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# Benzene Fugitive Leaks Coke Oven By-Product Plants

# Emission Test Report Bethlehem Steel Corporation Bethlehem, Pennsylvania

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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[d] | 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

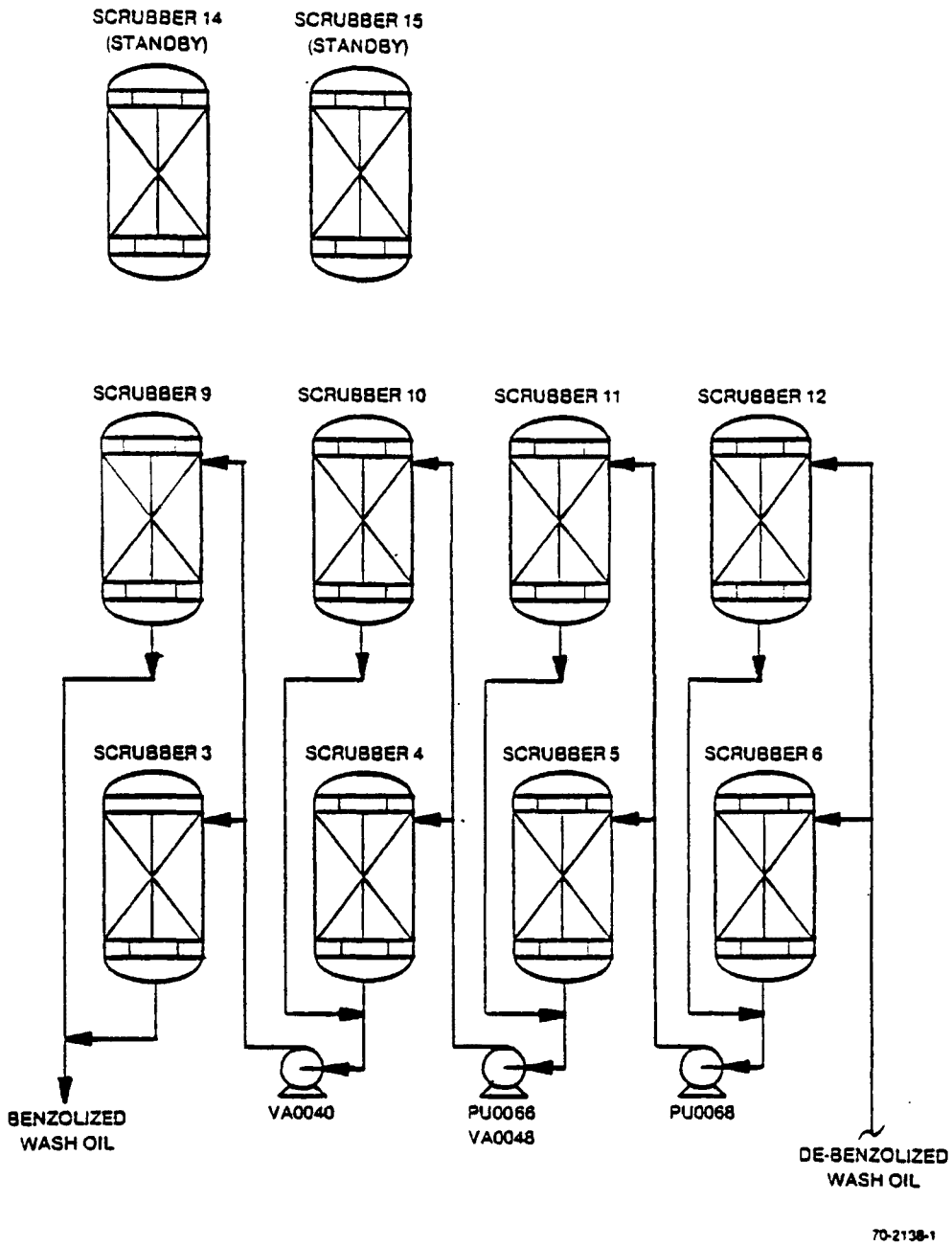
## PROCESS DESCRIPTION

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.

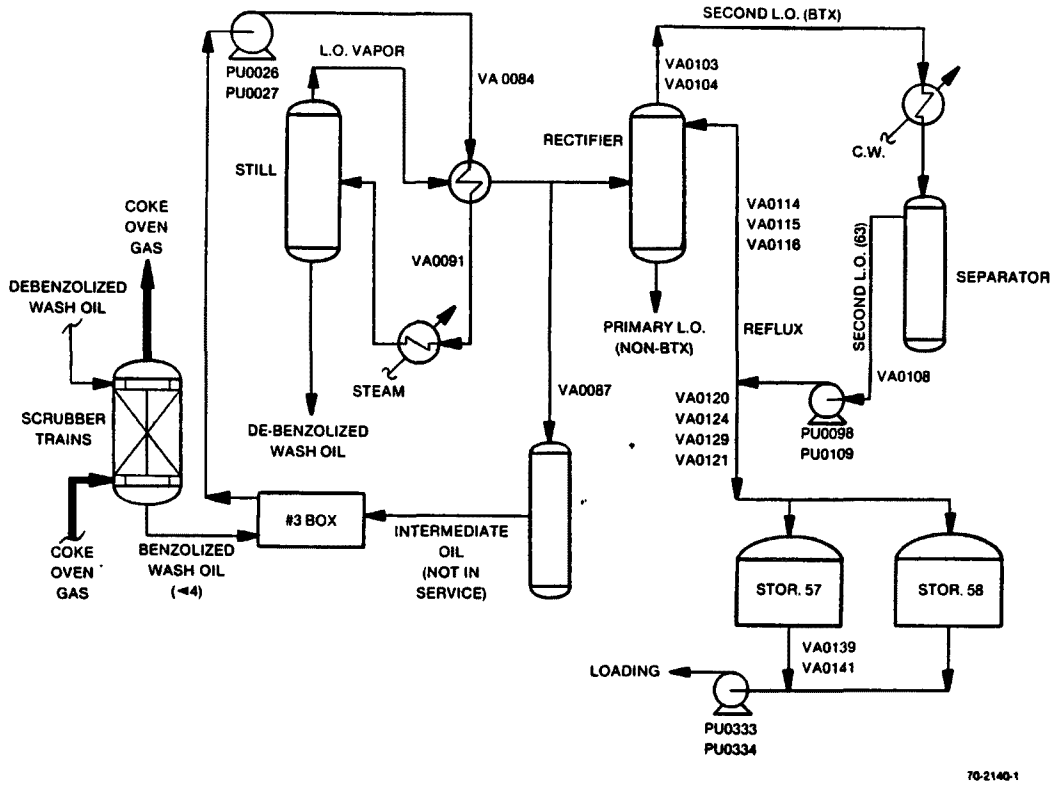
The configuration of the wash oil scrubbers in the light oil recovery section is shown in Figure 3-1. There are two trains of four scrubbers in series in each train. A third train on standby has two scrubbers. These standby scrubbers contained no wash oil during the survey and are operated only when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

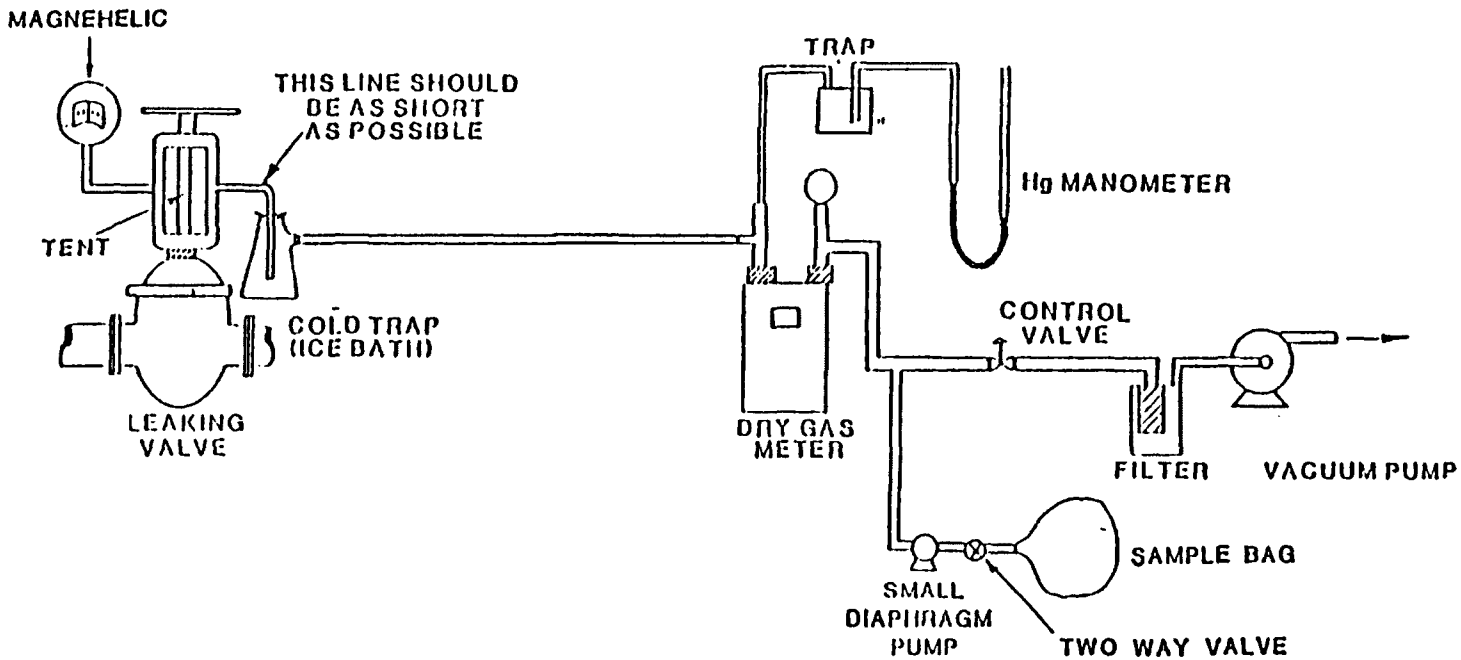



Figure 4-1. Sampling train for baggable source of hydrocarbon emissions.

