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

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

Background Report Reference

AP-42 Section Number: 10.6.3

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Reference Number: 6

Title: Medium Density Fiberboard Production Line #2 Emission Measurement Evaluation for the Louisiana-Pacific, Oroville California Facility

SEACOR

August 1994

MEDIUM DENSITY FIBERBOARD
PRODUCTION LINE #2
EMISSION MEASUREMENT EVALUATION
FOR THE
LOUISIANA-PACIFIC
OROVILLE, CALIFORNIA FACILITY

Prepared for:

LOUISIANA-PACIFIC
Oroville, California

Submitted by:

SCIENCE & ENGINEERING ANALYSIS CORPORATION
(SEACOR)
Fort Collins, Colorado

August, 1994

EXECUTIVE SUMMARY

A Consent Decree between Louisiana-Pacific Corporation (LP), Kirby Forest Products, United States Environmental Protection Agency (EPA), and the Department of Justice (Civil Action No. CV93f-0869-L-0) was lodged in the United States District Court for the Western District of Louisiana on May 24, 1993. The Consent Decree was entered by Order of the Court, dated September 30, 1993. The LP medium density fiberboard (MDF) production line in Oroville, California is included in this Consent Decree.

LP contracted Science & Engineering Analysis Corporation (SEACOR) to develop an acceptable Test Plan and Protocol for the performance of an emission measurement program. This emission measurement report was prepared by SEACOR for LP to meet the provision of the Consent Decree pertaining to the installation of the MDF Line No. 2 at the LP Oroville, California production facility. The relevant provision of the Consent Decree is Section VI. Additional Provisions, Part C. Additional Provisions Relating to PSD and New Source Review at LP's Tomahawk, WI, Missoula, MT, and Oroville, CA Facilities, Paragraph 121. Paragraph 121 requires LP to submit a protocol (which was completed) and perform a testing and evaluation sufficient to determine whether any prior construction activities at the LP MDF Oroville, California production facility were subject to the review and permitting provisions of the Prevention of Significant Deterioration (PSD) or New Source Review (NSR) programs for any of the regulated pollutants.

The following emission evaluation test program report discusses the construction activities involved with LP's 1985 expansion project to install MDF Line No. 2 and includes the results of the emission measurements performed at the Oroville, California MDF Line 2.

The assumption is made that the LP Oroville, California production facility was an existing major source in 1985. A source is considered major if it has the potential to emit any criteria pollutant in amounts equal to or exceeding specified major source thresholds (100 or 250 tons per year).

Summary Table 1, Summary Table 2, and Summary Table 3 provide the average results of the particulate, formaldehyde, VOC emission measurements respectively. The summary tables present the average results in terms of pollutant concentrations and emission rates. Each source listed was sampled in triplicate for each of the three previously mentioned pollutant parameters.

In addition, emission rates of sulfur dioxide (SO_2), oxides of nitrogen (NO_x), carbon monoxide (CO), and total volatile organic compounds (VOCs) were quantified at the MEC Oil Heater (the only combustion source tested) outlet stack. The average emission measurement results for SO_2, CO, and VOCs were negligible for this source. The average NO_x emission rate recorded for the MEC Oil Heater is 0.72 lbs/hr or 3.17 tons/yr.

SUMMARY TABLE 1

AVERAGE PARTICULATE MEASUREMENT RESULTS
LOUISIANA PACIFIC
OROVILLE, CA

Source I.D.	Concentration (ug/DSCM)	Concentration (lbs/DSCF)	Emission Rate (lbs/hr)	Emission Rate (tons/yr)
CARTER DAY #1 – BAGHOUSE	15,636	9.76E–07	0.98	4.31
CARTER DAY #2 – BAGHOUSE	25,289	1.58E–06	1.05	4.58
CARTER DAY #4 – BAGHOUSE	41,281	2.58E–06	5.19	22.71
CARTER DAY #5 – BAGHOUSE	21,512	1.34E–06	3.46	15.14
ROOF VENT #1 – SOUTH HOT PRESS	15,751	9.83E–07	3.45	15.12
ROOF VENT #2 – MIDDLE HOT PRESS	14,990	9.36E–07	3.16	13.83
ROOF VENT #3 – NORTH HOT PRESS	13,847	8.65E–07	3.18	13.93
ROOF VENT #4 – CUT–OFF SAW VENT	18,473	1.15E–06	3.96	17.36
ROOF VENT #5 – BOARD COOLER VENT	17,015	1.06E–06	2.01	8.81
FILTER BOX INLET – NORTH (DOWNCOMER)	44,018	2.75E–06	5.59	24.50
FILTER BOX OUTLET – NORTH	20,562	1.28E–06	1.80	7.89
FILTER BOX INLET – SOUTH (DOWNCOMER)	68,333	4.27E–06	10.80	47.32
FILTER BOX OUTLET – SOUTH	20,177	1.26E–06	1.96	8.60

SUMMARY TABLE 2

AVERAGE FORMALDEHYDE MEASUREMENT RESULTS
LOUISIANA PACIFIC
OROVILLE, CA

Source I.D.	Concentration (ug/DSCM)	Concentration (lbs/DSCF)	Emission Rate (lbs/hr)	Emission Rate (tons/yr)
CARTER DAY #1 – BAGHOUSE	835	5.21E–08	0.05	0.24
CARTER DAY #2 – BAGHOUSE	976	6.09E–08	0.04	0.17
CARTER DAY #4 – BAGHOUSE	2,973	1.86E–07	0.39	1.70
CARTER DAY #5 – BAGHOUSE	1,895	1.18E–07	0.30	1.33
ROOF VENT #1 – SOUTH HOT PRESS VENT	2,830	1.77E–07	0.62	2.73
ROOF VENT #2 – MIDDLE HOT PRESS VENT	6,883	4.30E–07	1.46	6.38
ROOF VENT #3 – NORTH HOT PRESS	21,572	1.35E–06	4.93	21.59
ROOF VENT #4 – CUT–OFF SAW VENT	417	2.60E–08	0.09	0.38
ROOF VENT #5 – BOARD COOLER VENT	342	2.14E–08	0.07	0.29
FILTER BOX INLET – NORTH (DOWNCOMER)	25,263	1.58E–06	3.17	13.89
FILTER BOX OUTLET – NORTH	19,681	1.23E–06	1.59	6.95
FILTER BOX INLET – SOUTH (DOWNCOMER)	23,478	1.47E–06	3.80	16.66
FILTER BOX OUTLET – SOUTH	12,724	7.94E–07	1.28	5.62

SUMMARY TABLE 3

AVERAGE VOC EMISSION MEASUREMENT RESULTS
LOUISIANA PACIFIC CORPORATION
OROVILLE, CALIFORNIA

SOURCE	SEACOR I.D.	FLOW RATE (DSCFM)	CONCENTRATION (ppm as C_3*)	(ppm as C**)	EMISSION RATE (lbs/hr as C)	(tons/yr as C)
South Hot Press Vent	RV1	58,598	6.00	18.00	1.97	8.64
Middle Hot Press Vent	RV2	56,858	7.65	22.95	2.44	10.69
North Hot Press Vent	RV3	61,917	9.74	29.22	3.38	14.82
Cut-Off Saw Vent	RV4	56,951	7.84	23.52	2.51	10.97
Board Cooler Vent	RV5	41,848	5.37	16.11	1.26	5.52
Carter Day Baghouse 1	CD1	17,127	6.26	18.78	0.60	2.63
Carter Day Baghouse 2	CD2	10,840	6.73	20.19	0.41	1.79
Carter Day Baghouse 4	CD4	34,225	3.97	11.91	0.76	3.34
Carter Day Baghouse 5	CD5	42,581	6.86	20.58	1.64	7.18
Filter Box Inlet North (Downcomer)	DCN	33,737	86.97	260.91	16.46	72.10
Filter Box Outlet North	FBN	22,503	88.31	264.93	11.15	48.83
Filter Box Inlet South (Downcomer)	DCS	42,897	121.81	365.43	29.32	128.40
Filter Box Outlet South	FBS	26,556	108.22	324.66	16.12	70.62

* C_3 = Carbon equivalent as propane which was the calibration standard
** C = Carbon

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1.0 INTRODUCTION

Louisiana-Pacific Corporation (L-P) owns and operates a Medium Density Fiberboard (MDF) plant located approximately one-quarter mile south of Oroville, California. The LP property is bordered by Georgia-Pacific Way to the north, Baggett-Marysville Road to the south, Koppers Company property to the east, and State Highway 70 to the west.

A Consent Decree between Louisiana-Pacific Corporation (LP), Kirby Forest Products, United States Environmental Protection Agency (EPA), and the Department of Justice (Civil Action No. CV93f-0869-L-0) was lodged in the United States District Court for the Western District of Louisiana on May 24, 1993. The Consent Decree was entered by Order of the Court, dated September 30, 1993. The LP MDF production line in Oroville, California is included in this Consent Decree. The relevant provision of the Consent Decree is Section VI. Additional Provisions, Part C. Additional Provisions Relating to PSD and New Source Review at LP's Tomahawk, WI, Missoula, MT, and Oroville, CA Facilities, Paragraph 121. Paragraph 121 required LP to submit a testing and evaluation protocol and conduct an emissions test program sufficient to determine whether any prior construction activities at the LP MDF Oroville, California production facility were subject to the review and permitting provisions of the Prevention of Significant Deterioration (PSD) or New Source Review (NSR) programs for any of the regulated pollutants.

Science & Engineering Analysis Corporation (SEACOR) was contracted to draft and submit a Testing and Evaluation Protocol (TEP) to EPA Region IX. The TEP outlined the proposed test program which satisfied the provisions of the Consent Decree. The TEP was conditionally approved by EPA Region IX and SEACOR mobilized equipment and personnel to the Oroville facility on June 6, 1994. The emissions test program was conducted during a 14-day period beginning June 7, 1994 and ending June 20, 1994.

The measurements were performed in accordance with accepted EPA Reference Methods (RMs), as set forth in the ***Code of Federal Regulations, Title 40, Part 60 (40 CFR 60), Appendix A.*** SEACOR's mobile air measurements continuous emission monitoring (CEM) laboratory was located at the site to perform CEM measurements for volatile organic compounds (VOCs), total oxides of nitrogen (NO_x), carbon monoxide (CO) and diluent oxygen (O_2) and carbon dioxide (CO_2). SEACOR's mobile CEM laboratory includes an Eagle Monitoring Systems Model 7000 Flame Ionization Detection (FID) Total Hydrocarbon analyzer, Thermal Environmental Corporation (TECO) Model 10S chemiluminescent NO/NO_x analyzer, TECO Model 48H non-

dispersive infrared (NDIR) gas filter correlation (GFVC) CO analyzer, and Servomex Model 1400B combination O_2/CO_2 analyzer.

The field test team was comprised of seven experienced engineers and technicians including Mr. John Rosburg - Manager of Source Testing and Team Leader, Mr. Ken Malmquist - Field Engineer, Mr. Ben Langwell - Instrument Technician, Mr. Brant Doorman - Field Engineer, Mr. Ian Faloona - Data Analyst, Mr. Chris Johnson - Field Operations Manager, and Mr. Jeff Marchioro - Engineer/Technician. Mr. Jay Russell - Air Resources Manager was on-site at the onset of the field program to coordinate testing activities with plant operations. Mr. Bill Hoesman of LP was present on-site and was responsible for the coordination of the test program as well as collecting all pertinent process information.

Section 2.0 of this report provides a brief facility description. Section 3.0 presents a detailed summary and discussion of results, including data for each individual sample run as well as the average of each sample series. The sampling and analytical methodology and the quality assurance/quality control procedures that were incorporated into this comprehensive emission measurement evaluation are discussed in Sections 4.0, and 5.0 respectively.

Appendix A contains the raw field data sheets, RM continuous emission monitor (CEM) 5-minute data averages, and copies of the analogue stripcharts generated during the measurement program. Appendix B provides all analytical data results. Included in Appendix C are calibration data and calibration gas standards certifications.

2.0 FACILITY BACKGROUND

2.1 Site Description

The LP Medium Density Fiberboard (MDF) Line No. 2 is located in the fiberboard plant at the LP manufacturing facility located approximately one-quarter mile south of Oroville, California. The LP property is bordered by Georgia-Pacific Way to the north, Baggett-Marysville Road to the south, Koppers Company property to the east, and State Highway 70 to the west. The LP facility is comprised of a fiberboard plant (hardboard and MDF production lines), a sawmill, a planer mill, and a dry kiln. The sawmill, planer, and dry kiln are presently not in operation.

2.2 Site History

The sawmill, planer mill, and dry kiln were constructed in 1969 and 1970. The fiberboard plant hardboard Line No. 1 and wood-fired boilers Nos. 1, 2, and 3 were installed in 1973. The boilers provided steam to operate both the sawmill and the fiberboard plant.

LP completed an expansion project in 1985, which added the MDF Line No. 2 to the fiberboard plant. This expansion project is the focus of this report.

Boiler No. 4, a four cell 80,000 lb/hr wood fuel-fired steam generator manufactured by Wellons was constructed in 1987. Boiler No. 1, Boiler No. 2, and the fuel dryer were decommissioned to provide emission offsets for Boiler No. 4. Boiler No. 1 and Boiler No. 2 were removed.

Installation of Boiler No. 5, a 30,000 lb/hr Cleaver Brooks with Coen suspension burner sander dust and natural gas-fired steam generator, was completed in 1991. Boiler No. 3 was decommissioned and removed after Boiler No. 5 came on-line.

NOTE: Both Boiler No. 4 and Boiler No. 5 were included in the Consent Decree in Section VI., Additional Provisions, Part A., Additional Provisions Relating to Boilers No. 4 and 5 at L-P's Oroville, California Facility. The scope of this document does not address these provisions.

2.3 Construction Activities

MDF Line No. 2 Expansion Project In 1985, an Authority to Construct (AC) Permit (LPO-75-04-AC) was obtained from the Butte County Air Pollution District for the LP expansion project. This project included either construction or modifications of the following areas and equipment.

Raw Material Receiving and Storage:

- Raw material conveying

Raw Material Processing:

- Raw material conveying
- Hammer mill/hog system with cyclone control (C-4)

Refining and Blending:

- Material conveying
- Fiber dryer
- Fiber dryer cyclones (C-5 and C-6) with fiber storage bin (D-6)

MDF Line No. 2 Manufacturing:

- Forming head supply and reject with cyclone and baghouse control (C/D-5)
- Material reject with cyclone and baghouse control (C/D-8)
- Sawline and baghouse control (C/D-1 and C/D-4) and fiber storage bin (D-2)
- Sanderline with baghouse control (C/D-2) and fiber storage bin (D-3)
- Press fume roof vents (RV-8, RV-9, RV-10, RV-11)

Resin Storage/Glue Mix Area (Glue Kitchen):

- Resin storage tanks and associated piping
- Mix vat

This project was completed in 1985, and a Permit to Operate (LPO-87-07/8) was issued to LP by the Butte County Air Pollution Control District.

2.4 Medium Density Fiberboard Line No. 2

2.4.1 Description of MDF Line No. 2

MDF is manufactured on MDF Line No. 2 in a continuous process, beginning with fiberizing wood chips (primarily pine and fir) in an attrition mill where the water-based urea formaldehyde (UF) resin is blowline blended, resulting in resin-coated wood fibers. The fiber is injected into the MEC dryer loop where it is dried to the required moisture content at 210°F to 230°F and emptied into the fiber dryer cyclones. The fiber is then blown into the material cyclone above the former. A fiber mat of a specified thickness (depending on final product thickness and density) is continuously laid down in the former, the edges are shaved off, and the shaved-off fiber is returned to the material cyclone. The mat continues into the pre-compressor, and upon exiting, the mat edges are trimmed to a uniform width. The mat enters a continuous press (Siempelkamp) where, under conditions of heat and pressure, the resin is cured, bonding the wood fibers into fiberboard. The press platens are heated with 500°F oil from the MEC oil heater. The fiberboard is cut to length by the flying cut-off saw. The boards continue to the cooler where they are held on edge and allowed to cool. The faces of the cooled boards are sanded and continue to the finish saws where they are cut to the appropriate dimensions. The finished sheets of fiberboard are stacked and moved into the warehouses for storage and shipment.

The MDF Line No. 2 manufacturing process as it presently exists can be divided into seven major divisions. These divisions are identified as:

- Raw Material Storage
- Raw Material Processing
- Refining and Blending
- Resin Storage/Mix Room
- Finishing Area
- Waste Handling
- Medium Density Fiberboard Consolidation

Point source and fugitive emissions of regulated pollutants may occur in all stages of the process. These emissions result from storing the wood chips (volatile organic compounds [VOCs] and particulate), storing the UF resin (formaldehyde), drying the resin-coated fiber (VOCs, particulate, and formaldehyde), consolidation of the fiber into MDF (particulate, VOCs, and formaldehyde), and finishing of the MDF (particulate, VOCs, and formaldehyde).

2.4.2 Minor Modifications of MDF Line No. 2 - 1985 to Present

There have been minor process and equipment modifications to MDF Line No. 2 since 1985. The process modifications include resin changes and lowering of dryer temperatures (in 1990, dryer temperature was lowered from 275°F-280°F to 210°F to 230°F). The resins used to manufacture MDF have always contained formaldehyde as a major constituent, but the molar ratio of formaldehyde to urea has been lowered to decrease formaldehyde emissions from the finished product. The dryer temperatures were lowered when it was determined that the lower temperatures resulted in reduced process emissions of VOCs.

The minor equipment changes also include rerouting of particulate to different baghouses, addition of baghouses, and addition of the filter box control device on the fiber dryer cyclones.

These modifications have been made in the continual effort to lower regulated emissions from the MDF manufacturing process.

2.4.3 Regulated Pollutants in 1985

The listed regulated pollutants applicable in 1985 were carbon monoxide (CO), nitrogen oxides (NO_x), sulfur dioxide (SO_2), total suspended particulate (TSP), ozone (measured as total VOCs), and lead. These listed pollutants are referred to as the criteria pollutants.

Furthermore, LP recognizes that formaldehyde (HCHO) is a major component of VOCs emitted from the MDF manufacturing process. Where it is appropriate, LP will quantify the HCHO component of the VOCs with the understanding that the regulated pollutant (in 1985) was total VOCs.

2.4.4 MDF Line No. 2 Emission Sources

There are two types of emissions sources of criteria pollutants associated with MDF Line No. 2. These sources are stationary point sources and fugitive emission sources. The type of emission sources that are applicable to MDF Line No. 2 for PSD and NSR determination are the stationary point sources. A list of the identified stationary point sources associated with MDF Line No. 2 are presented in Summary Table 1.

The fugitive emission sources from the LP Oroville, California facility are not applicable for PSD determination according to the following regulations. As defined in the PSD regulations, fugitive emissions are those "...which could not reasonably pass through a stack, chimney, vent, or other functionally equivalent opening." To the extent that they are quantifiable, fugitive emissions are included in the potential to emit (and increases due to modification), if they occur at one of the following stationary sources:

- Any belonging to one of the 28 named PSD source categories, which were explicitly identified in Section 169 of the Clean Air Act (the Act) as being subject to a 100-tpy emissions threshold for classification of major sources;

- Any belonging to a stationary source category that as of August 7, 1980 is regulated (effective date of proposal) by New Source Performance Standards (NSPS) pursuant to Section 111 of the Act; and

- Any belonging to a stationary source category that as of August 7, 1980 is regulated (effective date of promulgation) by National Emissions Standards for Hazardous Air Pollutants (NESHAP) pursuant to section 112 of the Act.

The LP Oroville, California production facility does not fall into any listed stationary source category under PSD regulations; therefore, fugitive emissions are not applicable.

2.4.5 Stationary Point Source Descriptions

A brief description of the stationary point sources associated with MDF Line No. 2 and the applicable regulated pollutant emitted from each source follows.

1. Raw Material Storage

There are no identified point sources in this part of the MDF manufacturing process.

2. Raw Material Processing

2.A. Cyclone C-4

This cyclone receives hogged shavings material from raw material storage. The air exhausts through a 33.5-inch circular hole in the top of the cyclone.

The emissions associated with this cyclone are TSP and VOCs.

3. Refining and Blending

3.A. MEC Dryer Loop North Cyclone Outlet

The MEC dryer loop north cyclone receives the refined, dried, and resin-impregnated fiber from the MEC dryer loop. The MEC dryer loop presently exhausts through the cyclone into the filter box; however, this filter box was installed in 1992. When the MDF Line No. 2 became operational, the MEC dryer loop exhausted directly through the cyclone to atmosphere. The 48-inch diameter circular "downcomer" duct was installed to direct the emissions from the cyclone into the filter box. A measurement of the emissions flowing through the "downcomer" should be representative of the emissions exhausting to atmosphere in 1985.

The emissions associated with the MEC dryer loop north cyclone are TSP, VOCs, and HCHO.

3.B. MEC Dryer Loop South Cyclone Outlet

The MEC dryer loop south cyclone also receives the refined, dried, and resin-impregnated fiber from the MEC dryer loop. The MEC dryer loop presently exhausts through the cyclone into the filter box; however, this filter box was installed in 1992. When the MDF Line No. 2 became operational, the MEC dryer loop exhausted directly through the cyclone to atmosphere. The 48-inch diameter circular "downcomer" duct was installed to direct the emissions from the cyclone into the filter box. A measurement of the emissions flowing through the "downcomer" should be representative of the emissions exhausting to atmosphere in 1985.

The emissions associated with the MEC dryer loop south cyclone are TSP, VOCs, and HCHO.

3.C. North Cyclone Filter Box Exhaust

The emissions from the MEC dryer loop north cyclone enter the north filter box and pass through fiberglass wire mesh where particulate is removed. The emissions exhaust through a down-sloping horizontal duct with a height of 60 inches and a width of 144 inches. As previously mentioned, the filter box was installed in 1992, resulting in an obvious reduction in particulate emissions.

The emissions associated with the north cyclone filter box exhaust are TSP, VOCs, and HCHO.

3.D. South Cyclone Filter Box Exhaust

The emissions from the MEC dryer loop south cyclone enter the south filter box and pass through fiberglass wire mesh where particulate is removed. The emissions exhaust through a down-sloping horizontal duct with a height of 60 inches and a width of 144 inches. As previously mentioned, the filter box was installed in 1992, resulting in an obvious reduction in particulate emissions.

The emissions associated with the south cyclone filter box exhaust are TSP, VOCs, and HCHO.

Note: There is an apparent point source designated as the missile bunker in this division. The missile bunker is a three-sided concrete bunker where the blow-off material from the MDF Line No. 2 is deposited. Although there is a small cyclone on top of the missile bunker where some of the emissions exhaust (mostly steam), the front is completely open. This is necessary for the removal of the deposited material. Since the emissions "...could not reasonably pass through a stack, chimney, vent, or other functionally equivalent opening," this is deemed a fugitive source.

4. Resin Storage/Mix Room

The resin storage/mix room is housed in the fiberboard plant. There are eight storage tanks and two mix vats in this room. These storage tanks contain UF resins (four tanks for MDF Line No. 2, two tanks for Hardboard Line No. 1), boric acid solution tank (Hardboard Line No. 1), and a wax tank (Hardboard Line No. 1). The tanks vent directly into the room, and the room is ventilated by passive wall vents to the outside.

The emissions associated with the resin storage/mix room is HCHO.

5. Medium Density Fiberboard Consolidation

5.A. Carter Day Baghouse No. 5

The Carter Day (CD) baghouse No. 5 receives the air exhaust from the material cyclone above the former. The CD baghouse No. 5 emissions exhaust through a down-sloping rectangular duct with a height of 36 inches and a width of 96 inches.

The emissions associated with the CD baghouse No. 5 exhaust are TSP, VOCs, and HCHO.

5.B. MEC Oil Heater Exhaust Stack

The MEC Oil Heater heats the oil used to heat the press platens for board consolidation. This heater uses a natural gas burner at a rate of 8 million BTU/hr to heat the oil to 500°F. The maximum firing rate of this burner is 10 million BTU/hr. The natural gas burner exhausts through an 17.0-inch stack.

The emissions associated with the MEC oil heater exhaust stack are CO, NO_x, VOCs, and SO_2.

5.C. South Vent Over Hot Press

The continuous hot press is partially enclosed, and emissions are vented from this enclosure by three powered fans in the roof. The fans are powered by 10 hp motors and exhaust through a 67.5-inch diameter duct (equipped with butterfly flaps) that extends approximately 2 feet above the roof. The south vent over hot press is the southernmost fan in the linear orientation over the hot press.

The emissions associated with the south vent over hot press are TSP, VOCs, and HCHO.

5.D. Middle Vent Over Hot Press

The middle vent over hot press is a powered vent (identical to the south vent over hot press) and removes hot press emissions. This vent is located between the south vent over hot press and the north vent over hot press.

The emissions associated with the middle vent over hot press are TSP, VOCs, and HCHO.

5.E. North Vent Over Hot Press

The north vent over hot press is a powered vent (identical to the south vent over hot press) and removes hot press emissions. This vent is located north of the middle vent over hot press.

The emissions associated with the middle vent over hot press are TSP, VOCs, and HCHO.

5.F. Vent Over Flying Cut-Off Saw

The vent over flying cut-off saw is a powered vent (identical to the south vent over hot press) and removes emissions in the flying cut-off saw area. This vent is located over the flying cut-off saw.

The emissions associated with the vent over flying cut-off saw are TSP, VOCs, and HCHO.

5.G. Vent Over Board Cooler

The vent over board cooler is a powered vent (identical to the south vent over hot press) and removes emissions in the board cooler area. This vent is located over the board cooler.

The emissions associated with the vent over board cooler are VOCs, and HCHO.

6. Finishing Area

There are no identified point sources of emissions in this area.

7. Waste Handling

7.A. Carter Day Baghouse No. 1

This baghouse receives sander dust from the sander. The baghouse exhausts through a down-sloping rectangular duct 25 inches in height and 96 inches in width.

The emissions associated with CD baghouse No. 1 are TSP, VOCs, and HCHO.

7.B. Carter Day Baghouse No. 2

This baghouse also receives sander dust from the sander. The baghouse exhausts through a down-sloping rectangular duct 25 inches in height and 96 inches in width.

The emissions associated with CD baghouse No. 2 are TSP, VOCs, and HCHO.

7.C. Carter Day Baghouse No. 4

This baghouse receives material from the flying cut-off saw. The baghouse is under negative pressure and has a run of 30-inch diameter circular ducting between the baghouse outlet and the blower. Sampling the emissions in this duct represent the effluent vented to the atmosphere.

The emissions associated with CD No. 4 are TSP, VOCs, and HCHO.

Table 2-1 presents the description of the source, pollutants, and the methodology used to perform the testing.

TABLE 2-1

STATIONARY POINT SOURCE DESCRIPTIONS
LOUISIANA-PACIFIC CORPORATION
OROVILLE, CALIFORNIA MEDIUM DENSITY FIBERBOARD LINE NO. 2

Source Identification Code	Source Description	Pollutants	Sampling and Analytical Methodology
2.A.	Cyclone C-4	TSP, VOC	RM 1, 2, 3A, 4, 5, 202, 25A
3.A.	MEC Dryer Loop North Cyclone Outlet	TSP, VOC, HCHO	RM 1, 2, 3A, 4, 5, 202, 25A, 0011
3.B.	MEC Dryer Loop South Cyclone Outlet	TSP, VOC, HCHO	RM 1, 2, 3A, 4, 5, 202, 25A, 0011
3.C.	North Cyclone Filter Box Exhaust (Optional)	TSP, VOC, HCHO	RM 1, 2, 3A, 4, 5, 202, 25A, 0011
3.D.	South Cyclone Filter Box Exhaust (Optional)	TSP, VOC, HCHO	RM 1, 2, 3A, 4, 5, 202, 25A, 0011
4.	Resin Storage/Mix Room	HCHO	Badge Monitors
5.A	C/D Baghouse No. 5	TSP, VOC, HCHO	RM 1, 2, 3A, 4, 5, 202, 25A, 0011
5.B.	MEC Oil Heater Exhaust	CO, NOx, SO2, VOC	RM 1, 2, 3A, 4, 5, 202, 25A, 0011
5.C.	South Vent Over Hot Press	TSP, VOC, HCHO	RM 1, 2, 3A, 4, 5, 202, 25A, 0011
5.D.	Middle Vent Over Hot Press	TSP, VOC, HCHO	RM 1, 2, 3A, 4, 5, 202, 25A, 0011
5.E.	North Vent Over Hot Press	TSP, VOC, HCHO	RM 1, 2, 3A, 4, 5, 202, 25A, 0011
5.F.	Vent Over Flying Cut-Off Saw	TSP, VOC, HCHO	RM 1, 2, 3A, 4, 5, 202, 25A, 0011
5.G.	Vent Over Board Cooler	TSP, HCHO	RM 1, 2, 3A, 4, 5, 202, 25A, 0011
7.A.	C/D Baghouse No. 1	TSP, VOC, HCHO	RM 1, 2, 3A, 4, 5, 202, 25A, 0011
7.B.	C/D Baghouse No. 2	TSP, VOC, HCHO	RM 1, 2, 3A, 4, 5, 202, 25A, 0011
7.C.	C/D Baghouse No. 4	TSP, VOC, HCHO	RM 1, 2, 3A, 4, 5, 202, 25A, 0011

2.5 Evaluation Protocol

The impact of the construction of MDF Line No. 2 with respect to the PSD and NSR programs was evaluated by performing a comprehensive source testing program on the identified stationary point sources associated with the expansion activities. An assumption was made that the LP Oroville, California production facility was an existing major source in 1985. A source is considered major if it has the potential to emit any criteria pollutant in amounts equal to or exceeding specified major source thresholds (100 or 250 tpy).

The pollutants that were tested (where appropriate) are the criteria pollutants applicable in the 1985 regulatory climate. These criteria pollutants are TSP, NO_x, SO_2, CO, and Ozone (VOCs).

Furthermore, LP recognizes that formaldehyde (HCHO) is a major component of VOCs emitted from the MDF manufacturing process. Where it was appropriate, LP quantified the HCHO component of the VOCs with the understanding that the regulated pollutant (in 1985) was total VOCs.

Recognizing that minor modifications have been applied to the process and equipment in the time from 1985 to 1992, testing of the MDF line No. 2 as it presently exists (with one exception) was appropriate. The exception is that rather than testing the exhaust from the south and north filter box exhausts (sample points 3.C. and 3.D.), it was possible to test the "downcomer" ducts from both the north and south cyclones (sample points 3.A. and 3.B.). This was representative of the emission streams from the cyclones before the filter boxes were installed (1992).

The reasoning to test the MDF Line No. 2 under present conditions (noting the aforementioned exception) is that all the process and equipment modifications were performed to lower the emissions from the manufacturing process.

The parameters to be used in the evaluation of the PSD or NSR applicability with respect to area attainment status for criteria pollutants will be those that existed in 1985. In 1985, Butte County Air Pollution Control District (APCD) had an attainment classification for all criteria pollutants except for ozone. The area classified was a moderate nonattainment area for ozone (per Gina Facca, Butte County APCD) on March 3, 1978 (FR Vol. 43, pg. 8964, sec. 81.305).

2.6 Emission Estimating Techniques For Point Sources

There are four typical techniques employed to estimate emissions from stationary point sources. These techniques are stack testing, use of emissions factors, conducting a material balance, and performing engineering calculations. The technique chosen to estimate the emissions from the point sources listed in Summary Table 1 (with one exception) is the stack test.

The stack test is the most preferred technique in the emission estimating technique hierarchy. Stack testing can be very accurate if :

- performed using validated methods;
- the validated method is appropriate for the source type tested; and
- performed under representative annual operating conditions.

The stack test is the only accurate means to estimate emissions from unique sources. The sources considered in this report qualify as unique sources, and the emissions must be estimated using actual stack testing.

The one exception is the resin storage/mix room (Point Source 4). This area is ventilated by passive wall vents, and it is not possible to directly test the emissions leaving the area with stack testing. The emissions may be quantified, however, by performing ambient monitoring for HCHO and assuming five room air changes per hour. This employs both ambient monitoring and engineering calculations.

3.0 DISCUSSION OF RESULTS

3.1 General

The measurement program was conducted by experienced technical personnel of SEACOR's Air Resources Laboratory located in Fort Collins, Colorado. The results of the test program were derived according to the ***40 CFR 60, Appendix A.*** The test program was conducted June 6 through 18, 1994.

Particulate, HCHO, and total VOCs were quantified at the five roof vents, four Carter Day baghouses, two filter box outlets, and two downcomer sources. The MEC Oil Heater exhaust was evaluated for emissions of NO_x, SO_2, CO, and VOCs. All emission measurements for each source were performed in triplicate. In addition, ambient measurements of HCHO were performed in the Resin Storage/Mix Room. It was the intention of this measurement program to quantify particulate and VOC emissions from the C-4 Cyclone. SEACOR was unable to perform these measurements due to cyclonic nature of the exhaust flow. Efforts were made by LP to straighten the flow, but were not successful.

3.2 Support Measurements

EPA RM 1, "Sample and Velocity Traverses for Stationary Sources," was conducted prior to the initiation of the particulate and HCHO measurements of each source to determine the number and location of the appropriate traverse points. This method ensures that accurate and representative measurement points are selected for the determination of the volumetric flow rate of the exhaust gas.

Flow rate, molecular weight, and moisture measurements were performed in support of each particulate and HCHO run as well as the three sample runs conducted at the MEC Oil Heater outlet. The support measurements were necessary for the calculation of volumetric flow rates. The volumetric flow rate results were used for the determination of emission rates. The overall average of the volumetric flow rates determined for the particulate and HCHO measurements was used for each VOC sample run.

Flow rate measurements were conducted according to EPA RM 2, "Determination of Stack Gas Velocity and Volumetric Flow Rate (Type S Pitot Tube)." These measurements were combined and conducted as a part of each particulate and HCHO sample run. Three flow rate measurements were also performed as a stand-alone procedure for the MEC Oil Heater emission measurements.

EPA RM 3A, "Gas Analysis for Carbon Dioxide, Oxygen, Excess Air, and Dry Molecular Weight (Instrumental Analyzer Procedure)," was utilized for determining oxygen (O_2) and carbon dioxide (CO_2) concentrations at each source. One gas sample from each source was collected in a clean, dry Tedlar bag and subjected to a Servomex combination O_2 and CO_2 analyzer for analysis. The analysis of these samples demonstrated that each source (except the MEC Oil Heater) was ambient in nature and no further analysis was deemed necessary. For these sources an O_2 concentration of 20.9% and CO_2 concentration of 0.0% was used for the calculation of molecular weight.

The MEC Oil Heater, a combination source, was continuously sampled for O_2 and CO_2 content. The average of the recorded O_2 and CO_2 concentrations for each one hour sample run was used for molecular weight determinations.

Moisture measurements were conducted according to EPA RM 4, "Determination of Moisture Content in Stack Gases." Moisture determinations were conducted as a part of each particulate and HCHO sample run. For the MEC Oil Heater three moisture measurements were conducted as a stand-alone procedure, one for each one-hour gaseous pollutant sample run.

All of the support measurement tables provided in the following subsections list pertinent stack and test parameters used for the calculation of pollutant concentrations and emission rates. Listed in the support measurement tables are the average square root of the recorded differential pressures, average stack and meter temperatures (°F), sample volume (DSCF), moisture percent (H_2O %), velocity (ft/sec), flow rate (ACFM and DSCFM), and isokinetic percent (ISO %) for each sample run. Other pertinent data is also provided in these tables such as run number, date, time, and average of the sample runs.

3.3 Carter Day #1 Baghouse Results

The Carter Day #1 Baghouse receives sander dust from the sander. This source was tested for particulate, HCHO, and total VOCs. The particulate, HCHO, and VOC measurements of this source were performed June 9 through 10, 1994. Table 3-1 provides the results of the support measurements recorded during the particulate, HCHO, and VOC sample runs.

The flow rate during the particulate and HCHO samples was quite consistent. The third HCHO sample run had a percent isokinetic rate of 89.1%, which is below is slightly below the desired limit of 100 $\pm$10%.

Table 3-2 provides the results of the three individual particulate sample runs conducted at the Carter Day #1 Baghouse. The mass gain of each fraction of the samples, concentration, and emission rate are also provided. Also included in this table is the average of the three sample runs. The particulate emission rate ranged from 0.72 lbs/hr to 1.21 lbs/hr yielding an average of 0.98 lbs/hr.

The Carter Day #1 Baghouse HCHO results are presented in Table 3-3. The results of these samples displayed some degree of variability ranging from 0.03 lbs/hr to 0.09 lbs/hr. The average of the HCHO emission rates is 0.05 lbs/hr.

Table 3-4 provides the results of the three VOC sample runs. These results are quite consistent ranging from 0.57 lbs/hr to 0.64 lbs/hr as carbon. The average VOC emission rate is 0.60 lbs/hr as carbon.

3.4 Carter Day #2 Baghouse Results

Similar to the Carter Day #1 Baghouse, the Carter Day #2 Baghouse also receives sander dust from the sander. The particulate, HCHO, and VOC emission measurements were performed June 10, 11, and 13, 1994. Table 3-5 lists the results of the measurements conducted in support of the pollutant sample runs. The flow rate data recorded for the particulate and HCHO measurements is quite consistent. The isokinetic percent for the first particulate sample is low at 87.7%, but the results of that sample are quite similar to the second particulate sample.

The results as well as the average of the particulate sample runs are listed in Table 3-6. The results of the first two particulate are quite similar. The third sample was considerably higher than first two. The particulate emission rate ranged from 0.83 lbs/hr to 1.46 lbs/hr. The average particulate emission rate of this source is 1.05 lbs/hr.

TABLE 3-1

SUPPORT MEASUREMENT RESULTS
CARTER DAY #1 – BAGHOUSE
LOUISIANA PACIFIC – OROVILLE, CA

RUN NO.	DATE	TIME	SQRT of dP	dH (in. WC)	T_{stack} (°F)	T_{meter} (°F)	VOL_{meter} (DSCF)	H_2O (%)	VEL. (ft/sec)	FLOW (ACFM)	FLOW (DSCFM)	ISO. (%)
CD#1-P1	09-Jun-94	1013-1146	0.59	2.43	107	91	52.99	2.17	34.6	17,829	16,173	96
CD#1-P2	09-Jun-94	1401-1553	0.61	2.54	117	104	55.54	1.63	36.0	18,583	16,622	98
CD#1-P3	10-Jun-94	0847-1120	0.64	2.89	106	97	58.18	0.11	37.2	19,206	17,781	96
	Averages:		0.61	2.62	110	97	55.57	1.30	35.9	18,539	16,859	97
CD#1-F1	09-Jun-94	1013-1205	0.63	1.40	110	90	41.32	1.79	37.1	19,111	17,339	94
CD#1-F2	09-Jun-94	1404-1640	0.63	1.36	121	106	40.24	0.75	37.2	19,193	17,213	92
CD#1-F3	10-Jun-94	0840-1115	0.64	1.45	108	94	39.89	1.48	37.6	19,409	17,636	89
	Averages:		0.63	1.40	113	97	40.48	1.34	37.3	19,237	17,396	92
	Overall Average:		0.62	2.01	112	97	48.03	1.32	36.6	18,888	17,127	94

TABLE 3-2

PARTICULATE MEASUREMENT RESULTS
CARTER DAY #1 – BAGHOUSE
LOUISIANA PACIFIC – OROVILLE, CA

Run No.	Flow Rate (DSCFM)	Volume (DSCF)	Mass Gain (mg) front ½	filter	back ½ organic	back ½ inorganic	Total	Concentration (ug/DSCM)	(lbs/DSCF)	Emission Rate (lbs/hr)	(tons/yr)
P1	16,173	52.99	13.1	0.0	1.5	15.3	29.9	19,924	1.24E-06	1.21	5.29
P2	16,622	55.54	13.2	0.0	1.8	3.1	18.1	11,507	7.18E-07	0.72	3.14
P3	17,781	58.18	13.9	0.0	1.4	10.2	25.5	15,477	9.66E-07	1.03	4.52
					Average			15,636	9.76E-07	0.98	4.31

TABLE 3-3

FORMALDEHYDE MEASUREMENT RESULTS
CARTER DAY #1 – BAGHOUSE
LOUISIANA PACIFIC – OROVILLE, CA

Run No.	Flow Rate (DSCFM)	Volume (DSCF)	Formaldehyde Mass Gain (ug/ sample)	(ml/ sample)	(ug/ blk)	(ml/ blk)	Total (ug)	Concentration (ug/DSCM)	(lbs/DSCF)	Emission Rate (lbs/hr)	(tons/yr)
F1	17,339	41.32	953.66	147	22.50	90	916.91	784	4.89E-08	0.05	0.22
F2	17,213	40.24	1,562.91	177	22.50	90	1,518.66	1,333	8.32E-08	0.09	0.38
F3	17,636	39.89	480.50	164	22.50	90	439.50	389	2.43E-08	0.03	0.11
					Average			835	5.21E-08	0.05	0.24

TABLE 3-4

VOC MEASUREMENT RESULTS
CARTER DAY #1 – BAGHOUSE
LOUISIANA PACIFIC – OROVILLE, CA

RUN NO	DATE	TIME	FLOW RATE (DSCFM)	CONCENTRATION (ppm C_3)	(ppm C)	EMISSION RATE (lbs/hr C)	(tons/yr C)
1	06/09/94	1355-1455	17,127	6.0	18.1	0.58	2.54
2	06/09/94	1455-1555	17,127	6.7	20.0	0.64	2.80
3	06/09/94	1630-1700	17,127	6.0	17.9	0.57	2.50
			Average	6.2	18.7	0.60	2.62

TABLE 3–5

SUPPORT MEASUREMENT RESULTS
CARTER DAY #2 – BAGHOUSE
LOUISIANA PACIFIC – OROVILLE, CA

RUN NO.	DATE	TIME	SQRT of dP	dH (in. WC)	T_{stack} (°F)	T_{meter} (°F)	VOL_{meter} (DSCF)	H_2O (%)	VEL. (ft/sec)	FLOW (ACFM)	FLOW (DSCFM)	ISO. (%)
CD2–P1	10–Jun–94	1636–1740	0.36	1.89	125	113	37.12	1.46	21.5	11,106	9,794	88
CD2–P2	11–Jun–94	0821–0922	0.41	1.03	103	86	30.83	1.64	23.9	12,312	11,284	97
CD2–P3	11–Jun–94	1155–1458	0.43	1.15	119	102	30.86	1.93	25.5	13,173	11,761	93
	Averages:		0.40	1.36	115	100	32.94	1.68	23.6	12,197	10,946	93
CD2–F1	13–Jun–94	1401–1505	0.38	0.86	113	92	29.58	1.93	22.6	11,636	10,444	101
CD2–F2	13–Jun–94	1528–1706	0.40	0.97	115	99	28.93	1.76	23.5	12,110	10,850	95
CD2–F3	13–Jun–94	1905–2009	0.40	0.96	108	88	28.97	1.20	23.2	11,952	10,910	94
	Averages:		0.39	0.93	112	93	29.16	1.63	23.1	11,899	10,735	97
	Overall Average:		0.40	1.14	114	97	31.05	1.65	23.4	12,048	10,840	95

TABLE 3–6

PARTICULATE MEASUREMENT RESULTS
CARTER DAY #2 – BAGHOUSE
LOUISIANA PACIFIC – OROVILLE, CA

Run No.	Flow Rate (DSCFM)	Volume (DSCF)	Mass Gain (mg) front ½	filter	back ½ organic	back ½ inorganic	Total	Concentration (ug/DSCM)	(lbs/DSCF)	Emission Rate (lbs/hr)	(tons/yr)
P1	9,794	37.12	20.6	0.0	1.3	1.9	23.8	22,640	1.41E–06	0.83	3.64
P2	11,284	30.83	15.2	0.0	0.9	1.4	17.5	20,043	1.25E–06	0.85	3.71
P3	11,761	30.86	11.7	0.0	0.8	16.5	29.0	33,182	2.07E–06	1.46	6.40
					Average			25,289	1.58E–06	1.05	4.58

Table 3-7 presents the three Carter Day #2 Baghouse HCHO results. These results are quite consistent with no variation in the lbs/hr emission rate. All three samples had an emission rate of 0.04 lbs/hr.

Table 3-8 provides the VOC emission rates were also similar. The VOC emissions ranged from 0.40 lbs/hr to 0.42 lbs/hr yielding an average of 0.41 lbs/hr.

3.5 Carter Day #4 Baghouse Results

The Carter Day #4 Baghouse collects material from the flying cut-off saw. The pollutant measurements of this baghouse were conducted upstream of the exhaust fan under negative pressure. The particulate, HCHO, and VOC emission measurements were performed June 7, 8, and 15, 1994. Table 3-9 presents the support measurement results. The flow rate data recorded for the particulate and HCHO measurements is unvarying. The percent isokinetics for all of the particulate and HCHO sample runs are well within the tolerance limits.

Table 3-10 depicts the results of the three particulate samples collected at the Carter Day #4 Baghouse. The emission results of runs 2 and 3 are similar. The emission rate of run number 1 was nearly double that of runs 2 and 3. The results ranged from 3.43 lbs/hr to 7.90 lbs/hr yielding an average of 5.19 lbs/hr.

The three HCHO sample run results are presented in Table 3-11. Sample run number 3 was slightly higher than the first two runs; however, they are all in the same range. The emission results varied from 0.33 lbs/hr to 0.46 lbs/hr giving an average HCHO emission rate of 0.39 lbs/hr.

There was little degree of variability between the three VOC sample runs as displayed by Table 3-12. The three VOC sample run results ranged from 0.25 lbs/hr as carbon to 0.26 lbs/hr as carbon. The average of the three runs is 0.25 lbs/hr as carbon.

TABLE 3–7

FORMALDEHYDE MEASUREMENT RESULTS
CARTER DAY #2 – BAGHOUSE
LOUISIANA PACIFIC – OROVILLE, CA

Run No.	Flow Rate (DSCFM)	Volume (DSCF)	Formaldehyde Mass Gain (ug/ sample)	(ml/ sample)	(ug/ blk)	(ml/ blk)	Total (ug)	Concentration (ug/DSCM)	(lbs/DSCF)	Emission Rate (lbs/hr)	(tons/yr)
F1	10,444	29.58	1,025.2	220	50.3	113	927.3	1,107	6.91E–08	0.04	0.19
F2	10,850	28.93	811.8	132	50.3	113	753.0	919	5.74E–08	0.04	0.16
F3	10,910	28.97	833.7	210	50.3	113	740.2	902	5.63E–08	0.04	0.16
					Average			976	6.09E–08	0.04	0.17

TABLE 3–8

VOC MEASUREMENT RESULTS
CARTER DAY #2 – BAGHOUSE
LOUISIANA PACIFIC – OROVILLE, CA

RUN NO	DATE	TIME	FLOW RATE (DSCFM)	CONCENTRATION (ppm C_3)	(ppm C)	EMISSION RATE (lbs/hr C)	(tons/yr C)
1	06/13/94	1400–1500	10,840	6.9	20.7	0.42	1.84
2	06/13/94	1500–1600	10,840	6.7	20.0	0.41	1.78
3	06/13/94	1600–1700	10,840	6.6	19.8	0.40	1.76
			Average	6.7	20.2	0.41	1.79

TABLE 3–9

SUPPORT MEASUREMENT RESULTS
CARTER DAY #4 – BAGHOUSE
LOUISIANA PACIFIC – OROVILLE, CA

RUN NO.	DATE	TIME	SQRT of dP	dH (in. WC)	T_{stack} (°F)	T_{meter} (°F)	VOL_{meter} (DSCF)	H_2O (%)	VEL. (ft/sec)	FLOW (ACFM)	FLOW (DSCFM)	ISO. (%)
CD4–1P	07–Jun–94	1855–1900	1.34	1.37	88	92	43.79	0.28	78.2	36,004	33,275	96
CD4–2P	07–Jun–94	1946–2108	1.35	1.39	80	86	44.50	0.37	78.3	36,039	33,776	96
CD4–3P	08–Jun–94	1000–1119	1.36	1.46	85	82	46.33	0.39	79.3	36,515	33,836	99
	Averages:		1.35	1.40	84	87	44.87	0.35	78.6	36,186	33,629	97
CD4–1F	07–Jun–94	1705–1800	1.35	2.01	86	90	36.20	0.65	78.9	36,301	33,553	105
CD4–2F	07–Jun–94	1947–2107	1.43	2.22	78	85	57.06	0.72	82.5	37,980	35,608	100
CD4–3F	08–Jun–94	1000–1118	1.42	2.38	83	84	58.83	0.79	82.7	38,077	35,302	104
	Averages:		1.40	2.20	82	86	50.70	0.72	81.4	37,453	34,821	103
	Overall Average:		1.38	1.80	83	87	47.79	0.53	80.0	36,819	34,225	100

TABLE 3–10

PARTICULATE MEASUREMENT RESULTS
CARTER DAY #4 – BAGHOUSE
LOUISIANA PACIFIC – OROVILLE, CA

Run No.	Flow Rate (DSCFM)	Volume (DSCF)	Mass Gain (mg) front ½ filter	back ½ organic	back ½ inorganic	Total	Concentration (ug/DSCM)	(lbs/DSCF)	Emission Rate (lbs/hr)	(tons/yr)
P1	33,275	43.79	34.5	9.0	1.1	34.0	78.6	63,380	3.96E–06	7.90	34.60
P2	33,776	44.50	31.8	10.3	0.0	0.0	42.1	33,406	2.09E–06	4.23	18.51
P3	33,836	46.33	29.2	4.1	0.7	1.5	35.5	27,057	1.69E–06	3.43	15.02
					Average			41,281	2.58E–06	5.19	22.71

TABLE 3-11

FORMALDEHYDE MEASUREMENT RESULTS
CARTER DAY #4 – BAGHOUSE
LOUISIANA PACIFIC – OROVILLE, CA

Run No.	Flow Rate (DSCFM)	Volume (DSCF)	Formaldehyde Mass Gain (ug/ sample)	(ml/ sample)	(ug/ blk)	(ml/ blk)	Total (ug)	Concentration (ug/DSCM)	(lbs/DSCF)	Emission Rate (lbs/hr)	(tons/yr)
F1	33,553	36.20	2,697.81	170	22.50	90	2,655.31	2,590	1.62E-07	0.33	1.43
F2	35,608	57.06	4,673.73	138	22.50	90	4,639.23	2,871	1.79E-07	0.38	1.68
F3	35,302	58.83	5,789.11	117	22.50	90	5,759.86	3,457	2.16E-07	0.46	2.00
					Average			2,973	1.86E-07	0.39	1.70

TABLE 3-12

VOC MEASUREMENT RESULTS
CARTER DAY #4 – BAGHOUSE
LOUISIANA PACIFIC – OROVILLE, CA

RUN NO	DATE	TIME	FLOW RATE (DSCFM)	CONCENTRATION (ppm C_3)	(ppm C)	EMISSION RATE (lbs/hr C)	(tons/yr C)
1	06/15/94	1230-1330	34,225	3.9	11.6	0.25	1.08
2	06/15/94	1330-1430	34,225	4.0	11.9	0.25	1.11
3	06/15/94	1430-1530	34,225	4.1	12.2	0.26	1.14
			Average	4.0	11.9	0.25	1.11

3.6 Carter Day #5 Baghouse Results

The Carter Day #5 Baghouse serves to control particulate in the air exhaust from the material cyclone above the former. Table 3-13 provides the results of the Carter Day #5 Baghouse support measurement results. The particulate, HCHO, and VOC samples collected at the Carter Day #5 Baghouse outlet were completed June 14 and 15, 1994. The volumetric flow rates recorded during the particulate and HCHO sample runs are quite consistent. The percent isokinetics for each sample run were all close to ideal, which is 100%.

