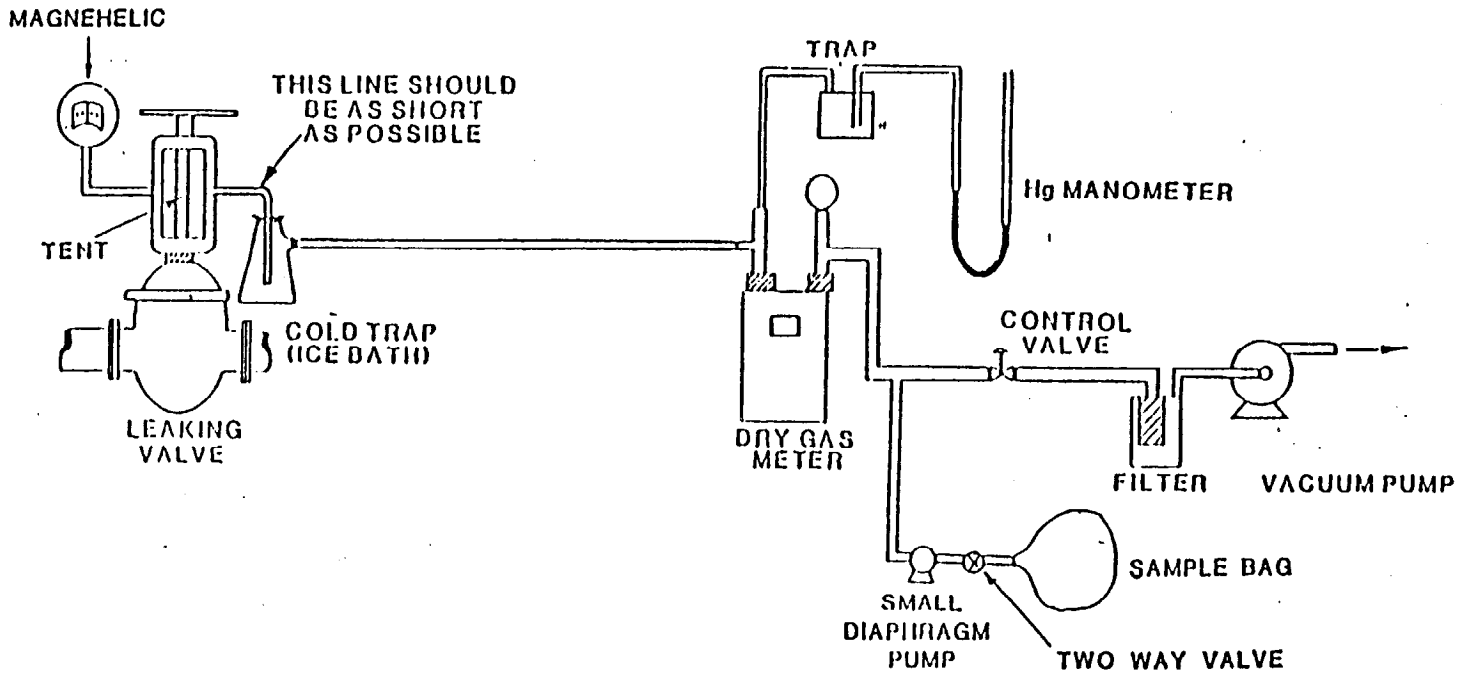


Figure 4-1. Sampling train for baggable source of hydrocarbon emissions.

within the enclosure, through the sampling train. A magnehelic connected to the enclosure with a short piece of latex tubing was used to ensure that a slight, but measurable, vacuum was maintained within the enclosure. A slight vacuum prevented fugitive emissions from leaking out of the enclosure.

The cold trap was used to condense water and heavy organics that might otherwise condense downstream in lines and equipment. This trap consisted of a 500 ml flask in an ice bath. No condensate was observed at the Bethlehem plant; however, if an organic condensate were collected, it would be measured, analyzed, and included in calculating the total leak rate.

Downstream from the cold trap, a dry gas meter measured the volume of gas that passed through the sampling train. By measuring the volume of gas during a known period of time, it was possible to calculate the dry gas flow rate. The gas flow rate could be varied, and the maximum flow rate achievable was about 2.5 cubic feet per minute. The temperature and pressure of the gas were measured to allow a conversion to standard conditions.

When sufficient time had passed to allow the system to reach steady-state (generally, 4 minutes were more than adequate for an enclosure of 1 cubic foot), a Tedlar® sampling bag was filled from the discharge of the small Teflon®-lined diaphragm pump. A second Tedlar® bag was filled with a sample of ambient air near the enclosure. The two samples were then taken to the mobile lab on the plant grounds for analysis.

Liquid leak rates were estimated by capturing the liquid in a watchglass and measuring the volume collected over a known period of time. Samples of each liquid leak and of the liquids from process lines were taken back to the laboratory for benzene analysis. Sample bottles were filled to the brim to minimize any vapor overhead space that would allow the benzene in the liquid sample to become dispersed between two phases.

4.3 ANALYTICAL TECHNIQUES

To quantify the VOC emissions from the bagged sources, the concentration of total hydrocarbon and also that of benzene were determined using gas chromatographic procedures. Primary analysis of fugitive volatile organic compounds (VOC) was performed on a Byron 301C Total Hydrocarbon Analyzer (THC). The THC has an upper detection limit of 20,000 ppmv. Dilutions of more concentrated samples were made with a 1.5 liter gas-tight syringe.

Methane calibrations were carried out daily on the THC with an 8000 ppmv methane/air standard. Nonmethane hydrocarbon calibrations were also carried out daily on the THC with a 713 ppmw NBS propane standard.

Analyses for benzene were performed on a Hewlett Packard 5730A Dual FID Gas Chromatograph. Dual gas samples were introduced simultaneously onto separate columns with a Valco 10 port Hastalloy C multiport valve installed immediately forward of the GC syringe injection ports. Peak integrations were compiled on two Hewlett Packard 3380A electronic integrators. Liquid samples were analyzed by normal syringe injection techniques using benzene as an external standard.

The columns and conditions used for the benzene analyses are listed below:

- 1/8" OD, 2 mm ID, 15 feet, 5% SP-2100/1.75% Benton 34 on 100/120 mesh Supelcoport.
- 1/8" OD, 2 mm ID, 15 feet, 10% TCEP on 100/120 mesh Chromosorb P acid washed.
- N_2 carrier at 30 ml/min.
- Isothermal at 110°C.

The instrument was calibrated daily with a 5571 ppmw benzene in air standard. Single analyses were done simultaneously on the two different columns after calibration.

SECTION 5

QUALITY CONTROL/QUALITY ASSURANCE

5.1 QUALITY CONTROL FOR SCREENING PROCEDURES

Screening at the Bethlehem plant was done with a single Century Systems Organic Vapor Analyzer (OVA) Model 108 and one J.W. Bacharach Instrument Company "TLV Sniffer." The corresponding instrument identification numbers are given below.

Device Type	Assigned ID Number
OVA	3
TLV	4

Two quality assurance activities were used for the screening devices:

- calibration checks, and
- repeated screenings

5.1.1 CALIBRATION CHECKS

The OVA and TLV instruments were calibrated in the morning each day before they were used. Standards of 90 ppmv and 1990 ppmv hexane in air were used to obtain a two point calibration on the TLV; 7990 ppmv methane in air was used to calibrate the OVA. Before a recalibration was made each day, the values obtained from the instrument were recorded. This served two purposes:

- a check for instrument damage or malfunction, and
- a rough check on the stability of the daily calibration.

In addition to the high (and low for TLV) standard calibrations, a dilution probe was occasionally attached to the instrument and another reading was taken. The probe was set at 10:1 dilution of the high standard concentration. The calibration data is summarized in Table 5-1.

The calibration checking results do indicate some significant drift. It should be noted, however, that these readings are taken in the morning before calibration and not at the close of the screening day. It is likely that most of the calibration drift occurs due to the overnight shutdown and recharge rather than during the days screening. The phenomenon of calibration drift over a shutdown and re-start has been observed in other studies.

5.1.2 REPEATED SCREENINGS

The reproducibility of screening values was investigated by repeated screenings of three sources. Two valves and one pump seal were selected to represent a variety of screening values. Each source was screened once in the morning and once in the afternoon for five days. Screening was performed with an OVA by the same operator at all times.

The results of the repeated screenings are plotted for each source in Figures 5-1 through 5-3. Screening values are plotted on a logarithmic scale against the date of screening. Variability in screening values for each source probably reflects the variability in the actual leak rate at the source, as well as the variability in the response of the screening instrument.

5.2 QUALITY CONTROL FOR ANALYTICAL AND SAMPLING PROCEDURES

Quality control procedures were implemented to insure accurate, consistent, and unbiased analytical and sampling techniques during the project. The procedures discussed in this section include:

- blind standards
- accuracy checks

TABLE 5-1. CALIBRATION CHECKING OF OVA AND TLV

Date	OVA 3		TLV 4	
	High Standard, ppmv[a]	Dil Probe, ppmv[b]	Low Standard, ppmv[c]	High Standard, ppmv[d]
01/21/81	3000			
01/22/81	4500	2500		2200
01/23/81	>10,000	3000		3000
01/26/81	5000	800	360	2300
01/27/81	9000	800	300	2000
01/28/81	4000	800	240	1900

Footnotes:

a) OVA calibration standard contained 7990 ppmv methane in air
b) OVA reading with dilution probe should be 800 ppmv
c) TLV low calibration standard contained 90 ppmv hexane in air
d) TLV high calibration standard contained 1990 ppmv hexane in air

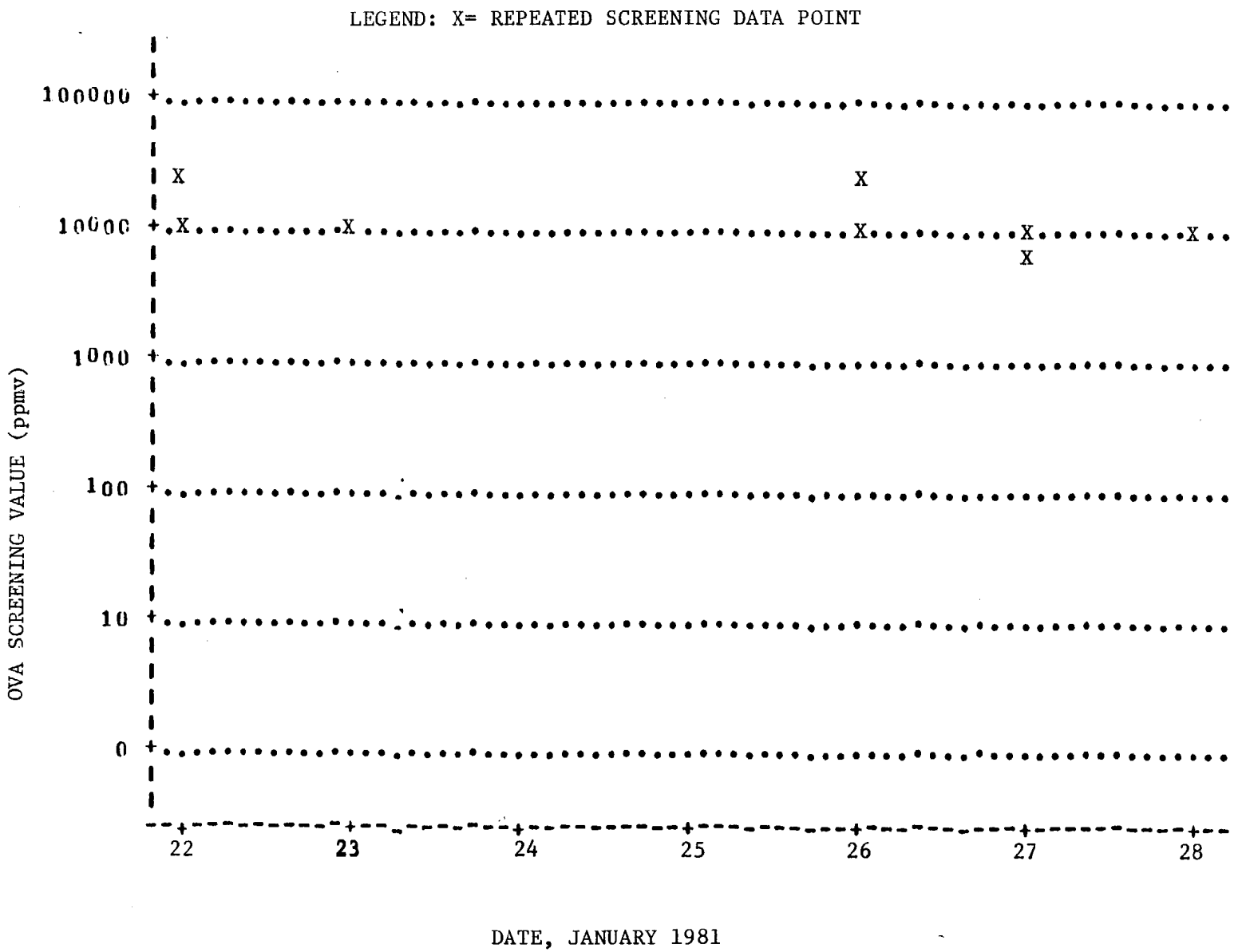


Figure 5-1. Repeated Screenings at Bethlehem Plant for Pump Seal ID #98

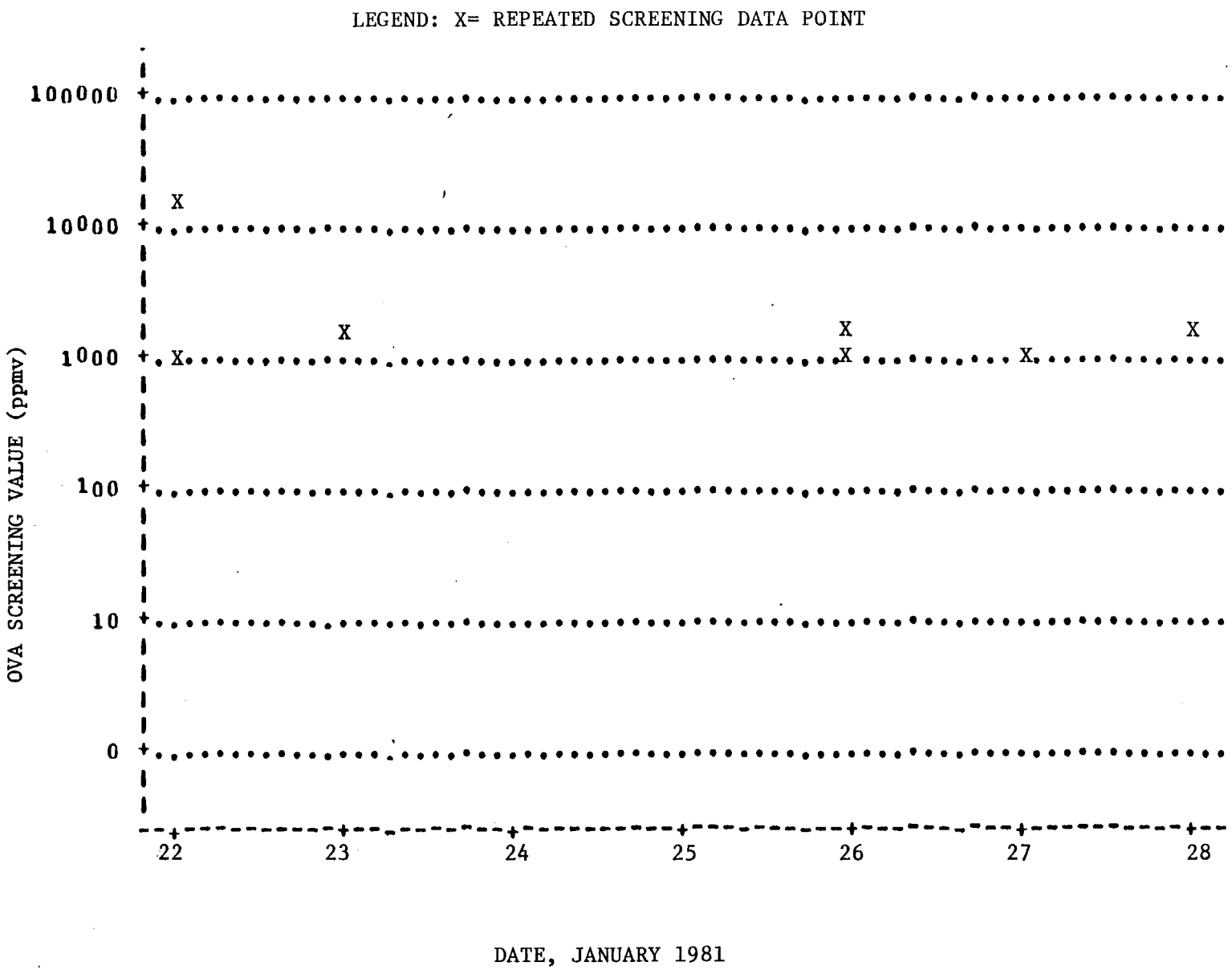


Figure 5-2. Repeated Screenings at Bethlehem Plant for Valve ID #114

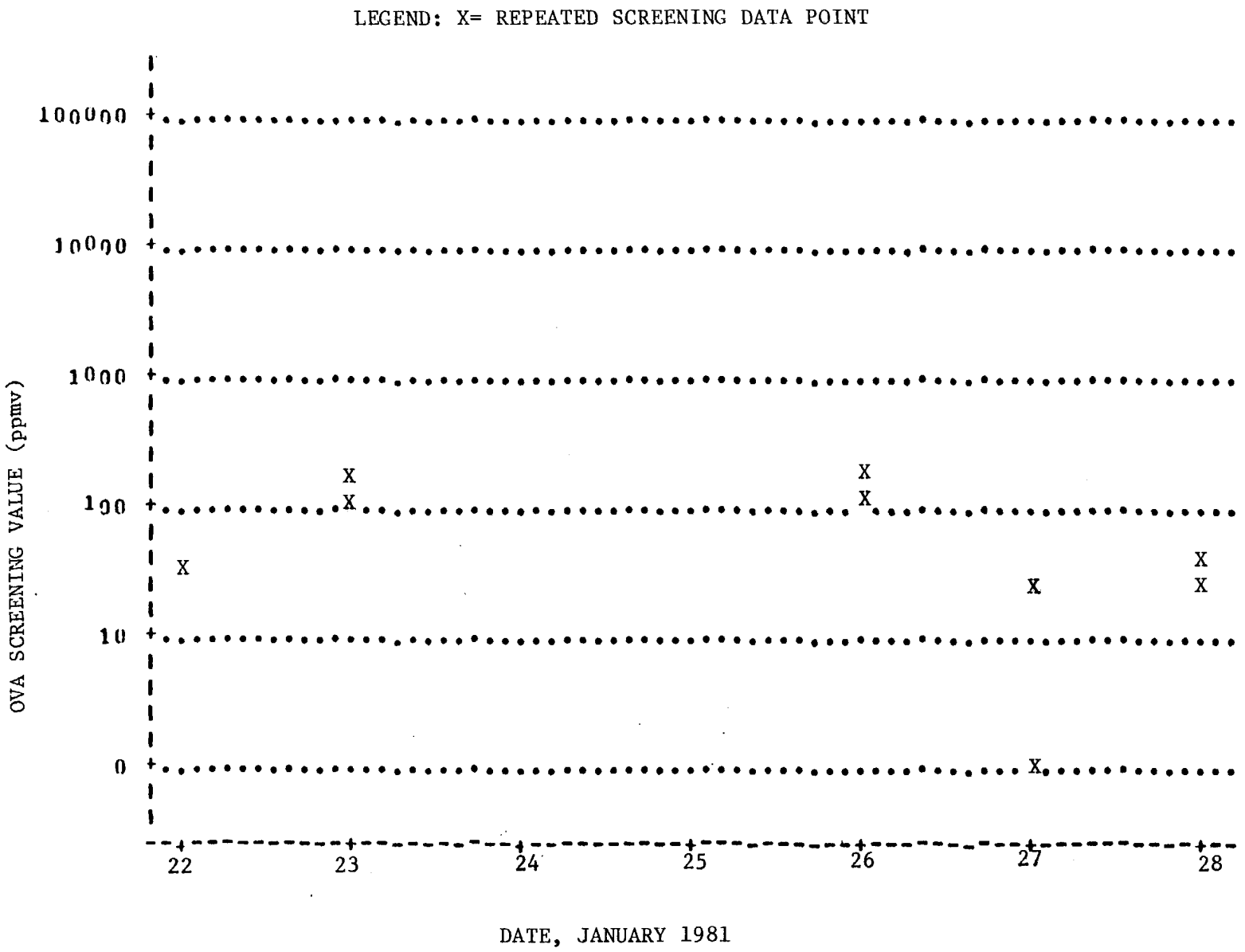


Figure 5-3. Repeated Screenings at Bethlehem Plant for Valve ID #116

5.2.1 BLIND STANDARDS

An 80 percent benzene liquid standard was submitted to the analyst without divulging the concentration in order to evaluate the accuracy of the gas chromatographic analysis of liquid leaks and line samples. Table 5-2 indicates that the measured benzene content was 81 percent.

TABLE 5-2. LIQUID BLIND STANDARD ANALYSIS RESULTS

Standard I.D.	Actual Benzene (percent)	Measured Benzene (percent)
PU 11	80	81

In addition to the blind standard material analysis, a portion of liquid leak and line samples were analyzed by GC/MS to confirm that the amounts of benzene found by GC were only benzene and were not coeluting compounds. Analysis of pure benzene and two samples on each of two columns, as depicted graphically in Figures 5-4 through 5-10, demonstrates that there were no other compounds present with the same retention time as benzene.

5.2.2 ACCURACY CHECKS

Accuracy checks were used to evaluate the overall accuracy of the sampling and analysis techniques. It basically involves inducing a known flow rate of a concentrated calibration gas into the sampling system and taking a bag sample of the diluted calibration gas at the exit of the system. Analysis of the bag sample by THC or GC provides data to calculate the measured leak rate. The induced leak rate is calculated from the flow rate and concentration of the induced standard gas.