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

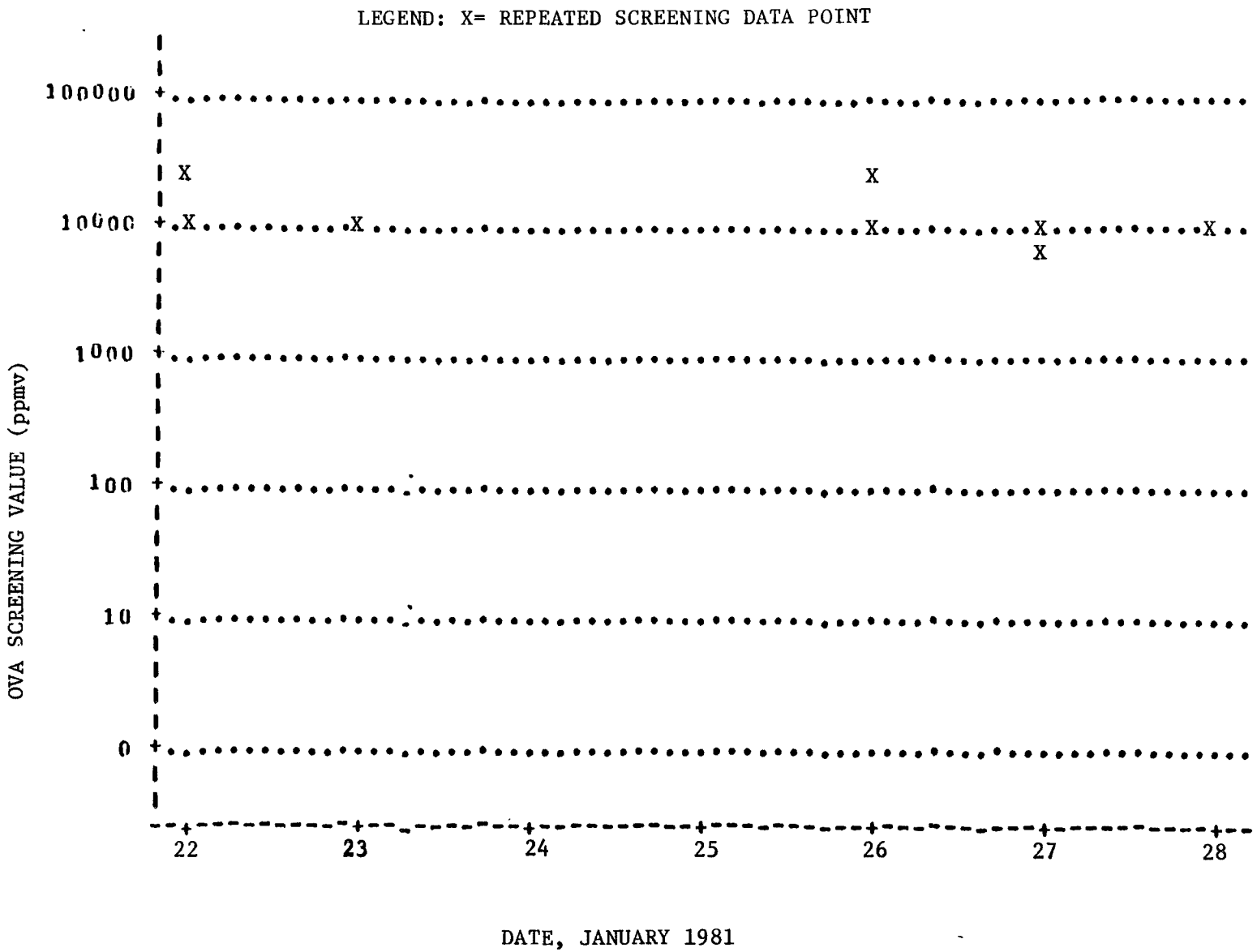



Figure 5-1. Repeated Screenings at Bethlehem Plant for Pump Seal ID #98

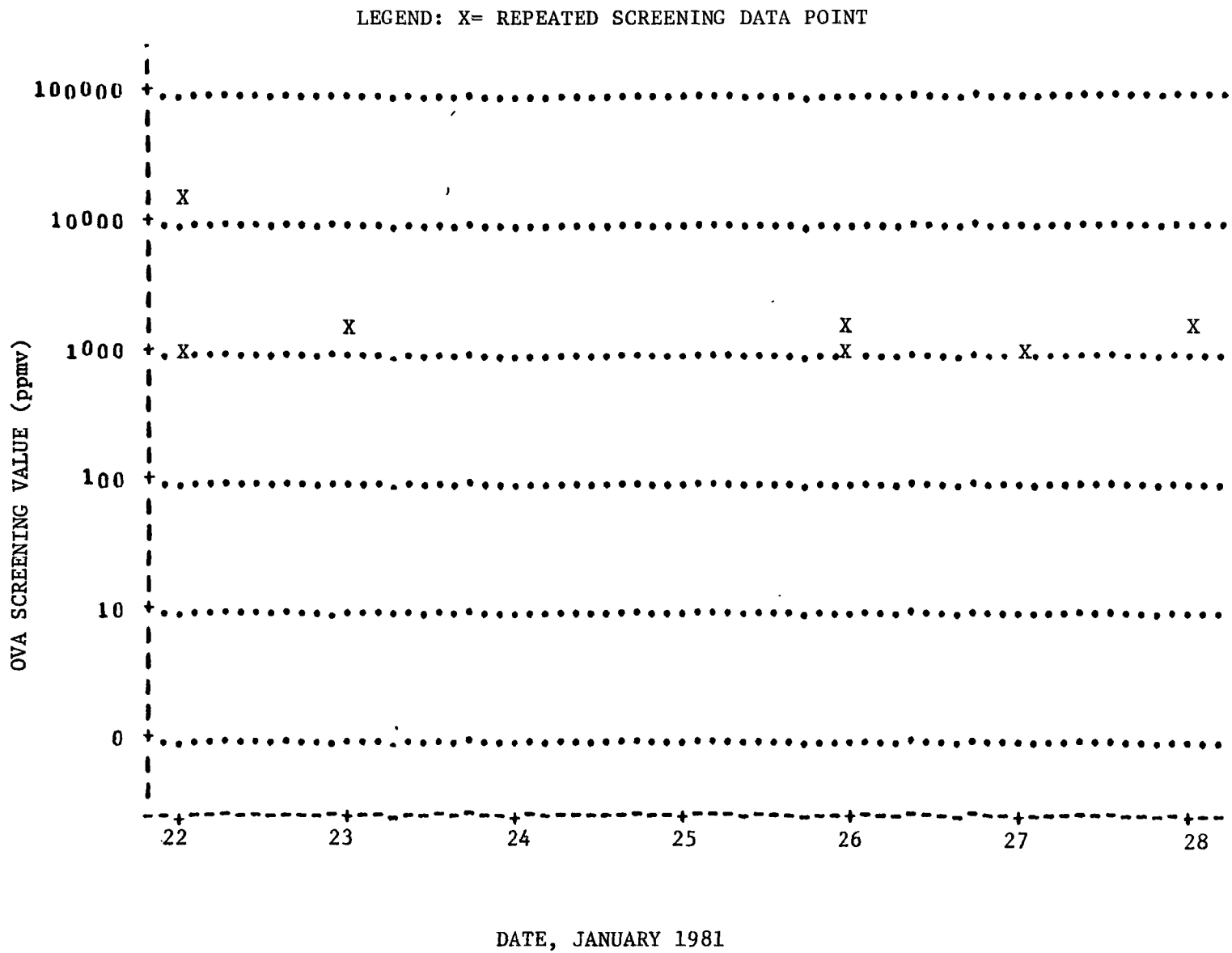



Figure 5-2. Repeated Screenings at Bethlehem Plant for Valve ID #114

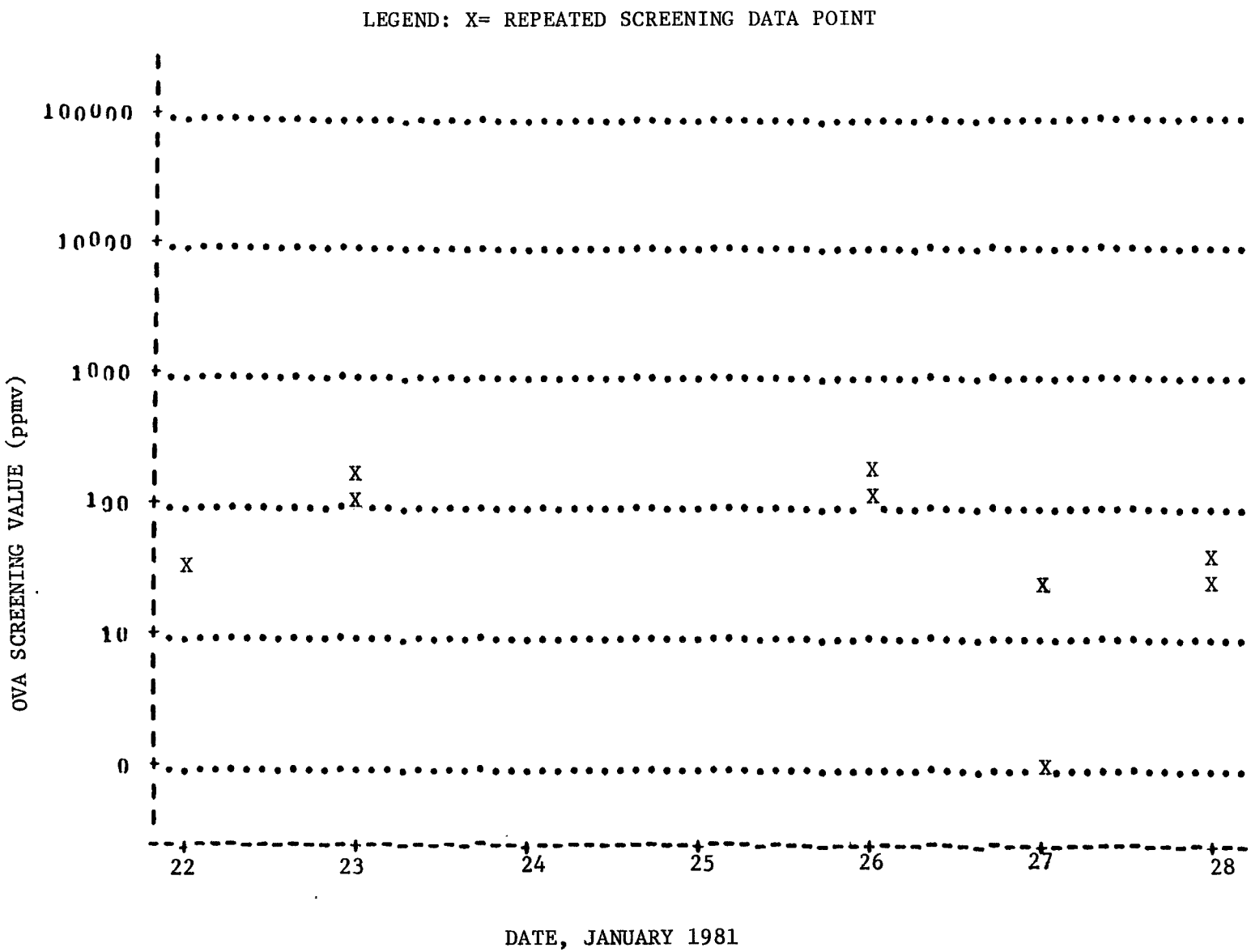



Figure 5-3. Repeated Screenings at Bethlehem Plant for Valve ID #116

### 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.

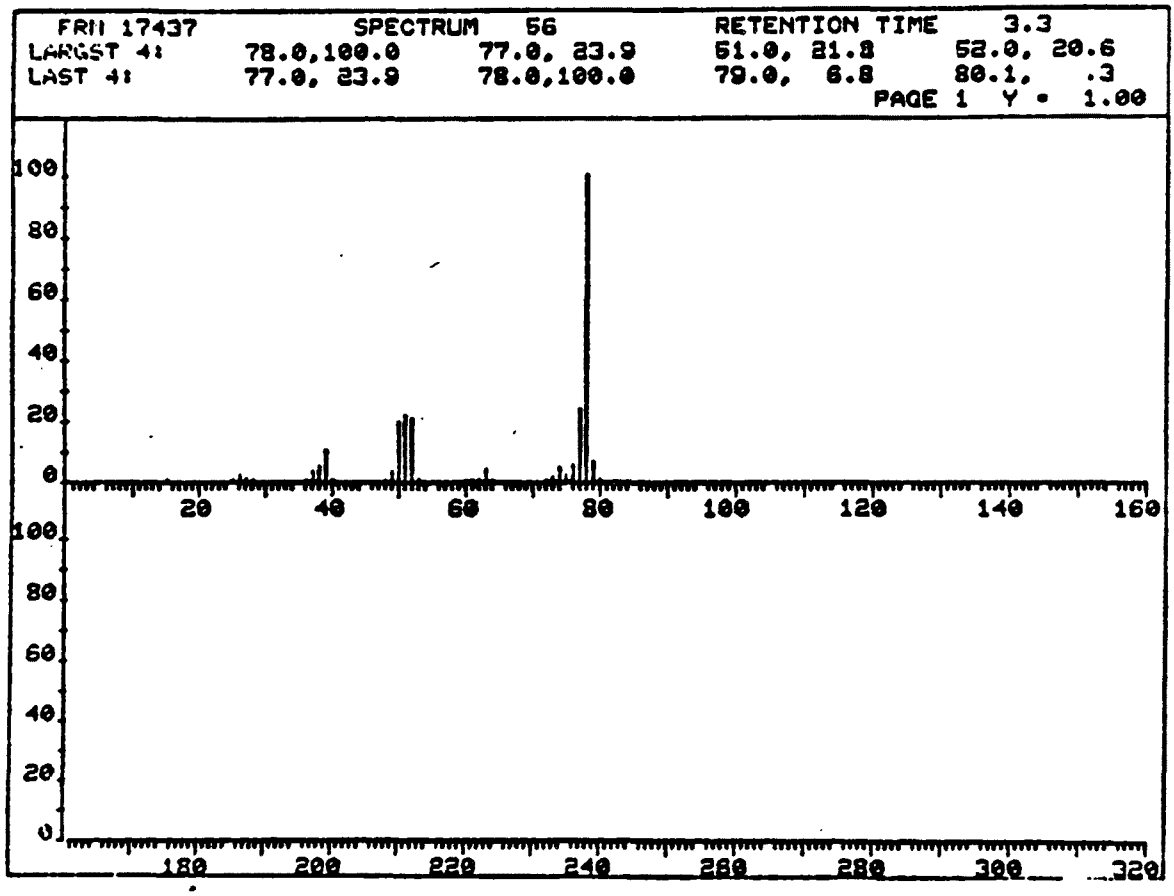



Figure 5-4. Mass Spectrum of Pure Benzene on SP-2100/Bentone Column

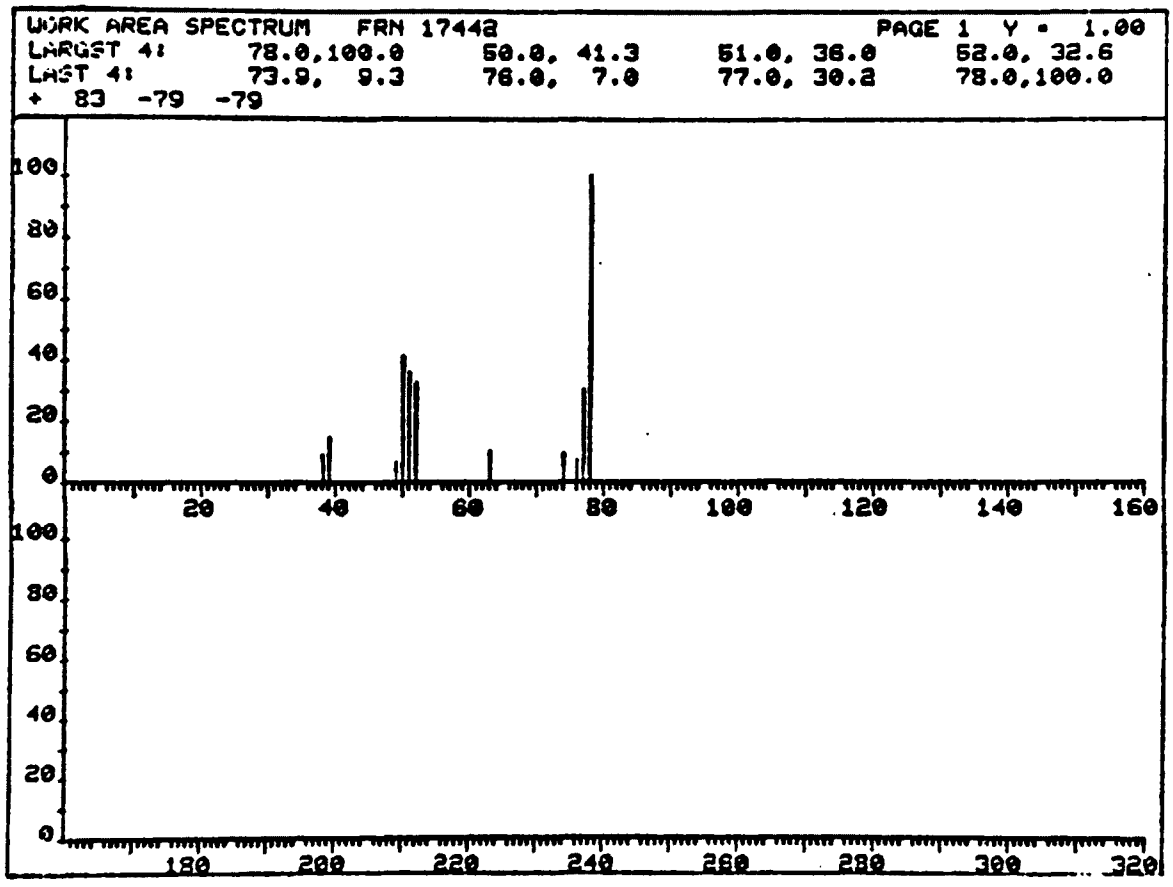



Figure 5-5. Mass Spectrum of Liquid Leak From PU-68 on SP-2100/Bentone

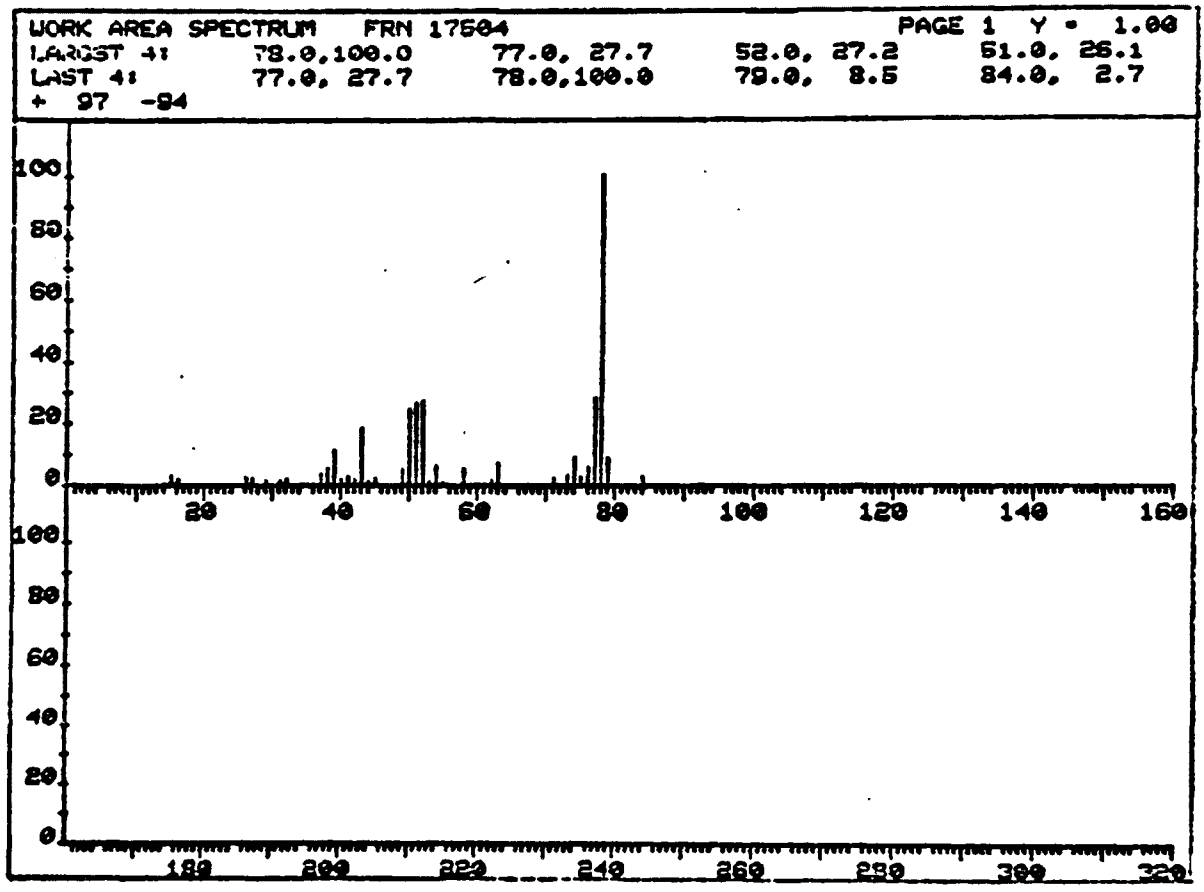



Figure 5-6. Mass Spectrum of Liquid Leak from PU-68 on TCEP

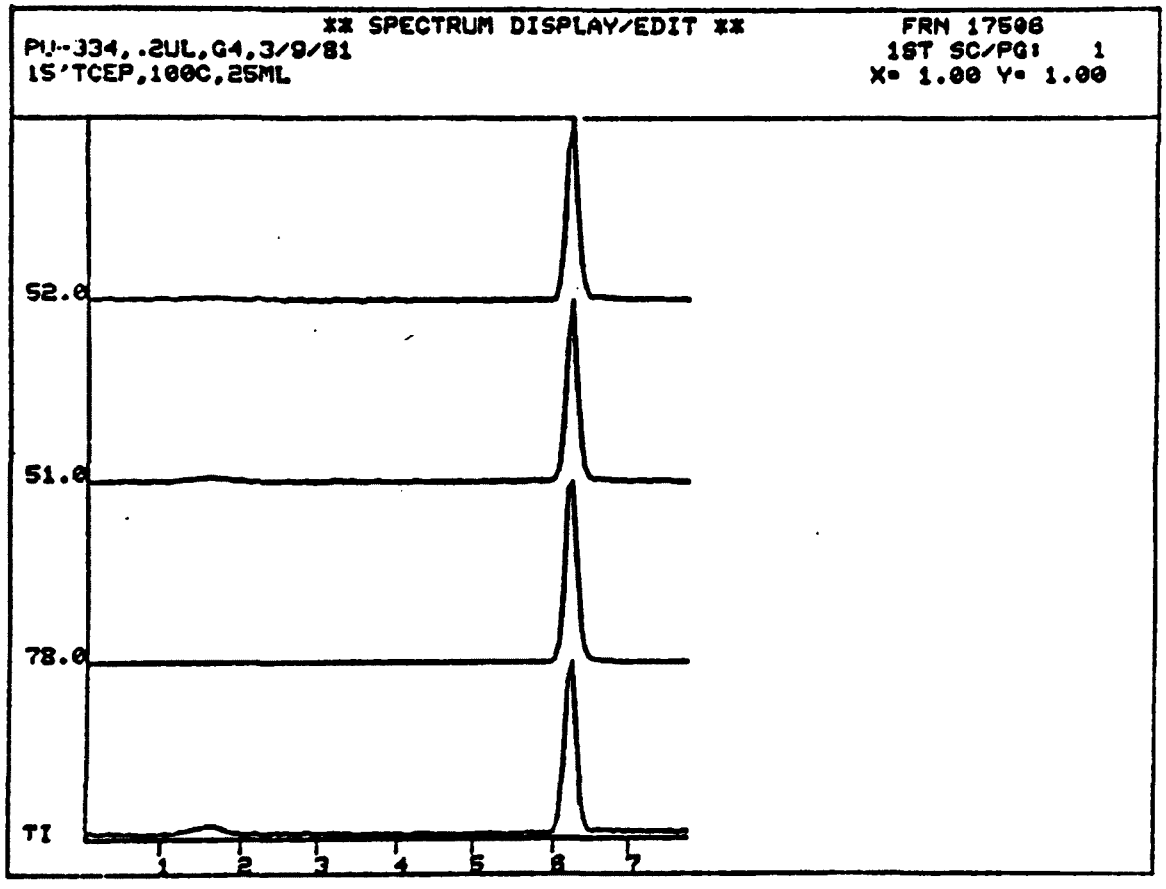



Figure 5-7. GC of Liquid Leak from PU-334 on TCEP

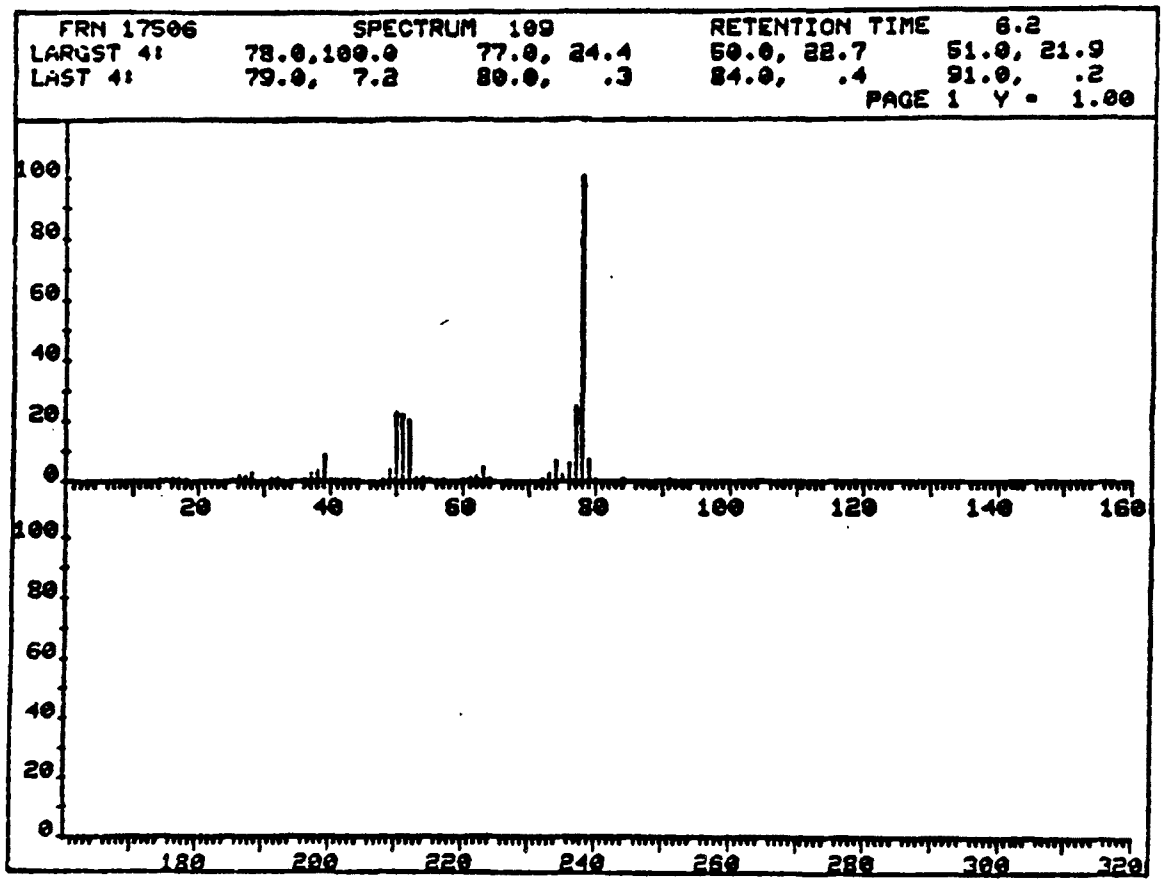



Figure 5-8. Mass Spectrum of Liquid Leak from PU-334 on TCEP

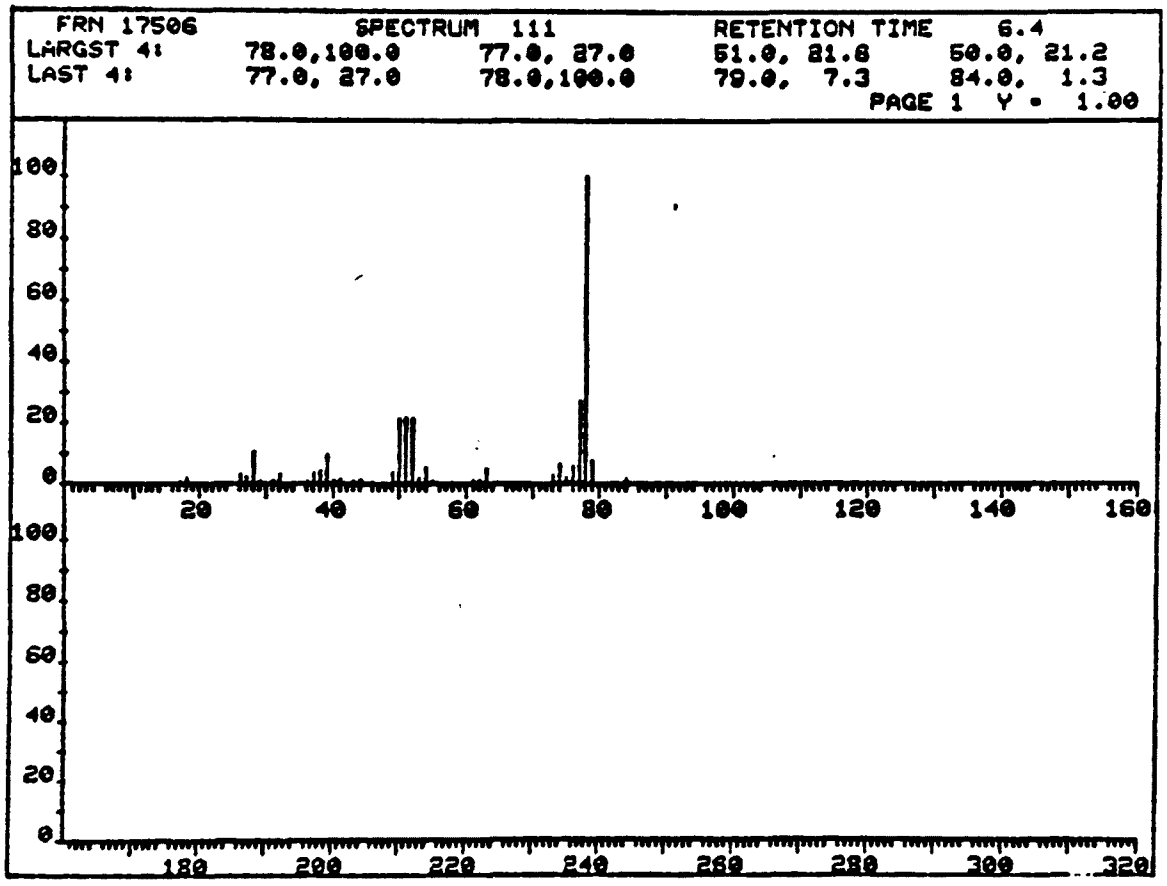



Figure 5-9. Mass Spectrum of Liquid Leak from PU-334 on TCEP

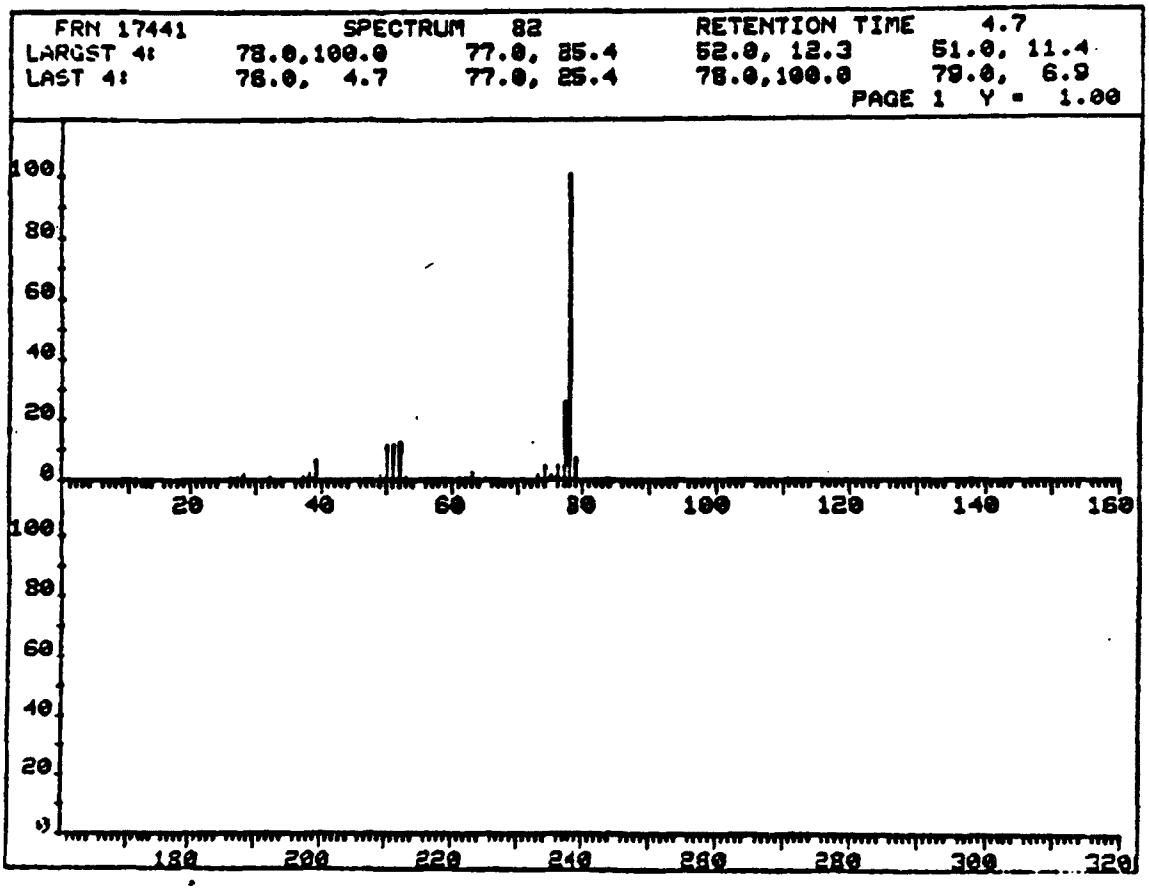



Figure 5-10. Mass Spectrum of Liquid Leak from PU-334 on SP-2100/Bentone

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
- $k_1$ = $2.75 \times 10^{-6}$ (°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
- $\Delta P$ = 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

$\rho$ = 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.

$\Sigma$ = 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~~ 160 | 22 | |
| | | | | 2 | 0 | 71 | | | | | | | ~~130~~ | | ~~150~~ 160 | 2 | |
| | | | | 3 | 0 | 70 | | | | | | | ~~180~~ | | 160 | 22 | |
| | | | | 4 | 0 | 71 | | | | | | | ~~190~~ | | | 2 | |
| | | | | 5 | 0 | 71 | | | | | | | | | | 12 | |
| | | | | 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 | | | | | | | | | | | 2 |
| | | | | 18 | 10001 | 71 | | | | | | | | | | | |
| | | | | 19 | 10001 | 71 | | | | | | | | | | | |
| | | | | 20 | 7500 | 71 | | | | | | | | | | | |

COMMENTS: 1) #5 BATTERY 2) #5 BATT - ON 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 | 11 | 03 | 1 | 1 | | | | 110 | 3 | 60 | 1 | 21 |
| | | | | 22 | 0 | 11 | | | | | | | | | | | |
| | | | | 23 | 100 | 11 | | | | | | | | | | | |
| | | | | 24 | 8 | 11 | | | | | | | | | | | |
| | | | | 25 | | 11 | | | 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 | | | | | | | | | | | |
| | | | | 33 | 0 | 10 | | | | | | | | 5 | | | |
| | | | | 34 | 0 | 10 | | | | | | | | | | | |
| | | | | 35 | 0 | 10 | | | | | | | | | | | |
| | | | | 36 | 0 | 10 | | | | | | | | | | | |
| | | | | 37 | 0 | 10 | | | 12 | | | | | 35 | | | 22 |
| | | | | 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-D HEAT EX. 18 DPM; OUTDOOR PUMPS; 4) OIL FROM 2ND TO LAST SUMP. W.O. 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 |
| | | | | 42 | 0 | 36 | | | | | | Ø | | | | | |
| | | | | 43 | 0 | 10 | | | | | | | | | | | |
| | | | | 44 | 0 | 10 | | | | | | | | | | | |
| | | | | 45 | 0 | 10 | | | | | | | | | | | |
| | | | | 46 | 0 | 10 | | | | | | | | | | | |
| | | | | 47 | 0 | 24 | | | | | | | | | | | |
| | | | | 48 | 400 | 10 | | | 11 | | | | | 35 | | | 2 2 |
| | | | | 49 | 0 | 10 | | | | | | | | | | | |
| | | | | 50 | 0 | 10 | | | | | | | | | | | |
| | | | | 51 | 0 | 10 | | | | | | | | | | | |
| | | | | 52 | 0 | 10 | | | | | | | | 5 | | | |
| | | | | 53 | 0 | 10 | | | | | | | | | | | |
| | | | | 54 | 0 | 10 | | | | | | | | | | | |
| | | | | 55 | 0 | 10 | | | | | | | | | | | |
| | | | | 56 | 0 | 10 | | | | | | | | | | | |
| | | | | 57 | 0 | 10 | | | | | | | | 35 | | | |