The particulate results displayed in Table 3-14 varied dramatically from 0.95 lbs/hr to 6.61 lbs/hr. The average of the three particulate runs is 3.46 lbs/hr.

Unlike the particulate sample runs for the Carter Day #5 Baghouse, the HCHO sample runs were consistent ranging from 0.29 lbs/hr to 0.34 lbs/hr yielding an average of 0.30 lbs/hr. These results are provided in Table 3-15

Table 3-16 provides the VOC sample results recorded for the Carter Day #5 Baghouse. These results are also quite similar. The VOC results for sample runs 2 and 3 were nearly identical while the run 1 was slightly lower than the other two. The VOC results ranged from 1.41 lbs/hr as carbon to 1.76 lbs/hr as carbon. The average of the three runs is 1.64 lbs/hr as carbon.

3.7 South Hot Press Vent Results

The continuous hot press, which is partially enclosed, exhausts gaseous and particulate emissions through three vents located on the roof. The roof vents are aligned with the orientation of the Hot Press. Each of the three 67.5-inch diameter vents are driven by a 10 hp motor, and are equipped with butterfly dampers. The vents are identified by their geographic orientation. The pollutant measurements of this source were completed June 14 and 15 1994. Table 3-17 presents the support measurement results. The flow rate data recorded for the particulate measurements were consistent while the three HCHO flows displayed some degree of variability. The percent isokinetics for all of the particulate and HCHO sample runs were all within the specified limits.

Table 3-18 portrays the three particulate sample results for the South Hot Press Vent. The results ranged from 2.80 lbs/hr to 3.84 lbs/hr with an average of 3.45 lbs/hr.

TABLE 3–13

SUPPORT MEASUREMENT RESULTS
CARTER DAY #5 – BAGHOUSE
LOUISIANA PACIFIC – OROVILLE, CA

RUN NO.	DATE	TIME	SQRT of dP	dH (in. WC)	T_{stack} (°F)	T_{meter} (°F)	VOL_{meter} (DSCF)	H_2O (%)	VEL. (ft/sec)	FLOW (ACFM)	FLOW (DSCFM)	ISO. (%)
CD#5–P1	14–Jun–94	1524–1654	0.58	0.44	101	96	27.94	1.41	34.0	47,524	43,760	99
CD#5–P2	14–Jun–94	1725–1903	0.55	0.40	103	101	30.36	0.80	32.0	44,746	41,355	100
CD#5–P3	14–Jun–94	2001–2142	0.56	0.41	94	91	31.38	2.14	32.3	45,145	41,789	102
	Averages:		0.56	0.42	99	96	29.89	1.45	32.7	45,805	42,301	100
CD#5–F1	15–Jun–94	1010–1127	0.60	0.43	92	77	25.66	1.84	34.4	48,185	45,059	103
CD#5–F2	15–Jun–94	1221–1338	0.54	0.39	96	87	23.47	1.36	31.5	44,157	41,221	103
CD#5–F3	15–Jun–94	1416–1531	0.56	0.41	99	95	24.05	2.11	32.8	45,862	42,304	103
	Averages:		0.57	0.41	96	86	24.40	1.77	32.9	46,068	42,861	103
	Overall Average:		0.57	0.41	98	91	27.14	1.61	32.8	45,936	42,581	102

TABLE 3–14

PARTICULATE MEASUREMENT RESULTS
CARTER DAY #5 – BAGHOUSE
LOUISIANA PACIFIC – OROVILLE, CA

Run No.	Flow Rate (DSCFM)	Volume (DSCF)	Mass Gain (mg) front ½ filter	back ½ organic	back ½ inorganic	Total	Concentration (ug/DSCM)	(lbs/DSCF)	Emission Rate (lbs/hr)	(tons/yr)
P1	43,760	27.94	14.1	0.0	0.0	17.8	31.9	40,315	2.52E–06	6.61	28.95
P2	41,355	30.36	13.2	0.2	0.0	2.2	15.6	18,144	1.13E–06	2.81	12.31
P3	41,789	31.38	3.2	0.0	0.3	1.9	5.4	6,076	3.79E–07	0.95	4.17
					Average			21,512	1.34E–06	3.46	15.14

TABLE 3-15

FORMALDEHYDE MEASUREMENT RESULTS
CARTER DAY #5 – BAGHOUSE
LOUISIANA PACIFIC – OROVILLE, CA

Run No.	Flow Rate (DSCFM)	Volume (DSCF)	Formaldehyde Mass Gain (ug/ sample)	(ml/ sample)	(ug/ blk)	(ml/ blk)	Total (ug)	Concentration (ug/DSCM)	(lbs/DSCF)	Emission Rate (lbs/hr)	(tons/yr)
F1	45,059	25.66	1,514.9	133	50.3	113	1,455.7	2,003	1.25E-07	0.34	1.48
F2	41,221	23.47	1,314.8	173	50.3	113	1,237.8	1,862	1.16E-07	0.29	1.26
F3	42,304	24.05	1,295.4	127	50.3	113	1,238.9	1,819	1.14E-07	0.29	1.26
					Average			1,895	1.18E-07	0.30	1.33

TABLE 3-16

VOC MEASUREMENT RESULTS
CARTER DAY #5 – BAGHOUSE
LOUISIANA PACIFIC – OROVILLE, CA

RUN NO	DATE	TIME	FLOW RATE (DSCFM)	CONCENTRATION (ppm C_3)	(ppm C)	EMISSION RATE (lbs/hr C)	(tons/yr C)
1	06/15/94	1620-1720	42,581	5.89	17.7	1.41	6.17
2	06/15/94	1720-1820	42,581	7.33	22.0	1.75	7.67
3	06/15/94	1820-1920	42,581	7.38	22.1	1.76	7.72
			Average	6.9	20.6	1.64	7.19

TABLE 3–17

SUPPORT MEASUREMENT RESULTS
ROOF VENT #1 – SOUTH HOT PRESS VENT
LOUISIANA PACIFIC – OROVILLE, CA

RUN NO.	DATE	TIME	SQRT of dP	dH (in. WC)	T_{stack} (°F)	T_{meter} (°F)	VOL_{meter} (DSCF)	H_2O (%)	VEL. (ft/sec)	FLOW (ACFM)	FLOW (DSCFM)	ISO. (%)
RV1–P1	15–Jun–94	1036–1204	0.70	1.66	110	73	47.98	1.07	41.1	64,109	58,529	94
RV1–P2	15–Jun–94	1316–1509	0.70	1.62	114	93	48.06	1.17	41.0	63,824	57,818	95
RV1–P3	15–Jun–94	1611–1734	0.72	1.72	114	99	48.13	1.19	42.2	65,682	59,482	93
	Averages:		0.71	1.67	113	88	48.06	1.14	41.4	64,538	58,609	94
RV1–F1	15–Jun–94	1036–1204	0.67	1.08	107	70	37.48	1.39	39.2	61,122	55,941	98
RV1–F2	15–Jun–94	1316–1509	0.70	1.17	114	91	37.56	0.61	40.9	63,786	58,141	94
RV1–F3	15–Jun–94	1611–1734	0.74	1.32	116	96	40.46	0.41	43.5	67,826	61,677	96
	Averages:		0.70	1.19	112	86	38.50	0.80	41.2	64,245	58,586	96
	Overall Average:		0.70	1.43	113	87	43.28	0.97	41.3	64,392	58,598	95

TABLE 3–18

PARTICULATE MEASUREMENT RESULTS
ROOF VENT #1 – SOUTH HOT PRESS VENT
LOUISIANA PACIFIC – OROVILLE, CA

Run No.	Flow Rate (DSCFM)	Volume (DSCF)	Mass Gain (mg) front ½	filter	back ½ organic	back ½ inorganic	Total	Concentration (ug/DSCM)	(lbs/DSCF)	Emission Rate (lbs/hr)	(tons/yr)
P1	58,529	47.98	16.8	0.5	0.4	5.4	23.1	17,000	1.06E–06	3.73	16.33
P2	57,818	48.06	19.6	1.6	0.3	2.6	24.1	17,707	1.11E–06	3.84	16.80
P3	59,482	48.13	13.9	1.0	0.4	1.8	17.1	12,545	7.83E–07	2.80	12.24
					Average			15,751	9.83E–07	3.45	15.12

The three HCHO sample results are fairly consistent as displayed by Table 3-19. The HCHO results ranged from 0.54 lbs/hr to 0.68 lbs/hr yielding an average of 0.62 lbs/hr.

The South Hot Press Vent VOC sample runs were nearly unvarying from 1.94 lbs/hr as carbon to 2.04 lbs/hr giving an average of 1.97 lbs/hr as carbon. These results are provided in Table 3-20.

3.8 Middle Hot Press Vent Results

Similar to the South Hot Press Vent, the Middle Hot Press Vent services the Hot Press. The pollutant measurements of this source were completed on June 14, 1994. The particulate and HCHO support measurement results are provided in Table 3-21. The particulate volumetric flow rate measurements were consistent, but yielded a slightly lower average than the HCHO sample runs, which had a greater degree of variability. The percent isokinetics for all of the particulate sample runs were well within the tolerance limits, but the first HCHO sample run recorded a slightly low percent isokinetic rate.

Table 3-22 presents the results of the three particulate sample runs, which showed very little difference. These results ranged from 2.87 lbs/hr to 3.32 lbs/hr, with an average of 3.16 lbs/hr.

The results of the three HCHO sample runs are provided in Table 3-23. The results of run number one are not reported because this particular sample was broken in shipment to the laboratory. It so happens that this sample was also the one with a low isokinetic sample rate. Sample runs 2 and 3 were quite dissimilar. Sample run number 2 resulted in an emission rate of 0.17 lbs/hr while run number 3 is 2.75 lbs/hr. The average of these two runs is 1.46 lbs/hr.

Table 3-24 portrays the results of the three VOC sample runs completed for the Middle Hot Press Vent. These samples ranged from 1.97 lbs/hr as carbon to 3.03 lbs/hr as carbon yielding an average of 2.44 lbs/hr as carbon.

TABLE 3-19

FORMALDEHYDE MEASUREMENT RESULTS
ROOF VENT #1 – SOUTH HOT PRESS VENT
LOUISIANA PACIFIC – OROVILLE, CA

Run No.	Flow Rate (DSCFM)	Volume (DSCF)	Formaldehyde Mass Gain (ug/ sample)	(ml/ sample)	(ug/ blk)	(ml/ blk)	Total (ug)	Concentration (ug/DSCM)	(lbs/DSCF)	Emission Rate (lbs/hr)	(tons/yr)
F1	55,941	37.48	2,780.4	140	50.3	113	2,718.1	2,561	1.60E-07	0.54	2.35
F2	58,141	37.56	3,236.4	120	50.3	113	3,183.0	2,992	1.87E-07	0.65	2.85
F3	61,677	40.46	3,445.2	180	50.3	113	3,365.1	2,937	1.83E-07	0.68	2.97
					Average			2,830	1.77E-07	0.62	2.73

TABLE 3-20

VOC MEASUREMENT RESULTS
ROOF VENT #2 – MIDDLE HOT PRESS VENT
LOUISIANA PACIFIC – OROVILLE, CA

RUN NO	DATE	TIME	FLOW RATE (DSCFM)	CONCENTRATION (ppm C_3)	(ppm C)	EMISSION RATE (lbs/hr C)	(tons/yr C)
1	06/14/94	1530-1630	56,858	9.5	28.5	3.03	13.29
2	06/14/94	1630-1730	56,858	7.3	21.8	2.32	10.14
3	06/14/94	1730-1830	56,858	6.2	18.6	1.97	8.64
			Average	7.7	23.0	2.44	10.69

TABLE 3–21

SUPPORT MEASUREMENT RESULTS
ROOF VENT #2 – MIDDLE HOT PRESS VENT
LOUISIANA PACIFIC – OROVILLE, CA

RUN NO.	DATE	TIME	SQRT of dP	dH (in. WC)	T_{stack} (°F)	T_{meter} (°F)	VOL_{meter} (DSCF)	H_2O (%)	VEL. (ft/sec)	FLOW (ACFM)	FLOW (DSCFM)	ISO. (%)
RV2–P1	14–Jun–94	1445–1613	0.65	1.53	98	101	45.32	1.68	37.9	59,017	54,665	95
RV2–P2	14–Jun–94	1747–1915	0.69	1.73	99	100	47.67	0.91	40.0	62,251	58,004	94
RV2–P3	14–Jun–94	2043–2211	0.67	1.67	103	81	46.38	1.12	38.9	60,621	55,944	95
	Averages:		0.67	1.64	100	94	46.45	1.24	38.9	60,630	56,204	95
RV2–F1	14–Jun–94	1445–1613	0.73	1.12	109	104	37.02	1.28	43.0	67,004	61,104	89
RV2–F2	14–Jun–94	1747–1915	0.66	0.98	108	100	34.48	1.29	38.5	59,990	54,809	92
RV2–F3	14–Jun–94	2043–2211	0.68	1.05	103	79	36.68	1.44	39.5	61,558	56,623	95
	Averages:		0.69	1.05	107	94	36.06	1.34	40.3	62,850	57,512	92
	Overall Average:		0.68	1.35	103	94	41.26	1.29	39.6	61,740	56,858	93

TABLE 3–22

PARTICULATE MEASUREMENT RESULTS
ROOF VENT #2 – MIDDLE HOT PRESS VENT
LOUISIANA PACIFIC – OROVILLE, CA

Run No.	Flow Rate (DSCFM)	Volume (DSCF)	Mass Gain (mg) front ½ filter	back ½ organic	back ½ inorganic	Total	Concentration (ug/DSCM)	(lbs/DSCF)	Emission Rate (lbs/hr)	(tons/yr)
P1	54,665	45.32	11.5	0.7	0.5	5.3	18.0	14,025	8.76E–07	2.87	12.58
P2	58,004	47.67	17.3	0.1	1.0	2.0	20.4	15,111	9.43E–07	3.28	14.38
P3	55,944	46.38	15.2	1.0	2.7	1.9	20.8	15,836	9.89E–07	3.32	14.54
					Average			14,990	9.36E–07	3.16	13.83

TABLE 3-23

FORMALDEHYDE MEASUREMENT RESULTS
ROOF VENT #2 – MIDDLE HOT PRESS VENT
LOUISIANA PACIFIC – OROVILLE, CA

Run No.	Flow Rate (DSCFM)	Volume (DSCF)	Formaldehyde Mass Gain (ug/ sample)	(ml/ sample)	(ug/ blk)	(ml/ blk)	Total (ug)	Concentration (ug/DSCM)	(lbs/DSCF)	Emission Rate (lbs/hr)	(tons/yr)
F1	61,104	37.02	*	*	50.3	113	*	*	*	*	*
F2	54,809	34.48	845.0	130	50.3	113	787.1	806	5.03E-08	0.17	0.72
F3	56,623	36.68	13,531.5	155	50.3	113	13,462.5	12,960	8.09E-07	2.75	12.04
					Average			6,883	4.30E-07	1.46	6.38

TABLE 3-24

VOC MEASUREMENT RESULTS
ROOF VENT #1 – SOUTH HOT PRESS VENT
LOUISIANA PACIFIC – OROVILLE, CA

RUN NO	DATE	TIME	FLOW RATE (DSCFM)	CONCENTRATION (ppm C_3)	(ppm C)	EMISSION RATE (lbs/hr C)	(tons/yr C)
1	06/14/94	1900-2000	58,598	5.9	17.7	1.94	8.52
2	06/14/94	2000-2100	58,598	5.9	17.7	1.93	8.47
3	06/14/94	2100-2200	58,598	6.2	18.6	2.04	8.92
			Average	6.0	18.0	1.97	8.64

3.9 North Hot Press Vent Results

The North Hot Press Vent also exhaust emissions from the Hot Press to the atmosphere. All of the pollutant emission measurements for this source were completed on June 13, 1994. Table 3-25 provides the results of the support measurements. Although the particulate volumetric flow rate results varied by more than 6,000 DSCFM the average of the particulate volumetric flow rates was similar to that of the HCHO flow rate measurements. Again, all of the isokinetic sample rates were within the tolerance limits.

The results of particulate sample run numbers 1 and 3 are very similar while run number 2 resulted in a lower emission rate than the other two sample runs. Table 3-26 presents the results of the particulate sample runs conducted for the North Hot Press Vent which range from 2.68 lbs/hr to 3.48 lbs/hr yielding an average of 3.18 lbs/hr.

Table 3-27 presents the HCHO sample run results recorded for the North Hot Press Vent. These results were all quite similar, ranging from 4.82 lbs/hr to 5.03 lbs/hr and having an average of 4.93 lbs/hr.

The North Hot Press Vent VOC sample results were also quite similar ranging from 3.32 lbs/hr as carbon to 3.49 lbs/hr as carbon. The average of the three VOC measurements is 3.38 lbs/hr as carbon as depicted in Table 3-28.

3.10 Cut-Off Saw Vent Results

The vent over the flying cut-off saw is identical to the Hot Press vents and serves to ventilate the flying cut-off saw area. This vent is located over the flying cut-off saw and to the north of the Hot Press vents. The particulate, HCHO, and VOC emission measurements of the Cut-Off Saw Vent were performed June 11 and 13, 1994. Table 3-29 presents the support measurement results collected as part of each particulate and HCHO sample run. The flow rate data recorded for the particulate samples were comparable, while the HCHO flow rate measurements displayed more variability. The percent isokinetics for all of the particulate and HCHO sample runs are within the tolerance limits except for the third HCHO sample run which borders the limit.

The three particulate sample runs steadily increased in emission rates throughout the sample series. These results, provided in Table 3-30, ranged from 2.76 lbs/hr to 5.85 lbs/hr. The average of the particulate sample runs is 3.96 lbs/hr.

TABLE 3–25

SUPPORT MEASUREMENT RESULTS
ROOF VENT #3 – NORTH HOT PRESS VENT
LOUISIANA PACIFIC – OROVILLE, CA

RUN NO.	DATE	TIME	SQRT of dP	dH (in. WC)	T_{stack} (°F)	T_{meter} (°F)	VOL_{meter} (DSCF)	H_2O (%)	VEL. (ft/sec)	FLOW (ACFM)	FLOW (DSCFM)	ISO. (%)
RV3–P1	13–Jun–94	1022–1131	0.69	1.44	89	91	42.24	1.82	39.6	61,627	57,917	91
RV3–P2	13–Jun–94	1022–1131	0.74	1.38	89	92	42.00	1.93	42.6	66,350	62,205	99
RV3–P3	13–Jun–94	2046–2155	0.76	1.84	84	90	47.51	1.99	43.7	68,151	64,420	92
	Averages:		0.73	1.56	87	91	43.92	1.91	42.0	65,376	61,514	94
RV3–F1	13–Jun–94	1846–1955	0.77	1.87	92	95	48.07	1.63	44.6	69,481	64,990	93
RV3–F2	13–Jun–94	1846–1955	0.72	1.32	92	93	41.04	1.64	41.8	65,086	60,828	99
RV3–F3	13–Jun–94	2046–2155	0.72	1.32	86	86	40.23	1.53	41.5	64,596	61,144	96
	Averages:		0.74	1.50	90	91	43.11	1.60	42.6	66,388	62,320	96
	Overall Average:		0.73	1.53	89	91	43.52	1.76	42.3	65,882	61,917	95

TABLE 3–26

PARTICULATE MEASUREMENT RESULTS
ROOF VENT #3 – NORTH HOT PRESS VENT
LOUISIANA PACIFIC – OROVILLE, CA

Run No.	Flow Rate (DSCFM)	Volume (DSCF)	Mass Gain (mg) front ½	filter	back ½ organic	back ½ inorganic	Total	Concentration (ug/DSCM)	(lbs/DSCF)	Emission Rate (lbs/hr)	(tons/yr)
P1	57,917	42.24	14.6	0.0	2.4	2.2	19.2	16,050	1.00E–06	3.48	15.25
P2	62,205	42.00	5.9	1.1	0.7	6.0	13.7	11,518	7.19E–07	2.68	11.76
P3	64,420	47.51	11.6	0.0	2.0	5.2	18.8	13,973	8.72E–07	3.37	14.77
					Average			13,847	8.65E–07	3.18	13.93

TABLE 3-27

FORMALDEHYDE MEASUREMENT RESULTS
ROOF VENT #3 – NORTH HOT PRESS VENT
LOUISIANA PACIFIC – OROVILLE, CA

Run No.	Flow Rate (DSCFM)	Volume (DSCF)	Formaldehyde Mass Gain (ug/ sample)	(ml/ sample)	(ug/ blk)	(ml/ blk)	Total (ug)	Concentration (ug/DSCM)	(lbs/DSCF)	Emission Rate (lbs/hr)	(tons/yr)
F1	64,990	48.07	27,683.3	175	50.3	113	27,605.4	20,278	1.27E-06	4.94	21.62
F2	60,828	41.04	24,685.2	180	50.3	113	24,605.1	21,170	1.32E-06	4.82	21.13
F3	61,144	40.23	25,129.2	210	50.3	113	25,035.7	21,974	1.37E-06	5.03	22.05
					Average			21,572	1.35E-06	4.93	21.59

TABLE 3-28

VOC MEASUREMENT RESULTS
ROOF VENT #3 – NORTH HOT PRESS VENT
LOUISIANA PACIFIC – OROVILLE, CA

RUN NO	DATE	TIME	FLOW RATE (DSCFM)	CONCENTRATION (ppm C_3)	(ppm C)	EMISSION RATE (lbs/hr C)	(tons/yr C)
1	06/13/94	1830–1930	61,917	10.0	30.1	3.49	15.28
2	06/13/94	1930–2030	61,917	9.6	28.9	3.34	14.64
3	06/13/94	2030–2130	61,917	9.6	28.7	3.32	14.55
			Average	9.7	29.2	3.38	14.82

TABLE 3–29

SUPPORT MEASUREMENT RESULTS
ROOF VENT #4 – CUT–OFF SAW VENT
LOUISIANA PACIFIC – OROVILLE, CA

RUN NO.	DATE	TIME	SQRT of dP	dH (in. WC)	T_{std} (°F)	T_{meter} (°F)	VOL_{meter} (DSCF)	H_2O (%)	VEL. (ft/sec)	FLOW (ACFM)	FLOW (DSCFM)	ISO. (%)
RV4–1P	11–Jun–94	0847–0958	0.65	1.38	84	94	41.56	1.23	37.4	58,286	55,596	94
RV4–2P	11–Jun–94	1414–1525	0.67	1.43	101	109	42.76	1.42	38.8	60,377	55,711	96
RV4–3P	11–Jun–94	1503–1613	0.71	1.26	103	111	39.08	1.26	41.1	64,110	59,024	97
	Averages:		0.67	1.36	96	104	41.13	1.30	39.1	60,924	56,777	96
RV4–1F	11–Jun–94	0847–0958	0.70	1.25	84	96	37.11	1.62	40.0	62,279	59,150	92
RV4–2F	13–Jun–94	1414–1525	0.71	1.57	91	100	44.27	0.87	41.1	63,976	60,372	92
RV4–3F	13–Jun–94	1503–1613	0.65	1.08	93	102	31.89	1.02	39.8	61,965	51,852	90
	Averages:		0.69	1.30	90	99	37.75	1.17	40.3	62,740	57,125	91
	Overall Average:		0.68	1.33	93	102	39.44	1.24	39.7	61,832	56,951	93

TABLE 3–30

PARTICULATE MEASUREMENT RESULTS
ROOF VENT #4 – CUT–OFF SAW VENT
LOUISIANA PACIFIC – OROVILLE, CA

Run No.	Flow Rate (DSCFM)	Volume (DSCF)	Mass Gain (mg) front ½	filter	back ½ organic	back ½ inorganic	Total	Concentration (ug/DSCM)	(lbs/DSCF)	Emission Rate (lbs/hr)	(tons/yr)
P1	55,596	41.56	12.6	0.0	1.5	1.5	15.6	13,254	8.28E–07	2.76	12.09
P2	55,711	42.76	15.5	1.0	0.3	2.2	19.0	15,690	9.80E–07	3.27	14.34
P3	59,024	39.08	25.5	0.0	1.9	1.9	29.3	26,474	1.65E–06	5.85	25.64
					Average			18,473	1.15E–06	3.96	17.36

Table 3-31 presents the results of the three HCHO sample runs conducted at the exhaust of the Cut-Off Saw Vent. These results are similar with the second sample run having the lowest HCHO emission rate. The results range from 0.07 lbs/hr to 0.11 lbs/hr with an average of 0.09 lbs/hr.

The VOC sample results for the Cut-Off Saw Vent, presented in Table 3-32, varied very little over the entire 6 hour sample period. These results ranged from 2.35 lbs/hr as carbon to 2.69 lbs/hr as carbon yielding an average of 2.50 lbs/hr as carbon.

3.11 Board Cooler Vent Results

The vent over the Board Cooler is also identical to the previous four roof vents described, but is located to the north of the Cut-Off Saw Vent. This vent exhausts emissions in the board cooler area. The Board Cooler Vent emission measurements were conducted June 8 and 10, 1994. The volumetric flow rates recorded during the particulate measurements are considerably lower than those recorded for the HCHO sample runs. It is possible that the butterfly damper, located in the vent, was partially closed during the particulate measurements. At this time SEACOR has no other explanation for this discrepancy.

Table 3-33 provides the particulate and HCHO support measurement results recorded for the Board Cooler Vent. The average particulate volumetric flow rate is 31,513 DSCFM and the average HCHO volumetric flow rate is 52,182. This discrepancy in flow rate indicates that operating condition of the vent was altered between the time that the particulate and the HCHO measurements were conducted. The isokinetic sample rates for all of the samples were acceptable.

Table 3-34 presents the particulate sample results for the Board Cooler Vent. There was an insignificant degree of variability between the sample runs which ranged from 1.76 lbs/hr to 2.34 lbs/hr yielding an average of 2.01 lbs/hr.

The HCHO sample results are provided in Table 3-35. Sample runs 1 and 3 are nearly the same while the results for run number 2 are significantly higher than those of runs 1 and 3. The HCHO emission rate ranged from 0.04 lbs/hr to 0.11 lbs/hr giving an average emission rate of 0.07 lbs/hr.

Table 3-36 lists the Board Cooler Vent VOC measurement results. These results are quite consistent ranging from 1.11 lbs/hr as carbon to 1.51 lbs/hr as carbon with an average of 1.26 lbs/hr.

TABLE 3-31

FORMALDEHYDE MEASUREMENT RESULTS
ROOF VENT #4 – CUT-OFF SAW VENT
LOUISIANA PACIFIC – OROVILLE, CA

Run No.	Flow Rate (DSCFM)	Volume (DSCF)	Formaldehyde Mass Gain (ug/ sample)	(ml/ sample)	(ug/ blk)	(ml/ blk)	Total (ug)	Concentration (ug/DSCM)	(lbs/DSCF)	Emission Rate (lbs/hr)	(tons/yr)
F1	59,150	37.11	596.8	160	50.3	113	525.6	500	3.12E-08	0.11	0.49
F2	60,372	44.27	462.0	140	50.3	113	399.7	319	1.99E-08	0.07	0.32
F3	51,852	31.89	522.6	130	50.3	113	464.7	515	3.21E-08	0.10	0.44
					Average			417	2.60E-08	0.09	0.38

TABLE 3-32

VOC MEASUREMENT RESULTS
ROOF VENT #4 – CUT-OFF SAW VENT
LOUISIANA PACIFIC – OROVILLE, CA

RUN NO	DATE	TIME	FLOW RATE (DSCFM)	CONCENTRATION (ppm C_3)	(ppm C)	EMISSION RATE (lbs/hr C)	(tons/yr C)
1	06/11/94	1000-1200	56,951	7.8	23.3	2.48	10.85
2	06/11/94	1200-1400	56,951	7.3	22.0	2.35	10.28
3	06/11/94	1400-1600	56,951	8.4	25.3	2.69	11.78
			Average	7.8	23.5	2.50	10.97

TABLE 3–33

SUPPORT MEASUREMENT RESULTS
ROOF VENT #5 – BOARD COOLER VENT
LOUISIANA PACIFIC – OROVILLE, CA

RUN NO.	DATE	TIME	SQRT of dP	dH (in. WC)	T_{stack} (°F)	T_{meter} (°F)	VOL_{meter} (DSCF)	H_2O (%)	VEL. (ft/sec)	FLOW (ACFM)	FLOW (DSCFM)	ISO. (%)
RV5–1P	08–Jun–94	1315–1431	0.37	1.50	91.5	93.7	43.61	1.93	21.3	33,125	31,025	95
RV5–2P	08–Jun–94	1508–1626	0.38	1.60	89.6	99.8	44.78	2.09	22.0	34,201	32,088	94
RV5–3P	08–Jun–94	1652–1900	0.37	1.57	89.5	99.0	43.85	2.35	21.6	33,577	31,425	94
	Averages:		0.37	1.56	90.2	97.5	44.08	2.12	21.6	33,634	31,513	94
RV5–F1	10–Jun–94	1014–1135	0.61	4.16	90.6	98.8	71.60	0.48	35.3	54,986	52,127	93
RV5–F2	10–Jun–94	1154–1326	0.63	4.45	96.6	97.5	75.28	0.71	36.6	56,987	53,321	95
RV5–F3	10–Jun–94	1400–1513	0.61	4.03	102.1	106.6	71.04	0.66	35.4	55,120	51,099	94
	Averages:		0.62	4.22	96.4	100.9	72.64	0.62	35.7	55,698	52,182	94
	Overall Average:		0.50	2.89	93.3	99.2	58.36	1.37	28.7	44,666	41,848	94.2

TABLE 3–34

PARTICULATE MEASUREMENT RESULTS
ROOF VENT #5 – BOARD COOLER VENT
LOUISIANA PACIFIC – OROVILLE, CA

Run No.	Flow Rate (DSCFM)	Volume (DSCF)	Mass Gain (mg) front ½ filter	back ½ organic	back ½ inorganic	Total	Concentration (ug/DSCM)	(lbs/DSCF)	Emission Rate (lbs/hr)	(tons/yr)
P1	31,025	43.61	15.5	0.0	1.3	1.9	18.7	15,141	9.45E–07	1.76	7.71
P2	32,088	44.78	21.5	0.0	0.5	2.7	24.7	19,477	1.22E–06	2.34	10.25
P3	31,425	43.85	16.5	0.0	1.7	2.2	20.4	16,427	1.03E–06	1.93	8.47
					Average			17,015	1.06E–06	2.01	8.81

TABLE 3–35

FORMALDEHYDE MEASUREMENT RESULTS
ROOF VENT #5 – BOARD COOLER VENT
LOUISIANA PACIFIC – OROVILLE, CA

Run No.	Flow Rate (DSCFM)	Volume (DSCF)	Formaldehyde Mass Gain (ug/ sample)	(ml/ sample)	(ug/ blk)	(ml/ blk)	Total (ug)	Concentration (ug/DSCM)	(lbs/DSCF)	Emission Rate (lbs/hr)	(tons/yr)
F1	52,127	71.60	430.56	92	22.50	90	407.56	201	1.25E–08	0.04	0.17
F2	53,321	75.28	1,220.00	122	22.50	90	1,189.50	558	3.48E–08	0.11	0.49
F3	51,099	71.04	621.2	186	50.3	113	538.41	268	1.67E–08	0.05	0.22
					Average			342	2.14E–08	0.07	0.29

TABLE 3–36

VOC MEASUREMENT RESULTS
ROOF VENT #5 – BOARD COOLER VENT
LOUISIANA PACIFIC – OROVILLE, CA

RUN NO	DATE	TIME	FLOW RATE (DSCFM)	CONCENTRATION (ppm C_3)	(ppm C)	EMISSION RATE (lbs/hr C)	(tons/yr C)
1	06/10/94	1400–1500	41,848	6.4	19.3	1.51	6.61
2	06/13/94	1500–1600	41,848	4.7	14.2	1.11	4.85
3	06/13/94	1600–1700	41,848	5.0	14.9	1.17	5.12
			Average	5.4	16.1	1.26	5.53

3.12 Filter Box Inlet - North (Downcomer) Results

The Filter Box Inlet North (Downcomer) receives refined, dried, and resin-impregnated effluent from the MEC dryer loop. The MEC dryer loop effluent presently is transported through a cyclone and then directed into the filter box by the "downcomer" duct. However, the filter box was not installed until 1992. When the MDF Line No. 2 became operational, the MEC dryer loop cyclone exhausted directly to the atmosphere. Effluent in the 48-inch diameter "downcomer" duct is representative of the MDF Line No. 2, MEC dryer loop north, as it existed in 1985.

Table 3-37 presents the particulate and HCHO support measurement results for the Filter Box Inlet North emission measurements. All of the particulate and HCHO volumetric flow measurements are very consistent. The isokinetic sample rates all well within the tolerance limits.

Particulate sample runs 1 and 2 emission rates are similar, but run 3 was much lower as portrayed in Table 3-38. The particulate measurement results ranged from 2.80 lbs/hr to 7.40 lbs/hr with an average of 5.59 lbs/hr.

Table 3-39 provides the Filter Box Inlet North HCHO measurement results. These results are nearly identical ranging from 3.17 lbs/hr to 3.18 lbs/hr and averaging 3.17 lbs/hr.

Similar to the HCHO results, the VOC measurement results are very consistent, as presented in Table 3-40. The VOC sample runs ranged from 16.28 lbs/hr as carbon to 16.64 lbs/hr yielding an average of 16.47 lbs/hr as carbon

3.13 Filter Box Outlet - North Results

The MEC dryer loop north effluent is passed from the cyclone through the "downcomer" duct to the north filter box where it passes through a fiberglass wire mesh, used for particulate removal. The effluent is then exhausted through a down-sloping horizontal duct. Table 3-41 provides the particulate and HCHO support measurement results performed at the Filter Box Outlet North. The volumetric flow rate measurements are relatively consistent, but do not correlate with the corresponding "downcomer" flow rate results. This is indicative of exhaust leaks across the filter box. More likely, the huge discrepancy can be attributed to the retrofitted exhaust stack which was put in place for the emission measurements of this source. All isokinetic sample rates were well within specification.

TABLE 3–37

SUPPORT MEASUREMENT RESULTS
FILTER BOX INLET – NORTH (DOWNCOMER)
LOUISIANA PACIFIC – OROVILLE, CA

RUN NO.	DATE	TIME	SQRT of dP	dH (in. WC)	T_{stack} (°F)	T_{meter} (°F)	VOL_{meter} (DSCF)	H_2O (%)	VEL. (ft/sec)	FLOW (ACFM)	FLOW (DSCFM)	ISO. (%)
DCN–P1	18–Jun–94	1325–1451	0.91	0.70	165	102	31.79	7.63	56.2	42,381	33,571	93
DCN–P2	18–Jun–94	1543–1711	0.93	0.76	143	95	32.80	10.08	56.8	42,861	34,186	94
DCN–P3	18–Jun–94	1732–1854	0.94	0.76	147	96	32.69	10.51	57.3	43,200	34,080	94
	Averages:		0.93	0.74	152	97	32.43	9.41	56.8	42,814	33,946	93
DCN–F1	18–Jun–94	2111–2147	0.94	0.77	149	82	16.90	9.28	57.4	43,280	34,431	96
DCN–F2	19–Jun–94	1049–1142	0.91	0.71	150	99	21.37	11.21	55.7	41,966	32,630	96
DCN–F3	19–Jun–94	1216–1258	0.93	0.74	148	103	16.23	10.74	56.8	42,794	33,524	95
	Averages:		0.92	0.74	149	95	18.16	10.41	56.6	42,680	33,528	96
	Overall Average:		0.93	0.74	150	96	25.30	9.91	56.7	42,747	33,737	94

TABLE 3–38

PARTICULATE MEASUREMENT RESULTS
FILTER BOX INLET – NORTH (DOWNCOMER)
LOUISIANA PACIFIC – OROVILLE, CA

Run No.	Flow Rate (DSCFM)	Volume (DSCF)	Mass Gain (mg) front ½ filter	back ½ organic	back ½ inorganic	Total	Concentration (ug/DSCM)	(lbs/DSCF)	Emission Rate (lbs/hr)	(tons/yr)
P1	33,571	31.79	25.6	16.8	1.8	2.9	47.1	52,316	3.27E–06	6.58	28.82
P2	34,186	32.80	37.7	12.2	1.6	2.2	53.7	57,811	3.61E–06	7.40	32.43
P3	34,080	32.69	16.6	0.1	1.5	2.1	20.3	21,927	1.37E–06	2.80	12.26
					Average			44,018	2.75E–06	5.59	24.50

TABLE 3-39

FORMALDEHYDE MEASUREMENT RESULTS
FILTER BOX INLET – NORTH (DOWNCOMER)
LOUISIANA PACIFIC – OROVILLE, CA

Run No.	Flow Rate (DSCFM)	Volume (DSCF)	Formaldehyde Mass Gain (ug/ sample)	(ml/ sample)	(ug/ blk)	(ml/ blk)	Total (ug)	Concentration (ug/DSCM)	(lbs/DSCF)	Emission Rate (lbs/hr)	(tons/yr)
F1	34,431	16.90	11,868.0	230	50.3	113	11,765.6	24,583	1.53E-06	3.17	13.89
F2	32,630	21.37	15,826.0	205	50.3	113	15,734.7	25,999	1.62E-06	3.18	13.92
F3	33,524	16.23	11,675.6	202	50.3	113	11,585.7	25,206	1.57E-06	3.17	13.86
				Average				25,263	1.58E-06	3.17	13.89

TABLE 3-40

VOC MEASUREMENT RESULTS
FILTER BOX INLET – NORTH (DOWNCOMER)
LOUISIANA PACIFIC – OROVILLE, CA

RUN NO	DATE	TIME	FLOW RATE (DSCFM)	CONCENTRATION (ppm C_3)	(ppm C)	EMISSION RATE (lbs/hr C)	(tons/yr C)
1	06/18/94	1510-1610	33,737	87.0	261.0	16.48	72.20
2	06/18/94	1610-1710	33,737	87.9	263.8	16.64	72.89
3	06/18/94	1710-1810	33,737	86.0	258.0	16.28	71.30
			Average	87.0	260.9	16.47	72.13

TABLE 3–41

SUPPORT MEASUREMENT RESULTS
FILTER BOX OUTLET – NORTH
LOUISIANA PACIFIC – OROVILLE, CA

RUN NO.	DATE	TIME	SQRT of dP	dH (in. WC)	T_{stack} (°F)	T_{meter} (°F)	VOL_{meter} (DSCF)	H_2O (%)	VEL. (ft/sec)	FLOW (ACFM)	FLOW (DSCFM)	ISO. (%)
FBN–P1	18–Jun–94	1220–1400	0.20	0.78	141	88	30.55	10.07	12.0	28,234	22,240	103
FBN–P2	18–Jun–94	1535–1709	0.21	0.85	133	97	32.98	8.30	12.5	29,405	23,929	104
FBN–P3	18–Jun–94	1758–1922	0.21	0.89	141	84	34.51	9.64	13.0	30,585	24,199	107
	Averages:		0.21	0.84	138	90	32.68	9.34	12.5	29,408	23,456	105
FBN–F1	18–Jun–94	1153–1325	0.19	0.44	144	88	23.56	9.67	11.7	27,382	21,570	96
FBN–F2	18–Jun–94	1520–1658	0.17	0.44	131	92	24.06	9.49	10.6	24,787	19,993	106
FBN–F3	18–Jun–94	1931–2100	0.20	0.48	141	84	24.90	8.51	12.3	28,835	23,087	95
	Averages:		0.19	0.45	138	88	24.17	9.22	11.5	27,001	21,550	99
	Overall Average:		0.20	0.65	138	89	28.43	9.28	12.0	28,205	22,503	102

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TABLE 3–42

PARTICULATE MEASUREMENT RESULTS
FILTER BOX OUTLET – NORTH
LOUISIANA PACIFIC – OROVILLE, CA

Run No.	Flow Rate (DSCFM)	Volume (DSCF)	Mass Gain (mg) front ½ filter	back ½ organic	back ½ inorganic	Total	Concentration (ug/DSCM)	(lbs/DSCF)	Emission Rate (lbs/hr)	(tons/yr)
P1	22,240	30.55	14.2	0.0	1.7	4.4	20.3	23,463	1.46E–06	1.95	8.56
P2	23,929	32.98	11.9	0.1	1.3	3.0	16.3	17,452	1.09E–06	1.56	6.85
P3	24,199	34.51	16.6	0.1	1.5	2.1	20.3	20,771	1.30E–06	1.88	8.25
					Average			20,562	1.28E–06	1.80	7.89

Table 3-42 displays the consistent nature of particulate emission demonstrated by this source. The particulate emissions ranged from 1.56 lbs/hr to 1.95 lbs/hr. The average of the particulate measurement results is 1.80 lbs/hr. These results indicate a favorable reduction of particulate emissions when compared to the associated "downcomer" results, even when one considers the reduction in flow rate.

Table 3-43 provides the results of the HCHO measurements performed at the Filter Box Outlet North. The HCHO results are considerably lower than those of the associated "downcomer", but this can be attributed mostly to the reduction in flow rate across the filter box. The HCHO results range from 1.51 lbs/hr to 1.69 lbs/hr giving an average of 1.59 lbs/hr.

The VOC measurement results are presented in Table 3-44. The results of sample runs 1 and 3 are nearly identical, while run 2 was slightly higher. These results range from 10.39 lbs/hr as carbon to 12.60 lbs/hr as carbon. The average of the three VOC sample runs is 11.15 lbs/hr as carbon.

3.14 Filter Box Inlet - South (Downcomer) Results

Similar to the Filter Box Inlet North (Downcomer), the Filter Box Inlet South (Downcomer) receives refined, dried, and resin-impregnated effluent from the MEC dryer loop. Effluent in the Filter Box Inlet South (Downcomer) is representative of the MDF Line No. 2, MEC dryer loop north emissions, as it existed in 1985.

Table 3-45 provides the support measurement results conducted at the Filter Box Inlet South (Downcomer). The volumetric flow rate results are quite consistent. The isokinetic sample rates are all well within specification.

The particulate measurement results varied dramatically as Table 3-46 portrays. The particulate results ranged from 6.72 lbs/hr to 10.79 lbs/hr yielding an average of 10.80 lbs/hr.

Table 3-47 provides the results of the HCHO emission measurements. These results range from 3.31 lbs/hr to 4.17 lbs/hr with an average of 3.80 lbs/hr.

The VOC emission measurement results, listed in Table 3-48, are very consistent ranging from 28.65 lbs/hr as carbon to 30.20 lbs/hr as carbon. The average of the VOC measurements is 29.32 lbs/hr as carbon.

TABLE 3-43

FORMALDEHYDE MEASUREMENT RESULTS
FILTER BOX OUTLET – NORTH
LOUISIANA PACIFIC – OROVILLE, CA

Run No.	Flow Rate (DSCFM)	Volume (DSCF)	Formaldehyde Mass Gain (ug/ sample)	(ml/ sample)	(ug/ blk)	(ml/ blk)	Total (ug)	Concentration (ug/DSCM)	(lbs/DSCF)	Emission Rate (lbs/hr)	(tons/yr)
F1	21,570	23.56	12,513.8	130	50.3	113	12,455.9	18,668	1.17E-06	1.51	6.61
F2	19,993	24.06	14,260.0	155	50.3	113	14,191.0	20,827	1.30E-06	1.56	6.83
F3	23,087	24.90	13,870.0	190	50.3	113	13,785.4	19,549	1.22E-06	1.69	7.41
				Average				19,681	1.23E-06	1.59	6.95

TABLE 3-44

VOC MEASUREMENT RESULTS
FILTER BOX OUTLET – NORTH
LOUISIANA PACIFIC – OROVILLE, CA

RUN NO	DATE	TIME	FLOW RATE (DSCFM)	CONCENTRATION (ppm C_3)	(ppm C)	EMISSION RATE (lbs/hr C)	(tons/yr C)
1	06/18/94	2230-0030	22,503	82.2	246.6	10.39	45.50
2	06/19/94	0030-0230	22,503	99.8	299.5	12.60	55.21
3	06/19/94	0230-0430	22,503	82.9	248.6	10.46	45.83
			Average	88.3	264.9	11.15	48.85

TABLE 3-45

SUPPORT MEASUREMENT RESULTS
FILTER BOX INLET – SOUTH (DOWNCOMER)
LOUISIANA PACIFIC – OROVILLE, CA

RUN NO.	DATE	TIME	SQRT of dP	dH (in. WC)	T_{stack} (°F)	T_{meter} (°F)	VOL_{meter} (DSCF)	H_2O (%)	VEL. (ft/sec)	FLOW (ACFM)	FLOW (DSCFM)	ISO. (%)
DCS-P1	17-Jun-94	1000-1124	1.25	1.55	147	87	46.37	16.95	77.6	58,523	42,487	107
DCS-P2	17-Jun-94	1236-1556	1.32	1.18	141	91	40.45	19.19	82.1	61,914	44,161	90
DCS-P3	17-Jun-94	1702-1825	1.19	1.20	136	88	40.98	17.38	73.5	55,409	40,709	98
	Averages:		1.26	1.31	141	89	42.60	17.84	77.7	58,615	42,452	98
DCS-F1	17-Jun-94	2008-2059	1.26	1.36	141	83	28.99	12.63	76.9	58,017	44,704	95
DCS-F2	17-Jun-94	2155-2248	1.20	1.23	143	81	27.85	13.88	74.1	55,867	42,296	97
DCS-F3	18-Jun-94	1144-1236	1.22	1.24	153	96	27.58	12.22	75.2	56,705	43,028	94
	Averages:		1.23	1.27	146	87	28.14	12.91	75.4	56,863	43,343	95
	Overall Average:		1.24	1.29	144	88	35.37	15.37	76.6	57,739	42,897	97

TABLE 3-46

PARTICULATE MEASUREMENT RESULTS
FILTER BOX INLET – SOUTH (DOWNCOMER)
LOUISIANA PACIFIC – OROVILLE, CA

Run No.	Flow Rate (DSCFM)	Volume (DSCF)	Mass Gain (mg) front ½ filter	back ½ organic	back ½ inorganic	Total	Concentration (ug/DSCM)	(lbs/DSCF)	Emission Rate (lbs/hr)	(tons/yr)
P1	42,487	46.37	71.0	46.8	1.2	4.0	123.0	93,664	5.85E-06	14.91	65.30
P2	44,161	40.45	36.6	7.0	1.0	1.9	46.5	40,592	2.53E-06	6.72	29.41
P3	40,709	40.98	51.6	29.2	1.3	0.0	82.1	70,742	4.42E-06	10.79	47.25
					Average			68,333	4.27E-06	10.80	47.32

TABLE 3-47

FORMALDEHYDE MEASUREMENT RESULTS
FILTER BOX INLET – SOUTH (DOWNCOMER)
LOUISIANA PACIFIC – OROVILLE, CA

Run No.	Flow Rate (DSCFM)	Volume (DSCF)	Formaldehyde Mass Gain (ug/ sample)	(ml/ sample)	(ug/ blk)	(ml/ blk)	Total (ug)	Concentration (ug/DSCM)	(lbs/DSCF)	Emission Rate (lbs/hr)	(tons/yr)
F1	44,704	28.99	16,317.0	185	50.3	113	16,234.7	19,774	1.23E-06	3.31	14.50
F2	42,296	27.85	19,643.0	260	50.3	113	19,527.3	24,758	1.55E-06	3.92	17.18
F3	43,028	27.58	20,303.3	165	50.3	113	20,229.9	25,900	1.62E-06	4.17	18.29
					Average			23,478	1.47E-06	3.80	16.66

TABLE 3-48

VOC MEASUREMENT RESULTS
FILTER BOX INLET – SOUTH (DOWNCOMER)
LOUISIANA PACIFIC – OROVILLE, CA

RUN NO	DATE	TIME	FLOW RATE (DSCFM)	CONCENTRATION (ppm C_3)	(ppm C)	EMISSION RATE (lbs/hr C)	(tons/yr C)
1	06/18/94	1510-1610	42,897	118.9	356.8	28.65	125.48
2	06/18/94	1610-1710	42,897	121.0	363.0	29.12	127.55
3	06/18/94	1710-1810	42,897	125.5	376.5	30.20	132.29
			Average	121.8	365.4	29.32	128.44

3.15 Filter Box Outlet - South Results

Similar to the Filter Box Outlet North, the MEC dryer loop south effluent is passed from the cyclone through the "downcomer" duct to the south filter box, where it passes through a fiberglass wire mesh used for particulate removal. The effluent is then exhausted through a down-sloping horizontal duct. Table 3-49 provides the particulate and HCHO support measurement results performed at the Filter Box Outlet South. Just as the Filter Box Outlet North, the volumetric flow rate measurements are relatively consistent but do not correlate with the corresponding "downcomer" flow rate results. Again, this is indicative of exhaust leaks across the filter box and more likely can be attributed to the retrofitted exhaust stack which was put in place for the emission measurements of this source. All isokinetic sample rates were well within specification.

Table 3-50 presents the results of the three particulate samples completed at the Filter Box Outlet South. The results range from 1.53 lbs/hr to 2.35 lbs/hr yielding an average of 1.96 lbs/hr. These results indicate a large reduction in particulate emissions from the associated "downcomer" even when the flow rate discrepancy is considered.

The results of the HCHO measurements conducted at this source are provided in Table 3-51. These results are very consistent, and range from 1.20 lbs/hr to 1.42 lbs/hr giving an average of 1.28 lbs/hr. The reduction of HCHO emissions across the filter box can be attributed to the reduction of gas flow as noted for the Filter Box Outlet North.

The VOC measurement results are presented in Table 3-52. The results of sample runs 1 and 2 are nearly identical while run 3 was considerably higher. These results range from 14.60 lbs/hr as carbon to 18.97 lbs/hr as carbon. The average of the three VOC sample runs is 16.12 lbs/hr as carbon.