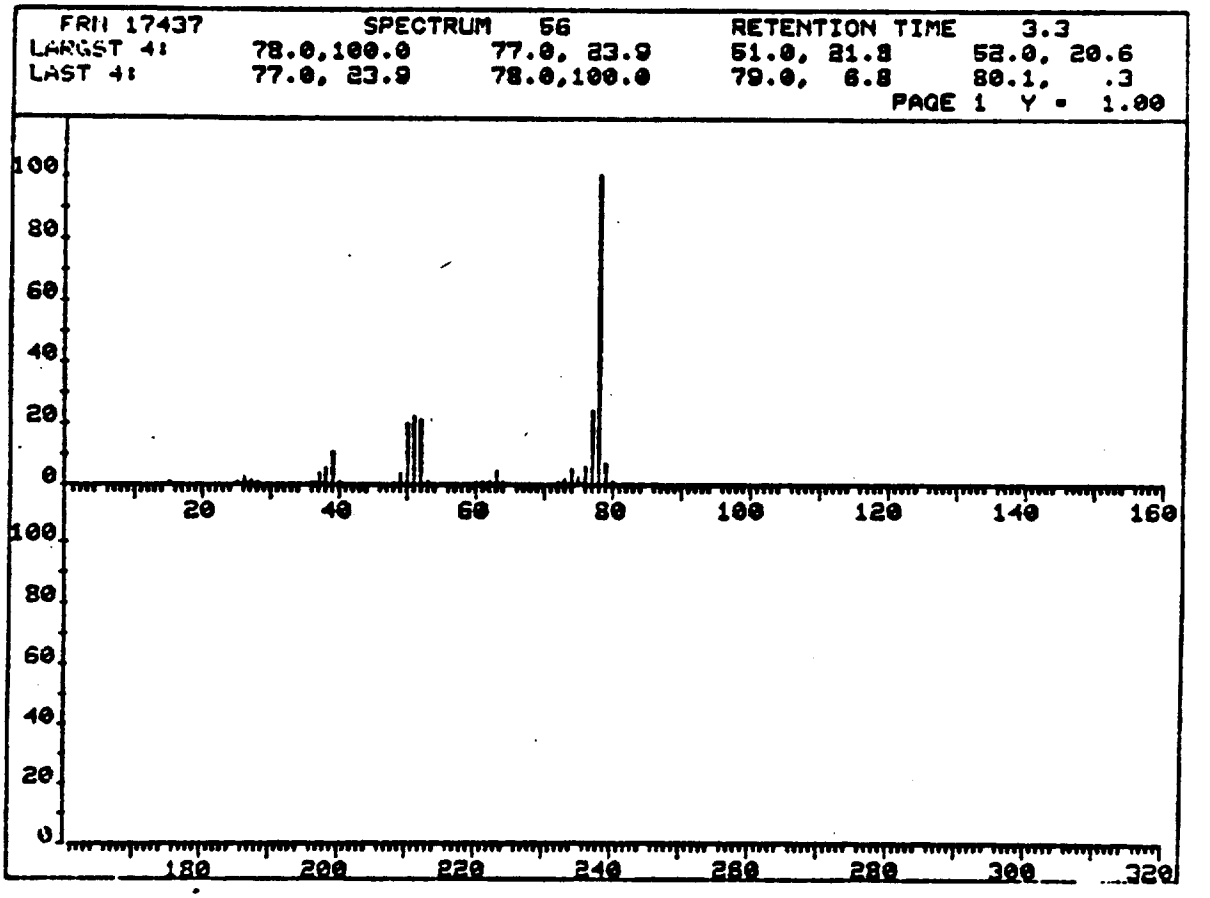


Figure 5-4. Mass Spectrum of Pure Benzene on SP-2100/Bentone Column

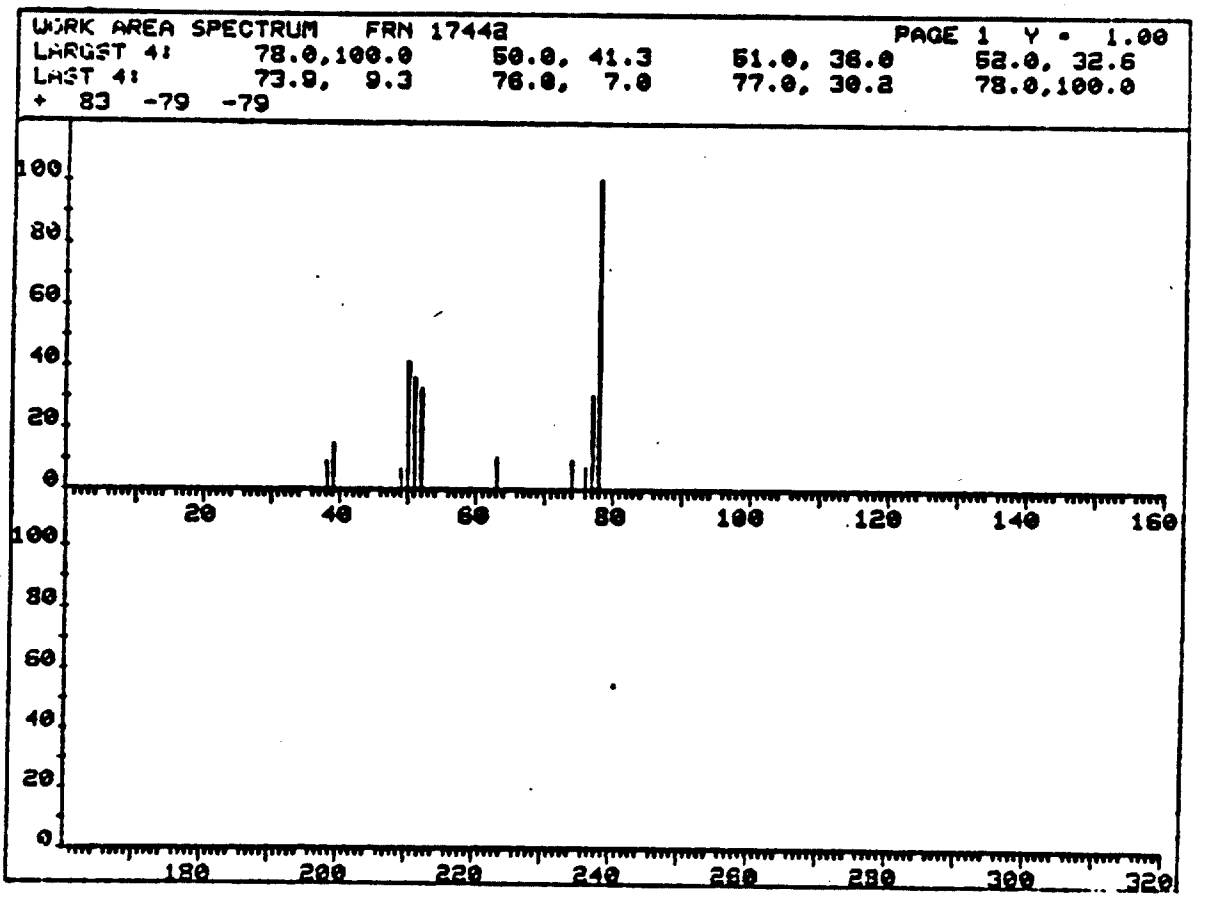


Figure 5-5. Mass Spectrum of Liquid Leak From PU-68 on SP-2100/Bentone

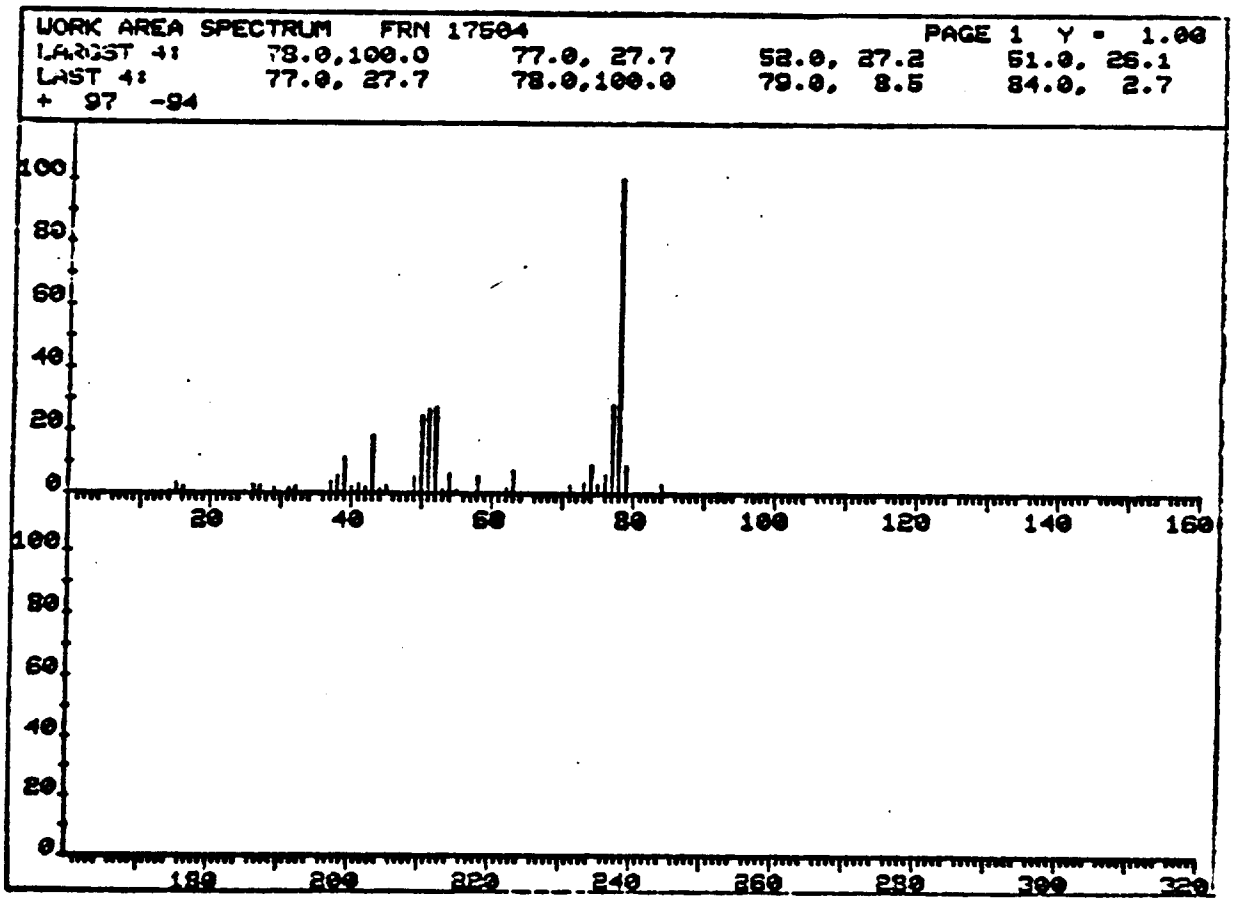


Figure 5-6. Mass Spectrum of Liquid Leak from PU-68 on TCEP

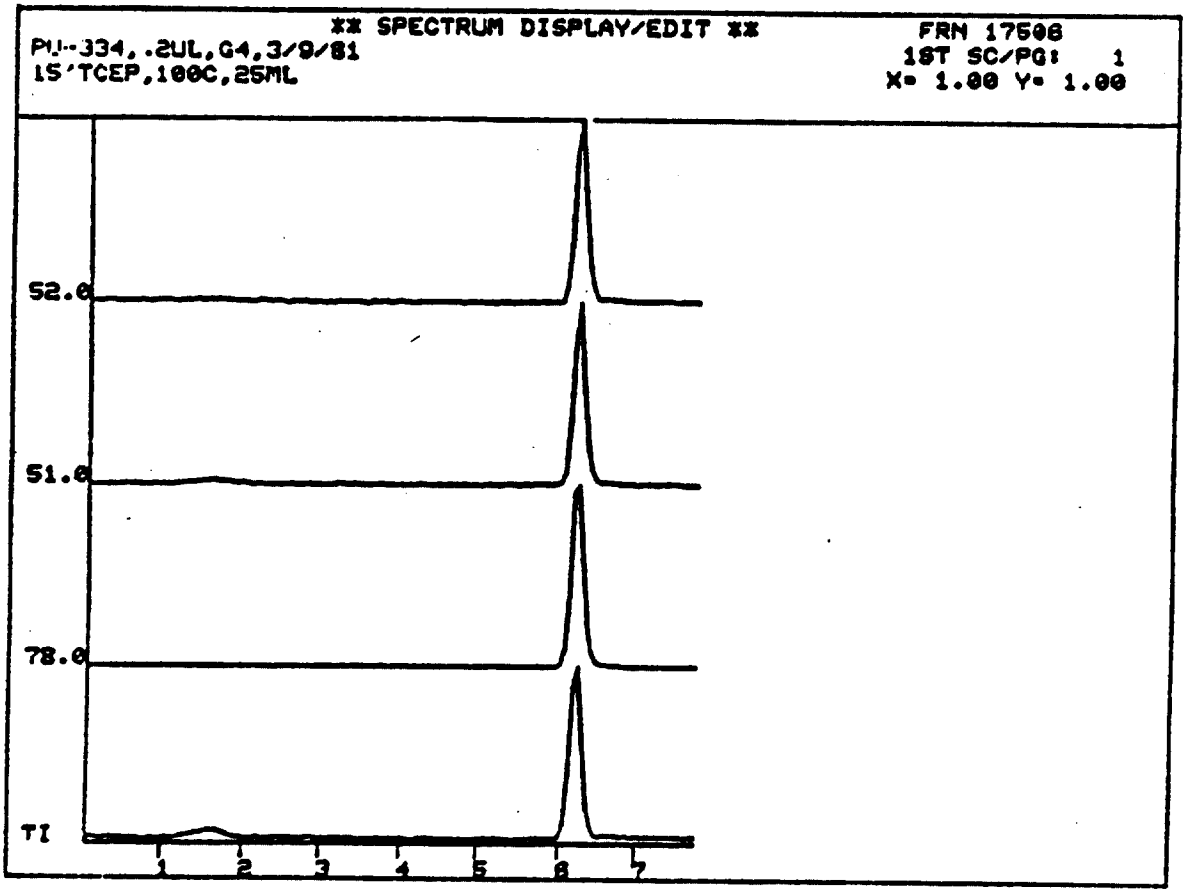


Figure 5-7. GC of Liquid Leak from PU-334 on TCEP

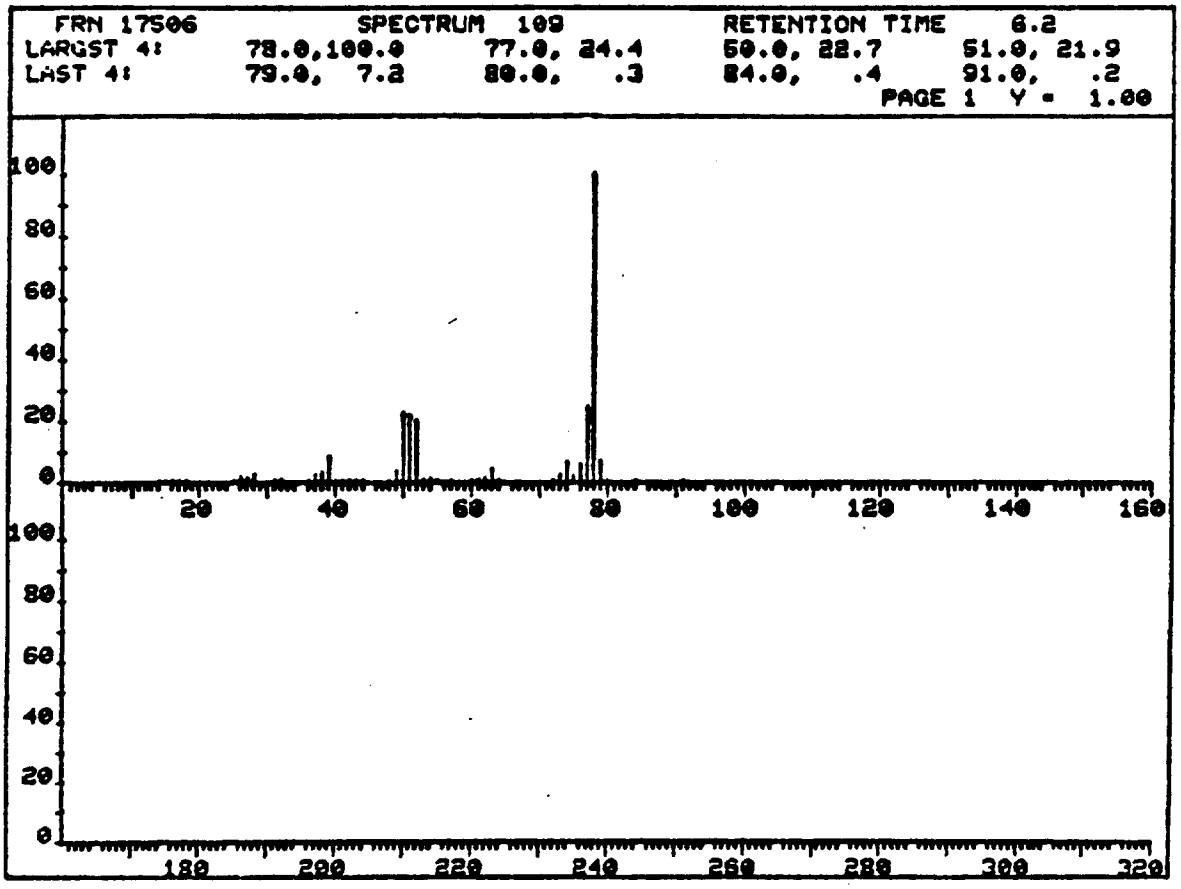


Figure 5-8. Mass Spectrum of Liquid Leak from PU-334 on TCEP

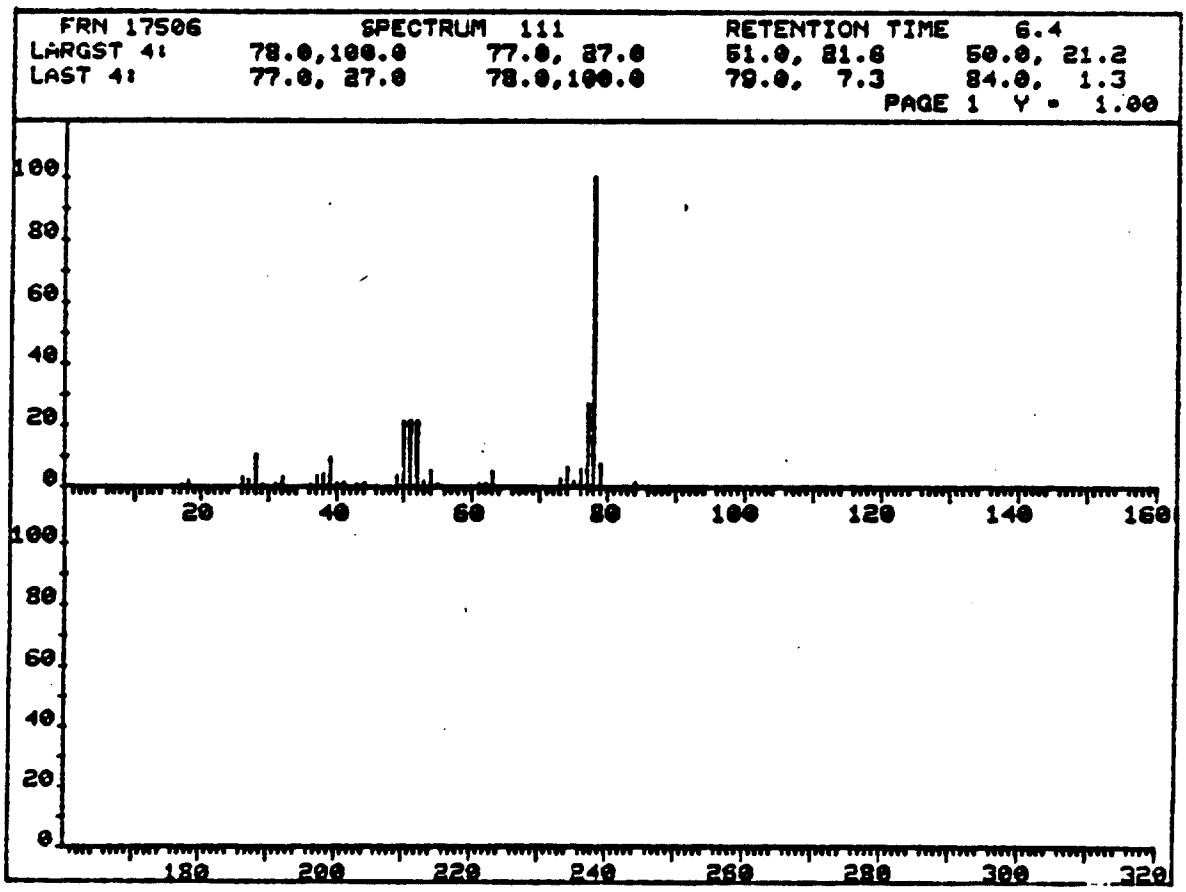


Figure 5-9. Mass Spectrum of Liquid Leak from PU-334 on TCEP

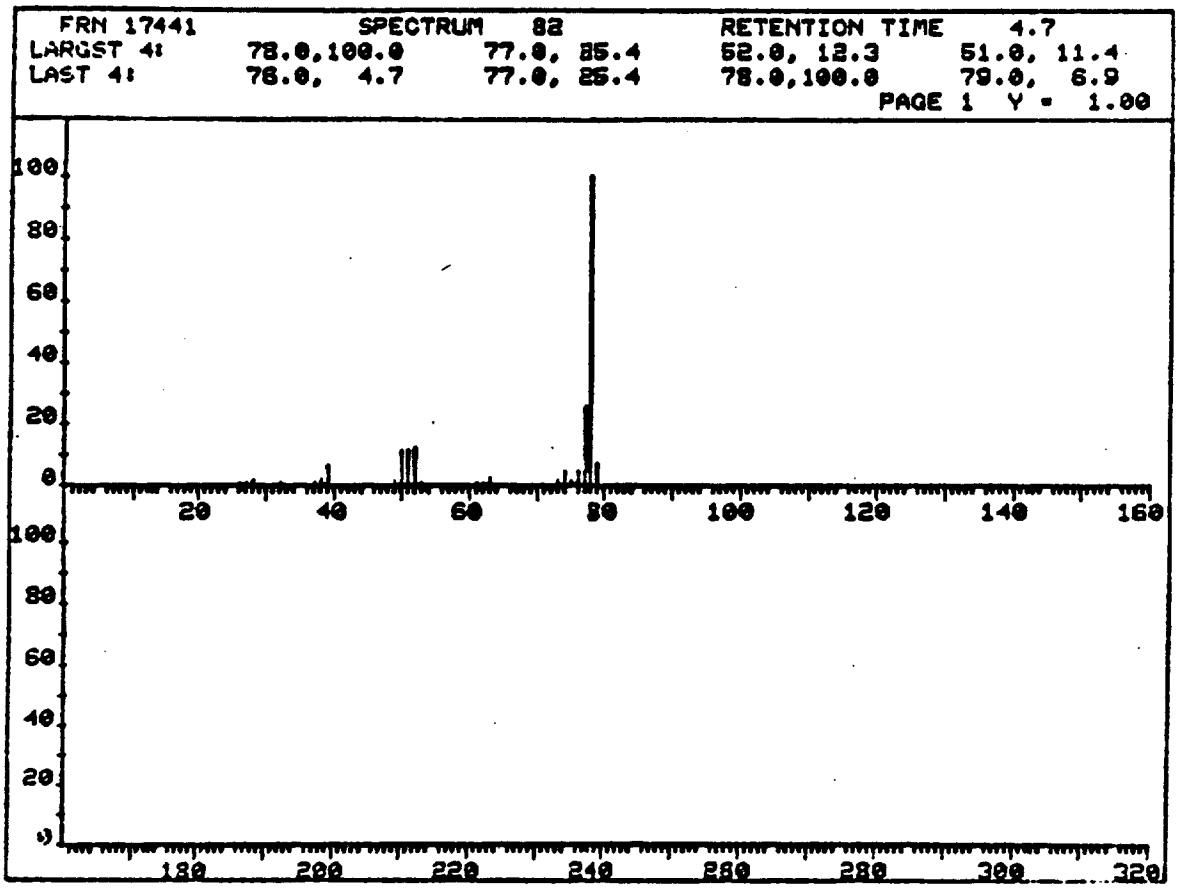


Figure 5-10. Mass Spectrum of Liquid Leak from PU-334 on SP-2100/Bentone

Table 5-3 lists the data from three accuracy tests. The measured leak rate, induced leak rate, and the percent recovery are shown. The percent recovery is calculated as follows:

$$\text{Percent Recovery} = \frac{\text{Measured leak rate}}{\text{Induced leak rate}} \times 100\%$$

The average recovery and its standard deviation are 117.2 percent and 7.61 percent respectively.

TABLE 5-3. ACCURACY CHECKS DATA LISTING

Date	Standard Type	Measured Leak Rate (lbs/hr)	Induced Leak Rate (lbs/hr)	Percent Recovery
01/21/81	Benzene	0.001005	0.000801	125.4
01/21/81	Benzene	0.0009484	0.0008200	115.7
01/26/81	Benzene	0.0009669	0.0008760	110.4
			Average recovery =	117.2
			Standard deviation=	7.61

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APPENDIX A

CALCULATIONS AND METHODS

A-1 Sample Emission Calculations
A-2 EPA Method 21

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A-1 Sample Emission Calculations

APPENDIX A-1

EMISSION CALCULATIONS

The emission rates can be calculated from the physical measurements recorded during the operation of the sampling train and with the anlyses of the hydrocarbon content of the air passing through the sampling train. The basic equation is:

$$L = \frac{k_1 \, DF(P-\Delta P)M(C_T - C_A)}{460+T} \qquad \text{(A-1)}$$

where
- L = Hydrocarbon vapor emission rate, lb/hr
- k_1 = 2.75×10^{-6} (°R-min-mole/SCF-in.Hg-hr-ppmw)
- D = Dry gas meter correction factor (dimensionless)
- F = Flow rate, cubic feet per minute
- P = Ambient atmospheric pressure, in. Hg
- ΔP = Pressure differential between ambient pressure and pressure at dry gas meter, in. Hg
- M = Average molecular weight of gas (essentially air) passing through dry gas meter, lb/lb.mole
- C_T = Total hydrocarbon concentration in air passing through the dry gas meter, ppmw
- C_A = Total hydrocarbon concentration in air near the sampled leak source, ppmw
- T = Temperature of gas (air) stream at the dry gas meter, °F.

The constant k_1 is a product of several conversion constants:

$$k_1 = \frac{(520°R) \times (60 \text{ min/hr})}{(379 \frac{SCF}{mole}) \times (29.92 \text{ in. Hg}) \times (10^6 \text{ ppmw})}$$

$k_1 = 2.75 \times 10^{-6}$ (°R-min-mole/SCF-in.Hg-hr-ppmw)

As an example calculation, assume a total hydrocarbon concentration of 19,000 ppmw was measured in the gas stream from a tent around a leaking source in an ethylene unit. The hydrocarbon would be assumed to be hexane (MW-86). The following values were recorded during the sampling:

$F = 1.5$ CFM

$P = 29.9$ in. Hg

$\Delta P = 2.0$ in. Hg (at the dry gas meter)

$C_T = 19{,}000$ ppmw

$C_A = 20$ ppmw

$T = 75°F$

and $D = 0.95$

Then
$$M = \frac{10^6}{\frac{19{,}000}{86} + \frac{10^6 - 19{,}000}{29}} = 29.37$$

The vapor emission rate L is then calculated from Equation (A-1)

$$L = \frac{(2.75 \times 10^{-6})(0.95)(1.5)(29.9 - 2.0)(29.37)(19{,}000 - 20)}{460 + 75}$$

$L = 0.114$ lb/hr.

The vapor emission rate of benzene is estimated from the hydrocarbon emission rate and the concentration data for benzene and non-methane hydrocarbons. The equation used is:

$$B = L \frac{(C_B - C_{AB})}{(C_T - C_A)} \qquad \text{(A-2)}$$

where B = Benzene vapor emission rate, lb/hr

C_B = Benzene concentration in air passing through the dry gas meter, ppmw

C_{AB} = Benzene concentration in air near the sampled leak source, ppmw.

For example, using the previous example with the data:

C_B = 15,500 ppmw

C_{AB} = 10 ppmw

the benzene vapor emission rate is calculated:

$$B = 0.114 \frac{(15,500 - 10)}{(19,000 - 20)}$$

$$B = 0.093 \text{ lb/hr.}$$

The emission rates for liquid leaks are calculated by the equation:

$$TLLR = 7.93 \frac{\rho V}{t} \qquad \text{(A-3)}$$

where TLLR = Total liquid leak rate, lb/hr

7.93 = Conversion factor from g/sec to lb/hr

V = Volume of liquid collected, cc

t = Time of collection, sec

ρ = Density of sample, g/cc.

For example, 4.0 cc of liquid from a leaking source were captured in 60 seconds, and the liquid was found to have a density of 0.75 g/cc, then:

$$TLLR = (7.93)(0.75)(4.0)/(60)$$

$$TLLR = 0.40 \text{ lb/hr.}$$

The liquid benzene leak rate is:

$$BLLR = \frac{TLLR\ [Benz.]}{100} \qquad \text{(A-4)}$$

where BLLR = Benzene liquid leak rate

[Benz]= Benzene concentration in liquid, weight percent

For example, if the liquid leak described above was found to have 79 wt percent benzene then:

$$BLLR = (0.40)(79)/(100)$$

$$BLLR = 0.31 \text{ lb/hr.}$$

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A-2 EPA Method 21

PROPOSED METHOD 21. DETERMINATION OF VOLATILE ORGANIC COMPOUND LEAKS

1. Applicability and Principle

1.1 Applicability. This method applies to the determination of volatile organic compound (VOC) leaks from organic process equipment. These sources include, but are not limited to, valves, flanges and other connections, pumps and compressors, pressure relief devices, process drains, open-ended valves, pump and compressor seal system degassing vents, accumulator vessel vents, and access door seals.