| | | | | 58 | 0 | 10 | | | | | | | | | | | |
| | | | | 59 | 0 | 10 | | | 10 | | | | | | | | |
| | | | | 60 | 0 | 10 | | | 10 | | | | | | | | |

COMMENTS: 1) SENDS N.O. TO ~~TO~~ SCRUBBERS 2) GO TO 4,10 SCRUBBER

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 | 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 | | | 2 1 |
| | | | | 67 | 0 | 36 | | | 11 | | | Ø | | 35 | | | |
| | | | | 68 | 20 | 36 | | | 10 | | | I | | 35 | | | 2 2 |
| | | | | 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 410 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 |
| | | | | 82 | 0 | 20 | | | | | | | | | | | |
| | | | | 83 | 0 | 10 | | | | | | | | | | | |
| | | | | 84 | 40 | 10 | | | | | | | | | | | |
| | | | | 85 | 0 | 11 | | | | | | | | | | | |
| | | | | 86 | 0 | 10 | | | 7 | | | | | | | | |
| | | | | 87 | 20 | 14 | | | 9 | | | | 200 | 5 | | | 2 |
| | | | | 88 | 0 | 10 | | | 9 | | | | 200 | | | | |
| | | | | 89 | 20 | 1 | | | 7 | | | | 175 | 0 | | 3 | 2 3 |
| | | | | 90 | 0 | 10 | | | | | | | | | | | |
| | | | | 91 | 450 | 10 | | | | | | | | | | | 2 |
| | | | | 92 | 0 | 10 | | | | | | | | | | | 1 |
| | | | | 93 | 0 | 10 | | | | | | | | | | | 2 |
| | | | | 94 | 10 | 1 | | | 7 | | | | | | | 2 | 2 7 |
| | | | | 95 | 0 | 10 | | 1 | 3 | | | | 210 | | | 3 | 2 |
| | | | | 96 | 0 | 10 | | 1 | | | | | 210 | | | | |
| | | | | 97 | 0 | 10 | | 1 | | | | | 210 | | | | |
| 01 | 20 | 03 | 3 | 98 | 40000 | 36 | V | 1 2 | 2 | | | ϕ | 80 | 20 | | 1 | 2 |

COMMENTS: 1) ignored WC to V-O Xchanger 3) M OIL FROM VO XCHNG; 3) WO FROM HT EXCHNG -76°C LIQUID LK-ORIFICE 4) BLANK ORIFICE 4) NOT ACCESS. 5) LIQ LK 7) BLANK ORIFICE, STOBY 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 | 1101 | 0 | 10 | 03 | 1 | 15 | | | | 160 | 5 | 30 | 3 | 2 |
| | | | | 1102 | 0 | 10 | | | 15 | | | | | | | 3 | |
| | | | | 1103 | 50 | 10 | | | 15 | | | | | | | 3 | |
| | | | | 1104 | 50 | 10 | | | 15 | | | | | | | 3 | |
| | | | | 1105 | 0 | 10 | | 2 | 15 | | | | 80 | 0 | | 3 | 2 |
| | | | | 1106 | 0 | 10 | | | 15 | | | | | | | 2 | |
| | | | | 1107 | 0 | 13 | | 2 | 2 | | | | 80 | 0 | | 1 | 3 |
| | | | | 1108 | 50 | 10 | | | 2 | | | | | | | | |
| | | | | 1109 | 2000 | 36 | | | | | | I | | 20 | | | 2 |
| | | | | 1110 | 0 | 10 | | | | | | | | | | | |
| | | | | 1111 | 0 | 46 | | | | | | I | | | | | 2 |
| | | | | 1112 | 0 | 46 | | | | | | Ø | | | | | |
| | | | | 1113 | 0 | 10 | | | | | | | | | | | 2 |
| | | | | 1114 | 2000 | 10 | | | | | | | | | | | |
| | | | | 1115 | 1100 | 20 | | | | | | | | | | | |
| | | | | 1116 | 50 | 10 | | | | | | | | | | | |
| | | | | 1117 | 0 | 10 | | | | | | | | | | | |
| | | | | 1118 | 0 | 10 | | | | | | | | | | | |
| | | | | 1119 | 0 | 10 | | | | | | | | | | | |
| | | | | 1120 | 2000 | 10 | | | | | | | | | | | |

COMMENTS: 1) VAP FROM RECT. 2) OIL FROM COND 3) OIL FROM SEP. 4) INBOARD OF EQ 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 | 1000 | 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 | | 2 | | | 40 | 10 | 40 | 1 | |
| | | | | 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 | 3S | 40 | | 21 |
| | | | | 156 | 0 | 01 | | | | | | | | | | | |
| | | | | 157 | 0 | 01 | | | | | | | | | | | |
| | | | | 158 | 0 | 01 | | | | | | | | | | | |
| | | | | 159 | 0 | 01 | | | | | | | | | | | |
| | | | | 160 | 0 | 01 | | | | | | | | | | | |

61/82

24/53 1/20

6/H condns

2/6 → 6/6x

6/0 2/45 → Cond

4/0 12 cond.

18/20

5/11

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 | | | | 180 | 35 | 40 | 1.2 | 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 | 001 | 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 | | | | | | | | | | 5 | | | |