3.16 MEC Oil Heater Results

The MEC Oil Heater is used to heat oil used which is circulated through the Hot Press to maintain the press platens temperature for board consolidation. This heater uses a natural gas burner at a rate of 8 million BTU/hr to heat the oil to 500°F. The maximum firing rate of this burner is 10 million BTU/hr. Criteria pollutant emission measurements were performed at the exhaust stack of the MEC Oil Heater on June 17, 1994. Measurements were conducted for the quantification of SO_2, NO_x, CO, and total VOCs. The SO_2 sample runs were completed following EPA Reference Method (RM) 6. Effluent moisture determinations were combined

TABLE 3–49

SUPPORT MEASUREMENT RESULTS
FILTER BOX OUTLET – SOUTH
LOUISIANA PACIFIC – OROVILLE, CA

RUN NO.	DATE	TIME	SQRT of dP	dH (in. WC)	T_{stack} (°F)	T_{meter} (°F)	VOL_{meter} (DSCF)	H_2O (%)	VEL. (ft/sec)	FLOW (ACFM)	FLOW (DSCFM)	ISO. (%)
FBS–P1	17–Jun–94	1034–1221	0.22	0.85	136	74	34.92	9.95	13.7	32,088	25,588	103
FBS–P2	17–Jun–94	1340–1733	0.22	0.94	126	95	33.89	8.11	13.3	31,345	25,953	98
FBS–P3	17–Jun–94	1824–2035	0.23	1.00	130	83	35.02	9.65	14.0	32,904	26,591	99
	Averages:		0.23	0.93	131	84	34.61	9.24	13.7	32,112	26,044	100
FBS–F1	17–Jun–94	0953–1200	0.23	0.60	136	79	28.95	6.46	13.8	32,368	26,812	95
FBS–F2	17–Jun–94	1505–1711	0.25	0.76	129	90	30.07	6.85	14.7	34,632	28,904	92
FBS–F3	17–Jun–94	1820–2032	0.22	0.60	132	83	27.21	7.82	13.2	30,983	25,487	94
	Averages:		0.23	0.65	132	84	28.74	7.04	13.9	32,661	27,068	94
	Overall Average:		0.23	0.79	131	84	31.68	8.14	13.8	32,387	26,556	97

TABLE 3–50

PARTICULATE MEASUREMENT RESULTS
FILTER BOX OUTLET – SOUTH
LOUISIANA PACIFIC – OROVILLE, CA

Run No.	Flow Rate (DSCFM)	Volume (DSCF)	Mass Gain (mg) front ½ filter	back ½ organic	back ½ inorganic	Total	Concentration (ug/DSCM)	(lbs/DSCF)	Emission Rate (lbs/hr)	(tons/yr)
P1	25,588	34.92	20.1	0.0	1.2	2.9	24.2	24,471	1.53E–06	2.35	10.27
P2	25,953	33.89	15.6	0.9	0.9	2.5	19.9	20,734	1.29E–06	2.02	8.83
P3	26,591	35.02	14.4	0.0	0.0	0.8	15.2	15,326	9.57E–07	1.53	6.69
					Average			20,177	1.26E–06	1.96	8.60

TABLE 3-51

FORMALDEHYDE MEASUREMENT RESULTS
FILTER BOX OUTLET – SOUTH
LOUISIANA PACIFIC – OROVILLE, CA

Run No.	Flow Rate (DSCFM)	Volume (DSCF)	Formaldehyde Mass Gain (ug/ sample)	(ml/ sample)	(ug/ blk)	(ml/ blk)	Total (ug)	Concentration (ug/DSCM)	(lbs/DSCF)	Emission Rate (lbs/hr)	(tons/yr)
F1	26,812	28.95	10,077.7	184	50.3	113	9,995.8	12,192	7.61E-07	1.22	5.36
F2	28,904	30.07	9,531.0	150	50.3	113	9,464.2	11,114	6.94E-07	1.20	5.27
F3	25,487	27.21	11,497.8	95	50.3	113	11,455.5	14,866	9.28E-07	1.42	6.22
					Average			12,724	7.94E-07	1.28	5.62

TABLE 3-52

VOC MEASUREMENT RESULTS
FILTER BOX OUTLET – SOUTH
LOUISIANA PACIFIC – OROVILLE, CA

RUN NO	DATE	TIME	FLOW RATE (DSCFM)	CONCENTRATION (ppm C_3)	(ppm C)	EMISSION RATE (lbs/hr C)	(tons/yr C)
1	06/19/94	1040-1140	26,556	98.00	294.0	14.60	63.95
2	06/19/94	1140-1240	26,556	99.33	298.0	14.80	64.82
3	06/19/94	1240-1340	26,556	127.33	382.0	18.97	83.09
			Average	108.2	324.7	16.12	70.62

with the RM 6 samples. Three velocity measurements were conducted as a stand-alone procedure following RM 2. Molecular weight determinations were conducted continuously following RM 3A. The NO_x and CO measurements were performed according to RMs 7E and 10 respectively.

Table 3-53 provides the support measurement results completed for the MEC Oil Heater. These measurements were necessary for the determination of volumetric flow rates and the subsequent calculation of emission rates. The triplicate measurements deviated very little. However, one should note that the MEC Oil Heater operation is cyclic resulting in a effluent flow and non-flow periods depending on heat requirements to maintain oil temperature. The velocity measurements were only performed while heater was in a generation mode, and not in an idle mode. This results in an over estimation of pollutant emissions.

The results of the three SO_2 sample runs is provided in Table 3-54. The results of the SO_2 measurements demonstrate that there is very little SO_2 in the effluent. The results range from 0.000 lbs/hr to 0.010 lbs/hr.

Table 3-55 presents the results of the instrumental analyzer procedures performed for the quantification of pollutant NO_x, CO, and VOCs, as well as diluent O_2, and CO_2. The concentrations of O_2 and CO_2 were very consistent, averaging 3.25% and 10.09% respectively. The recorded concentrations for both CO and VOCs were often slightly negative (which indicates a negative zero drift for both analyzers) the results for both parameters are reported as 0.0. The three NO_x emission measurements varied very little with a range of 0.71 lbs/hr to 0.74 lbs/hr. The average of the NO_x emission measurements is 0.72 lbs/hr.

3.17 Resin Storage/Mix Room Results

Three badge samples designated MY-8606, MP-7416, and MY-8637 were exposed in the Resin Storage/Mix Room for HCHO analyses. Sample numbers MP-7416 and MY-8637 were co-located for statistical purposes. The co-located samples yielded identical HCHO results with mass gains of 2.3 micrograms (ug) and concentrations of 0.078 milligrams per cubic meter (mg/m^3) or 0.064 parts per million (ppm). Sample MY-8606 resulted in a mass gain of 1.7 ug and a concentration of 0.058 mg/m^3 or 0.047 ppm. The placement of the three HCHO badge samples are depicted in Figure 3-1.

TABLE 3-53

SUPPORT MEASUREMENT RESULTS
MEC OIL HEATER
LOUISIANA PACIFIC – OROVILLE, CA

RUN NO.	DATE	TIME	SQRT of dP	dH (in. WC)	T_{stack} (°F)	T_{meter} (°F)	VOL_{meter} (DSCF)	H_2O (%)	VEL. (ft/sec)	FLOW (ACFM)	FLOW (DSCFM)
MEC-1	06/17/94	2134-2205	0.37	1.00	446	76	10.78	15.75	27.8	2,627	1,287
MEC-2	06/17/94	2210-2230	0.36	1.00	453	76	10.51	16.80	27.0	2,551	1,225
MEC-3	06/17/94	2314-2333	0.36	1.00	436	72	10.63	16.15	26.7	2,530	1,247
Averages:			0.36	1.00	445	75	10.64	16.23	27.2	2,569	1,253

TABLE 3-54

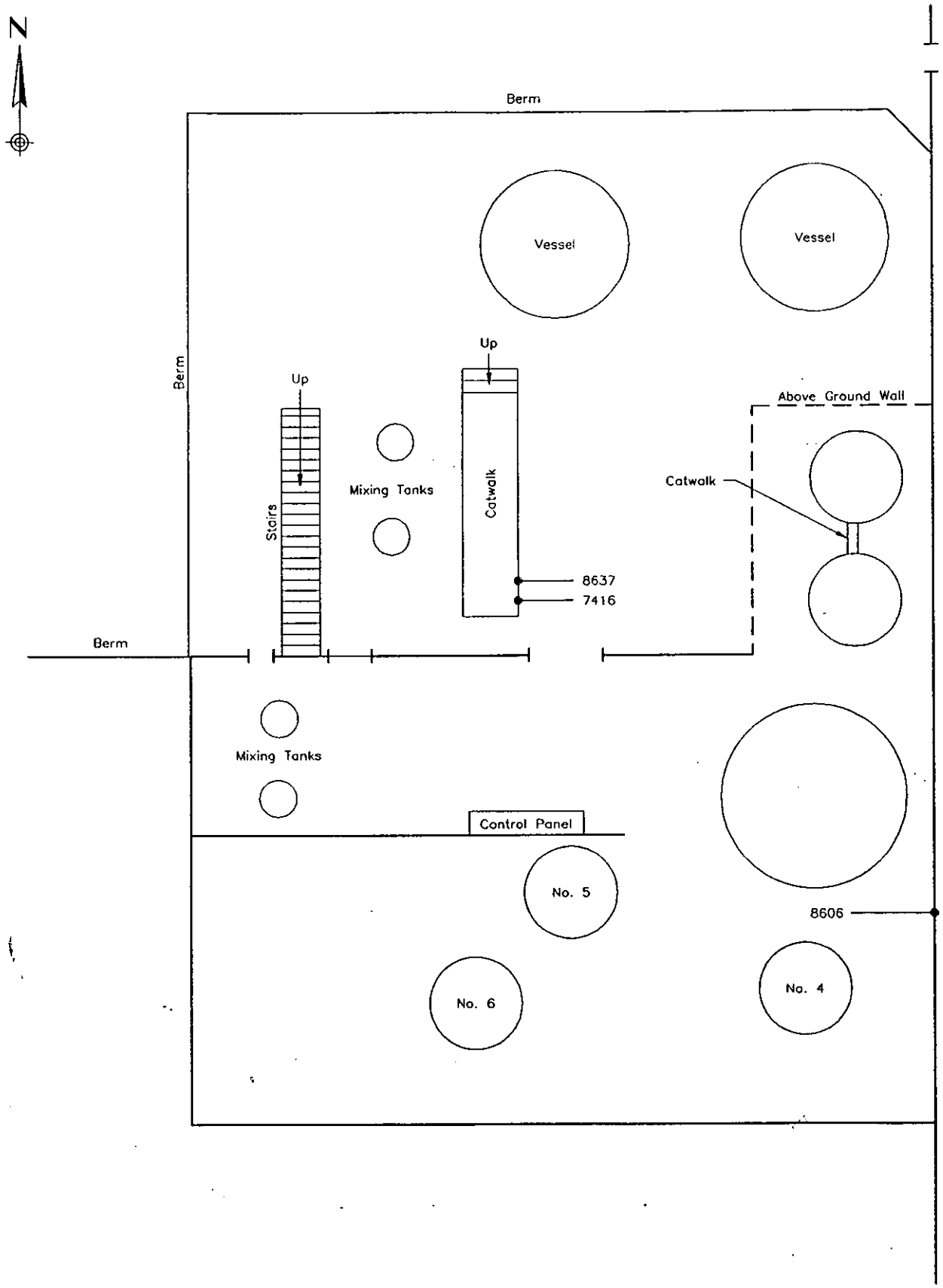
SO_2 CONCENTRATION DETERMINATION
MEC OIL HEATER
LOUISIANA PACIFIC – OROVILLE, CA

RUN NO.	DATE	T_{meter} (°F)	VOL_{meter} (DSCF)	$Ba(ClO_3)_2$ (N)	BLK_{vol} (ml)	ALIQ. FAC.	$VOL_{titrant}$ (ml)	SO_2 (ppm_{dry})	SO_2 (lbs/hr)	SO_2 (tons/yr)
MEC-1	06/17/94	76.3	10.779	0.0099	0.1	20	0.15	0.4	0.005	0.02
MEC-2	06/17/94	76.0	10.514	0.0099	0.1	20	0.20	0.8	0.010	0.04
MEC-3	06/17/94	72.0	10.628	0.0099	0.1	20	0.10	0.0	0.000	0.00
Average		74.7	10.640	0.0099	0.1	20	0.15	0.4	0.005	0.02

TABLE 3-55

CEM MEASUREMENT RESULTS
MEC OIL HEATER
LOUISIANA PACIFIC - OROVILLE, CA
JUNE 17, 1994

RUN NO	TIME	NO_x (ppm)	NO_x (lbs/hr)	NO_x (tons/yr)	CO (ppm)	CO (lbs/hr)	CO (tons/yr)	VOC (ppm C_3)	VOC (ppm C)	VOC (lbs/hr C)	VOC (tons/yr C)	O_2 (%)	CO_2 (%)
MEC-1	2100-2200	80.6	0.74	3.26	-2.4	-0.01	-0.06	-0.1	-0.4	-0.00	-0.00	3.16	10.13
MEC-2	2200-2300	80.9	0.71	3.11	-2.9	-0.02	-0.07	-0.1	-0.2	-0.00	-0.00	3.32	10.05
MEC-3	2300-2400	79.9	0.71	3.13	-3.3	-0.02	-0.08	-0.3	-1.0	-0.00	-0.01	3.27	10.07
Average		80.5	0.72	3.17	-2.9	-0.02	-0.07	-0.2	-0.5	-0.00	-0.01	3.25	10.09



NOTE: 1. Badge No. 8606 is placed 8 feet above ground surface.

2. Badge No. 7416 and 8637 are placed 4 feet above catwalk.

Drawing Not To Scale

SEACOR
ENVIRONMENTAL ENGINEERING
TUALATIN, OREGON

LOUISIANA-PACIFIC CORPORATION
MERLO LANE
OROVILLE, CALIFORNIA

RESIN KITCHEN: FORMALDEHYDE BADGE LOCATION

FIGURE: 3-1

JOB: D0027-008-01 DRAWN: KPW DATE: 6/24/94 APPROVED: DATE:

3.18 Calculations and Nomenclature

The following section presents the calculations for determining flow rate, molecular weight, and moisture content. In addition, calculations for determination of pollutant concentrations and emission rates are provided. Following the calculations, the nomenclature used for each calculation is also defined.

Calculations

Stack Pressure:

$$P_s\ (inches\ Hg) = P_b + \frac{P_g}{13.6}$$

Molecular Weight (dry):

$$MW\ (dry) = (0.44)\ (\%\ CO_2) + (0.32)\ (\%\ O_2) + (0.28)\ (100 - \%\ CO_2 - \%\ O_2)$$

Molecular Weight (wet):

$$MW\ (wet) = MW\ (dry) \left[\frac{1 - \%\ H_2O}{100}\right] + (18)\ (\%\ H_2O)$$

Velocity (fps):

$$V_s = (85.49)\ (C_p)\ \sqrt{dP\ avg}\ \sqrt{\left(\frac{T_s}{(P_s)\ (MW\ wet)}\right)}$$

Flow Rate (ACFM):

$$(ACFM) = (V_s)\ (A_s)\ (60)$$

Flow Rate (DSCFM):

$$DSCFM = (ACFM)\ (17.64) \left(\frac{100 - \%\ H_2O}{100}\right) \left(\frac{P_s}{T_s}\right)$$

Dry Standard Sample Gas Volume (DSCF):

$$V_{m(std)} = V_m \times Y \left(\frac{T_{std}}{T_m}\right) \times \left(\frac{P_b}{P_{std}}\right)$$

Sulfur Dioxide Concentration (mg/dscm):

$$C_{SO_2} = K_2 \times \frac{(V_t - V_{tb}) \times N \times \left(\frac{V_{soln}}{V_a}\right)}{V_{m(std)}}$$

Sulfur Dioxide Concentration (ppm):

$$SO_{2_{ppm}} = C_{SO_2} \times \frac{385}{MW} \times 1{,}000{,}000$$

Concentration (lb/DSCF):

$$\frac{lb}{DSCF} = \frac{mg \times \left[\frac{0.001\ lb}{453.5924\ mg}\right]}{V_{m(std)}}$$

Emission Rate (lbs/hr):

$$\frac{lbs}{hr} = (\ DSCFM\ )\ (\ 60\ )\ (\ ppm\ )\ (\ MW\ )\left(\frac{1}{385}\right)\left(\frac{1}{1{,}000{,}000}\right)$$

Emission Rate (lbs/hr):

$$\frac{lbs}{hr} = DSCFM \times (60\ \text{min}/hr) \times \left(\frac{lb}{DSCF}\right)$$

Volume of H_2O Vapor:

$$V_w = 0.04707 \times \left(\frac{DSCF}{ml}\right) \times V_{H_2O}$$

Sample Volume, standard conditions:

$$V_{m(std)} = V_m \times Y_d \times \left(\frac{T_{std}}{T_m}\right) \times \left(\frac{P_b + \frac{\Delta H}{13.6}}{P_{std}}\right) = 17.64 \times V_m \times Y_d \times \left(\frac{P_s}{T_m}\right)$$

Moisture Content:

$$B_{ws} = \frac{V_w}{(V_w + V_{m(std)})}$$

Percent Isokinetic:

$$\%I = \frac{0.09450 \times T_s \times V_{m(std)}}{P_s \times v_s \times A_n \times \Theta \times (1 - B_{ws})}$$

Nomenclature

A_s	Cross Sectional Area of the Stack (Square Feet)
A_n	Cross Sectional Area of the Nozzle (square feet)
B_{ws}	Water Vapor in Gas Stream (proportional by volume)
C_p	Pitot Tube Coefficient, Dimensionless (0.84 for Type-S)
MW	Molecular Weight of Pollutant (SO_2 = 64)
MW (dry)	Molecular Weight of Stack Gas, dry basis (lb/lb-mole)
MW (wet)	Molecular Weight of Stack Gas, wet basis (lb/lb-mole)
P_b	Uncorrected Barometric Pressure (in Hg)
P_g	Static Pressure of Stack Gas (in WC)
ppm	Concentration (parts per million)
P_s	Absolute Pressure of Stack Gas (in Hg)
T_s	Stack Gas Temperature (°R)
T_{std}	Standard Temperature (528°R)
V_s	Average Gas Velocity (feet per minute)
V_w	Volume of Water Vapor
V_{H2O}	Volume of Condensate Collected (ml)
dP	Velocity Head of Gas (in WC)
ACFM	Flow Rate (Actual Cubic Feet Per Minute)
DSCFM	Flow Rate (Dry Standard Cubic Feet Per Minute)
$\%CO_2$	Percent Carbon Dioxide, Dry Basis
$\%O_2$	Percent Oxygen, Dry Basis
$\%H_2O$	Percent moisture content of gas
O_2 %	Measured Concentration of O_2 (%)
C_{SO2}	Sulfur Dioxide Concentration, dry basis corrected to std conditions (mg/dscm)
N	Normality of Barium Perchlorate Titrant (milliequivalents/ml)
P_{std}	Standard Absolute Pressure (29.92 in. Hg)
T_m	Average DGM Absolute Temperature (°R)
T_{std}	Standard Absolute Temperature (528 °R)
V_a	Volume of Sample Aliquot titrated (ml)
V_m	Dry Gas Volume as Measured by the DGM (dcf)
$V_{m(std)}$	Dry Gas Volume Corrected to Standard Conditions (dscf)
V_{soln}	Total Volume of the Solution in Which the Sulfur Dioxide Sample is Contained (100 ml)

V_t	Volume of Barium Perchlorate Titrant used for the Sample (ml), avg of replicate titrations
V_{tb}	Volume of Barium Perchlorate Titrant used for the Blank (ml)
Y_d	Dry Gas Meter Calibration Factor (dimensionless)
Θ	Total Sample Time (min.)
K_2	Constant $7.061 * 10^{-5}$
dH	Meter pressure (inches WC)
SO_2	Concentration of SO_2 (ppm)
%I	Isokinetic percent
mg	mass (mg)
ml	volume (ml)
DSCF	Volume (dry standard cubic feet)

4.0 METHODOLOGY

4.1 General

The testing program was supported by the following accepted and approved EPA Reference Methods as contained in the ***EPA Quality Assurance Handbook for Air Pollution Measurement Systems, Volume III, Stationary Source Specific Methods EPA-600/4-77-027B***, and the ***Code of Federal Regulations, Title 40, Part 60 (40 CFR 60), Appendix A.*** The specific RM procedures that were used in this comprehensive emission measurement program include:

RM 1	"Sample Velocity Traverse for Stationary Sources"
RM 2	"Determination of Stack Gas Velocity and Volumetric Flow Rate"
RM 3A	"Determination of Oxygen and Carbon Dioxide Concentrations in Emissions from Stationary Sources (Instrumental Analyzer Procedure)"
RM 4	"Determination of Moisture Content In Stack Gases"
RM 5	"Determination of Particulate Emissions from Stationary Sources"
RM 6C	"Determination of Sulfur Dioxide Emissions from Stationary Sources (Instrumental Analyzer Procedure)"
RM 7E	"Determination of Nitrogen Oxides Emissions from Stationary Sources" (Instrumental Analyzer Procedure)
RM 10	"Determination of Carbon Monoxide Emissions from Stationary Sources"
RM 25A	"Determination of Total Gaseous Organic Concentration Using a Flame Ionization Detector"
RM 0011	"Sampling for Aldehyde and Ketone Emissions from Stationary Sources"
RM 202	"Determination of Condensible Particulate Emissions from Stationary Sources"

All of the RMs selected for this measurement program are approved procedures for quantifying specific pollutant emission rates.

4.2 Support Measurements for Stack Parameters

EPA RMs 1 through 4 were performed to support the gaseous and particulate pollutant emission rate calculations. RM 1, selection of sample points for velocity traverses, was conducted prior to the initiation of each set of flow rate and/or particulate and HCHO measurements for each source. RMs 2 through 4 results provided the data necessary to calculate the effluent volumetric flow rate.

4.3 Required Modifications to Sample Locations

Several of the sample locations required modifications to meet RM 1 criteria. The stationary source identification code and required modifications follow:

2.A. Cyclone C-4 - The existing outlet is an opening in the top of the cyclone. A duct extension of 85 inches (") was placed on the cyclone outlet. Two perpendicular ports were placed 17" upstream of the stack outlet and 68" downstream of the cyclone outlet. This configuration proved to be insufficient for representative flow rate and particulate measurements due to the cyclonic nature of the flow profile. An effort was made to straighten the flow with the installation of a cross plate in the stack. This proved to be unsuccessful and the stack was not tested.

3.A., 3.B. MEC Dryer Loop North and South Cyclone Outlets - Two perpendicular ports were installed approximately 18" upstream of the point where the duct flares to meet the Filter Box. The duct diameter measures 48" across. A total of 12 points were located across each diameter for a total 24 measurement points.

3.C., 3.D. North and South Cyclone Filter Box Exhausts - A stack extension was added to both of these test locations. The extension measured 216" in length with 8 sample ports located on face of the extension 42" upstream of the outlet. The rectangular duct measured 60" by 144". Three measurement points were located through each of the 8 ports for a total of 24 measurement points.

5.B. MEC Oil Heater Exhaust Stack - Two perpendicular ports were placed 7 feet (') upstream of the stack outlet and approximately 24' downstream of the nearest flow disturbance. A total of 6 measurement points were used across each diameter for a total of twelve measurement points.

5.C., 5.D., 5.E., 5.F., 5.G. Powered Roof Vents - A stack extension was installed on each of these sources. The extension measured 157" in length with a diameter of 69". Two ports, perpendicular to each other, were installed 34" upstream of the outlet and 123" downstream of the fan. Twelve measurement points along each diameter were used for a total of 24 points.

7.A. and 5A C/D Baghouses Nos. 1 and 5 - The existing outlets of these two baghouses were equipped with a 119" stack extension measuring 96" by 25". Eight ports were installed 20" upstream of the stack outlet and 99" downstream of any flow disturbance. Three measurement points were located in each of the 8 ports for a total of 24 measurement points.

7.B C/D Baghouse No. 2 - The existing outlet of this baghouse was fitted with a 119" stack extension measuring 96" by 25". Two ports were installed 20" upstream of the stack outlet and 99" downstream of any flow disturbance on the 25" side. Twelve equidistant measurement points were located through each of the two ports for a total of 24 measurement points.

7.C. C/D Baghouse No.4 - Two perpendicular ports were installed 17" approximately one half a duct diameter upstream of the ID fan. Under the conditions, twelve sampling points along each of the two traverse diameters were utilized. The two sample points located nearest the port were not always sampled due to the extremely high negative pressure of the duct which caused flow disturbances even though the ports were sealed very well.

4.4 Selection of Traverse Points

EPA RM 1, "Sample and Velocity Traverses for Stationary Sources," was followed for the selection of measurement points at each stack test location. The calculated measurement points were used for all volumetric flow rate determinations except were noted. This was performed by taking the cross-sectional area of the effluent stack at the measurement location and dividing it into equal areas. Traverse points were located within each of the equal areas.

Ideally, measurements should be performed at least eight stack diameters downstream and two diameters upstream from any flow disturbance. This method is applicable for the determination of the proper number of traverse points to perform representative volumetric flow rate measurements. The determination of measurement points was based upon the test port locations.

4.5 Flow Rate Determination

EPA RM 2, "Determination of Stack Gas Velocity and Volumetric Flow Rate (Type-S Pitot Tube)," was used to measure the volumetric flow rate at each stack test location. This RM procedure allows for a stainless steel Type-S or standard pitot tube to be connected to a differential pressure gauge (inclined manometer). The measured pressure differential, observed at each traverse point, is recorded on field data forms and used in determining the overall volumetric flow rate.

In addition to velocity pressures, gas temperatures were also measured and recorded concurrently with all differential pressure data. The temperature was measured with a Type-K thermocouple attached at the measurement tip of the Type-S pitot tube (in the same measurement plane). The Type-K thermocouple was connected directly to a calibrated digital temperature indicator for accurate measurements.

The average stack gas velocity was determined from the gas density, measurement of the average velocity head (differential pressure), and measurement of the average gas temperature. The flow rate results are presented in terms of actual cubic feet per minute (ACFM), and dry standard cubic feet per minute (DSCFM).

4.6 Molecular Weight Determination

RM 3A, "Determination of Oxygen and Carbon Dioxide Concentrations in Emissions from Stationary Sources (Instrumental Analyzer Procedure)," allows for the determination of molecular weight with analyzers. The analyzers were incorporated into the continuous emission monitor (CEM) system. The diluent analyzers were calibrated using NIST, EPA Protocol 1 specification gases. A Tedlar bag sample was delivered to the analyzers for the verification of the ambient nature of each source except for the MEC Oil Heater where the O_2 and CO_2 concentrations were measured continuously.

4.7 Moisture Content Determination

EPA RM 4, "Determination of Moisture Content In Stack Gases," was incorporated into all particulate, formaldehyde, and SO_2 measurements. The determination of moisture content is accomplished using a condenser and pump assembly connected between a sample probe and metering system.

A known volume of gas (measured by a dry gas meter) was passed through the condenser assembly. Upon completion of each sample run, the total amount of condensate collected was gravimetrically measured and the net gain calculated. The net moisture gain of the condenser assembly, volume of gas extracted, and measured meter temperature data was used to calculate the actual moisture content of the effluent.

4.8 Sulfur Dioxide Content Determination

EPA RM 6, "Determination of Sulfur Dioxide Emissions from Stationary Sources," was followed to accomplish the MEC Oil Heater SO_2 measurements. This method allows for the determination of SO_2 concentration by wet chemistry. Effluent sample gas was drawn from the source and delivered to a series of four impingers. The first impinger contained a solution of 80% isopropyl alcohol (IPA) followed by a filter consisting of a glass wool plug. The second and third impingers contained a solution of 3% hydrogen peroxide (H_2O_2). The fourth impinger contained 300 g of silica gel as an absolute moisture collector. The impinger train was set in an ice bath to maintain the extracted gas outlet temperature at or below 68° F.

Impinger No.	Contents	Configuration
1	100 ml of 80% IPA	Greenberg-Smith
2	100 ml of 3/10% H_2O_2	Straight
3	100 ml of 3/10% H_2O_2	Straight
4	300 g Silica Gel	Straight

The SO_2 concentrations were determined by the barium perchlorate-thorin titration. The minimum detectable limit of the method is 3.4 milligrams per cubic meter (3.4 mg/m^3) of SO_2 as determined by the EPA. The upper limit of the method has not been established; however the quantity and/or concentration of the H_2O_2 used in the sample train may be increased to eliminate the potential for any SO_2 "break through."

The sample train was consistent with that of RM 6 except RM 8 glassware (standard size impingers) were used as allowed by the method. The sample probe was maintained at a temperature of 248° F. All surfaces that were exposed to the sample gas are fabricated of chemically inert materials. The following is a list of the basic equipment used to complete the sample train:

Probe - Constructed of stainless steel with a S-type pitot tube and thermocouple attached. The probe was lined with heat-traced borosilicate glass (or alternate inert material) capable of maintaining a temperature of 248° F.

Filter - A glass fiber filter was used to eliminate the potential for particulate matter to enter the sample solution.

Impingers - Standard and modified Greenburg-Smith impingers connected by glass leak-free fittings.

Extraction Pump - A leak-free vacuum pump capable of extracting at least one cubic foot per minute at 15" of mercury (Hg).

Meter System - A dry gas meter with 1% accuracy with inlet and outlet thermocouples. A 30" (Hg) vacuum gauge is attached to the meter.

Upon completion of each sample run, the probe was removed from the exhaust duct and a leak check of the sampling system was performed. The leak rate must not exceed 0.02 cubic feet per minute (cfm) according to the method. The sample train was then purged for approximately ten minutes to assure that all of the SO_2 had been extracted from the IPA.

The impingers were removed from the ice bath and the net volumetric (moisture) gain was determined with a graduated cylinder. The silica gel contained in the final impinger was transferred to its tared container and weighed to determine the total mass gained.

The sample train was then carefully recovered. The contents of the second and third impingers (H_2O_2) and associated deionized water rinses were quantitatively transferred to a clean sample container. The sample container was then sealed, labeled, and the liquid level marked.

The samples were transported to SEACOR's laboratory and the contents were diluted with deionized water using Class A volumetric glassware. Appropriate sized aliquots of the diluted sample were placed in Erlenmeyer flasks combined with 100 ml of 100% IPA. Two to four drops of thorin indicating solution were then added to the flask and the sample was titrated to a pink endpoint using 0.0099 N barium perchlorate.

4.9 Oxides of Nitrogen, Carbon Dioxide, and VOC Determination

Gaseous pollutant and diluent O_2/CO_2 measurements were conducted using SEACOR's Mobile CEM Laboratory. The CEM laboratory consisted of a NO_x analyzer, CO monitor, and a flame ionization detector (FID). The minimum detectable limit for each monitor is less than 2% of the respective span value.

Each analyzer was subjected to a zero and two up-scale calibration gases (except in the case of the FID, which was provided three up-scale standards) prior to and upon completion of each sample series. The gas standards were certified and traceable to EPA Protocol 1 specifications which require that the gas concentration be within $\pm 1\%$ of the documented value. The response of the analyzers compared to each certified calibration standard was within $\pm 2\%$ of the respective analyzer span value.

To calibrate the instruments, the gas standards were introduced to the CEM system at the point in which the sample probe and heated sample line are interconnected. The amount of bias of each CEM in the system was also determined. This was accomplished by delivering zero and one span gas directly to the sample inlet on the back of each analyzer. The response of the analyzers to the zero and span gases was less than $\pm 5\%$ of the respective span value.

The magnitude of calibration drift was also calculated. Calibration drift is the difference in the initial (pre-test) calibration response and the final (post-test) calibration response for the same gas standard. The calibration drift was within $\pm 3\%$ of the span over the test series.

4.9.1 Oxides of Nitrogen Determination

EPA RM 7E, "Determination of Nitrogen Oxides Emissions from Stationary Sources (Instrumental Analyzer Procedure)," was used to quantify NO_x emissions at the MEC Oil Heater source outlet. This method is applicable for the determination of NO_x emissions from stationary sources using an instrumental chemiluminescent analyzer. A gas sample was continuously extracted from the flue gas, directing a portion of the extracted sample to the analyzer for determination of NO_x. Three measurements of 60 minutes each were performed at the selected test location.

4.9.2 Carbon Monoxide Determination

EPA RM 10, "Determination of Carbon Monoxide Emissions from Stationary Sources," was used for the determination of CO emissions from the sources selected for CO emission quantification. According to RM 10, an integrated or continuous gas sample is extracted from a sampling point and analyzed for CO content using a Luft-type NDIR analyzer or equivalent. This method is applicable for the determination of CO emissions from stationary sources only when specified by the test procedures for determining compliance with new source performance standards. A continuous sampling technique was used. Three measurements were performed at each selected sampling location.

Any substance having a strong absorption of infrared energy will interfere to some extent with the analyzer's ability to quantify CO content accurately. The use of silica gel and ascarite traps will alleviate the major interference problems. Another way of reducing interference problems is to use a CO NDIR analyzer equipped with a gas correlation filter. SEACOR's monitor is of equipped with a gas correlation filter.

4.9.3 VOC Determination

EPA RM 25A, "Determination of Total Gaseous Organic Concentration Using a Flame Ionization Analyzer," was used to quantify total hydrocarbons. This method applies to the measurement of total gaseous organic concentration of vapors consisting primarily of alkanes, alkenes, and/or arenes (aromatic hydrocarbons). The concentration is expressed in terms of propane (or other appropriate organic calibration gas) or in terms of carbon. Three measurements of 60 minutes each will be performed at the selected test locations.

A gas sample was continuously extracted from the source and transported directly to a FID for analysis. It is recommended that the sample gas for the FID does not pass through a gas conditioner for moisture removal because this may "scrub" some VOCs. Four calibration gases were used to calibrate the FID, as opposed to three gas standards required for the calibration of the NO_x and CO monitors.

The response of the FID analyzer is proportional to the number of carbon atoms in the compounds present in the sample stream, with the exception of carbon dioxide and carbon monoxide, which do not readily ionize. VOCs are generally defined as total gaseous nonmethane organic compounds (TGNMOCs). In combustion sources, methane can comprise a significant fraction of the total hydrocarbon emissions. In these cases, the methane content of the stack sample can be quantified and subtracted from the total to yield TGNMOCs using a modified FID measurement technique.

For those sources where methane is expected to be found in significant quantities, RM 25A will be modified to incorporate BAAQMD Method ST-7, "Organic Compounds (FID Direct Measurement)." This modified method was not used at the filter box outlet and "downcomer" locations due to the high moisture content of the effluent which clogged SEACOR's scrubber. Further, methane was not expected to be present in these non-combustion sources.

4.9.4 Support for Continuous Gaseous Measurements

Specific support equipment and instrumentation was incorporated into the gaseous monitoring system to provide reliable and defensible data. These components include; sample probe, heated sample line, sample pumps, sample conditioning, and data acquisition. These interrelated components form an important part of the gaseous measurement scheme.

Sample gas was continuously drawn from each selected source exhaust location through a probe and filter assembly and passed directly to a sample conditioner (the conditioner was eliminated for FID measurements) via a heated Teflon sample line. The sample gas conditioner is used to condense and remove the moisture from the sample gas stream. The clean dry sample gas was then transported directly to each analyzer.

4.9.5 Data Collection

The response of the analyzers to the calibration standards and the sample gas was recorded by two mechanisms. The primary means of data acquisition was a digital data logger linked to a programmable computer (PC) for continuous storage of data averages. The data collected by the data logger was used for all data reduction and emission calculations. The secondary (backup) data collection mechanism were analog strip chart recorders which provided a visual representation of pollutant and diluent concentrations.

4.10 Particulate Determination

EPA RM 5, "Determination of Particulate Emissions from Stationary Sources," was performed in triplicate at each of the selected particulate sample locations. The average results of each triplicate test series (duration 60 minutes each) was used to determine the actual particulate emission rate of each selected source. This method provides for the isokinetic extraction of particulate matter from an emission source.

A particulate sampling system that incorporates a calibrated stainless steel nozzle, heated glass (or stainless steel) probe, heated oven (housing a glass filter holder and tared filter substrate), condenser assembly (as detailed in Section 3.2.4), and calibrated extraction system was used. The system is designed to operate under a vacuum for extraction of effluent gas through all of the interconnected, leak-free components. The entire system was "leak checked" before and after each individual test run to ensure the integrity of the collected sample. It is imperative that the integrated sample components remain leak-tight throughout the sample period.

A "K-factor" (coefficient) was determined prior to the initiation of each particulate test. This coefficient was based upon preliminary measurements of temperature, flow rate, pressure, and moisture. The multiplication of the established coefficient and the measured differential pressure determined the isokinetic sample rate for each particular sample point. If a change in any of the designated variables occurred during a sample run, the coefficient was adjusted to maintain isokinetic sample rates throughout the entire sample period. At isokinetic conditions, the velocity of the stack gas entering the nozzle of the extraction system is equal to the effluent velocity at that sample point.

A minimum of thirty dry standard cubic feet (30 dscf) of effluent was extracted per sample run. The effluent flow rate and the sample nozzle size dictated the required sample time required for each sample run. Each sample run was collected for a minimum of sixty (60) minutes. The sample time for each point were conducted at equal intervals.

Upon the completion of each particulate test, the particulate sample was carefully recovered. The non-condensible particulate sample is composed of the particulate that has been deposited inside the extraction nozzle, heated probe, and filter holder (acetone wash), and the particulate deposited on the filter substrate. This portion of the particulate catch is considered to be that which condenses at or above the controlled temperature set point (248 $\pm$25 degrees Fahrenheit).

Upon completion of each sample run, the filter was removed from its respective filter holder with tweezers and placed in a labeled petri dish. The nozzle, probe, and filter holder was then washed with acetone and collected in a polyethylene storage container. A probe brush was used to assist in removing particulate which adhered to the inner walls of the front half components.

The total particulate mass gain was comprised of the net mass gain of the filter combined with the net mass gain of the acetone wash. The acetone wash mass gain was determined by placing the wash in a tared glass beaker and evaporating it to dryness. The volume of the acetone wash was also recorded for blank correction purposes. Unfortunately, the particulate blank sample was lost in shipment, so the particulate samples could not be blank corrected. If appropriate, SEACOR could submit an additional blank sample of the acetone and filters used in the field, but none of the DI water that was used during the program is available.

Upon completion of the evaporation process, the front half components (filter and acetone wash beaker) were placed in a desiccating chamber for a minimum of twenty-four hours - adequate time for conditioning. After the conditioning criteria was met, the filters and beakers were subjected to repeated weighings until a constant weight was achieved. Between weighings, the samples remained in the desiccating chamber. A constant weight is determined by the difference of two consecutive weighings not deviating by more than $\pm$0.5 milligrams.

4.11 RM 202 Condensible Particulate Determination

This method applies to the determination of condensible particulate matter (CPM) emissions from stationary sources. It is intended to represent condensible matter as material that condenses after passing through the RM 5 particulate filter maintained at a temperature of 248 $\pm$25 degrees

Fahrenheit. The CPM sample collection was incorporated into the RM 5 sample procedures and collected in the impinger (condenser) assembly. The impinger solution was then quantitatively recovered and extracted with methylene chloride ($MeCl_2$). The organic and aqueous fractions was then taken to dryness and the residues weighed. The total of both fractions represents the CPM.

4.12 Formaldehyde Determination

EPA RM 0011, "Sampling for Aldehyde and Ketone Emissions from Stationary Sources," was followed to complete formaldehyde emission measurements of the sources selected for formaldehyde quantification. This method is applicable to the determination of formaldehyde by withdrawing gaseous and particulate formaldehyde isokinetically from an emission source and collecting the emissions in aqueous acidic 2,4-dinitrophenylhydrazine (DNPH). Formaldehyde present in the emissions react with the DNPH to form the formaldehyde dinitrophenylhydrazone derivative. The dinitrophenylhydrazone derivative is extracted, solvent exchanged, concentrated, and then analyzed by high performance liquid chromatography (HPLC).

Formaldehyde, acetone, and 2,4-dinitroaniline contamination of the aqueous DNPH reagent is frequently encountered. The reagent was prepared within five days of use in the field and stored in an uncontaminated environment both before and after sampling in order to minimize blank problems. Some concentration of acetone contamination is unavoidable, because acetone is ubiquitous in laboratory and field operations. However, the acetone contamination was minimized as best as possible. Three blanks were submitted and use for blank corrections. One blank was submitted from the first lot of DNPH received. Two blanks were submitted for the second lot of DNPH used.

The sampling apparatus is much the same as that used for the RM 5 sample collection. The only significant difference is that the particulate filter is eliminated.

5.0 QUALITY ASSURANCE / QUALITY CONTROL

5.1 Objectives

The objectives of SEACOR's Quality Assurance/Quality Control program are as follows:

- To continually monitor the precision and accuracy of the data being generated for all source emission measurements.
- To implement measures designed to control the precision and accuracy of all data generated for individual sources.
- To maintain permanent records of analytical quality control data and equipment calibrations that include traceability and certification.
- To identify, document, and maintain a chain of custody log which accounts for each method sample collected in the measurement program.

5.2 Field Program

All field testing procedures used in this measurement program are approved by the Environmental Protection Agency (EPA). All primary emission testing procedures are referenced in the ***40 CFR 60, Appendix A*** and the ***Methods Manual for Compliance with the BIF Regulations.*** Any deviations from these procedures are detailed previously in this report. All field personnel responsible for this emission test program followed the procedures dictated by the applicable test methods and TEP.

All field test personnel involved with this test program are experienced and trained in field sampling methods and procedures. Each field personnel was assigned key responsibilities in phases of sample collection, sample recovery, chain of custody, and transportation of samples. Basic responsibilities for field personnel include, but are not limited to:

Record Keeping - Field Personnel are responsible for the maintenance of field data forms, which document all pertinent parameters, and recording relevant observations.

Safety Requirements - Field personnel are familiar with all company safety regulations and provided with all necessary safety equipment.

Sample Handling - Field personnel are trained in the proper procedures for handling samples including: use of sample containers, sample preservation, identification, storage of collected samples, and chain of custody.

Instrumentation - Specific field personnel are trained in the proper operation, calibration, trouble-shooting, and maintenance of the instrumentation intended for this program. This includes use of pumps, orsat, control console(s), samplers, and instrumentation.

Quality Control - The field personnel are trained in all aspects of quality control that relate directly to the specific reference method test procedures, sample handling, analysis, and reporting.

Mr. Rosburg was designated as the Field Manager and was responsible for the coordination of testing activities with LP. He was available to answer questions concerning test methodology and quality control. The Field Manager was also responsible for delegating work assignments to the members of the test crew, making sure all QA/QC procedures were carried out, and documenting all field activities in a bound log book.

Method (reagent) blanks were collected for every parameter associated with each sample type or test series. This was done to determine if any interfering substance was present in any of the reagents. Glass storage containers with Teflon coated lids were deemed acceptable and used for the storage of the HCHO reagents and were used for the blanks as well as the samples. Polyethyelene sample jars were used for the RM 5 and 202 sample collection.

All field instrumentation was maintained and calibrated according to all applicable EPA guidelines. Records of instrument maintenance and calibration are kept in historical files and continually updated. Calibrations of all field instrumentation, at a minimum, meet or exceed the mandated procedures stipulated in the ***Quality Assurance Handbook for Air Pollution Measurement Systems, Volume III.*** All documentation of calibrations are maintained on file at all times.

5.3 Sample Documentation

All field data collected for each selected reference method test procedure were documented on field data forms. Each form, specific to each particular sample run, includes information as to the source tested, date and time of sample collection, analyst(s) performing the test, and all data necessary for test validation. Each field data sheet was completed by the responsible technician at the time of the test and checked by the Field Manager for accuracy and completeness after each test series. Copies of all raw field data sheets are included in the Emission Test Report with the originals maintained in project files at SEACOR's Fort Collins office.

Sample containers utilized for the collection and storage of samples were specific to each test procedure. Glass sample bottles with teflon coated lids were and used for this measurement program. Filter substrates were maintained in individually labeled polyethylene petri dishes sufficient in size to receive the samples unaltered and with the exposed surface protected from sample loss.

Collection of all blanks were specific to each test performed. For this emission measurement program field blanks were collected. The field blanks and spike samples were collected at the test location and subjected to the same ambient conditions as the samples. This type of blank was collected for each reagent used in each test series and analyzed for HCHO. Sample results were adjusted if necessary based on the results of the blank.

Each recovered sample was labeled with standard sample tags and uniquely identified. The tag provided information regarding the unit tested, sample location, date and time of collection, reagent(s) used, and the test number. The sample container was sealed, liquid level marked (if applicable), and properly stored until it was transported to the laboratory.

Standard chain of custody forms were completed before any samples were transported to the laboratory. This procedure is dictated by the EPA and strictly adhered to by SEACOR. Each sample was tagged with a chain of custody tag which requires the same information as the field sample label.

5.4 Analytical Quality Control

All analytical procedures used for this program are approved by the EPA and referenced in the Code of Federal Regulations (where applicable). Variations in methods and procedures specially designed for this measurement program were not necessary.

Atmospheric Analysis & Consulting (AA&C) was selected to provide the particulate and HCHO source test samples analyses for all samples and blanks. 3M Occupational Health and Environmental Safety Division was selected to complete the HCHO badge sample analyses. SEACOR has worked with AA&C in the past, and their QA/QC programs are known to meet or exceed EPA standards. Key components of AA&Cs' QC program include:

Record Keeping - Personnel are trained in the proper use of field and laboratory worksheets, recording of analytical and quality control data, and record keeping.

Safety Regulations - Personnel are trained in all company safety policies and provided with all necessary safety equipment.

Sample Handling - Personnel are trained in the proper storage and handling of samples and sample containers.

Use of Volumetric Glassware - Personnel are trained in the proper use of graduated cylinders, burets, pipets and volumetric flasks.

Use of Balances - Personnel are trained in the proper use of analytical balances. Balance checks with class "S" weights are routinely performed.

Instrumentation - Personnel are trained in the proper operation, calibration and maintenance of all instrumentation utilized for emission testing programs.

Data Handling and Reporting - Personnel are trained in the proper procedures for recording raw laboratory data, calibrations, standards information and results, along with quality control data. Analytical data will be reported in meaningful engineering units.

Quality Control - Personnel are trained on all of the quality control procedures specific to the requirements established for this emission testing program.

All data associated with laboratory analysis of collected samples was documented in bound laboratory log books. All pertinent data such as reagent preparation, filter weights, samples analyzed, blank analysis, and all quality assurance data is available upon request.

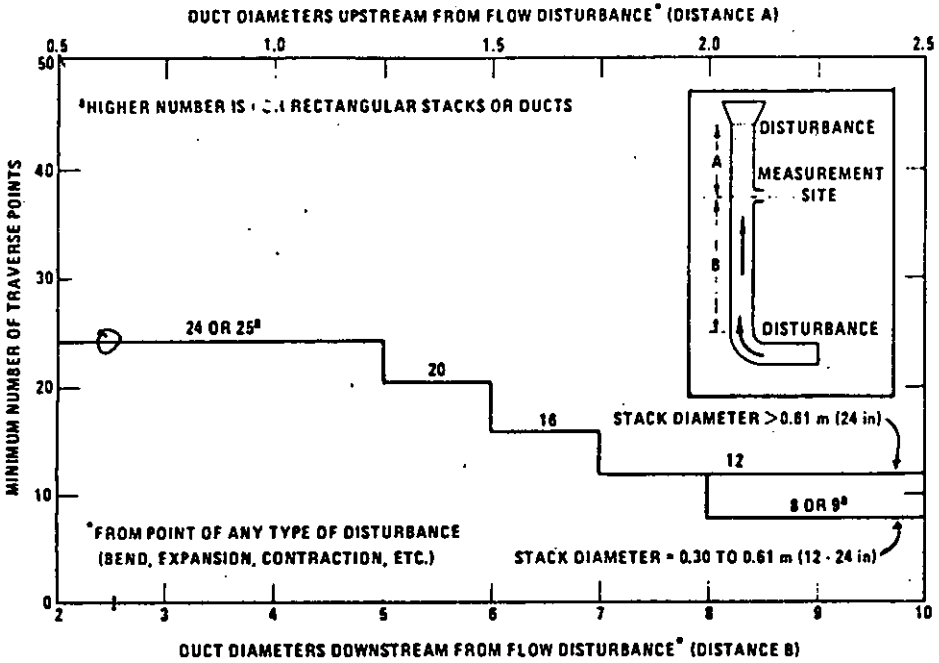
APPENDIX A

FIELD DATA AND 5-MINUTE CEM DATA AVERAGES

SEACOR
RM-1 DATA FORM

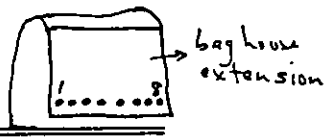
Plant	L-P
Location	OROVILLE, CA
Test Location	CARTER/DAY # 1
Operator	IF/KAM
Date	6/8/94

Stack Dia. (in.)	Effective = 39.7 (W = 96, L = 25)
Port Dia. (in.)	3
Port Depth (in.)	—
Upstream (A in.)	0.50
Downstream (B in.)	2.5



Traverse point number on a diameter	Number of traverse points on a diameter— 2	4	6	8	10	12	14	16	18	20	22	24
1	14.6	6.7	4.4	3.2	2.6	2.1	1.8	1.6	1.4	1.3	1.1	1.1
2	85.4	25.0	14.6	10.5	8.2	6.7	5.7	4.9	4.4	3.9	3.5	3.2
3		75.0	29.6	19.4	14.6	11.8	9.9	8.5	7.5	6.7	6.0	5.5
4		93.3	70.4	32.3	22.6	17.7	14.6	12.5	10.9	9.7	8.7	7.9
5			85.4	67.7	34.2	25.0	20.1	16.9	14.6	12.9	11.6	10.5
6			95.6	80.6	65.8	35.6	26.9	22.0	18.6	16.5	14.6	13.2
7				89.5	77.4	64.4	36.6	28.3	23.6	20.4	18.0	16.1
8				96.8	85.4	75.0	63.4	37.5	29.6	25.0	21.8	19.4
9					91.8	82.3	73.1	62.5	38.2	30.6	26.2	23.0
10					97.4	88.2	79.9	71.7	61.8	38.8	31.5	27.2
11						93.3	85.4	78.0	70.4	61.2	39.3	32.3
12						97.9	90.1	83.1	76.4	69.4	60.7	39.8
13							94.3	87.5	81.2	75.0	68.5	60.2
14							98.2	91.5	85.4	79.6	73.8	67.7
15								95.1	89.1	83.5	78.2	72.6
16								98.4	92.5	87.1	82.0	77.0
17									95.6	90.3	85.4	80.6
18									98.6	93.3	88.4	83.9
19										96.1	91.3	86.6
20										98.7	94.0	89.5
21											96.5	92.1
22											98.9	94.5
23												96.8
24												98.9

8 ports x 3 points 1-8 ports, left to right respectively



Point No.	Dist. From Wall (in.)	Dist. With Port (in.)
3	4.2	NA
2	12.5	
1	20.8	

Point No.	Dist. From Wall (in.)	Dist. With Port (in.)