1.2 Principle. A portable instrument is used to detect VOC leaks from individual sources. The instrument detector is not specified, but it must meet the specifications and performance criteria contained in paragraph 2.1.

2. Apparatus

2.1 Monitoring Instrument. The monitoring instrument shall be as follows:

2.1.1 Specifications.

a. The VOC instrument detector shall respond to the organic compounds being processed. Detectors which may meet this requirement include, but are not limited to, catalytic oxidation, flame ionization, infrared absorption, and photoionization.

b. The instrument shall be intrinsically safe for operation in explosive atmospheres as defined by the applicable U.S.A. Standards (e.g., National Electrical Code by the National Fire Prevention Association).

c. The instrument shall be able to measure the leak definition concentration specified in the regulation.

d. The instrument shall be equipped with a pump so that a continuous sample is provided to the detector. The nominal sample flow rate shall be 1-3 liters per minute.

e. The scale of the instrument meter shall be readable to ±5 percent of the specified leak definition concentration.

2.1.2 Performance Criteria. The instrument must meet the following performance criteria. The definitions and evaluation procedures for each parameter are given in Section 4.

2.1.2.1 The instrument response time must be 30 seconds or less. The response time must be determined for the instrument system configuration to be used during testing, including dilution equipment. The use of a system with a shorter response time than that specified will reduce the time required for field component surveys.

2.1.2.2 Calibration Precision: The calibration precision must be less than or equal to 10 percent of the calibration gas value.

2.1.2.3 Quality Assurance. The instrument shall be subjected to response time and calibration precision tests prior to being placed in service. The calibration precision test shall be repeated every 6 months thereafter. If any modification or replacement of the

instrument detector is required, the instrument shall be retested and a new 6 month quality assurance test schedule will apply. The response time test shall be repeated if any modifications to the sample pumping system or flow configuration is made that would change the response time.

2.3 Calibration Gases. The monitoring instrument is calibrated in terms of parts per million by volume (ppmv) of the compound specified in the applicable regulation. The calibration gases required for monitoring and instrument performance evaluation are a zero gas (air, 3 ppmv VOC) and a calibration gas in air mixture approximately equal to the leak definition specified in the regulation. If cylinder calibration gas mixtures are used, they must be analyzed and certified by the manufacturer to be within ±2 percent accuracy. Calibration gases may be prepared by the user according to any accepted gaseous standards preparation procedure that will yield a mixture accurate to within ±2 percent. Alternative calibration gas species may be used in place of the calibration compound if a relative response factor for each instrument is determined so that calibrations with the alternative species may be expressed as calibration compound equivalents on the meter readout.

3. Procedures

3.1 Calibration. Assemble and start up the VOC analyzer and recorder according to the manufacturer's instructions. After the appropriate warmup period and zero or internal calibration procedure, introduce the calibration gas into the instrument sample probe. Adjust the instrument meter readout to correspond to the calibration gas value.

If a dilution apparatus is used, calibration must include the instrument and dilution apparatus assembly. The nominal dilution factor may be used to establish a scale factor for converting to an undiluted basis. For example, if a nominal 10:1 dilution apparatus is used, the meter reading for a 10,000 ppm calibration would be set at 1,000. During field surveys, the scale factor of 10 would be used to convert measurements to an undiluted basis.

3.2 Individual Source Surveys.

3.2.1 Case I - Leak Definition Based on Concentration Value. Place the probe inlet at the surface of the component interface where leakage could occur. Move the probe along the interface periphery while observing the instrument readout. If an increased meter reading is observed, slowly probe the interface where leakage is indicated until the maximum meter reading is obtained. Leave the probe inlet at this maximum reading location for approximately two times the instrument response time. If the maximum observed meter reading is greater than the leak definition in the applicable regulation, record and report the results as specified in the regulation reporting requirements. Examples of the application of this general technique to specific equipment types are:

a. Valves--The most common source of leaks from valves is at the seal between the stem and housing. Place the probe at the interface where the stem exits the packing gland and sample the stem circumference. Also, place the probe at the interface of the packing gland take-up flange seat and sample the periphery. In addition, survey

valve housings of multipart assembly at the surface of all interfaces where leaks can occur.

b. Flanges and Other Connections--For welded flanges, place the probe at the outer edge of the flange-gasket interface and sample around the circumference of the flange. Sample other types of nonpermanent joints (such as threaded connections) with a similar traverse.

c. Pumps and Compressors--Conduct a circumferential traverse at the outer surface of the pump or compressor shaft and seal interface. If the source is a rotating shaft, position the probe inlet within one centimeter of the shaft-seal interface for the survey. If the housing configuration prevents a complete traverse of the shaft periphery, sample all accessible portions. Sample all other joints on the pump or compressor housing where leakage can occur.

d. Pressure Relief Devices--The configuration of most pressure relief devices prevents sampling at the sealing seat interface. For those devices equipped with an enclosed extension, or horn, place the probe inlet at approximately the center of the exhaust area to the atmosphere for sampling.

e. Process Drains--For open drains, place the probe inlet at approximately the center of the area open to the atmosphere for sampling. For covered drains, place the probe at the surface of the cover interface and conduct a peripheral traverse.

f. Open-Ended Lines or Valves--Place the probe inlet at approximately the center of the opening to the atmosphere for sampling.

g. Seal System Degassing Vents and Accumulator Vents--Place the probe inlet at approximately the center of the opening to the atmosphere for sampling.

h. Access Door Seals--Place the probe inlet at the surface of the door seal interface and conduct a peripheral traverse.

3.2.2 Case II-Leak Definition Based on "No Detectable Emission".

a. Determine the local background concentration around the source by moving the probe inlet randomly upwind and downwind at distance of one to two meters from the source. If an interference exists with this determination due to a nearby emission or leak, the local background concentration may be determined at distances closer to the source, but in no case shall the distance be less than 25 centimeters. Note the background concentration and then move the probe inlet to the surface of the source and conduct a survey as described in 3.2.1. If a concentration increase greater than 2 percent of the concentration-based leak definition is obtained, record and report the results as specified by the regulation.

b. For those cases where the regulation requires a specific device installation, or that specified vents be ducted or piped to a control device, the existence of these conditions shall be visually confirmed. When the regulation also requires that no detectable emissions exist, visual observations and sampling surveys are required. Examples of this technique are:

i. Pump or Compressor Seals--If applicable, determine the type of shaft seal. Perform a survey of the local area ambient VOC

concentration and determine if detectable emissions exist as described in 3.2.2.a.

ii. Seal system degassing vents, accumulator vessel vents, pressure relief devices--If applicable, observe whether or not the applicable ducting or piping exists. Also, determine if any sources exist in the ducting or piping where emissions could occur prior to the control device. If the required ducting or piping exists and there are no sources of where the emissions could be vented to the atmosphere prior to the control device, then it is presumed that no detectable emissions are present.

4. Instrument Performance Evaluation Procedures

4.1 Definitions.

4.1.1 Calibration Precision. The difference between the average VOC concentration indicated by the meter readout for consecutive repetitions and the known concentration of a test gas mixture.

4.1.2 Response Time. The time interval from a step change in VOC concentration at the input of the sampling system to the time at which 90 percent of the corresponding final value is reached as displayed on the instrument readout meter.

4.2 Evaluation Procedures. At the beginning of the instrument performance evaluation test, assemble and start up the instrument according to the manufacturer's instructions for recommended warmup period and preliminary adjustments. If a dilution apparatus is used during field surveys, the evaluation procedure must be performed on the instrument-dilution system combination.

4.2.1 Calibration Precision Test. Make a total of nine measurements by alternately using zero gas and the specified calibration gas. Record the meter readings (example data sheet shwon in Figure 21-1).

4.2.2 Response Time Test Procedure. Introduce zero gas into the instrument sample probe. When the meter reading has stabilized, switch quickly to the specified calibration gas. Measure the time from concentration switching to 95 percent of final stable reading. Perform this test sequence three times and record the results (example data sheet given in Figure 21-2).

4.3 Calculations. All results are expressed as mean values, calculated by:

$$\bar{x} = \frac{1}{n} \sum_{i=1}^{n} x_i$$

Where:

x_i = Value of the measurements.

Σ = Sum of the individual values.

$\bar{x}$ = Mean value.

n = Number of data points.

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APPENDIX B

ORIGINAL DATA SHEETS

B-1 Screening Data
B-2 Screening Sheets for Sample Data
B-3 Sample Data
B-4 Analysis Data
B-5 OVA and TLV Calibration Data
B-6 Repeat Screening Data
B-7 Dry Gas Meter Calibration Data
B-8 Accuracy Check Data

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B-1 Screening Data

TABLE B-1.1. SOURCE TYPE IDENTIFICATION CODES

Source Type	Source Type Code
Flange	1
Process Drain	2
Open-End Line	3
Agitator Seal	4
Relief Valve	5
Screwed Fitting	6
Valves	
Block valve - gate type	10
Block valve - globe type	11
Block valve - plug type	12
Block valve - ball type	13
Block valve - butterfly type	14
Block valve - other types	15
Control valve - gate type	20
Control valve - globe type	21
Control valve - plug type	22
Control valve - ball type	23
Control valve - butterfly type	24
Control valve - other types	25
On-Line Pump Seals*	
Single, mechanical, emission point at seal	30
Single, mechanical, emission point at vent	31
Single, mechanical, other emission point	32
Double, mechanical, emission point at seal	33
Double, mechanical, emission point at vent	34
Double, mechanical, other emission point	35

Continued ...

TABLE B-1.1. CONTINUED

Source Type	Source Type Code
Single, packed, emission point at seal	36
Single, packed, emission point at vent	37
Single, packed, other emission point	38
Sealless pumps	39
Off-Line Pump Seals	
Single, mechanical, emission point at seal	40
Single, mechanical, emission point at vent	41
Single, mechanical, other emission point	42
Double, mechanical, emission point at seal	43
Double, mechanical, emission point at vent	44
Double, mechanical, other emission point	45
Single, packed, emission point at seal	46
Single, packed, emission point at vent	47
Single, packed, other emission point	48
Sealless pumps	49
On-Line Compressor Seals	
Single, mechanical, emission point at seal	50
Single, mechanical, emission point at vent	51
Single, mechanical, other emission point	52
Double, mechanical, emission point at seal	53
Double, mechanical, emission point at vent	54
Double, mechanical, other emission point	55
Single, packed, emission point at seal	56
Single, packed, emission point at vent	57
Single, packed, other emission point	58
Sealless compressors	59

Continued ...

TABLE B-1.1. CONTINUED

Source Type	Source Type Code
Off-Line Compressor Seals	
Single, mechanical, emission point at seal	60
Single, mechanical, emission point at vent	61
Single, mechanical, other emission point	62
Double, mechanical, emission point at seal	63
Double, mechanical, emission point at vent	64
Double, mechanical, other emission point	65
Single, packed, emission point at seal	66
Single, packed, emission point at vent	67
Single, packed, other emission point	68
Sealless compressors	69
Exhausters	
Suction side	70
High pressure side	71

* O = outboard seal; I = inboard seal

TABLE B-1.2. STREAM IDENTIFICATION CODES

Code	Description of Stream (Columns 25-27)
1	Coke oven gas
2	BTX fraction of light oil; Unit 3 refers to this as Secondary Oil - a convention different from that used at Unit 2 where secondary oil is the non-BTX fraction of the light oil
3	Steam and vaporized light oil
7	Benzolized wash oil
9	Condensables from heat exchanger
10	Benzolized wash oil from scrubbers
11	Benzolized wash oil from scrubbers
12	Benzolized wash oil from scrubbers
13	Benzolized wash oil from scrubbers
14	Intermediate oil
15	Water and light oil from condenser
16	Refers to standby scrubbers used depending upon production levels. These were not in service during the survey period.
	Service
1	Gas
2	Light liquid
3	Heavy liquid
	Elevation
1	Sources at ground level
2	Sources at one level above ground level
3	Sources at two levels above ground level

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SCREENING DATA SHEET

Month (1)	Day (3)	Screening Team (5)	Instrument (7)	Source ID (8)	Screening Value (13)	Source Type (20)	Process Unit (22)	Service (24)	Primary Material ID (25)	Primary Material Conc. (28)	Secondary Material ID (29)	Secondary Material Conc. (32)	Line Temperature °F (33)	Line Pressure psig (37)	Ambient Air Temperature °F (41)	Elevation (44)	Comments (45)
01	20	01	3	1	0	70	03	1	1				~~130~~ 110	3	~~150~~ 60	2	21
				2	0	71							~~130~~		~~150~~ 60	2	
				3	0	70							~~80~~		60	2	22
				4	0	71							~~90~~			2	
				5	0	71										1	23
				6	0	71											
				7	0	71											
				8	0	71											
				9	0	71											24
				10	0	71											
				11	0	71											
				12	400	71											
				13	0	71											
				14	0	71											
				15	0	71											
				16	0	71											
				17	0	71											25
				18	1000001	71											
				19	1000001	71											
				20	7500	71											

COMMENTS: 1) #5 BATTERY 2) #5 BATT-IN STANDBY @ 45°C 3) #6 Exhauster; 4) #5 Exhauster; 5) #3 Exhauster

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SCREENING DATA SHEET

Month (1)	Day (3)	Screening Team (5)	Instrument (7)	Source ID (8)	Screening Value (13)	Source Type (20)	Process Unit (22)	Service (24)	Primary Material ID (25)	Primary Material Conc. (28)	Secondary Material ID (29)	Secondary Material Conc. (32)	Line Temperature °F (33)	Line Pressure psig (37)	Ambient Air Temperature °F (41)	Elevation (44)	Comments (45)
01	20	01	3	21	0	71	03	1	1				110	3	60	1	21
				22	0	71											
				23	700	71											
				24	8	71											
				25		71			1								22
				26	100	36		3	13			I	80	35	38		23
				27	100	36						Ø			38		
				28	0	21											
				29	0	10											
				30	0	10											
				31	0	10											
				32	0	10								5			
				33	0	10											
				34	0	10											
				35	0	10											
				36	0	10											
				37	0	10			12					35			24
				38	0	10											
				39	0	10											
				40	300	10											

COMMENTS: 1) #2 EXHAUSTER 2) #1 EXHAUSTER OFF-LINE FOR REPAIR @ 1-20-81, EXHAUST. FANS ARE ON STANDBY, #2,3,5 ARE ON-LINE., 3) LIQUID LEAKER, SENDS BENZOLIZED WO TO V-0 HEAT EX. 18 DFM, OUTDOOR PUMPS, 4) OIL FROM 2ND TO LAST PUMP WO. TO SCRUBBER 3A

BETHLEHEM

SCREENING DATA SHEET

Month (1)	Day (3)	Screening Team (5)	Instrument (7)	Source ID (8)	Screening Value (13)	Source Type (20)	Process Unit (22)	Service (24)	Primary Material ID (25)	Primary Material Conc. (28)	Secondary Material ID (29)	Secondary Material Conc. (32)	Line Temperature °F (33)	Line Pressure psig (37)	Ambient Air Temperature °F (41)	Elevation (44)	Comments (45)
01	20	01	3	41	0	36	03	3	12			I	80	35	45	1	2 1
				42	0	36						Ø					
				43	0	10											
				44	0	10											
				45	0	10											
				46	0	10											
				47	0	24								5			
				48	400	10			11					35			2 2
				49	0	10											
				50	0	10											
				51	0	10								5			
				52	0	10								5			
				53	0	10											
				54	0	10											
				55	0	10											
				56	0	10								5			
				57	0	10								35			
				58	0	10											
				59	0	10			10								
				60	0	10			10								

COMMENTS: 1) SENDS W.O. TO ~~FG~~ SCRUBBER 2) GO TO 4,10 SCRUBBER

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SCREENING DATA SHEET

Month (1)	Day (3)	Screening Team (5)	Instrument (7)	Source ID (8)	Screening Value (13)	Source Type (20)	Process Unit (22)	Service (24)	Primary Material ID (25)	Primary Material Conc. (28)	Secondary Material ID (29)	Secondary Material Conc. (32)	Line Temperature °F (33)	Line Pressure psig (37)	Ambient Air Temperature °F (41)	Elevation (44)	Comments (45)
01	20	03	3	61	0	10	03	3	10				80	35	45	1	
				62	0	10			10								
				63	0	24			10								
				64	0	10			10								
				65	0	36			10			Ø		35			
				66	50	36			11			I		35			21
				67	0	36			11			Ø		35			
				68	20	36			10			I		35			22
				69	0	10			10					5			
				70	0												
				71	0												
				72	0												
				73	0				11								
				74	0												
				75	0												
				76	0				12								
				77	0												
				78	0												
				79	0				13								
				80	0				13								

COMMENTS: 1) SENDS WO TO 4,10 SCRUBBER; (2) SENDS WO TO 5,11 SCRUBBER JLL

BETHLEHEM

SCREENING DATA SHEET

Month (1)	Day (3)	Screening Team (5)	Instrument (7)	Source ID (8)	Screening Value (13)	Source Type (20)	Process Unit (22)	Service (24)	Primary Material ID (25)	Primary Material Conc. (28)	Secondary Material ID (29)	Secondary Material Conc. (32)	Line Temperature °F (33)	Line Pressure psig (37)	Ambient Air Temperature °F (41)	Elevation (44)	Comments (45)	
01	20	03	3	81	0	10	03	3	7				80	5	40	2	2	1
				82	0	20												
				83	0	10												
				84	40	10												
				85	0	11												
				86	0	10			7									
				87	20	14			9				200	5			2	2
				88	0	10			9				200					
				89	20	1			7				175	0		3	2	3
				90	0	10												
				91	450	10											2	5
				92	0	10											1	4
				93	0	10											~~2~~	~~6~~
				94	10	1			7							2	2	7
				95	0	10		1	3				210	2		3	2	8
				96	0	10		1					210					
				97	0	10		1					210					
01	20	03	3	98	40000	36	V	[illegible] 2	2			ϕ	80	20		1	2	9

COMMENTS: 1) Simplified WO to V-O Xchange 2) IM OIL FROM VO XCHNG; 3) WO FROM HT EXCHNG - 76°C LIQUID LK - ~~ORIFICE OP~~ BLANK ORIFICE 4) NOT ACCESS. 5) LIQ LK 7) BLANK ORIFICE, STOB Y HEAT XCHNG. 8) VAPOR FROM STILL; 9) REFLUX PUMP

BETHLEHEM

SCREENING DATA SHEET

Month (1)	Day (3)	Screening Team (5)	Instrument (7)	Source ID (8)	Screening Value (13)	Source Type (20)	Process Unit (22)	Service (24)	Primary Material ID (25)	Primary Material Conc. (28)	Secondary Material ID (29)	Secondary Material Conc. (32)	Line Temperature °F (33)	Line Pressure psig (37)	Ambient Air Temperature °F (41)	Elevation (44)	Comments (45)
01	21	01	3	1011	0	10	03	1	15				160	5	30	3	2 1
				1012	0	10			15							3	
				1013	50	10			15							3	
				1014	50	10		↓	15					↓		3	
				1015	0	10		2	15				80	0		2	2 2
				1016	0	10		↓	15					↓		2	
				1017	0	13		2	2				80	0		1	2 3
				1018	50	10			2					↓			
				1019	2000	36						I		20			2 4
				1110	0	10											
				1111	0	46						I					2 5
				1112	0	46						Ø					
				1113	0	10											2 6
				1114	2000	10											
				1115	1100	20											
				1116	50	10											
				1117	0	10											
				1118	10	10											
				1119	0	10											
↓	↓	↓	↓	1120	2000	10	↓	↓	↓				↓	↓	↓	↓	

COMMENTS: 1) VAP FROM RECT. 2) OIL FROM COND 3) OIL FROM SEP. 4) INBOARD OF FAB
5) STANDBY PUMP 6) REFLUX TO RECT.

BETHLEHEM

SCREENING DATA SHEET

Month (1)	Day (3)	Screening Team (5)	Instrument (7)	Source ID (8)	Screening Value (13)	Source Type (20)	Process Unit (22)	Service (24)	Primary Material ID (25)	Primary Material Conc. (28)	Secondary Material ID (29)	Secondary Material Conc. (32)	Line Temperature °F (33)	Line Pressure psig (37)	Ambient Air Temperature °F (41)	Elevation (44)	Comments (45)
01	23	01	3	121	10000	20	03	2	2				80	10	40	1	21
				122	0	10											
				123	~~10~~ 0	10											
				124	100	10											
				125	0	10											
				126	0	10											
				127	0	10											
				128	0	10											
				129	250	10							50				
				130	0	10											
				131	60	10											
				132	0	13											
				133	0	10											
				134	0	10											
				135	0	10											
				136	0	10											
				137	0	10											
				138	0	10											
				139	600	10											
				140	0	10											

COMMENTS: 2) THESE LINES ALL CONTAIN LIGHT OIL

6

BETHLEHEM

SCREENING DATA SHEET

Month (1)	Day (3)	Screening Team (5)	Instrument (7)	Source ID (8)	Screening Value (13)	Source Type (20)	Process Unit (22)	Service (24)	Primary Material ID (25)	Primary Material Conc. (28)	Secondary Material ID (29)	Secondary Material Conc. (32)	Line Temperature °F (33)	Line Pressure psig (37)	Ambient Air Temperature °F (41)	Elevation (44)	Comments (45)
01	21	01	3	141	7000	10	03	2	12				40	10	40		
				142	0	46		3	16			Ø	40	0			21
				143	0	46						I					
				144	0	46						Ø					
				145	0	46						I					
				146	0	46						Ø					
				147	0	46						I					
				148	0	46						Ø					
				149	0	46						I					
				150	0	46						Ø					
				151	0	46						I					
				152	0	46						Ø					
				153	0	46						I					
				154	0	16		3							40		
01	22	01	3	155	0	01			10				80	35	40		2
				156	0	01											
				157	0	01											
				158	0	01											
				159	0	01											
				160	0	01											

6/61 82

24/53 1/20

6/H condm

2/2 → 1'6x

6/0

2/5 → Gra

1/6 COND.