| | | | | 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 | 2 |
| | | | | 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.S.

# 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 | | 3 | |
| | | | | 270 | | | | | 15 | | | | | | | 3 | |
| | | | | 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

63

gas

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 | 1 | 40 | 1 | |
| | | | | 282 | | | | | | | | | | | | | |
| | | | | 283 | | | | | | | | | | | | | |
| | | | | 284 | | | | | | | | | | | | | |
| | | | | 285 | | | | | | | | | | | | | |
| | | | | 286 | | | | | | | | | 80 | | | | |
| | | | | 287 | | | | | | | | | | | | | |
| | | | | 288 | | | | | | | | | | | | | |
| | | | | 289 | | | | | | | | | | | | | |
| | | | | 290 | | | | | | | | | | | | | |
| | | | | 291 | | | | | | | | | | | | | |
| | | | | 292 | | | | | | | | | | | | | |
| | | | | 293 | | | | | | | | | | | | | |
| | | | | 294 | | | | | | | | | | | | | |
| | | | | 295 | | | | | | | | | 50 | 10 | | | |
| | | | | 296 | | | | | | | | | | | | | |
| | | | | 297 | | | | | | | | | | | | | |
| | | | | 298 | | | | | | | | | | | | | |
| | | | | 299 | | | | | | | | | | | | | |
| | | | | ~~300~~ | | | | ~~2~~ | ~~14~~ | | | | ~~35~~ | ~~10~~ | ~~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) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | 14 | | | | | | | | |
| 01 | 23 | 01 | 3 | 320 | 0 | 10 | 03 | 3 | 0 | | | | 35 | 0 | 35 | 1 | 2 |
| | | | | 321 | 0 | 10 | | | 0 | | | | | | | | |
| | | | | 322 | 0 | 10 | | | 0 | | | | | | | | |
| | | | | 323 | 0 | 20 | | | 0 | | | | | | | | |
| | | | | 324 | 0 | 10 | | | 0 | | | | | | | | |
| | | | | 325 | 0 | 10 | | | | | | | | | | | |
| | | | | 326 | 0 | 10 | | | | | | | | | | | |
| | | | | 327 | 0 | 46 | | | | | | C | | | | | |
| | | | | 328 | 0 | 46 | | | | | | Ø | | | | | |
| | | | | 329 | 0 | 01 | | | | | | | | | | | |
| | | | | 330 | 0 | 01 | | | | | | | | | | | |
| | | | | 331 | 0 | 01 | | | | | | | | | | | |
| | | | | 332 | 0 | 01 | | | | | | | | | | | |
| 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 # [C3EX0020] (3)  2. Unit/Process Coke BP

3. Plant Name Bethlehem Steel, Bethlehem, Pa.

---

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

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

7. Before Tenting OVA Screening Value [140000] (24)  TLV Screening Value [110001] (31)

---

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

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

10. After Sampling OVA Screening Value [145000] (45)  TLV Screening Value [110001] (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|8|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. Day Yr.) [01 | 22 | 81] (11)  5. Screener's ID [DPW] (17)

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

7. Before Tenting OVA Screening Value [1600] (24)  TLV Screening Value [5400] (31)

---

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

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

10. After Sampling OVA Screening Value [1000] (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 (Mo. Day Yr.) [01 | 22 | 81] (11)  5. Screener's ID [DPW] (17)

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

7. Before Tenting OVA Screening Value [12900] (24)  TLV Screening Value [10001] (31)

---

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

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

10. After Sampling OVA Screening Value [11900] (45)  TLV Screening Value [10001] (52)

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

74-2600
6-15C
7-17000

RADIAN CORPORATION

SCREENING SHEET
FOR SAMPLE DATA

Card 1 [S|C] (1)