SEACOR
RM-5 & 17 FIELD DATA

Plant	L-P	Meter dH@		Nozzle I.D.& Dia. (in.)	~~0.4607~~ .2728
Location	Oroville, CA	K Factor	~~56.222~~ 6.8761 (6.657)	Filter No.	LP-10
Test Location	Carter/Day #1	Pitot Coefficient (Cp)	0.84	Probe & Filter Temp. (F)	248 ± 25
Operator	JM / K	Ambient Temp.	70°	Leak Check Vacuum (Hg")	15
Date	6/9/94	Barometric Pres. (Bp)	29.82	Leak Rate (cfm)	0.006
Run No.	CD1-P1	Assumed H2O %	<1	Static Pres. (H2O")	-0.225
Control Box No.	2	Probe I.D.	3' RM5	Test Time	10:13 - 11:46

Moisture

Imp	Initial	Final
1	100	104
2	100	109
3	—	
4	300g	312
Net Gain		25

Nozzle Cal.: 0.273 ~~0.459~~, 0.273 ~~0.462~~, 0.2725 ~~0.462~~ ⇒ ~~0.4607~~ 0.2728 (#6)

PORT I.D.	POINT NO.	SAMPLE TIME	dP (H20")	dH (H20")	DGM TEMP. (F) Inlet	DGM TEMP. (F) Outlet	STACK TEMP (F)	SAMPLE VOL (ft3)	PROBE TEMP (F)	FILTER TEMP (F)	IMP. OUT. (F)	VACUUM (Hg")
8	1	0	0.13	0.89	84	82	103	371.400	242	243	074	~~5~~ 3
8	2	3	0.13	0.89	84	82	104	372.99	239	241	68	3
8	3	6	0.47	3.23	84	82	104	374.59	235	246	63	8
7	1	9	0.25	1.66	87	83	104	376.915	235	245	70	3.5
7	2	12	0.28	1.86	87	83	104	378.83	232	245	68	3.5
7	3	15	0.52	3.46	90	85	104	380.20	231	244	67	8.5
6	1	18	0.24	1.60	91	86	106	383.035	234	245	69	4
6	2	21	0.39	2.60	92	86	107	384.90	230	243	62	6
6	3	24	0.58	3.86	94	87	107	387.39	228	245	61	10
5	1	27	0.25	1.66	94	87	106	390.270	230	247	65	4
5	2	30	0.48	3.20	95	88	107	392.070	230	244	63	8
5	3	33	0.58	3.86	96	88	108	394.62	227	244	61	10
4	1	36	0.28	1.86	95	89	108	397.750	228	243	66	5
4	2	39	0.42	2.80	96	89	108	399.90	228	246	63	7
4	3	42	0.55	3.66	97	89	108	402.49	225	244	62	9
1	1	45	0.21	1.40	95	89	107	405.495	235	245	70	3.5
1	2	48	0.29	1.93	95	90	109	407.25	235	245	64	4
1	3	51	0.49	3.26	96	90	110	409.00	235	244	63	8
2	1	54	0.18	1.20	96	91	109	411.557	236	246	69	3
2	2	57	0.32	2.13	97	91	110	413.30	235	243	67	5
2	3	60	0.52	3.46	98	93	109	415.30	234	246	66	8
3	1	63	0.23	1.53	97	92	109	417.905	236	246	72	3
3	2	66	0.37	2.46	98	92	111	419.45	235	244	71	5
3	3	~~70~~ 69	0.58	3.86	99	93	110	422.20	231	244	69	9
		72						425.690				
average			0.5901	2.43			90.5	107.2	54.190			

SEACOR
RM-5 & 17 FIELD DATA

Plant	LP	Meter dH@	—	Nozzle I.D.& Dia. (in.)	0.2728
Location	Oroville	K Factor	0.6295	Filter No.	LP-11
Test Location	Carter Day #1	Pitot Coefficient (Cp)	0.84	Probe & Filter Temp. (F)	250 ± 25°
Operator	BD	Ambient Temp.	90°F	Leak Check Vacuum (Hg")	12.2/21
Date	6/9/94	Barometric Prcs. (Bp)	29.76	Leak Rate (cfm)	.002/.001
Run No.	CD1-P2	Assumed H2O %	1.0	Static Prcs. (H2O")	-0.25
Control Box No.	2	Probe I.D.	3'SS	Test Time	14:01 — 15:53

Moisture

Imp	Initial	Final
1	100	102
2	100	106
3		
4	300	311.6
	Net Gain	19.6

PORT I.D.	POINT NO.	SAMPLE TIME	dP (H2O")	dH (H2O")	DGM TEMP. (F) Inlet	DGM TEMP. (F) Outlet	STACK TEMP (F)	SAMPLE VOL (ft3)	PROBE TEMP (F)	FILTER TEMP (F)	IMP. OUT. (F)	VACUUM (Hg")
8	1	0	0.155	1.03	99	99	115	425.782	246	247	80	5.4
	2	3	0.25	1.66	99	99	117	427.31	244	245	70	8.5
	3	6	0.47	3.12	99	99	118	429.24	241	244	66	18.0
7	1	9	0.22	1.46	102	100	115	431.885	244	243	78	7.2
	2	12	0.32	2.12	103	101	116	433.89	243	244	71	7.2
	3	15	0.49	3.25	103	100	116	436.010	240	245	68	17.8
6	1	18	0.29	1.92	104	101	115	438.83	244	245	77	8.8
	2	21	0.48	3.18	104	101	116	441.00	242	243	74	15.4
	3	24	0.56	3.71	105	102	117	443.79	239	245	77	19.8
5	1	27	0.32	2.12	105	107	116	446.61	240	246	76	10.8
	2	30	0.49	3.25	104	102	116	448.90	238	242	72	19.5
	3	33	0.56	3.71	105	102	117	451.69	238	248	72	19.7
4	1	36	0.35	2.32	105	102	116	454.51	242	242	77	12.4
	2	39	0.49	3.25	105	103	117	456.98	240	247	73	19.2
	3	42	0.54	3.58	106	103	118	459.70	240	248	72	19.5
1	1	45	0.19	1.26	105	103	116	462.55	243	246	78	6.1
	2	48	0.37	2.45	105	103	116	464.525	245	246	75	12.5
	3	51	0.50	3.31	106	104	117	466.90	244	246	73	19.2
2	1	54	0.19	1.26	106	104	118	469.74	243	246	78	6.8
	2	57	0.31	2.06	107	104	119	471.64	244	244	78	10.0
	3	60	0.46	3.05	108	104	119	473.81	241	247	76	17.2
3	1	63	0.25	1.66	108	105	120	476.50	244	246	81	8.0
	2	66	0.43	2.85	108	105	120	478.63	244	245	79	16.2
	3	69	0.52	3.45	108	105	119	481.19	242	244	77	
		72						484.027				
		average	0.6097	2.5429		103.5	117.2	58.245				

CD1-P3

SEACOR
RM-5 & 17 FIELD DATA

Plant	LP	Meter dH@		Nozzle I.D.& Dia. (in.)	0.2728
Location	OROVILLE, CA	K Factor	~~6.6295~~ 6.8761 / .675	Filter No.	LP-12
Test Location	CD #1 BGHSE	Pitot Coefficient (Cp)	0.84	Probe & Filter Temp. (F)	250±25
Operator	[illegible]	Ambient Temp.	~~[illegible]~~ 85	Leak Check Vacuum (Hg")	15 / 22
Date	6/30/94	Barometric Pres. (Bp)	~~[illegible]~~ 29.71	Leak Rate (cfm)	.002 / .008
Run No.	CD1-P3	Assumed H2O %	1.0	Static Pres. (H2O")	-0.15
Control Box No.	2	Probe I.D.	3' SS	Test Time	~~[illegible]~~: 08:47 - 11:20

Moisture

Imp	Initial	Final
1	100	140
2	100	
3	–	
4	300	305.3
Net Gain		1.3

0830 SANDER DOWN: WAITING

SANDER DOWN 0902 ↓ 0940

PORT I.D.	POINT NO.	SAMPLE TIME	dP (H20")	dH (H20")	DGM TEMP. (F) Inlet	DGM TEMP. (F) Outlet	STACK TEMP (F)	SAMPLE VOL (ft3)	PROBE TEMP (F)	FILTER TEMP (F)	IMP. OUT. (F)	VACUUM (Hg")
5	1	0	0.28	1.92	85	83	101	484.358	252	252	63	17
	2	3	0.51	3.5	86	84	101	486.42	251	251	60	21
	3	6	0.62	4.2	86	84	102	488.6	252	251	54	21
4	1	9	0.32	2.2	89	86	102		252	250	54	21
	2	12	0.54	3.7	89	86	102	493.3	252	257	54	21
	3	15	0.57	3.92	89	88	105	496.510 ~~496.773~~	251	250	65	4
3	1	18	0.34	2.34	90	88	106	499.765	252	252	62	3
	2	21	0.45	3.09	93	89	106	502.16	251	259	58	3.5
	3	24	0.62	4.2	95	89	105	504.90	251	255	59	4
2	1	27	0.20	1.38	96	90	105	508.046	251	252	63	3
	2	30	0.33	2.27	97	90	106	510.26	252	253	63	3
	3	33	0.59	4.06	99	90	107	512.4	249	252	62	4
1	1	36	0.22	1.51	98	92	106	515.397	252	253	67	2
	2	39	0.32	2.2	99	92	106	517.3	250	252	65	3
	3	42	0.65	4.39	101	92	105	519.65	250	252	64	5
6	1	45	0.28	1.93	96	94	105	522.72	252	252	60	2
	2	48	0.50	3.38	97	94	107	524.9	252	251	60	2
	3	51	0.65	4.39	99	94	107		251	252	59	5
7	1	54	0.22	1.49	99	95	107	530.746	251	252	59	2
	2	57	0.34	2.34	100	95	108	532.66	252	253	62	3
	3	60	0.60	4.05	101	95	108	535.03	251	252	61	4
8	1	63	0.15	1.01	101	96	108	538.044	252	253	64	2
	2	66	0.30	2.02	101	95	108	539.77	253	251	64	2.5
	3	69	0.56	3.78	103	96	108	542.2	252	252	63	4
		72						544.913				
		average	0.6380	2.89		96.5	105.5	60.298				

STILL CALL IN SAME OUT.

SEACOR
RM-5 & 17 FIELD DATA

$A_s = 16.7$ ft

Plant LP	Meter dH@ 1.9107	Nozzle I.D.& Dia. (in.) 0.2358	
Location OROVILLE, CA	K Factor ~~[illegible]~~ 3.4728 (3.362)	Filter No. NA	
Test Location CARTER/DAY # 1	Pitot Coefficient (Cp) 0.84	Probe & Filter Temp. (F) NA	
Operator I. Falbona	Ambient Temp. ≈ 70°	Leak Check Vacuum (Hg") 12 / 10.0	
Date 6/8/94	Barometric Pres. (Bp) 29.82	Leak Rate (cfm) .004 / 0.004	
Run No. CD1-F1	Assumed H2O % <1	Static Pres. (H2O") - 0.225	
Control Box No. 3	Probe I.D. 5' TFE	Test Time 1013 — 1205	

Moisture

Imp	Initial	Final
1	100	↓
2	100	↓
3	—	200
4	300g	316.0
Net Gain		16g

NOZZLE CAL: 0.236 ~~0.485~~ ; 0.237 ~~0.484~~ ; 0.2345 ~~[illegible]~~ ⇒ ~~0.7847~~ (#16) 0.2358 (#8)

36
.7
4.5
17.8
6.657

PORT I.D.	POINT NO.	SAMPLE TIME	dP (H2O")	dH (H2O")	DGM TEMP. (F) Inlet	DGM TEMP. (F) Outlet	STACK TEMP (F)	SAMPLE VOL (ft3)	PROBE TEMP (F)	FILTER TEMP (F)	IMP. OUT. (F)	VACUUM (Hg")
5	1	0	0.34	1.18	85	83	106	234.500	NA	NA		6
	2	3	0.51	1.77	85	83	107	236.24			66	8
	3	6	0.59	2.05	86	83	107	238.16			63	9.2
4	1	9	0.42	1.41	87	84	105	240.374			68	7.0
	2	12	0.495	1.66	88	85	106	242.25			70	7.6
	3	15	0.585	1.97	89	85	108	244.22			68	9.0
3	1	18	0.42	1.41	89	86	108	246.385			68	7.0
	2	21	0.43	1.45	91	86	109	248.27			68	7.2
	3	24	0.555	1.87	92	87	110	250.14			67	8.4
2	1	27	0.260	0.87	92	88	109	252.203			67	4.5
	2	30	.32	1.11	92	88	109	254.3			67	5.0
	3	33	.5	1.79	92	88	111	257.13			67	5.0
1	1	36	.2	.67	91	89	110	[illegible]			68	5.0
	2	39	.29	.97	93	89	111	258.32			68	4.0
	3	42	.60	2.02	94	93	112	260.41			67	4.0
6	1	45	.26	.87	92	91	111	262.175			69	4.0
	2	48 ~~50~~ 53	.42	1.41	93	92	112	263.81			68	4.0
	3	51 ~~55~~ 56	.63	2.12	94	91	114	265.3			67	5.0
7	1	54 ~~[illegible]~~	.22	.74	94	92	113	267.65			67	4.0
	2	57 ~~[illegible]~~	.29	.97	95	91	114	269.18			66	5.0
	3	60 ~~[illegible]~~	.58	1.95	95	93	114	271.01			67	7.0
8	1	63 ~~[illegible]~~	.20	.67	94	93	110	273.12			68	4.0
	2	66 ~~[illegible]~~	.24	.81	93	92	113	274.10			67	4.0
	3	69 ~~[illegible]~~	.54	1.82	96	93	114	275.81			68	10.0
		72 ~~[illegible]~~						~~[illegible]~~				
	average		0.6318	1.40		89.9	110.08	~~[illegible]~~ 277.880				

43.380

SEACOR
RM-5 & 17 FIELD DATA

Plant	LP	Meter dH@	Y_d = 0.9911	Nozzle I.D.& Dia. (in.)	0.2358
Location	OROVILLE CA	K Factor	3.348	Filter No.	NA
Test Location	CARTER/DAY # 1	Pitot Coefficient (Cp)	0.84	Probe & Filter Temp. (F)	NA
Operator	IF/JM	Ambient Temp.	95	Leak Check Vacuum (Hg")	11/8
Date	6/9/94	Barometric Pres. (Bp)	29.76	Leak Rate (cfm)	.006/.009
Run No.	CD1-F2	Assumed H2O %	1	Static Pres. (H2O")	-0.15
Control Box No.	3	Probe I.D.	5' TFE	Test Time	1404 — 1640

Moisture

Imp	Initial	Final
1	100	↓
2	100	↓
3	—	194
4	300g	312.5
Net Gain		

	PORT I.D.	POINT NO.	SAMPLE TIME	dP (H20")	dH (H20")	DGM TEMP. (F) Inlet	DGM TEMP. (F) Outlet	STACK TEMP (F)	SAMPLE VOL (ft3)	PROBE TEMP (F)	FILTER TEMP (F)	IMP. OUT. (F)	VACUUM (Hg")
	5	1	0	0.31	1.04	99	98	121	278.143	NA	NA	72	4.2
		2	3	0.485	1.62	100	99	121	279.92			66	6.0
		3	6	0.59	1.98	100	98	122	281.79			66	7.4
process down @ 1414 resumed @ 1438	4	1	9	0.52	1.74	102	101	119	284			68	6.4
		2	12	0.55	1.84	102	101	120	286.07			68	7.0
		3	15	0.36	1.21	103	102	120	288.2			66	5.0
	3	1	18	0.37	1.24	103	102	119	290.17			68	5.0
		2	21	0.38	1.27	104	103	120	291.83			69	5.0
		3	24	0.56	1.87	105	103	121	293.62			69	7.0
	2	1	27	0.23	0.77	105	90	119	295.69			68	3.4
		2	30	0.295	0.99	106	104	120	297.15			66	4.4
		3	33	0.52	1.74	107	105	121	298.77			65	6.4
	1	1	36	0.19	0.64	107	106	120	300.8			68	3.0
		2	39	0.31	1.04	107	106	121	302.18			67	4.0
		3	42	0.53	1.77	108	107	123	303.77			66	6.4
	6	1	45	0.41	1.37	110	110	123	305.76			70	5.0
		2	48	0.475	1.59	110	110	123	307.59			68	6.0
		3	51	0.58	1.94	110	110	124	309.58			66	7.0
	7	1	54	0.21	0.70	111	111	123	311.7			67	3.0
		2	57	0.32	1.07	111	111	124	313.1			67	4.0
		3	60	0.54	1.81	112	112	124	314.71			68	6.4
process down @ 1555 back up @ 16:20	8	1	63	.185	0.62	112	114	118	316.79				2.8
		2	66	.315	1.05	111	113	118	318.1			70	4.0
		3	69	0.53	1.77	111	113	119	319.72			66	6.2
			72						321.762				
		average		0.6288	1.3617		105.94	120.96	43.619				

SEACOR
RM-5 & 17 FIELD DATA

Plant	L-P	Meter dH@	1.9107	Nozzle I.D.& Dia. (in.)	#8
Location	Oroville CA	K Factor	~~3.348~~ 3.47 (3.41)	Filter No.	—
Test Location	Carter Day #1	Pitot Coefficient (Cp)	0.84	Probe & Filter Temp. (F)	Ambient
Operator	JM & JF	Ambient Temp.	~~89~~ 88	Leak Check Vacuum (Hg")	~~[illegible]~~ 10
Date	~~6/9/94~~ 6/10/94	Barometric Pres. (Bp)	29.71	Leak Rate (cfm)	~~[illegible]~~ 0.02
Run No.	~~[illegible]~~ CD1-F3	Assumed H2O %	1.0	Static Pres. (H2O")	-0.21
Control Box No.	3	Probe I.D.	5' TFE	Test Time	8:40 - 11:15

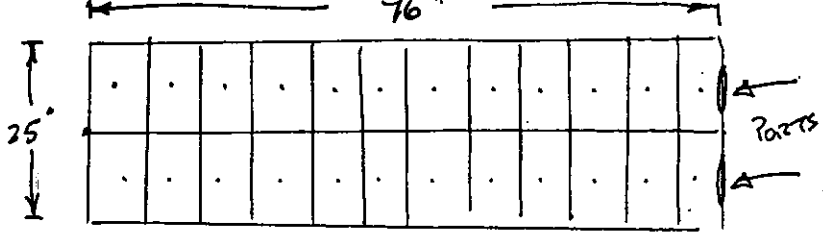
Moisture

Imp	Initial	Final
1	100	↓
2	100	↓
3	—	202
4	100	310.7
Net Gain		12.7

K = 3.47

K = 3.41

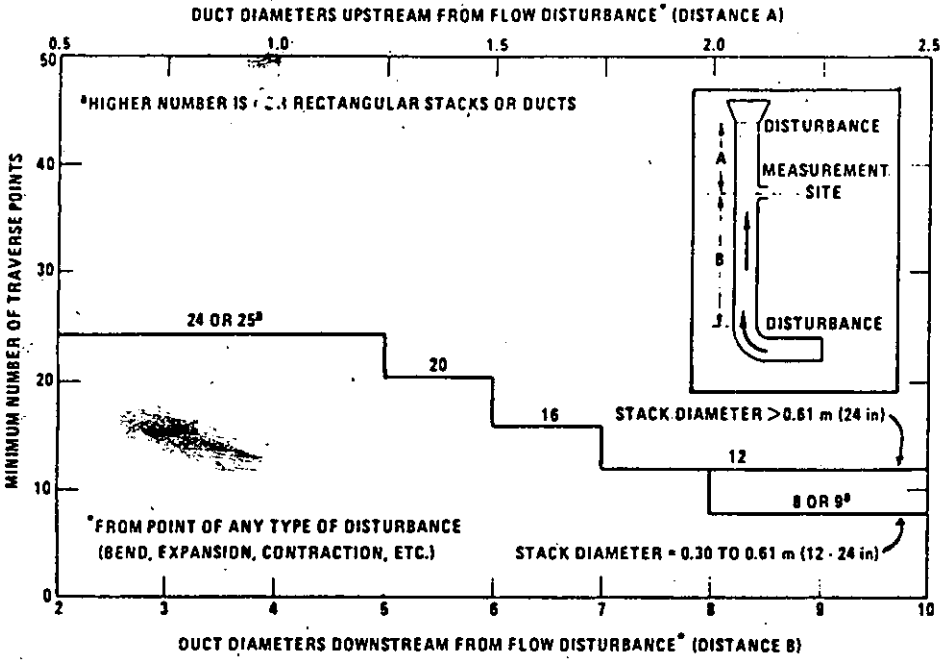
PORT I.D.	POINT NO.	SAMPLE TIME	dP (H20") 0.15	dH (H20") 0.52	DGM TEMP. (F) Inlet	DGM TEMP. (F) Outlet	STACK TEMP (F)	SAMPLE VOL (ft3)	PROBE TEMP (F)	FILTER TEMP (F)	IMP. OUT. (F)	VACUUM (Hg")
8	1	0	~~[illegible]~~ ↓	~~[illegible]~~ ↓	86	86	~~[illegible]~~ 105	322.095			77	3
	2	3	0.30	1.04	87	86	104	323.10			63	5
	3	6	0.56	1.94	88	87	105	324.60			58	5.5
7	1	9	0.27	0.94	90	87	105	326.525			66	4
	2	12	0.34	1.18	91	88	105	328.15			60	5
	3	15	0.57	1.98	90	89	108	329.630			84	5.5
6	1	18	0.36	1.25	92	90	108	331.420			70	5
	2	21	0.50	1.74	93	90	109	333.12			61	5
	3	24	0.62	2.15	95	91	109	335.02			61	7.5
5	1	27	0.41	1.42	95	91	108	337.14			68	5.5
	2	30	0.50	1.74	96	91	110	339.00			63	6
	3	33	0.62	2.15	97	91	110	340.86			63	8
4	1	36	0.35	1.21	97	92	110	342.910			70	5
	2	39	0.51	1.77	98	93	109	344.67			65	7
	3	42	0.68	2.32	100	94	108	346.55			64	8
1	1	45	0.28	0.95	98	95	108	348.98			77	4
	2	48	0.20	0.69	99	95	109	350.25			68	3
	3	51	0.65	2.22	99	95	109	351.52			65	8
2	1	54	0.26	0.89	100	96	108	353.72			71	4
	2	57	0.27	0.92	101	96	109	355.39			68	4
	3	60	0.44	1.50	101	96	110	356.89			68	6
3	1	63	0.37	1.26	101	97	109	358.65			68	5
	2	66	0.45	1.53	102	98	110	360.35			64	6
	3	69	0.57	1.94	103	98	111	362.21			63	7
		72						364.485				
		average	0.6415	1.4475		93.98	108.17	42.390				



SEACOR
RM-1 DATA FORM

Plant	LOUISIANA PACIFIC
Location	OROVILLE, CA
Test Location	C/D #2 BAG HOUSE
Operator	Kam
Date	6/10/94

Stack Dia. (in.)	25"X 96"
Port Dia. (in.)	3"
Port Depth (in.)	—
Upstream (A in.)	
Downstream (B in.)	



Traverse point number on a diameter	Number of traverse points on a diameter— 2	4	6	8	10	12	14	16	18	20	22	24
1	14.6	6.7	4.4	3.2	2.6	2.1	1.8	1.6	1.4	1.3	1.1	1.1
2	85.4	25.0	14.6	10.5	8.2	6.7	5.7	4.9	4.4	3.9	3.5	3.2
3		75.0	29.6	19.4	14.6	11.8	9.9	8.5	7.5	6.7	6.0	5.5
4		93.3	70.4	32.3	22.6	17.7	14.6	12.5	10.9	9.7	8.7	7.9
5			85.4	67.7	34.2	25.0	20.1	16.9	14.6	12.9	11.6	10.5
6			95.6	80.6	65.8	35.6	26.9	22.0	18.8	16.5	14.6	13.2
7				89.5	77.4	64.4	36.6	28.3	23.6	20.4	18.0	16.1
8				96.8	85.4	75.0	63.4	37.5	29.6	25.0	21.8	19.4
9					91.8	82.3	73.1	62.5	38.2	30.6	26.2	23.0
10					97.4	88.2	79.9	71.7	61.8	38.8	31.5	27.2
11						93.3	85.4	78.0	70.4	61.2	39.3	32.3
12						97.9	90.1	83.1	76.4	69.4	60.7	39.8
13							94.3	87.5	81.2	75.0	68.5	60.2
14							98.2	91.5	85.4	79.6	73.8	67.7
15								95.1	89.1	83.5	78.2	72.8
16								98.4	92.5	87.1	82.0	77.0
17									95.6	90.3	85.4	80.6
18									98.6	93.3	88.4	83.9
19										96.1	91.3	86.8
20										98.7	94.0	89.5
21											96.5	92.1
22											98.9	94.5
23												96.8
24												98.9

Point No.	Dist. From Wall (in.)	Dist. With Port (in.)
1	4	
2	12	
3	20	
4	28	
5	36	
6	44	

Point No.	Dist. From Wall (in.)	Dist. With Port (in.)
7	52	
8	60	
9	68	
10	76	
11	84	
12	92	

SEACOR
RM-5 & 17 FIELD DATA

Plant	L-P	Meter dH@	—	Nozzle I.D.& Dia. (in.)	.337
Location	ORONILLE, CA	K Factor	14.2326	Filter No.	LP.4
Test Location	CID #2	Pitot Coefficient (Cp)	0.84	Probe & Filter Temp. (F)	250 ±25
Operator	Kam	Ambient Temp.	106-112	Leak Check Vacuum (Hg")	12/20
Date	6/10/04	Barometric Pres. (Bp)	29.68	Leak Rate (cfm)	0.006/0.009
Run No.	CD2-P1	Assumed H2O %	1.0	Static Pres. (H2O")	+0.05
Control Box No.	3	Probe I.D.	9' T	Test Time	16:36 - 17:40

Moisture

Imp	Initial	Final
1	100	204
2	100	
3	—	
4	300	307.7
Net Gain		11.7

PORT I.D.	POINT NO.	SAMPLE TIME	dP (H20")	dH (H20")	DGM TEMP. (F) Inlet	DGM TEMP. (F) Outlet	STACK TEMP (F)	SAMPLE VOL (ft3)	PROBE TEMP (F)	FILTER TEMP (F)	IMP. OUT. (F)	VACUUM (Hg")
1	1	0	0.13	~~[illegible]~~ 1.85	115	116	123	365.577	252	251	57	11
	2	2.5	0.12	1.71	114	116	123	367.6	252	252	57	11
	3	5	0.10	1.42	113	115	122	369.15	251	253	59	7
	4	7.5	0.10	1.42	112	114	122	370.76	250	254	59	7
	5	10	0.12	1.71	112	114	123	372.33	251	252	59	7
	6	12.5	0.17	2.42	111	114	123	373.9	250	252	61	17
	7	15	0.15	2.13	111	114	124	375	251	251	61	17.5
	8	17.5	0.15	2.13	111	114	124	377.6	250	252	61	17.5
	9	20	0.12	1.71	112	114	125	379.48	252	252	63	13
	10	22.5	0.085	1.21	112	114	124	381.22	252	251	64	8.5
	11	25	0.07	1.0	112	114	124	382.	250	249	65	7
	12	27.5	0.07	1.0	112	114	124	384.14	252	252	65	7
2	1	30	0.14	1.99	113	114	125	385.492	252	252	65	18
	2	32.5	0.135	1.92	113	114	126	387.25	251	250	66	18
	3	35	0.14	1.99	112	114	125	389	252	252	66	18
	4	37.5	0.19	2.70	113	114	128	390.76	251	250	66	19
	5	40	0.19	2.70	113	114	128	392.52	251	248	65	19
	6	42.5	0.15	2.13	113	114	128	394.37	251	248	66	18
	7	45	0.15	2.13	112	114	128	396.04	250	251	66	18
	8	47.5	0.15	2.13	112	114	128	397.80	251	252	66	18
	9	50	0.14	1.99	112	114	128	399.6	252	252	66	18
	10	52.5	0.135	1.92	112	114	127	401.29	251	250	66	18
	11	55	0.14	1.99	112	114	127	403.04	251	250	66	18
	12	57.5	0.14	1.99	112	114	127	404.72	251	250		
		60						406.39				
		average	0.3616	1.89		113.3	125.3	40.821				

PROCESS DOWN @ 11.1 ST (16:47) UP @ 16:55

SEACOR

RM-5 & 17 FIELD DATA

$A_s = 25/12 \times 8' = 16.7\ ft^2$

Plant LP	Meter dH@ Box 3	Nozzle I.D.& Dia. (in.) .272	
Location OROVILLE CA	K Factor 6.09	Filter No. LP. 8	
Test Location CD #2 BAG HOUSE	Pitot Coefficient (Cp) .84	Probe & Filter Temp. (F) 250 ± 25	
Operator Kam	Ambient Temp. 90	Leak Check Vacuum (Hg") 15/7	
Date 6/11/94	Barometric Pres. (Bp) 29.70	Leak Rate (cfm) 0.006 / .015	
Run No. CD2-P2	Assumed H2O % 1	Static Pres. (H2O") +0.05	
Control Box No. 3	Probe I.D. 9T	Test Time 0821 - 0922	

Moisture

Imp	Initial	Final
1	100	100
2	100	104.8
3	—	
4	300	306.4
Net Gain		10.9

PORT I.D.	POINT NO.	SAMPLE TIME	dP (H2O") .3838	dH (H2O")	DGM TEMP. (F) Inlet	DGM TEMP. (F) Outlet	STACK TEMP (F)	SAMPLE VOL (ft3)	PROBE TEMP (F)	FILTER TEMP (F)	IMP. OUT. (F)	VACUUM (Hg")
1	1	0	0.18	1.10	84	83	103	406.720	238	246	65	3.5
	2	2.5	0.165	1.00	84	83	103	408.10	252	254	61	3.0
	3	5	0.20	1.22	84	83	103	409.47	252	254	60	4.0
	4		0.215	1.31	85	83	102	410.9	251	253	59	3.0
	5	10	0.23	1.40	85	83	102	412.40	251	253	59	4.0
	6		0.23	1.40	86	83	101	414.0	252	252	59	4.0
	7	15	0.21	1.28	87	84	101	415.57	252	252	59	4.0
	8		0.21	1.28	87	84	101	417.02	252	251	59	4.0
	9	20	0.186	1.22	87	84	102	418.51	252	252	60	4.0
	10		0.180	1.10	87	84	102	420.0	252	252	60	3.0
	11	25	0.180	1.10	89	85	103	421.4	251	253	60	3.0
	12		0.180	1.10	89	85	104	422.77	251	251	60	3.0
2	1	30	0.20	1.22	87	84	103	424.145	252	254	63	4.0
	2		0.10	0.61	88	85	104	425.65	252	251	63	2.0
	3	35	0.11	0.67	88	85	104	426.77	252	252	64	2.5
	4		0.13	0.79	89	85	103	427.85	252	252	64	3.0
	5	40	0.18	1.10	89	85	103	429.0	252	252	64	3.5
	6		0.21	1.28	90	86	103	430.4	252	252	64	4.0
	7	45	0.20	1.22	91	86	103	431.7	251	252	64	4.0
	8		0.16	0.97	91	86	102	433.35	251	252	64	3.0
	9	50	0.14	0.85	91	86	103	434.73	252	252	64	3.0
	10		0.09	0.55	91	87	102	436.0	252	252	64	2.0
	11	55	0.08	0.49	91	87	102	437.07	252	252	64	2.0
	12		0.09	0.55	91	87	102	438.1	252	252	65	2.0
		60						439.075				
		average	.4089	1.03		86.3	102.6	32.355				

SEACOR
RM-5 & 17 FIELD DATA

Plant	LP	Meter dH@	—	Nozzle I.D.& Dia. (in.)	0.272
Location	Oroville Ca	K Factor	6.04	Filter No.	LP-9
Test Location	C/D #2	Pitot Coefficient (Cp)	0.84	Probe & Filter Temp. (F)	250 ± 25
Operator	BD	Ambient Temp.	89	Leak Check Vacuum (Hg")	0.003 @ 11 psi
Date	6/11/94	Barometric Pres. (Bp)	29.70	Leak Rate (cfm)	0.001 @ 7 psi
Run No.	CD2-P3	Assumed H2O %	1	Static Pres. (H2O")	+0.05
Control Box No.	3	Probe I.D.	9T	Test Time	11:55 - 14:58

Moisture

Imp	Initial	Final
1	100	
2	100	203
3		
4	300	9.9
Net Gain		12.9

PORT I.D.	POINT NO.	SAMPLE TIME	dP (H20")	dH (H20")	DGM TEMP. (F) Inlet	DGM TEMP. (F) Outlet	STACK TEMP (F)	SAMPLE VOL (ft3)	PROBE TEMP (F)	FILTER TEMP (F)	IMP. OUT. (F)	VACUUM (Hg")
1	0	0	0.210	1.27	96	94	~~259~~ 116	440.849	254	~~98~~ 252	93	
	1	25	0.160	0.97	96	94	116	442.15	255	252	88	3.0
	2	5	0.145	0.88	98	95	117	443.49	255	252	85	3.9
	3		0.17	1.03	98	95	118	444.76	255	252	83	4.1
	4	10	0.23	1.39	99	96	118	446.06	255	252	82	4.0
	5		0.23	1.39	101	97	117	447.67	255	252	83	5.1
	6	15	0.17	1.03	101	97	117	449.08	256	252	85	4.0
	7		0.15	0.91	102	97	119	450.43	255	252	87	3.9
	8	20	0.13	0.79	102	98	119	451.70	255	252	88	3.4
	9		0.09	0.54	103	99	120	452.90	256	252	89	2.8
	10	25	0.09	0.54	103	99	120	453.94	256	252	89	2.8
	11		0.12	0.72	104	99	120	454.93	256	252	89	3.2
	12	30			~~103~~	~~99~~	~~119~~	~~455.436.95~~	~~256~~	~~253~~	~~90~~	
2	1	30	0.26	1.57	104	100	118	456.035	255	255	92	5.8
	2	~~35~~	0.23	1.39	104	100	118	457.51	255	254	90	4.0
	3	~~40~~ 35	0.21	1.27	105	100	119	459.07	252	252	89	5.0
	4	~~40~~	0.22	1.33	105	101	120	460.56	256	250	89	5.1
	5	~~45~~ 40	0.23	1.39	106	101	120	462.05	255	251	92	5.2
	6	~~45~~	0.25	1.51	107	102	119	463.50	255	251	95	5.8
	7	~~50~~ 45	0.22	1.33	107	102	119	465.17	256	253	97	5.3
	8	~~50~~	0.21	1.27	107	102	118	466.70	256	252	99	5.0
	9	~~55~~ 50	0.20	1.20	108	106	119	468.295	254	259	102	4.8
	10	~~55~~	0.22	1.33	107	106	119	469.525	255	251	94	5.1
	11	~~60~~ 55	0.20	1.20	108	107	119	471.02	255	247	89	4.9
	12	~~60~~	0.22	1.33	108	107	120	472.47	255	251	88	5
		60 average	0.4322	1.15		101.5	118.5	~~474~~ 473.965				

33 116

PROCESS DOWN 1:45 PM

RM 0011

SEACOR
RM-5 & 17 FIELD DATA

Plant	L.P	Meter dH@	—	Nozzle I.D.& Dia. (in.)	.272
Location	OROVILLE, CA	K Factor	~~6.04~~ 5.95	Filter No.	—
Test Location	CD#2	Pitot Coefficient (Cp)	.84	Probe & Filter Temp. (F)	248 ± 25
Operator	Kamy	Ambient Temp.	90	Leak Check Vacuum (Hg")	12/5
Date	6/13/92	Barometric Pres. (Bp)	29.72	Leak Rate (cfm)	<0.02/.008
Run No.	CD2-F1	Assumed H2O %	1.0	Static Pres. (H2O")	+0.06
Control Box No.	3	Probe I.D.	9T	Test Time	14:00 - 1505

Moisture

Imp	Initial	Final
1	100	
2	100	202.0
3	—	
4	300	310.4
	Net Gain	12.4

	PORT I.D.	POINT NO.	SAMPLE TIME	dP (H20")	dH (H20")	DGM TEMP. (F) Inlet	DGM TEMP. (F) Outlet	STACK TEMP (F)	SAMPLE VOL (ft3)	PROBE TEMP (F)	FILTER TEMP (F)	IMP. OUT. (F)	VACUUM (Hg")
INSIDE →	1	1	0	~~0.15~~	~~0.90~~	91	88	113	474.167	252	258	65	3.5
		2	2.5	0.105	0.63	91	89	112		252	257	65	3
		3	5	0.12	0.72	91	89	112	478.25	252	255	65	3
		4	7.5	0.15	0.90	92	89	113	479.38	252	252	67	3.5
		5	10	0.18	1.08	93	89	113	480.56	252	231	65	4.0
		6	12.5	0.19	1.14	93	89	113	481.87	252	247	65	4.0
		7	15	0.165	0.99	94	90	113	483.26	252	252	65	3.5
		8	17.5	0.13	0.78	94	90	112	484.51	252	252	65	3.0
		9	20	0.10	0.60	95	91	112	485.65	252	251	65	2.5
		10	22.5	0.08	0.48	95	91	113	486.73	252	252	65	2
		11	25	0.08	0.48	95	91	113	487.65	252	252	65	2
		12	27.5	0.08	0.48	96	91	113	488.57	253	250	64	2
OUTSIDE	2	1	30	0.12	0.72	95	92	112	489.58	252	250	63	2.5
		2	32.5	0.14	0.84	96	92	113	490.65	252	249	63	3.0
		3	35	0.16	0.96	97	93	113	491.80	252	252	63	3.5
		4	37.5	0.225	1.35	97	93	113	493.12	252	252	63	3.5
		5	40	0.20	1.20	99	94	114		252	251	63	4.0
		6	42.5	0.19	1.14	99	94	114	496.05	252	252	61	4.0
		7	45	0.19	1.14	99	94	114	497.5	252	252	61	4.0
		8	47.5	0.18	1.08	100	95	114	498.9	252	252	61	4.0
		9	50	0.17	1.02	100	95	114	500.28	252	252	61	3.5
		10	52.5	0.16	0.96	100	95	114	501.60	252	252	61	3.5
		11	55	0.16	0.96	100	96	114	502.91	252	252	61	3.5
		12	57.5	0.16	0.96	101	96	114	504.30	252	251	61	3.5
			60						505.53				
		average		0.3828	0.8579	91.9167		113.125	31.356				

O_2 20.9

Co 0.0

SEACOR
RM-5 & 17 FIELD DATA

Plant	L.P.	Meter dH@	—	Nozzle I.D.& Dia. (in.)	0.272
Location	OROVILLE, CA	K Factor	5.98	Filter No.	—
Test Location	C/D #2	Pitot Coefficient (Cp)	0.84	Probe & Filter Temp. (F)	250 ± 25
Operator	B.D.	Ambient Temp.		Leak Check Vacuum (Hg")	12/0.004
Date	6/13/94	Barometric Pres. (Bp)	29.72	Leak Rate (cfm)	12.2 / 0.004
Run No.	CD2-F2	Assumed H2O %	1.0	Static Pres. (H2O")	+0.06
Control Box No.	3	Probe I.D.	9T	Test Time	15:28 - 17:06

Moisture

Imp	Initial	Final
1	100	201
2	100	
3		
4	300	310.0
Net Gain		11.0

PORT I.D.	POINT NO.	SAMPLE TIME	dP (H20")	dH (H20")	DGM TEMP. (F) Inlet	DGM TEMP. (F) Outlet	STACK TEMP (F)	SAMPLE VOL (ft3)	PROBE TEMP (F)	FILTER TEMP (F)	IMP. OUT. (F)	VACUUM (Hg")
1	1	~~2.5~~ 0	0.15	0.9			116	511.433				
	2	~~5.0~~ 2.5	0.15	0.9	97	97	116	~~514.10~~	252	252		
	3	5.0	0.17	1.02	97	97	115	514.10	255	252		
	4	~~10~~ 7.5	0.18	1.08	97	98	115		255	252	91	
	5	10	0.14	0.84	97	98	115	516.75	255	250	85	
	6	~~15~~ 12.5	0.16	0.96	97	98	115	517.90	252	245	83	
	7	15	0.20	1.20	98	98	115	519.27	252	254	80	
	8	~~20~~	0.21	1.26	97	97	114	520.68	253	252	79	
	9	20	0.19	1.14	99	99	115	522.14	252	253	82	
	10	~~25~~	0.19	1.14	99	98	115	523.56	252	252	83	
	11	25	0.17	1.02	99	98	114	524.94	251	252	83	
	12	~~30~~	0.20	1.20	99	99	115	526.27	252	252	85	
2	1	30	0.21	1.26	100	99	115	527.68	252	250	87	
	2	32.5	~~0.27~~ 0.15	~~1.32~~ 0.9	99	99	115	529.14	252	257	82	
	3	35	0.16	0.96	100	100	115	530.33	252	253	83	
	4	37.5	0.18	1.08	99	99	114	531.81	252	251	81	
	5	40	0.16	0.96	99	99	115	533.14	252	250	80	
	6	42.5	0.18	1.08	100	100	116	534.44	252	253	81	
	7	45	0.20	1.20	101	100	116	535.78	252	253	81	
	8	47.5	0.12	0.72	102	101	117	537.19	252	252	82	
	9	50	0.14	0.84	101	100	116	538.37	252	252	83	
	10	52.5	0.08	0.48	100	100	115	539.58	252	251	82	
	11	55	0.10	0.60	100	100	115	540.56	252	252	85	
	12	57.5	0.07	0.42	100	100	115	541.57	252	250	85	
		60						542.47				

process down 15:50 up 16:10

average ~~0.1508~~ 0.3978 0.9650 98.9167 115.1667 31.042

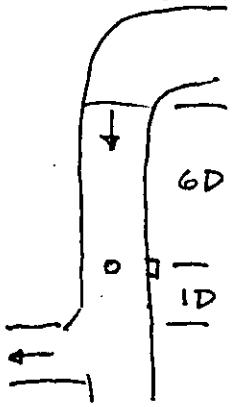
SEACOR
RM-5 & 17 FIELD DATA

Plant	L.P.	Meter dH@	—	Nozzle I.D.& Dia. (in.)	0.272
Location	OROVILLE, CA	K Factor	5.98	Filter No.	—
Test Location	C/D #2	Pitot Coefficient (Cp)	0.84	Probe & Filter Temp. (F)	250 ± 25
Operator	BD	Ambient Temp.	80	Leak Check Vacuum (Hg")	12 / 0.004
Date	6/13/94	Barometric Pres. (Bp)	29.72	Leak Rate (cfm)	7 / <0.002
Run No.	CD2 · F3	Assumed H2O %	1.0	Static Pres. (H2O")	±0.06
Control Box No.	3	Probe I.D.	9T	Test Time	19:05 - 20:09

Moisture

Imp	Initial	Final
1	100	
2	100	201
3		
4	300	306.5
	Net Gain	7.5

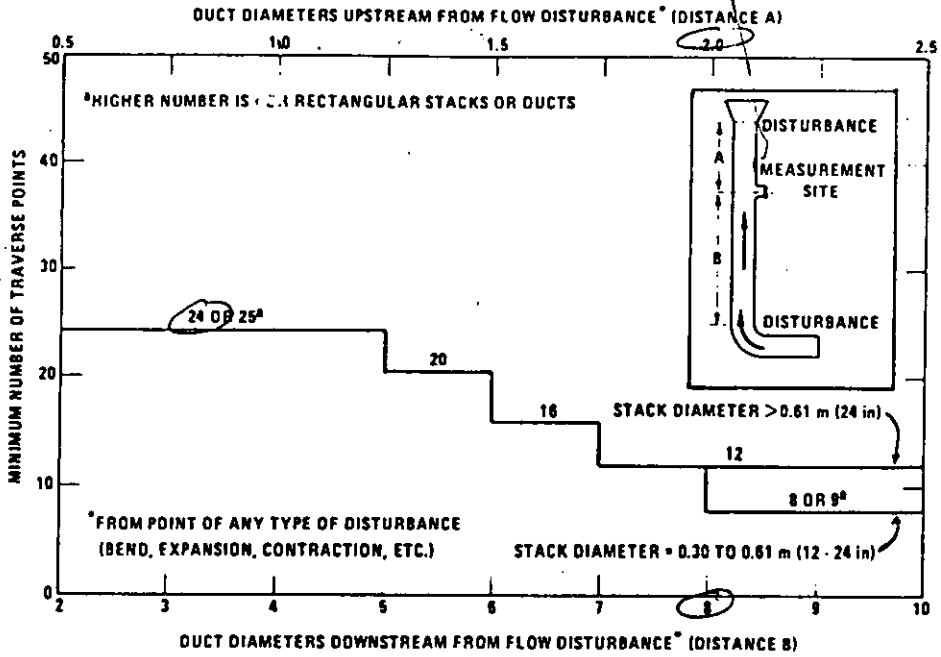
PORT I.D.	POINT NO.	SAMPLE TIME	dP (H20")	dH (H20")	DGM TEMP. (F) Inlet	DGM TEMP. (F) Outlet	STACK TEMP (F)	SAMPLE VOL (ft3)	PROBE TEMP (F)	FILTER TEMP (F)	IMP. OUT. (F)	VACUUM (Hg")
1	1	0	0.22	1.32	88	90	110	542.653	252	254	79	6.0
	2	2.5	0.17	1.02	88	90	109	544.05	252	265	65	4.8
	3	5	0.12	0.72	89	89	109	545.41	252	253	64	3.7
	4	7.5	~~0.900~~ 0.09	0.54	89	89	109	546.57	252	246	68	2.0
	5	10.0	0.11	0.66	89	89	109	547.60	252	251	70	3.3
	6	12.5	0.20	1.20	89	89	107	548.67	252	250	71	5.1
	7	15	0.16	0.96	89	89	108	549.97	252	250	66	4.3
	8		0.12	0.72	89	88	108	551.39	252	251	65	4.6
	9	20	0.11	0.66	89	89	108	552.47	252	252	67	3.3
	10		0.08	0.48	88	88	107	553.56	252	252	68	2.8
	11	25	0.07	0.42	88	88	106	554.53	252	253	69	2.7
	12		0.09	0.54	88	88	107	555.41	252	254	71	3.0
2	1	30	0.20	1.20	87	87	107	556.39	251	262	78	5.1
	2		0.20	1.20	87	87	107	557.76	252	259	69	5.0
	3	35	0.19	1.14	88	87	107	559.15	252	248	67	5.0
	4		0.20	1.20	88	87	107	560.57	252	248	67	5.0
	5	40	0.22	1.32	89	87	108	561.96	252	252	69	5.7
	6		0.23	1.38	89	87	108	563.45	252	254	69	5.9
	7	45	0.21	1.26	89	87	108	564.97	253	253	70	~~5.9~~ 5.6
	8		0.19	1.14	89	87	107	566.44	252	250	72	5.0
	9	50	0.17	1.02	89	87	108	567.85	252	254	74	4.9
	10		0.18	1.08	89	87	107	569.19	252	253	75	5.0
	11	55	0.15	0.90	89	86	107	570.53	252	251	75	4.3
	12		0.16	0.96	89	87	107	571.85	252	251		4.5
		60						573.125				
average			~~0.1600~~ 0.3956	0.9600		87.8750	107.7083	30.472				



SEACOR
RM-1 DATA FORM

Plant	LP
Location	OROVILLE CA
Test Location	C/D #4 BAGHOUSE
Operator	Kam
Date	6/7/94

Stack Dia. (in.)	37.5'
Port Dia. (in.)	3"
Port Depth (in.)	0"
Upstream (A in.)	1D (38")
Downstream (B in.)	6D



Traverse point number on a diameter	Number of traverse points on a diameter— 2	4	6	8	10	12	14	16	18	20	22	24
1	14.6	6.7	4.4	3.2	2.6	2.1	1.8	1.6	1.4	1.3	1.1	1.1
2	85.4	25.0	14.6	10.5	8.2	6.7	5.7	4.9	4.4	3.9	3.5	3.2
3		75.0	29.6	19.4	14.6	11.8	9.9	8.5	7.5	6.7	6.0	5.5
4		93.3	70.4	32.3	22.6	17.7	14.6	12.5	10.9	9.7	8.7	7.9
5			85.4	67.7	34.2	25.0	20.1	16.9	14.6	12.9	11.6	10.5
6			95.6	80.6	65.8	35.6	26.9	22.0	18.8	16.5	14.6	13.2
7				89.5	77.4	64.4	36.6	28.3	23.6	20.4	18.0	16.1
8				96.8	85.4	75.0	63.4	37.5	29.6	25.0	21.8	19.4
9					91.8	82.3	73.1	62.5	38.2	30.6	26.2	23.0
10					97.4	88.2	79.9	71.7	61.8	38.8	31.5	27.2
11						93.3	85.4	78.0	70.4	61.2	39.3	32.3
12						97.9	90.1	83.1	76.4	69.4	60.7	39.8
13							94.3	87.5	81.2	75.0	68.5	60.2
14							98.2	91.5	85.4	79.6	73.8	67.7
15								95.1	89.1	83.5	78.2	72.8
16								98.4	92.5	87.1	82.0	77.0
17									95.6	90.3	85.4	80.6
18									98.6	93.3	88.4	83.9
19										96.1	91.3	86.8
20										98.7	94.0	89.5
21											96.5	92.1
22											98.9	94.5
23												96.8
24												98.9

Point No.	Dist. From Wall (in.)	Dist. With Port (in.)
1	0.79	
2	2.51	
3	4.43	
4	6.64	
5	9.38	
6	13.35	

Point No.	Dist. From Wall (in.)	Dist. With Port (in.)
7	24.15	
8	28.13	
9	30.86	
10	33.08	
11	34.99	
12	36.71	

C/D#4
RM5/202-1

SEACOR
RM-5 & 17 FIELD DATA

Plant L-P	Meter dH@ 1.9107 ~~[illegible]~~ Y_d = .9911	Nozzle I.D.& Dia. (in.) .164	
Location OROVILLE CA	K Factor 0.7587	Filter No. LP-1	
Test Location C/D#4 BGHSE	Pitot Coefficient (Cp) .84	Probe & Filter Temp. (F) 250°F	
Operator Kay	Ambient Temp. 90	Leak Check Vacuum (Hg") 15/11	
Date 6/7/94	Barometric Pres. (Bp) 29.06	Leak Rate (cfm) 0.006/0.003	
Run No. 1 CD4-1P	Assumed H2O % 3.0	Static Pres. (H2O") -14.6	
Control Box No. 3	Probe I.D. 3'SS	Test Time 18:55-19:00	

Moisture

Imp	Initial	Final
1	100	193
2	100	
3	—	
4	300	309.6
Net Gain		2.6

NOZZLE CAL: 0.164 in.; 0.162 in.; 0.166 in. (#6) 0.164

PORT I.D.	POINT NO.	SAMPLE TIME	dP (H20")	dH (H20")	DGM TEMP. (F) Inlet	DGM TEMP. (F) Outlet	STACK TEMP (F)	SAMPLE VOL (ft3)	PROBE TEMP (F)	FILTER TEMP (F)	IMP. OUT. (F)	VACUUM (Hg")
S	1	0	2.1	1.59	93	90	89	93.409	232	232	57	8.5
	2	3	2.0	1.52	93	90	89	95.60	232	232	57	8.5
	3	6	1.95	1.48	93	90	89	97.60	243	249	57	8.0
	4	9	1.90	1.44	94	90	89	99.7	255	252	57	8.0
	5	12	1.90	1.44	94	91	89	101.65	253	252	57	8.0
	6	15	1.75	1.33	94	91	89		252	252	59	7.5
	7	18	1.75	1.33	94	91	85	105.4	251	252	59	7.5
	8	21	1.7	1.29	95	91	89	107.27	252	252	59	7.0
	9	24	1.75	1.33	95	91	89	109.2	252	252	59	7.5
	10	27	1.85	1.40	96	91	89	111.01	252	251	59	8.0
	11	30	1.85	1.40	96	91	89	112.90	252	252	57	8.0
	12	33	1.80	1.36	96	91	89	114.82	252	252	59	8.0
W	1	36	1.75	1.33	91	88	87	116.723	261	252	61	7.5
	2	39	1.70	1.29	91	88	88	118.70	252	252	61	7.5
	3	42	1.70	1.29	92	89	87	120.57	253	252	62	7.5
	4	45	1.65	1.25	93	89	88	122.50	252	252	61	7.0
	5	48	1.65	1.25	93	89	87	124.40	250	252	61	7.0
	6	51	1.65	1.25	95	89	88	126.11	251	252	61	7.0
	7	54	2.0	1.52	95	89	88	127.92	252	252	62	8.5
	8	57	1.80	1.36	96	90	87	129.92	251	252	62	8.0
	9	60	1.80	1.36	96	90	87	132.0	253	252	61	8.0
	10	63	1.80	1.36	96	90	87	133.80	252	252	61	8.0
	11	66	1.80	1.36	97	90	87	135.75	251	253	61	8.0
	12	69	1.80	1.36	97	90	89	137.75	251	252	61	8.0
		72						139.56				
		average	1.34	1.37		92.2	88.13	46.161				