12

18/26

5/11

57

COMMENTS: 1) STANDBY RECIPROCATING PUMPS ON STANDBY SCRUBBERS PROBABLY HAVE NOT BEEN IN USE FOR 3-4 YEARS. 2) A TOTAL OF 82 FLANGES SCREENED IN SCRUBBER SECTION

SCREENING DATA SHEET

Month 1	Day 3	Screening Team 5	Instrument 7	Source ID 8	Screening Value 13	Source Type 20	Process Unit 22	Service 24	Primary Material ID 25	Primary Material Conc. 28	Secondary Material ID 29	Secondary Material Conc. 32	Line Temperature °F 33	Line Pressure psig 37	Ambient Air Temperature °F 41	Elevation 44	Comments 45
01	22	01	3	161	0	01	03	3	10				80	35	40	12	1
				162													
				163													
				164													
				165													
				166													
				167													
				168													
				169													
				170													
				171													
				172													
				173													
				174													
				175													
				176													
				177													
				178													
				179													
				180													

COMMENTS: 1) Benzolized Wash Oil Service

SCREENING DATA SHEET

Month (1)	Day (3)	Screening Team (5)	Instrument (7)	Source ID (8)	Screening Value (13)	Source Type (20)	Process Unit (22)	Service (24)	Primary Material ID (25)	Primary Material Conc. (28)	Secondary Material ID (29)	Secondary Material Conc. (32)	Line Temperature °F (33)	Line Pressure psig (37)	Ambient Air Temperature °F (41)	Elevation (44)	Comments (45)
01	22	01	3	181	0	01	03	3	10				86	35	40	1	21
				182													
				183													
				184													
				185													
				186													
				187													
				188													
				189													
				190													
				191													
				192													
				193													
				194													
				195													
				196													
				197													
				198													
				199													
				200													

COMMENTS: 1) Benzolized Wash Oil Service

SCREENING DATA SHEET

Month (1)	Day (3)	Screening Team (5)	Instrument (7)	Source ID (8)	Screening Value (13)	Source Type (20)	Process Unit (22)	Service (24)	Primary Material ID (25)	Primary Material Conc. (28)	Secondary Material ID (29)	Secondary Material Conc. (32)	Line Temperature °F (33)	Line Pressure psig (37)	Ambient Air Temperature °F (41)	Elevation (44)	Comments (45)
01	22	01	3	201	0	01	03	3	10				80	5	40	1	2
				202													
				203													
				204													
				205													
				206													
				207													
				208													
				209													
				210													
				211													
				212													
				213													
				214													
				215					10								
				216					11					35			
				217													
				218													
				219													
				220													

COMMENTS: 1) Benzolized Wash Oil Service

SCREENING DATA SHEET

Month (1)	Day (3)	Screening Team (5)	Instrument (7)	Source ID (8)	Screening Value (13)	Source Type (20)	Process Unit (22)	Service (24)	Primary Material ID (25)	Primary Material Conc. (28)	Secondary Material ID (29)	Secondary Material Conc. (32)	Line Temperature °F (33)	Line Pressure psig (37)	Ambient Air Temperature °F (41)	Elevation (44)	Comments (45)
01	22	01	3	221	0	01	03	3	11				80	35	40	1	21
				222													
				223													
				224										5			
				225													
				226													
				227					12					35			
				228													
				229													
				230													
				231													
				232										6			
				233													
				234													
				235													
				236													
				237					13					35			22
				238													
				239													
				240													

COMMENTS: 1) Benzolized wash oil service

SCREENING DATA SHEET

Month (1)	Day (3)	Screening Team (5)	Instrument (7)	Source ID (8)	Screening Value (13)	Source Type (20)	Process Unit (22)	Service (24)	Primary Material ID (25)	Primary Material Conc. (28)	Secondary Material ID (29)	Secondary Material Conc. (32)	Line Temperature °F (33)	Line Pressure psig (37)	Ambient Air Temperature °F (41)	Elevation (44)	Comments (45)
01	22	01	3	241	0	01	03	3	13				80	5	40	1	21
				242													
				243													
				244													
				245													
				246													
				247										35			
				248													
				249													
				250													
				251													
				252													
				253													
				254												2	
				255													
				256													
				257													
				258													
				259													
				260													

COMMENTS: 1) Benzolized Wash O.P

SCREENING DATA SHEET

Month (1)	Day (3)	Screening Team (5)	Instrument (7)	Source ID (8)	Screening Value (13)	Source Type (20)	Process Unit (22)	Service (24)	Primary Material ID (25)	Primary Material Conc. (28)	Secondary Material ID (29)	Secondary Material Conc. (32)	Line Temperature °F (33)	Line Pressure psig (37)	Ambient Air Temperature °F (41)	Elevation (44)	Comments (45)
01	22	01	3	261	0	01	03	3	13				80	5	40	2	
				262					13							2	
				263					9				200	5			
				264													
				265													
				266													
				267													
				268													
				269				2	15				80	0			
				270					15								
				271					15								
				272					15								
				273					15								
				274					15								
				275				1	15				160	5		3	
				276				1	15							3	
				277				2	2				80	20		1	
				278													
				279													
				280													

L.O+H2O

Vapor

63

COMMENTS: _____

Bethlehem Steel

SCREENING DATA SHEET

Month (1)	Day (3)	Screening Team (5)	Instrument (7)	Source ID (8)	Screening Value (13)	Source Type (20)	Process Unit (22)	Service (24)	Primary Material ID (25)	Primary Material Conc. (28)	Secondary Material ID (29)	Secondary Material Conc. (32)	Line Temperature °F (33)	Line Pressure psig (37)	Ambient Air Temperature °F (41)	Elevation (44)	Comments (45)
01	22	01	3	281	0	01	03	2	2				80	10	40	1	
				282													
				283													
				284													
				285													
				286									80				
				287													
				288													
				289													
				290													
				291													
				292													
				293													
				294													
				295									50	10			
				296													
				297													
				298													
				299													
				300				3	14				35	0	85		

COMMENTS:

BETHLEHEM There are no Source ID's 300-~~320~~ 319

SCREENING DATA SHEET

Month (1)	Day (3)	Screening Team (5)	Instrument (7)	Source ID (8)	Screening Value (13)	Source Type (20)	Process Unit (22)	Service (24)	Primary Material ID (25)	Primary Material Conc. (28)	Secondary Material ID (29)	Secondary Material Conc. (32)	Line Temperature °F (33)	Line Pressure psig (37)	Ambient Air Temperature °F (41)	Elevation (44)	Comments (45)
01	23	01	3	320	0	10	03	3	14				35	0	35	1	21
				321	0	10			14								
				322	0	10			14								
				323	0	20			14								
				324	0	10			14								
				325	0	10			14								
				326	0	10			14								
				327	0	46			14			C					
				328	0	46			14			Ø					
				329	0	01			14								
				330	0	01			14								
				331	0	01			14								
				332	0	01			14								
01	26	01	3	333	4500	36		2	2			Ø	35	20	35	1	2
01	26	01		334	9500	36		2	2			I	35	20	35	1	2

COMMENTS: 1) 320- ARE FOR IM OIL SERVICE - WAS NOT IN OPERATION @ TIME SCREENED
2) LOADING PUMP, 3) LIQ LK
1) IM OIL TRANSFER LINE HAS NOT BEEN USED FOR OVER A MONTH

BETHLEHEM STEEL

BETHLEHEM PLANT

B-2 Screening Sheets for Sample Data

RADIAN CORPORATION

SCREENING SHEET
FOR SAMPLE DATA

Card 1 [S|C] (1)

1. Radian Valve/Pump ID # [C|3|E|X|0|0|2|0] (3)

2. Unit/Process Coke BP

3. Plant Name Bethlehem Steel, Bethlehem, Pa.

---

4. Date (Mo. Day Yr.) [0|1|2|1|8|1] (11)

5. Screener's ID [D|P|W] (17)

6. Before Tenting Screening Time (Military Time) [1|5|0|0] (20)

7. Before Tenting OVA Screening Value [1|4|0|0|0|0] (24)

TLV Screening Value [1|1|0|0|0|1] (31)

---

8. Screener's ID [D|P|W] (38)

9. After Sampling Screening Time (Military Time) [1|6|0|0] (41)

10. After Sampling OVA Screening Value [1|4|5|0|0|0] (45)

TLV Screening Value [1|1|0|0|0|1] (52)

Comment 1 [ ] (59)

Comment 2 [ ] (61)

RADIAN CORPORATION

SCREENING SHEET
FOR SAMPLE DATA

Card 1 [S|C] (1)

1. Radian Valve/Pump ID # [0|3|P|U|0|1|0|9] (3)

2. Unit/Process Coke BP

3. Plant Name Bethlehem Steel, Beth, Pa

---

4. Date [Mo. Day Yr.] [0|1|2|2|8|1] (11)

5. Screener's ID [D|P|W] (17)

6. Before Tenting Screening Time (Military Time) [1|1|1|0] (20)

7. Before Tenting OVA Screening Value [1|1|6|0|0|0] (24)

TLV Screening Value [1|1|8|0|0|0] (31)

---

8. Screener's ID [D|P|W] (38)

9. After Sampling Screening Time (Military Time) [1|2|0|0] (41)

10. After Sampling OVA Screening Value [1|1|7|0|0|0] (45)

TLV Screening Value [1|1|9|4|0|0] (52)

Comment 1 [ ] (59)

Comment 2 [ ] (61)

RADIAN CORPORATION

SCREENING SHEET
FOR SAMPLE DATA

Card 1 [S | C] (1)

1. Radian Valve/Pump ID # [03VA0108] (3) 2. Unit/Process Coke BP

3. Plant Name Bethlehem Steel, Beth, Pa.

---

4. Date [Mo. 01 | Day 22 | Yr. 81] (11) 5. Screener's ID [DPW] (17)

6. Before Tenting Screening Time (Military Time) [1320] (20)

7. Before Tenting OVA Screening Value [160] (24) TLV Screening Value [540] (31)

---

8. Screener's ID [DPW] (38)

9. After Sampling Screening Time (Military Time) [1410] (41)

10. After Sampling OVA Screening Value [100] (45) TLV Screening Value [150] (52)

Comment 1 [ ] (59) Comment 2 [ ] (61)

RADIAN CORPORATION

SCREENING SHEET
FOR SAMPLE DATA

Card 1 [S | C] (1)

1. Radian Valve/Pump ID # 013VA01120 (3)

2. Unit/Process Coke BP

3. Plant Name Bethlehem Steel, Bethlehem, Pa

---

4. Date (11) Mo. 01 Day 22 Yr. 81

5. Screener's ID DPW (17)

6. Before Tenting Screening Time (Military Time) 1330 (20)

7. Before Tenting OVA Screening Value 1290000 (24) TLV Screening Value 1100001 (31)

---

8. Screener's ID DPW (38)

9. After Sampling Screening Time (Military Time) 1410 (41)

10. After Sampling OVA Screening Value 1190000 (45) TLV Screening Value 1100001 (52)

Comment 1 [ ] (59) Comment 2 [ ] (61)

#4-26000
#6-150
98-17000

RADIAN
CORPORATION

SCREENING SHEET
FOR SAMPLE DATA

Card 1 [S | C] 1

1. Radian Valve/Pump ID # [03VA0114] 3

2. Unit/Process Coke BP

3. Plant Name Bethlehem Steel

---

4. Date Mo. Day Yr. [01 23 81] 11

5. Screener's ID [DPW] 17

6. Before Tenting Screening Time (Military Time) [1355] 20

7. Before Tenting OVA Screening Value [2000] 24 TLV Screening Value [900] 31

---

8. Screener's ID [DPW] 38

9. After Sampling Screening Time (Military Time) [1415] 41

10. After Sampling OVA Screening Value [2300] 45 TLV Screening Value [800] 52

Comment 1 [ ] 59

Comment 2 [ ] 61

RADIAN
CORPORATION

SCREENING SHEET
FOR SAMPLE DATA

Card 1 [S | C] 1

1. Radian Valve/Pump ID # [0 3 V A 0 1 1 5] 3

2. Unit/Process Coke BP

3. Plant Name Bethlehem Steel

---

4. Date Mo. Day Yr. [0 1 2 3 8 1] 11

5. Screener's ID [D P W] 17

6. Before Tenting Screening Time (Military Time) [1 4 0 0] 20

7. Before Tenting OVA Screening Value [3 5 0] 24 TLV Screening Value [3 0 0] 31

---

8. Screener's ID [D P W] 38

9. After Sampling Screening Time (Military Time) [1 4 5 0] 41

10. After Sampling OVA Screening Value [3 0 0] 45 TLV Screening Value [3 0 0] 52

Comment 1 [ ] 59

Comment 2 [ ] 61

RADIAN CORPORATION

SCREENING SHEET
FOR SAMPLE DATA

Card 1 [S|C] (1)

1. Radian Valve/Pump ID # [03VA0111K] (3)

2. Unit/Process Coke BP

3. Plant Name Bethlehem Steel

---

4. Date Mo. Day Yr. [01|23|81] (11)

5. Screener's ID [DPW] (17)

6. Before Tenting Screening Time (Military Time) [1405] (20)

7. Before Tenting OVA Screening Value [350] (24)

TLV Screening Value [200] (31)

---

8. Screener's ID [DPW] (38)

9. After Sampling Screening Time (Military Time) [1450] (41)

10. After Sampling OVA Screening Value [130] (45)

TLV Screening Value [150] (52)

Comment 1 [ ] (59)

Comment 2 [ ] (61)

RADIAN
CORPORATION

SCREENING SHEET
FOR SAMPLE DATA

Card 1 [S|C] (1)

1. Radian Valve/Pump ID # [03VA0112] (3)

2. Unit/Process Coke BP

3. Plant Name Bethlehem Steel

---

4. Date (Mo. Day Yr.) [01|23|81] (11)

5. Screener's ID [DPW] (17)

6. Before Tenting Screening Time (Military Time) [1420] (20)

7. Before Tenting OVA Screening Value [15] (24)

TLV Screening Value [38] (31)

---

8. Screener's ID [DPW] (38)

9. After Sampling Screening Time (Military Time) [1515] (41)

10. After Sampling OVA Screening Value [180] (45)

TLV Screening Value [150] (52)

Comment 1 [ ] (59)

Comment 2 [ ] (61)

RADIAN CORPORATION

SCREENING SHEET
FOR SAMPLE DATA

Card 1 [S | C] (1)

1. Radian Valve/Pump ID # [0 3 V A 0 1 1 2 1] (3)

2. Unit/Process Coke BP

3. Plant Name Bethlehem Steel, Beth, PA

---

4. Date (Mo. Day Yr.) [0 1 | 2 3 | 8 1] (11)

5. Screener's ID [D P W] (17)

6. Before Tenting Screening Time (Military Time) [1 5 0 0] (20)

7. Before Tenting OVA Screening Value [1 1 5 0 0 0] (24)

TLV Screening Value [1 1 2 0 0 0] (31)

---

8. Screener's ID [D P W] (38)

9. After Sampling Screening Time (Military Time) [1 5 2 5] (41)

10. After Sampling OVA Screening Value [1 1 5 4 0 0] (45)

TLV Screening Value [1 1 5 7 0 0] (52)

Comment 1 [ ] (59)

Comment 2 [ ] (61)

RADIAN CORPORATION

SCREENING SHEET
FOR SAMPLE DATA

Card 1 [S | C] (1)

1. Radian Valve/Pump ID # [0 3 P U 0 0 9 8] (3) 2. Unit/Process Coke BP

3. Plant Name Bethlehem Steel, Bethlehem, Pa.

---

4. Date [Mo. 01 | Day 22 | Yr. 81] (11) 5. Screener's ID [D P W] (17)

6. Before Tenting Screening Time (Military Time) [1 0 4 5] (20)

7. Before Tenting OVA Screening Value [1 2 0 0 0 0] (24) TLV Screening Value [1 1 0 0 0 1] (31)

---

8. Screener's ID [D P W] (38)

9. After Sampling Screening Time (Military Time) [1 1 4 0] (41)

10. After Sampling OVA Screening Value [1 2 3 0 0 0] (45) TLV Screening Value [1 1 0 0 0 1] (52)

Comment 1 [ ] (59) Comment 2 [ ] (61)

RADIAN
CORPORATION

SCREENING SHEET
FOR SAMPLE DATA

Card 1 [S | C] (1)

1. Radian Valve/Pump ID # [C3PU0098] (3)

2. Unit/Process Coke BP

3. Plant Name Bethlehem Steel, Beth, Pa

---

4. Date [Mo. 01 | Day 23 | Yr. 81] (11)

5. Screener's ID [DPW] (17)

6. Before Tenting Screening Time (Military Time) [1520] (20)

7. Before Tenting OVA Screening Value [15000] (24) TLV Screening Value [7600] (31)

---

8. Screener's ID [DPW] (38)

9. After Sampling Screening Time (Military Time) [1540] (41)

10. After Sampling OVA Screening Value [17000] (45) TLV Screening Value [10001] (52)

Comment 1 [ ] (59)

Comment 2 [ ] (61)

RADIAN
CORPORATION

SCREENING SHEET
FOR SAMPLE DATA

Card 1 [S | C] (1)

1. Radian Valve/Pump ID # [C | S | P | U | 0 | 1 | 0 | 9] (3)

2. Unit/Process Coke BP

3. Plant Name Bethlehem Steel

---

4. Date Mo. Day Yr. [0 1 | 2 3 | 8 1] (11)

5. Screener's ID [D | P | W] (17)

6. Before Tenting Screening Time (Military Time) [1 | 5 | 5 | 5] (20)

7. Before Tenting OVA Screening Value [| 1 | 5 | 0 | 0 | 0] (24) TLV Screening Value [| | 8 | 0 | 0 | 0] (31)

---

8. Screener's ID [D | P | W] (38)

9. After Sampling Screening Time (Military Time) [1 | 4 | 2 | 0] (41)

10. After Sampling OVA Screening Value [| | 1 | 3 | 0 | 0 | 0] (45) TLV Screening Value [| | 8 | 9 | 0 | 0] (52)

Comment 1 [|] (59)

Comment 2 [| | | | | |] (61)

RADIAN CORPORATION

SCREENING SHEET
FOR SAMPLE DATA

Card 1 [S|C] (1)

1. Radian Valve/Pump ID # [D|3|V|A|0|1|3|9] (3) 2. Unit/Process. Coke BP

3. Plant Name Bethlehem Steel, Beth, Pa

---

4. Date (Mo. Day Yr.) [0|1|2|6|8|1] (11) 5. Screener's ID [D|P|W] (17)

6. Before Tenting Screening Time (Military Time) [0|9|5|5] (20)

7. Before Tenting OVA Screening Value [1|4|0] (24) TLV Screening Value [6|0] (31)

---

8. Screener's ID [D|P|W] (38)

9. After Sampling Screening Time (Military Time) [1|0|5|5] (41)

10. After Sampling OVA Screening Value [5|0] (45) TLV Screening Value [5|5] (52)

Comment 1 [ ] (59) Comment 2 [ ] (61)

6

50K
3700
150

RADIAN
CORPORATION

SCREENING SHEET
FOR SAMPLE DATA

Card 1 [S | C] (1)

1. Radian Valve/Pump ID # [0 3 V A 0 1 4 1] (3) 2. Unit/Process Coke BP

3. Plant Name Bethlehem Steel, Beth, Pa.

---

4. Date (Mo. Day Yr.) [0 1 2 6 8 1] (11) 5. Screener's ID [D P W] (17)

6. Before Tenting Screening Time (Military Time) [1 0 1 0] (20)

7. Before Tenting OVA Screening Value [1 2 0 0 0 0] (24) TLV Screening Value [1 1 0 0 0 1] (31)

---

8. Screener's ID [D P W] (38)

9. After Sampling Screening Time (Military Time) [1 1 1 0] (41)

10. After Sampling OVA Screening Value [1 2 0 0 0 0] (45) TLV Screening Value [1 1 7 7 8 0] (52)

Comment 1 [ ] (59) Comment 2 [ ] (61)

RADIAN
CORPORATION

SCREENING SHEET
FOR SAMPLE DATA

Card 1 | S | C |
1

1. Radian Valve/Pump ID # | 0 | 3 | V | A | 0 | 1 | 2 | 1 |
3

2. Unit/Process Coke BP

3. Plant Name Bethlehem Steel, Bethlehem, Pa

---

4. Date Mo. Day Yr. | 0 | 1 | 2 | 6 | 8 | 1 |
11

5. Screener's ID | D | P | W |
17

6. Before Tenting Screening Time (Military Time) | 1 | 0 | 2 | 0 |
20

7. Before Tenting OVA Screening Value | | | | 1 | 1 | 0 |
24

TLV Screening Value | | | | 1 | 0 | 0 |
31

---

8. Screener's ID | D | P | W |
38

9. After Sampling Screening Time (Military Time) | 1 | 1 | 0 | 0 |
41

10. After Sampling OVA Screening Value | | | | 3 | 0 | 0 |
45

TLV Screening Value | | | | 1 | 2 | 0 |
52

Comment 1 | | |
59

Comment 2 | | | | | | |
61

RADIAN CORPORATION

SCREENING SHEET
FOR SAMPLE DATA

Card 1 [S|C] (1)

1. Radian Valve/Pump ID # [0|3|V|A|0|1|0|4] (3) 2. Unit/Process Coke BP

3. Plant Name Bethlehem Steel, Beth, Pa

---

4. Date (Mo. Day Yr.) [01|26|81] (11) 5. Screener's ID [DPW] (17)

6. Before Tenting Screening Time (Military Time) [1|1|5|5] (20)

7. Before Tenting OVA Screening Value [3|5] (24) TLV Screening Value [8|0] (31)

---

8. Screener's ID [DPW] (38)

9. After Sampling Screening Time (Military Time) [1|2|4|5] (41)

10. After Sampling OVA Screening Value [6|0] (45) TLV Screening Value [1|4|0] (52)

Comment 1 [ ] (59) Comment 2 [ ] (61)

RADIAN CORPORATION

SCREENING SHEET
FOR SAMPLE DATA

Card 1 [S|C] (1)

1. Radian Valve/Pump ID # [0|3|V|A|0|0|9|1] (3)

2. Unit/Process Coke BP

3. Plant Name Bethlehem Steel, Bethlehem, Pa

---

4. Date (Mo. Day Yr.) [0|1|2|6|8|1] (11)

5. Screener's ID [DPW] (17)

6. Before Tenting Screening Time (Military Time) [1|4|2|0] (20)

7. Before Tenting OVA Screening Value [8|0|0] (24) TLV Screening Value [1|8|0|0] (31)

---

8. Screener's ID [DPW] (38)

9. After Sampling Screening Time (Military Time) [1|5|1|5] (41)

10. After Sampling OVA Screening Value [6|0|0] (45) TLV Screening Value [1|2|0|0] (52)

Comment 1 [ ] (59) Comment 2 [ ] (61)

RADIAN CORPORATION

SCREENING SHEET
FOR SAMPLE DATA

Card 1 [S | C] (1)

1. Radian Valve/Pump ID # [0 3 V A 0 1 0 3] (3) 2. Unit/Process Coke BP

3. Plant Name Bethlehem Steel, Beth., Pa

---

4. Date Mo. Day Yr. [0 1 2 6 8 1] (11) 5. Screener's ID [D P W] (17)

6. Before Tenting Screening Time (Military Time) [1 4 3 0] (20)

7. Before Tenting OVA Screening Value [| | | 3 0 0] (24) TLV Screening Value [| | | 4 0 0] (31)

---

8. Screener's ID [D P W] (38)

9. After Sampling Screening Time (Military Time) [1 5 3 0] (41)

10. After Sampling OVA Screening Value [| | | 2 0 0] (45) TLV Screening Value [| | | 7 0 0] (52)

Comment 1 [|] (59) Comment 2 [| | | | | |] (61)

RADIAN CORPORATION

SCREENING SHEET
FOR SAMPLE DATA

Card 1 [S|C] (1)

1. Radian Valve/Pump ID # [03YA00084] (3) 2. Unit/Process Coke BP

3. Plant Name Bethlehem Steel, Bethlehem, Pa

---

4. Date (Mo. Day Yr.) [01|26|81] (11) 5. Screener's ID [DPW] (17)

6. Before Tenting Screening Time (Military Time) [1540] (20)

7. Before Tenting OVA Screening Value [50] (24) TLV Screening Value [50] (31)

---

8. Screener's ID [DPW] (38)

9. After Sampling Screening Time (Military Time) [1620] (41)

10. After Sampling OVA Screening Value [100] (45) TLV Screening Value [70] (52)

Comment 1 [ ] (59) Comment 2 [ ] (61)

RADIAN CORPORATION

SCREENING SHEET
FOR SAMPLE DATA

Card 1 [S|C] (1)

1. Radian Valve/Pump ID # [03|V|A|0|0|8|7] (3)

2. Unit/Process Coke BP

3. Plant Name Bethlehem Steel, Bethlehem, Pa

---

4. Date Mo. Day Yr. [01|26|81] (11)

5. Screener's ID [DPW] (17)

6. Before Tenting Screening Time (Military Time) [1550] (20)

7. Before Tenting OVA Screening Value [10|0] (24)

TLV Screening Value [2600] (31)

---

8. Screener's ID [DPW] (38)

9. After Sampling Screening Time (Military Time) [1630] (41)

10. After Sampling OVA Screening Value [40] (45)

TLV Screening Value [70] (52)

Comment 1 [ ] (59)

Comment 2 [ ] (61)

RADIAN
CORPORATION

SCREENING SHEET
FOR SAMPLE DATA

Card 1 [S | C] 1

1. Radian Valve/Pump ID # [0 3 V A 0 1 3 1] 3

2. Unit/Process Coke BP

3. Plant Name Bethlehem Steel, Beth., Pa

---

4. Date Mo. Day Yr. [0 1 2 7 8 1] 11

5. Screener's ID [D P W] 17

6. Before Tenting Screening Time (Military Time) [0 8 3 0] 20

7. Before Tenting OVA Screening Value [0] 24 TLV Screening Value [ ] 31

---

8. Screener's ID [ ] 38

9. After Sampling Screening Time (Military Time) [ ] 41

10. After Sampling OVA Screening Value [ ] 45 TLV Screening Value [ ] 52

Comment 1 [ ] 59 Comment 2 [ ] 61

333
334

RADIAN CORPORATION

SCREENING SHEET
FOR SAMPLE DATA

Card 1 [S | C] (1)

1. Radian Valve/Pump ID # [0 3 P U 0 3 3 3] (3) 2. Unit/Process Coke BP

3. Plant Name Bethlehem Steel, Beth., Pa

---

4. Date (Mo. Day Yr.) [0 1 2 7 8 1] (11) 5. Screener's ID [D P W] (17)

6. Before Tenting Screening Time (Military Time) [0 8 3 0] (20)

7. Before Tenting OVA Screening Value [1 1 3 2 0 0] (24) TLV Screening Value [1 1 0 0 0 1] (31)

---

8. Screener's ID [D P W] (38)

9. After Sampling Screening Time (Military Time) [1 9 1 5] (41)

10. After Sampling OVA Screening Value [1 1 0 0 0 0] (45) TLV Screening Value [1 1 0 0 0 1] (52)

Comment 1 [ ] (59) Comment 2 [ ] (61)

RADIAN
CORPORATION

SCREENING SHEET
FOR SAMPLE DATA

Card 1 [S | C] (1)

1. Radian Valve/Pump ID # [0 3 P U 0 3 3 4] (3)

2. Unit/Process Coke BP

3. Plant Name Bethlehem Steel, Beth., Pa

---

4. Date (Mo. Day Yr.) [0 1 2 7 8 1] (11)

5. Screener's ID [D P W] (17)

6. Before Tenting Screening Time (Military Time) [8 3 0] (20)

7. Before Tenting OVA Screening Value [1 7 5 0 0 0] (24)

TLV Screening Value [1 1 0 0 0 1] (31)

---

8. Screener's ID [D P W] (38)

9. After Sampling Screening Time (Military Time) [9 1 5] (41)

10. After Sampling OVA Screening Value [1 2 5 0 0 0] (45)

TLV Screening Value [1 1 0 0 0 1] (52)

Comment 1 [ ] (59)

Comment 2 [ ] (61)

RADIAN CORPORATION

SCREENING SHEET
FOR SAMPLE DATA

Card 1 [S|C] (1)

1. Radian Valve/Pump ID # [013EX00123] (3) 2. Unit/Process Coke BP

3. Plant Name Bethlehem Steel, Beth, Pa

---

4. Date (Mo. Day Yr.) [01|21|81] (11) 5. Screener's ID [DPW] (17)

6. Before Tenting Screening Time (Military Time) [1935] (20)

7. Before Tenting OVA Screening Value [115000] (24) TLV Screening Value [100001] (31)

---

8. Screener's ID [DPW] (38)

9. After Sampling Screening Time (Military Time) [1100] (41)

10. After Sampling OVA Screening Value [140000] (45) TLV Screening Value [178000] (52)

Comment 1 [ ] (59) Comment 2 [ ] (61)

85000
14000
0

68-12000
114-1300
115-170

RADIAN CORPORATION

SCREENING SHEET
FOR SAMPLE DATA

Card 1 [S | C] (1)

1. Radian Valve/Pump ID # [0 3 E X 0 0 1 8] (3)

2. Unit/Process Coke BP

3. Plant Name Bethlehem Steel, Beth, Pa

---

4. Date (Mo. Day Yr.) [9 1 2 7 9 1] (11)

5. Screener's ID [D P W] (17)

6. Before Tenting Screening Time (Military Time) [1 0 1 5] (20)

7. Before Tenting OVA Screening Value [1 7 5 0 0 0] (24) TLV Screening Value [1 1 0 0 0 1] (31)

---

8. Screener's ID [D P W] (38)

9. After Sampling Screening Time (Military Time) [1 1 4 0] (41)

10. After Sampling OVA Screening Value [1 1 0 0 0 0 1] (45) TLV Screening Value [1 1 0 0 0 1] (52)

LIQUID SPRAY PRESENT

Comment 1 [ ] (59) Comment 2 [ ] (61)