1. Radian Valve/Pump ID # [03|V|A|0|1|1|4] (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 [12000] (24)  TLV Screening Value [1900] (31)

---

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

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

10. After Sampling OVA Screening Value [12300] (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 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 # [03VA0111 6] (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) [14015] (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) [14510] (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 # [013VA0124] (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 [65] (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 [150] (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|2|1] (3)  2. Unit/Process Coke BP

3. Plant Name Bethlehem Steel, Beth, PA

---

4. Date (Mo. Day Yr.) [01|23|81] (11)  5. Screener's ID [DPW] (17)

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

7. Before Tenting OVA Screening Value [|1|5|0|0|0] (24)  TLV Screening Value [|1|2|0|0|0] (31)

---

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

9. After Sampling Screening Time (Military Time) [1525] (41)

10. After Sampling OVA Screening Value [|1|5|4|0|0] (45)  TLV Screening Value [|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. 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 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 # [CBPU00178] (3)  2. Unit/Process Coke BP

3. Plant Name Bethlehem Steel, Beth, PA

---

4. Date (Mo. Day Yr.) [01 | 23 | 81] (11)  5. Screener's ID [DPW] (17)

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

7. Before Tenting OVA Screening Value [1500] (24)  TLV Screening Value [500] (31)

---

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

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

10. After Sampling OVA Screening Value [1000] (45)  TLV Screening Value [1000] (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 | C | 1 | C | 9] (3) 2. Unit/Process CokeBP

3. Plant Name Bethlehem Steel

---

4. Date Mo. Day Yr. [0 1 | 2 3 | 8 1] (11) 5. Screener's ID [DPM] (17)

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

7. Before Tenting OVA Screening Value [1 1 5 0 0 0] (24) TLV Screening Value [1 1 3 0 0 0] (31)

---

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

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

10. After Sampling OVA Screening Value [1 1 1 3 0 0 0] (45) TLV Screening Value [1 1 3 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 # [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 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 # [013|V|A|01|12M] (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) [1020] (20)

7. Before Tenting OVA Screening Value [1110] (24)  TLV Screening Value [100] (31)

---

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

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

10. After Sampling OVA Screening Value [3010] (45)  TLV Screening Value [120] (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 [D P W] (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 [D P W] (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 # [0|3|Y|A|0|0|8|4] (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|5|4|0] (20)

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

---

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

9. After Sampling Screening Time (Military Time) [1|6|2|0] (41)

10. After Sampling OVA Screening Value [1|0|0] (45)  TLV Screening Value [7|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 # [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|21|6|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|0] (24)  TLV Screening Value [2|6|0|0] (31)

---

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

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

10. After Sampling OVA Screening Value [4|0] (45)  TLV Screening Value [7|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 3 1] (3)

2. Unit/Process Coke BP

3. Plant Name Bethlehem Steel, Beth., Pa

---

4. Date Mo. Day Yr. [9 1 2 7 8 1] (11)

5. Screener's ID [O 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 # [D3PU0333] (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) [0830] (20)

7. Before Tenting OVA Screening Value [1 1 3200] (24)  TLV Screening Value [1 1 0001] (31)

---

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

9. After Sampling Screening Time (Military Time) [1915] (41)

10. After Sampling OVA Screening Value [1 1 0000] (45)  TLV Screening Value [1 1 0001] (52)

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

RADIAN CORPORATION

SCREENING SHEET
FOR SAMPLE DATA

Card 1 [S | C] (1)

1. Radian Valve/Pump ID # [DBPU03314] (3)  2. Unit/Process Coke BP

3. Plant Name Bethlehem Steel, Beth., Pa

---

4. Date Mo. Day Yr. [9 | 27 | 81] (11)  5. Screener's ID [DPW] (17)

6. Before Tenting Screening Time (Military Time) [1830] (20)

7. Before Tenting OVA Screening Value [1750000] (24)  TLV Screening Value [1100001] (31)

---

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

9. After Sampling Screening Time (Military Time) [1915] (41)

10. After Sampling OVA Screening Value [1250000] (45)  TLV Screening Value [1100001] (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|E|X|0|0|2|3] (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) [1935] (20)

7. Before Tenting OVA Screening Value [1150000] (24)  TLV Screening Value [1100001] (31)

---

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

9. After Sampling Screening Time (Military Time) [1110] (41)

10. After Sampling OVA Screening Value [1140000] (45)  TLV Screening Value [1178000] (52)

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

8500
1500
0



98-12000
114-1300
119-170

RADIAN CORPORATION

SCREENING SHEET
FOR SAMPLE DATA

Card 1 [S | C] (1)

1. Radian Valve/Pump ID # [013EX0018] (3)  2. Unit/Process Coke BP

3. Plant Name Bethlehem Steel, Beth, Pa

---

4. Date (Mo. Day Yr.) [91 27 81] (11)  5. Screener's ID [DPW] (17)

6. Before Tenting Screening Time (Military Time) [1015] (20)

7. Before Tenting OVA Screening Value [1750000] (24)  TLV Screening Value [1100001] (31)

---

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

9. After Sampling Screening Time (Military Time) [1140] (41)

10. After Sampling OVA Screening Value [1100001] (45)  TLV Screening Value [1100001] (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 # [03|E|X|0|0|1|9] (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) [1130] (20)

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

---

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

9. After Sampling Screening Time (Military Time) [1215] (41)

10. After Sampling OVA Screening Value [1|6|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 [1100001] (31)

---

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

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

10. After Sampling OVA Screening Value [1300000] (45) TLV Screening Value [1540000] (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~~ [03EX0012] (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. [0 1 | 2 7 | 8 1] (11)  5. Screener's ID [D P W] (17)

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

7. Before Tenting OVA Screening Value [1 4 0] (24)  TLV Screening Value [7 0 0] (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 5] (45)  TLV Screening Value [2 4] (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 7] (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 5 0 0] (20)

7. Before Tenting OVA Screening Value [2 5] (24)  TLV Screening Value [2 5] (31)

---

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

9. After Sampling Screening Time (Military Time) [1 6 0 5] (41)

10. After Sampling OVA Screening Value [1 5] (45)  TLV Screening Value [2 4] (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 [DPW] (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 [1 1 1 5 0 0] (24) 0  TLV Screening Value [1 1 2 0 0 0] (31) 0

---

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

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

10. After Sampling OVA Screening Value [1 1 1 1 1 1 0] (45)  TLV Screening Value [1 1 1 1 1 1 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 6 6] (3)  2. Unit/Process Coke BP

3. Plant Name Bethlehem Steel, Beth, 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 0 5] (20)

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

---

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

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

10. After Sampling OVA Screening Value [3 0] (45)  TLV Screening Value [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 # [03 | PU | 01 | 01 | 68] (3)  2. Unit/Process Coke BP

3. Plant Name Bethlehem Steel, Bethlehem, Pa

---

4. Date (Mo. Day Yr.) [6 | 1 | 28 | 81] (11)  5. Screener's ID [DPW] (17)

6. Before Tenting Screening Time (Military Time) [10:25] (20)

7. Before Tenting OVA Screening Value [15] (24)  TLV Screening Value [4] (31)

---

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

9. After Sampling Screening Time (Military Time) [11:25] (41)

10. After Sampling OVA Screening Value [15] (45)  TLV Screening Value [16] (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|W] (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]

SAMPLE DATA SHEET

1. Radian Valve/Pump ID# [03EX0020] 2. Unit/Process Coke

3. Plant Name Bethlehem Steel

---

4. Date: Mo. Day Yr. [01 | 21 | 81]

5. Sampler's Initials [AP]

6. Time (Military Time) [1515 10]

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

10. Meter #1 [21011.1310]

12. Meter #2 [21019.1318]

11. Time #1 [10]

13. Time #2 [15]

14. Temp #1 °F [1810]

15. Temp #2 °F [1810]

16. Bar. Press., in. Hg. [29.116]

17. ΔP, in. Hg. [1.01.18]

18. DGM Correction Factor [1.1.017]

19. Meter # 715572

20. Vol. Org. Condensate ml [ ] ~~yes~~ no organic

21. Coll. time, minutes [ ]

22. Specific Gravity of Organic Condensate [ ]

23. Comment [ ]

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 Steel

---

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 [3138.510] (25) 12. Meter #2 [1218.141] (31)

11. Time #1 [10] (37) 13. Time #2 [16] (41)

14. Temp #1 °F [33] (45) 15. Temp #2 °F [34] (48)

16. Bar. Press., in. Hg. ~~[29.149]~~ .29.78 (51) 17. ΔP, in. Hg. [1.12] (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)

**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.) [6 | 1 | 2 | 8 | 1] (11) 5. Sampler's Initials [RB] (17)

6. Time [1145] (20) (Military Time) 7. Cart ID# [1] (24) 8. N.B.# ____ 9. Page # ____

10. Meter #1 [2541.610] (25) 12. Meter #2 [2641.615] (31)

11. Time #1 [10] (37) 13. Time #2 [16] (41)

14. Temp #1 °F [314] (45) 15. Temp #2 °F [314] (48)

16. Bar. Press., in. Hg. ~~29.49~~ 29.78 (51) 17. ΔP, in. Hg. [1.12] (56)

18. DGM Correction Factor [1.017] (61) 19. Meter # 715572

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

21. Coll. time, minutes [16] (71) 22. Specific Gravity of Organic Condensate [ ] (75)

23. Comment [ ] (78)

1.67
6/10/85

RADIAN
CORPORATION

Card 1 [1 | S]
1

SAMPLE DATA SHEET

1. Radian Valve/Pump ID# [1 | 1 | A | 1 | 1 | 1 

RADIAN CORPORATION

Card 1 [1 | S]

SAMPLE DATA SHEET

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

3. Plant Name [illegible]

---

4. Date: Mo. Day Yr. [01 | 22 | 81]

5. Sampler's Initials [AB]

6. Time [1346] (Military Time)

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

10. Meter #1 [31211.185]

12. Meter #2 [31361.510]

11. Time #1 [110]

13. Time #2 [115]

14. Temp #1 °F [135]

15. Temp #2 °F [135]

16. Bar. Press., in. Hg. [29.78] ~~29.19~~

17. ΔP, in. Hg. [1.12]

18. DGM Correction Factor [1.017]

19. Meter # 715572

20. Vol. Org. Condensate ml [ ]

21. Coll. time, minutes [ ]

22. Specific Gravity of Organic Condensate [ ]

23. Comment [ ]

LIQUID LEAK: 5ml/3 min

J.S.

RADIAN CORPORATION

Card 1 [1 | S]
1

SAMPLE DATA SHEET

1. Radian Valve/Pump ID# [VA011114] 3
2. Unit/Process Coke
3. Plant Name Bethlehem Steel

---

4. Date (Mo. Day Yr.) [011 | 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 [35581.000] 25
11. Time #1 [10] 37
12. Meter #2 [36651.000] 31
13. Time #2 [14] 41
14. Temp #1 °F [317] 45
15. Temp #2 °F [316] 48
16. Bar. Press., in. Hg. [29.49] 51
17. ΔP, in. Hg. [1.11] 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

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 [14:21] (20) (Military Time) 7. Cart ID# [1] (24) 8. N.B.# ____ 9. Page # ____

10. Meter #1 [3191.111] (25) 12. Meter #2 [40171.515] (31)

11. Time #1 [110] (37) 13. Time #2 [117] (41)

14. Temp #1 °F [316] (45) 15. Temp #2 °F [316] (48)

16. Bar. Press., in. Hg. [29.19] (51) 17. ΔP, in. Hg. [1.11] (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# [1 1 1 A 0 1 1 1 6] 2. Unit/Process Coke
3

3. Plant Name Bethlehem Steel

---

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

5. Sampler's Initials [1 A B]
17

6. Time (Military Time) [1 4 3 1]
20

7. Cart ID# [1]
24

8. N.B.# ____ 9. Page # ____

10. Meter #1 [4 1 1 1 1 . 1 9 1 0]
25

12. Meter #2 [4 2 0 1 . 8 3 8]
31

11. Time #1 [1 1 0]
37

13. Time #2 [1 1 5]
41

14. Temp #1 °F [1 3 1 6]
45

15. Temp #2 °F [1 1]
48

16. Bar. Press., in. Hg. [2 9 1 . 4 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 # 715527

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]

SAMPLE DATA SHEET

1. Radian Valve/Pump ID# [V A C 1 2 4] 2. Unit/Process Coke

3. Plant Name Bethlehem Steel

---

4. Date (Mo. Day Yr.) [6 11 | 2 3 | 8 1] 5. Sampler's Initials [AB]

6. Time (Military Time) [1 4 5 6] 7. Cart ID# [1] 8. N.B.# ____ 9. Page # ____

10. Meter #1 [4 5 3 1 . 4 5] 12. Meter #2 [4 6 2 4 . 6 5]

11. Time #1 [1 1 0] 13. Time #2 [1 1 5]

14. Temp #1 °F [1 2 9] 15. Temp #2 °F [1 3 8]

16. Bar. Press., in. Hg. [2 9 1 . 4 9] 17. ΔP, in. Hg. [1 1 1 . 1 2]

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

20. Vol. Org. Condensate ml [1 1 1 1]

21. Coll. time, minutes [1 1 1] 22. Specific Gravity of Organic Condensate [1 1]

23. Comment [1 1]

RADIAN CORPORATION

Card 1 [1 | S]
1

## SAMPLE DATA SHEET

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

3. Plant Name Bethlehem Steel

---

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

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

10. Meter #1 [4 5 0 1 5 1 5] (25) 12. Meter #2 [4 9 1 1 . 1 4 0] (31)

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

14. Temp #1 °F [1 3 7] (45) 15. Temp #2 °F [1 3 6] (48)

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

18. DGM Correction Factor [1 1 . 1 0 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]

SAMPLE DATA SHEET

1. Radian Valve/Pump ID# [1 1 1 0 1 0 1 9 1 8] 2. Unit/Process [illegible]

3. Plant Name [illegible]

---

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

5. Sampler's Initials [HB]

6. Time [1530] (Military Time)

7. Cart ID# [1]

8. N.B.# ____ 9. Page # ____

10. Meter #1 [5210.150]

12. Meter #2 [5311.137]

11. Time #1 [10]

13. Time #2 [16]

14. Temp #1 °F [138]

15. Temp #2 °F [138]

16. Bar. Press., in. Hg. [29.19]

17. ΔP, in. Hg. [1.12]