JR

C/D #4
RM 5/202 - 2

SEACOR
RM-5 & 17 FIELD DATA

Plant	L.P	Meter dH@	1.9107 Yd .9911	Nozzle I.D.& Dia. (in.)	0.164
Location	OROVILLE, CA	K Factor	.7587	Filter No.	L.P.2
Test Location	C/D #4 BOILER	Pitot Coefficient (Cp)	0.84	Probe & Filter Temp. (F)	250°F ±25
Operator	Kam / BP	Ambient Temp.	90	Leak Check Vacuum (Hg")	15/16
Date	6/7/94	Barometric Pres. (Bp)	29.86	Leak Rate (cfm)	0.01 / 0.003
Run No.	2 CD4-2P	Assumed H2O %	3.0	Static Pres. (H2O")	-14.5
Control Box No.	3	Probe I.D.	3' SS	Test Time	19:46 — 21:08

Moisture

Imp	Initial	Final
1	100	194
2	100	
3	—	
4	300	395.0 309.5
Net Gain		3.5

PORT I.D.	POINT NO.	SAMPLE TIME	dP (H2O")	dH (H2O")	DGM TEMP. (F) Inlet	DGM TEMP. (F) Outlet	STACK TEMP (F)	SAMPLE VOL (ft3)	PROBE TEMP (F)	FILTER TEMP (F)	IMP. OUT. (F)	VACUUM (Hg")
W	1	0	1.65	1.25	86	86	83	139.751	251	228	67	12.0
	2	3	1.80	1.36	86	86	83	141.86	245	244	59	12.0
	3	6	1.75	1.33	86	86	83	143.74	244	251	57	12.5
	4	9	1.80	1.36	87	86	83		248	255	57	12.5
	5	12	1.65	1.25	87	86	83	147.50	252	254	58	12.0
	6	15	1.65	1.25	88	86	83	149.35	252	254	59	12.0
	7	18	1.90	1.44	88	86	83	151.20	252	253	59	12.0
	8	21	2.0	1.52	89	86	82	153.1	252	252	59	14.0
	9	24	1.65	1.25	89	85	82	155.1	252	252	60	12.5
	10	27	1.70	1.29	89	86	81	157.0	252	253	60	12.5
	11	30	1.75	1.33	89	85	81	158.85	252	252	60	13
	12	33	1.75	1.33	89	85	81	160.71	252	252	60	13
S	1	36	2.1	1.59	86	85	79	162.585	251	247	64	15
	2	39	2.15	1.63	86	84	79	164.70	248	249	59	15
	3	42	2.1	1.59	86	84	79	166.70	248	252	59	15
	4	45	2.1	1.59	86	84	79	168.80	252	253	59	15
	5	48	2.0	1.52	86	84	78	171.0	252	251	60	15
	6	51	1.95	1.48	86	84	78	173.0	252	254	60	15
	7	54	1.85	1.40	86	84	78	174.9	252	252	60	14
	8	57	1.55	1.18	86	83	78	176.83	252	252	62	12
	9	60	1.80	1.36	87	83	77		252	253	62	13.5
	10	63	1.80	1.36	87	83	77	180.70	252	252	62	13.5
	11	66	1.70	1.29	88	83	77	182.42	252	251	62	13
	12	69	1.75	1.33	88	83	77	184.30	252	252	62	13
		72						186.128				
		average	1.3511	1.3867		85.92	80.17	46.377				

JR

SEACOR
RM-5 & 17 FIELD DATA

Plant	L-P	Meter dH@	1.9107 Y_d = .9911	Nozzle I.D.& Dia. (in.)	.164
Location	OROVILLE, CA	K Factor	0.7834	Filter No.	LP-3
Test Location	C/D #4 BGHSE	Pitot Coefficient (Cp)	0.84	Probe & Filter Temp. (F)	248 ±25
Operator	Kam	Ambient Temp.	81	Leak Check Vacuum (Hg")	15/5
Date	6/8/94	Barometric Pres. (Bp)	29.86	Leak Rate (cfm)	0.002 / 0.00
Run No.	CD4 - P3	Assumed H2O %	1.0	Static Pres. (H2O")	~~[illegible]~~ -15.3
Control Box No.	3	Probe I.D.	3'SS	Test Time	10:00 — 11:19

Moisture

Imp	Initial	Final
1	100	193
2	100	
3	—	
4	300	310.9
Net Gain		3.9

PORT I.D.	POINT NO.	SAMPLE TIME	dP (H20")	dH (H20")	DGM TEMP. (F) Inlet	DGM TEMP. (F) Outlet	STACK TEMP (F)	SAMPLE VOL (ft3)	PROBE TEMP (F)	FILTER TEMP (F)	IMP. OUT. (F)	VACUUM (Hg")
W	1	0	1.65	1.30	78	76	82	186.380	249	244	66	3.5
	2	3	1.70	1.33	79	77	83	188.37	245	250	61	3.5
	3	6	1.65	1.30	80	77	83	190.30	246	255	58	3.5
	4	9	1.65	1.30	81	78	83	192.10	249	254	58	3.5
	5	12	1.65	1.30	82	78	83	194.0	251	254	59	3.5
	6	15	1.75	1.37	83	78	83	195.77	251	251	60	4.0
	7	18	1.95	1.53	84	79	84		252	251	60	4.0
	8	21	1.95	1.53	85	79	84	199.68	252	252	61	4.0
	9	24	1.95	1.53	87	80	84	201.7	252	250	62	4.0
	10	27	1.85	1.45	87	81	84	203.74	252	252	62	4.0
	11	30	1.80	1.41	88	81	84	205.70	252	252	62	4.0
	12	33	1.80	1.41	89	81	85	207.7	252	251	62	4.0
S	1	36	2.0	1.57	88	83	85	209.71	251	249	65	4.0
	2	39	2.1	1.65	89	84	85	211.82	249	251	64	4.0
	3	42	2.1	1.65	89	83	86	213.90	247	252	63	4.0
	4	45	2.1	1.65	90	84	86	216.0	250	252	65	4.0
	5	48	2.05	1.61	91	84	87		252	254	65	4.0
	6	51	2.05	1.61	92	85	87	220.2	252	255	65	4.0
	7	54	1.90	1.49	93	85	87	222.3	252	252	65	4.0
	8	57	1.90	1.49	93	86	87	224.3	252	252	65	4.0
	9	60	1.75	1.37	93	86	87	226.30	252	251	65	4.0
	10	63	1.75	1.37	94	86	88	228.3	252	252	65	4.0
	11	66	1.75	1.37	94	87	87	230.3	252	251	64	4.0
	12	69	1.75	1.37	94	87	88	232.3	252	252	64	4.0
		72						234.303				
		average	1.3613	1.4567		81.875	85.0833	47.923				

SEACOR
RM-5 & 17 FIELD DATA

Plant	LP	Meter dH@	2.0118	Nozzle I.D.& Dia. (in.)	0.177
Location	OROVILLE, CA	K Factor	1.0873	Filter No.	NA
Test Location	C/D #4	Pitot Coefficient (Cp)	0.84	Probe & Filter Temp. (F)	
Operator	IF & JM	Ambient Temp.	80	Leak Check Vacuum (Hg")	9.5 / 8.0
Date	6/7/94	Barometric Pres. (Bp)	29.86	Leak Rate (cfm)	.008 / .009
Run No.	CD4 - F1	Assumed H2O %	3	Static Pres. (H2O")	-14.5
Control Box No.	2	Probe I.D.	5' TFE	Test Time	1705 - 1800

Moisture

Imp	Initial	Final
1	100	↓
2	100	↓
3	—	194
4	300g	311g
Net Gain		5g

NOZZLE CAL: 0.176 ; 0.176 ; 0.178 (#9) 0.177

PORT I.D.	POINT NO.	SAMPLE TIME	dP (H2O")	dH (H2O")	DGM TEMP. (F) Inlet	DGM TEMP. (F) Outlet	STACK TEMP (F)	SAMPLE VOL (ft3)	PROBE TEMP (F)	FILTER TEMP (F)	IMP. OUT. (F)	VACUUM (Hg")
WEST	1	0	1.6	1.74				216.328	NA	NA	70	5.5
	2	2	2.5	2.72								6.5
	3	4	2.5	2.72	89	86	87				64	6.5
	4	6	1.8	2.0	90	86						
	5	8	2.1	2.3							61	
	6	10	2.1	2.3	92	87	87				58	
	7	12	1.8	1.96	92	86	87				60	
	8	14	1.7	1.85	95	86	86				59	
	9	16	1.65	1.80	93	87	87				62	
	10	18	1.65	1.8	94	87	86				63	5.0
	12	20	1.5	1.64	94	87	87				63	5.0
	12	22	1.6	1.74	95	87	86				65	4.5
	12	24	1.4	1.53	95	88	86				64	4.5
	10	26	1.75	1.91	91	86	86				62	4.8
	10	28	1.6	1.74	92	87	86				60	5
	9	30	1.65	1.8	92	87	86				61	5
	8	32	1.75	1.9	93	87	86				62	5.5
	67	34	2.1	2.3	93	87	86				62	6
	6	36	1.8	1.96	94	87	85					
	5	38	1.9	2.07	94	87	86				63	5.5
	4	40	2.15	2.35	94	87	86				62	6.0
	3	42	1.85	2.0	95	87	86				62	5.2
	3	44	1.8	1.96	95	87	86				62	5
	3	46	1.9	2.07	95	87	86				62	5.2
								253.307				
average			1.3527	20067		90.00	86.20	36.979				

220.025 stopped test momentarily

ALL NUMBERING IS REVERSED

* Volumes of each pt. could not be recorded due to sample pt duration, & maintaining ISO RATE

SEACOR

RM-[redacted] FIELD DATA [HCHO]

0011

Plant LP	Meter dH@ —	Nozzle I.D.& Dia. (in.) 0.177			
Location OROVILLE, CA	K Factor 1.0873	Filter No. NA			
Test Location CARTER DAY BAG #4	Pitot Coefficient (Cp) 0.84	Probe & Filter Temp. (F) NA			
Operator I. Falcone / J. Mordiere	Ambient Temp. 68°	Leak Check Vacuum (Hg") 9.5 / 11.5			
Date 6/7/94	Barometric Pres. (Bp) 29.80	Leak Rate (cfm) .006 / .012			
Run No. CD4-F2	Assumed H2O % 2	Static Pres. (H2O") -14.5			
Control Box No. 2	Probe I.D. 5' TFE	Test Time 1947 — 2107			

Moisture

Imp	Initial	Final
1	100	↓
2	100	↓
3	—	196
4	300g	312.8
Net Gain		8.8

PORT I.D.	POINT NO.	SAMPLE TIME	dP (H20")	dH (H20")	DGM TEMP. (F) Inlet	DGM TEMP. (F) Outlet	STACK TEMP (F)	SAMPLE VOL (ft3)	PROBE TEMP (F)	FILTER TEMP (F)	IMP. OUT. (F)	VACUUM (Hg")
South	3*	0	2.2	2.4	84	82	78	253.762	NA	NA		11
	3	3	2.15	2.34	85	83	80	256.37			67	11
	3	6	1.95	2.15	81	86	83	258.86			65	9.5
	4	9	2.15	2.34	87	83	81	261.28			66	10.2
	5	12	2.1	2.28	88	83	80	263.66			65	10.4
	6	15	2.3	2.5	89	83	81	266.08			65	11
	7	18	2.2	2.39	89	83	80	268.60			64	11
	8	21	2.3	2.5	90	83	80	271.11			64	11.2
	9	24	2.2	2.39	90	83	80	273.65			64	11
	10	27	2.2	2.39	90	83	80	276.15			63	11
	11	30	2.25	2.45	90	83	79	278.63			63	11
	12	33	1.95	2.12	90	83	79	281.18			63	9.6
West	10	36	1.75	1.9	86	82	77	283.768			65	8.8
	10	39	1.95	2.12	86	82	77				61	9.4
	10	42	1.9	2.07	87	82	77	288.1			60	9.2
	9	45	2.2	2.4	88	82	76	290.41			61	10
	8	48	2.4	2.61	89	82	76	292.			63	12
	7	51	2.3	2.5	89	82	76	295.88			64	11.8
	6	54	1.9	2.07	89	82	76	298.02			65	9.2
	5	57	1.85	2.01	89	82	76	300.34			65	9.2
	4	60	1.8	1.96	89	82	76	302.65			65	9.0
	3	63	1.75	1.9	89	82	76	304.89			65	9
	2	66	1.75	1.9	89	82	75	307.19			65	9
	1	69	1.45	1.58	89	82	75	309.41			65	7.5
		72						311.514				
		average	1.4257	2.2196		85.29	78.08	57.752				

Point #'s are reversed here.

* High vacuum of source prohibited placement of probe near the outside wall of the stack (i.e. - pts. 1 and 2)

[redacted]

SEACOR
RM-5 & 17 FIELD DATA

Plant	LP	Meter dH@	—	Nozzle I.D.& Dia. (in.)	0.177
Location	OROVILLE, CA	K Factor	1.1748	Filter No.	NA
Test Location	CRETER DAM #4	Pitot Coefficient (Cp)	0.84	Probe & Filter Temp. (F)	NA
Operator	I. Falbona / J. Marchioro	Ambient Temp.	72	Leak Check Vacuum (Hg")	11 / 6
Date	6/6/94	Barometric Pres. (Bp)	29.86	Leak Rate (cfm)	.006 / .006
Run No.	CD4-F3	Assumed H2O %	1	Static Pres. (H2O")	-15.3
Control Box No.	2	Probe I.D.	5' TFE	Test Time	1000 - 1018

Moisture

Imp	Initial	Final
1	100	↓
2	100	↓
3	—	196
4	300g	314
Net Gain		10.0

PORT I.D.	POINT NO.	SAMPLE TIME (start)	dP (H20")	dH (H20")	DGM TEMP. (F) Inlet	DGM TEMP. (F) Outlet	STACK TEMP (F)	SAMPLE VOL (ft3)	PROBE TEMP (F)	FILTER TEMP (F)	IMP. OUT. (F)	VACUUM (Hg")
South	10	0	2.05	2.41	75	74	80	311.727	NA	NA		4.5
	10	3	2.0	2.35	76	74	80	314.14			64	4.5
	10	6	2.05	2.41	78	74	80	316.63			64	4.8
	9	9	2.1	2.47	80	75	81	319.08			66	4.8
	8	12	2.15	2.53	82	76	81	321.6			66	5.0
	7	15	2.2	2.58	83	76	81	324.13			65	5.0
	6	18	2.15	2.53	85	77	82	326.67			65	5.0
	5	21	2.15	2.53	86	77	82	329.25			65	5.0
	4	24	2.2	2.58	87	78	82	331.78			65	5.0
	3	27	2.2	2.58	88	79	82	334.34			66	5.0
	2	30	2.2	2.58	89	79	82	336.91			65	5.0
	1	33	1.95	2.29	90	80	83	339.51			66	4.5
West	10	36	2.20	2.58	88	81	82	341.821			66	5.0
	10	39	2.15	2.53	90	82	82	344.78			61	5.0
	10	42	2.15	2.53	91	83	82	347.12			59	4.8
	9	45	2.2	2.58	93	83	94	349.64			61	5.0
	8	48	2.25	2.65	93	83	84	352.28			62	5.0
	7	51	2.4	2.82	94	84	84	354.86			63	5.2
	6	54	1.85	2.17	94	84	84	357.67			63	4.4
	5	57	1.75	2.06	94	85	85	359.98			64	4.0
	4	60	1.65	1.94	94	85	85	362.31			64	4.0
	3	63	1.7	2.0	95	85	85	364.54			65	4.0
	2	66	1.65	1.94	95	86	85	366.82			65	4.0
	1	69	1.35	1.59	95	86	85	369.07			65	3.8
		72						371.135				
average			1.4217	2.38		84.19	82.6	59.408				

* Duct: Same as CD #2 => Refer to CD2 For RM 1 DATA

SEACOR

RM-5 & 17 FIELD DATA

Plant	LP	Meter dH@	1.9107 0.9911	Nozzle I.D.& Dia. (in.)	0.181
Location	OROVILLE, CA	K Factor	1.942	Filter No.	LP-13
Test Location	CD #5	Pitot Coefficient (Cp)	0.84	Probe & Filter Temp. (F)	248 ± 25
Operator	[illegible]	Ambient Temp.	100	Leak Check Vacuum (Hg")	15/10
Date	6/14/94	Barometric Pres. (Bp)	29.72	Leak Rate (cfm)	0.006 / 0.004
Run No.	CD5-P1	Assumed H2O %	1.0 %	Static Pres. (H2O")	-.17
Control Box No.	3	Probe I.D.	9T	Test Time	15:24 – 16:54

Moisture

Imp	Initial	Final
1	100	199
2	100	
3	—	
4	300	304.5
Net Gain		8.5

NOZZLE CAL: .180, .182, .181 AVG: 0.181

PORT I.D.	POINT NO.	SAMPLE TIME	dP (H2O")	dH (H2O")	DGM TEMP. (F) Inlet	DGM TEMP. (F) Outlet	STACK TEMP (F)	SAMPLE VOL (ft3)	PROBE TEMP (F)	FILTER TEMP (F)	IMP. OUT. (F)	VACUUM (Hg")
1 (O)	1	0	0.60	0.72	96	96	100	573.775	252	253	59	8
	2	3	0.60	0.72	96	96	101	575.2	252	251	57	8
	3	6	0.54	0.65	96	96	102	576.65	252	253	59	7
	4	9	0.55	0.66	96	96	102	578.3	252	252	60	7
	5	12	0.58	0.69	96	96	101	579.4	252	251	60	8
	6	15	0.60	0.72	96	96	102	580.8	252	253	60	8
	7	18	0.60	0.72	97	96	103	582.2	252	252	60	8
	8	21	0.57	0.68	98	96	102	583.65	252	252	60	8
	9	24	0.53	0.63	98	96	103	585.1	252	253	61	8
	10	27	0.50	0.60	98	96	103	586.43	252	251	61	7
	11	30	0.45	0.54	99	96	103	587.78	252	252	61	6
	12	33	0.45	0.54	99	96	103	589.1	252	252	61	6
Switch to 2 (I) 4 min/pt	1	36	0.14	0.17	97	95	101	590.334	252	252	61	3
	2	40	0.12	0.14	97	95	100	591.4	252	253	63	2.5
	3	44	0.12	0.14	98	95	96	592.34	252	252	63	2.5
	4	48	0.20	0.24	98	96	98	593.2	252	252	63	3.5
	5	52	0.20	0.24	98	96	97	594.34	252	252	61	3.5
	6	56	0.19	0.23	99	96	100	595.48	252	252	61	3.5
	7	60	0.22	0.26	99	96	102	596.63	253	253	61	3.5
	8	64	0.20	0.24	99	96	102	597.8	252	252	61	3.5
	9	68	0.22	0.26	99	97	104	599.0	252	252	63	3.5
	10	72	0.20	0.24	99	97	103	600.2	252	253	63	3.5
	11	76	0.20	0.24	100	97	102	601.36	252	252	63	3.5
	12	80	0.19	0.23	100	97	102	602.5	252	252	64	3.5
		84						603.638				
		average	.5825	0.4375	96.0417		101.3333	29.8630				

[redacted]

SEACOR
RM-5 & 17 FIELD DATA

Plant	LP.	Meter dH@	1.9107 9911	Nozzle I.D.& Dia. (in.)	0.191
Location	OROVILLE, CA	K Factor	1.1942	Filter No.	LP 24
Test Location	C/D #5	Pitot Coefficient (Cp)	0.84	Probe & Filter Temp. (F)	250 ± 25
Operator	BD	Ambient Temp.	100	Leak Check Vacuum (Hg")	13.3 / 12.4
Date	6/14/94	Barometric Pres. (Bp)	29.72	Leak Rate (cfm)	0.004 / 0.004
Run No.	CD5-P2	Assumed H2O %	1.0%	Static Pres. (H2O")	-0.17
Control Box No.	3	Probe I.D.	91	Test Time	17:25 - 19:03

Moisture

Imp	Initial	Final
1	100	198
2	100	
3		
4	300	307.2
Net Gain		5.2

PORT I.D.	POINT NO.	SAMPLE TIME	dP (H20")	dH (H20")	DGM TEMP. (F) Inlet	DGM TEMP. (F) Outlet	STACK TEMP (F)	SAMPLE VOL (ft3)	PROBE TEMP (F)	FILTER TEMP (F)	IMP. OUT. (F)	VACUUM (Hg")
1	1	0	0.16	0.19	97	97	103	603.825	252	257	82	2.2
	2	4	0.07	0.084	98	97	104	605.00	252	256	81	
	3	8	0.16	0.19	99	98	104	605.72	252	250	81	2.0
	4	12	0.10	0.12	99	98	104	606.67	256	253	79	2.1
	5	16	0.09	0.11	100	99	104	607.49	256	245	81	2.1
	6	20	0.16	0.19	101	99	104	608.37	256	254	81	3.2
	7	24	0.15	0.18	102	99	104	609.24	255	251	79	3.2
	8	28	0.14	0.17	101	100	104	610.23	255	253	79	3.1
	9	32	0.16	0.19	102	100	104	611.185	256	254	79	3.2
	10	36	0.16	0.19	102	100	104	612.19	255	253	78	3.3
	11	40	0.07	0.084	102	101	104	613.20	256	252	78	
	12	44	0.15	0.18	103	101	104	614.11	255	252	82	3.1
2	1	48	0.60	0.72	103	101	100	614.905	254	251	78	9.3
	2	52	0.61	0.73	103	101	100	616.80	254	252	69	9.9
	3	56	0.56	0.67	103	101	102	618.65	254	252	68	9.2
	4	60	0.57	0.68	103	101	103	620.50	255	250	69	9.2
	5	64	0.58	0.60	104	102	100	622.36	255	254	70	9.1
	6	68	0.62	0.74	103	102	102	624.20	254	251	69	10.0
	7	72	0.55	0.66	103	102	103	626.12	254	253	68	9.1
	8	76	0.57	0.68	103	102	103	627.97	255	251	69	9.1
	9	80	0.47	0.56	103	102	102	629.81	254	253	69	7.9
	10	84	0.53	0.63	103	102	102	631.53	254	252	70	7.9
	11	88	0.46	0.55	102	101	99	633.22	254	253	70	7.8
	12	92	0.45	0.54	102	101	101	634.88	254	252	70	7.8
		96						636.562				
		average	0.5484	0.446		101.0	102.7	32.750				

Port 1: Duct bent @ height of probe 6" beside. Section: 2 [illegible] bent.

SEACOR
RM-5 & 17 FIELD DATA

Plant	LP	Meter dH@	1.9107 Yd .9911	Nozzle I.D.& Dia. (in.)	.181
Location	OROVILLE, CA	K Factor	1.1942	Filter No.	LP-25
Test Location	CD #5	Pitot Coefficient (Cp)	0.84	Probe & Filter Temp. (F)	248±25
Operator	Kam / BD	Ambient Temp.	98	Leak Check Vacuum (Hg")	15/5.5
Date	6/14/94	Barometric Pres. (Bp)	29.72	Leak Rate (cfm)	0.002/0.002
Run No.	CD5-P3	Assumed H2O %	1.0	Static Pres. (H2O")	-0.20
Control Box No.	3	Probe I.D.	9T	Test Time	20:01 - 21:42

Moisture

Imp	Initial	Final
1	100	205
2	100	
3	~~0~~	
4	300	304.6
	Net Gain	14.6

PORT I.D.	POINT NO.	SAMPLE TIME	dP (H20")	dH (H20")	DGM TEMP. (F) Inlet	DGM TEMP. (F) Outlet	STACK TEMP (F)	SAMPLE VOL (ft3)	PROBE TEMP (F)	FILTER TEMP (F)	IMP. OUT. (F)	VACUUM (Hg")
OUTSIDE	1	0	0.62	0.74	95	96	96	636.810	252	252	62	3.5
	2	4	0.56	0.67	95	96	97	638.72	252	252	57	3.5
	3	8	0.55	0.66	95	96	97	640.6	252	253	55	3.5
	4	12	0.56	0.67	94	94	97	642.45	252	252	57	3.5
	5	16	0.57	0.68	95	94	97	644.30	252	252	54	3.5
	6	20	0.58	0.69	95	94	97	646.15	252	251	54	3.5
	7	24	0.55	0.66	94	93	96	648.02	252	252	54	3.5
	8	28	0.57	0.68	94	93	95	649.9	252	251	54	3.5
	9	32	0.53	0.63	93	92	95	651.73	252	253	54	3.0
	10	36	0.45	0.54	93	92	95	653.1	252	252	54	3.0
	11	40	0.45	0.54	93	92	95	654.8	252	252	54	3.0
	12	44	0.45	0.54	92	91	94	656.8	252	251	54	3.0
INSIDE	1	48	0.12	0.14	91	90	94	658.53	252	252	59	1.1
	2	52	0.09	0.11	90	89	93	659.49	254	254	63	1.1
	3	56	0.08	0.10	90	89	93	660.27	253	252	65	1.1
	4	60	0.13	0.16	90	89	93	661.01	253	252	65	1.1
	5	64	0.25	0.30	90	89	93	661.90	253	253	63	1.1
	6	68	0.22	0.27	89	88	92	663.13	252	252	60	1.1
	7	72	0.18	0.22	89	88	92	664.32	254	251	61	1.1
	8	76	0.21	0.25	89	88	92	665.41	253	253	62	1.9
	9	80	0.25	0.30	88	87	92	666.55	253	252	61	2.0
	10	84	0.10	0.12	88	87	92	667.69	254	254	62	1.1
	11	88	0.10	0.12	88	87	91	668.54	254	253	64	1.1
	12	92	0.08	0.10	88	87	92	669.34	254	251	65	1.1
		96						670.063				
		average	0.5561	0.4121		91.23	94.17	33.253				

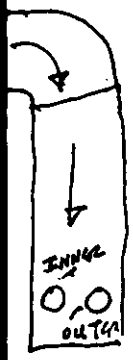
[redacted] (HCHO)

SEACOR
RM-5 & 17 FIELD DATA

Plant	LP	Meter dH@	[redacted]	Nozzle I.D.& Dia. (in.)	.181
Location	OROVILLE, CA	K Factor	1.19	Filter No.	—
Test Location	CD #5	Pitot Coefficient (Cp)	.84	Probe & Filter Temp. (F)	248 ± 25
Operator	[illegible]	Ambient Temp.	80	Leak Check Vacuum (Hg")	10/5
Date	6/15/94	Barometric Pres. (Bp)	29.83	Leak Rate (cfm)	0.01 / .005
Run No.	CD5-F1	Assumed H2O %	1.0	Static Pres. (H2O")	-0.1
Control Box No.	3	Probe I.D.	9T	Test Time	10:10 - 11:27

Moisture

Imp	Initial	Final
1	100	200
2	100	
3	—	
4	300	310.2
Net Gain		10.2



PORT I.D.	POINT NO.	SAMPLE TIME	dP (H20")	dH (H20")	DGM TEMP. (F) Inlet	DGM TEMP. (F) Outlet	STACK TEMP (F)	SAMPLE VOL (ft3)	PROBE TEMP (F)	FILTER TEMP (F)	IMP. OUT. (F)	VACUUM (Hg")
INNER	1	0	0.12	0.14	74	74	85	670.270	252	252	64	1
	2	3	0.13	0.16	74	74	89	671.02	252	252	64	1
	3	6	0.15	0.18	74	74	91	671.7	252	258	63	1
	4	9	0.18	0.21	75	75	92	672.1	252	255	61	2
	5	12	0.32	0.38	76	75	92	673.2	252	253	61	2
	6	15	0.22	0.26	76	74	93	674.3	252	253	61	2
	7	18	0.25	0.30	76	75	93	675.0	252	252	61	2
	8	21	0.23	0.27	77	75	92	676.04	252	253	61	2
	9	24	0.22	0.26	77	75	92	677.0	252	252	61	2
	10	27	0.26	0.31	77	75	93	677.83	252	251	61	2
	11	30	0.22	0.26	78	76	93	678.78	252	253	61	2
	12	33	0.22	0.26	78	75	93	679.67	252	253	61	2
OUTER	1	36	0.63	0.75	78	76	94	680.530	252	252	60	4
	2	39	0.58	0.69	79	76	93	681.97	252	254	60	4
	3	42	0.55	0.66	80	77	93	683.40	252	254	60	3.5
	4	45	0.55	0.66	80	77	93	684.6	252	252	60	3.5
	5	48	0.54	0.65	80	77	93	686.1	252	252	60	3.5
	6	51	0.57	0.68	81	77	93	687.42	252	253	60	3.5
	7	54	0.60	0.72	81	77	93	688.83	252	252	60	4.0
	8	57	0.56	0.67	81	77	93	690.2	252	252	60	3.5
	9	60	0.48	0.57	81	77	94	691.55	252	253	60	3
	10	63	0.50	0.60	81	77	94	692.86	252	252	60	3.5
	11	66	0.5	0.60	82	78	94	694.12	252	252	60	2.5
	12	69	0.48	0.57	82	78	94	695.45	252	252	60	3.5
		72						696.670				

average 0.5959 0.4263 77.0625 92.4583 26.4000

SEACOR
RM-5 & 17 FIELD DATA

Plant	LP	Meter dH@	—	Nozzle I.D.& Dia. (in.)	0.181
Location	OROVILLE, CA	K Factor	1.19	Filter No.	—
Test Location	C/D #5	Pitot Coefficient (Cp)	0.84	Probe & Filter Temp. (F)	250 ± 25
Operator	BD	Ambient Temp.	90	Leak Check Vacuum (Hg")	9/9
Date	6/15/94	Barometric Pres. (Bp)	29.83	Leak Rate (cfm)	0.014/0.016
Run No.	CD5-F2	Assumed H2O %	1.0	Static Pres. (H2O")	-0.1
Control Box No.	3	Probe I.D.	9T	Test Time	12:21 - 13:38

Moisture

Imp	Initial	Final
1	100	198
2	100	
3		
4	300	308.9
	Net Gain	6.9

PORT I.D.	POINT NO.	SAMPLE TIME	dP (H20")	dH (H20")	DGM TEMP. (F) Inlet	DGM TEMP. (F) Outlet	STACK TEMP (F)	SAMPLE VOL (ft3)	PROBE TEMP (F)	FILTER TEMP (F)	IMP. OUT. (F)	VACUUM (Hg")
OUTER	1	0	0.57	0.68	81	80	94	696.820				2.5
	2	3	0.61	0.73	82	81	94	698.		257		3
	3	6	0.46	0.55	84	81	95	699.~~820~~	251	249	71	2.5
	4	9	0.52	0.62	84	81	95	700.85	252	252	72	2.5
	5	12	0.55	0.66	86	82	95	702.15	252	255	72	2.5
	6	15	0.57	0.68	86	83	96	703.48	251	252	73	3
	7	18	0.53	0.63	87	83	96	704.83	252	251	73	2.5
	8	21	0.54	0.64	87	83	96	706.15	252	252	73	2.5
	9	24	0.53	0.63	88	84	96	707.~~235~~	251	251	72	2.5
	10	27	0.47	0.56	89	85	97	~~710.02~~	252	252	72	2
	11	30	0.45	0.54	90	85	97	710.02	252	252	72	2
	12	33	0.45	0.54	90	85	96	711.25	252	252	72	2
INNER	1	36	0.18	0.22	90	86	96	712.469	252	252	72	1
	2	39	0.11	0.13	90	86	96	713.36	252	254	71	1
	3	42	0.10	0.12	90	87	96	713.80	252	252	71	1
	4	45	0.12	0.14	90	87	96	714.55	252	252	71	1
	5	48	0.15	0.18	91	88	97	715.20	252	252	72	1
	6	51	0.15	0.18	91	88	97	715.90	252	251	72	1
	7	54	0.16	0.19	91	88	97	716.62	252	252	71	1
	8	57	0.15	0.18	91	88	96	717.35	252	253	71	1
	9	60	0.18	0.22	92	89	97	718.07	252	252	71	1
	10	63	0.15	0.18	92	89	97	718.87	252	251	72	1
	11	66	0.10	0.12	92	90	97	719.59	252	253	72	1
	12	69	0.10	0.12	93	90	97	720.20	252	252	74	1
		72						720.8				
		average	~~0.3292~~ 0.5448	0.3900		~~85.3750~~ 87.0000	96.0833	24.5970 797				

SEACOR
RM-5 & 17 FIELD DATA

Plant	L.P.	Meter dH@	—	Nozzle I.D.& Dia. (in.)	0.181
Location	OROVILLE, CA	K Factor	1.19	Filter No.	—
Test Location	C/D #5	Pitot Coefficient (Cp)	0.84	Probe & Bitkit Temp. (F)	248 ± 25
Operator		Ambient Temp.	90	Leak Check Vacuum (Hg")	10/5
Date	6/15/94	Barometric Pres. (Bp)	29.83	Leak Rate (cfm)	0.002 / 0
Run No.	CD5-F3	Assumed H2O %	1.0	Static Pres. (H2O")	-0.08
Control Box No.	3	Probe I.D.	9T	Test Time	14:16 - 15:31

Moisture

Imp	Initial	Final
1	100	
2	100	200
3		
4	300	311
Net Gain		11.0

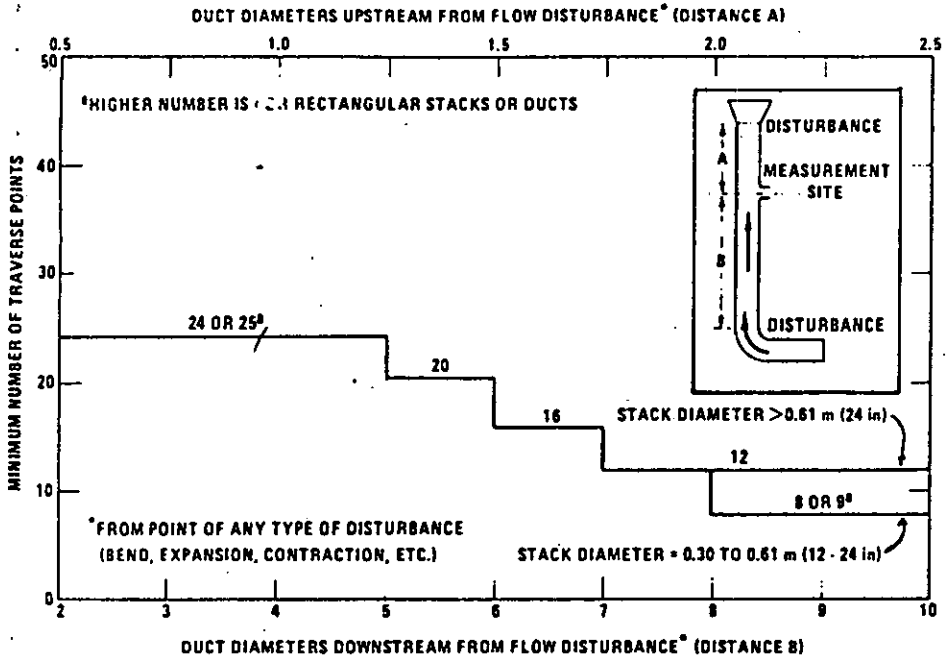
PORT I.D.	POINT NO.	SAMPLE TIME	dP (H20")	dH (H20")	DGM TEMP. (F) Inlet	DGM TEMP. (F) Outlet	STACK TEMP (F)	SAMPLE VOL (ft3)	PROBE TEMP (F)	FILTER BOX TEMP (F)	IMP. OUT. (F)	VACUUM (Hg")
	1	0	0.12	0.14	95	94	98	721.515	252	257	65	1
	2	3	0.11	0.13	95	94	98	722.37	252	253	61	1
	3	6	0.15	0.18	95	94	98	723.02	253	252	60	1
	4	9	0.15	0.18	95	94	98	723.76	252	252	60	1
	5	12	0.15	0.18	95	94	99	724.52	251	252	60	1
	6	15	0.20	0.24	95	94	99	725.27	252	252	60	1
	7	18	0.20	0.24	95	94	99	726.10	253	252	60	1
	8	21	0.22	0.26	95	94	99	727.1	252	251	60	1
	9	24	0.18	0.21	95	93	99	727.83	253	252	59	1
	10	27	0.15	0.18	95	93	99	728.65	252	251	59	1
	11	30	0.12	0.14	95	93	98	729.45	252	253	59	1
	12	33	0.12	0.14	95	93	98	730.20	252	253	59	1
	1	36	0.62	0.74	95	93	99	730.790	252	252	59	3.5
	2	39	0.61	0.73	95	93	98	732.23	252	252	59	3.5
	3	42	0.52	0.62	96	93	98	733.66	252	252	59	3
	4	45	0.55	0.66	96	94	99	735.01	252	253	59	3
	5	48	0.55	0.66	96	94	99	736.38	252	251	59	3
	6	51	0.56	0.67	96	94	98	737.75	252	252	58	3
	7	54	0.59	0.7	96	94	98	739.11	252	251	59	3
	8	57	0.56	0.67	96	93	98	740.50	252	253	59	3
	9	60	0.46	0.55	96	94	99	742.00	251	253	59	2.5
	10	63	0.49	0.58	96	94	99	743.2	252	252	59	2.5
	11	66	0.49	0.58	96	94	99	744.5	252	252	59	2.5
	12	69	0.50	0.59	96	93	99	745.8	252	251	59	2.5
		72						747.065				

average 0.5638 0.4088 94.5208 98.5417 25.5500

SEACOR
RM-1 DATA FORM

Plant	L.P.
Location	Oroville, CA.
Test Location	#5 RV
Operator	BL & CJ
Date	06-08-94

Stack Dia. (in.)	69"
Port Dia. (in.)	3.0"
Port Depth (in.)	Flush.
Upstream (A in.)	34" 2.0
Downstream (B in.)	123" 1.8



Traverse point number on a diameter	Number of traverse points on a diameter— 2	4	6	8	10	12	14	16	18	20	22	24
1	14.6	6.7	4.4	3.2	2.6	2.1	1.8	1.6	1.4	1.3	1.1	1.1
2	85.4	25.0	14.6	10.5	8.2	6.7	5.7	4.9	4.4	3.9	3.5	3.2
3		75.0	29.6	19.4	14.6	11.8	9.9	8.5	7.5	6.7	6.0	5.5
4		93.3	70.4	32.3	22.6	17.7	14.6	12.5	10.9	9.7	8.7	7.9
5			85.4	67.7	34.2	25.0	20.1	16.9	14.6	12.9	11.6	10.5
6			95.6	80.6	65.8	35.6	26.9	22.0	18.8	16.5	14.6	13.2
7				89.5	77.4	64.4	38.6	28.3	23.6	20.4	18.0	16.1
8				96.8	85.4	75.0	63.4	37.5	29.6	25.0	21.8	19.4
9					91.8	82.3	73.1	62.5	38.2	30.6	26.2	23.0
10					97.4	88.2	79.9	71.7	61.8	38.8	31.5	27.2
11						93.3	85.4	78.0	70.4	61.2	39.3	32.3
12						97.9	90.1	83.1	76.4	69.4	60.7	39.8
13							94.3	87.5	81.2	75.0	68.5	60.2
14							98.2	91.5	85.4	79.6	73.8	67.7
15								95.1	89.1	83.5	78.2	72.8
16								98.4	92.5	87.1	82.0	77.0
17									95.6	90.3	85.4	80.6
18									98.6	93.3	88.4	83.9
19										96.1	91.3	86.8
20										98.7	94.0	89.5
21											96.5	92.1
22											98.9	94.5
23												96.6
24												98.9

Point No.	Dist. From Wall (in.)	Dist. With Port (in.)
1	1.5	
2	4.6	
3	8.1	
4	12.2	
5	17.2	
6	24.5	

Point No.	Dist. From Wall (in.)	Dist. With Port (in.)
7	44.4	
8	52.0	
9	57.0	
10	6~~0~~8	
11	~~67.5~~ 64.4	
12	67.5	

SEACOR
RM-2 FIELD DATA

Plant	L.P.	Stack Area (ft2)	
Location	Oroville, CA.	Barometric Pres. (Bp)	29.84
Test Location	#5 RV	Assumed H2O %	~~ambient~~ ambient
Date	06-08-94	Assumed M.W.	ambient
Run No.	Flow-1	Static Pres. (Sp)	+.05
Operator	BL + CJ	Pitot Tube I.D.	6.0'
Stack Dia. (in.)	69"	Pitot Coefficient (Cp)	.84

meter Temp. 85

PORT I.D.	POINT NO.	dP (H2O")	TEMP. (F)
1	1	.09	88
	2	.13	89
	3	.15	
	4	.14	
	5	.13	
	6	.09	
	7	.09	
	8	.11	
	9	.13	
	10	.17	
	11	.17	
	12	.16	

PORT I.D.	POINT NO.	dP (H2O")	TEMP. (F)

Avg. Sq. Rt. dP	0.3583	Avg. ACFM	32,046
Avg. Temp. (F)	88	Avg. DSCFM	30,490
Avg. Velocity (ft/s)	20.57		

Nozzle = #10

K-Factor = 10.897

SEACOR
RM-5 & 17 FIELD DATA

Plant	L.P.	Meter dH@	meter box #1	Nozzle I.D.& Dia. (in.)	#10 (.313)
Location	Oroville, CA.	K Factor	10.897	Filter No.	LP -7
Test Location	#5 RV	Pitot Coefficient (Cp)	0.84	Probe & Filter Temp. (F)	250 ±25
Operator	BL & CJ	Ambient Temp.	75°	Leak Check Vacuum (Hg")	250 ±25
Date	06-08-94	Barometric Pres. (Bp)	29.84	Leak Rate (cfm)	0.001 / 12.0
Run No.	RV5-P1	Assumed H2O %	ambient	Static Pres. (H2O")	+.05
Control Box No.	#1	Probe I.D.	6.0'	Test Time	1315-1431

8.0 / 0.001

Moisture

Imp	Initial	Final
1	100	
2	100	208
3	—	
4	300	310.2
Net Gain		18.2

Nozl (.312, .313, .313)

PORT I.D.	POINT NO.	SAMPLE TIME	dP (H20")	dH (H20")	DGM TEMP. (F) Inlet	DGM TEMP. (F) Outlet	STACK TEMP (F)	SAMPLE VOL (ft3)	PROBE TEMP (F)	FILTER TEMP (F)	IMP. OUT. (F)	VACUUM (Hg")
E	1	0.0	.10	1.1	80	80	88	819.557	221	224	69	4.0
	2	3.0	.11	1.2	90	90	91	821.28	230	231	68	4.0
	3	6.0	.11	1.2	91	90	92	822.98	240	241	66	4.0
	4	9.0	.13	1.4	92	90	92	824.32	246	249	65	4.0
	5	12.0	.10	1.1	92	90	90	826.18	252	257	67	4.0
	6	15.0	.08	.87	92	90	90	828.72	252	248	67	4.0
	7	18.0	.06	.65	93	90	92	830.13	256	256	68	4.0
	8	21.0	.08	.87	94	91	92	831.91	252	253	67	4.0
	9	24.0	.10	1.1	94	91	93	832.48	254	257	68	4.0
	10	27.0	.13	1.4	94	91	94	833.88	252	253	68	4.0
	11	30.0	.14	1.5	94	91	94	835.61	254	257	68	4.0
	12	33.0	.14	1.5	95	92	91	837.58	252	258	68	4.0
N	1	36.0	.14	1.5	94	93	91	839.473	250	252	69	4.0
	2	39.0	.17	1.85	95	93	90	841.25	254	251	68	4.0
	3	42.0	.23	2.5	97	93	89	843.89	250	252	64	5.0
	4	45.0	.20	2.1	98	93	91	845.98	250	251	62	5.0
	5	48.0	.20	2.1	99	94	92	847.33	251	258	64	5.0
	6	51.0	.19	2.0	99	96	91	850.38	253	253	64	5.0
	7	54.0	.11	1.2	100	96	92	852.58	258	257	64	5.0
	8	57.0	.15	1.63	100	96	92	854.20	258	252	63	5.0
	9	60.0	.18	1.96	100	96	92	856.38	252	253	64	5.0
	10	63.0	.17	1.85	100	96	92	858.53	258	254	66	5.0
	11	66.0	.16	1.74	100	96	92	860.58	260	253	66	5.0
	12	69.0	.16	1.74	100	96	92	862.38	258	252	66	5.0
								864.488				
		average	0.3685	1.50		93.7	91.46	44.931				

SEACOR

RM-5 & 17 FIELD DATA

Plant	L.P.	Meter dH@	Meter box #1	Nozzle I.D.& Dia. (in.)	#10 (.313)
Location	Oroville, CA.	K Factor	10.897	Filter No.	LP-6
Test Location	RU #5	Pitot Coefficient (Cp)	0.84	Probe & Filter Temp. (F)	250 ±25
Operator	BL & CJ	Ambient Temp.	85	Leak Check Vacuum (Hg")	250 ± 25
Date	06-08-94	Barometric Pres. (Bp)	29.84	Leak Rate (cfm)	0.001 / 15.0
Run No.	RU5-28	Assumed H2O %	Ambient	Static Pres. (H2O")	±.05
Control Box No.	#1	Probe I.D.	6.0'	Test Time	1568 – 1626

Moisture

Imp	Initial	Final
1	100	
2	100	210
3	—	
4	300	310.3
Net Gain		20.3

PORT I.D.	POINT NO.	SAMPLE TIME	dP (H20")	dH (H20")	DGM TEMP. (F) Inlet	DGM TEMP. (F) Outlet	STACK TEMP (F)	SAMPLE VOL (ft3)	PROBE TEMP (F)	FILTER TEMP (F)	IMP. OUT. (F)	VACUUM (Hg")
N	1	0.0	.16	1.74	98	98	90	864.523	243	242	69	5.0
	2	3.0	.16	1.74	99	98	89	866.21	245	246	67	5.0
	3	6.0	.17	1.85	98	98	91	868.58	247	249	66	5.0
	4	9.0	.19	2.07	98	97	89	870.61	253	254	67	5.0
	5	12.0	.18	1.96	99	97	91	872.88	258	256	66	5.0
	6	15.0	.19	2.07	100	99	90	875.02	260	261	67	5.0
	7	18.0	.19	2.07	100	99	91	878.38	258	253	66	5.0
	8	21.0	.14	1.52	100	98	90	880.25	260	261	68	5.0
	9	24.0	.18	1.96	100	99	90	882.51	252	254	67	5.0
	10	27.0	.17	1.85	101	99	91	884.72	254	258	66	5.0
	11	30.0	.17	1.85	101	99	92	886.38	258	256	65	5.0
	12	33.0	.13	1.4	100	99	91	888.39	260	263	64	5.0
E	1	36.0	.10	1.18	100	99	94	889.598	251	253	67	5.0
	2	39.0	.10	1.1	101	99	92	891.63	258	254	66	5.0
	3	42.0	.12	1.3	101	99	91	892.98	260	259	65	5.0
	4	45.0	.15	1.63	102	100	89	894.52	252	253	66	5.0
	5	48.0	.12	1.3	102	99	89	896.88	253	254	64	5.0
	6	51.0	.15	1.63	102	100	89	898.01	254	252	64	5.0
	7	54.0	.09	.98	103	100	89	900.57	258	256	63	5.0
	8	57.0	.09	.98	103	100	87	902.43	252	253	64	5.0
	9	60.0	.10	1.1	103	101	86	904.28	258	257	65	5.0
	10	63.0	.15	1.63	102	99	86	905.88	252	254	66	5.0
	11	66.0	.16	1.74	102	99	87	907.11	254	257	67	5.0
	12	69.0	.17	1.85	101	99	87	909.13	255	260	67	5.0
		72.0						911.160				
		average	0.3810	1.60		99.8		89.6		46.637		

SEACOR
RM-5 & 17 FIELD DATA

Plant	L.P.	Meter dH@	Meter #1	Nozzle I.D.& Dia. (in.)	#10 (.313)
Location	Oroville, CA.	K Factor	10.897	Filter No.	LP-5
Test Location	RV5-3	Pitot Coefficient (Cp)	0.84	Probe & Filter Temp. (F)	250 ±25
Operator	BL + CJ	Ambient Temp.	80	Leak Check Vacuum (Hg")	250 ±25
Date	06-08-94	Barometric Pres. (Bp)	29.84	Leak Rate (cfm)	15.0 / 0.001
Run No.	RV5-3	Assumed H2O %	Ambient	Static Pres. (H2O")	+.05
Control Box No.	#1	Probe I.D.	6.0'	Test Time	1652 - 19:00

Moisture

Imp	Initial	Final
1	100	212
2	100	
3	—	
4	300	310.4
Net Gain		22.4

PORT I.D.	POINT NO.	SAMPLE TIME	dP (H20")	dH (H20")	DGM TEMP. (F) Inlet	DGM TEMP. (F) Outlet	STACK TEMP (F)	SAMPLE VOL (ft3)	PROBE TEMP (F)	FILTER TEMP (F)	IMP. OUT. (F)	VACUUM (Hg")
E	1	0.0	.09	.98	102	100	94	911.301	242	243	69	5.0
	2	3.0	.12	1.3	101	100	92	913.28	243	248	65	5.0
	3	6.0	.09	.98	101	100	92	915.38	250	252	64	5.0
	4	9.0	.12	1.3	101	100	93	917.87	250	253	65	5.0
	5	12.0	.10	1.1	102	100	93	918.28	252	253	63	5.0
	6	15.0	.10	1.1	102	100	92	919.78	252	251	64	5.0
	7	18.0	.09	.98	102	100	89	920.93	254	253	67	5.0
	8	21.0	.07	.76	101	99	87	922.35	252	251	67	5.0
	9	24.0	.09	.98	100	99	89	924.81	253	254	66	5.0
	10	27.0	.12	1.3	100	98	87	926.63	254	255	67	5.0
	11	30.0	.13	1.41	101	98	87	928.38	258	256	68	5.0
	12	33.0	.13	1.41	100	98	91	930.12	258	258	67	5.0
N	1	36.0	.17	1.85	98	98	90	931.147	256	254	68	5.0
	2	39.0	.17	1.85	99	98	88	933.62	254	255	62	7.0
	3	42.0	.18	1.96	99	98	88	935.2	251	248	64	8.0
	4	45.0	.22	2.4	99	98	87	937.3	248	248	64	8.0
	5	48.0	.22	2.4	99	98	87	940.2	246	247	65	8.0
	6	51.0	.21	2.3	99	98	87	942.18	246	244	66	10.0
	7	54.0	.14	1.5	100	98	87	944.5	250	248	68	10.0
	8	57.0	.17	1.9	100	98	89	946.9	249	250	69	
	9	60.0	.18	2.0	100	98	90	948.0	250	249	69	8.2
	10	63.0	.18	2.0	100	98	89	949.2	249	247	69	8.3
	11	66.0	.17	1.9	100	98	90	952.1	250	246	70	8.4
	12	69.0	.18	2.0	100	97	90	954.2	210	240	70	8.2
		72.0						956.9				
		average	0.3739	1.5652		99	89.5	45.559				