RADIAN
CORPORATION

SCREENING SHEET
FOR SAMPLE DATA

Card 1 [S | C] (1)

1. Radian Valve/Pump ID # [0 3 E X 0 0 1 9] (3) 2. Unit/Process Coke BP.

3. Plant Name Bethlehem Steel, Bethlehem, Pa

---

4. Date Mo. Day Yr. [0 1 2 7 8 1] (11) 5. Screener's ID [D P W] (17)

6. Before Tenting Screening Time (Military Time) [1 1 3 0] (20)

7. Before Tenting OVA Screening Value [1 0 0 0 0 1] (24) TLV Screening Value [1 0 0 0 1] (31)

---

8. Screener's ID [D P W] (38)

9. After Sampling Screening Time (Military Time) [1 2 1 5] (41)

10. After Sampling OVA Screening Value [1 0 0 0 0 1] (45) TLV Screening Value [1 0 0 0 1] (52)

Comment 1 [ ] (59) Comment 2 [ ] (61)

RADIAN CORPORATION

SCREENING SHEET
FOR SAMPLE DATA

Card 1 [S | C] (1)

1. Radian Valve/Pump ID # 03 EX 0020 (3) 2. Unit/Process Coke BP

3. Plant Name Bethlehem Steel, Bethlehem, Pa

---

4. Date Mo. Day Yr. [01 | 27 | 81] (11) 5. Screener's ID [DPW] (17)

6. Before Tenting Screening Time (Military Time) [1340] (20)

7. Before Tenting OVA Screening Value [1650000] (24) TLV Screening Value [100001] (31)

---

8. Screener's ID [DPW] (38)

9. After Sampling Screening Time (Military Time) [1430] (41)

10. After Sampling OVA Screening Value [3000] (45) TLV Screening Value [5400] (52)

Comment 1 [ ] (59) Comment 2 [ ] (61)

RADIAN CORPORATION

SCREENING SHEET
FOR SAMPLE DATA

Card 1 [S | C] (1)

1. Radian Valve/Pump ID # ~~03EX00~~ [03 | E | X | 0 | 0 | 1 | 2] (3)

2. Unit/Process Coke BP

3. Plant Name Bethlehem Steel, Bethlehem, Pa

---

4. Date (Mo. Day Yr.) [01 | 27 | 81] (11)

5. Screener's ID [DPW] (17)

6. Before Tenting Screening Time (Military Time) [1350] (20)

7. Before Tenting OVA Screening Value [C] (24)

TLV Screening Value [ ] (31)

---

8. Screener's ID [ ] (38)

9. After Sampling Screening Time (Military Time) [ ] (41)

10. After Sampling OVA Screening Value [ ] (45)

TLV Screening Value [ ] (52)

Comment 1 [ ] (59)

Comment 2 [ ] (61)

RADIAN CORPORATION

SCREENING SHEET
FOR SAMPLE DATA

Card 1 [S|C] (1)

1. Radian Valve/Pump ID # [0|3|P|U|0|0|2|6] (3) 2. Unit/Process Coke BP

3. Plant Name Bethlehem Steel, Beth, Pa

---

4. Date Mo. Day Yr. [01|27|81] (11) 5. Screener's ID [DPW] (17)

6. Before Tenting Screening Time (Military Time) [1445] (20)

7. Before Tenting OVA Screening Value [1140] (24) TLV Screening Value [7000] (31)

---

8. Screener's ID [DPW] (38)

9. After Sampling Screening Time (Military Time) [1600] (41)

10. After Sampling OVA Screening Value [15] (45) TLV Screening Value [24] (52)

Comment 1 [ ] (59) Comment 2 [ ] (61)

RADIAN CORPORATION

SCREENING SHEET
FOR SAMPLE DATA

Card 1 [S|C] (1)

1. Radian Valve/Pump ID # [03|P|U|0|0|2|7] (3) 2. Unit/Process Coke BP

3. Plant Name Bethlehem Steel, Bethlehem, Pa

---

4. Date (Mo. Day Yr.) [01|27|81] (11) 5. Screener's ID [DPW] (17)

6. Before Tenting Screening Time (Military Time) [1500] (20)

7. Before Tenting OVA Screening Value [25] (24) TLV Screening Value [35] (31)

---

8. Screener's ID [DPW] (38)

9. After Sampling Screening Time (Military Time) [1605] (41)

10. After Sampling OVA Screening Value [15] (45) TLV Screening Value [24] (52)

Comment 1 [ ] (59) Comment 2 [ ] (61)

RADIAN CORPORATION

SCREENING SHEET
FOR SAMPLE DATA

Card 1 [S | C] (1)

1. Radian Valve/Pump ID # [0 3 V A 0 0 4 0] (3)

2. Unit/Process Coke BP

3. Plant Name Bethlehem Steel, Bethlehem

---

4. Date (Mo. Day Yr.) [0 1 | 2 7 | 8 1] (11)

5. Screener's ID [D P W] (17)

6. Before Tenting Screening Time (Military Time) [1 5 3 0] (20)

This is probably actually high ambient. Probably a zero leaker

7. Before Tenting OVA Screening Value [5 0 0] (24) 0

TLV Screening Value [2 0 0 0] (31) 0

---

8. Screener's ID [D P W] (38)

9. After Sampling Screening Time (Military Time) [1 6 1 5] (41)

10. After Sampling OVA Screening Value [0] (45)

TLV Screening Value [0] (52)

Comment 1 [ ] (59)

Comment 2 [ ] (61)

RADIAN CORPORATION

SCREENING SHEET
FOR SAMPLE DATA

Card 1 [S|C] (1)

1. Radian Valve/Pump ID # [03PU0066] (3)

2. Unit/Process Coke BP

3. Plant Name Bethlehem Steel, Beth, Pa

---

4. Date (Mo. Day Yr.) [01|28|81] (11)

5. Screener's ID [DPW] (17)

6. Before Tenting Screening Time (Military Time) [1005] (20)

7. Before Tenting OVA Screening Value [30] (24)

TLV Screening Value [35] (31)

---

8. Screener's ID [DPW] (38)

9. After Sampling Screening Time (Military Time) [1120] (41)

10. After Sampling OVA Screening Value [30] (45)

TLV Screening Value [40] (52)

Comment 1 [ ] (59)

Comment 2 [ ] (61)

RADIAN
CORPORATION

SCREENING SHEET
FOR SAMPLE DATA

Card 1 | S | C |
1

1. Radian Valve/Pump ID # | 0 3 | P U 0 0 6 8 |
3

2. Unit/Process Coke BP

3. Plant Name Bethlehem Steel, Bethlehem, Pa

---

4. Date Mo. Day Yr. | 0 1 | 2 8 | 8 1 |
11

5. Screener's ID | D P W |
17

6. Before Tenting Screening Time (Military Time) | 1 0 2 5 |
20

7. Before Tenting OVA Screening Value | 1 5 |
24

TLV Screening Value | 1 4 |
31

---

8. Screener's ID | D P W |
38

9. After Sampling Screening Time (Military Time) | 1 1 2 5 |
41

10. After Sampling OVA Screening Value | 1 5 |
45

TLV Screening Value | 1 6 |
52

Comment 1 | |
59

Comment 2 | |
61

RADIAN CORPORATION

SCREENING SHEET
FOR SAMPLE DATA

Card 1 [S | C] (1)

1. Radian Valve/Pump ID # [0 3 V A 0 0 4 6] (3)

2. Unit/Process Coke BP

3. Plant Name Bethlehem Steel, Bethlehem, Pa

---

4. Date (Mo. Day Yr.) [0 1 | 2 8 | 8 1] (11)

5. Screener's ID [D P N] (17)

6. Before Tenting Screening Time (Military Time) [1 0 2 0] (20)

7. Before Tenting OVA Screening Value [. 0] (24)

TLV Screening Value [ ] (31)

---

8. Screener's ID [ ] (38)

9. After Sampling Screening Time (Military Time) [ ] (41)

10. After Sampling OVA Screening Value [ ] (45)

TLV Screening Value [ ] (52)

Comment 1 [ ] (59)

Comment 2 [ ] (61)

BETHLEHEM STEEL

BETHLEHEM PLANT

B-3 Sample Data

RADIAN
CORPORATION

03EX0020

Card 1 | 1 | S |
1

SAMPLE DATA SHEET

1. Radian Valve/Pump ID# 03EX0020 | EX | 3
2. Unit/Process Coke

3. Plant Name Bethlehem Steel

---

4. Date Mo. Day Yr. | 01 | 21 | 81 | 11
5. Sampler's Initials | AB | 17

6. Time (Military Time) | 1550 | 20
7. Cart ID# | 1 | 24
8. N.B.# ____
9. Page # ____

10. Meter #1 | 2011.30 | 25
12. Meter #2 | 2091.38 | 31

11. Time #1 | 0 | 37
13. Time #2 | 5 | 41

14. Temp #1 °F | 80 | 45
15. Temp #2 °F | 80 | 48

16. Bar. Press., in. Hg. | 30.16 | 51
17. ΔP, in. Hg. | 01.8 | 56

18. DGM Correction Factor | 1.07 | 61
19. Meter # 715572

20. Vol. Org. Condensate ml | 66
yes, no organic

21. Coll. time, minutes | 71
22. Specific Gravity of Organic Condensate | 75

23. Comment | 78
condensation on inside of tent

RADIAN
CORPORATION

Card 1 [1 | S] (1)

SAMPLE DATA SHEET

1. Radian Valve/Pump ID# [illegible] (3) 2. Unit/Process [illegible]

3. Plant Name Beth Stool

---

4. Date (Mo. Day Yr.) [01 | 22 | 81] (11)

5. Sampler's Initials [HB] (17)

6. Time (Military Time) [1125] (20)

7. Cart ID# [1] (24) 8. N.B.# ____ 9. Page # ____

10. Meter #1 [2 | 3 | 8 | 0] (25)

12. Meter #2 [2 | 2 | 8 | 4 | 1] (31)

11. Time #1 [| | | 0] (37)

13. Time #2 [| | | 6] (41)

14. Temp #1 °F [| 3 | 3] (45)

15. Temp #2 °F [| 7 | 4] (48)

16. Bar. Press., in. Hg. ~~29.49~~ 29.78 (51)

17. ΔP, in. Hg. [| | | | 2] (56)

18. DGM Correction Factor [| | | 7] (61)

19. Meter # 715572

20. Vol. Org. Condensate ml [| | | | |] (66)

21. Coll. time, minutes [| | |] (71)

22. Specific Gravity of Organic Condensate [| |] (75)

23. Comment [| |] (78)

RADIAN
CORPORATION

Card 1 [1 | S] (1)

SAMPLE DATA SHEET

1. Radian Valve/Pump ID# [illegible] (3) 2. Unit/Process Coke

3. Plant Name Bell Steel

---

4. Date (Mo. Day Yr.) [01 | 22 | 81] (11)

5. Sampler's Initials [MB] (17)

6. Time (Military Time) [1145] (20)

7. Cart ID# [1] (24) 8. N.B.# ____ 9. Page # ____

10. Meter #1 [254.160] (25)

12. Meter #2 [264.165] (31)

11. Time #1 [0] (37)

13. Time #2 [6] (41)

14. Temp #1 °F [34] (45)

15. Temp #2 °F [34] (48)

16. Bar. Press., in. Hg. ~~29.49~~ 29.78 (51)

17. ΔP, in. Hg. [1.2] (56)

18. DGM Correction Factor [1.07] (61)

19. Meter # 715572

20. Vol. Org. Condensate ml [ ] (66)

21. Coll. time, minutes [6] (71)

22. Specific Gravity of Organic Condensate [ ] (75)

23. Comment [ ] (78)

6 (10%) .67 .05

RADIAN
CORPORATION

Card 1 [1 | S] (1)

SAMPLE DATA SHEET

1. Radian Valve/Pump ID# [illegible] (3)
2. Unit/Process Cyc
3. Plant Name Beth Steel

---

4. Date (Mo. Day Yr.) [01 | 22 | 81] (11)
5. Sampler's Initials [illegible] (17)
6. Time (Military Time) [1330] (20)
7. Cart ID# [1] (24)
8. N.B.# ____
9. Page # ____
10. Meter #1 [292.85] (25)
11. Time #1 [0] (37)
12. Meter #2 [301.51] (31)
13. Time #2 [5] (41)
14. Temp #1 °F [35] (45)
15. Temp #2 °F [35] (48)
16. Bar. Press., in. Hg. ~~29.49~~ 29.78 (51)
17. ΔP, in. Hg. [1.3] (56)
18. DGM Correction Factor [1.07] (61)
19. Meter # 715572
20. Vol. Org. Condensate ml [ ] (66)
21. Coll. time, minutes [ ] (71)
22. Specific Gravity of Organic Condensate [ ] (75)
23. Comment [ ] (78)

RADIAN
CORPORATION

Card 1 [1 | S] (1)

SAMPLE DATA SHEET

1. Radian Valve/Pump ID# [illegible] (3) 2. Unit/Process Coke

3. Plant Name Bett- Steel

---

4. Date (Mo. Day Yr.) [01 22 51] (11)

5. Sampler's Initials [AB] (17)

6. Time (Military Time) [1346] (20)

7. Cart ID# [1] (24) 8. N.B.# ____ 9. Page # ____

10. Meter #1 [321.85] (25)

12. Meter #2 [330.50] (31)

11. Time #1 [0] (37)

13. Time #2 [5] (41)

14. Temp #1 °F [35] (45)

15. Temp #2 °F [35] (48)

16. Bar. Press., in. Hg. [29.~~49~~ 29.78] (51)

17. ΔP, in. Hg. [1.2] (56)

18. DGM Correction Factor [1.017] (61)

19. Meter # 715572

20. Vol. Org. Condensate ml [ ] (66)

21. Coll. time, minutes [ ] (71)

22. Specific Gravity of Organic Condensate [ ] (75)

23. Comment [ ] (78)

LIQUID LEAK: 5ml/3 min

J.S.

RADIAN
CORPORATION

Card 1 [1 | S] (1)

SAMPLE DATA SHEET

1. Radian Valve/Pump ID# [illegible] (3) 2. Unit/Process Coke

3. Plant Name Bethlehem Steel

---

4. Date (Mo. Day Yr.) [01 | 23 | 81] (11)

5. Sampler's Initials [AB] (17)

6. Time (Military Time) [1400] (20)

7. Cart ID# [1] (24) 8. N.B.# ____ 9. Page # ____

10. Meter #1 [358.00] (25)

12. Meter #2 [365.00] (31)

11. Time #1 [0] (37)

13. Time #2 [4] (41)

14. Temp #1 °F [37] (45)

15. Temp #2 °F [36] (48)

16. Bar. Press., in. Hg. [29.49] (51)

17. ΔP, in. Hg. [1.1] (56)

18. DGM Correction Factor [1.07] (61)

19. Meter # 715572

20. Vol. Org. Condensate ml [ ] (66)

21. Coll. time, minutes [ ] (71)

22. Specific Gravity of Organic Condensate [ ] (75)

23. Comment [ ] (78)

RADIAN
CORPORATION

Card 1 [1 | S] (1)

SAMPLE DATA SHEET

1. Radian Valve/Pump ID# [illegible] (3) 2. Unit/Process Coke

3. Plant Name Bethlehem Steel

---

4. Date (Mo. Day Yr.) [01 | 23 | 81] (11)

5. Sampler's Initials [AB] (17)

6. Time (Military Time) [1421] (20)

7. Cart ID# [1] (24) 8. N.B.# ____ 9. Page # ____

10. Meter #1 [395.111] (25)

12. Meter #2 [407.155] (31)

11. Time #1 [0] (37)

13. Time #2 [7] (41)

14. Temp #1 °F [36] (45)

15. Temp #2 °F [36] (48)

16. Bar. Press., in. Hg. [29.49] (51)

17. ΔP, in. Hg. [1.1] (56)

18. DGM Correction Factor [1.017] (61)

19. Meter # 715527

20. Vol. Org. Condensate ml [ ] (66)

21. Coll. time, minutes [ ] (71)

22. Specific Gravity of Organic Condensate [ ] (75)

23. Comment [ ] (78)

RADIAN
CORPORATION

Card 1 | 1 | S | (1)

SAMPLE DATA SHEET

1. Radian Valve/Pump ID# [illegible] (3) 2. Unit/Process Coke

3. Plant Name Bethlehem Steel

---

4. Date (Mo. Day Yr.) 01 23 81 (11)

5. Sampler's Initials AB (17)

6. Time (Military Time) 1431 (20)

7. Cart ID# 1 (24) 8. N.B.# ____ 9. Page # ____

10. Meter #1 4111.90 (25)

12. Meter #2 4201.88 (31)

11. Time #1 0 (37)

13. Time #2 5 (41)

14. Temp #1 °F 36 (45)

15. Temp #2 °F (48)

16. Bar. Press., in. Hg. 29.49 (51)

17. ΔP, in. Hg. 1.2 (56)

18. DGM Correction Factor 1.07 (61)

19. Meter # 715527

20. Vol. Org. Condensate ml (66)

21. Coll. time, minutes (71)

22. Specific Gravity of Organic Condensate (75)

23. Comment (78)

RADIAN
CORPORATION

Card 1 | 1 | S | (1)

SAMPLE DATA SHEET

1. Radian Valve/Pump ID# [illegible] V A 0 1 2 4 (3) 2. Unit/Process Coke

3. Plant Name Bethlehem Steel

---

4. Date (11) Mo. 01 Day 23 Yr. 81

5. Sampler's Initials (17) AB

6. Time (Military Time) (20) 1456

7. Cart ID# (24) 1 8. N.B.# ____ 9. Page # ____

10. Meter #1 (25) 453.45

12. Meter #2 (31) 462.65

11. Time #1 (37) 0

13. Time #2 (41) 5

14. Temp #1 °F (45) 39

15. Temp #2 °F (48) 38

16. Bar. Press., in. Hg. (51) 29.49

17. ΔP, in. Hg. (56) 1.2

18. DGM Correction Factor (61) 1.07

19. Meter # 715572

20. Vol. Org. Condensate ml (66)

21. Coll. time, minutes (71)

22. Specific Gravity of Organic Condensate (75)

23. Comment (78)

RADIAN
CORPORATION

Card 1 | 1 | S | (1)

SAMPLE DATA SHEET

1. Radian Valve/Pump ID# [illegible] (3) 2. Unit/Process [illegible] Coke

3. Plant Name Bethlehem Steel

---

4. Date (Mo. Day Yr.) 01 23 81 (11)

5. Sampler's Initials [illegible] (17)

6. Time (Military Time) 1510 (20)

7. Cart ID# 1 (24) 8. N.B.# ____ 9. Page # ____

10. Meter #1 450.55 (25)

12. Meter #2 491.40 (31)

11. Time #1 0 (37)

13. Time #2 6 (41)

14. Temp #1 °F 37 (45)

15. Temp #2 °F 36 (48)

16. Bar. Press., in. Hg. 29.49 (51)

17. ΔP, in. Hg. 1.1 (56)

18. DGM Correction Factor 1.07 (61)

19. Meter # 715572

20. Vol. Org. Condensate ml (66)

21. Coll. time, minutes (71)

22. Specific Gravity of Organic Condensate (75)

23. Comment (78)

RADIAN
CORPORATION

Card 1 [1 | S] (1)

SAMPLE DATA SHEET

1. Radian Valve/Pump ID# [1 1 7 1 0 1 0 1 9 1 8] (3) 2. Unit/Process Coke

3. Plant Name Beth Steel

---

4. Date Mo. Day Yr. [0 1 | 2 3 | 8 1] (11) 5. Sampler's Initials [HB] (17)

6. Time [1 5 3 1 0] (20) (Military Time) 7. Cart ID# [1] (24) 8. N.B.# ____ 9. Page # ____

10. Meter #1 [5 2 0 1 . 1 5 1 0] (25) 12. Meter #2 [5 3 1 1 . 1 3 1 7] (31)

11. Time #1 [1 1 1 0] (37) 13. Time #2 [1 1 1 6] (41)

14. Temp #1 °F [1 3 1 8] (45) 15. Temp #2 °F [1 3 3] (48)

16. Bar. Press., in. Hg. [2 9 1 . 1 4 1 9] (51) 17. ΔP, in. Hg. [1 1 1 . 1 2] (56)

18. DGM Correction Factor [1 1 . 1 0 1 7] (61) 19. Meter # 7155472

20. Vol. Org. Condensate ml [1 1 1 1 1] (66)

21. Coll. time, minutes [1 1 1] (71) 22. Specific Gravity of Organic Condensate [1 1] (75)

23. Comment [1 1] (78)

RADIAN
CORPORATION

Card 1 | 1 | S | (1)

SAMPLE DATA SHEET

1. Radian Valve/Pump ID# | 3 | P | 1 | 0 | 1 | 0 | 9 | (3) 2. Unit/Process Coke

3. Plant Name Beth Steel

---

4. Date (Mo. Day Yr.) | 0 | 1 | 2 | 3 | 8 | 1 | (11)

5. Sampler's Initials | H | B | (17)

6. Time (Military Time) | 1 | 6 | 0 | 0 | (20)

7. Cart ID# | 1 | (24) 8. N.B.# ____ 9. Page # ____

10. Meter #1 | 5 | 7 | 2 | . | 4 | 5 | (25)

12. Meter #2 | 5 | 7 | 9 | . | 6 | 8 | (31)

11. Time #1 | | | | 0 | (37)

13. Time #2 | | | | 4 | (41)

14. Temp #1 °F | | 3 | 8 | (45)

15. Temp #2 °F | | 3 | 8 | (48)

16. Bar. Press., in. Hg. | 2 | 9 | . | 4 | 9 | (51)

17. ΔP, in. Hg. | | | 1 | . | 1 | (56)

18. DGM Correction Factor | | 1 | . | 0 | 7 | (61)

19. Meter # 715572

20. Vol. Org. Condensate ml | | | | | | (66)

21. Coll. time, minutes | | | | | (71)

22. Specific Gravity of Organic Condensate | | | | (75)

23. Comment | | | | (78)

RADIAN
CORPORATION

Card 1 [1 | S]
1

SAMPLE DATA SHEET

1. Radian Valve/Pump ID# [1 1 1 A 0 1 1 3 9] (3) 2. Unit/Process Cole

3. Plant Name Bth Stel

---

4. Date: Mo. Day Yr. [0 1 | 2 6 | 8 1] (11)

5. Sampler's Initials [A B] (17)

6. Time [1 0 2 5] (20)
(Military Time)

7. Cart ID# [1] (24) 8. N.B.# ____ 9. Page # ____

10. Meter #1 [7 1 0 . 1 1 0] (25)

12. Meter #2 [7 2 2 . 4 5] (31)

11. Time #1 [1 1 0] (37)

13. Time #2 [1 1 6] (41)

14. Temp #1 °F [1 3 5] (45)

15. Temp #2 °F [1 3 6] (48)

16. Bar. Press., in. Hg. [2 9 . 5 3] (51)

17. ΔP, in. Hg. [1 1 . 2] (56)

18. DGM Correction Factor [1 . 0 1 7] (61)

19. Meter # 715572

20. Vol. Org. Condensate ml [ ] (66)

21. Coll. time, minutes [ ] (71)

22. Specific Gravity of Organic Condensate [ ] (75)

23. Comment [ ] (78)

RADIAN
CORPORATION

Card 1 [1 | S] (1)

SAMPLE DATA SHEET

1. Radian Valve/Pump ID# [3] [VA 0129] (0129) 2. Unit/Process Cake

3. Plant Name Beth Steel

---

4. Date (Mo. Day Yr.) [11] [01 | 26 | 81]

5. Sampler's Initials [17] [AB]

6. Time (Military Time) [20] [1038]

7. Cart ID# [24] [1] 8. N.B.# ____ 9. Page # ____

10. Meter #1 [25] [739.40]

12. Meter #2 [31] [752.50]

11. Time #1 [37] [0]

13. Time #2 [41] [7]

14. Temp #1 °F [45] [36]

15. Temp #2 °F [48] [36]

16. Bar. Press., in. Hg. [51] [29.53]

17. ΔP, in. Hg. [56] [1.4]

18. DGM Correction Factor [61] [1.07]

19. Meter # 715572

20. Vol. Org. Condensate ml [66] [ ]

21. Coll. time, minutes [71] [ ]

22. Specific Gravity of Organic Condensate [75] [ ]

23. Comment [78] [ ]

RADIAN
CORPORATION

Card 1 | 1 | S | (1)

SAMPLE DATA SHEET

1. Radian Valve/Pump ID# | 3 | VA0 | 1 | 4 | 1 | (3)
2. Unit/Process Coke
3. Plant Name Bell Steel

---

4. Date (Mo. Day Yr.) | 0 | 1 | 2 | 0 | 5 | 1 | (11)
5. Sampler's Initials | AB | (17)
6. Time (Military Time) | 1 | 0 | 5 | 5 | (20)
7. Cart ID# | 1 | (24)
8. N.B.# ____
9. Page # ____
10. Meter #1 | 7 | 7 | 0 | . | 2 | 0 | (25)
11. Time #1 | | | | 0 | (37)
12. Meter #2 | 7 | 7 | 9 | . | 9 | 0 | (31)
13. Time #2 | | | | 5 | (41)
14. Temp #1 °F | | 3 | 6 | (45)
15. Temp #2 °F | | 3 | 6 | (48)
16. Bar. Press., in. Hg. | 2 | 9 | | 5 | 3 | (51)
17. ΔP, in. Hg. | | | | 1 | . | 2 | (56)
18. DGM Correction Factor | | 1 | . | 0 | 7 | (61)
19. Meter # 715572
20. Vol. Org. Condensate ml | | | | | | (66)
21. Coll. time, minutes | | | | | (71)
22. Specific Gravity of Organic Condensate | | | | (75)
23. Comment | | | | (78)