18. DGM Correction Factor [1.017]

19. Meter # [7155472]

20. Vol. Org. Condensate ml [ ]

21. Coll. time, minutes [ ]

22. Specific Gravity of Organic Condensate [ ]

23. Comment [ ]

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 Steel

---

4. Date Mo. Day Yr. [01 | 23 | 81] 11
5. Sampler's Initials [HB] 17
6. Time [1600] 20 (Military Time)
7. Cart ID# [1] 24
8. N.B.# ____
9. Page # ____
10. Meter #1 [5712.145] 25
12. Meter #2 [5791.618] 31
11. Time #1 [10] 37
13. Time #2 [14] 41
14. Temp #1 °F [138] 45
15. Temp #2 °F [135] 48
16. Bar. Press., in. Hg. [29.19] 51
17. ΔP, in. Hg. [1.11] 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

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 Coke

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 (Military Time) [1 0 2 5] (20) 7. Cart ID# [1] (24) 8. N.B.# ____ 9. Page # ____

10. Meter #1 [7 1 0 1 . 9 1 0] (25) 12. Meter #2 [7 2 2 1 . 4 5] (31)

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

14. Temp #1 °F [3 1 5] (45) 15. Temp #2 °F [3 1 6] (48)

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

18. DGM Correction Factor [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]

SAMPLE DATA SHEET

1. Radian Valve/Pump ID# [1 1 V A 0 1 2 9] 2. Unit/Process [Cl2]

3. Plant Name [Beth Steel]

---

4. Date (Mo. Day Yr.) [01 | 26 | 81] 5. Sampler's Initials [AB]

6. Time (Military Time) [1018] 7. Cart ID# [1] 8. N.B.# ____ 9. Page # ____

10. Meter #1 [71391.140] 12. Meter #2 [71521.150]

11. Time #1 [10] 13. Time #2 [17]

14. Temp #1 °F [136] 15. Temp #2 °F [136]

16. Bar. Press., in. Hg. [29.1513] 17. ΔP, in. Hg. [1.14]

18. DGM Correction Factor [1.017] 19. Meter # [715572]

20. Vol. Org. Condensate ml [ ]

21. Coll. time, minutes [ ] 22. Specific Gravity of Organic Condensate [ ]

23. Comment [ ]

RADIAN CORPORATION

Card 1 [1 | S]
1

## SAMPLE DATA SHEET

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

3. Plant Name [illegible]

---

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

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

10. Meter #1 [7 7 0 1 . 1 2 0] (25) 12. Meter #2 [7 7 9 1 . 1 9 0] (31)

11. Time #1 [1 1 0] (37) 13. Time #2 [1 1 5] (41)

14. Temp #1 °F [1 3 6] (45) 15. Temp #2 °F [1 3 6] (48)

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

18. DGM Correction Factor [1 1 . 1 0 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# [1VA01/014] 3
2. Unit/Process Cokes
3. Plant Name Bethlehem Steel

---

4. Date Mo. Day Yr. [011 | 21 | 41] 11
5. Sampler's Initials [AB] 17
6. Time [1215] 20 (Military Time)
7. Cart ID# [1] 24
8. N.B.# ____
9. Page # ____
10. Meter #1 [~~8141.310~~ 834.65] 25
12. Meter #2 [8412.312] 31
11. Time #1 [110] 37
13. Time #2 [114] 41
14. Temp #1 °F [142] 45
15. Temp #2 °F [143] 48
16. Bar. Press., in. Hg. [29.153] 51
17. ΔP, in. Hg. [1.17] 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

Levels

RADIAN CORPORATION

Card 1 [1 | S]
1

SAMPLE DATA SHEET

1. Radian Valve/Pump ID# [1 1 V A 1 0 1 0 1 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# [13VA01103] (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 [151017] (20) (Military Time) 7. Cart ID# [1] (24) 8. N.B.# ____ 9. Page # ____

10. Meter #1 [8912.010] (25) 12. Meter #2 [9011.189] (31)

11. Time #1 [10] (37) 13. Time #2 [15] (41)

14. Temp #1 °F [146] (45) 15. Temp #2 °F [145] (48)

16. Bar. Press., in. Hg. [29.513] (51) 17. ΔP, in. Hg. [1.15] (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)

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

6. Time (Military) 1 | 1 | 4 | 7 (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) | 1 5 (28) | | 0 1 2 (34) | 2 1 4 8 3 (37) |
| 2. | 9 9 8 (43) | 3 0 (46) | | 9 9 8 (52) | 5 1 8 3 2 (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) | 8 0 (50) | | 8 8 8 (56) | 1 0 0 0 0 1 (59) |

---

Remarks:

condensate - rinse = $H_2O$

ANALYSIS DATA SHEET

(AMBIENT AND BAG)

1 | A
1

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

3. Plant Name Bethl 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 3 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. | 0 1 2 (25) | 1 0 (28) | | 0 1 2 (34) | 1 6 0 8 2 (37) |
| 2. | 9 9 8 (43) | 3 0 (46) | | 9 9 8 (52) | 3 8 7 5 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) | 8 0 (50) | | 8 8 8 (56) | 9 0 0 0 0 (59) |

---

Remarks:

liquid - misc & water
end

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. Day Yr.) 0 1 | 2 7 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 | | | BAG SAMPLE | | |
|---|---|---|---|---|---|
| Component Code | | ppmw | Component Code | | ppmw |
| 1. | ~~998~~ 2501 2 | 160 (28) | 012 | (34) | 12596 (37) |
| 2. | 998 (43) | 160 (46) | 998 | (52) | 16480 (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) | 888 (56) | 100000 (59) |

---

Remarks:

ANALYSIS DATA SHEET

(AMBIENT AND BAG)

1 | A
1

1. Radian Valve/Pump ID# 0 3 P H 0 2 6 I (I 0 2 6) 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 U 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 (17) J F B

6. Time (Military) (20) 1 6 0 2 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) | 17 (37) |
| 2. | ~~0 1 2~~ 9 9 8 (43) | 10 (46) | | 9 9 8 (52) | 36 (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. | 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. Day Yr.) 0 1 2 7 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) | ~~19~~ 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. Day Yr.) 0 1 | 2 8 | 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 | | | BAG SAMPLE | | |
|---|---|---|---|---|---|
| | Component Code | ppmw | | Component Code | ppmw |
| 1. | 0 1 2 (25) | 0 (28) | | 0 1 2 (34) | 19 (37) |
| 2. | 9 9 8 (43) | 4 (46) | | 9 9 8 (52) | 34 (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) | 22 (59) |

---

Remarks:

ANALYSIS DATA SHEET

(AMBIENT AND BAG)

1 | A
1

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

3. Plant Name Bethl Steel

4. Date (11) Mo. 0 1 Day 2 8 Yr. 8 1 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 – Bypass [ ] (24)

---

| AMBIENT AIR | | | BAG SAMPLE | | |
|---|---|---|---|---|---|
| | Component Code | ppmw | | Component Code | ppmw |
| 1. | 0 1 2 (25) | 2 6 (28) | | 0 1 2 (34) | ~~1 2 1~~ 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 Leaks

| | | GC#1 Col#1 | GC#5 Colum#2 | | $\bar{X}$ | | DEN gm/ml | | |
|---|---|---|---|---|---|---|---|---|---|
| 03PU0011 (QA 80%#H) | 1000X2 | 79% | 83% | | 81% | | 0.8716 | | |
| PU 334 | | 64% | 65% | | 64.5 | | 0.2641 | | |
| 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 LINE AND LIQUID LEAK ANALYSES

Col. #1 5% SP1200 / 1.95% 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 F X 0 1 0 2 0 (3) 2. Unit/Process Coke

3. Plant Name Beth Steel

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

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

9. Instrument AP/GC (24)

---

AMBIENT AIR

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

BAG SAMPLE

| | Component Code | ppmw |
|---|---|---|
| | 0 1 2 (34) | 2 2 4 3 9 (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 1 4 0 (50) | ~~999~~ 885 (56) | 1 0 0 0 0 1 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 (11) Mo. 0 1 Day 2 2 Yr. 8 1 5. Analyst's Initials (17) J F B

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

9. Instrument HP/GC (24)

---

| AMBIENT AIR | | | BAG SAMPLE | | |
|---|---|---|---|---|---|
| | Component Code | ppmw | | Component Code | ppmw |
| 1. | 0 1 2 (25) | 0 (28) | | 0 1 2 (34) | 9 7 8 3 (37) |
| 2. | (43) | (46) | | (52) | (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. | ~~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 4 0 1 0 9 (3) 2. Unit/Process Coho

3. Plant Name Bethlehem Steel

4. Date (11) Mo. 0 1 Day 2 2 Yr. 8 1 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 | | | BAG SAMPLE | | |
|---|---|---|---|---|---|
| | Component Code | ppmw | | Component Code | ppmw |
| 1. | 0 1 2 (25) | 0 (28) | | 0 1 2 (34) | 9 6 0 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. | ~~8 8 8~~ 999 (47) | 5 6 0 0 (50) | | ~~9 9 9~~ 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 Beth Steel

4. Date (11) Mo. 0 1 Day 2 2 Yr. 8 1 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 | | | BAG SAMPLE | | |
|---|---|---|---|---|---|
| | Component Code | ppmw | | Component Code | ppmw |
| 1. | 0 1 2 (25) | 0 (28) | | 0 1 2 (34) | 0 (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. | ~~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 | | | BAG SAMPLE | | |
|---|---|---|---|---|---|
| | Component Code | ppmw | | Component Code | ppmw |
| 1. | 0 1 2 (25) | 0 (28) | | 0 1 2 (34) | 3 7 7 5 (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. | ~~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 Mo. 0 1 Day 2 3 Yr. 8 1 (11) 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 - Ryan (24)

---

| AMBIENT AIR | | | BAG SAMPLE | | |
|---|---|---|---|---|---|
| | Component Code | ppmw | | Component Code | ppmw |
| 1. | 0 1 2 (25) | 0 (28) | | 0 1 2 (34) | 2 3 1 (37) |
| 2. | 9 9 8 (43) | 6 8 (46) | | 9 9 8 (52) | 3 5 1 (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 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 (17) J F B

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

9. Instrument HP/GC — Bypass (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 (1) 2 | A Duplicate columns 3 through 10 from Card 1

| Component Code | | ppmw | |
|---|---|---|---|
| 4. | (11) | (14) | |
| 5. | (29) | (32) | |
| 6. | 9 9 9 (47) | 5 . 5 (50) | |

| Component Code | | ppmw | |
|---|---|---|---|
| | (20) | (23) | |
| | (38) | (41) | |
| | 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 1 5 (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 5 0 0 7. N.B. #_____ 8. Page #_____

9. Instrument HP/GC – Bynar (24)

---

| AMBIENT AIR | | | BAG SAMPLE | | |
|---|---|---|---|---|---|
| | Component Code | ppmw | | Component Code | ppmw |
| 1. | 0 1 2 (25) | 0 (28) | | 0 1 2 (34) | 3 3 (37) |
| 2. | 9 9 8 (43) | 1 3 . 4 (46) | | 9 9 8 (52) | 8 9 (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. | 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 (11) Mo. 01 Day 23 Yr. 81 5. Analyst's Initials (17) JFB

6. Time (Military) (20) 1530 7. N.B. #_____ 8. Page #_____

9. Instrument HPGC – Bynn (24)

---

AMBIENT AIR

| | Component Code | | ppmw | |
|---|---|---|---|---|
| 1. | 012 | 25 | 0 | 28 |
| 2. | 998 | 43 | 11 | 46 |
| 3. | | 61 | | 64 |

BAG SAMPLE

| | Component Code | | ppmw | |
|---|---|---|---|---|
| | | | 314 | |
| 1. | 012 | 34 | ~~412~~ | 37 |
| 2. | 998 | 52 | 412 | 55 |
| 3. | | 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 | 17 | 50 | 888 | 56 | 170 | 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 (11) Mo. 0 1 | Day 2 3 | Yr. 8 4 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 | B | W | 0 | 0 | 9 | 8 (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 6 3 0 7. N.B. #_____ 8. Page #_____

9. Instrument HP/GC - Bynn (24)

---

AMBIENT AIR

| | Component Code (25, 34) | ppmw (28, 37) |
|---|---|---|
| 1. | 9 9 8 | 5 2 |
| 2. | 0 1 2 | 2 0 |
| 3. | | |

BAG SAMPLE

| | Component Code (34, 52) | ppmw (37, 55) |
|---|---|---|
| 1. | 9 9 8 | 1 0 6 8 0 |
| 2. | 0 1 2 | 7 2 4 3 |
| 3. | | |

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

| | Component Code (11, 20) | ppmw (14, 23) | Component Code (20, 38) | ppmw (23, 41) |
|---|---|---|---|---|
| 4. | | | | |
| 5. | | | | |
| 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 (Mo. Day Yr.) 0 1 | 2 3 | 8 1 (11) 5. Analyst's Initials J F B (17)

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

9. Instrument HP/GC / Byron (24)

---

AMBIENT AIR

| | Component Code | ppmw |
|---|---|---|
| 1. | ~~999~~ 012 (25) | 30 (28) |
| 2. | 998 (43) | 95 (46) |
| 3. | (61) | (64) |

BAG SAMPLE

| | Component Code | ppmw |
|---|---|---|
| 1. | 012 (34) | 82.18 (37) |
| 2. | 998 (52) | 128.00 (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. | ~~999~~ (47) | ~~30~~ (50) | 888 (56) | 32.00 (59) |

---

Remarks:

ANALYSIS DATA SHEET

(AMBIENT AND BAG)

1 | A
1

1. Radian Valve/Pump ID# 0 3 V A 0 1 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 | | | BAG SAMPLE | | |
|---|---|---|---|---|---|
| | Component Code | ppmw | | Component Code | ppmw |
| 1. | 0 1 2 (25) | 3.3 (28) | | 0 1 2 (34) | 9.2 (37) |
| 2. | 9 9 8 (43) | 6.4 (46) | | 9 9 8 (52) | 19 (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) | 28 (50) | | 8 8 8 (56) | 23 (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 (11) Mo. 01 Day 26 Yr. 81 5. Analyst's Initials (17) JFB