SEACOR
RM-5 & 17 FIELD DATA

Plant	L.P.	Meter dH@	Meter box 1	Nozzle I.D.& Dia. (in.)	#10 (.313)
Location	Oroville, CA.	K Factor	10.897	Filter No.	—
Test Location	RV #5 Forms.	Pitot Coefficient (Cp)	0.84	Probe & Filter Temp. (F)	250±25
Operator	BL & CJ	Ambient Temp.	80-85	Leak Check Vacuum (Hg")	15.0 / 8.0
Date	06-10-94	Barometric Pres. (Bp)	29.72	Leak Rate (cfm)	0.001 / 0.000
Run No.	RV5-F1	Assumed H2O %	1%	Static Pres. (H2O")	+.05
Control Box No.	#1	Probe I.D.	6.0'	Test Time	1014-1135

Moisture

Imp	Initial	Final
1	100	194
2	100	
3	—	
4	300	313.4
Net Gain		7.4

PORT I.D.	POINT NO.	SAMPLE TIME	dP (H20")	dH (H20")	DGM TEMP. (F) Inlet	DGM TEMP. (F) Outlet	STACK TEMP (F)	SAMPLE VOL (ft3)	PROBE TEMP (F)	FILTER TEMP (F)	IMP. OUT. (F)	VACUUM (Hg")
	1	0.0	.34	3.7	104	100	87	957.270	—	—	67	3.0
	2	3.0	.32	3.5	105	100	88	960.25			66	3.0
	3	6.0	.27	2.9	105	101	87	963.3			67	3.0
	4	9.0	.55	5.9	105	100	88	966.2			63	3.0
	5	12.0	.64	6.9	100	96	88	969.8			62	3.0
	6	15.0	.58	6.3	100	96	89	973.2			61	3.0
	7	18.0	.35	3.8	99	97	89	976.1			64	3.0
	8	21.0	.51	5.5	101	99	89	979.3			65	3.0
	9	24.0	.50	5.4	102	97	89	983.7			66	3.0
	10	27.0	.45	4.9	102	98	88	986.6			66	3.0
	11	30.0	.41	4.5	104	100	88	989.9			67	3.0
	12	33.0	.41	4.5	103	97	89	994.21			67	3.0
	1	36.0	.22	2.4	98	99	93	997.042			68	3.0
	2	39.0	.32	3.5	98	98	92	999.8			67	3.0
	3	42.0	.29	3.1	98	97	92	002.2			66	3.0
	4	45.0	.35	3.8	99	98	89	005.3			65	3.0
	5	48.0	.34	3.7	98	97	91	008.1			64	3.0
	6	51.0	.33	3.6	97	97	92	011.8			65	3.0
	7	54.0	.20	2.2	96	96	94	014.9			65	3.0
	8	57.0	.25	2.7	98	97	94	016.2			65	3.0
	9	60.0	.34	3.7	98	96	94	019.12			65	3.0
	10	63.0	.42	4.6	97	96	93	021.03			67	3.0
	11	66.0	.42	4.6	97	95	96	025.5			68	3.0
	12	69.0	.38	4.1	98	97	96	028.3			68	3.0
		72.0						031.530				
		average	.61255	4.158		98.75	90.12	74.260				

SEACOR
RM-5 & 17 FIELD DATA

Plant	L.P.	Meter dH@	Meter box 1	Nozzle I.D.& Dia. (in.)	#10 3.13
Location	Oroville, CA.	K Factor	10.897	Filter No.	—
Test Location	RV5	Pitot Coefficient (Cp)	0.84	Probe & Filter Temp. (F)	—
Operator	BL & CJ	Ambient Temp.	+95°	Leak Check Vacuum (Hg")	15.0 / 10.0
Date	06-10-94	Barometric Pres. (Bp)	~~29.9~~ 29.72	Leak Rate (cfm)	0.001 / 0.001
Run No.	RV5F-2	Assumed H2O %	1%	Static Pres. (H2O")	+.05
Control Box No.	#1	Probe I.D.	6.0' Teflon	Test Time	1154-1326

Moisture

Imp	Initial	Final
1	100	↓
2	100	↓
3	—	194
4	300	317.5
Net Gain		11.5

PORT I.D.	POINT NO.	SAMPLE TIME	dP (H20")	dH (H20")	DGM TEMP. (F) Inlet	DGM TEMP. (F) Outlet	STACK TEMP (F)	SAMPLE VOL (ft3)	PROBE TEMP (F)	FILTER TEMP (F)	IMP. OUT. (F)	VACUUM (Hg")
	1	0.0	.28	3.0	95	94	96	031.660			69	4.0
	2	3.0	.25	2.7	96	94	95	033.8			67	4.0
	3	6.0	.25	~~2.7~~ 2.7	97	95	95	036.3			67	4.0
	4	9.0	.25	~~2.7~~ 2.7	97	95	95	039.8			66	4.0
	5	12.0	.30	3.2	96	94	96	042.3			65	4.0
	6	15.0	.34	3.7	97	96	96	045.3			66	4.0
	7	18.0	.25	2.7	95	96	96	048.7			67	4.0
	8	21.0	.27	2.9	97	96	96	051.1			67	4.0
	9	24.0	.32	3.5	98	96	94	053.6			68	4.0
	10	27.0	.41	4.5	98	96	97	056.2			68	4.0
	11	30.0	.47	5.1	98	96	96	058.72			68	4.0
	12	33.0	.42	4.6	98	96	98	063.10	no run	leak check	68	4.0
	1	36.0	.30	3.7	98	98	96	065.87 → 066.037			67	5.0
	2	39.0	.52	5.7	98	98	96	070.01			68	5.0
	3	42.0	.62	6.7	100	98	96	073.6			66	7.0
	4	45.0	.67	7.3	100	98	98	076.1			67	7.0
	5	48.0	.65	7.0	99	98	98	080.5			67	7.0
	6	51.0	.61	6.6	100	97	98	083.9			67	7.0
	7	54.0	.45	4.9	100	98	98	084.2			66	5.0
	8	57.0	.53	5.7	100	98	98	093.22			67	5.0
	9	60.0	.41	4.5	101	98	97	097.92			67	4.0
	10	63.0	.41	4.5	100	98	98	100.1			68	4.0
	11	66.0	.41	4.5	100	98	97	103.2			68	5.0
	12	69.0	.41	4.5	100	98	99	105.9			69	5.0
		72.0						109.498				
	average		0.6312	4.454		97.45	96.66	77.888				

SEACOR
RM-5 & 17 FIELD DATA

Plant	L.P.	Meter dH@	M. box #1	Nozzle I.D.& Dia. (in.)	#10 (3.13)
Location	Oroville, CA.	K Factor	10.897	Filter No.	—
Test Location	RU #5	Pitot Coefficient (Cp)		Probe & Filter Temp. (F)	—
Operator	BL + CJ	Ambient Temp.	Hot +98	Leak Check Vacuum (Hg")	15.0 / 8.0
Date	06-10-94	Barometric Pres. (Bp)	29.32	Leak Rate (cfm)	0.002 / 0.001
Run No.	RU5F-3	Assumed H2O %	1%	Static Pres. (H2O")	+.05
Control Box No.	#1	Probe I.D.	6.01'	Test Time	1400 – 1513

Moisture

Imp	Initial	Final
1	100	↓
2	100	
3		194
4	300	316.0
Net Gain		10.0

PORT I.D.	POINT NO.	SAMPLE TIME	dP (H20")	dH (H20")	DGM TEMP. (F) Inlet	DGM TEMP. (F) Outlet	STACK TEMP (F)	SAMPLE VOL (ft3)	PROBE TEMP (F)	FILTER TEMP (F)	IMP. OUT. (F)	VACUUM (Hg")
H	1	0.0	.37	4.0	102	100	98	110.905			69	3.0
	2	3.0	.37	4.0	103	100.	98	115.2			67	3.0
	3	6.0	.37	4.0	106	104	98	118.3			66	3.0
	4	9.0	.57	6.2	106	104	104	122.1			65	3.0
	5	12.0	.57	6.2	107	105	101	126.4			65	3.0
	6	15.0	.36	3.9	108	103	102	131.7			66	3.0
	7	18.0	.36	3.9	108	104	102	135.7			66	3.0
	8	21.0	.36	3.9	108	104	101	139.8			66	3.0
	9	24.0	.36	3.9	107	103	102				66	3.0
	10	27.0	.40	4.3	107	103	103	144.67			65	3.0
	11	30.0	.35	3.8	107	103	101	144.3			65	3.0
	12	33.0	.35	3.8	109	104	102	146.7			66	3.0
E	1	36.0	.25	2.7	108	105	103	149.519			68	3.0
	2	39.0	.35	3.8	108	106	104	153.42			66	3.0
	3	42.0	.27	2.9	108	106	103	155.68			65	3.0
	4	45.0	.27 ~~.50~~	~~5.4~~ 2.7	110	107	103	157.2			68	3.0
	5	48.0	.50	5.4	110	107	103	160.8			64	3.0
	6	51.0	.39	4.2	112	108	104	165.2			63	3.0
	7	54.0	.39	4.2	112	108	104	169.1			64	3.0
	8	57.0	.28	3.0	112	108	103	172.3			65	3.0
	9	60.0	.35	3.8	111	107	104	174.8			66	3.0
	10	63.0	.35	3.8	112	107	104	176.6			67	3.0
	11	66.0	.39	4.2	110	108	101	180.9			67	3.0
	12	69.0						185.639				
		72.0										
average			0.6076	4.0348			106.63	102.09	74.734			

STACK SAME FOR RU 4, 3, 2, 1 → RM 1 DATA All these

SEACOR

RM-~~4~~ 5 FIELD DATA FORM

Plant	L.P.	Run No.	RU 4-1 Part.	Ambient Temp.	+ 80°
Location	Oroville, CA	Control Box No.	#1	Leak Check Vacuum (Hg")	15.0 / 8.0
Test Location	RU #4	Meter dH@	Box #1	Leak Rate (cfm)	0.002 / 0.004
Operator	BL	Barometric Pres. (Bp)	29.74	Static Pres. (H2O")	+ + 0.74
Date	06-11-94	Assumed H2O %	1%	Test Time	0844 – 0958
		K factor	3.1525	Filter #	LP-17
				Noz. Dia.	~~(3/17)~~ 0.2297

Moisture

Imp	Initial	Final
1	100	202
2	100	
3	—	
4	300	307
Total		11

PORT I.D.	POINT NO.	SAMPLE TIME	dP (H20")	dH (H20")	DGM TEMP. (F) Inlet	DGM TEMP. (F) Outlet	STACK TEMP (F)	SAMPLE VOL (ft3)	PROBE TEMP (F)	FILTER TEMP (F)	IMP. OUT. (F)	VACUUM (Hg")
	1	0.0	.63	1.98	87	86	82	185.899	240	240	69	4.0
	2	3.0	.67	2.11	89	88	83	187.2	242	241	66	4.0
	3	6.0	.65	2.0	90	88	84	188.3	245	245	60	4.0
	4	9.0	.67	2.11	91	88	85	193.2	237	236	59	5.0
	5	12.0	.67	2.11	92	85	83	194.8	239	233	62	5.0
	6	15.0	.45	1.4	94	90	84	198.3	239	237	61	5.0
	7	18.0	.25	.78	95	91	83	199.1	240	240	62	5.0
	8	21.0	.27	.85	94	90	81	200.72	241	242	65	5.0
	9	24.0	.25	.78	95	90	82	202.38	239	240	66	4.0
	10	27.0	.25	.78	95	92	82	203.91	240	241	67	5.0
	11	30.0	.36	1.1	94	90	81	205.01	242	244	68	5.0
	12	33.0	.31	.97	95	90	83	206.5	244	246	67	4.0
	1	36.0	.32	1.00	95	90	84	209.1	245	248	67	4.0
	2	39.0	.65 ~~.37~~	~~1.16~~ 2.0	97	93	87	209.8	250	247	68	5.0
	3	42.0	.67	2.1	98	94	87	211.7	248	246	68	5.0
	4	45.0	.65	2.0	98	93	85	213.67	247	246	67	5.0
	5	48.0	.57	1.8	98	94	86	215.7	240	241	67	4.0
	6	51.0	.45	1.4	99	94	85	217.2	240	238	68	4.0
	7	54.0	.21	.66	99	95	85	219.98	236	237	68	4.0
	8	57.0	.28	.88	99	95	84	221.28	239	239	68	4.0
	9	60.0	.34	1.07	99	95	85	222.91	240	236	67	4.0
	10	63.0	.37	1.16	100	95	85	224.3	240	242	68	4.0
	11	66.0	.36	1.13	100	95	85	225.61	240	240	67	4.0
	12	69.0	.32	1.00	99	95	85	227.68	240	240	68	4.0
		72.0						228.854				
		average	0.6529	1.3821		93.50	84.00	42.955				

SEACOR
RM-4 FIELD DATA FORM

RU4-P2

Plant	L.P.	Run No.	~~RU4-P2~~	Ambient Temp.	+95°
Location	Oroville, CA.	Control Box No.	#1	Leak Check Vacuum (Hg")	10.0 / 8.0
Test Location	RU #4	Meter dH@	#1 Box	Leak Rate (cfm)	0.000 / 0.001
Operator	BL	Barometric Pres. (Bp)	29.74	Static Pres. (H2O")	+0.40
Date	06-11-94	Assumed H2O %	18	Test Time	1503-1613

Nozzle Dia = 0.2297 K Factor = ~~LP-15~~ 3.152

Filter # = LP-15

Moisture

Imp	Initial	Final
1	100	202
2	100	
3	—	
4	300	341.1
Total		13.1

PORT I.D.	POINT NO.	SAMPLE TIME	dP (H2O")	dH (H2O")	DGM TEMP. (F) Inlet	DGM TEMP. (F) Outlet	STACK TEMP (F)	SAMPLE VOL (ft3)	PROBE TEMP (F)	FILTER TEMP (F)	IMP. OUT. (F)	VACUUM (Hg")
			.60	1.89								
NE	1	0.0	~~.67~~	~~2.1~~	106	105	101	229.125	242	246	70	5.0
	2	3.0	.61	1.9	106	105	100	231.2	240	243	68	5.0
	3	6.0	.62	1.95	106	104	101	233.58	242	241	67	5.0
	4	9.0	.62	1.95	106	104	101	236.21	241	239	66	5.0
	5	12.0	.54	1.70	107	105	100	238.52	239	240	65	5.0
	6	15.0	.57	1.8	108	107	100	240.89	240	240	67	5.0
	7	18.0	.24	.75	109	107	101	243.1	241	242	69	5.0
	8	21.0	.28	.88	108	107	101	244.21	240	236	67	5.0
	9	24.0	.35	1.1	109	106	101	245.32	242	243	67	5.0
	10	27.0	.35	1.1	109	106	101	247.8	243	245	67	5.0
	11	30.0	.37	1.16	109	107	102	249.3	245	240	68	5.0
	12	33.0	.37	1.16	109	107	102	350.42	248	241	67	5.0
	1	36.0	.58	1.82	110	108	102	352.8	240	239	68	5.0
	2	39.0	.60	1.89	111	109	102	354.1	240	240	68	5.0
	3	42.0	.67	2.1	111	108	101	256.18	240	242	67	5.0
	4	45.0	.67	2.1	112	108	102	258.89	239	237	66	5.0
	5	48.0	.62	1.95	113	109	103	261.19	238	236	65	5.0
	6	51.0	.44	1.38	113	109	101	264.21	239	240	64	5.0
	7	54.0	.26	.81	113	109	102	266.72	240	237	64	5.0
	8	57.0	.30	.94	112	110	101	267.9	236	237	64	5.0
	9	60.0	.34	1.07	113	110	101	268.6	235	238	64	5.0
	10	63.0	.31	.98	113	110	101	269.32	236	237	62	5.0
	11	66.0	.31	.98	113	110	102	272.3	237	240	62	5.0
	12	69.0	.31	.98	113	110	101	274.32	240	241	62	5.0
		72.0						274.540				
	average		0.6656	1.4308		108.73	101.25	45.415				

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RM-4 FIELD DATA FORM

Plant	L-P	Run No.	RV4-P3	Ambient Temp.	100+
Location	OROVILLE, CA	Control Box No.	2	Leak Check Vacuum (Hg")	10.0 / 3
Test Location	RV4	Meter dH@		Leak Rate (cfm)	0.002 / 0.008
Operator	JM	Barometric Pres. (Bp)	29.74	Static Pres. (H2O")	0.40
Date	6-11-94	Assumed H2O %	2.0	Test Time	1503 - 16:13

K = 2.52

Noz = #7 0.2127 Filter # LP-14

Moisture

Imp	Initial	Final
1	100	202
2	100	
3	—	
4	300	308.6
Total		10.6

PORT I.D.	POINT NO.	SAMPLE TIME	dP (H20")	dH (H20")	DGM TEMP. (F) Inlet	DGM TEMP. (F) Outlet	STACK TEMP (F)	SAMPLE VOL (ft3)	PROBE TEMP (F)	FILTER TEMP (F)	IMP. OUT. (F)	VACUUM (Hg")
	1	0.0	0.52	1.31	106	106	101	586.597	174	176	94	2
	2	3.0	0.55	1.39	107	107	102	588.00	180	199	79	2
	3	6.0	0.55	1.39	107	107	102	590.0	184	227	76	2
	4	9.0	0.55	1.39	107	107	102	591.5	184	230	76	2
	5	12	0.46	1.04	109	107	102	593.45	184	240	76	2
	6	15	0.43	1.08	110	107	103	595.10	185	245	79	2
	7	18	0.41	1.03	111	108	104	596.81	188	250	82	2
	8	21	0.55	1.39	111	108	104	598.87	200	251	82	2
	9	24	0.55	1.39	113	108	103	600.30	202	248	80	2
	10	27	0.48	1.21	113	108	104	602.10	204	244	81	2
	11	30	0.48	1.21	113	108	104	603.80	201	244	84	2
	12	33	0.47	1.18	114	109	105	605.50	202	245	85	2
	1	36	0.61	1.52	114	110	102	607.29	197	245	85	2
	2	39	0.58	1.46	114	110	102	609.00	188	244	79	2
	3	42	0.55	1.39	114	110	102	611.05	186	245	72	2
	4	45	0.55	1.39	114	110	102	612.90	186	244	70	2
	5	48	0.49	1.23	116	111	102	614.89	185	244	68	2
	6	51	0.31	0.78	115	111	103	617.22	190	243	68	2
	7	54	0.38	0.96	116	111	104	618.30	196	243	68	2
	8	57	0.50	1.26	116	112	104	619.80	197	245	67	2
	9	60	0.55	1.39	116	111	104	621.50	201	245	65	2
	10	63	0.55	1.39	116	111	104	623.30	198	244	65	2
	11	66	0.48	1.21	117	112	103	625.18	180	242	65	2
	12	69	0.46	1.16	117	112	104	626.93	156	217	66	2
		72						628.785				
		average	0.7056	1.2563		110.98	103.42	41.688				

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RM-4 FIELD DATA FORM

Plant	L-P	Run No.	RU 4 - F1	Ambient Temp.	~90°
Location	Oroville, CA	Control Box No.	2	Leak Check Vacuum (Hg")	10 / 6
Test Location	RV2 - F1	Meter dH@		Leak Rate (cfm)	0.02 / 0.016
Operator	JM	Barometric Pres. (Bp)	29.74	Static Pres. (H2O")	+0.49
Date	6/11/94	Assumed H2O %	2.0	Test Time	8:47 - 958

K = 2.52

Nozzel #7 0.2127"

Moisture

Imp	Initial	Final
1	101	202
2	100	
3	—	
4	300	318
Total		10

PORT I.D.	POINT NO.	SAMPLE TIME	dP (H20")	dH (H20")	DGM TEMP. (F) Inlet	DGM TEMP. (F) Outlet	STACK TEMP (F)	SAMPLE VOL (ft3)	PROBE TEMP (F)	FILTER TEMP (F)	IMP. OUT. (F)	VACUUM (Hg")
	1	0	0.56	1.41	86	85	90	546.437			80	5.5
	2	3	0.56	1.41	87	85	81	548.20			58	5.5
	3	6	0.55	1.39	88	85	81	549.00			56	5.5
	4	9	0.58	1.46	89	85	81	551.00			56	5.5
	5	12	0.58	1.46	90	86	81	553.20			58	5.5
	6	15	0.21	0.53	91	87	82	555.00			60	3.0
	7	18	0.39	0.98	92	87	83	556.00			63	5.0
	8	21	0.58	1.46	93	87	82	557.0			61	6.0
	9	24	0.57	1.44	94	87	82	558.5			61	6.0
	10	27	0.56	1.41	95	87	83	561.10			62	6.0
	11	30	0.45	1.31	95	89	83	563.0			62	6.0
	12	33	0.25	0.63	97	90	84	564.5			62	3.5
	1	36	0.47	1.18	97	90	84	565.0			64	5.0
	2	39	.57	1.44	98	91	86	567.49			64	6.5
	3	42	0.55	1.39	98	91	87	569.20			63	6.5
	4	45	0.53	1.34	99	92	86	571.10			63	6.5
	5	48	0.45	1.13	99	92	86	572.80			64	5.5
	6	51	0.38	0.96	100	92	87	574.52			64	5.0
	7	54	0.40	1.01	100	93	86	576.20			65	5.0
	8	57	0.52	1.31	100	93	87	577.73			66	5.5
	9	60	0.56	1.41	101	94	87	579.39			66	6.0
	10	63	0.53	1.31	101	94	87	581.15			66	6.0
	11	66	0.49	1.23	101	94	87	582.96			66	6.0
	12	69	0.52	1.31	102	95	87	584.69			66	6.0
		72						586.445				
		average	0.6970	1.2463		95.58	84.17	40.008				

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RM-4 FIELD DATA FORM

Plant	LP	Run No.	RU4-F2	Ambient Temp.	90°
Location	Oroville, CA	Control Box No.	1	Leak Check Vacuum (Hg")	9.0 / 7.0
Test Location	RU4	Meter dH@	#Box 1	Leak Rate (cfm)	0.014 0.002
Operator	DL, JR	Barometric Pres. (Bp)	29.72	Static Pres. (H2O")	+.40
Date	06-17-94	Assumed H2O %	2	Test Time	1414-1523

Moisture

Imp	Initial	Final
1	100	194.0
2	108	
3	—	
4	300	314.3
Total		8.3

Nozz = 0.2297 K = 3.15 Filter = N/A

PORT I.D.	POINT NO.	SAMPLE TIME	dP (H20")	dH (H20")	DGM TEMP. (F) Inlet	DGM TEMP. (F) Outlet	STACK TEMP (F)	SAMPLE VOL (ft3)	PROBE TEMP (F)	FILTER TEMP (F)	IMP. OUT. (F)	VACUUM (Hg")
NE	1	0.0	.44	1.39	96	94	84	320.652			69	4.0
	2	3.0	.50	1.58	98	95	85	323.1			68	4.0
	3	6.0	.50	1.58	98	95	85	326.2			67	5.0
	4	9.0	.48	1.51	99	95	91	327.18			66	5.0
	5	12.0	.45	1.42	100	96	93	328.89			66	5.0
	6	15.0	.40	1.26	100	96	93	330.7			65	5.0
	7	18.0	.42	1.32	101	97	93	332.61			65	5.0
	8	21.0	.57	1.80	102	97	93	334.42			65	5.0
	9	24.0	.60	1.89	103	98	93	337.10			65	5.0
	10	27.0	.55	1.73	103	97	93	338.42			67	5.0
	11	30.0	.55	1.73	103	97	93	340.91			67	5.0
	12	33.0	.56	1.76	103	98	92	342.38			66	5.0
	1	36.0	.52	1.64	103	98	92	345.02			65	5.0
	2	39.0	.52	1.64	103	98	90	346.72			66	5.0
	3	42.0	.52	1.64	103	98	91	348.21			67	5.0
	4	45.0	.57	1.80	105	101	91	352.3			68	6.0
	5	48.0	.57	1.80	105	101	92	354.31			68	6.0
	6	51.0	.43	1.35	104	101	92	355.8			67	5.0
	7	54.0	.43	1.35	104	101	92	356.50			66	5.0
	8	57.0	.53	1.83	104	99	93	358.88			65	5.0
	9	60.0	.62	1.95	105	100	92	360.19			64	5.5
	10	63.0	.55	1.73	105	100	94	363.21			66	6.0
	11	66.0	.48	1.51	105	100	94	365.43			67	6.0
	12	69.0	.45	1.42	105	100	94	367.33			68	6.0
		72.0						368.774				
		average	0.7120	1.5679		100.19	91.46	48.122				

SEACOR

RM-4 FIELD DATA FORM

Plant	L-P	Run No.	RU4 - F3	Ambient Temp.	90+
Location	ORUVILLE, CA	Control Box No.	2	Leak Check Vacuum (Hg")	10.0 / 3.0
Test Location	RU #4	Meter dH@	meter box #2	Leak Rate (cfm)	0.004 / 0.000
Operator	JM	Barometric Pres. (Bp)	29.72	Static Pres. (H2O")	+0.40
Date	6/13/94	Assumed H2O %	1.0	Test Time	1414-1523

Moisture

Imp	Initial	Final
1	100	
2	100	↓
3	—	196
4	300	311.0
Total		7.0

TFE Probe, Noz = 0.2127, K = 2.52

PORT I.D.	POINT NO.	SAMPLE TIME	dP (H20")	dH (H20")	DGM TEMP. (F) Inlet	DGM TEMP. (F) Outlet	STACK TEMP (F)	SAMPLE VOL (ft3)	PROBE TEMP (F)	FILTER TEMP (F)	IMP. OUT. (F)	VACUUM (Hg")
	1	0	0.59	1.44	98	98	92	673.152			70	2.0
	2	3	0.64	1.61	99	98	91	675.00			70	2.0
	3	6	0.64	1.61	101	98	92	676.83			70	2.0
	4	9	0.61	1.54	103	100	92	679.00			70	2.0
	5	12	0.40	1.01	103	98	94	681.30			70	2.0
	6	15	0.38	0.96	103	99	94	682.51			70	2.0
	7	18	0.32	0.81	103	99	94	684.00			69	2.0
	8	21	0.30	0.76	104	99	93	685.55			68	2.0
	9	24	0.34	0.85	103	99	94	686.90			69	2.0
	10	27	0.32	0.76	103	99	94	688.40			70	2.0
	11	30	0.33	0.83	103	99	94	690.00			69	2.0
	12	33	0.33	0.83	104	99	94	691.26			69	2.0
	1	36	0.55	1.38	104	99	94	692.80			69	2.0
	2	39	0.54	1.36	105	99	92	694.40			68	2.0
	3	42	0.56	1.41	105	100	93	696.20			69	2.0
	4	45	0.55	1.38	105	100	92	698.50			68	2.0
	5	48	0.55	1.38	106	101	91	699.90			68	2.0
	6	51	0.40	1.00	106	101	92	701.90			68	2.0
	7	54	0.27	0.68	106	101	93	703.40			68	2.0
	8	57	0.32	0.81	106	101	93	704.82			69	2.0
	9	60	0.34	0.85	106	102	93	706.20			69	2.0
	10	63	0.34	0.85	106	101	93	707.76			69	2.0
	11	66	~~0.32~~ 0.34	0.85	105	102	93	709.50			69	2.0
	12	69	0.37	0.93	106	102	93	710.80			69	2.0
		72						712.230				
		average	0.6497	1.0788		101.81	92.92	39.078				

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RM-~~4~~5 FIELD DATA FORM

Plant	L-P	Run No.	RV3 - P1	Ambient Temp.	75
Location	OROVILLE, CA.	Control Box No.	#1	Leak Check Vacuum (Hg")	10 / 8.0
Test Location	~~RV4~~ RV #3	Meter dH@	Box #1	Leak Rate (cfm)	0.005 / 0.001
Operator	BEN	Barometric Pres. (Bp)	29.72	Static Pres. (H2O")	.42
Date	06-13-94	Assumed H2O %	19	Test Time	1022 – 1131

Moisture

Imp	Initial	Final
1	100	↓
2	100	↓
3	–	206
4	300	310.6
Total		16.6

SS Probe, Filter LP-23, Noz: ~~0.2297~~ ~~0.2297~~ ~~0.2297~~, K = 3.15

PORT I.D.	POINT NO.	SAMPLE TIME	dP (H20")	dH (H20")	DGM TEMP. (F) Inlet	DGM TEMP. (F) Outlet	STACK TEMP (F)	SAMPLE VOL (ft3)	PROBE TEMP (F)	FILTER TEMP (F)	IMP. OUT. (F)	VACUUM (Hg")
	1	0.0	.49	1.54	85	83	87	274.910	240	236	70	4.0
	2	3.0	.52	1.64	86	83	87	276.1	236	238	67	4.0
	3	6.0	.54	1.70	89	88	87	278.4	238	233	57	4.0
	4	9.0	.54	1.70	90	84	87	280.91	239	234	57	5.0
	5	12.0	.50	1.58	89	83	88	283.1	231	232	59	5.0
	6	15.0	.38	1.20	92	85	88	285.2	230	231	60	4.0
	7	18.0	.35	1.10	92	86	88	286.83	232	235	60	4.0
	8	21.0	.44	1.39	93	86	88	288.72	231	232	60	4.0
	9	24.0	.42	1.32	94	87	87	290.6	230	231	59	4.0
	10	27.0	.47	1.48	94	87	86	291.92	232	235	60	4.0
	11	30.0	.47	1.48	95	88	88	293.8	230	232	60	4.0
	12	33.0	.47	1.48	95	88	88	295.9	235	233	60	4.0
	1	36.0	.54	1.70	96	87	88	297.38	232	236	61	4.0
	2	39.0	.54	1.70	96	88	89	299.58	233	231	61	4.0
	3	42.0	.57	1.80	96	91	89	301.72	232	234	61	4.0
	4	45.0	.55	1.73	96	92	90	303.22	230	231	62	4.0
	5	48.0	.55	1.73	97	92	89	305.15	231	234	63	5.0
	6	51.0	.38	1.20	97	91	90	307.58	230	232	64	5.0
	7	54.0	.34	1.07	97	91	90	309.62	231	234	64	5.0
	8	57.0	.44	1.39	98	91	90	310.92	232	237	65	5.0
	9	60.0	.53	1.67	98	91	90	312.7	238	237	65	5.0
	10	63.0	.50	1.58	99	92	90	314.62	240	240	66	5.0
	11	66.0	.42	1.32	99	92	90	316.52	237	236	66	5.0
	12	69.0	.42	1.32	99	93	90	318.21	238	235	67	5.0
		72.0						320.109				
	average		0.6865	1.4400		91.27	88.50	45.199				

SEACOR
RM-4 FIELD DATA FORM

Plant	L-P	Run No.	RV3 - P2	Ambient Temp.	85°
Location	Oroville, CA	Control Box No.	#2	Leak Check Vacuum (Hg")	8 / 4
Test Location	RV3	Meter dH@	2.1181 Y=0.9792	Leak Rate (cfm)	0.006 / 0.025
Operator	JM	Barometric Pres. (Bp)	29.72	Static Pres. (H2O")	0.42
Date	6/13/94	Assumed H2O %	1.0	Test Time	1022 - 1131

Moisture

Imp	Initial	Final
1	100	↓
2	100	↓
3	—	208
4	300	309.6
Total		17.6

TFE Probe, Filter # LP22 Nozzel 0.2127 K = 2.52

PORT I.D.	POINT NO.	SAMPLE TIME	dP (H20")	dH (H20")	DGM TEMP. (F) Inlet	DGM TEMP. (F) Outlet	STACK TEMP (F)	SAMPLE VOL (ft3)	PROBE TEMP (F)	FILTER TEMP (F)	IMP. OUT. (F)	VACUUM (Hg")
	1	0	0.72	1.82	83	81	83	629.353	236	236	70	3.0
	2	3	0.68	1.71	88	83	84	631.00	237	230	69	3.0
	3	6	0.68	1.71	90	84	84	633.50	237	245	66	3.0
	4	9	0.63	1.58	92	84	85	635.31	238	245	66	3.0
	5	12	0.55	1.38	93	85	86	637.30	238	249	68	3.0
	6	15	0.45	1.13	94	85	88	639.10	237	249	68	2.5
	7	18	0.53	1.33	95	86	90	640.80	237	246	69	2.5
	8	21	0.65	1.58	95	86	90	642.50	239	245	69	3.0
	9	24	0.65	1.58	96	88	90	644.30	240	245	70	3.0
	10	27	0.53	1.34	97	88	91	646.40	243	245	70	3.0
	11	30	0.40	1.01	97	87	90	648.10	244	244	69	2.5
	12	33	0.40	1.01	96	89	90	649.70	244	245	69	2.5
	1	36	0.68	1.71	97	89	88	651.27	243	244	70	3.0
	2	39	0.68	1.71	98	90	86	653.10	240	244	68	3.0
	3	42	0.65	1.63	98	90	87	655.60	236	244	66	3.0
	4	45	0.59	1.48	98	91	89	657.25	236	245	64	3.0
	5	48	0.45	1.13	98	91	90	659.10	237	243	65	2.5
	6	51	0.40	1.01	99	92	90	660.73	237	243	66	2.5
	7	54	0.48	1.21	99	92	93	662.35	241	243	66	2.5
	8	57	0.62	1.56	99	92	94	663.95	243	243	66	3.0
	9	60	0.62	1.56	100	93	94	665.84	245	244	66	3.0
	10	63	0.43	1.08	100	93	92	667.80	245	243	66	2.5
	11	66	0.39	0.98	100	94	93	669.75	246	245	67	2.5
	12	69	0.39	0.98	100	94	93	671.05	245	243	67	2.5
		72						672.605				
		average	0.7385	1.3842		92.31	89.17	43.252				

SEACOR
RM-4 FIELD DATA FORM

Plant	L.P.	Run No.	RV3-P3	Ambient Temp.	75°
Location	Granville, CA.	Control Box No.	#1	Leak Check Vacuum (Hg")	10.0 / 8.0
Test Location	RU#3	Meter dH@	Box #1	Leak Rate (cfm)	0.002 / 0.001
Operator	BL, JR, JAF	Barometric Pres. (Bp)	29.72	Static Pres. (H2O")	+.33
Date	06-13-94	Assumed H2O %	1-2%	Test Time	2046-2155

Moisture

Imp	Initial	Final
1	100	
2	100	206
3	—	
4	300	314.5
Total		20.5

N_{02} = .2297 K = 3.15 Filter # LP-16

PORT I.D.	POINT NO.	SAMPLE TIME	dP (H20")	dH (H20")	DGM TEMP. (F) Inlet	DGM TEMP. (F) Outlet	STACK TEMP (F)	SAMPLE VOL (ft3)	PROBE TEMP (F)	FILTER TEMP (F)	IMP. OUT. (F)	VACUUM (Hg")
NE	1	0.0	.54	1.70	89	89	83	420.763	240	232	69	4.0
	2	3.0	.62	1.95	89	89	83	423.2	238	231	64	4.0
	3	6.0	.71	2.24	90	89	83	424.98	235	231	63	4.0
	4	9.0	.71	2.24	90	89	84	427.77	236	232	62	4.0
	5	12.0	.77	2.4	92	88	83	430.22	230	229	62	4.0
	6	15.0	.70	2.2	93	90	83	432.8	231	232	65	4.0
	7	18.0	.40	1.2	93	91	87	435.1	230	230	65	4.0
	8	21.0	.39	1.23	93	91	87	436.68	231	229	65	4.0
	9	24.0	.55	1.73	93	91	86	438.62	232	234	65	4.0
	10	27.0	.57	1.80	94	91	86	440.8	235	236	64	4.0
	11	30.0	.57	1.80	95	91	90	442.6	236	237	64	4.0
	12	33.0	.52	1.64	93	89	87	444.78	239	238	63	4.0
	1	36.0	.56	1.76	91	90	82	446.58	240	240	64	4.0
	2	39.0	.61	1.92	93	89	81	449.21	241	242	64	4.0
	3	42.0	.68	2.1	92	87	81	451.19	240	243	66	4.0
	4	45.0	.77	2.4	93	81	81	453.58	240	239	65	4.0
	5	48.0	.85	2.68	92	88	82	454.88	238	239	65	5.0
	6	51.0	.68	2.11	92	88	82	458.02	240	243	66	5.0
	7	54.0	.40	1.26	93	87	82	459.81	244	245	66	5.0
	8	57.0	.40	1.26	93	88	85	461.68	238	239	66	5.0
	9	60.0	.56	1.76	92	87	85	464.02	241	245	65	5.0
	10	63.0	.56	1.76	92	87	86	465.58	233	235	66	4.0
	11	66.0	.48	1.51	92	87	87	468.20	239	238	67	4.0
	12	69.0	.49	1.54	92	87	86	469.86	235	237	66	4.0
		72.0						471.462				
		average	0.7618	1.8413		90.31	84.75	50.699				

SEACOR

RM-4 FIELD DATA FORM

Plant	L.P.	Run No.	RV3-F1	Ambient Temp.	80+
Location	Oroville, CA.	Control Box No.	#1	Leak Check Vacuum (Hg")	8.0 / 7.0
Test Location	RV3	Meter dH@	Box #1	Leak Rate (cfm)	0.001 / 0.001
Operator	BL, SR,	Barometric Pres. (Bp)	29.72	Static Pres. (H2O")	~~-.41~~ +.33
Date	06-13-94	Assumed H2O %	1-2 %	Test Time	1846 - 1958

Moisture

Imp	Initial	Final
1	100	
2	100	200
3	—	
4	300	316.9
Total		16.9

NOZ = ~~0.3173~~ ~~0.2297~~ 0.2297 K = 3.15

PORT I.D.	POINT NO.	SAMPLE TIME	dP (H20")	dH (H20")	DGM TEMP. (F) Inlet	DGM TEMP. (F) Outlet	STACK TEMP (F)	SAMPLE VOL (ft3)	PROBE TEMP (F)	FILTER TEMP (F)	IMP. OUT. (F)	VACUUM (Hg")
NE	1	0.0	.57	1.80	94	94	92	368.876			68	5.0
	2	3.0	.63	1.98	95	94	92	370.2			67	5.0
	3	6.0	.63	1.98	95	94	91	373.7			65	6.0
	4	9.0	.80	2.5	96	94	92	376.21			64	7.0
	5	12.0	.78	2.4	97	94	90	378.1			66	6.0
	6	15.0	.67	2.1	98	94	94	381.32			65	6.0
	7	18.0	.40	1.26	99	95	93	382.91			64	5.0
	8	21.0	.40	1.26	99	95	94	383.7			65	5.0
	9	24.0	.54	1.70	100	95	96	386.23			64	5.0
	10	27.0	.56	1.76	100	96	99	389.18			65	5.0
	11	30.0	.50	1.58	100	96	96	390.72			65	5.0
	12	33.0	.50	1.58	100	96	95	392.87			65	5.0
	1	36.0	.58	1.83	100	99	88	395.21			66	6.0
	2	~~42~~ 39.0	.66	2.08	101	96	90	396.34			66	6.0
	3	42.0	.73	2.30	101	96	88	398.01			66	5.0
	4	45.0	.82	2.6	101	97	88	401.18			67	6.0
	5	48.0	.88	2.7	101	96	88	404.41			67	6.0
	6	51.0	.76	2.4	100	96	87	405.83			67	6.0
	7	54.0	.39	1.23	100	95	92	409.21			68	6.0
	8	57.0	.48	1.51	100	96	91	410.18			67	5.0
	9	60.0	.57	1.80	99	96	90	412.05			67	5.0
	10	63.0	.55	1.73	99	95	92	414.89			66	5.5
	11	66.0	~~.57~~ ~~.55~~	1.80	99	95	96	416.91			67	5.5
	12	69.0	.60	1.58	99	95	95	418.21			67	5.0
		72.0						420.640				
average		~~0.6154~~ 0.7717	1.8721		95.375		92.0417	51.7646				

SEACOR

RM-4 FIELD DATA FORM

Plant	L-P	Run No.	RV 3 - F2	Ambient Temp.	90+
Location	OROVILLE	Control Box No.	# 2	Leak Check Vacuum (Hg")	8 / 3
Test Location	RV # 3	Meter dH@		Leak Rate (cfm)	0.001 / 0.001
Operator	JM	Barometric Pres. (Bp)	29.72	Static Pres. (H2O")	+0.32
Date	6/13/94	Assumed H2O %	1.0	Test Time	1846 - 1955

Moisture

Imp	Initial	Final
1	100	
2	100	201
3	—	
4	300	313.5
Total		14.5

TFE Aube, NOZ - ~~[illegible]~~ 0.2127 K = 2.52

PORT I.D.	POINT NO.	SAMPLE TIME	dP (H20")	dH (H20")	DGM TEMP. (F) Inlet	DGM TEMP. (F) Outlet	STACK TEMP (F)	SAMPLE VOL (ft3)	PROBE TEMP (F)	FILTER TEMP (F)	IMP. OUT. (F)	VACUUM (Hg")
	1	0	0.61	1.54	93	93	93	712.293			70	2.0
	2	3	0.58	1.46	93	93	93	714.18			65	2.0
	3	6	0.59	1.49	93	93	92	716.10			62	2.0
	4	9	0.55	1.38	95	93	92	717.82			64	2.0
	5	12	0.46	1.16	95	93	93	719.64			65	2.0
	6	15	0.45	1.13	96	93	93	721.32			65	2.0
	7	18	0.49	1.23	96	93	95	722.99			66	2.0
	8	21	0.49	1.23	97	93	95	724.80			66	2.0
	9	24	0.56	1.41	97	93	94	726.30			66	2.0
	10	27	0.56	1.41	98	93	94	728.30			66	2.0
	11	30	0.44	1.11	98	93	93	730.03			66	2.0
	12	33	0.42	1.06	98	93	93	731.80			66	2.0
	1	36	0.60	1.51	98	93	92	733.50			66	2.0
	2	39	0.63	1.58	98	93	90	735.10			65	2.0
	3	42	0.57	1.43	98	93	91	737.04			64	2.0
	4	45	0.55	1.38	97	93	90	738.91			64	2.0
	5	48	0.45	1.13	97	92	90	740.20			64	2.0
	6	51	0.45	1.13	97	94	91	742.00			65	2.0
	7	54	0.52	1.31	97	92	93	744.01			66	2.0
	8	57	0.61	1.53	96	92	93	745.74			65	2.0
	9	60	0.57	1.44	96	92	92	747.64			65	2.0
	10	63	0.52	1.31	96	92	93	749.49			65	2.0
	11	66	0.49	1.23	96	92	92	751.30			66	2.0
	12	69	0.42	1.06	96	92	92	753.06			67	2.0
		72						754.695				
		average	~~0.5208~~ 0.7226	1.3188				92.7500	92.4583	42.4020		

SEACOR
RM-4 FIELD DATA FORM

Plant	L-P	Run No.	RV3-F3	Ambient Temp.	85
Location	ORVILLE, CA	Control Box No.	#2	Leak Check Vacuum (Hg")	8.0 / 7.0
Test Location	RV3	Meter dH@	meter box #2	Leak Rate (cfm)	0.002 / 0.001
Operator	JM	Barometric Pres. (Bp)	29.72	Static Pres. (H2O")	+.040
Date	6/13/94	Assumed H2O %	1.0	Test Time	20:46 — 21:55

Moisture

Imp	Initial	Final
1	100	>200
2	100	
3	—	
4	3.0	313.3
Total		13.3

K = 2.52

PORT I.D.	POINT NO.	SAMPLE TIME	dP (H20")	dH (H20")	DGM TEMP. (F) Inlet	DGM TEMP. (F) Outlet	STACK TEMP (F)	SAMPLE VOL (ft3)	PROBE TEMP (F)	FILTER TEMP (F)	IMP. OUT. (F)	VACUUM (Hg")
	1	0	0.62	1.56	85	85	86	755.025			70	5.0
	2	3	0.54	1.36	86	85	86	756.90			56	4.5
	3	6	0.55	1.39	87	85	86	758.70			57	4.0
	4	9	0.54	1.36	88	85	86	760.70			58	4.0
	5	12	0.50	1.26	89	85	86	762.50			58	4.0
	6	15	0.37	0.93	89	85	87	764.80			58	3.0
	7	18	0.52	1.31	89	85	87	759.90			58	3.5
	8	21	0.54	1.36	89	84	89	767.58			59	4.0
	9	24	0.62	1.56	87	84	88	769.30			59	4.0
	10	27	0.52	1.31	89	84	87	771.16			58	4.0
	11	30	0.52	1.31	89	84	87	772.89			58	4.0
	12	33	0.45	1.13	89	84	88	774.70			58	3.5
	1	36	0.63	1.63	89	84	85	776.50			59	4.5
	2	39	0.59	1.48	89	84	84	778.30			59	4.5
	3	42	0.50	1.26	89	84	84	779.20			59	4.0
	4	45	0.47	1.18	89	83	84	781.90			59	4.0
	5	48	0.47	1.18	89	83	84	783.60			59	4.0
	6	51	0.42	1.02	88	85	85	785.32			59	3.5
	7	54	0.55	1.39	88	83	87	787.00			59	4.0
	8	57	0.56	1.41	88	83	87	788.76			59	4.0
	9	60	0.56	1.41	88	83	86	790.65			58	4.0
	10	63	0.56	1.41	88	83	86	792.41			58	4.0
	11	66	0.48	1.21	88	83	86	794.30			59	4.0
	12	67	0.46	1.15	88	83	86	796.01			59	4.0
		72						797.679				
		average	0.7215	1.3154		86.10	86.13	42.654				

SEACOR
RM-5 & 17 FIELD DATA

Plant	L.P	Meter dH@	Box #1	Nozzle I.D.& Dia. (in.)	0.240
Location	Oroville, CA.	K Factor	3.69 3.55	Filter No.	LP-20
Test Location	RV#2	Pitot Coefficient (Cp)	0.84	Probe & Filter Temp. (F)	~~248~~ 250+ -25
Operator	BL	Ambient Temp.	95	Leak Check Vacuum (Hg")	250
Date	06-14-94	Barometric Pres. (Bp)	29.77	Leak Rate (cfm)	0.003 / 10.0
Run No.	RV2-P1	Assumed H2O %	1-2 %	Static Pres. (H2O")	-.28
Control Box No.	#1	Probe I.D.	~~6'~~ 7.0'	Test Time	1445 - 1613

Moisture

Imp	Initial	Final
1	100	
2	100	206
3	—	
4	300	310.5
Net Gain		16.5

Nozle Cal = 0.240, 0.240, 0.240

PORT I.D.	POINT NO.	SAMPLE TIME	dP (H20")	dH (H20")	DGM TEMP. (F) Inlet	DGM TEMP. (F) Outlet	STACK TEMP (F)	SAMPLE VOL (ft3)	PROBE TEMP (F)	FILTER TEMP (F)	IMP. OUT. (F)	VACUUM (Hg")
NB	1	0.0	.49	1.74	100	100	104	471.789	231	233	69	4.0
	2	3.0	.50	1.78	100	99	104	474.2	232	235	67	4.0
	3	6.0	.60	2.13	100	99	104	476.78	234	236	66	4.0
	4	9.0	.57	2.02	102	101	105	479.3	231	238	65	4.0
	5	12.0	.62	2.2	103	102	107	480.92	230	234	65	4.5
	6	15.0	.50	1.78	105	102	108	483.21	231	234	64	4.0
	7	18.0	~~.31~~	1.10	105	102	107	~~478.84~~ 484.5	238	237	64	4.0
	8	21.0	.42	1.50	107	103	112	486.3	239	234	65	5.0
	9	24.0	.32	1.14	108	104	106	489.21	240	241	65	4.0
	10	27.0	.42	1.50	107	103	109	490.8	241	243	65	4.0
	11	30.0	.45	1.60	104	103	108	492.32	233	231	65	4.0
	12	33.0	.45	1.60	103	102	112	494.31	230	231	64	4.0
	1	36.0	.44	1.56	103	100	100	496.2	232	233	67	4.0
	2	39.0	.45	1.60	104	100	90	498.91	234	235	66	4.5
	3	42.0	.40	1.42	103	100	89	500.38	230	231	63	4.0
	4	45.0	.31	1.10	103	101	88	502.38	234	238	64	4.0
	5	48.0	.30	1.07	103	101	86	504.82	237	240	65	4.0
	6	51.0	.20	.71	104	102	87	505.88	240	233	66	3.0
	7	54.0	.39	1.38	104	102	88	507.19	240	231	66	3.0
	8	57.0	.44	1.56	105	102	87	509.17	237	236	67	4.0
	9	60.0	.42	1.50	104	102	85	511.36	231	234	67	4.0
	10	63.0	.45	1.60	104	102	84	512.98	232	233	68	4.0
	11	66.0	.48	1.70	104	102	88	515.82	231	234	68	4.0
	12	69.0	.43	1.53	105	103	90	517.98	234	238	68	4.0
		72.0						519.187				

average 0.6524 1.5342 100.6042 98.0000 47.3810

SEACOR
RM-5 & 17 FIELD DATA

Plant	L.P.	Meter dH@	#1	Nozzle I.D.& Dia. (in.)	0.240
Location	Oroville, CA.	K Factor	3.55	Filter No.	~~LP-18~~ LP-18
Test Location	RV2	Pitot Coefficient (Cp)	0.84	Probe & Filter Temp. (F)	248 ± 25
Operator	BL JR Jeff	Ambient Temp.	95+	Leak Check Vacuum (Hg")	10 / 8.0
Date	06-14-94	Barometric Pres. (Bp)	29.77	Leak Rate (cfm)	0.000 / 0.001
Run No.	RV2. P2	Assumed H2O %	1-2%	Static Pres. (H2O")	.28
Control Box No.	1	Probe I.D.	7.0'	Test Time	1747 - 1915