RADIAN
CORPORATION

Card 1 [1 | S] (1)

SAMPLE DATA SHEET

1. Radian Valve/Pump ID# [| | V | A | 0 | 1 | 0 | 4] (3)
2. Unit/Process Coke
3. Plant Name Bethlehem Steel

---

4. Date (Mo. Day Yr.) [0 1 | 2 6 | 8 1] (11)
5. Sampler's Initials [| A | B] (17)
6. Time (Military Time) [1 2 3 1 / 1 2 2 5] (20)
7. Cart ID# [1] (24)
8. N.B.# ____
9. Page # ____
10. Meter #1 [8 3 4 . 6 5 / 8 2 4 . 3 0] (25)
11. Time #1 [| | | 0] (37)
12. Meter #2 [8 4 2 . 3 2] (31)
13. Time #2 [| | | 4] (41)
14. Temp #1 °F [| 4 2] (45)
15. Temp #2 °F [| 4 3] (48)
16. Bar. Press., in. Hg. [2 9 . 5 3] (51)
17. ΔP, in. Hg. [| | | . 7] (56)
18. DGM Correction Factor [| | . 0 7] (61)
19. Meter # 715572
20. Vol. Org. Condensate ml [| | | | |] (66)
21. Coll. time, minutes [| | | |] (71)
22. Specific Gravity of Organic Condensate [| |] (75)
23. Comment [| |] (78)

level 5

RADIAN CORPORATION

Card 1 [1 | S] (1)

SAMPLE DATA SHEET

1. Radian Valve/Pump ID# [1 1 V A 1 0 1 0 9 1 1] (3) 2. Unit/Process Coke

3. Plant Name Beth Steel

---

4. Date Mo. Day Yr. [0 1 1 | 2 6 | 8 1] (11) 5. Sampler's Initials [1 AG] (17)

6. Time [1 4 1 4 1 4] (20) (Military Time) 7. Cart ID# [1] (24) 8. N.B.# ____ 9. Page # ____

10. Meter #1 [8 4 6 1 . 1 8 5] (25) 12. Meter #2 [8 5 4 1 . 1 2 8] (31)

11. Time #1 [1 1 1 0] (37) 13. Time #2 [1 1 1 4] (41)

14. Temp #1 °F [1 4 3] (45) 15. Temp #2 °F [1 4 4] (48)

16. Bar. Press., in. Hg. [2 9 . 1 5 1 3] (51) 17. ΔP, in. Hg. [1 1 1 . 1 5] (56)

18. DGM Correction Factor [1 1 . 1 0 1 7] (61) 19. Meter # 715572

20. Vol. Org. Condensate ml [1 1 1 1] (66)

21. Coll. time, minutes [1 1 1] (71) 22. Specific Gravity of Organic Condensate [1 1] (75)

23. Comment [1 1] (78)

RADIAN
CORPORATION

Card 1 [1 | S] (1)

SAMPLE DATA SHEET

1. Radian Valve/Pump ID# [VA0103] (3) 2. Unit/Process Coke

3. Plant Name Bethlehem Steel

---

4. Date (Mo. Day Yr.) [01 26 81] (11)

5. Sampler's Initials [HB] (17)

6. Time (Military Time) [1507] (20)

7. Cart ID# [1] (24) 8. N.B.# ____ 9. Page # ____

10. Meter #1 [892.00] (25)

12. Meter #2 [901.89] (31)

11. Time #1 [0] (37)

13. Time #2 [5] (41)

14. Temp #1 °F [46] (45)

15. Temp #2 °F [45] (48)

16. Bar. Press., in. Hg. [29.53] (51)

17. ΔP, in. Hg. [.5] (56)

18. DGM Correction Factor [1.07] (61)

19. Meter # 715572

20. Vol. Org. Condensate ml [ ] (66)

21. Coll. time, minutes [ ] (71)

22. Specific Gravity of Organic Condensate [ ] (75)

23. Comment [ ] (78)

ANALYSIS DATA SHEET

(AMBIENT AND BAG)

1 | A
1

1. Radian Valve/Pump ID# 03 | E | X | 0 | 0 | 1 | 8 (3) 2. Unit/Process Coke

3. Plant Name Beth Steel

4. Date (11) Mo. 01 Day 27 Yr. 81 5. Analyst's Initials (17) JFB

6. Time (Military) (20) 1147 7. N.B. #_____ 8. Page #_____

9. Instrument HP/GC - Byron (24)

AMBIENT AIR

	Component Code	ppmw
1.	012 (25)	15 (28)
2.	998 (43)	310 (46)
3.	(61)	(64)

BAG SAMPLE

	Component Code	ppmw
	012 (34)	21483 (37)
	998 (52)	51832 (55)
	(70)	(73)

Card 2 (1) 2 | A Duplicate columns 3 through 10 from Card 1

	Component Code	ppmw	Component Code	ppmw
4.	(11)	(14)	(20)	(23)
5.	(29)	(32)	(38)	(41)
6.	999 (47)	80 (50)	888 (56)	1000001 (59)

Remarks:

condensate - mise = H_2O

ANALYSIS DATA SHEET

(AMBIENT AND BAG)

1 | A
1

1. Radian Valve/Pump ID# 03EX0019 (3) 2. Unit/Process Coke

3. Plant Name Beth Steel

4. Date Mo. 01 Day 27 Yr. 81 (11) 5. Analyst's Initials JFB (17)

6. Time (Military) 1330 (20) 7. N.B. #_____ 8. Page #_____

9. Instrument HP-GC/Bypass (24)

	AMBIENT AIR Component Code	ppmw	BAG SAMPLE Component Code	ppmw
1.	012 (25)	10 (28)	012 (34)	16082 (37)
2.	998 (43)	30 (46)	998 (52)	38750 (55)
3.	(61)	(64)	(70)	(73)

Card 2 2 | A (1) Duplicate columns 3 through 10 from Card 1

	Component Code	ppmw	Component Code	ppmw
4.	(11)	(14)	(20)	(23)
5.	(29)	(32)	(38)	(41)
6.	999 (47)	80 (50)	888 (56)	90000 (59)

Remarks:

liquid cond - misc c water

ANALYSIS DATA SHEET

(AMBIENT AND BAG)

1 | A
1

1. Radian Valve/Pump ID# 0 3 E X 0 0 2 0 (3) 2. Unit/Process Coke

3. Plant Name Beth Steel

4. Date Mo. 0 1 Day 2 7 Yr. 8 1 (11) 5. Analyst's Initials J F B (17)

6. Time (Military) 1 8 3 0 (20) 7. N.B. #_____ 8. Page #_____

9. Instrument HP-GC/Byron (24)

AMBIENT AIR

	Component Code	ppmw
1.	~~9 9 8~~ 25 01 2	60 (28)
2.	9 9 8 (43)	1 6 0 (46)
3.	(61)	(64)

BAG SAMPLE

	Component Code	ppmw
1.	0 1 2 (34)	2 5 9 6 (37)
2.	9 9 8 (52)	6 4 8 0 (55)
3.	(70)	(73)

Card 2 2 | A (1) Duplicate columns 3 through 10 from Card 1

	Component Code	ppmw	Component Code	ppmw
4.	(11)	(14)	(20)	(23)
5.	(29)	(32)	(38)	(41)
6.	(47)	(50)	8 8 8 (56)	1 0 0 0 0 (59)

Remarks:

ANALYSIS DATA SHEET

(AMBIENT AND BAG)

1 | A
1

I 0 2 6

1. Radian Valve/Pump ID# 0 3 P U 0 2 6 I (3) 2. Unit/Process Coke

3. Plant Name Beth Steel

4. Date Mo. 0 1 Day 2 7 Yr. 8 1 (11) 5. Analyst's Initials J F B (17)

6. Time (Military) 1 5 3 8 (20) 7. N.B. #_____ 8. Page #_____

9. Instrument HP/GC - Byron (24)

AMBIENT AIR			BAG SAMPLE	
Component Code		ppmw	Component Code	ppmw
1.	0 1 2 (25)	1 1 (28)	0 1 2 (34)	2 4 2 (37)
2.	9 9 8 (43)	2 2 (46)	9 9 8 (52)	3 4 0 (55)
3.	(61)	(64)	(70)	(73)

Card 2 2 | A (1) Duplicate columns 3 through 10 from Card 1

Component Code		ppmw	Component Code	ppmw
4.	(11)	(14)	(20)	(23)
5.	(29)	(32)	(38)	(41)
6.	9 9 9 (47)	~~7 0~~ 1 2 (50)	8 8 8 (56)	7 0 (59)

Remarks:

ANALYSIS DATA SHEET

(AMBIENT AND BAG)

1 | A
1

1. Radian Valve/Pump ID# 0 3 P W 0 0 2 7 (3) 2. Unit/Process Coke

3. Plant Name Beth Steel

4. Date (11) Mo. 0 1 Day 2 7 Yr. 8 1 5. Analyst's Initials J F B (17)

6. Time (Military) 1 6 0 2 (20) 7. N.B. #_____ 8. Page #_____

9. Instrument HP/GC - Byron (24)

AMBIENT AIR			BAG SAMPLE		
	Component Code	ppmw		Component Code	ppmw
1.	0 1 2 (25)	5 (28)		0 1 2 (34)	37 (37)
2.	~~0 1 2~~ 9 9 8 (43)	10 (46)		9 9 8 (52)	36 (55)
3.	(61)	(64)		(70)	(73)

Card 2 2 | A (1) Duplicate columns 3 through 10 from Card 1

	Component Code	ppmw	Component Code	ppmw
4.	(11)	(14)	(20)	(23)
5.	(29)	(32)	(38)	(41)
6.	9 9 9 (47)	16 (50)	8 8 8 (56)	20 (59)

Remarks:

ANALYSIS DATA SHEET

(AMBIENT AND BAG)

1 | A
1

1. Radian Valve/Pump ID# 0 3 V A 0 0 4 0 (3) 2. Unit/Process Coke

3. Plant Name Beth Steel

4. Date Mo. 0 1 Day 2 7 Yr. 8 1 (11) 5. Analyst's Initials J F B (17)

6. Time (Military) 1 6 4 0 (20) 7. N.B. #_____ 8. Page #_____

9. Instrument HP/GC — Byron (24)

AMBIENT AIR			BAG SAMPLE	
Component Code		ppmw	Component Code	ppmw
1.	0 1 2 (25)	1 3 (28)	0 1 2 (34)	8 (37)
2.	9 9 8 (43)	~~1 9~~ 19 (46)	9 9 8 (52)	2 0 (55)
3.	(61)	(64)	(70)	(73)

Card 2 2 | A (1) Duplicate columns 3 through 10 from Card 1

Component Code		ppmw	Component Code	ppmw
4.	(11)	(14)	(20)	(23)
5.	(29)	(32)	(38)	(41)
6.	9 9 9 (47)	3 3 (50)	8 8 8 (56)	2 3 (59)

Remarks:

ANALYSIS DATA SHEET

(AMBIENT AND BAG)

1 | A
1

1. Radian Valve/Pump ID# 0 3 P I 0 0 6 8 (3) 2. Unit/Process Coke

3. Plant Name Beth Steel

4. Date Mo. 0 1 Day 2 8 Yr. 8 1 (11) 5. Analyst's Initials J F B (17)

6. Time (Military) 1 3 1 5 (20) 7. N.B. #_____ 8. Page #_____

9. Instrument HP/GC - Byron (24)

AMBIENT AIR

	Component Code	ppmw
1.	0 1 2 (25)	0 (28)
2.	9 9 8 (43)	4 (46)
3.	(61)	(64)

BAG SAMPLE

Component Code	ppmw
0 1 2 (34)	1 9 (37)
9 9 8 (52)	3 4 (55)
(70)	(73)

Card 2 2 | A (1) Duplicate columns 3 through 10 from Card 1

	Component Code	ppmw	Component Code	ppmw
4.	(11)	(14)	(20)	(23)
5.	(29)	(32)	(38)	(41)
6.	9 9 9 (47)	1 6 (50)	8 8 8 (56)	2 2 (59)

Remarks:

ANALYSIS DATA SHEET

(AMBIENT AND BAG)

1 | A
1

1. Radian Valve/Pump ID# 0 3 P W 0 0 6 6 (I) 3 2. Unit/Process Coke

3. Plant Name Beth Steel

4. Date Mo. 0 1 Day 2 8 Yr. 8 1 (11) 5. Analyst's Initials J F B (17)

6. Time (Military) 1 3 3 0 (20) 7. N.B. #_____ 8. Page #_____

9. Instrument HP/GC – Byron (24)

	AMBIENT AIR Component Code	ppmw	BAG SAMPLE Component Code	ppmw
1.	0 1 2 (25)	2 6 (28)	0 1 2 (34)	~~1 2 1~~ 1 7 (37)
2.	9 9 8 (43)	2 9 (46)	9 9 8 (52)	1 5 4 (55)
3.	(61)	(64)	(70)	(73)

Card 2 2 | A (1) Duplicate columns 3 through 10 from Card 1

	Component Code	ppmw	Component Code	ppmw
4.	(11)	(14)	(20)	(23)
5.	(29)	(32)	(38)	(41)
6.	9 9 9 (47)	1 7 (50)	8 8 8 (56)	3 2 (59)

Remarks:

Liquid Line and liquid tanks

		GC#1	GC#5						
		Col#1	Col#2		$\bar{X}$		DEN gm/ml		
03PU0011 (QA 80%#H)	1000X2	79%	83%		81%		0.8716		
PU 334		64%	65%		64.5		0.2647		
Light oil		63%	63%		63%		0.8604		
03UN0120		56%	56%		56%		0.8508		
Light oil from Seperator		66%	66%		66%		0.8544		
liquid line Scrubber 5,11		—	—				0.8987		
Scrubber 3,9		—	—				0.8942		
Scrubber 4,10		—	—				0.8800		
Scrubber 6,12		—	—				0.8666		
03PU0066		—	—				0.8731		
03PU0068		—	—				0.8862		
03PU0076		—	—				0.8838		
Diluted 50:50 } 03PU0068 acetone	100X2								

LIQUID LIQUID LEAK AND ANALYSES

Col. #1 5% SP1200 / 1.75% Bentone 34 6'x2mm

Col #2 10% TCEP 8'x2mm

BETHLEHEM STEEL

BETHLEHEM PLANT

B-4 Analysis Data

TABLE B-4.1 COMPONENT CODES FOR ANALYSIS DATA SHEETS

Code	Component
001	Methane
012	Benzene
888	OVA reading for sample bag
997	Hexane
998	Non-methane HC
999	OVA reading for ambient air bag

ANALYSIS DATA SHEET

(AMBIENT AND BAG)

1 | A
1

1. Radian Valve/Pump ID# 0 3 E X 0 0 2 0 (3) 2. Unit/Process Coke

3. Plant Name Beth Steel

4. Date (11) Mo. 0 | Day 2 | Yr. 8 | 5. Analyst's Initials (17) I F B

6. Time (Military) (20) 1 6 1 7 7. N.B. #_____ 8. Page #_____

9. Instrument AP/GC (24)

AMBIENT AIR			BAG SAMPLE		
	Component Code	ppmw		Component Code	ppmw
1.	0 1 2 (25)	8 3 (28)		0 1 2 (34)	2 2 4 3 9 (37)
2.	(43)	(46)		(52)	(55)
3.	(61)	(64)		(70)	(73)

Card 2 2 | A (1) Duplicate columns 3 through 10 from Card 1

	Component Code	ppmw		Component Code	ppmw
4.	(11)	(14)		(20)	(23)
5.	(29)	(32)		(38)	(41)
6.	999 ~~8 8 8~~ (47)	1 1 4 0 (50)		888 ~~9 9 9~~ (56)	1 0 1 0 0 1 (59)

Remarks:

ANALYSIS DATA SHEET

(AMBIENT AND BAG)

1 | A
1

1. Radian Valve/Pump ID# 0 3 R 4 0 0 9 8 (3) 2. Unit/Process Coke

3. Plant Name Bath Steel

4. Date (Mo. Day Yr.) 0 1 2 2 8 1 (11) 5. Analyst's Initials J F B (17)

6. Time (Military) 1 1 1 0 (20) 7. N.B. #_____ 8. Page #_____

9. Instrument HP/GC (24)

AMBIENT AIR

	Component Code	ppmw
1.	0 1 2 (25)	0 (28)
2.	(43)	(46)
3.	(61)	(64)

BAG SAMPLE

	Component Code	ppmw
	0 1 2 (34)	9 7 8 3 (37)
	(52)	(55)
	(70)	(73)

Card 2 2 | A (1) Duplicate columns 3 through 10 from Card 1

	Component Code	ppmw	Component Code	ppmw
4.	(11)	(14)	(20)	(23)
5.	(29)	(32)	(38)	(41)
6.	~~888~~ 999 (47)	1 8 0 (50)	~~999~~ 888 (56)	6 7 0 (59)

Remarks:

ANALYSIS DATA SHEET

(AMBIENT AND BAG)

1 | A
1

1. Radian Valve/Pump ID# 0 3 P I 0 1 / 0 9 (3) 2. Unit/Process Coke

3. Plant Name Bethlehem Steel

4. Date (Mo. Day Yr.) 0 1 / 2 2 8 1 (11) 5. Analyst's Initials J F B (17)

6. Time (Military) 1 1 5 0 (20) 7. N.B. #_____ 8. Page #_____

9. Instrument HP/GC (24)

AMBIENT AIR

	Component Code	ppmw
1.	0 1 2 (25)	0 (28)
2.	(43)	(46)
3.	(61)	(64)

BAG SAMPLE

	Component Code	ppmw
	0 1 2 (34)	9 6 0 7 (37)
	(52)	(55)
	(70)	(73)

Card 2 2 | A (1) Duplicate columns 3 through 10 from Card 1

	Component Code	ppmw	Component Code	ppmw
4.	(11)	(14)	(20)	(23)
5.	(29)	(32)	(38)	(41)
6.	~~888~~ 999 (47)	5 6 0 0 (50)	~~999~~ 888 (56)	1 4 0 (59)

Remarks:

ANALYSIS DATA SHEET

(AMBIENT AND BAG)

1 | A
1

1. Radian Valve/Pump ID# 0 3 V A 0 1 0 8 (3) 2. Unit/Process Coke

3. Plant Name Bath Steel

4. Date (Mo. Day Yr.) 0 1 2 2 8 1 (11) 5. Analyst's Initials J F B (17)

6. Time (Military) 1 4 0 0 (20) 7. N.B. #_____ 8. Page #_____

9. Instrument HP/GC (24)

AMBIENT AIR

	Component Code	ppmw
1.	0 1 2 (25)	0 (28)
2.	(43)	(46)
3.	(61)	(64)

BAG SAMPLE

	Component Code	ppmw
	0 1 2 (34)	0 (37)
	(52)	(55)
	(70)	(73)

Card 2 2 | A (1) Duplicate columns 3 through 10 from Card 1

	Component Code	ppmw	Component Code	ppmw
4.	(11)	(14)	(20)	(23)
5.	(29)	(32)	(38)	(41)
6.	~~888~~ 999 (47)	1 2 0 (50)	~~999~~ 888 (56)	3 0 (59)

Remarks:

ANALYSIS DATA SHEET

(AMBIENT AND BAG)

1 | A
1

1. Radian Valve/Pump ID# 0 3 V A 0 1 2 0 (3) 2. Unit/Process Coke

3. Plant Name Bethl Steel

4. Date (Mo. Day Yr.) 0 1 2 2 8 1 (11) 5. Analyst's Initials J F B (17)

6. Time (Military) 1 4 3 0 (20) 7. N.B. #_____ 8. Page #_____

9. Instrument HP/GC (24)

AMBIENT AIR

	Component Code	ppmw
1.	0 1 2 (25)	0 (28)
2.	(43)	(46)
3.	(61)	(64)

BAG SAMPLE

	Component Code	ppmw
	0 1 2 (34)	3 7 7 5 (37)
	(52)	(55)
	(70)	(73)

Card 2 2 | A (1) Duplicate columns 3 through 10 from Card 1

	Component Code	ppmw	Component Code	ppmw
4.	(11)	(14)	(20)	(23)
5.	(29)	(32)	(38)	(41)
6.	~~888~~ 999 (47)	2 0 (50)	~~999~~ 888 (56)	2 9 0 0 (59)

Remarks:

ANALYSIS DATA SHEET

(AMBIENT AND BAG)

1 | A
1

1. Radian Valve/Pump ID# 0 3 V A 0 1 1 1 4 (3) 2. Unit/Process Coke

3. Plant Name Beth Steel

4. Date (11) Mo. 0 1 Day 2 3 Yr. 8 1 5. Analyst's Initials J F B (17)

6. Time (Military) 1 4 2 0 (20) 7. N.B. #_____ 8. Page #_____

9. Instrument HP/GC – Bryan (24)

AMBIENT AIR

	Component Code	ppmw
1.	0 1 2 (25)	0 (28)
2.	9 9 8 (43)	6 8 (46)
3.	(61)	(64)

BAG SAMPLE

	Component Code	ppmw
	0 1 2 (34)	2 3 1 (37)
	9 9 8 (52)	3 5 1 (55)
	(70)	(73)

Card 2 2 | A (1) Duplicate columns 3 through 10 from Card 1

	Component Code	ppmw	Component Code	ppmw
4.	(11)	(14)	(20)	(23)
5.	(29)	(32)	(38)	(41)
6.	9 9 9 (47)	3 0 (50)	8 8 8 (56)	1 3 0 (59)

Remarks:

ANALYSIS DATA SHEET

(AMBIENT AND BAG)

1 | A
1

1. Radian Valve/Pump ID# 0 3 V A 0 1 1 1 6 (3) 2. Unit/Process Coke

3. Plant Name Beth Steel

4. Date (11) Mo. 0 1 Day 2 3 Yr. 8 1 5. Analyst's Initials J F B (17)

6. Time (Military) 1 4 4 5 (20) 7. N.B. #_____ 8. Page #_____

9. Instrument HP/GC — Bryan (24)

AMBIENT AIR

Component Code		ppmw	
1.	0 1 2 (25)	0 (28)	
2.	9 9 8 (43)	4.7 (46)	
3.	(61)	(64)	

BAG SAMPLE

Component Code		ppmw	
	0 1 2 (34)	0 (37)	
	9 9 8 (52)	4 0 (55)	
	(70)	(73)	

Card 2 2 | A (1) Duplicate columns 3 through 10 from Card 1

Component Code		ppmw		Component Code		ppmw	
4.	(11)	(14)		(20)		(23)	
5.	(29)	(32)		(38)		(41)	
6.	9 9 9 (47)	5.5 (50)		8 8 8 (56)		1 5 (59)	

Remarks:

ANALYSIS DATA SHEET

(AMBIENT AND BAG)

1 | A
1

1. Radian Valve/Pump ID# 0 3 V A 0 1 1 5 (3) 2. Unit/Process Coke

3. Plant Name Beth Steel

4. Date (Mo. Day Yr.) 0 1 2 3 8 1 (11) 5. Analyst's Initials J F B (17)

6. Time (Military) 1 5 0 0 (20) 7. N.B. #_____ 8. Page #_____

9. Instrument HP/GC – Byron (24)

AMBIENT AIR

	Component Code	ppmw
1.	0 1 2 (25)	0 (28)
2.	9 9 8 (43)	1 3 . 4 (46)
3.	(61)	(64)

BAG SAMPLE

	Component Code	ppmw
	0 1 2 (34)	3 3 (37)
	9 9 8 (52)	8 9 (55)
	(70)	(73)

Card 2 2 | A (1) Duplicate columns 3 through 10 from Card 1

	Component Code	ppmw	Component Code	ppmw
4.	(11)	(14)	(20)	(23)
5.	(29)	(32)	(38)	(41)
6.	9 9 9 (47)	9 (50)	8 8 8 (56)	~~1 5~~ 26 (59)

Remarks:

ANALYSIS DATA SHEET

(AMBIENT AND BAG)

1 | A
1

1. Radian Valve/Pump ID# 0 3 V A 0 1 2 1 (3) 2. Unit/Process Coke

3. Plant Name Beth Steel

4. Date Mo. 0 1 Day 2 3 Yr. 8 1 (11) 5. Analyst's Initials J F B (17)

6. Time (Military) 1 5 3 0 (20) 7. N.B. #_____ 8. Page #_____

9. Instrument HPGC – Bryan (24)

AMBIENT AIR

	Component Code	ppmw
1.	0 1 2 (25)	0 (28)
2.	9 9 8 (43)	1 1 (46)
3.	(61)	(64)

BAG SAMPLE

	Component Code	ppmw
1.	0 1 2 (34)	~~4 1 2~~ 3 1 4 (37)
2.	9 9 8 (52)	4 1 2 (55)
3.	(70)	(73)

Card 2 2 | A (1) Duplicate columns 3 through 10 from Card 1

	Component Code	ppmw	Component Code	ppmw
4.	(11)	(14)	(20)	(23)
5.	(29)	(32)	(38)	(41)
6.	9 9 9 (47)	1 7 (50)	8 8 8 (56)	1 7 0 (59)

Remarks:

ANALYSIS DATA SHEET

(AMBIENT AND BAG)

1 | A
1

1. Radian Valve/Pump ID# 0 B | V | A | 0 | 1 | 2 | 4 (3) 2. Unit/Process Coke

3. Plant Name Beth Steel

4. Date (Mo. Day Yr.) 0 1 | 2 3 | 8 4 (11) 5. Analyst's Initials J F B (17)

6. Time (Military) 1 5 5 0 (20) 7. N.B. #_____ 8. Page #_____

9. Instrument HPGC — Byron (24)

AMBIENT AIR

	Component Code	ppmw
1.	0 1 2 (25)	0 (28)
2.	9 9 8 (43)	9 4 (46)
3.	(61)	(64)

BAG SAMPLE

	Component Code	ppmw
	0 1 2 (34)	0 (37)
	9 9 8 (52)	3 6 (55)
	(70)	(73)