6. Time (Military) (20) 1120 7. N.B. #_____ 8. Page #_____

9. Instrument HP/GC – Byron (24)

---

| AMBIENT AIR | | | BAG SAMPLE | | |
|---|---|---|---|---|---|
| | Component Code | ppmw | | Component Code | ppmw |
| 1. | 012 (25) | 34 (28) | | 012 (34) | 35 (37) |
| 2. | 998 (43) | 52 (46) | | 998 (52) | 57 (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) | 24 (50) | 888 (56) | 27 (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 (11) Mo. 0 1 Day 2 6 Yr. 8 1 5. Analyst's Initials (17) J F B

6. Time (Military) (20) 1 1 5 5 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) | 40 (28) | | 0 1 2 (34) | 2 3 5 1 (37) |
| 2. | 9 9 8 (43) | 59 (46) | | 9 9 8 (52) | 3 4 4 0 (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. | 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 1 0 4 (3) 2. Unit/Process Coke

3. Plant Name Bethl 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 0 0 (20) 7. N.B. #_____ 8. Page #_____

9. Instrument HP/GC — Byron (24)

---

AMBIENT AIR

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

BAG SAMPLE

| | Component Code | ppmw |
|---|---|---|
| | 0 1 2 (34) | 3 5 (37) |
| | 9 9 8 (52) | 6 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 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 Bethlehem 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 5 3 5 (20) 7. N.B. #_____ 8. Page #_____

9. Instrument HP/GC – Bynum (24)

---

| AMBIENT AIR | | | BAG SAMPLE | | |
|---|---|---|---|---|---|
| | Component Code | ppmw | | Component Code | ppmw |
| 1. | 0 1 2 (25) | 10 (28) | | 0 1 2 (34) | 15 (37) |
| 2. | 9 9 8 (43) | 7 (46) | | 9 9 8 (52) | 35 (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) | ~~20~~ 12 (50) | | 8 8 8 (56) | ~~12~~ 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 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 0 3 (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) | 5 (46) |
| 3. | (61) | (64) |

BAG SAMPLE

| Component Code | ppmw |
|---|---|
| 0 1 2 (34) | 2 7 1 (37) |
| 9 9 8 (52) | 3 5 8 (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 (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 (Mo. Day Yr.) 0 1 2 6 8 1 (11) 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 – Bypass [ ] (24)

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| AMBIENT AIR | | | BAG SAMPLE | | |
|---|---|---|---|---|---|
| | Component Code | ppmw | | Component Code | ppmw |
| 1. | 0 1 2 (25) | 1 (28) | | 0 1 2 (34) | 1 6 (37) |
| 2. | 9 9 8 (43) | ~~5 5~~ 9 (46) | | 9 9 8 (52) | 5 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) | ~~1 9~~ 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. 0 1 Day 2 6 Yr. 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 | | | BAG SAMPLE | | |
|---|---|---|---|---|---|
| | Component Code | ppmw | | Component Code | ppmw |
| 1. | 0 1 2 (25) | 7 0 (28) | | 0 1 2 (34) | 1 2 (37) |
| 2. | 9 9 8 (43) | 7 2 (46) | | 9 9 8 (52) | 2 7 (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 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 P 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) | 1 1 0 0 0 ~~7 0 0 0~~ (59) |

---

Remarks:

ANALYSIS DATA SHEET

(AMBIENT AND BAG)

1 | A
1

1. Radian Valve/Pump ID# 0 3 P 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 (17) J F B

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

9. Instrument HP/GC – Byron (24)

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| AMBIENT AIR | | | BAG SAMPLE | | |
|---|---|---|---|---|---|
| | Component Code | ppmw | | Component Code | ppmw |
| 1. | 0 1 2 (25) | 1 5 9 (28) | | 0 1 2 (34) | 2 2 2 2 0 (37) |
| 2. | 9 9 8 (43) | 1 7 0 (46) | | 9 9 8 (52) | 0 1 8 8 0 0 (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. | 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# [VA010814] 3
2. Unit/Process Coke

3. Plant Name Bethl Steel

---

4. Date Mo. Day Yr. [011 | 216 | 81] 11
5. Sampler's Initials [AB] 17

6. Time [1610] 20
(Military Time)
7. Cart ID# [1] 24
8. N.B.# ____
9. Page # ____

10. Meter #1 [9911.170] 25
12. Meter #2 [9918.160] 31

11. Time #1 [10] 37
13. Time #2 [14] 41

14. Temp #1 °F [146] 45
15. Temp #2 °F [146] 48

16. Bar. Press., in. Hg. [29.153] 51
17. ΔP, in. Hg. [1.19] 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

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 | | 3010 | | 3 |
| 01 | 22 | 3 | 01 | | 4500 | 2500 | 3 |
| 01 | 22 | 4 | 01 | | 2200 | | 3 |
| 01 | 23 | 3 | 01 | | 1000 | 3000 | 3 |
| 01 | 23 | 4 | 01 | | 3000 | | 3 |
| 01 | 26 | 3 | 01 | | 5000 | 8000 | 3 |
| 01 | 26 | 4 | 01 | 3600 | 2300 | 8 | 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 | ~~20000~~ 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 | 2900 | 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 | ~~85000~~ 12000 | 85000 | 50 |
| 01 | 27 | 01 | 3 | 03 | 114 | ~~13000~~ 2000 | 40 | ~~18000~~ 1300 | 18000 | 50 |
| 01 | 27 | 01 | 3 | 03 | 116 | ~~1440~~ 50 | 40 | 50 | ~~16000~~ 0 | 50 |
| 01 | 28 | 01 | 3 | 03 | 98 | 40000 | 35 | 18000 | ~~2~~ 16000 | 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 | 2000 | 35 | 2100 ~~43~~ | 2600 | 50 |
| 01 | 28 | 01 | 3 | 03 | 16 | 50 | 35 | 50 | 60 | 50 |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
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| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

Comments: _____

BETHLEHEM STEEL

BETHLEHEM PLANT

B-7 Dry Gas Meter Calibration Data

RADIAN CORPORATION

UNIT #3

Card 1 [1 | S]
1

SAMPLE DATA SHEET

1. Radian Valve/Pump ID# [DGMCF CALIB.] 3
2. Unit/Process [INSTRUCT.] ~~RADIAN~~

3. Plant Name RADIAN

---

4. Date Mo. Day Yr. [11 | 14 | 81] 11
5. Sampler's Initials [DWJ] 17

6. Time [1010] 20
(Military Time)
7. Cart ID# [7] 24
8. N.B.# ____
9. Page # ____

10. Meter #1 [71091.010] 25 (1.9)
12. Meter #2 [71515.913] 31 (1.7 ⇒ 1.8)

11. Time #1 [10] 37
13. Time #2 [3] 41

14. Temp #1 °F [150] 45
15. Temp #2 °F [ ] 48

16. Bar. Press., in. Hg. [30.101] 51
17. ΔP, in. Hg. [2.14] 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

87.84
433.25

Card 1 [1 | S]

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 8914.610 (25)
12. Meter #2 8919.512 (31) 1.64

11. Time #1 110 (37)
13. Time #2 113 (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. 10.555 (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)

Con. factor 1.07

23. Comment ____ (78)

Hastings: 1.79

RADIAN CORPORATION

1018.45
955.34

Card 1 [1 | S]

SAMPLE DATA SHEET

1. Radian Valve/Pump ID# [OGMC.lib] 2. Unit/Process [Coke]

3. Plant Name [Bethlehem Steel]

4. Date: Mo. Day Yr. [11 | 19 | 81] 5. Sampler's Initials [AB]

6. Time (Military Time) [1619] 7. Cart ID# [7] 8. N.B.# ____ 9. Page # ____

10. Meter #1 [1291.710] 12. Meter #2 [1317.124]

11. Time #1 [10] 13. Time #2 [14] ACFM = 1.89

14. Temp #1 °F [136] 15. Temp #2 °F [136]

16. Bar. Press., in. Hg. [29.1715] 17. ΔP, in. Hg. [1.710]

18. DGM Correction Factor [1.017] 19. Meter # [713851]

20. Vol. Org. Condensate ml [ ]

21. Coll. time, minutes [ ] 22. Specific Gravity of Organic Condensate [ ]

23. Comment [ ]

$\frac{P_1V_1}{T_1} = \frac{P_2V_2}{T_2}$

fittings 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]

SAMPLE DATA SHEET

1. Radian Valve/Pump ID# [AC1/1/4/8/1/1] 2. Unit/Process [ILLUST.] COKE

3. Plant Name [RADIAN] BETH. STEEL

4. Date (Mo. Day Yr.) [01/14/81] 5. Sampler's Initials [DWJ]

6. Time (Military Time) [1030] 7. Cart ID# [1] 8. N.B.# ____ 9. Page # ____

10. Meter #1 [8061.100] 12. Meter #2 [8151.610]

11. Time #1 [10] 13. Time #2 [13]

14. Temp #1 °F [150] 15. Temp #2 °F [ ]

16. Bar. Press., in. Hg. [30.01] 17. ΔP, in. Hg. [~~12.5~~ 1.2]

18. DGM Correction Factor [1.1111] 19. Meter # [715577]

20. Vol. Org. Condensate ml [ ]

21. Coll. time, minutes [~~0~~ 3] 22. Specific Gravity of Organic Condensate [ ]

23. Comment [ ]

ILR = ~~8.9205 x 10^-7~~ 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/ml

AFTER

100 ml/7
7
7
7
7

⇒ NEED 86.8 ppmw



X

**RADIAN**
CORPORATION

Card 1 [1 | S]
1

## SAMPLE DATA SHEET

1. Radian Valve/Pump ID# [03AC0001] (3) 2. Unit/Process Coke

3. Plant Name Bethlehem Steel

---

4. Date (Mo. Day Yr.) [011 | 21 | 81] (11) 5. Sampler's Initials [IAB] (17)

6. Time [110315] (20) (Military Time) 7. Cart ID# [1] (24) 8. N.B.# ____ 9. Page # ____

10. Meter #1 [1173.110] (25) 12. Meter #2 [1182.1010] (31) 1.78 FRET

11. Time #1 [110] (37) 13. Time #2 [110] (41)

14. Temp #1 °F [212] (45) 15. Temp #2 °F [212] (48)

16. Bar. Press., in. Hg. [30.116] (51) 17. ΔP, in. Hg. [1.11] (56)

18. DGM Correction Factor [1.017] (61) 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 7.2 7.0 7.0 7.0 7.0 7.1

1.78 / 5 8.9

845 cc/min

8.01X10⁻⁴ LR

~~1.82X10⁻³~~ 9.98X10⁻⁴ LR

2.64 x 10⁻³
1.82 x 10⁻³

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. 011 211 81 (11)
5. Sampler's Initials AB (17)
6. Time 1130 (20) (Military Time)
7. Cart ID# 2 (24)
8. N.B.# ____
9. Page # ____

10. Meter #1 2000.00 (25)
12. Meter #2 21111.1510 (31) 2.88

11. Time #1 1110 (37)
13. Time #2 114 (41)

14. Temp #1 °F 212 (45)
15. Temp #2 °F 212 (48)

16. Bar. Press., in. Hg. 30.1116 (51)
17. ΔP, in. Hg. 1.1610 (56)

18. DGM Correction Factor 1.017 (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)

9.5×10⁻⁴ LR

166 1309 819 5.2×10⁻⁴ 3LR

1167%R

**RADIAN**
CORPORATION

Card 1 [1 | S]

SAMPLE DATA SHEET

1. Radian Valve/Pump ID# [03AC0003] 2. Unit/Process Coke

3. Plant Name Bethlehem Steel

---

4. Date: Mo. Day Yr. [011 | 26 | 81]

5. Sampler's Initials [AB]

6. Time [0815 10] (Military Time)

7. Cart ID# [7]

8. N.B.# ____

9. Page # ____

10. Meter #1 [6114.145]

12. Meter #2 [6123.142] 1.79

11. Time #1 [10]

13. Time #2 [15]

14. Temp #1 °F [133]

15. Temp #2 °F [133]

16. Bar. Press., in. Hg. [29.513]

17. ΔP, in. Hg. [1.3]

18. DGM Correction Factor [1.017]

19. Meter # 715572

20. Vol. Org. Condensate ml [ ]

21. Coll. time, minutes [ ]

22. Specific Gravity of Organic Condensate [ ]

23. Comment [ ]

pre post
6.2 6.2
6.2 2.3
6.2 6.2

$4.76 \times 10^{-4}$ FLKJS

sec / 100 ml

100 ml / 6.2 cm × 60 cm / min = 965

**RADIAN** CORPORATION

$LR_c = 2.51 \times 10^{-4}$ $1.30 \times 10^{-4}$

Card 1 [1 | S]

# SAMPLE DATA SHEET

1. Radian Valve/Pump ID# [A|C|1|2|0|8|1|1] 2. Unit/Process Coke

3. Plant Name Bethlehem Steel

---

4. Date (Mo. Day Yr.) [01|20|81] 5. Sampler's Initials [AB]

6. Time (Military Time) [1143] 7. Cart ID# [1] 8. N.B.# ____ 9. Page # ____

10. Meter #1 [9417.510] 12. Meter #2 [9519.318] 1.38

11. Time #1 [10] 13. Time #2 [15]

14. Temp #1 °F [138] 15. Temp #2 °F [138] 0.06

16. Bar. Press., in. Hg. [29.18] 17. ΔP, in. Hg. [0]

18. DGM Correction Factor [ ] 19. Meter # 715572

20. Vol. Org. Condensate ml [ ]

21. Coll. time, minutes [ ] 22. Specific Gravity of Organic Condensate [ ]

23. Comment [ ]

prior post

$\bar{x} = 8.68$ { 8.7, 8.6, 8.6, 8.8, 8.7 } post { 8.9, 8.8, 8.9, 8.8 } 8.85

168

$ILR = 6.4 \times 10^{-3}$

$\frac{8.77}{100 ml}$ $\frac{10.1}{8.7} \times 60 = 640$

X

RADIAN CORPORATION

Card 1 [1 | S]
1

## SAMPLE DATA SHEET

1. Radian Valve/Pump ID# [AC1121018111] 3
2. Unit/Process [Pike]

3. Plant Name [Bethlehem Steel]

---

4. Date: Mo. Day Yr. [011 | 210 | 811] 11
5. Sampler's Initials [AB] 17

6. Time [ ] 20
(Military Time)
7. Cart ID# [2] 24
8. N.B.# ____
9. Page # ____

10. Meter #1 [ ] 25
12. Meter #2 [ ] 31

11. Time #1 [ ] 37
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

ANALYSIS DATA SHEET

(AMBIENT AND BAG)