Moisture

Imp	Initial	Final
1	100	198
2	100	
3	—	
4	300	311.3
Net Gain		9.3

522.010

PORT I.D.	POINT NO.	SAMPLE TIME	dP (H20")	dH (H20")	DGM TEMP. (F) Inlet	DGM TEMP. (F) Outlet	STACK TEMP (F)	SAMPLE VOL (ft3) ~~520.140~~	PROBE TEMP (F)	FILTER TEMP (F)	IMP. OUT. (F)	VACUUM (Hg")
NE	1	0.0	.50	1.78	101	100	108	~~519.198~~	240	242	68	5.0
	2	3.0	.48	1.63	101	100	107	524.38	239	239	67	5.0
	3	6.0	.35	1.24	102	101	107	526.8	240	240	65	5.0
	4	9.0	.34	1.21	102	101	109	528.3	239	238	65	5.0
	5	12.0	.25	.89	102	101	109	529.9	239	237	65	5.0
	6	15.0	.32	1.14	103	102	109	531.2	240	240	64	5.0
	7	18.0	.42	1.49	104	103	109	533.42	239	236	65	5.0
	8	21.0	.48	1.70	104	102	108	535.29	232	231	65	5.0
	9	24.0	.47	1.67	103	101	106	536.87	236	235	65	5.0
	10	27.0	.50	1.78	103	101	107	539.78	239	238	64	5.0
	11	30.0	.49	1.74	103	102	106	542.18	240	237	65	5.0
	12	33.0	.42	1.49	104	103	105	544.75	239	236	67	5.0
	1	36.0	.62	2.2	101	98	105	545.319	237	235	65	5.0
	2	39.0	.57	2.02	99	98	103	548.3	240	234	66	5.0
	3	42.0	.74	2.63	100	99	106	550.8	239	236	66	5.0
	4	45.0	.72	2.56	99	98	104	552.18	236	237	65	6.0
	5	48.0	.70	2.5	100	99	105	555.23	237	234	64	6.0
	6	51.0	.49	1.74	100	99	106	557.32	240	236	64	5.0
	7	54.0	.36	1.28	101	99	110	560.05	232	234	65	5.0
	8	57.0	.41	1.46	99	98	109	561.98	234	233	66	5.0
	9	60.0	.50	1.78	100	99	109	564.03	235	237	65	5.0
	10	63.0	.54	1.92	100	98	110	565.48	240	239	66	5.5
	11	66.0	.47	1.67	100	98	108	568.32	239	234	65	5.0
	12	69.0	.50	1.78	100	98	109	569.58	232	231	67	5.5
		72.0						~~571.759~~				

average 0.6885 1.7292 99.~~85~~ 8750 99.0833 571.1769 ~~49.7490~~

SEACOR
RM-5 & 17 FIELD DATA

Plant	L.P.	Meter dH@	#1	Nozzle I.D.& Dia. (in.)	0.240
Location	Oroville, CA.	K Factor	3.55	Filter No.	LP-21
Test Location	RU2	Pitot Coefficient (Cp)	0.84	Probe & Filter Temp. (F)	248 ± 25
Operator	BL, JR, Jeff	Ambient Temp.	75+	Leak Check Vacuum (Hg")	9.0 / 7.0
Date	06-14-94	Barometric Pres. (Bp)	29.74	Leak Rate (cfm)	0.007 / 0.002
Run No.	RU2-P3	Assumed H2O %	1-2%	Static Pres. (H2O")	+.30
Control Box No.	#1	Probe I.D.	7.0'	Test Time	2043-2211

Moisture

Imp	Initial	Final
1	100	
2	100	200
3	—	
4	300	311.2
Net Gain		11.2

Note * on stack Temp. may have to use Form Run at this time, RU2-P3,

PORT I.D.	POINT NO.	SAMPLE TIME	dP (H20")	dH (H20")	DGM TEMP. (F) Inlet	DGM TEMP. (F) Outlet	STACK TEMP (F)	SAMPLE VOL (ft3)	PROBE TEMP (F)	FILTER TEMP (F)	IMP. OUT. (F)	VACUUM (Hg")
SE	1	0.0	.57	2.02	86	85	103	572.958	240	236	68	6.0
	2	3.0	.64	2.27	87	85	103	575.21	240	237	66	6.0
	3	6.0	.63	2.24	87	84	103	577.3	240	231	64	6.0
	4	9.0	.65	2.3	85	84	103	579.38	238	236	65	6.0
	5	12.0	.61	2.17	85	84	103	581.3	239	231	64	6.0
	6	15.0	.40	1.42	85	83	103	584.28	236	233	64	6.0
	7	18.0	.44	1.56	84	83	102	586.21	237	234	63	6.0
	8	21.0	.42	1.5	84	82	106	588.12	237	236	60	6.0
	9	24.0	.45	1.60	84	82	107	589.21	239	237	60	6.0
	10	27.0	.49	1.74	85	82	107	591.68	235	236	60	6.0
	11	30.0	.44	1.56	86	82	108	594.12	236	247	61	6.0
	12	33.0	.48	1.70	85	82	107	596.18	240	247	62	6.0
HE	1	36.0	.40	1.42	81	80	75	597.280	597.285	248	63	6.0
	2	39.0	.40	1.42	81	80	74	600.01	597.637	239	63	6.0
	3	42.0	.32	1.10	82	81	74	602.1	239	247	63	6.0
	4	45.0	.26	.92	84	80	75	603.4	239	246	64	4.0
	5	48.0	.25	.89	81	80	75	605.21	239	245	63	3.0
	6	51.0	.26	.92	82	80	75	606.58	239	246	62	3.0
	7	54.0	.45	1.60	83	80	75	607.9	238	246	64	3.0
	8	57.0	.55	1.81	82	80	75	610.01	238	246	63	4.0
	9	60.0	.50	1.78	83	79	75	612.21	237	246	65	4.0
	10	63.0	.48	1.70	83	79		613.3	237	246	65	4.0
	11	66.0	.49	1.74	83	79		615.82	233	239	66	4.0
	12	69.0	.47	1.67	82	79		617.8	234	237	68	4.0
		72.0						619.732				

average 0.6677 1.6688 80.9375 89.5000 ~~26.974~~ 46.774

& use formaldehyde 103.29

SEACOR
RM-5 & 17 FIELD DATA

Plant	L-P	Meter dH@		Nozzle I.D.& Dia. (in.)	0.2127
Location	OROVILLE, CA	K Factor	~~252~~ 2.24	Filter No.	—
Test Location	RV #2	Pitot Coefficient (Cp)	0.84	Probe & Filter Temp. (F)	Ambient
Operator	JM	Ambient Temp.	100	Leak Check Vacuum (Hg")	10.0 / 7.0
Date	6/14/93	Barometric Pres. (Bp)	29.77	Leak Rate (cfm)	0.003 / 0.009
Run No.	RV2-F1	Assumed H2O %	6.0	Static Pres. (H2O")	0.28
Control Box No.	#2	Probe I.D.	TFE (6ft)	Test Time	1445 - 1613

Moisture

Imp	Initial	Final
1	100	↓
2	100	↓
3	—	198
4	300	312.2
Net Gain		10.2

TFE Probe, K = ~~252~~ 2.24, Nozz = 0.2127

PORT I.D.	POINT NO.	SAMPLE TIME	dP (H20")	dH (H20")	DGM TEMP. (F) Inlet	DGM TEMP. (F) Outlet	STACK TEMP (F)	SAMPLE VOL (ft3)	PROBE TEMP (F)	FILTER TEMP (F)	IMP. OUT. (F)	VACUUM (Hg")
	1	0	0.84	1.88	99	101	108	797.795			70	8
	2	3	0.78	1.74	100	101	107	799.90			66	7.5
	3	6	0.76	1.70	102	102	108	802.00			68	7.0
	4	9	0.78	1.74	103	102	109	804.08			68	7.0
	5	12	0.56	1.25	103	104	109	806.20			67	6.0
	6	15	0.43	0.96	103	103	109	808.02			67	4.5
	7	18	0.38	0.93	105	104	110	809.70			67	4.5
	8	21	0.35	0.85	108	106	112	811.30			68	4.5
	9	24	0.35	0.85	108	106	112	812.90			67	4.0
	10	27	0.32	0.72	105	104	110	814.30			67	3.5
	11	30	0.34	~~0.72~~ 0.76	100	103	110	816.00			66	4.0
	12	33	0.35	~~0.72~~ 0.78	98	103	109	817.50			64	4.0
	1	36	0.48	1.08	95	104	107	818.90			70	4.5
	2	39	0.52	1.16	99	105	108	820.36			70	5.0
	3	42	0.59	1.32	98	105	109	822.01			69	5.5
	4	45	0.63	1.52	98	105	109	823.90			68	6.0
	5	48	0.64	1.43	98	104	108	825.76			68	6.0
	6	51	0.41	0.92	101	106	109	827.60			69	4.0
	7	54	0.31	0.69	100	106	109	829.10			70	3.5
	8	57	0.43	0.96	98	105	109	830.52			69	4.0
	9	60	0.43	0.96	100	107	110	832.10			70	4.0
	10	63	0.43	0.96	100	106	TC loose	833.65			69	4.0
	11	66	0.39	0.87	100	106	↓	835.25			69	4.0
	12	69	0.40	0.90	99	106	↓	836.98			69	4.0
		72					↓	839.310				
		average	0.734	1.12		104.33	109.09	40.515				

SEACOR
RM-5 & 17 FIELD DATA

Plant	L-P	Meter dH@	RV2 – F2	Nozzle I.D.& Dia. (in.)	0.2127
Location	ORVILLE, CA	K Factor	2.24	Filter No.	—
Test Location	RV #2	Pitot Coefficient (Cp)	0.84	Probe & Filter Temp. (F)	Ambient
Operator	JM & JR	Ambient Temp.	100	Leak Check Vacuum (Hg")	9 / 7
Date	6/14/93	Barometric Pres. (Bp)	29.77	Leak Rate (cfm)	0.014 / 0.02
Run No.	RV2-F2	Assumed H2O %	1.0	Static Pres. (H2O")	0.28
Control Box No.	#2	Probe I.D.	(6ft) TFE	Test Time	1747 – 1950

Moisture

Imp	Initial	Final
1	100	198
2	100	
3	—	
4	300	311.6
Net Gain		8.8

PORT I.D.	POINT NO.	SAMPLE TIME	dP (H20")	dH (H20")	DGM TEMP. (F) Inlet	DGM TEMP. (F) Outlet	STACK TEMP (F)	SAMPLE VOL (ft3)	PROBE TEMP (F)	FILTER TEMP (F)	IMP. OUT. (F)	VACUUM (Hg")
	1	0	0.48	1.08	97	102	107	838.507			70	6.0
	2	3	0.58	1.30	96	100	106	840.18			66	6.0
	3	6	0.62	1.38	97	100	106	841.86			63	6.0
	4	9	0.64	1.43	98	100	106	843.66			64	6.0
	5	12	0.64	1.43	98	100	106	845.50			63	6.0
	6	15	0.45	1.01	98	99	107	847.31			63	4.0
	7	18	0.30	0.67	98	100	110	849.00			65	3.5
	8	21	0.38	0.85	98	100	110	850.36			65	4.0
	9	24	0.43	0.96	98	99	110	851.82			63	4.5
	10	27	0.43	0.96	97	99	110	853.39			63	4.5
	11	30	0.43	0.96	97	99	110	855.00			63	4.5
	12	33	0.42	0.94	96	99	111	856.60			63	4.5
	1	36	0.61	1.37	90	95	108	858.10			70	5.5
	2	39	0.46	1.03	92	96	107	859.90			65	5.0
	3	42	0.32	0.71	91	95	108	861.41			63	4.0
	4	45	0.26	0.58	91	94	108	862.82			63	3.0
	5	48	0.26	0.58	91	94	107	864.07			65	3.0
	6	51	0.29	0.65	91	94	108	865.32			66	3.5
	7	54	0.45	1.01	91	94	110	866.70			65	5.0
	8	57	0.42	0.94	91	93	109	868.22			63	4.5
	9	60	0.43	0.96	91	93	108	869.77			64	5.0
	10	63	0.43	0.96	92	93	107	871.31			64	5.0
	11	66	0.40	0.90	92	93	107	872.89			64	4.5
	12	69	0.42	0.94	91	93	105	874.40			64	4.5
		72						875.940				
		average	0.6588	0.9833		99.67	107.96	37.433				

SEACOR
RM-4 FIELD DATA FORM

Plant	L-P	Run No.	RV2 - F3	Ambient Temp.	80
Location	OROVILLE, CA	Control Box No.	# 2	Leak Check Vacuum (Hg")	8 / 5
Test Location	RV #2	Meter dH@		Leak Rate (cfm)	0.004 / 0.003
Operator	JM & JR	Barometric Pres. (Bp)	29.77	Static Pres. (H2O")	0.28
Date	6/14/94	Assumed H2O %	1.0	Test Time	2043

Moisture

Imp	Initial	Final
1	100	
2	100	200
3	—	
4	300	311.4
Total		11.4

(6') TFE Probe K = 2.24 NUZ = 0.2127

PORT I.D.	POINT NO.	SAMPLE TIME	dP (H20")	dH (H20")	DGM TEMP. (F) Inlet	DGM TEMP. (F) Outlet	STACK TEMP (F)	SAMPLE VOL (ft3)	PROBE TEMP (F)	FILTER TEMP (F)	IMP. OUT. (F)	VACUUM (Hg")
	1	0	0.40	0.90	80	82	104	878.153			70	3.0
	2	3	0.40	0.90	81	82	105	879.80			64	3.0
	3	6	0.33	0.74	81	82	105	881.21			61	3.0
	4	9	0.27	0.60	81	81	105	882.64			60	2.5
	5	12	0.26	0.58	81	81	106	883.84			58	2.5
	6	15	0.28	0.63	81	81	105	885.10			56	2.5
	7	18	0.31	0.69	81	80	105	886.60			56	2.5
	8	21	0.45	1.01	81	80	105	887.70			55	3.0
	9	24	0.48	1.07	81	80	105	889.29			55	3.0
	10	27	0.47	1.05	82	80	103	890.89			53	3.0
	11	30	0.47	1.05	82	80	102	892.50			54	3.0
	12	33	0.44	0.98	81	79	100	894.10			53	3.0
	1	36	0.73	1.63	77	78	99	895.685			69	5.0
	2	39	0.68	1.52	78	77	100	897.60			56	4.5
	3	42	0.73	1.63	79	77	100	899.50			54	5.0
	4	45	0.75	1.69	79	77	100	901.50			53	5.0
	5	48	0.62	1.39	80	77	101	903.53			54	5.0
	6	51	0.57	1.27	80	77	100	905.35			54	5.0
	7	54	0.37	0.83	79	77	104	907.16			55	3.0
	8	57	0.41	0.91	79	76	105	908.68			56	3.0
	9	60	0.49	1.10	79	76	106	910.10			57	3.0
	10	63	0.46	1.03	79	76	106	911.78			56	3.0
	11	66	0.45	1.01	79	77	104	913.33			57	3.0
	12	69	0.45	1.01	79	76	104	914.94			58	3.0
		72						916.525				
		average	0.6776	1.0508		79.35	103.29	38.372				

SEACOR
RM-5 & 17 FIELD DATA

Plant	L.P.	Meter dH@	#1	Nozzle I.D.& Dia. (in.)	.240
Location	Oroville, CA.	K Factor	~~3.55~~ 3.30	Filter No.	LP-36
Test Location	RU 1	Pitot Coefficient (Cp)	0.84	Probe & Filter Temp. (F)	248 ±25
Operator	BL, JR, Jeff	Ambient Temp.	75+	Leak Check Vacuum (Hg")	10.0 / 8.0
Date	06-15-94	Barometric Pres. (Bp)	29.82	Leak Rate (cfm)	0.000 / 0.001
Run No.	RU1-P1	Assumed H2O %	1-2%	Static Pres. (H2O")	-0.06
Control Box No.	#1	Probe I.D.	7.01	Test Time	1036-1204

Moisture

Imp	Initial	Final
1	100	200
2	100	
3	—	
4	300	311
Net Gain		11

PORT I.D.	POINT NO.	SAMPLE TIME	dP (H20")	dH (H20")	DGM TEMP. (F) Inlet	DGM TEMP. (F) Outlet	STACK TEMP (F)	SAMPLE VOL (ft3)	PROBE TEMP (F)	FILTER TEMP (F)	IMP. OUT. (F)	VACUUM (Hg")
SE	1	0.0	.30	.99	67	66	112	619.833	232	233	68	
	2	3.0	.60	1.98	69	67	113	622.3	230	231	66	7.0
	3	6.0	.69	2.28	70	68	112	624.3	231	234	52	7.0
	4	9.0	.71	2.34	71	69	113	626.48	238	244	50	7.0
	5	12.0	.62	2.05	71	69	111	628.72	237	245	51	7.0
	6	15.0	.62	2.05	72	69	112	630.1	232	248	54	7.0
	7	18.0	.31	1.02	72	69	107	633.19	234	245	52	6.0
	8	21.0	.41	1.35	72	70	104	634.91	238	245	54	6.0
	9	24.0	.53	1.75	73	69	106	635.7	232	248	56	6.0
	10	27.0	.55	1.82	74	70	104	638.2	233	247	56	6.0
	11	30.0	.53	1.75	74	70	105	640.8	231	245	56	6.0
	12	33.0	.53	1.75	74	70	105	642.02	234	246	56	6.0
	1	36.0	.68	2.24	76	71	115	644.15	235	247	59	6.0
	2	39.0	.68	2.24	73	71	115	646.98	237	244	63	6.0
	3	42.0	.59	1.95	76	71	116	649.28	240	245	59	6.0
	4	45.0	.55	1.82	75	72	116	651.48	240	246	53	6.0
	5	48.0	.45	1.49	76	73	116	653.09	240	247	59	6.0
	6	51.0	.33	1.09	73	76	113	655.52	240	244	60	6.0
	7	54.0	.34	1.12	78	74	112	657.42	233	247	61	6.0
	8	57.0	.31	1.02	78	74	109	658.83	233	246	61	6.0
	9	60.0	.44	1.45	78	76	109	654.52	234	248	61	6.5
	10	63.0	.45	1.49	79	74	109	662.43	232	244	60	5.0
	11	66.0	.41	1.35	79	74	105	663.72	232	240	60	5.0
	12	69.0	.41	1.35	78	75	105	666.08	230	238	62	5.0
		72.0						667.400				

average ~~0.5651~~ 0.7022 1.6558 72.60 110.17 47.567

SEACOR

RM-~~4~~ 5 FIELD DATA FORM

Plant	L.P.	Run No.	RU1-P2	Ambient Temp.	85+
Location	Oroville, CA	Control Box No.	#1	Leak Check Vacuum (Hg")	8.0 / 8.0
Test Location	RU 1	Meter dH@	1.810	Leak Rate (cfm)	0.004 / 0.002
Operator	BL, JR, Jeff	Barometric Pres. (Bp)	29.82	Static Pres. (H2O")	-0.07
Date	06-15-94	Assumed H2O %	1-2%	Test Time	1316-1509

filter LP-39

Moisture

Imp	Initial	Final
1	100	200
2	100	
3	—	
4	300	312.1
Total		12.1

Noz. .240 K = 3.30 * Note: Pump Maint.

PORT I.D.	POINT NO.	SAMPLE TIME	dP (H20")	dH (H20")	DGM TEMP. (F) Inlet	DGM TEMP. (F) Outlet	STACK TEMP (F)	SAMPLE VOL (ft3)	PROBE TEMP (F)	FILTER TEMP (F)	IMP. OUT. (F)	VACUUM (Hg")
	1	0.0	.65	2.15	85	85	117	667.500	230	232	68	7.0
	2	3.0	.66	2.1	86	85	116	669.3	232	231	66	7.0
	3	6.0	.53	1.75	86	86	118	672.9	230	234	62	6.0
	4	9.0	.47	1.55	86	85	118	674.23	238	232	63	6.0
	5	12.0	.40	1.32	87	86	116	676.9	236	237	61	6.0
	6	15.0	.31	1.02	88	87	115	678.45	231	237	62	5.5
	7	18.0	.34	1.12	89	87	112	679.8	235	234	61	5.0
	8	21.0	.39	1.29	90	88	109	681.73	236	237	61	6.0
	9	24.0	.44	1.45	91	89	108	683.42	236	240	62	6.0
	10	27.0	.42	1.39	93	91	108	685.21	239	240	62	6.0
	11	30.0	.39	1.29	97	94	107	687.12	240	239	63	6.0
	12	33.0	.41	1.35	95	92	107	688.92	235	240	63	6.0
	1	36.0	.60	1.98	98	93	118	690.27	240	239	62	6.0
	2	39.0	.55	1.82	98	93	117	693.21	238	239	59	6.0
	3	42.0	.67	2.21	95	93	116	695.058	240	241	63	7.0
	4	45.0	.70	2.31	97	95	115	696.836	232	238	64	7.0
	5	~~51.0~~ 48.0	.63	2.08	97	95	117	699.58	234	236	62	6.0
	6	~~54.0~~ 51.0	.38	1.25	98	96	116	702.01	238	239	62	6.0
	7	~~57.0~~ 54.0	.42	1.39	97	95	116	703.31	239	236	64	6.0
	8	~~60.0~~ 57.0	.33	1.09	97	96	115	705.89	240	235	63	6.0
	9	~~63.0~~ 60.0	.47	1.55	98	97	114	706.79	239	236	65	7.0
	10	~~66.0~~ 63.0	.60	1.98	99	98	113	708.58	240	235	67	~~7.0~~ 7.0
	11	~~69.0~~ 66.0	.55	1.82	99	97	113	711.32	239	236	67	6.0
	12	69.0	.50	1.65	99	98	115	713.08	231	232	68	6.0
		72.0						714.28				
								716.935				

average 0.6966 1.6213 92.6042 114.0000 49.4350

SEACOR

RM-~~4~~ 5 FIELD DATA FORM

Plant	L.P.	Run No.	~~#~~ RU1-P3	Ambient Temp.	85+
Location	Oroville, CA.	Control Box No.	#1	Leak Check Vacuum (Hg")	10.0 / 8.0
Test Location	RU1	Meter dH@	Box 1	Leak Rate (cfm)	0.002 / 0.001
Operator	BL, JR, Jeff	Barometric Pres. (Bp)	29.82	Static Pres. (H2O")	-0.07
Date	06-15-94	Assumed H2O %	1-2%	Test Time	1611 - ~~1934~~ 1734

Moisture

Imp	Initial	Final
1	100	188
2	100	
3	—	
4	300	314.3
Total		12.3

K = 3.30 (Filter #LP-38)

PORT I.D.	POINT NO.	SAMPLE TIME	dP (H20")	dH (H20")	DGM TEMP. (F) Inlet	DGM TEMP. (F) Outlet	STACK TEMP (F)	SAMPLE VOL (ft3)	PROBE TEMP (F)	FILTER TEMP (F)	IMP. OUT. (F)	VACUUM (Hg")
SE	1	0.0	.47	1.55	100	98	113	717.156	230	231	67	4.0
	2	3.0	.50	1.65	100	99	117	719.8	232	235	65	4.0
	3	6.0	.62	2.05	100	98	116	721.78	237	236	64	5.0
	4	9.0	.64	2.1	99	98	116	723.91	238	240	62	5.5
	5	12.0	.57	1.88	99	98	116	726.92	240	241	63	5.0
	6	15.0	.68	2.24	99	96	116	728.8	233	231	64	4.0
	7	18.0	.37	1.22	99	97	115	731.28	231	236	64	5.0
	8	21.0	.42	1.39	100	99	115	732.81	231	234	64	5.0
	9	24.0	.49	1.62	100	100	116	734.62	237	235	65	5.0
	10	27.0	.54 ~~.49~~	~~1.62~~ 1.78	101	100	113	736.65	236	237	65	5.0
	11	30.0	.50	1.65	100	98	113	738.42	237	234	65	5.0
	12	33.0	.50	1.65	98	98	112	740.2	237	236	65	5.0
NE	1	36.0	.70	2.31	100	98	122	742.381	238	240	67	5.5
	2	39.0	.77	2.54	99	98	120	745.62	239	241	65	6.0
	3	42.0	.72	2.38	99	97	120	747.91	240	242	62	6.0
	4	45.0	.65	2.15	100	98	118	750.28	239	236	64	5.0
	5	48.0	.60	1.98	100	97	118	752.48	240	239	66	5.0
	6	51.0	.35	1.16	100	98	116	754.72	232	234	66	4.0
	7	54.0	.29	.96	100	98	111	755.99	231	235	66	4.0
	8	57.0	.42	1.39	100	99	110	757.77	235	240	67	5.0
	9	60.0	.43	1.42	100	99	107	758.81	236	241	68	5.0
	10	63.0	.42	1.39	100	99	105	761.62	237	239	68	5.0
	11	66.0	.44	1.45	101	100	106	763.68	230	231	68	5.0
	12	69.0	.42	1.39	100	98	107	765.81	230	229	69	5.0
		72.0						767.228				

average 0.7168 1.7208 99.0000 114.0833 50.0720

SEACOR

RM-4 FIELD DATA FORM

Plant	L-P	Run No.	RV1-F1	Ambient Temp.	65+
Location	OROVILLE, CA	Control Box No.	#2	Leak Check Vacuum (Hg")	8.0/7.0
Test Location	Roof Unit #1	Meter dH@	2.1118	Leak Rate (cfm)	0.0/0.000
Operator	JM, JR	Barometric Pres. (Bp)	29.82	Static Pres. (H2O")	-0.06
Date	6/15/94	Assumed H2O %	6.0	Test Time	10:36 - 1204

Moisture

Imp	Initial	Final
1	100	✓
2	100	198
3	—	—
4	300	313.2
Total		11.2

6' TFE Probe, NOZ = 0.2127 (#7) K = 2.38

PORT I.D.	POINT NO.	SAMPLE TIME	dP (H20")	dH (H20")	DGM TEMP. (F) Inlet	DGM TEMP. (F) Outlet	STACK TEMP (F)	SAMPLE VOL (ft3)	PROBE TEMP (F)	FILTER TEMP (F)	IMP. OUT. (F)	VACUUM (Hg")
	1	0	0.50	1.19	65	65	109	916.802			70	5.5
	2	3	0.48	1.14	66	66	111	918.40			53	5.5
	3	6	0.37	0.88	66	65	111	919.98			52	4.5
	4	9	0.38	0.90	67	66	111	921.49			53	4.5
	5	12	0.33	0.79	68	66	111	922.90			55	4.0
	6	15	0.30	0.71	69	66	111	923.99			55	4.0
	7	18	0.42	1.00	69	67	108	925.75			55	5.0
	8	21	0.45	1.07	70	67	103	927.30			55	5.0
	9	24	0.50	1.19	71	68	101	928.86			55	5.5
	10	27	0.45	1.07	71	68	100	930.53			56	5.0
	11	30	0.43	1.02	71	68	99	932.12			56	5.0
	12	33	0.43	1.02	71	68	98	933.69			56	5.0
	1	36	0.56	1.33	70	70	110	935.39			57	5.0
	2	39	0.53	1.26	72	70	110	936.70			58	5.0
	3	42	0.60	1.42	72	70	110	938.72			55	6.0
	4	45	0.65	1.55	73	71	112	940.50			54	6.5
	5	48	0.56	1.33	73	71	111	942.40			54	5.0
	6	51	0.37	0.88	74	72	109	944.18			56	4.5
	7	54	0.33	0.79	75	72	106	945.20			58	4.0
	8	57	0.32	0.76	75	72	107	946.40			58	4.0
	9	60	0.41	0.97	75	72	105	948.53			58	4.5
	10	63	0.48	1.14	75	73	105	950.10			58	5.0
	11	66	0.52	1.23	75	73	104	951.72			57	5.5
	12	69	0.55	1.31	75	73	104	953.40			58	5.5
		72						955.277				
		average	0.6710	1.0813		70.15	106.92	38.475				

SEACOR
RM-5 & 17 FIELD DATA

Plant	L-P	Meter dH@	2.1118	Nozzle I.D.& Dia. (in.)	(#7) 0.2127
Location	OROVILLE, CA	K Factor	2.38	Filter No.	—
Test Location	Root Vent #1	Pitot Coefficient (Cp)	84	Probe & Filter Temp. (F)	— Ambient
Operator	JM & JR	Ambient Temp.	85	Leak Check Vacuum (Hg")	7 / 9.5
Date	6/15/94	Barometric Pres. (Bp)	29.82	Leak Rate (cfm)	0.002 / 0.002
Run No.	RV1-F2	Assumed H2O %	1.0	Static Pres. (H2O")	-0.07
Control Box No.	#2	Probe I.D.	6' TFE Pope	Test Time	1316 - 1509

Moisture

Imp	Initial	Final
1	100	
2	100	196
3	—	
4	300	303.9
Net Gain		4.9

PORT I.D.	POINT NO.	SAMPLE TIME	dP (H20")	dH (H20")	DGM TEMP. (F) Inlet	DGM TEMP. (F) Outlet	STACK TEMP (F)	SAMPLE VOL (ft3)	PROBE TEMP (F)	FILTER TEMP (F)	IMP. OUT. (F)	VACUUM (Hg")	
	1	0	0.49	1.17	80	84	114	755.60			70	7.0	
	2	3	0.52	1.23	81	84	114	957.00			67	7.0	
	3	6	0.59	1.40	82	85	114	958.78			69	7.5	
	4	9	0.64	1.52	83	85	115	960.58			68	8.0	
	5	12	0.52	1.24	84	86	115	962.48			67	7.0	
	6	15	0.34	0.81	86	87	113	964.23			66	5.0	
	7	18	0.34	0.81	86	88	115	965.65			67	5.0	
	8	21	0.36	0.86	88	89	112	967.10			65	5.0	
	9	24	0.49	1.17	90	90	112	968.56			66	5.5	
	10	27	0.51	1.21	90	90	110	970.15			64	6.0	
	11	30	0.51	1.21	91	91	110	971.85			64	6.0	
	12	33	0.50	1.19	92	92	111	973.57			64	6.0	
	1	36	0.80	1.90	91	96	119	975.28			70	9.0	
	2	39	0.75	1.79	91	95	118	977.50			65	9.0	
	3	42	0.64	1.52	92	95	120	979.46	979.93	7	62	8.5	* Leak check
	4	45	0.63	1.50	88	95	116	981.38	979.98	2	66	8.0	
	5	48	0.48	1.14	90	96	118	983.29			63	6.0	
	6	51	0.34	0.81	91	97	117	984.90			63	5.0	
	7	54	0.34	0.81	90	97	116	986.40			64	5.0	
	8	57	0.34	0.81	93	99	113	987.89			66	5.0	
	9	60	0.44	1.05	93	99	110	989.32			66	5.5	
	10	63	0.44	1.05	94	99	110	990.95			66	5.5	
	11	66	0.43	1.02	94	99	110	992.54			66	5.5	
	12	69	0.40	0.95	95	100	109	994.15			66	5.0	
		72						995.685					

average 0.6971 1.1738 90.6875 113.7083 40.0400 * →

SEACOR

RM-4 FIELD DATA FORM

Plant	L-P	Run No.	RV1-F3	Ambient Temp.	95
Location	OROVILLE, CA	Control Box No.	#2	Leak Check Vacuum (Hg")	8 / 4
Test Location	Roof Vent #1	Meter dH@	2.1118	Leak Rate (cfm)	0.001 / 0.000
Operator	JM & JR	Barometric Pres. (Bp)	29.82	Static Pres. (H2O")	-0.07
Date	6/15/94	Assumed H2O %	6.0	Test Time	16:11 – 17:34

Moisture

Imp	Initial	Final
1	100	
2	100	↓
3	—	194
4	300	309.5
Total		3.5

6' TFE Probe, NOZ = 0.2127", K = 2.38

PORT I.D.	POINT NO.	SAMPLE TIME	dP (H20")	dH (H20")	DGM TEMP. (F) Inlet	DGM TEMP. (F) Outlet	STACK TEMP (F)	SAMPLE VOL (ft3)	PROBE TEMP (F)	FILTER TEMP (F)	IMP. OUT. (F)	VACUUM (Hg")
	1	0	0.73	1.74	90	100	120	995.826			60	2.0
	2	3	0.65	1.55	90	100	122	997.92			57	2.0
	3	6	0.64	1.52	91	100	121	999.94			59	2.0
	4	9	0.59	1.40	91	99	120	01.91			60	2.0
	5	12	0.52	1.24	92	100	120	3.76			60	2.0
	6	15	0.51	1.21	92	99	116	5.50			57	2.0
	7	18	0.35	0.83	94	100	115	7.55			58	2.0
	8	21	0.46	1.09	96	101	113	9.85			59	2.0
	9	24	0.46	1.09	96	101	111	10.42			58	2.0
	10	27	0.44	1.05	95	100	109	12.07			56	2.0
	11	30	0.47	1.12	94	100	111	13.69			56	2.0
	12	33	0.47	1.12	95	100	111	15.34			56	2.0
	1	36	0.72	1.71	92	99	121	17.030			70	2.0
	2	39	0.67	1.59	94	99	123	19.10			57	2.0
	3	42	0.78	1.86	95	98	121	21.10			53	2.0
	4	45	0.83	1.98	94	98	120	23.26			53	2.0
	5	48	0.69	1.64	95	98	120	25.44			54	2.0
	6	51	0.50	1.19	96	99	119	27.51			56	2.0
	7	54	0.25	0.59	94	98	115	29.25			58	2.0
	8	57	0.46	1.09	95	99	115	30.56			59	2.0
	9	60	0.55	1.31	93	96	113	32.18			56	2.0
	10	63	0.52	1.23	94	96	113	33.99			56	2.0
	11	66	0.55	1.31	93	96	110	35.75			56	2.0
	12	69	0.55	1.31	93	96	111	37.55			57	2.0
		72						39.373				
	average		~~0.7790~~ 0.7399	1.3238		96.1667	116.2500	43.5470				

[redacted]		[redacted]	
1.	1.90	7	1.70
2.	2.00	8	1.75
3	1.95	9	1.65
4	1.80		
5	1.65		
6	1.65		

[redacted]

SEACOR
RM-1 DATA FORM

NORTH PORT

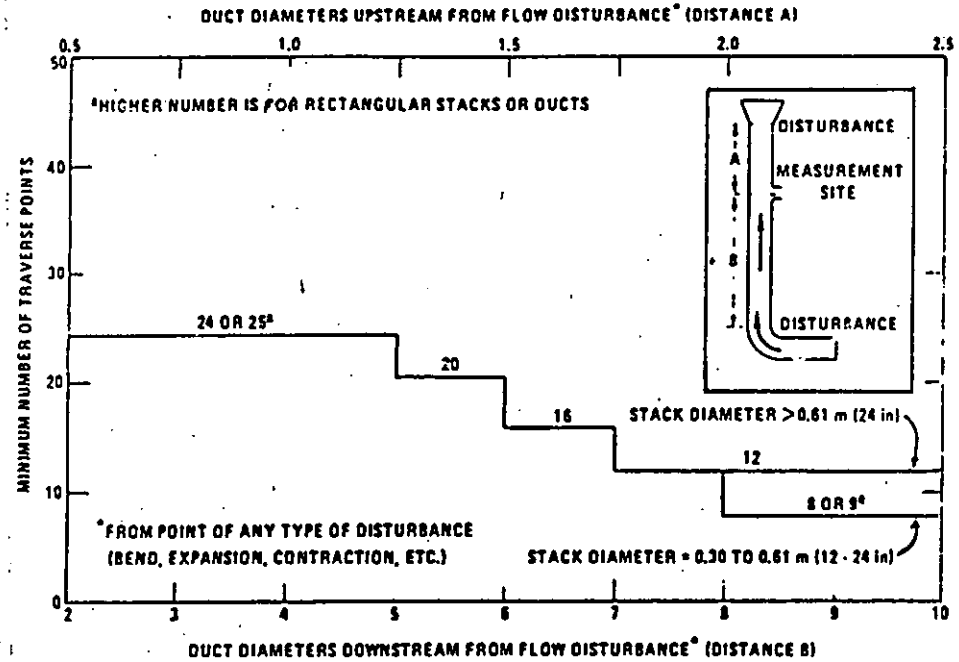
1.	1.40	7.	1.75
2.	1.60	8.	
3.	1.65		
4.	1.65		
5.	1.70		
6.	1.75		

Static = 1.70
Avg $\sqrt{\Delta p}$ = 1.3114
Temp = 130
Box ΔH = 1.9107
calc NOZ = 0.196

Plant	LP
Location	Pleasanton CA
Test Location	Down Comner Stack
Operator	KAA
Date	06-17-94

Stack Dia. (in.)	48.0
Port Dia. (in.)	3
Port Depth (in.)	
Upstream (A in.)	17
Downstream (B in.)	greater than 80

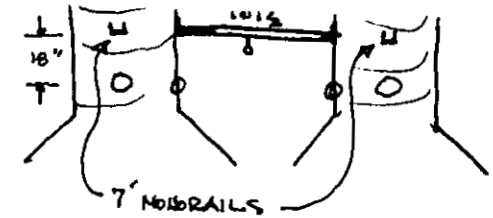
0.181 = NOZ
1.076 = K



Traverse point number on a diameter	Number of traverse points on a diameter— 2	4	6	8	10	12	14	16	18	20	22	24
1	14.6	6.7	4.4	3.2	2.6	2.1	1.8	1.6	1.4	1.3	1.1	1.1
2	85.4	25.0	14.6	10.5	8.2	6.7	5.7	4.9	4.4	3.9	3.5	3.2
3		75.0	29.6	19.4	14.6	11.8	9.9	8.5	7.5	6.7	6.0	5.5
4		93.3	70.4	32.3	22.6	17.7	14.6	12.5	10.9	9.7	8.7	7.9
5			85.4	67.7	34.2	25.0	20.1	16.9	14.6	12.9	11.6	10.5
6			95.6	80.6	65.8	35.6	26.9	22.0	18.8	16.5	14.6	13.2
7				89.5	77.4	64.4	36.6	28.3	23.6	20.4	18.0	16.1
8				96.8	85.4	75.0	63.4	37.5	29.6	25.0	21.8	19.4
9					91.8	82.3	73.1	62.5	38.2	30.6	26.2	23.0
10					97.4	88.2	79.9	71.7	61.8	38.8	31.5	27.2
11						93.3	85.4	78.0	70.4	61.2	39.3	32.3
12						97.9	90.1	83.1	76.4	69.4	60.7	39.8
13							94.3	87.5	81.2	75.0	68.5	60.2
14							98.2	91.5	85.4	79.6	73.8	67.7
15								95.1	89.1	83.5	78.2	72.8
16								98.4	92.5	87.1	82.0	77.0
17									95.6	90.3	85.4	80.6
18									98.6	93.3	88.4	83.9
19										96.1	91.3	86.8
20										98.7	94.0	89.5
21											96.5	92.1
22											98.9	94.5
23												96.8
24												98.9

Point No.	Dist. From Wall (in.)	Dist. With Port (in.)
1	1.0	1.0
2	3.21	3.21
3	5.7	5.7
4	8.5	8.5
5	12.0	12.0
6	17.1	17.1

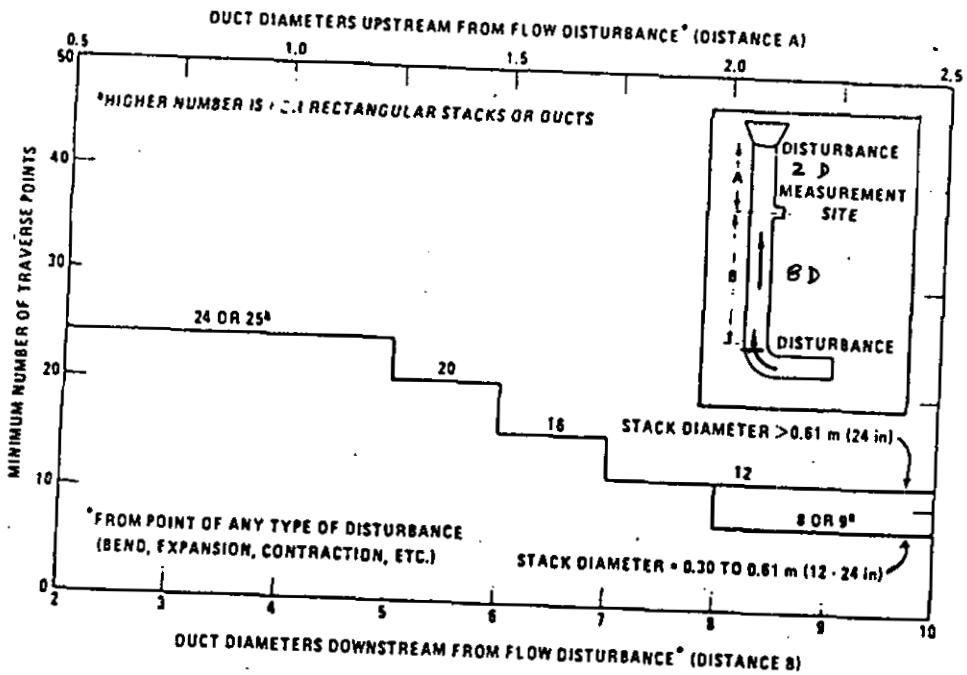
Point No.	Dist. From Wall (in.)	Dist. With Port (in.)
7	30.9	30.9
8	36.0	36.0
9	39.5	39.5
10	42.3	42.3
11	44.8	44.8
12	47	47



SEACOR
RM-1 DATA FORM

Plant	L-P
Location	OROVILLE, CA
Test Location	
Operator	
Date	6/15/94

Stack Dia. (in.)	
Port Dia. (in.)	
Port Depth (in.)	
Upstream (A in.)	10"
Downstream (B in.)	> 8 D



Traverse point number on a diameter	Number of traverse points on a diameter											
	2	4	6	8	10	12	14	16	18	20	22	24
1	14.6	6.7	4.4	3.2	2.6	2.1	1.8	1.6	1.4	1.3	1.1	1.1
2	85.4	25.0	14.6	10.5	8.2	6.7	5.7	4.9	4.4	3.9	3.5	3.2
3		75.0	29.6	19.4	14.6	11.8	9.9	8.5	7.5	6.7	6.0	5.5
4		93.3	70.4	32.3	22.6	17.7	14.6	12.5	10.9	9.7	8.7	7.9
5			85.4	67.7	34.2	25.0	20.1	16.9	14.6	12.9	11.6	10.5
6			95.6	80.6	65.8	35.6	26.9	22.0	18.8	16.5	14.6	13.2
7				89.5	77.4	64.4	36.6	28.3	23.6	20.4	18.0	16.1
8				96.8	85.4	75.0	63.4	37.5	29.6	25.0	21.8	19.4
9					91.8	82.3	73.1	62.5	38.2	30.6	26.2	23.0
10					97.4	88.2	79.9	71.7	61.8	38.8	31.5	27.2
11						93.3	85.4	78.0	70.4	61.2	39.3	32.3
12						97.9	90.1	83.1	76.4	69.4	60.7	39.8
13							94.3	87.5	81.2	75.0	68.5	60.2
14							98.2	91.5	85.4	79.6	73.8	67.7
15								95.1	89.1	83.5	78.2	72.8
16								98.4	92.5	87.1	82.0	77.0
17									95.6	90.3	85.4	80.6
18									98.6	93.3	88.4	83.9
19										96.1	91.3	86.8
20										98.7	94.0	89.5
21											96.5	92.1
22											98.9	94.5
23												96.8
24												98.9

Point No.	Dist. From Wall (in.)	Dist. With Port (in.)
1		
2		
3		
4		
5		
6		

Point No.	Dist. From Wall (in.)	Dist. With Port (in.)
7		
8		
9		
10		
11		
12		

S[redacted]H [redacted]LON[redacted]Z
DOWNCOMER
INLET RUN P1

SEACOR
RM-5 & 17 FIELD DATA

Plant	LP	Meter dH@	1.9107 Yd .9911	Nozzle I.D.& Dia. (in.)	.181
Location	OROVILLE	K Factor	0.98[redacted]	Filter No.	LP 37
Test Location	south down comer INLET	Pitot Coefficient (Cp)	0.84	Probe & Filter Temp. (F)	248 ± 25
Operator	KAM	Ambient Temp.	75	Leak Check Vacuum (Hg")	15 \ 13
Date	6/17/94	Barometric Pres. (Bp)	29.91	Leak Rate (cfm)	0.008 \ 0.003
Run No.	P1	Assumed H2O %	8	Static Pres. (H2O")	+2.0
Control Box No.	3	Probe I.D.	5'55	Test Time	10:00 – 11:24

Moisture

Imp	Initial	Final
1	100	262
2	100	125
3	–	–
4	300	314.1
Net Gain		201.1

PORT I.D.	POINT NO.	SAMPLE TIME	dP (H20")	dH (H20")	DGM TEMP. (F) Inlet	DGM TEMP. (F) Outlet	STACK TEMP (F)	SAMPLE VOL (ft3)	PROBE TEMP (F)	FILTER TEMP (F)	IMP. OUT. (F)	VACUUM (Hg")
N	1	0	1.2	1.2	83	80	146	747.60	252	252	60	7
	2	3	1.3	1.27	84	81	145	749.3	252	252	54	7.5
	3	6	1.3	1.27	84	81	144	751.1	251	253	52	8
	4	9	1.5	1.5	85	82	145	752.92	252	252	52	9
	5	12	1.55	1.52	86	82	147	754.9	252	251	55	10
	6	15	1.60	1.57	87	83	148	756.9	252	252	57	10
	7	18	1.65	1.62	87	83	147	759.0	252	252	60	10.5
	8	21	1.70	1.67	88	84	149	761.0	252	252	62	11
	9	24	1.70	1.67	88	84	147	763.07	252	252	64	11
	10	27	1.60	1.57	89	85	148	764.9	252	253	66	10.5
	11	30	1.35	1.32	89	85	149	767.2	252	251	66	9
	12	33	1.35	1.32	89	85	148	769.13	252	252	68	9
W	1	36	1.30	1.27	89	87	145	771.035	245	252	66	8.5
	2	39	1.50	1.47	89	87	143	772.7	249	251	63	9.5
	3	42	1.80	1.77	90	87	142	774.7	251	251	59	11
	4	45	1.90	1.87	91	87	144	776.85	251	253	57	12
	5	48	1.90	1.87	91	88	145	779.03	252	252	60	12
	6	51	1.80	1.77	92	88	147	781.3	252	252	62	11
	7	54	1.65	1.62	92	89	149	783.5	252	252	63	10.5
	8	57	1.65	1.62	92	89	140	785.6	252	253	64	10.5
	9	60	1.65	1.62	93	90	148	787.65	252	252	64	10.5
	10	63	1.65	1.62	93	89	150	789.6	252	252	65	10.5
	11	66	1.65	1.62	94	90	149	791.8	251	252	65	10.5
	12	69	1.65	1.62	94	90	149	793.9	252	252	65	10.5
		72										
		average	1.25	1.55		87.4	146.15	795.957				

48.357

SEACOR
RM-5 & 17 FIELD DATA

Plant	LP	Meter dH@	1.9107 Y1 .9911	Nozzle I.D.& Dia. (in.)	.181
Location	OROVILLE, CA	K Factor	~~2.98~~ 0.835	Filter No.	LP 44
Test Location	SOUTH CYCLONE INLET	Pitot Coefficient (Cp)	0.84	Probe & Filter Temp. (F)	248 ± 25
Operator	Kenn	Ambient Temp.	DOWNCOMER	Leak Check Vacuum (Hg")	15/9
Date	6/17/94	Barometric Pres. (Bp)	29.91	Leak Rate (cfm)	0.00 / 0.00
Run No.	~~[illegible]~~ DCS-P2	Assumed H2O %	8	Static Pres. (H2O")	+2.1
Control Box No.	3	Probe I.D.	555	Test Time	12:36 — 15:56

Moisture

Imp	Initial	Final
1	100	253
2	100	MZ
3	—	—
4	300	309.0
Net Gain		4.0

PORT I.D.	POINT NO.	SAMPLE TIME	dP (H20")	dH (H20")	DGM TEMP. (F) Inlet	DGM TEMP. (F) Outlet	STACK TEMP (F)	SAMPLE VOL (ft3)	PROBE TEMP (F)	FILTER TEMP (F)	IMP. OUT. (F)	VACUUM (Hg")
W	1	0	1.20	1.18	96	96	172	796.205	248	254	60	6
	2	3	1.50	1.47	94	96	168	798.1	252	252	57	7
	3	6	1.65	1.62	94	95	166	799.8	252	252	54	8
	4	9	1.70	1.67	94	96	165	802.05	252	252	50	8
	5	12	1.70	1.67	95	95	165	804.15	252	252	50	8
	6	15	1.65	1.62	96	96	163		252	253	52	8
	7	18	1.45	1.42	96	96	163		253	252	52	7
	8	21	1.50	1.47	97	96	163	810.27	251	252	53	7
	9	24	1.50	1.47	97	96	163	812.2	252	252	53	7
	10	27	1.50	1.47	97	96	163	814.17	252	252	54	7
	11	30	1.50	1.47	97	97	154	816.12	252	252	54	7
	12	33	1.45	1.42	97	97	148	817.1	252	252	54	7
N	1	36	1.10	0.92	84	85	147	820.02	228	262	64	5
	2	39	1.10	0.92	85	85	143	821.53	236	254	56	5
	3	42	1.2	1.00	85	85	131	823.1	248	251	55	5
	4	45	1.25	1.04	86	85	130	824.75	248	251	56	5.5
	5	48	1.25	1.04	86	85	133	826.4	246	253	56	5.5
	6	51	1.25	1.04	87	85	132	828.12	245	252	57	6
	7	54	1.10	0.92	87	85	135	829.8	248	253	58	5
	8	57	1.10	0.92	87	85	137	831.4	251	253	60	5
	9	60	1.15	0.96	88	85	132	833.1	251	252	61	5
	10	63	1.00	0.84	88	86	126	834.60	251	252	61	5
	11	66	0.65	0.54	88	85	121	836.2	251	253	63	3.5
	12	69	0.74	0.62	89	86	119	837.4	251	252	63	3.5
		72						838.696				

PROCESS DOWN @ 13:15 DURING PORT CHANGE UP@15:00

average 1.1328 1.1779 90.9167 141.1250 42.4910

SEACOR
RM-5 & 17 FIELD DATA

Plant	LP	Meter dH@	1.9107	Nozzle I.D.& Dia. (in.)	.181
Location	OROVILLE, CA	K Factor	0.835	Filter No.	LP 45
Test Location	DOWNCOMER SOUTH INLET	Pitot Coefficient (Cp)	.84	Probe & Filter Temp. (F)	248 & 25
Operator	Kam	Ambient Temp.	90	Leak Check Vacuum (Hg")	15/15
Date	6/17/94	Barometric Pres. (Bp)	29.91	Leak Rate (cfm)	0.00
Run No.	DCS-P3	Assumed H2O %	16	Static Pres. (H2O")	+1.8
Control Box No.	3	Probe I.D.	5-55	Test Time	17:02 - 18:25

Moisture

Imp	Initial	Final
1	100	162
2	100	112
3	—	
4	300	309.1
	Net Gain	

PORT I.D.	POINT NO.	SAMPLE TIME	dP (H20")	dH (H20")	DGM TEMP. (F) Inlet	DGM TEMP. (F) Outlet	STACK TEMP (F)	SAMPLE VOL (ft3)	PROBE TEMP (F)	FILTER TEMP (F)	IMP. OUT. (F)	VACUUM (Hg")
N	1	0	1.1	0.92	86	86	134	838.900	252	253	63	8
	2	3	1.1	0.92	86	86	133	840.6	252	252	63	8
	3	6	1.2	1.0	87	86	132	842.0	252	252	63	9
	4	9	1.25	1.04	87	86	133	843.65	250	251	64	9
	5	12	1.4	1.17	88	86	133	~~843.02~~	252	252	63	11
	6	15	1.45	1.21	88	86	133	847.02	252	251	63	11
	7	18	1.40	1.17	89	86	134	848.9	252	252	63	11
	8	21	1.30	1.09	89	86	135	850.66	252	252	68	10
	9	24	1.20	1.0	89	85	134	852.4	251	252	65	9
	10	27	1.1	0.92	88	85	133	854.1	251	252	63	8
	11	30	1.15	0.96	89	85	133	855.63	252	254	63	8.5
	12	33	1.15	0.96	89	85	135	857.4	252	251	62	8.5
W	1	36	1.50	1.25	89	87	135	858.913	239	257	65	11.5
	2	39	1.50	1.25	89	87	135	860.8	240	255	64	11.5
	3	42	1.80	1.50	91	88	137	862.64	251	251	61	13
	4	45	1.90	1.59	91	88	141	864.55	252	253	61	14
	5	48	1.95	1.63	92	89	142	866.7	252	253	61	14.5
	6	51	1.90	1.59	93	89	141	868.67	251	252	63	14
	7	54	1.60	1.34	92	88	140	870.77	251	252	64	12.5
	8	57	1.50	1.25	93	89	140		252	252	65	12
	9	60	1.50	1.25	93	89	139	874.6	252	252	65	12
	10	63	1.55	1.29	93	89	139	876.34	251	251	65	12
	11	66	1.45	1.21	93	89	139	878.2	251	251	66	11.5
	12	69	1.45	1.21	93	89	139	880.1	251	251	66	11.5
		72						881.757				

average 1.1920 1.1967 88.4583 136.2083 42.8570

Rm 0011 (HCHO)

SEACOR
RM-5 & 17 FIELD DATA

Plant	LP	Meter dH@	1.9107 Xd .9911	Nozzle I.D.& Dia. (in.)	.181
Location	OROVILLE, CA	K Factor	.835	Filter No.	—
Test Location	SOUTH POWERHOUSE INLET	Pitot Coefficient (Cp)	.84	Probe & Filter Temp. (F)	248 ± 25
Operator	Kam	Ambient Temp.		Leak Check Vacuum (Hg")	12 / 9
Date	6/17/94	Barometric Pres. (Bp)	29.91	Leak Rate (cfm)	0.00 / 0.002
Run No.	DCS - F1	Assumed H2O %	16	Static Pres. (H2O")	+2.0
Control Box No.	3	Probe I.D.	5T	Test Time	20:02 - 20:59

Moisture

Imp	Initial	Final
DWPH 1	100	
2	100	280
3	—	
4	300	309
Net Gain		89.