Card 2 2 | A (1) Duplicate columns 3 through 10 from Card 1

	Component Code	ppmw	Component Code	ppmw
4.	(11)	(14)	(20)	(23)
5.	(29)	(32)	(38)	(41)
6.	9 9 9 (47)	1 0 (50)	8 8 8 (56)	1 3 (59)

Remarks:

ANALYSIS DATA SHEET

(AMBIENT AND BAG)

1 | A
1

1. Radian Valve/Pump ID# 0 3 P W 0 0 9 8 (3) 2. Unit/Process Coke

3. Plant Name Beth Steel

4. Date Mo. 0 1 Day 2 3 Yr. 8 1 (11) 5. Analyst's Initials J F B (17)

6. Time (Military) 1 6 3 0 (20) 7. N.B. #_____ 8. Page #_____

9. Instrument HP/GC - Bypass (24)

AMBIENT AIR			BAG SAMPLE	
	Component Code	ppmw	Component Code	ppmw
1.	9 9 8 (25)	5 2 (28)	9 9 8 (34)	1 0 6 8 0 (37)
2.	0 1 2 (43)	2 0 (46)	0 1 2 (52)	7 2 4 3 (55)
3.	(61)	(64)	(70)	(73)

Card 2 2 | A (1) Duplicate columns 3 through 10 from Card 1

	Component Code	ppmw	Component Code	ppmw
4.	(11)	(14)	(20)	(23)
5.	(29)	(32)	(38)	(41)
6.	~~9 9 9~~ (47)	~~5 2~~ (50)	8 8 8 (56)	2 7 0 0 (59)

Remarks:

ANALYSIS DATA SHEET

(AMBIENT AND BAG)

1 | A
1

1. Radian Valve/Pump ID# 0 3 R K 0 1 1 0 9 (3) 2. Unit/Process Coke

3. Plant Name Beth Steel

4. Date (11) Mo. 0 1 Day 2 3 Yr. 8 1 5. Analyst's Initials (17) J F B

6. Time (Military) (20) 1 7 0 0 7. N.B. #_____ 8. Page #_____

9. Instrument HP/GC / Byron (24)

AMBIENT AIR			BAG SAMPLE		
	Component Code	ppmw		Component Code	ppmw
1.	~~949~~ 012 (25)	30 (28)		012 (34)	8218 (37)
2.	998 (43)	95 (46)		998 (52)	12800 (55)
3.	(61)	(64)		(70)	(73)

Card 2 (1) 2 | A Duplicate columns 3 through 10 from Card 1

	Component Code	ppmw	Component Code	ppmw
4.	(11)	(14)	(20)	(23)
5.	(29)	(32)	(38)	(41)
6.	~~999~~ (47)	~~30~~ (50)	888 (56)	3200 (59)

Remarks:

ANALYSIS DATA SHEET

(AMBIENT AND BAG)

1 | A
1

1. Radian Valve/Pump ID# 0 3 V A 0 1 3 9 (3) 2. Unit/Process Coke

3. Plant Name Beth Steel

4. Date Mo. Day Yr. 0 1 2 6 8 1 (11) 5. Analyst's Initials J F B (17)

6. Time (Military) 1 0 5 0 (20) 7. N.B. #_____ 8. Page #_____

9. Instrument HP/GC - Bryan (24)

AMBIENT AIR

	Component Code	ppmw
1.	0 1 2 (25)	3.3 (28)
2.	9 9 8 (43)	6.4 (46)
3.	(61)	(64)

BAG SAMPLE

	Component Code	ppmw
1.	0 1 2 (34)	9.2 (37)
2.	9 9 8 (52)	1 9 (55)
3.	(70)	(73)

Card 2 2 | A (1) Duplicate columns 3 through 10 from Card 1

	Component Code	ppmw	Component Code	ppmw
4.	(11)	(14)	(20)	(23)
5.	(29)	(32)	(38)	(41)
6.	9 9 9 (47)	2 8 (50)	8 8 8 (56)	2 3 (59)

Remarks:

ANALYSIS DATA SHEET

(AMBIENT AND BAG)

1 | A
1

1. Radian Valve/Pump ID# 0 3 V A 0 1 2 9 (3) 2. Unit/Process Coke

3. Plant Name Beth Steel

4. Date (Mo. Day Yr.) 0 1 | 2 6 | 8 1 (11) 5. Analyst's Initials J F B (17)

6. Time (Military) 1 1 2 0 (20) 7. N.B. #_____ 8. Page #_____

9. Instrument HP/GC — Byron (24)

AMBIENT AIR

Component Code		ppmw	
1.	0 1 2 (25)	3 4 (28)	
2.	9 9 8 (43)	5 2 (46)	
3.	(61)	(64)	

BAG SAMPLE

Component Code		ppmw	
	0 1 2 (34)	3 5 (37)	
	9 9 8 (52)	5 7 (55)	
	(70)	(73)	

Card 2 2 | A (1) Duplicate columns 3 through 10 from Card 1

Component Code		ppmw		Component Code		ppmw	
4.	(11)	(14)			(20)	(23)	
5.	(29)	(32)			(38)	(41)	
6.	9 9 9 (47)	2 4 (50)		8 8 8 (56)		2 7 (59)	

Remarks:

ANALYSIS DATA SHEET

(AMBIENT AND BAG)

1 | A
1

1. Radian Valve/Pump ID# 0 3 V A 0 1 4 1 (3)

2. Unit/Process Coke

3. Plant Name Beth Steel

4. Date Mo. 0 1 Day 2 6 Yr. 8 1 (11)

5. Analyst's Initials J F B (17)

6. Time (Military) 1 1 5 5 (20)

7. N.B. #_____

8. Page #_____

9. Instrument HP/GC – Byron (24)

AMBIENT AIR

	Component Code	ppmw
1.	0 1 2 (25)	4 0 (28)
2.	9 9 8 (43)	5 9 (46)
3.	(61)	(64)

BAG SAMPLE

Component Code	ppmw
0 1 2 (34)	2 3 5 1 (37)
9 9 8 (52)	3 4 4 0 (55)
(70)	(73)

Card 2 2 | A (1) Duplicate columns 3 through 10 from Card 1

	Component Code	ppmw	Component Code	ppmw
4.	(11)	(14)	(20)	(23)
5.	(29)	(32)	(38)	(41)
6.	9 9 9 (47)	4 2 (50)	8 8 8 (56)	8 0 0 (59)

Remarks:

ANALYSIS DATA SHEET

(AMBIENT AND BAG)

1 | A
1

1. Radian Valve/Pump ID# 0 3 V A 0 1 0 4 (3) 2. Unit/Process Coke

3. Plant Name Beth Steel

4. Date Mo. 0 1 Day 2 6 Yr. 8 1 (11) 5. Analyst's Initials J F B (17)

6. Time (Military) 1 6 0 0 (20) 7. N.B. #_____ 8. Page #_____

9. Instrument HP/GC — Byron (24)

AMBIENT AIR			BAG SAMPLE	
Component Code		ppmw	Component Code	ppmw
1.	0 1 2 (25)	3 (28)	0 1 2 (34)	3 5 (37)
2.	9 9 8 (43)	9 (46)	9 9 8 (52)	6 0 (55)
3.	(61)	(64)	(70)	(73)

Card 2 2 | A (1) Duplicate columns 3 through 10 from Card 1

	Component Code	ppmw	Component Code	ppmw
4.	(11)	(14)	(20)	(23)
5.	(29)	(32)	(38)	(41)
6.	9 9 9 (47)	1 2 (50)	8 8 8 (56)	2 5 (59)

Remarks:

ANALYSIS DATA SHEET

(AMBIENT AND BAG)

1 | A
1

1. Radian Valve/Pump ID# 0 3 V A 0 1 0 3 (3) 2. Unit/Process Coke

3. Plant Name Beth Steel

4. Date Mo. 0 1 Day 2 6 Yr. 8 1 (11) 5. Analyst's Initials J F B (17)

6. Time (Military) 1 5 3 5 (20) 7. N.B. #_____ 8. Page #_____

9. Instrument HP/GC – Bryan (24)

AMBIENT AIR			BAG SAMPLE	
	Component Code	ppmw	Component Code	ppmw
1.	0 1 2 (25)	0 (28)	0 1 2 (34)	1 5 (37)
2.	9 9 8 (43)	7 (46)	9 9 8 (52)	3 5 (55)
3.	(61)	(64)	(70)	(73)

Card 2 2 | A (1) Duplicate columns 3 through 10 from Card 1

	Component Code	ppmw	Component Code	ppmw
4.	(11)	(14)	(20)	(23)
5.	(29)	(32)	(38)	(41)
6.	9 9 9 (47)	~~2 0~~ 12 (50)	8 8 8 (56)	~~1 2~~ 20 (59)

Remarks:

ANALYSIS DATA SHEET

(AMBIENT AND BAG)

1 | A
1

1. Radian Valve/Pump ID# 0 3 | V | A | 0 0 9 1 (3) 2. Unit/Process Coke

3. Plant Name Bath Steel

4. Date (Mo. Day Yr.) 0 1 | 2 6 | 8 1 (11) 5. Analyst's Initials J F B (17)

6. Time (Military) 1 6 0 3 (20) 7. N.B. #_____ 8. Page #_____

9. Instrument HP/GC - Byron (24)

AMBIENT AIR			BAG SAMPLE		
	Component Code	ppmw		Component Code	ppmw
1.	0 1 2 (25)	0 (28)		0 1 2 (34)	2 7 1 (37)
2.	9 9 8 (43)	5 (46)		9 9 8 (52)	3 5 8 (55)
3.	(61)	(64)		(70)	(73)

Card 2 2 | A (1) Duplicate columns 3 through 10 from Card 1

	Component Code	ppmw		Component Code	ppmw
4.	(11)	(14)		(20)	(23)
5.	(29)	(32)		(38)	(41)
6.	9 9 9 (47)	1 1 1 (50)		8 8 8 (56)	1 2 0 (59)

Remarks:

ANALYSIS DATA SHEET

(AMBIENT AND BAG)

1 | A
1

1. Radian Valve/Pump ID# 0 3 V A 0 0 8 7 (3) 2. Unit/Process Coke

3. Plant Name Beth Steel

4. Date (11) Mo. 0 1 Day 2 6 Yr. 8 1 5. Analyst's Initials J F B (17)

6. Time (Military) 1 6 4 5 (20) 7. N.B. #_____ 8. Page #_____

9. Instrument HP/GC – Bryan (24)

AMBIENT AIR

	Component Code	ppmw
1.	0 1 2 (25)	1 (28)
2.	9 9 8 (43)	~~55~~ 9 (46)
3.	(61)	(64)

BAG SAMPLE

	Component Code	ppmw
	0 1 2 (34)	1 6 (37)
	9 9 8 (52)	5 5 (55)
	(70)	(73)

Card 2 2 | A (1) Duplicate columns 3 through 10 from Card 1

	Component Code	ppmw	Component Code	ppmw
4.	(11)	(14)	(20)	(23)
5.	(29)	(32)	(38)	(41)
6.	9 9 9 (47)	~~19~~ 10 (50)	8 8 8 (56)	1 9 (59)

Remarks:

ANALYSIS DATA SHEET

(AMBIENT AND BAG)

1 | A
1

1. Radian Valve/Pump ID# 0 3 V A 0 0 8 4 (3) 2. Unit/Process Coke

3. Plant Name Bethl Steel

4. Date (Mo. Day Yr.) 0 1 | 2 6 | 8 1 (11) 5. Analyst's Initials J F B (17)

6. Time (Military) 1 7 1 1 (20) 7. N.B. #_____ 8. Page #_____

9. Instrument HP/GC - Byron (24)

AMBIENT AIR

	Component Code	ppmw
1.	0 1 2 (25)	7 0 (28)
2.	9 9 8 (43)	7 2 (46)
3.	(61)	(64)

BAG SAMPLE

	Component Code	ppmw
	0 1 2 (34)	1 2 (37)
	9 9 8 (52)	2 7 (55)
	(70)	(73)

Card 2 2 | A (1) Duplicate columns 3 through 10 from Card 1

	Component Code	ppmw	Component Code	ppmw
4.	(11)	(14)	(20)	(23)
5.	(29)	(32)	(38)	(41)
6.	9 9 9 (47)	5 0 (50)	8 8 8 (56)	1 8 (59)

Remarks:

ANALYSIS DATA SHEET

(AMBIENT AND BAG)

1 | A
1

1. Radian Valve/Pump ID# 0 3 8 U 0 3 3 3 (3) 2. Unit/Process Coke

3. Plant Name Beth Steel

4. Date (Mo. Day Yr.) 0 1 2 7 8 1 (11) 5. Analyst's Initials J F B (17)

6. Time (Military) 0 9 2 0 (20) 7. N.B. #_____ 8. Page #_____

9. Instrument HP/GC - Byron (24)

AMBIENT AIR

Component Code	ppmw
1. 0 1 2 (25)	1 5 9 (28)
2. 9 9 8 (43)	1 7 0 (46)
3. (61)	(64)

BAG SAMPLE

Component Code	ppmw
0 1 2 (34)	3 1 3 7 4 (37)
9 9 8 (52)	3 2 0 4 0 (55)
(70)	(73)

Card 2 2 | A (1) Duplicate columns 3 through 10 from Card 1

Component Code	ppmw	Component Code	ppmw
4. (11)	(14)	(20)	(23)
5. (29)	(32)	(38)	(41)
6. 9 9 9 (47)	1 1 0 (50)	8 8 8 (56)	~~7 0 0 0~~ 1 1 0 0 0 (59)

Remarks:

ANALYSIS DATA SHEET

(AMBIENT AND BAG)

1 | A
1

1. Radian Valve/Pump ID# 0 3 8 I 0 3 3 4 (3) 2. Unit/Process Coke

3. Plant Name Beth Steel

4. Date (11) Mo. 0 1 Day 2 7 Yr. 8 1 5. Analyst's Initials J F B (17)

6. Time (Military) 1 0 0 0 (20) 7. N.B. #_____ 8. Page #_____

9. Instrument HP/GC – Byron (24)

AMBIENT AIR			BAG SAMPLE		
	Component Code	ppmw		Component Code	ppmw
1.	0 1 1 2 (25)	1 5 9 (28)		0 1 1 2 (34)	2 2 2 2 0 (37)
2.	9 9 8 (43)	1 1 7 0 (46)		9 9 8 (52)	0 1 8 8 0 0 (55)
3.	(61)	(64)		(70)	(73)

Card 2 2 | A (1) Duplicate columns 3 through 10 from Card 1

	Component Code	ppmw	Component Code	ppmw
4.	(11)	(14)	(20)	(23)
5.	(29)	(32)	(38)	(41)
6.	9 9 9 (47)	1 1 1 0 (50)	8 8 8 (56)	7 0 0 0 (59)

Remarks:

RADIAN
CORPORATION

Card 1 | 1 | S | (1)

SAMPLE DATA SHEET

1. Radian Valve/Pump ID# | 3 | 3 | V | A | 0 | 0 | 8 | 4 | (3)
2. Unit/Process Coke
3. Plant Name Bth steel

---

4. Date (Mo. Day Yr.) | 0 | 1 | 2 | 6 | 8 | 1 | (11)
5. Sampler's Initials | AB | (17)
6. Time (Military Time) | 1 | 6 | 0 | 0 | (20)
7. Cart ID# | 1 | (24)
8. N.B.# ____
9. Page # ____
10. Meter #1 | 9 | 9 | 1 | . | 7 | 0 | (25)
11. Time #1 | 0 | (37)
12. Meter #2 | 9 | 9 | 8 | . | 6 | 0 | (31)
13. Time #2 | 4 | (41)
14. Temp #1 °F | 4 | 6 | (45)
15. Temp #2 °F | 4 | 6 | (48)
16. Bar. Press., in. Hg. | 2 | 9 | . | 5 | 3 | (51)
17. ΔP, in. Hg. | 1 | . | 9 | (56)
18. DGM Correction Factor | 1 | . | 0 | 7 | (61)
19. Meter # 715572
20. Vol. Org. Condensate ml | (66)
21. Coll. time, minutes | (71)
22. Specific Gravity of Organic Condensate | (75)
23. Comment | (78)

BETHLEHEM STEEL

BETHLEHEM PLANT

B-5 OVA and TLV Calibration Data

BETHLEHEM

UNIT #3

CALIBRATION CHECKING FORM

1 Month	3 Day	5 Instrument	6 Screening Team	8 ____ ppm calibration	14 ____ ppm calibration	20 Dilution Probe Calibration	26 UNIT
01	21	3	01		3000		3
01	22	3	01		4500	2500	3
01	22	4	01		2200		3
01	23	3	01		1001	3000	3
01	23	4	01		3000		3
01	26	3	01		5000	8000	3
01	26	4	01	3600	2300	[illegible]	3
01	26	3	01		9000	8000	3
01	26	4	01	3000	2000		3
01	27	3	01		4000	8000	3
01	27	4	01	2400	1900		3

Comments: OKA-3, TLV-4

BETHLEHEM STEEL

BETHLEHEM PLANT

B-6 Repeat Screening Data

BETHLEHEM.

UNIT #3 (only)

TABLE 7-2

REPEAT SCREENING FORM

1 Month	3 Day	5 Screening Team	7 Instrument	8 Process Unit	10 Source ID	15 Screening Value	22 Ambient Air °F (MORNING)	25 Rescreening Value No. 1	32 Rescreening Value No. 2	39 AFTERNOON AMBIENT AIR °F
01	22	01	3	03	98	~~30000~~ 40000	35	100000	450000	50
01	22	01	3	03	114	20000	35	19000	37000	50
01	22	01	3	03	116	50	35	70	70	50
01	23	01	3	03	98	40000	40	19000	17000	45
01	23	01	3	03	114	2000	40	3000	26000	45
01	23	01	3	03	116	50	40	200	150	45
01	26	01	3	03	98	40000	40	100001	50000	45
01	26	01	3	03	114	20000	40	18000	37000	45
01	26	01	3	03	116	50	40	200	150	45
01	27	01	3	03	98	~~12000~~ 40000	40	~~18500~~ 12000	85000	50
01	27	01	3	03	114	~~13000~~ 2000	40	~~18000~~ 1300	18000	50
01	27	01	3	03	116	~~1140~~ 50	40	50	~~160000~~ 0	50
01	28	01	3	03	98	40000	35	180000	~~32~~ 160000	50

Comments: ~~114~~ ~~21000~~ ~~2600~~

~~116~~ ~~50~~ ~~60~~

BETHLEHEM STEEL

TABLE 7-2

REPEAT SCREENING FORM

1 Month	3 Day	5 Screening Team	7 Instrument	8 Process Unit	10 Source ID	15 Screening Value	22 Ambient Air °F (MORNING)	25 Rescreening Value No. 1	32 Rescreening Value No. 2	AFTERNOON AMBIENT AIR °F
01	28	01	3	93	114	12000	35	2100 ~~131~~	1260	50
01	28	01	3	03	116	50	35	50	60	50

Comments: _____

BETHLEHEM STEEL

BETHLEHEM PLANT

B-7 Dry Gas Meter Calibration Data

RADIAN CORPORATION

UNIT #3

Card 1 [1 | S]

SAMPLE DATA SHEET

1. Radian Valve/Pump ID# DGMCF CALIB. (3)
2. Unit/Process ~~RADIAN~~ INSTRUCT.
3. Plant Name RADIAN

4. Date (Mo. Day Yr.) 1 14 81 (11)
5. Sampler's Initials DW (17)
6. Time (Military Time) 1010 (20)
7. Cart ID# 1 (24)
8. N.B.# ____
9. Page # ____
10. Meter #1 7091.010 (25) 1.9
11. Time #1 10 (37)
12. Meter #2 7115.913 (31) 1.7 ⇒ 1.8
13. Time #2 3 (41)
14. Temp #1 °F 150 (45)
15. Temp #2 °F ____ (48)
16. Bar. Press., in. Hg. 301.101 (51)
17. ΔP, in. Hg. 12.14 (56)
18. DGM Correction Factor 1.111 (61)
19. Meter # 715572
20. Vol. Org. Condensate ml ____ (66)
21. Coll. time, minutes ____ (71)
22. Specific Gravity of Organic Condensate ____ (75)
23. Comment ____ (78)

DGMCF = 1.111

RADIAN
CORPORATION

487.84
433.25

Card 1 [1 | S]
1

SAMPLE DATA SHEET

1. Radian Valve/Pump ID# DGM Calibration (3)
2. Unit/Process Coke
3. Plant Name Bethlehem Steel

---

4. Date (Mo. Day Yr.) 01 19 81 (11)
5. Sampler's Initials AB (17)
6. Time 15517 (20) (Military Time)
7. Cart ID# 1 (24)
8. N.B.# ____
9. Page # ____
10. Meter #1 8941.160 (25)
12. Meter #2 8991.512 (31) 1.64
11. Time #1 10 (37)
13. Time #2 13 (41)
14. Temp #1 °F 137 (45)
15. Temp #2 °F 136 (48)
16. Bar. Press., in. Hg. 29.175 (51)
17. ΔP, in. Hg. 10.155 (56)
18. DGM Correction Factor 1.107 (61)
19. Meter # 715572
20. Vol. Org. Condensate ml (66)
21. Coll. time, minutes (71)
22. Specific Gravity of Organic Condensate (75)
23. Comment (78)

Cor. factor 1.07

Hastings: 1.79

1018.45
955.34

RADIAN
CORPORATION

Card 1 [1 | S] (1)

SAMPLE DATA SHEET

1. Radian Valve/Pump ID# DGM Calib (3)
2. Unit/Process Coke
3. Plant Name Bethlehem Steel

---

4. Date (11) Mo. 01 Day 19 Yr. 51
5. Sampler's Initials (17) ASB
6. Time (Military Time) (20) 1619
7. Cart ID# (24) 7
8. N.B.# ____
9. Page # ____
10. Meter #1 (25) 129.70
11. Time #1 (37) 0
12. Meter #2 (31) 137.24
13. Time #2 (41) 4 ACFM = 1.89
14. Temp #1 °F (45) 36
15. Temp #2 °F (48) 36
16. Bar. Press., in. Hg. (51) 29.75
17. ΔP, in. Hg. (56) 0.70
18. DGM Correction Factor (61) 1.07
19. Meter # 713851
20. Vol. Org. Condensate ml (66)
21. Coll. time, minutes (71)
22. Specific Gravity of Organic Condensate (75)
23. Comment (78)

$\frac{P_1V_1}{T_1} = \frac{P_2V_2}{T_2}$

Histings 1" 2.06
2" 2.05
3" 2.05

cor factor = 1.07

BETHLEHEM STEEL

BETHLEHEM PLANT

B-8 Accuracy Check Data

RADIAN
CORPORATION

EX
PU
03VA0021

Card 1 [1 | S] (1)

SAMPLE DATA SHEET

COKE

1. Radian Valve/Pump ID# ~~ABC~~ [AC114811] (3) BETH. STEEL
2. Unit/Process ILLUST.
3. Plant Name RADIAN

---

4. Date (Mo. Day Yr.) [01 14 81] (11)
5. Sampler's Initials [DW] (17)
6. Time (Military Time) [1030] (20)
7. Cart ID# [1] (24)
8. N.B.# ____
9. Page # ____
10. Meter #1 [806.100] (25)
12. Meter #2 [815.160] (31)
11. Time #1 [0] (37)
13. Time #2 [3] (41)
14. Temp #1 °F [50] (45)
15. Temp #2 °F [ ] (48)
16. Bar. Press., in. Hg. [30.01] (51)
17. ΔP, in. Hg. [~~12.5~~ 1.2] (56)
18. DGM Correction Factor [1.111] (61)
19. Meter # 715577
20. Vol. Org. Condensate ml [ ] (66)
21. Coll. time, minutes [ ] (71) ~~(5)~~ 3
22. Specific Gravity of Organic Condensate [ ] (75)
23. Comment [ ] (78)

ILR = ~~8.9285 x 10^-7~~ lb/HR
7.6478 x 10^-4 lb/HR

~~LR_c/ppmw = 8.814 x 10^-6~~

BEFORE
100 ml / 7.05
7.0
6.95
7.00
7.00

800 ml
1000
⇒ 857.14 ml/mol

AFTER
100 ml / 7
7
7
7

NEED
⇒ 86.8 ppmw

RADIAN
CORPORATION

Card 1 | 1 | S | (1)

SAMPLE DATA SHEET

1. Radian Valve/Pump ID# 03AC0001 (3) ~~AC7218~~ 2. Unit/Process Coke

3. Plant Name Bethlehem Steel

---

4. Date (11) Mo. 01 Day 21 Yr. 81

5. Sampler's Initials (17) AB

6. Time (Military Time) (20) 1035

7. Cart ID# (24) 1 8. N.B.# ____ 9. Page # ____

10. Meter #1 (25) 173.110

12. Meter #2 (31) 182.100 1.78 FRAC

11. Time #1 (37) 0

13. Time #2 (41) 0

14. Temp #1 °F (45) 22

15. Temp #2 °F (48) 22

16. Bar. Press., in. Hg. (51) 30.116

17. ΔP, in. Hg. (56) 1.11

18. DGM Correction Factor (61) 1.07

19. Meter # 715572

20. Vol. Org. Condensate ml (66)

29.06
482

21. Coll. time, minutes (71)

22. Specific Gravity of Organic Condensate (75)

23. Comment (78)

pre post
7.2 7.2
7.0 7.0
7.0 7.1

1.78
5 8.9

845 cc/in
8.01X10-4 I LR
~~1.82X10-3~~
9.98X10-4 LR

2.64x10-3
1.82x10-3

125% Recovery

RADIAN
CORPORATION

Card 1 [1 | S] (1)

SAMPLE DATA SHEET

1. Radian Valve/Pump ID# 03AC0002 (3) 2. Unit/Process Coke

3. Plant Name Bethlehem Steel

---

4. Date Mo. Day Yr. 01 21 81 (11)

5. Sampler's Initials AB (17)

6. Time (Military Time) 1130 (20)

7. Cart ID# 2 (24) 8. N.B.# ____ 9. Page # ____

10. Meter #1 200.00 (25)

12. Meter #2 211.50 (31) 2.88

11. Time #1 0 (37)

13. Time #2 4 (41)

14. Temp #1 °F 22 (45)

15. Temp #2 °F 22 (48)

16. Bar. Press., in. Hg. 30.16 (51)

17. ΔP, in. Hg. 1.60 (56)