1 | A
1

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

3. Plant Name Bethlehem Steel

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

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

9. Instrument HP GC 2 (24)

---

| AMBIENT AIR | | | BAG SAMPLE | | |
|---|---|---|---|---|---|
| | Component Code | ppmw | | Component Code | ppmw |
| 1. | 0 1 2 (25) | 0 (28) | | 0 1 2 (34) | 1 0 9 . 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 F~~ 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 |
|---|---|---|
| 1. | 0 1 2 (34) | 6 5 . 7 (37) |
| 2. | (52) | (55) |
| 3. | (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

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

BAG SAMPLE

| | Component Code | ppmw 108 |
|---|---|---|
| | 0 1 2 (34) | ~~1 1 1~~ (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. | (47) | (50) | (56) | (59) |

---

Remarks: 1102 R

DEMO

UNIT #3

ANALYSIS DATA SHEET

(AMBIENT AND BAG)

1 | A
1

1. Radian Valve/Pump ID# ~~03ACOOO1~~ ~~AC14811~~ 3

2. Unit/Process TUMS

3. Plant Name RADIAN

4. Date Mo. 01 Day 14 Yr. 81 11

5. Analyst's Initials ~~FT~~ B 17

6. Time (Military) 1100 20

7. N.B. #_____ 8. Page #_____

9. Instrument ~~HP 5750A GC~~ 24
BYRON 301 THC

AMBIENT AIR

| Component Code | | ppmw | |
|---|---|---|---|
| 1. | ~~999~~ 25 | ~~20~~ 28 | |
| 2. | 012 43 | 5 46 | |
| 3. | 61 998 | 64 5 | |

BAG SAMPLE

| Component Code | | ppmw | |
|---|---|---|---|
| | 012 34 | 80 37 | |
| | 52 | 55 | |
| | 998 70 | 80 73 | |

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

| Component Code | | ppmw | |
|---|---|---|---|
| 4. | 11 | 14 | |
| 5. | 29 | 32 | |
| 6. | 999 47 | 20 50 | |

| Component Code | | ppmw | |
|---|---|---|---|
| | 20 | 23 | |
| | 38 | 41 | |
| | 888 56 | ~~250~~ 59 70 | |

Remarks: ILR = 7.648 × 10^-4
LR_c = 6.610 × 10^-4 lb/HR ⇒ 86.4 % RECOV

ANALYSIS DATA SHEET

(AMBIENT AND BAG)

1 | A
1

1. Radian Valve/Pump ID# 0 3 E X 0 0 2 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) 1 1 3 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) | 6 9 (28) | | 0 1 2 (34) | 1 5 4 (37) |
| 2. | 9 9 8 (43) | 2 5 (46) | | 9 9 8 (52) | 3 9 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) | 4 5 (50) | | 8 8 8 (56) | 5 7 0 (59) |

---

Remarks:

RADIAN CORPORATION

Card 1 [1 | S]
1

SAMPLE DATA SHEET

1. Radian Valve/Pump ID# [1 1 V 1 A 1 0 1 0 1 8 1 7] 2. Unit/Process Cole
3

3. Plant Name Beth Steel

---

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

5. Sampler's Initials [A B]
17

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

7. Cart ID# [1]
24

8. N.B.# ____ 9. Page # ____

10. Meter #1 [0 1 0 9 1 . 1 5 1 0]
25

12. Meter #2 [1 1 7 1 . 1 0 1 0]
31

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

13. Time #2 [1 1 1 4]
41

14. Temp #1 °F [1 4 6]
45

15. Temp #2 °F [1 4 5]
48

16. Bar. Press., in. Hg. [2 9 1 . 1 5 1 3]
51

17. ΔP, in. Hg. [1 1 2 . 1 3]
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]

SAMPLE DATA SHEET

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

3. Plant Name Bethlehem Steel

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

5. Sampler's Initials [AB]

6. Time [0815 10] (Military Time)

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

10. Meter #1 [01381.910]

12. Meter #2 [4161.5110]

11. Time #1 [10]

13. Time #2 [14]

14. Temp #1 °F [139]

15. Temp #2 °F [ ]

16. Bar. Press., in. Hg. [28.1718]

17. ΔP, in. Hg. [1.13]

18. DGM Correction Factor [1.0170]

19. Meter # 715572

20. Vol. Org. Condensate ml [ ]

21. Coll. time, minutes [ ]

22. Specific Gravity of Organic Condensate [ ]

23. Comment [ ]

liquid back
5.5 ml/min

**RADIAN**
CORPORATION

Card 1 [1 | S]
1

SAMPLE DATA SHEET

1. Radian Valve/Pump ID# [1 1 P 0 1 0 1 3 1 3 1 4] 2. Unit/Process Coke
3

3. Plant Name Bethlehem Steel

---

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

5. Sampler's Initials [A B]
17

6. Time [0 9 1 0 1 0]
20
(Military Time)

7. Cart ID# [i]
24

8. N.B.# ____ 9. Page # ____

10. Meter #1 [1 5 6 1 . 1 5 1 0]
25

12. Meter #2 [1 6 4 1 . 1 2 1 5]
31

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

13. Time #2 [1 1 1 4]
41

14. Temp #1 °F [1 4 0]
45

15. Temp #2 °F [1 4 0]
48

16. Bar. Press., in. Hg. [2 8 1 . 1 7 8]
51

17. ΔP, in. Hg. [1 1 1 . 1 3]
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

liq leak = 120 ml/min

RADIAN CORPORATION

Card 1 [1 | S]

SAMPLE DATA SHEET

1. Radian Valve/Pump ID# [1 | E | X | 0 | 0 | 1 | 2 | 3] 2. Unit/Process Coke

3. Plant Name Bethlehem Steel

4. Date Mo. Day Yr. [0 | 1 | 2 | 7 | 8 | 1] 5. Sampler's Initials [AP]

6. Time [1 | 0 | 3 | 1 | 2] (Military Time) 7. Cart ID# [1] 8. N.B.# ____ 9. Page # ____

10. Meter #1 [1 | 7 | 7 | . | 1 | 3 | 0]

11. Time #1 [1 | 1 | 0]

12. Meter #2 [1 | 8 | 7 | 1 | . | 1 | 5 | 1]

13. Time #2 [1 | 1 | 6]

14. Temp #1 °F [1 | 7 | 1]

15. Temp #2 °F [1 | 7 | 1]

16. Bar. Press., in. Hg. [2 | 8 | 1 | . | 1 | 7 | 8]

17. ΔP, in. Hg. [1 | 0 | 1 | . | 1 | 9]

18. DGM Correction Factor [1 | 1 | . | 0 | 1 | 7]

19. Meter # 715572

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

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

22. Specific Gravity of Organic Condensate [ | | ]

23. Comment [ | | ]

RADIAN CORPORATION

Card 1 [1 | S]
1

SAMPLE DATA SHEET

1. Radian Valve/Pump ID# [1 1 E X 0 0 1 E 8] 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 [1 1 1 2 0] 20
(Military Time)
7. Cart ID# [1] 24
8. N.B.# ____
9. Page # ____

10. Meter #1 [~~199.810~~ 112.70] 25
12. Meter #2 [121.111] 31

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

14. Temp #1 °F [176] 45
15. Temp #2 °F [176] 48

16. Bar. Press., in. Hg. [28.178] 51
17. ΔP, in. Hg. [~~1.01.5~~ 1.3] 56

18. DGM Correction Factor [1.017] 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

condensation to inside tent (spray from ef)

RADIAN CORPORATION

Card 1 [1 | S]

SAMPLE DATA SHEET

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

3. Plant Name Bethlehem Steel

---

4. Date (Mo. Day Yr.) [0 1 | 2 7 | 8 1] 5. Sampler's Initials [1 H B]

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

10. Meter #1 [1 8 5 1 . 1 8 1 0] 12. Meter #2 [1 9 1 4 . 1 4 1 0]

11. Time #1 [1 1 1 0] 13. Time #2 [1 1 1 4]

14. Temp #1 °F [1 7 1 5] 15. Temp #2 °F [1 7 1 6]

16. Bar. Press., in. Hg. [3 1 8 1 . 1 7 1 8] 17. ΔP, in. Hg. [1 1 0 . 1 9]

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

20. Vol. Org. Condensate ml [1 1 1 1]

21. Coll. time, minutes [1 1 1] 22. Specific Gravity of Organic Condensate [1 1]

23. Comment [1 1]

condensate - moisture test

RADIAN CORPORATION

Card 1 [1 | S]
1

SAMPLE DATA SHEET

1. Radian Valve/Pump ID# [1 3 1 2 X 1 0 1 0 1 2 1 0] 2. Unit/Process Coke
3

3. Plant Name Bethlehem Steel

---

4. Date Mo. Day Yr. [0 1 | 2 1 7 | 8 1] 5. Sampler's Initials [1 A B]
11 17

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

7. Cart ID# [1]
24

8. N.B.# ____ 9. Page # ____

10. Meter #1 [2 1 2 5 1 . 4 0]
25

12. Meter #2 [2 1 3 1 3 1 . 0 9]
31

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

13. Time #2 [1 1 1 4]
41

14. Temp #1 °F [1 7 8]
45

15. Temp #2 °F [1 8 1 0]
48

16. Bar. Press., in. Hg. [2 8 1 . 1 7 1 8]
51

17. ΔP, in. Hg. [1 1 1 . 1 2]
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 1]
78

RADIAN
CORPORATION

Card 1 [1 | S]
1

SAMPLE DATA SHEET

1. Radian Valve/Pump ID# [PU - INBOARD 1 2 3 2 6] 2. Unit/Process Cafe
3

3. Plant Name Beth Steel

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

5. Sampler's Initials [AB]
17

6. Time [1511 15]
20
(Military Time)

7. Cart ID# [1]
24

8. N.B.# ____ 9. Page # ____

10. Meter #1 [3011.140]
25

12. Meter #2 [3101.131]
31

11. Time #1 [10]
37

13. Time #2 [14]
41

14. Temp #1 °F [146]
45

15. Temp #2 °F [146]
48

16. Bar. Press., in. Hg. [28.178]
51

17. ΔP, in. Hg. [1.15]
56

18. DGM Correction Factor [1.017]
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]

SAMPLE DATA SHEET

1. Radian Valve/Pump ID# [3 1 1 1 0 0 1 2 7] 2. Unit/Process [illegible]

3. Plant Name [illegible] Steel

4. Date (Mo. Day Yr.) [3 1 | 2 7 | 8 1] 5. Sampler's Initials [1 7 B]

6. Time (Military Time) [1 5 4 0] 7. Cart ID# [1] 8. N.B.# ____ 9. Page # ____

10. Meter #1 [3 6 3 1 . 5 0] 12. Meter #2 [3 7 4 1 . 2 4]

11. Time #1 [1 1 0] 13. Time #2 [1 1 5]

14. Temp #1 °F [1 4 5] 15. Temp #2 °F [1 4 5]

16. Bar. Press., in. Hg. [2 8 . 1 7 8] 17. ΔP, in. Hg. [1 1 1 . 5]

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

20. Vol. Org. Condensate ml [1 1 1 1]

21. Coll. time, minutes [1 1 1] 22. Specific Gravity of Organic Condensate [1 1]

23. Comment [1 1]

RADIAN
CORPORATION

Card 1 [1 | S]
1

SAMPLE DATA SHEET

1. Radian Valve/Pump ID# [3 1 1 4 0 1 0 4 1 0] 2. Unit/Process [illegible]
3

3. Plant Name Bethlehem Steel

---

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

5. Sampler's Initials [HRB]
17

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

7. Cart ID# [1]
24

8. N.B.# ____ 9. Page # ____

10. Meter #1 [3 5 7 1 . 1 3 0]
25

12. Meter #2 [3 9 8 1 . 0 1 9]
31

11. Time #1 [1 1 0]
37

13. Time #2 [1 1 5]
41

14. Temp #1 °F [1 4 5]
45

15. Temp #2 °F [1 4 5]
48

16. Bar. Press., in. Hg. [2 8 1 . 7 8]
51

17. ΔP, in. Hg. [1 1 1 . 1 4]
56

18. DGM Correction Factor [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]

SAMPLE DATA SHEET

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

3. Plant Name Bethlehem Steel

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

5. Sampler's Initials [AJB]

6. Time [1010] (Military Time)

7. Cart ID# [1]

8. N.B.# ____

9. Page # ____

10. Meter #1 [4251.130]

12. Meter #2 [4401.000]

11. Time #1 [110]

13. Time #2 [117]

14. Temp #1 °F [313]

15. Temp #2 °F [ ]

16. Bar. Press., in. Hg. [29.000]

17. ΔP, in. Hg. [0.19]

18. DGM Correction Factor [1.017]

19. Meter # 715572

20. Vol. Org. Condensate ml [ ]

21. Coll. time, minutes [ ]

22. Specific Gravity of Organic Condensate [ ]

23. Comment [ ]

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 Cooler

3. Plant Name [illegible] Steel

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4. Date (Mo. Day Yr.) [01 | 28 | 81] 11
5. Sampler's Initials [RB] 17

6. Time (Military Time) [1110] 20
7. Cart ID# [1] 24
8. N.B.# ____
9. Page # ____

10. Meter #1 [4915.110] 25
12. Meter #2 [5016.194] 31

11. Time #1 [110] 37
13. Time #2 [117] 41

14. Temp #1 °F [134] 45
15. Temp #2 °F [134] 48

16. Bar. Press., in. Hg. [29.10] 51
17. ΔP, in. Hg. [1.16] 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 1cc/7min

RADIAN CORPORATION

Card 1 [1 | S]
1

SAMPLE DATA SHEET

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

3. Plant Name Bethlehem Steel

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4. Date (Mo. Day Yr.) [01 | 25 | 81] (11) 5. Sampler's Initials [HB] (17)

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

10. Meter #1 [ ] (25) 12. Meter #2 [ ] (31)

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