18. DGM Correction Factor 1.07 (61)

19. Meter # 713851

20. Vol. Org. Condensate ml (66)

21. Coll. time, minutes (71)

22. Specific Gravity of Organic Condensate (75)

28.36
482

23. Comment (78)

200.00
211.50

9.5x10-4 LR

1309

8.2x10-4 3LR

116%R

166

RADIAN
CORPORATION

Card 1 | 1 | S |
1

SAMPLE DATA SHEET

1. Radian Valve/Pump ID# 03AC0003 ~~AC1268~~ 3
2. Unit/Process Coke
3. Plant Name Bethlehem Steel

---

4. Date Mo. Day Yr. 01 26 81 11
5. Sampler's Initials AB 17
6. Time (Military Time) 0850 20
7. Cart ID# 1 24
8. N.B.# ____
9. Page # ____
10. Meter #1 614.45 25
12. Meter #2 623.42 31 1.79
11. Time #1 0 37
13. Time #2 5 41
14. Temp #1 °F 33 45
15. Temp #2 °F 33 48
16. Bar. Press., in. Hg. 29.53 51
17. ΔP, in. Hg. ~~3.3~~ 0.7 56
18. DGM Correction Factor 1.07 61
19. Meter # 715572
20. Vol. Org. Condensate ml ____ 66
21. Coll. time, minutes ____ 71
22. Specific Gravity of Organic Condensate ____ 75
23. Comment ____ 78

pre 6.2 6.2 6.2

post 6.2 6.3 6.2

8.76×10^{-4} FLK JS

$\frac{sec}{100 ml}$ $\frac{100 ml}{6.22 sec} \times \frac{60 sec}{min} = 965$

1.593

~~4.06~~

RADIAN
CORPORATION

~~2.06~~

1.34×10^{-4}

$LR_c = 2.5 \times 10^{-4}$

Card 1 | 1 | S | (1)

SAMPLE DATA SHEET

1. Radian Valve/Pump ID# | A | C | 1 | 2 | 0 | 8 | 1 | 1 | (3)
2. Unit/Process Coke
3. Plant Name Bethlehem Steel

---

4. Date (Mo. Day Yr.) | 0 | 1 | 2 | 0 | 8 | 1 | (11)
5. Sampler's Initials | AB | (17)
6. Time (Military Time) | 1 | 1 | 4 | 3 | (20)
7. Cart ID# | 1 | (24)
8. N.B.# ____
9. Page # ____
10. Meter #1 | 9 | 4 | 7 | . | 5 | 0 | (25)
11. Time #1 | | | | 0 | (37)
12. Meter #2 | 9 | 5 | 4 | . | 3 | 8 | (31) 1.38
13. Time #2 | | | | 5 | (41)
14. Temp #1 °F | | 3 | 8 | (45)
15. Temp #2 °F | | 3 | 8 | (48) 0.06
16. Bar. Press., in. Hg. | 2 | 9 | . | 8 | 8 | (51)
17. ΔP, in. Hg. | | | | | 0 | (56)
18. DGM Correction Factor | | | | | | (61)
19. Meter # 715572
20. Vol. Org. Condensate ml | | | | | | (66)
21. Coll. time, minutes | | | | | (71)
22. Specific Gravity of Organic Condensate | | | | (75)
23. Comment | | | | (78)

prior: $\bar{x} = 8.68$ { 8.7, 8.6, 8.6, 8.8, 8.7

post: 8.9, 8.8, 8.9, 8.8 } 8.85

8.77 sec / 100 ml

$\frac{100 \text{ ml}}{8.7} \times 60 = 690$

168

$ILR = 6.4 \times 10^{-3}$

X

RADIAN
CORPORATION

Card 1 | 1 | S | (1)

SAMPLE DATA SHEET

1. Radian Valve/Pump ID# AC1120811 (3)
2. Unit/Process Coke
3. Plant Name Bethlehem Steel

---

4. Date (11) Mo. 01 Day 20 Yr. 81
5. Sampler's Initials DB (17)
6. Time (Military Time) (20)
7. Cart ID# 2 (24)
8. N.B.# ____
9. Page # ____
10. Meter #1 (25)
11. Time #1 (37)
12. Meter #2 (31)
13. Time #2 (41)
14. Temp #1 °F (45)
15. Temp #2 °F (48)
16. Bar. Press., in. Hg. (51)
17. ΔP, in. Hg. (56)
18. DGM Correction Factor (61)
19. Meter # 713851
20. Vol. Org. Condensate ml (66)
21. Coll. time, minutes (71)
22. Specific Gravity of Organic Condensate (75)
23. Comment (78)

X

ANALYSIS DATA SHEET

(AMBIENT AND BAG)

1 | A
1

1. Radian Valve/Pump ID# 03AC0001 ~~AC0121 81~~ 3 | 2. Unit/Process Coke

3. Plant Name Bethlehem Steel

4. Date Mo. Day Yr. 01 21 81 11

5. Analyst's Initials JFB 17

6. Time (Military) 1040 20

7. N.B. #_____ 8. Page #_____

9. Instrument HP GC 2 24

AMBIENT AIR			BAG SAMPLE	
	Component Code	ppmw	Component Code	ppmw
1.	012 25	0 28	012 34	109.7 37
2.	43	46	52	55
3.	61	64	70	73

Card 2 2 | A 1 Duplicate columns 3 through 10 from Card 1

	Component Code	ppmw	Component Code	ppmw
4.	11	14	20	23
5.	29	32	38	41
6.	47	50	56	59

Remarks:

ANALYSIS DATA SHEET

(AMBIENT AND BAG)

1 | A
1

1. Radian Valve/Pump ID# ~~A C 0 1 2 1 8 1 2~~ 0 3 A C 0 0 0 2 (3) 2. Unit/Process Coke

3. Plant Name Beth Steel

4. Date (11) Mo. 0 1 | Day 2 1 | Yr. 8 1 5. Analyst's Initials (17) J F B

6. Time (Military) (20) 1 1 3 0 7. N.B. #_____ 8. Page #_____

9. Instrument HP/GC (24) 2

AMBIENT AIR

	Component Code	ppmw
1.	0 1 2 (25)	0 (28)
2.	(43)	(46)
3.	(61)	(64)

BAG SAMPLE

	Component Code	ppmw
	0 1 2 (34)	6 5 . 7 (37)
	(52)	(55)
	(70)	(73)

Card 2 (1) 2 | A Duplicate columns 3 through 10 from Card 1

	Component Code	ppmw	Component Code	ppmw
4.	(11)	(14)	(20)	(23)
5.	(29)	(32)	(38)	(41)
6.	(47)	(50)	(56)	(59)

Remarks:

ANALYSIS DATA SHEET

(AMBIENT AND BAG)

1 | A
1

1. Radian Valve/Pump ID# 0 3 A C 0 0 0 3 ~~A C 0 1 2 6 8 1~~ 3 2. Unit/Process Coke

3. Plant Name Beth Steel

4. Date Mo. Day Yr. 0 1 2 6 8 1 11

5. Analyst's Initials J F B 17

6. Time (Military) 0 9 4 0 20

7. N.B. #_____ 8. Page #_____

9. Instrument HP/GC 2 24

AMBIENT AIR			BAG SAMPLE	
	Component Code	ppmw	Component Code	ppmw 108
1.	0 1 2 25	0 28	0 1 2 34	~~1 1 1~~ 37
2.	43	46	52	55
3.	61	64	70	73

Card 2 2 | A 1 Duplicate columns 3 through 10 from Card 1

	Component Code	ppmw	Component Code	ppmw
4.	11	14	20	23
5.	29	32	38	41
6.	47	50	56	59

Remarks:

110% R

UNIT #3

DEMO

ANALYSIS DATA SHEET

(AMBIENT AND BAG)

1 | A
1

1. Radian Valve/Pump ID# ~~03AC0001~~ ~~AC11481~~ 3

2. Unit/Process Illus.

3. Plant Name RADIAN

4. Date Mo. 01 Day 14 Yr. 81 (11)

5. Analyst's Initials ~~[illegible]~~ B (17)

6. Time (Military) 1100 (20)

7. N.B. #_____ 8. Page #_____

9. Instrument ~~HP 5730A GC~~ BYRON 301 THC (24)

AMBIENT AIR Component Code	ppmw	BAG SAMPLE Component Code	ppmw
1. ~~999~~ (25)	~~20~~ (28)	012 (34)	80 (37)
2. 012 (43)	5 (46)	(52)	(55)
3. (61) 998	(64) 5	998 (70)	80 (73)

Card 2 2 | A (1) Duplicate columns 3 through 10 from Card 1

Component Code	ppmw	Component Code	ppmw
4. (11)	(14)	(20)	(23)
5. (29)	(32)	(38)	(41)
6. 999 (47)	20 (50)	888 (56)	~~2500~~ (59) 70

Remarks: $ILR = 7.648 \times 10^{-4}$
$LR_c = 6.640 \times 10^{-4}$ lb/HR $\Rightarrow$ 86.4 % RECOV

X

ANALYSIS DATA SHEET

(AMBIENT AND BAG)

1 | A
1

1. Radian Valve/Pump ID# 03EX0023 (3) 2. Unit/Process Coke

3. Plant Name Beth Steel

4. Date (11) Mo. 01 Day 27 Yr. 81 5. Analyst's Initials (17) JFB

6. Time (Military) (20) 1130 7. N.B. #_____ 8. Page #_____

9. Instrument HP/GC – Byron (24)

AMBIENT AIR

Component Code		ppmw	
1.	012 (25)	69	(28)
2.	998 (43)	25	(46)
3.	(61)		(64)

BAG SAMPLE

Component Code		ppmw	
	012 (34)	1154	(37)
	998 (52)	3910	(55)
	(70)		(73)

Card 2 (1) 2 | A Duplicate columns 3 through 10 from Card 1

Component Code		ppmw		Component Code		ppmw	
4.	(11)		(14)		(20)		(23)
5.	(29)		(32)		(38)		(41)
6.	999 (47)	45	(50)	888 (56)		570	(59)

Remarks:

RADIAN
CORPORATION

Card 1 | 1 | S | (1)

SAMPLE DATA SHEET

1. Radian Valve/Pump ID# | 3 | V | A | 0 | 0 | 8 | 7 | (3)
2. Unit/Process Coke
3. Plant Name Beth Steel

---

4. Date (Mo. Day Yr.) | 0 | 1 | 2 | 6 | 5 | 1 | (11)
5. Sampler's Initials | A | B | (17)
6. Time (Military Time) | 1 | 6 | 1 | 1 | (20)
7. Cart ID# | 1 | (24)
8. N.B.# ____
9. Page # ____
10. Meter #1 | 0 | 0 | 9 | . | 5 | 0 | (25)
11. Time #1 | 1 | 1 | 0 | (37)
12. Meter #2 | 1 | 7 | . | 0 | 0 | (31)
13. Time #2 | 1 | 1 | 4 | (41)
14. Temp #1 °F | 4 | 6 | (45)
15. Temp #2 °F | 4 | 5 | (48)
16. Bar. Press., in. Hg. | 2 | 9 | . | 5 | 3 | (51)
17. ΔP, in. Hg. | 2 | . | 3 | (56)
18. DGM Correction Factor | 1 | 1 | . | 0 | 7 | (61)
19. Meter # 715572
20. Vol. Org. Condensate ml | | | | | (66)
21. Coll. time, minutes | | | | (71)
22. Specific Gravity of Organic Condensate | | | (75)
23. Comment | | | (78)

RADIAN
CORPORATION

Card 1 [1 | S]
1

SAMPLE DATA SHEET

1. Radian Valve/Pump ID# [illegible] (3)
2. Unit/Process Coke
3. Plant Name Bethlehem Steel

---

4. Date (Mo. Day Yr.) 011 217 81 (11)
5. Sampler's Initials AB (17)
6. Time (Military Time) 015510 (20)
7. Cart ID# 1 (24)
8. N.B.# ____
9. Page # ____
10. Meter #1 01381.910 (25)
11. Time #1 10 (37)
12. Meter #2 4161.5110 (31)
13. Time #2 14 (41)
14. Temp #1 °F 139 (45)
15. Temp #2 °F ___ (48)
16. Bar. Press., in. Hg. 28.1718 (51)
17. ΔP, in. Hg. 1.13 (56)
18. DGM Correction Factor 1.0170 (61)
19. Meter # 75572
20. Vol. Org. Condensate ml ____ (66)
21. Coll. time, minutes ___ (71)
22. Specific Gravity of Organic Condensate ___ (75)
23. Comment ___ (78)

liquid leak
5.5 ml/min

RADIAN
CORPORATION

Card 1 | 1 | S | (1)

SAMPLE DATA SHEET

1. Radian Valve/Pump ID# | | | P | 0 | 0 | 3 | 3 | 4 | (3)
2. Unit/Process Coke
3. Plant Name Bethlehem Steel

---

4. Date (Mo. Day Yr.) | 0 | 1 | 2 | 7 | 8 | 1 | (11)
5. Sampler's Initials | | A | B | (17)
6. Time (Military Time) | 0 | 9 | 0 | 0 | (20)
7. Cart ID# | 1 | (24)
8. N.B.# ____
9. Page # ____
10. Meter #1 | 5 | 6 | . | 5 | 0 | (25)
11. Time #1 | | | | 0 | (37)
12. Meter #2 | 6 | 4 | . | 2 | 5 | (31)
13. Time #2 | | | | 4 | (41)
14. Temp #1 °F | 4 | 0 | (45)
15. Temp #2 °F | 4 | 0 | (48)
16. Bar. Press., in. Hg. | 2 | 8 | . | 7 | 8 | (51)
17. ΔP, in. Hg. | | | 1 | . | 3 | (56)
18. DGM Correction Factor | 1 | . | 0 | 7 | (61)
19. Meter # 715572
20. Vol. Org. Condensate ml | | | | | | (66)
21. Coll. time, minutes | | | | | (71)
22. Specific Gravity of Organic Condensate | | | | (75)
23. Comment | | | | (78)

liq leak = 120 ml/min

RADIAN
CORPORATION

Card 1 | 1 | S | (1)

SAMPLE DATA SHEET

1. Radian Valve/Pump ID# | 1 | 8 | X | 0 | 0 | 2 | 3 | (3)
2. Unit/Process Coke
3. Plant Name Bethlehem Steel

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4. Date (Mo. Day Yr.) | 0 | 1 | 2 | 7 | 8 | 1 | (11)
5. Sampler's Initials | AB | (17)
6. Time (Military Time) | 1 | 0 | 3 | 2 | (20)
7. Cart ID# | 1 | (24)
8. N.B.# ____
9. Page # ____
10. Meter #1 | 77.30 | (25)
11. Time #1 | 0 | (37)
12. Meter #2 | 87.51 | (31)
13. Time #2 | 6 | (41)
14. Temp #1 °F | 71 | (45)
15. Temp #2 °F | 71 | (48)
16. Bar. Press., in. Hg. | 28.78 | (51)
17. ΔP, in. Hg. | 0.9 | (56)
18. DGM Correction Factor | 1.07 | (61)
19. Meter # 715572
20. Vol. Org. Condensate ml | | (66)
21. Coll. time, minutes | | (71)
22. Specific Gravity of Organic Condensate | | (75)
23. Comment | | (78)

RADIAN
CORPORATION

Card 1 | 1 | S | (1)

SAMPLE DATA SHEET

1. Radian Valve/Pump ID# | EX0018 | (3) 2. Unit/Process Coke

3. Plant Name Bethlehem Steel

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4. Date (Mo. Day Yr.) | 01 | 27 | 81 | (11)

5. Sampler's Initials | AB | (17)

6. Time (Military Time) | 1120 | (20)

7. Cart ID# | 1 | (24) 8. N.B.# ____ 9. Page # ____

10. Meter #1 | ~~99.80~~ 112.70 | (25)

12. Meter #2 | 121.11 | (31)

11. Time #1 | 0 | (37)

13. Time #2 | 4 | (41)

14. Temp #1 °F | 76 | (45)

15. Temp #2 °F | 76 | (48)

16. Bar. Press., in. Hg. | 28.78 | (51)

17. ΔP, in. Hg. | ~~0.5~~ 1.3 | (56)

18. DGM Correction Factor | 1.07 | (61)

19. Meter # 715572

20. Vol. Org. Condensate ml | | (66)

21. Coll. time, minutes | | (71)

22. Specific Gravity of Organic Condensate | | (75)

23. Comment | | (78)

condensation & inside tent (spray from ex)

RADIAN
CORPORATION

Card 1 | 1 | S | (1)

SAMPLE DATA SHEET

1. Radian Valve/Pump ID# | 3 | 3 | 2 | X | 0 | 0 | 1 | 9 | (3)
2. Unit/Process Coke
3. Plant Name Beth Steel

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4. Date (Mo. Day Yr.) | 0 | 1 | 2 | 7 | 8 | 1 | (11)
5. Sampler's Initials | A | B | (17)
6. Time (Military Time) | 1 | 1 | 5 | 7 | (20)
7. Cart ID# | 1 | (24)
8. N.B.# ____
9. Page # ____
10. Meter #1 | 1 | 8 | 5 | . | 8 | 0 | (25)
12. Meter #2 | 1 | 9 | 4 | . | 4 | 0 | (31)
11. Time #1 | 0 | (37)
13. Time #2 | 4 | (41)
14. Temp #1 °F | 7 | 5 | (45)
15. Temp #2 °F | 7 | 6 | (48)
16. Bar. Press., in. Hg. | 2 | 8 | . | 7 | 8 | (51)
17. ΔP, in. Hg. | 0 | . | 9 | (56)
18. DGM Correction Factor | 1 | . | 0 | 7 | (61)
19. Meter # 715572
20. Vol. Org. Condensate ml | (66)
21. Coll. time, minutes | (71)
22. Specific Gravity of Organic Condensate | (75)
23. Comment | (78)

condensation inside tint

RADIAN
CORPORATION

Card 1 | 1 | S | (1)

SAMPLE DATA SHEET

1. Radian Valve/Pump ID# | 3 | E X 0 0 2 0 | (3)
2. Unit/Process Coke
3. Plant Name Beth Steel

---

4. Date (Mo. Day Yr.) | 0 1 | 2 7 | 8 1 | (11)
5. Sampler's Initials | A B | (17)
6. Time (Military Time) | 1 4 1 0 | (20)
7. Cart ID# | 1 | (24)
8. N.B.# ____
9. Page # ____
10. Meter #1 | 2 2 5 . 4 0 | (25)
12. Meter #2 | 2 3 3 . 0 9 | (31)
11. Time #1 | 0 | (37)
13. Time #2 | 4 | (41)
14. Temp #1 °F | 7 8 | (45)
15. Temp #2 °F | 8 0 | (48)
16. Bar. Press., in. Hg. | 2 8 . 7 8 | (51)
17. ΔP, in. Hg. | 1 . 2 | (56)
18. DGM Correction Factor | 1 . 0 7 | (61)
19. Meter # 715572
20. Vol. Org. Condensate ml | | (66)
21. Coll. time, minutes | | (71)
22. Specific Gravity of Organic Condensate | | (75)
23. Comment | | (78)

RADIAN
CORPORATION

Card 1 [1 | S] (1)

SAMPLE DATA SHEET

1. Radian Valve/Pump ID# [PU - INBOARD 0026] (3) 2. Unit/Process Coke

3. Plant Name Beth Steel

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4. Date (Mo. Day Yr.) [01 | 27 | 81] (11)

5. Sampler's Initials [AB] (17)

6. Time (Military Time) [1515] (20)

7. Cart ID# [1] (24) 8. N.B.# ____ 9. Page # ____

10. Meter #1 [310.40] (25)

12. Meter #2 [310.30] (31)

11. Time #1 [0] (37)

13. Time #2 [4] (41)

14. Temp #1 °F [46] (45)

15. Temp #2 °F [46] (48)

16. Bar. Press., in. Hg. [28.78] (51)

17. ΔP, in. Hg. [1.5] (56)

18. DGM Correction Factor [1.07] (61)

19. Meter # 713572

20. Vol. Org. Condensate ml [ ] (66)

21. Coll. time, minutes [ ] (71)

22. Specific Gravity of Organic Condensate [ ] (75)

23. Comment [ ] (78)

liquid leak 1cc/min

RADIAN
CORPORATION

Card 1 | 1 | S | (1)

SAMPLE DATA SHEET

1. Radian Valve/Pump ID# [illegible] (3) 2. Unit/Process [illegible]

3. Plant Name [illegible] Steel

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4. Date (Mo. Day Yr.) [illegible] (11)

5. Sampler's Initials [illegible] (17)

6. Time (Military Time) [illegible] (20)

7. Cart ID# [illegible] (24) 8. N.B.# ____ 9. Page # ____

10. Meter #1 [illegible] (25)

12. Meter #2 [illegible] (31)

11. Time #1 [illegible] (37)

13. Time #2 [illegible] (41)

14. Temp #1 °F [illegible] (45)

15. Temp #2 °F [illegible] (48)

16. Bar. Press., in. Hg. [illegible] (51)

17. ΔP, in. Hg. [illegible] (56)

18. DGM Correction Factor [illegible] (61)

19. Meter # [illegible]

20. Vol. Org. Condensate ml [illegible] (66)

21. Coll. time, minutes [illegible] (71)

22. Specific Gravity of Organic Condensate [illegible] (75)

23. Comment [illegible] (78)

RADIAN
CORPORATION

Card 1 | 1 | S | (1)

SAMPLE DATA SHEET

1. Radian Valve/Pump ID# [illegible] (3) 2. Unit/Process Ck

3. Plant Name Beth Steel

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4. Date Mo. Day Yr. [illegible] (11)

5. Sampler's Initials [illegible] (17)

6. Time (Military Time) [illegible] (20)

7. Cart ID# [illegible] (24) 8. N.B.# ____ 9. Page # ____

10. Meter #1 [illegible] (25)

12. Meter #2 [illegible] (31)

11. Time #1 [illegible] (37)

13. Time #2 [illegible] (41)

14. Temp #1 °F [illegible] (45)

15. Temp #2 °F [illegible] (48)

16. Bar. Press., in. Hg. [illegible] (51)

17. ΔP, in. Hg. [illegible] (56)

18. DGM Correction Factor [illegible] (61)

19. Meter # 715572

20. Vol. Org. Condensate ml [illegible] (66)

21. Coll. time, minutes [illegible] (71)

22. Specific Gravity of Organic Condensate [illegible] (75)

23. Comment [illegible] (78)

RADIAN
CORPORATION

Card 1 | 1 | S | (1)

SAMPLE DATA SHEET

1. Radian Valve/Pump ID# [illegible] (3) 2. Unit/Process Coke

3. Plant Name Bath Steel

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4. Date Mo. Day Yr. [01 28 81] (11)

5. Sampler's Initials [AB] (17)

6. Time (Military Time) [1020] (20)

7. Cart ID# [1] (24) 8. N.B.# ____ 9. Page # ____

10. Meter #1 [428.30] (25)

12. Meter #2 [440.00] (31)

11. Time #1 [0] (37)

13. Time #2 [7] (41)

14. Temp #1 °F [33] (45)

15. Temp #2 °F [ ] (48)

16. Bar. Press., in. Hg. [29.00] (51)

17. ΔP, in. Hg. [0.9] (56)

18. DGM Correction Factor [1.07] (61)

19. Meter # 715572

20. Vol. Org. Condensate ml [ ] (66)

21. Coll. time, minutes [ ] (71)

22. Specific Gravity of Organic Condensate [ ] (75)

23. Comment [ ] (78)

liquid leak 1 cc / 3 min

RADIAN
CORPORATION

Card 1 [1 | S] (1)

SAMPLE DATA SHEET

1. Radian Valve/Pump ID# [illegible] (3) 2. Unit/Process Coke

3. Plant Name [illegible] Steel

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4. Date (Mo. Day Yr.) [01 | 28 | 81] (11)

5. Sampler's Initials [AB] (17)

6. Time (Military Time) [1100] (20)

7. Cart ID# [1] (24) 8. N.B.# ____ 9. Page # ____

10. Meter #1 [495.110] (25)

12. Meter #2 [506.94] (31)

11. Time #1 [0] (37)

13. Time #2 [7] (41)

14. Temp #1 °F [34] (45)

15. Temp #2 °F [34] (48)

16. Bar. Press., in. Hg. [29.00] (51)

17. ΔP, in. Hg. [1.6] (56)

18. DGM Correction Factor [1.07] (61)

19. Meter # 715572

20. Vol. Org. Condensate ml [ ] (66)

21. Coll. time, minutes [ ] (71)

22. Specific Gravity of Organic Condensate [ ] (75)

23. Comment [ ] (78)

liquid leak 1cc/7min

RADIAN
CORPORATION

Card 1 [1 | S] (1)

SAMPLE DATA SHEET

1. Radian Valve/Pump ID# [ ] (3)
2. Unit/Process Coke
3. Plant Name Bethlehem steel

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4. Date (Mo. Day Yr.) [01 | 28 | 81] (11)
5. Sampler's Initials [HB] (17)
6. Time (Military Time) [ ] (20)
7. Cart ID# [1] (24)
8. N.B.# ____
9. Page # ____
10. Meter #1 [ ] (25)
11. Time #1 [0] (37)
12. Meter #2 [ ] (31)
13. Time #2 [ ] (41)
14. Temp #1 °F [ ] (45)
15. Temp #2 °F [ ] (48)
16. Bar. Press., in. Hg. [29.00] (51)
17. ΔP, in. Hg. [ ] (56)
18. DGM Correction Factor [1.07] (61)
19. Meter # 715572
20. Vol. Org. Condensate ml [ ] (66)
21. Coll. time, minutes [ ] (71)
22. Specific Gravity of Organic Condensate [ ] (75)
23. Comment [ ] (78)