PORT I.D.	POINT NO.	SAMPLE TIME	dP (H20")	dH (H20")	DGM TEMP. (F) Inlet	DGM TEMP. (F) Outlet	STACK TEMP (F)	SAMPLE VOL (ft3)	PROBE TEMP (F)	FILTER TEMP (F)	IMP. OUT. (F)	VACUUM (Hg")
W	1	0	1.5	1.25	82	82	139	882.252	250		60	6
	2	2	1.60	1.34	82	82	139	883.5	250		60	6
	3	4	1.90	1.59	83	82	139	884.73	252		60	7
	4	6	2.0	1.67	83	82	139	886.06	252		60	7.5
	5	8	2.05	1.71	84	82	140	887.45	252		61	7.5
	6	10	2.05	1.71	84	82	140	888.86	252		61	7.5
	7	12	1.95	1.63	85	82	142	890.3	252		61	7
	8	14	1.80	1.50	86	82	142	891.6	252		61	6.5
	9	16	1.75	1.46	86	82	141		252		61	6.5
	10	18	1.70	1.42	86	82	140	894.28	252		61	6.5
	11	20	1.65	1.38	86	82	141	895.6	252		61	6.5
	12	22	1.60	1.34	86	82	140	896.86	252		61	6
N	1	24	1.00	0.84	84	81	141	898.05	252		65	4.5
	2	26	1.1	0.92	84	81	143	899.10	252		62	5
	3	28	1.3	1.09	85	82	143	900.15	252		60	5.5
	4	30	1.45	1.21	85	82	144	901.28	252		60	6
	5	32	1.50	1.25	86	82	143	902.47	252		57	6.5
	6	34	1.6	1.34	86	82	143	903.7	252		56	7.0
	7	36	1.65	1.38	86	82	144	904.98	252		56	7.5
	8	38	1.65	1.38	86	81	143	906.2	252		56	7.5
	9	40	1.6	1.34	87	82	143	907.5	252		56	7.5
	10	42	1.55	1.29	86	81	142	908.7	252		56	8
	11	44	1.50	1.25	86	81	142	909.92	252		56	8
	12	46	1.50	1.25	86	82	142	911.13	252		56	8
		48						912.276				

average 1.2554 1.3568 833958 141.4683 30.0240

RM 0011 (HCHO)

SEACOR
RM-5 & 17 FIELD DATA

Plant	LP	Meter dH@	1.9107	Y_d .9911	Nozzle I.D.& Dia. (in.) .181
Location	ORONILLE, CA	K Factor	.835		Filter No. —
Test Location	SOUTH DOWNCOMER INLET	Pitot Coefficient (Cp)	.84		Probe & Filter Temp. (F) 248 ± 25°F
Operator	Kam	Ambient Temp.	75		Leak Check Vacuum (Hg") 12/13
Date	6/17/94	Barometric Pres. (Bp)	29.91		Leak Rate (cfm) 0.006/0.004
Run No.	DCS-F2	Assumed H2O %	16		Static Pres. (H2O") +2.0
Control Box No.	3	Probe I.D.	5T		Test Time 21:55 – 22:48

Moisture

Imp	Initial	Final
1	100	208.6
2	100	
3	—	
4	300	309.4
Net Gain		95.4

PORT I.D.	POINT NO.	SAMPLE TIME	dP (H20")	dH (H20")	DGM TEMP. (F) Inlet	DGM TEMP. (F) Outlet	STACK TEMP (F)	SAMPLE VOL (ft3)	PROBE TEMP (F)	FILTER TEMP (F)	IMP. OUT. (F)	VACUUM (Hg")
N	1	0	1.3	1.09	79	78	140	912.362	253		65	6
	2	2	1.3	1.09	79	78	140	913.52	253		64	6
	3	4	1.5	1.25	79	78	141	914.70	252		60	6
	4	6	1.65	1.38	80	78	140	915.90	252		60	7
	5	8	1.70	1.42	80	78	141	917.18	252		60	7
	6	10	1.8	1.5	81	79	142	918.44	251		62	7.5
	7	12	1.8	1.5	82	79	143	919.80	252		63	8
	8	14	1.8	1.5	83	79	143	921.12	252		63	8
	9	16	1.75	1.46	83	79	142	922.4	252		64	7
	10	18	1.75	1.46	84	79	144	923.75	252		64	7
	11	20	1.65	1.38	84	80	145	925.0	252		64	7
	12	22	1.65	1.38	84	80	145	926.3	252		64	7
W	1	24	0.93	0.78	84	80	145	927.591	251		65	3.5
	2	26	0.79	0.66	84	80	146	927 –	280		64	3.5
	3	28	1.00	0.84	83	80	145	929.67	280		64	4.6
	4	30	1.20	1.00	83	80	144	930.65	252		63	5.8
	5	32	1.30	1.10	84	80	145	931.73	252		63	5.9
	6	34	1.20	1.00	84	80	145	932.85	252		63	5.4
	7	36	1.30	1.10	84	80	144	933.94	252		64	5.5
	8	38	1.30	1.10	85	80	143	935.05	252		64	5.6
	9	40	1.50	1.25	85	80	144	936.16	252		65	7
	10	42	1.60	1.34	86	81	144	937.35	252		66	7.6
	11	44	1.70	1.42	86	81	145	938.57	252		66	8.5
	12	46	1.70	1.42	87	81	144	939.84	252		67	8.9
		48						941.104				

average 1.2040 1.2258 81.2708 143.3833 28.74120

RM0011 (HCHO)
SOUTH DOWN COMER
INLET TO FILTER BOX

SEACOR
RM-5 & 17 FIELD DATA

Plant	LP	Meter dH@	1.9107 Yd .9911	Nozzle I.D.& Dia. (in.)	.181
Location	OROVILLE, CA	K Factor	0.835	Filter No.	—
Test Location	DCS-	Pitot Coefficient (Cp)	.84	Probe & Filter Temp. (F)	248 + 25
Operator	Kim	Ambient Temp.	85	Leak Check Vacuum (Hg")	12/13
Date	6/18/94	Barometric Pres. (Bp)	29.90	Leak Rate (cfm)	0.00 / 0.00
Run No.	DCS- F3	Assumed H2O %	16	Static Pres. (H2O")	+1.5
Control Box No.	3	Probe I.D.	5T	Test Time	11:44 1236

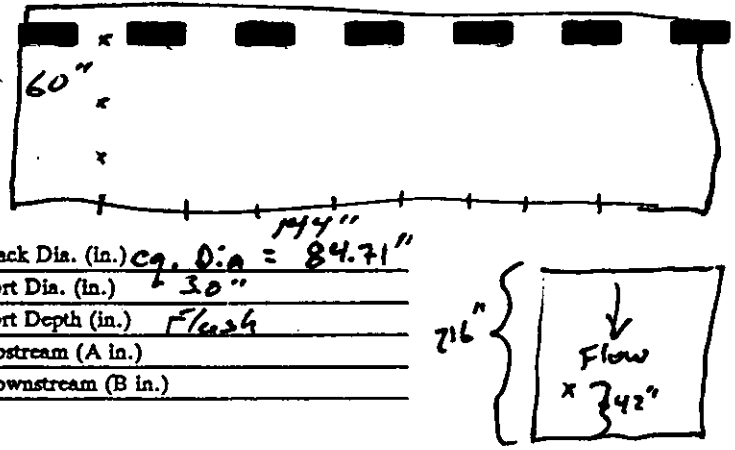
Moisture

Imp	Initial	Final
1	100	162
2	100	112
3	—	
4	300	307.6
	Net Gain	81.6

PORT I.D.	POINT NO.	SAMPLE TIME	dP (H20")	dH (H20")	DGM TEMP. (F) Inlet	DGM TEMP. (F) Outlet	STACK TEMP (F)	SAMPLE VOL (ft3)	PROBE TEMP (F)	FILTER TEMP (F)	IMP. OUT. (F)	VACUUM (Hg")
N	1	0	1.2	1.00	97	97	142	941.395	252		65	3
	2	2	1.2	1.00	94	96	145		253		61	3
	3	4	1.3	1.09	94	96	148	943.68	252		61	3
	4	6	1.4	1.17	94	96	151	944.82	252		62	3.5
	5	8	1.6	1.34	94	96	153	946.04	253		62	3.5
	6	10	1.65	1.38	94	96	155	947.3	252		61	4
	7	12	1.65	1.38	94	96	155	948.6	251		61	4
	8	14	1.65	1.38	94	96	155	949.9	252		61	4
	9	16	1.65	1.38	94	95	153	951.15	252		61	4
	10	18	1.50	1.25	95	96	154	952.3	252		61	3.5
	11	20	1.50	1.25	95	95	155	953.66	252		60	3.5
	12	22	1.50	1.25	95	95	156	954.9	252		60	3.5
W	1	24	1.4	1.17	97	96	155	956.1	252		63	4.5
	2	26	1.4	1.17	96	96	154	957.28	252		61	5
	3	28	1.55	1.29	97	96	156	958.5	252		64	6
	4	30	1.65	1.38	97	96	156	959.1	252		65	8
	5	32	1.60	1.34	97	97	156	960.87	251		65	8
	6	34	1.60	1.34	98	97	155	962.1	252		64	8
	7	36	1.50	1.25	98	97	154	963.38	252		64	8
	8	38	1.45	1.21	98	97	153	964.6	251		64	9
	9	40	1.4	1.17	98	97	153	965.7	252		64	11
	10	42	1.35	1.13	98	97	151	966.9	252		64	12
	11	44	1.4	1.17	97	97	148	968.2	252		64	2
	12	46	1.45	1.21	98	97	150	969.4	252		63	2
		48						970.645				
		average	1.2158	1.2375		96.08	152.62	29.250				

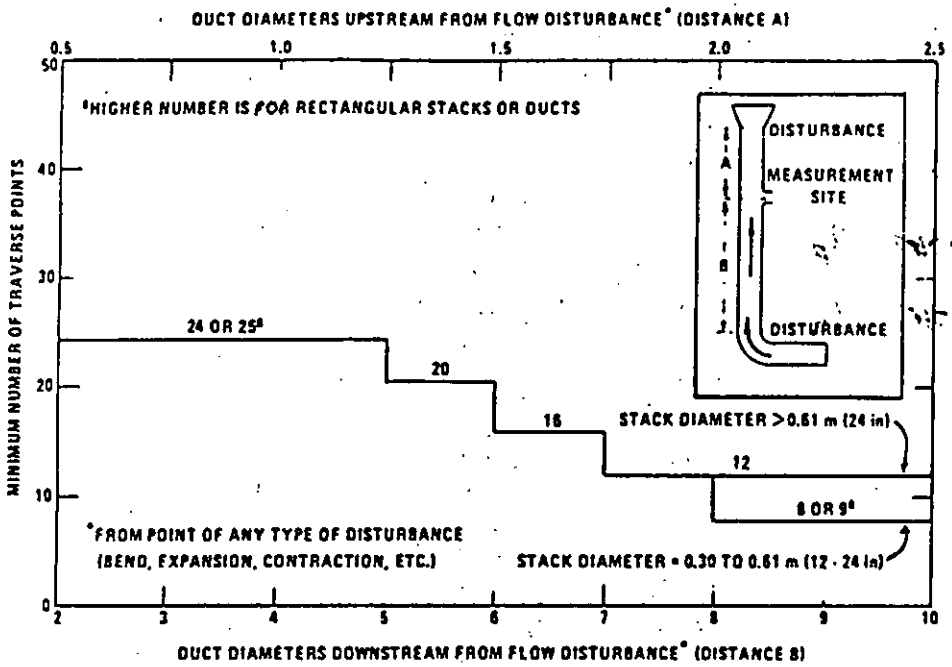
SEACOR
RM-1 DATA FORM

Ports 16" centers



Plant	LP
Location	Oroville
Test Location	Filter Box Outlets (N. & S.)
Operator	J. Rosburg
Date	06-16-94

Stack Dia. (in.)	eq. Dia = 84.71"
Port Dia. (in.)	3.0"
Port Depth (in.)	Flush
Upstream (A in.)	
Downstream (B in.)	



Traverse point number on a diameter	Number of traverse points on a diameter— 2	4	6	8	10	12	14	16	18	20	22	24
1	14.6	6.7	4.4	3.2	2.6	2.1	1.8	1.6	1.4	1.3	1.1	1.1
2	85.4	25.0	14.6	10.5	8.2	6.7	5.7	4.9	4.4	3.9	3.5	3.2
3		75.0	29.6	19.4	14.6	11.8	9.9	8.5	7.5	6.7	6.0	5.5
4		93.3	70.4	32.3	22.6	17.7	14.6	12.5	10.9	9.7	8.7	7.9
5			85.4	67.7	34.2	25.0	20.1	16.9	14.6	12.9	11.6	10.5
6			95.6	80.6	65.8	35.6	26.9	22.0	18.6	16.5	14.6	13.2
7				89.5	77.4	64.4	36.6	28.3	23.6	20.4	18.0	16.1
8				96.8	85.4	75.0	63.4	37.5	29.6	25.0	21.8	19.4
9					91.8	82.3	73.1	62.5	38.2	30.6	26.2	23.0
10					97.4	88.2	79.9	71.7	61.8	38.8	31.5	27.2
11						93.3	85.4	78.0	70.4	61.2	39.3	32.3
12						97.9	90.1	83.1	76.4	69.4	60.7	39.8
13							94.3	87.5	81.2	75.0	68.5	60.2
14							98.2	91.5	85.4	79.6	73.8	67.7
15								95.1	89.1	83.5	78.2	72.8
16								98.4	92.5	87.1	82.0	77.0
17									95.6	90.3	85.4	80.6
18									98.6	93.3	88.4	83.9
19										96.1	91.3	86.8
20										98.7	94.0	89.5
21											96.5	92.1
22											98.9	94.5
23												96.8
24												98.9

Point No.	Dist. From Wall (in.)	Dist. With Port (in.)
1	10"	10"
2	30"	30"
3	50"	50"

Point No.	Dist. From Wall (in.)	Dist. With Port (in.)

SEACOR
RM-4 FIELD DATA FORM

Plant	L.P.	Run No.	FBS-P1	Ambient Temp.	75.0°
Location	Oroville, CA.	Control Box No.	#2	Leak Check Vacuum (Hg")	12.0 / 5.0
Test Location	Filter box outlet	Meter dH@	2.1181 Yd: 0.9792	Leak Rate (cfm)	0.002 / 0.000
Operator	BL	Barometric Pres. (Bp)	29.91	Static Pres. (H2O")	.05
Date	06-17-94	Assumed H2O %	14% (9.0%)	Test Time	1034-1221

Moisture

Imp	Initial	Final
1	100	
2	100	272
3	—	
4	300	310.0
Total		82

(0.3643)

3 min. points filter# LP-40 No2 = #2 .364, 366, 263 K = 15.95 (K = 17.826)

PORT I.D.	POINT NO.	SAMPLE TIME	dP (H20")	dH (H20")	DGM TEMP. (F) Inlet	DGM TEMP. (F) Outlet	STACK TEMP (F)	SAMPLE VOL (ft3)	PROBE TEMP (F)	FILTER TEMP (F)	IMP. OUT. (F)	VACUUM (Hg")
S Box	1	0.0	.01	.18	76	75	134	039.654	250	250	68	2.0
	2	3.0	.04	.71	77	76	136	40.62	240	242	67	2.0
	3	6.0	.04	.71	76	75	136	42.21	248	250	66	2.5
	1	9.0	.01	.71	77	75	135	43.01	250	251	68	2.0
	2	12.0	.05	.89	77	75	134	44.7	248	240	66	2.5
	3	15.0	.10	1.78	78	76	135	45.52	240	245	62	4.0
	1	18.0	.02	.35	79	76	134	47.18	250	252	61	2.0
	2	21.0	.07	1.24	80	77	135	48.21	243	242	62	4.0
	3	24.0	.12	2.13	82	77	134	49.71	248	249	64	4.0
	1	27.0	.03	.53	82	78	140	52.81	250	250	65	3.0
	2	30.0	.07	1.24	83	78	140	53.78	252	253	65	4.0
	3	33.0	.11	1.96	85	79	140	55.32	253	248	64	4.0
	1	36.0	.02	.35	83	79	138	57.32	250	251	65	2.0
	2	39.0	.06	1.06	84	80	141	58.32	251	254	64	4.0
	3	42.0	.10	1.78	85	80	142	60.62	255	253	64	4.0
	1	45.0	.02	.35	81	80	134	61.72	250	250	65	2.0
	2	48.0	.07	1.42	82	80	135	62.73	251	252	65	4.0
	3	51.0	.12	2.13	84	81	136	65.52	250	246	65	4.0
	1	54.0	.02	.35	85	81	136	66.98	243	248	65	3.0
	2	57.0	.03	.53	86	82	138	68.31	244	247	64	3.0
	3	60.0	.075	1.33	86	82	136	69.01	250	257	65	4.0
	1	63.0	.02	.35	85	80	130	70.921	251	252	66	2.0
	2	66.0	.045	.80	86	82	133	72.11	250	248	67	3.0
	3	69.0	.11	1.96	87	82	134	73.41	252	251	68	3.5
		72.0						75.640				
		average	0.2246	0.8529		73.58	136.08	35.986				

SEACOR
RM-4 FIELD DATA FORM

Plant	L.P.	Run No.	FB5-P2	Ambient Temp.	80+
Location	Oroville, CA	Control Box No.	#1	Leak Check Vacuum (Hg")	9.0 / 5.0
Test Location	Filter box outlet	Meter dH@	2.1181	Leak Rate (cfm)	0.005 / 0.002
Operator	BL	Barometric Pres. (Bp)	29.91	Static Pres. (H2O")	+ .05
Date	06-17-94	Assumed H2O %	9%	Test Time	1340-1733

Moisture

Imp	Initial	Final
1	100	255
2	100	
3	—	
4	300	308.5
Total		163.5

N_{D2} = 0.3643 Filter # LP-42 K = 17.30

PORT I.D.	POINT NO.	SAMPLE TIME	dP (H20")	dH (H20")	DGM TEMP. (F) Inlet	DGM TEMP. (F) Outlet	STACK TEMP (F)	SAMPLE VOL (ft3)	PROBE TEMP (F)	FILTER TEMP (F)	IMP. OUT. (F)	VACUUM (Hg")
	1	0.0	.01	.173	93	92	144	75.773	240	241	68	2.0
	2	3.0	.04	.69	94	93	146	76.30	241	243	67	2.5
	3	6.0	.09	1.55	94	93	140	77.98	240	241	65	3.0
	1	9.0	.015	.25	96	94	120	79.83	244	245	64	2.0
	2	12.0	.05	.86	99	95	124	81.12	240	248	65	2.5
	3	15.0	.1	1.73	96	95	127	82.42	241	246	64	3.0
	1	18.0	.01	.173	98	96	116	84.28	240	243	67	2.0
	2	21.0	.05	.86	98	96	114	85.23	248	246	66	2.0
	3	24.0	.09	1.55	98	97	121	86.53	247	248	66	2.0
	1	27.0	.02	.34	100	98	129	88.404	250	247	67	2.0
	2	30.0	.04	.69	99	98	130	89.72	243	249	65	3.0
	3	33.0	.11	1.90	99	97	131	91.38	245	248	64	3.5
	1	36.0	.025	.43	99	97	116	92.928	238	242	65	2.0
	2	39.0	.05	.86	97	96	125	94.01	240	240	65	2.0
	3	42.0	.1	1.73	96	94	126	96.18	243	249	64	2.5
	1	45.0	.02	.34	94	93	117	97.64	244	248	65	2.0
	2	48.0	.06	1.03	95	93	126	99.03	248	249	64	2.0
	3	51.0	.1	1.73	95	93	124	100.53	252	252	65	2.5
	1	54.0	.02	.34	93	91	124	102.472	250	240	64	2.0
	2	57.0	.04	.69	93	91	126	103.53	253	248	64	2.0
	3	60.0	.1	1.73	93	91	123	105.12	240	241	63	2.5
	1	63.0	.03	.51	92	90	120	107.07	243	244	65	2.0
	2	66.0	.05	.86	92	90	126	108.12	240	245	66	2.0
	3	69.0	.1	1.73	91	90	126	110.14	240	239	67	2.5
		72.0						112.067				
		average	0.2221	0.9436			94.65	125.88	36.294			

SEACOR
RM-4 FIELD DATA FORM

Plant	L.P.	Run No.	FBS-P3	Ambient Temp.	75°
Location	Oroville, CA.	Control Box No.	#2	Leak Check Vacuum (Hg")	12.0 / 6.0
Test Location	FBS	Meter dH@	2.1181	Leak Rate (cfm)	0.001 / 0.001
Operator	OL	Barometric Pres. (Bp)	29.91	Static Pres. (H2O")	+.05
Date	06-17-94	Assumed H2O %	9-10%	Test Time	1824-2035

Moisture

Imp	Initial	Final
1	100	↓
2	100	↓
3	—	271
4	300	~~[illegible]~~ 308.5
Total		79.5

No2. .3643 Filter # LP-41 K=17.30

PORT I.D.	POINT NO.	SAMPLE TIME	dP (H20")	dH (H20")	DGM TEMP. (F) Inlet	DGM TEMP. (F) Outlet	STACK TEMP (F)	SAMPLE VOL (ft3)	PROBE TEMP (F)	FILTER TEMP (F)	IMP. OUT. (F)	VACUUM (Hg")
	1	0.0	.01	.173	83	83	126	112.173	230	231	68	2.0
	2	3.0	.04	.69	83	83	126	113.8	238	239	67	2.0
	3	6.0	.1	1.73	84	83	130	115.2	239	240	65	2.0
	1	9.0	.02	.34	84	83	131	116.18	240	243	64	2.0
	2	12.0	.05	.86	85	83	132	117.48	242	244	63	2.0
	3	15.0	.11	1.90	86	83	135	119.38	244	249	63	2.5
	1	18.0	.07	1.21	86	84	130	120.52	245	249	64	2.5
	2	21.0	.03	.51	83	82	128	122.28	245	246	65	2.0
	3	24.0	.07	1.21	83	82	124	124.9	250	251	64	2.0
	1	27.0	.09	1.55	84	83	125	126.3	251	250	65	2.5
	2	30.0	.02	.34	82	81	126	127.203	240	242	64	2.0
	3	33.0	.06	1.03	83	81	129	128.03	240	243	63	2.5
	1	36.0	.1	1.73	85	82	131	130.42	244	250	62	3.0
	2	39.0	.02	.34	84	82	131	131.906	240	242	63	2.0
	3	42.0	.065	1.12	84	81	133	133.28	239	237	62	3.0
	1	45.0	.11	1.90	86	82	132	134.98	238	236	64	3.5
	2	48.0	.03	.51	83	82	133	136.73	240	241	63	2.0
	3	51.0	.06	1.03	85	82	131	138.72	240	243	64	2.0
	1	54.0	.11	1.90	85	82	131	139.9	240	238	63	3.0
	2	57.0	.02	.34	85	82	133	141.5	241	240	62	2.0
	3	60.0	.05	.86	85	81	132	142.8	240	238	64	2.5
	1	63.0	.11	1.90	85	81	132	144.4	232	233	63	3.0
	2	66.0	.02	.34	85	80	130	146.58	230	231	65	2.0
	3	69.0	.05	.86	85	81	136	147.6	231	232	64	2.5
		72.0						148.903				

average 0.2316 1.0047 83.1458 130.1667 36.7300

SEACOR
RM-4 FIELD DATA FORM

Plant	L-P	Run No.	FBS-F1	Ambient Temp.	80
Location	OROVILLE, CA	Control Box No.	#1	Leak Check Vacuum (Hg")	8 / 5
Test Location	South Filter Box	Meter dH@	1.81	Leak Rate (cfm)	0.002 / 0.016
Operator	JM	Barometric Pres. (Bp)	29.91	Static Pres. (H2O")	+0.05
Date	6/17/94	Assumed H2O %	9.090	Test Time	9:53 — 1200

Moisture

Imp	Initial	Final
1	100	↓
2	100	↓
3	—	233
4	300	309.5
Total		42.5

6' TFE Probe NOZ #1 0.336" K= (11.0236) Assumed Stack = 126 sq ΔP = 0.22

PORT I.D.	POINT NO.	SAMPLE TIME	dP (H20")	dH (H20")	DGM TEMP. (F) Inlet	DGM TEMP. (F) Outlet	STACK TEMP (F)	SAMPLE VOL (ft3)	PROBE TEMP (F)	FILTER TEMP (F)	IMP. OUT. (F)	VACUUM (Hg")
1	1	0	0.03	0.22	73	72	82	767.562			70	2.5
	2	3	0.035	0.39	73	73	79	768.45			70	3.5
	3	6	0.10	1.10	75	73	70	769.90			70	4.5
2	1	9	0.03	0.29	76	74	73/135	771.38			69	2.5
	2	12	0.038	0.42	76	74	75/140	772.60			70	3.0
	3	15	0.11	1.21	79	74	140	773.60			70	4.5
3	1	18	0.02	0.22	80	76	141	775.25			69	2.5
	2	21	0.07	0.77	81	76	141	776.0			69	3.0
	3	24	0.11	1.21	81	76	141	777.36			69	4.5
4	1	27	0.025	0.28	81	76	80	779.03			70	2.5
	2	30	0.07	0.77	82	77	73	778.42			69	4.0
	3	33	0.09	0.99	82	77	74	781.50			69	4.5
5	1	36	0.01	0.11	83	78	82	782.98			70	2.0
	2	39	0.06	0.66	84	79	139	783.47			69	3.0
	3	42	0.10	1.10	84	79	138	784.64			68	4.0
6	1	45	0.01	0.11	85	79	141	786.27			70	2.0
	2	48	0.07	0.77	86	81	141	786.91			69	4.0
	3	51	0.10	1.11	86	81	140	788.29			68	4.0
7	1	54	0.01	0.11	84	81	139	789.97			70	2.0
	2	57	0.05	0.55	85	82	142	790.46			70	3.0
	3	60	0.110	1.21	85	82	141	791.61			69	5.0
8	1	63	0.01	0.11	83	82	135	793.28			70	2.0
	2	66	0.05	0.55	82	81	135	793.90			74	3.0
	3	69	0.10	0.11	83	82	137	795.02			71	5.0
		72						796.622				
average			0.2281	0.5988		79.46	FBS-P1	29.060				

stack temp not consist at see FBS-P1 for stack temp

SEACOR

RM-4 FIELD DATA FORM

Plant	L-P	Run No.	FBS-F2	Ambient Temp.	85
Location	OROVILLE, CA	Control Box No.	41	Leak Check Vacuum (Hg")	8.5 / 7.0
Test Location	South Filter Box	Meter dH@	1.81	Leak Rate (cfm)	0.001 / 0.001
Operator	JM BD	Barometric Pres. (Bp)	29.91	Static Pres. (H2O")	+.05
Date	6/17/94	Assumed H2O %	10.0%	Test Time	15:05 - 17:11

Moisture

Imp	Initial	Final
1	100	
2	100	
3	—	[redacted] 239
4	300	[redacted] 308
Total		[redacted] 47

6' TFE Probe, Noz # 11 0.336", K = 10.74

PORT I.D.	POINT NO.	SAMPLE TIME	dP (H20")	dH (H20")	DGM TEMP. (F) Inlet	DGM TEMP. (F) Outlet	STACK TEMP (F)	SAMPLE VOL (ft3)	PROBE TEMP (F)	FILTER TEMP (F)	IMP. OUT. (F)	VACUUM (Hg")
1	1	0	~~0.1~~ 0.01	1.07	89	88	127	797.112			74	2.0
	2	3	0.06	0.64	90	88	131	797.62			71	4.0
	3	6	0.12	1.29	90	89	133	798.79			62	5.6
2	1	9	0.02	0.21	91	89	131	800.39			59	2.2
	2	12	0.07	0.75	91	89	128	801.37			62	4.1
	3	15	0.12	1.29	91	89	131	802.71			59	5.7
3	1	18	0.03	0.32	93	91	151	804.49			64	2.6
	2	21	0.05	0.54	93	91	145	805.45			62	3.4
	3	24	0.10	1.07	93	91	138	806.62			59	5.3
4	1	27	0.02	0.21	96	93	138	808.265	T-couple off →			2.1
	2	30	0.06	0.64	94	91	126	809.05				3.9
	3	33	0.12	1.29	93	91	127	810.37				6.2
5	1	36	0.02	0.21	~~92~~ 93	92	116	812.24			72	2.1
	2	39	0.06	0.64	92	91	118	812.97			70	4.0
	3	42	0.11	1.18	93	91	125	814.02			60	5.9
6	1	45	0.02	0.21	91	90	128	815.785			73	2.2
	2	48	0.089	0.97	91	90	132	816.59			64	5.1
	3	51	0.13	1.40	91	90	131	818.28			60	6.4
7	1	54	0.02	0.21	90	89	121	820.05			70	2.2
	2	57	0.07	0.75	90	89	126	820.76			66	4.2
	3	66	0.13	1.40	89	88	126	822.16			61	6.2
8	1	63	0.02	0.21	89	88	119	823.94			70	2.1
	2	66	0.05	0.54	89	88	127	824.85			69	3.3
	3	69	0.12	1.29	89	87	125	826.03			64	6.2
		72						827.895				
average			0.2453	0.7638	90.4583		129.167	~~60.7830~~ 30.7830				

SEACOR

RM-4 FIELD DATA FORM

Plant	L.P.	Run No.	FBS-F3	Ambient Temp.	75°F
Location	Oroville, CA	Control Box No.	#1	Leak Check Vacuum (Hg")	12.0 / 8.0
Test Location	FBS	Meter dH@	1.81	Leak Rate (cfm)	0.001 / 0.001
Operator	C Jeff	Barometric Pres. (Bp)	29.91	Static Pres. (H2O")	+.05
Date	06-17-94	Assumed H2O %	9-10%	Test Time	18:20 - 2032

NOZ #11

6' TFE PROBE, Noz. .336 K = 10.74

Moisture

Imp	Initial	Final
1	100	
2	100	↓
3	—	240
4	300	309
Total		49

PORT I.D.	POINT NO.	SAMPLE TIME	dP (H20")	dH (H20")	DGM TEMP. (F) Inlet	DGM TEMP. (F) Outlet	STACK TEMP (F)	SAMPLE VOL (ft3)	PROBE TEMP (F)	FILTER TEMP (F)	IMP. OUT. (F)	VACUUM (Hg")
1	1	0.0	0.01	0.11	82	81	130	828.075			70	2.0
	2	3.0	0.07	0.75	82	81	131	828.65			69	5.0
	3	6.0	0.09	-0.96	83	81	131	829.85			64	6.0
2	1	9.0	0.02	0.21	83	82	133	831.05			70	2.5
	2	12.0	0.08	0.85	83	81	134	832.20			68	5.0
	3	15.0	0.10	1.07	84	81	134	833.60			67	6.0
3	1	18	0.02	0.21	84	82	132	835.27			69	2.5
	2	21	0.02	0.21	84	82	133	836.08			67	2.5
	3	24	0.10	1.07	84	82	131	836.89			69	6.0
4	1	27	0.01	0.11	83	81	130	838.70			70	2.0
	2	30	0.04	0.43	83	82	130	839.14			70	3.5
	3	33	0.10	1.07	84	82	129	840.20			67	6.0
5	1	36	0.01	0.11	83	81	130	841.83			74	2.0
	2	39	0.05	0.54	84	82	130	842.60			70	4.0
	3	42	0.10	1.07	84	82	130	843.60			65	6.0
6	1	45	0.01	0.11	83	81	129	845.22			69	2.0
	2	48	0.06	0.64	84	82	132	845.80			66	4.5
	3	51	0.11	1.18	84	82	133	847.20			58	6.0
7	1	54	0.01	0.11	84	82	132	848.87			67	2.0
	2	57	0.05	0.54	84	82	134	849.50			66	4.5
	3	60	0.11	1.18	85	82	134	850.61			60	6.0
8	1	63	0.01	0.11	83	82	133	852.28			69	2.0
	2	66	0.05	0.54	84	82	131	852.90			67	4.5
	3	69	0.11	1.18	84	82	132	853.90			62	6.0
		72						855.54				
average			0.2186	0.5983	82.6042		131.6833	27.4650				

SEACOR
RM-5 & 17 FIELD DATA

Plant	LP	Meter dH@	1.9107 Yd .9911	Nozzle I.D.& Dia. (in.)	.181
Location	OROVILLE, CA	K Factor	0.835 (0.8642)	Filter No.	LP-50
Test Location	NORTH DOWNCOMER INLET	Pitot Coefficient (Cp)	.84	Probe & Filter Temp. (F)	248 / 25
Operator	Kim	Ambient Temp.	90	Leak Check Vacuum (Hg")	15 / 10
Date	6/18/94	Barometric Pres. (Bp)	29.9	Leak Rate (cfm)	0.01 / .006
Run No.	DCN-P1	Assumed H2O %	16	Static Pres. (H2O")	+6.7
Control Box No.	3	Probe I.D.	5	Test Time	13:25 – 14:51

Moisture

Imp	Initial	Final
1	100	250
2	100	
3	0	
4	300	305.8
	Net Gain	155.8

PORT I.D.	POINT NO.	SAMPLE TIME	dP (H2O")	dH (H2O")	DGM TEMP. (F) Inlet	DGM TEMP. (F) Outlet	STACK TEMP (F)	SAMPLE VOL (ft3)	PROBE TEMP (F)	FILTER TEMP (F)	IMP. OUT. (F)	VACUUM (Hg")
S	1	0	0.8	0.67	100	101	154	971.228	251	254	67	4
	2	3	0.8	0.67	99	101	142	972.55	251	252	58	4.5
	3	6	0.87	0.68	99	100	147	973.93	252	252	56	5.0
	4	9	0.84	0.7	99	100	147		251	254	56	5.0
	5	12	0.82	0.68	100	101	146	976.8	251	256	56	5.0
	6	15	0.86	0.72	101	100	145	978.2	252	251	57	5.0
	7	18	0.9	0.75	101	101	150	979.6	250	252	57	5.0
	8	21	0.9	0.75	102	101	150	981.02	253	253	58	5.0
	9	24	0.95	0.79	103	102	145	982.5	251	252	58	5.5
	10	27	0.96	0.8	103	102	148	984.0	251	252	59	5.5
	11	30	0.93	0.78	104	102	145	985.54	252	252	59	5.5
	12	33	0.95	0.79	104	102	145	986.99	252	252	59	5.5
W	1	36	0.82	0.68	105	104	152	988.49	248	259	65	5.5
	2	39	0.72	0.6	105	104	152		252	253	65	6
	3	42	0.88	0.73	103	102	167	991.3	252	253	60	7.0
	4	45	0.88	0.73	102	103	169	992.4	252	252	59	5.5
	5	48	0.88	0.73	103	102	171	993.6	251	252	59	5.5
	6	51	0.88	0.73	102	102	184	996.5	252	251	59	6
CHANGE K3 FACTOR *	7	54	0.88	0.73	102	102	196	998.7	252	251	59	6
	8	57	0.84	0.73	102	101	198	998.1	253	253	59	6
	9	60	0.84	0.73	102	100	210	999.4	252	252	59	6
	10	63	0.68	0.59	102	100	206	1000.39	251	252	59	5
14:40	11	66	0.67	0.58	101	100	194	2.7	251	252	61	4.5
	12	69	0.67	0.58	101	100	207	4.10	252	252	61	4.5
		72						5.319				
	average		0.9132	0.7017		101.63	165.42	34.091				

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RM-5 & 17 FIELD DATA

Plant	LP	Meter dH@	1.9107 Y_d 0.9911	Nozzle I.D.& Dia. (in.)	.181
Location	OROVILLE, CA	K Factor	0.8642	Filter No.	LP-51
Test Location	NORTH DOWNCOMER	Pitot Coefficient (Cp)	0.84	Probe & Filter Temp. (F)	248±25
Operator	Kim FB-INLET	Ambient Temp.	85	Leak Check Vacuum (Hg")	15 /
Date	6/18/96	Barometric Pres. (Bp)	29.82	Leak Rate (cfm)	0.004 /
Run No.	DCN-P2	Assumed H2O %	15	Static Pres. (H2O")	+6.7
Control Box No.	3	Probe I.D.	5'SS	Test Time	15:43-17:11

Moisture

Imp	Initial	Final
1	100	160
2	100	110
3	—	
4	300	308.1
	Net Gain	78.1

PORT I.D.	POINT NO.	SAMPLE TIME	dP (H20")	dH (H20")	DGM TEMP. (F) Inlet	DGM TEMP. (F) Outlet	STACK TEMP (F)	SAMPLE VOL (ft3)	PROBE TEMP (F)	FILTER TEMP (F)	IMP. OUT. (F)	VACUUM (Hg")
S	1	0	0.80	0.69	93	95	143	5.440	240	261	65	3
	2	3	0.76	0.66	93	95	146	6.88	250	254	65	3
	3	6	0.77	0.67	93	94	146	8.3	252	251	66	3.5
	4	9	0.81	0.70	93	94	145	9.65	252	253	68	3.5
	5	12	0.81	0.70	93	94	144	11.03	252	252	66	3.5
	6	15	0.83	0.72	94	94	145	12.43	251	253	63	4.0
	7	18	0.87	0.75	94	94	146	13.90	252	251	63	4.0
	8	21	0.95	0.82	95	94	145	15.4	240	252	64	4.0
	9	24	0.95	0.82	95	93	145		250	252	64	4.5
	10	27	0.96	0.83	95	93	146	18.5	249	252	64	4.5
	11	30	0.90	0.78	95	93	145	19.94	251	252	65	4.0
	12	33	0.86	0.74	95	93	145	21.42	252	253	66	4.0
	1	36	0.85	0.73	94	93	141	22.870	252	255	69	4.5
	2	39	0.85	0.73	95	93	141	24.30	252	252	67	5.0
	3	42	0.95	0.82	96	93	140	25.75	251	252	66	7.
	4	45	1.00	0.86	98	94	139		252	251	65	4
	5	48	0.98	0.84	98	94	139	28.97	252	252	66	4.5
	6	51	0.95	0.82	98	95	139	30.54	252	253	66	5.0
	7	54	0.89	0.77	99	95	141	32.1	252	252	68	5.0
	8	57	0.89	0.77	99	96	142	33.5	252	251	68	6.0
	9	60	0.86	0.74	99	96	142	34.9	250	253	70	6.5
	10	63	0.86	0.74	99	96	142	3536.15	252	252	69	12.0
	11	66	0.83	0.72	99	96	143	37.52	252	252	68	12.2
	12	69	0.82	0.71	99	96	144	38.89	252	251	69	14.8
		72						40.298				
		average	0.9348	0.7554		95.08	143.08	34.858				

SEACOR
RM-5 & 17 FIELD DATA

Plant	LP	Meter dH@	1.9107 Y 0.9941	Nozzle I.D.& Dia. (in.)	0.181
Location	OROVILLE, CA	K Factor	0.8642	Filter No.	LP-49
Test Location	DCN North Dam Center	Pitot Coefficient (Cp)	0.84	Probe & Filter Temp. (F)	250±25
Operator	BD	Ambient Temp.	85	Leak Check Vacuum (Hg")	16.5/7
Date	6/18/94	Barometric Pres. (Bp)	29.82	Leak Rate (cfm)	0.002/0.00
Run No.	DCN-P3	Assumed H2O %	15	Static Pres. (H2O")	+0.7
Control Box No.	3	Probe I.D.	5' S.S.	Test Time	~~15:32~~ 17:32 - 18:54

Moisture

Imp	Initial	Final
1	100	~~[illegible]~~
2	100	162
3	—	112
4	300	307.6
Net Gain		81.6

PORT I.D.	POINT NO.	SAMPLE TIME	dP (H2O")	dH (H2O")	DGM TEMP. (F) Inlet	DGM TEMP. (F) Outlet	STACK TEMP (F)	SAMPLE VOL (ft3)	PROBE TEMP (F)	FILTER TEMP (F)	IMP. OUT. (F)	VACUUM (Hg")
S	1	0	0.74	0.64	93	93	146	40.422	241	258	69	3.2
	2	3	0.74	0.64	93	93	146	41.84	251	250	63	3.2
	3	6	0.79	0.68	93	93	145	43.18	253	252	62	3.3
	4	9	0.83	0.72	94	93	145	44.55	252	253	61	3.5
	5	12	0.86	0.74	95	94	145	46.97	251	253	61	3.5
	6	15	0.89	0.77	95	94	145	47.40	252	252	62	3.6
	7	18	0.94	0.81	96	94	146	48.86	252	252	63	3.9
	8	21	0.99	0.86	97	95	147	50.35	252	253	63	4.3
	9	24	0.98	0.85	97	95	146	51.88	252	252	63	5.0
	10	27	0.95	0.82	97	95	147	53.36	252	251	64	6.0
	11	30	0.92	0.80	97	95	147	54.70	251	252	65	3.5
	12	33	0.92	0.80	97	95	147	56.24	252	252	65	3.2
W	1	36	0.70	0.60	96	95	146	57.728	240	252	70	2.0
	2	39	0.72	0.62	96	95	147	58.06	252	254	65	3.2
	3	42	0.93	0.80	96	95	150	60.38	252	251	64	3.9
	4	45	1.0	0.86	97	95	151	61.	252	252	62	4.9
	5	48	0.97	0.84	97	95	149	63.33	252	253	62	3.8
	6	51	0.94	0.81	98	96	148	64.87	252	252	62	3.7
	7	54	0.89	0.77	98	95	148	66.38	252	251	63	3.3
	8	57	0.87	0.75	99	96	147	67.9	252	253	63	3.2
	9	60	0.89	0.77	98	96	147	69.30	251	251	64	3.3
	10	63	0.91	0.79	99	96	146	7	252	251	64	3.8
	11	66	0.93	0.80	99	96	146	72.26	252	252	64	3.9
	12	69	0.89	0.77	99	96	146	73.74	253	252	64	3.9
		72						75.203				
		average	0.9385	0.7629		95.65	146.79	34.781				

RM 0011 (HCHO)

SEACOR
RM-5 & 17 FIELD DATA

Plant	L·P	Meter dH@	1.9107	Y_d .9911	Nozzle I.D.& Dia. (in.) .181
Location	OROVILLE, CA	K Factor	0.8642		Filter No. —
Test Location	NORTH DOWNCOMER	Pitot Coefficient (Cp)	.84		Probe & Filter Temp. (F) 248±25
Operator	Kam	FB INLET Ambient Temp.	75		Leak Check Vacuum (Hg") 12/5
Date	6/18/94	Barometric Pres. (Bp)	29.82		Leak Rate (cfm) 0.00/0.00
Run No.	DCN-F1	Assumed H2O %	15		Static Pres. (H2O") +6
Control Box No.	3	Probe I.D.	5'		Test Time 21:11 - 2147

Moisture

Imp	Initial	Final
1	100	230
2	100	
3	—	
4	300	346.7
Net Gain		136.7

PORT I.D.	POINT NO.	SAMPLE TIME	dP (H20")	dH (H20")	DGM TEMP. (F) Inlet	DGM TEMP. (F) Outlet	STACK TEMP (F)	SAMPLE VOL (ft3)	PROBE TEMP (F)	FILTER TEMP (F)	IMP. OUT. (F)	VACUUM (Hg")
W	1	0	0.8	0.69	81	81	145	75.350	252	N/A	65	4.5
	2	3	0.82	0.71	81	81	144	76.75	252		67	4.5
	3	6	0.93	0.80	81	81	147	78.27	250		65	5
	4	9	0.98	0.85	82	81	145	79.62	252		64	5.5
	5	12	0.99	0.86	83	81	146	81.15	252		65	5.5
	6	15	0.99	0.86	83	81	146	82.73	252		65	5.5
	7	18	0.92	0.80	84	81	151	84.3	252		67	5
	8	21	0.87	0.75	84	81	154	85.7	252		67	5
	9	24	0.84	0.73	85	82	155	87.16	253		69	5
	10	27	0.85	0.73	85	82	153	88.6	252		65	5
	11	30	0.85	0.73	85	82	152	90.02	252		67	5
	12	33	0.85	0.73	85	82	153		253		67	5
		36						92.892				
		average	0.94	0.77		82.3	149	17.542				

[redacted] * [redacted] FID PROBE [redacted] OCCUPIES [redacted] SOUTH [redacted] PORT [redacted] RUN [redacted] FROM [redacted] WEST [redacted] PORT [redacted] ONLY [redacted] (SAME [redacted] TEST [redacted] RUN) [redacted]

RM 0011 (HCHO)

SEACOR
RM-5 & 17 FIELD DATA

Plant	LP	Meter dH@	1.9107 Yd = .9911	Nozzle I.D.& Dia. (in.)	.181
Location	OROVILLE, CA	K Factor	0.86	Filter No.	N/A
Test Location	NORTH DOWNCOMER FB INLET	Pitot Coefficient (Cp)	0.84	Probe & Filter Temp. (F)	248 ± 25
Operator	Kim	Ambient Temp.	90	Leak Check Vacuum (Hg")	12/5
Date	6/19/94	Barometric Pres. (Bp)	29.82	Leak Rate (cfm)	0.00 / 0.00
Run No.	DCN-F2	Assumed H2O %	15	Static Pres. (H2O")	+6
Control Box No.	3	Probe I.D.	5	Test Time	10:49 - 11:42

Moisture

Imp	Initial	Final
1	100	↓
2	100	↓
3	—	246
4	300	311.5
Net Gain		57.5

PORT I.D.	POINT NO.	SAMPLE TIME	dP (H20")	dH (H20")	DGM TEMP. (F) Inlet	DGM TEMP. (F) Outlet	STACK TEMP (F)	SAMPLE VOL (ft3)	PROBE TEMP (F)	FILTER TEMP (F)	IMP. OUT. (F)	VACUUM (Hg")
S	1	0	0.75	0.65	99	100	149	92.973	253	N/A	65	2
	2	2	0.75	0.65	99	99	149	93.95	252		65	2
	3	4	0.78	0.67	98	99	147	94.88	252		65	2
	4	6	0.80	0.69	98	99	148	95.8	252		63	2
	5	8	0.84	0.72	98	99	148	96.75	251		63	2
	6	10	0.87	0.75	98	99	148	97.7	250		63	2
	7	12	0.92	0.79	97	98	148	98.69	252		63	2
	8	14	0.92	0.79	97	98	148	99.67	251		63	2
	9	16	0.89	0.77	98	99	149	100.7	250		65	2
	10	18	0.88	0.76	98	98	148	101.67	251		65	2
	11	20	0.87	0.75	98	98	149	102.65	251		65	2
	12	22	0.85	0.73	98	99	148	103.64	252		65	2
W	1	24	0.82	0.71	99	99	147	104.588	252		69	2
	2	26	0.80	0.69	99	99	146	105.53	244		67	2
	3	28	0.92	0.79	99	99	147	106.5	247		66	2
	4	30	0.96	0.83	100	100	150	107.55	252		66	2
	5	32	0.94	0.81	101	100	150	108.5	251		66	2
	6	34	0.90	0.77	101	100	152	109.55	252		66	2
	7	36	0.80	0.69	101	100	150	110.51	252		66	2
	8	38	0.75	0.65	101	101	155		252		66	2
	9	40	0.73	0.63	102	100	154	112.37	252		65	2
	10	42	0.69	0.59	102	101	155	113.27	253		65	2
	11	44	0.69	0.59	102	102	156	114.1	252		65	2
	12	46	0.69	0.59	103	101	155	115.0	252		65	2
		48						115.881				
		average	0.9074	0.7104		99.44	149.83	22.888				

SEACOR
RM-5 & 17 FIELD DATA

Plant	LP	Meter dH@	1.9107 Yd .9911	Nozzle I.D.& Dia. (in.)	.181
Location	OROVILLE, CA	K Factor	0.86	Filter No.	N/A
Test Location	NORTH DOWNCOMER FB INLET	Pitot Coefficient (Cp)	.84	Probe & Filter Temp. (F)	248±25
Operator	Kam	Ambient Temp.	98	Leak Check Vacuum (Hg")	12
Date	6/19/94	Barometric Pres. (Bp)	29.82	Leak Rate (cfm)	0.003
Run No.	DCN-F3	Assumed H2O %	15	Static Pres. (H2O")	+6
Control Box No.	3	Probe I.D.	5'	Test Time	12:16 - 12:58

Moisture

Imp	Initial	Final
1	100	↓
2	100	
3	0	233
4	300	308.5
	Net Gain	41.5

PORT I.D.	POINT NO.	SAMPLE TIME	dP (H20")	dH (H20")	DGM TEMP. (F) Inlet	DGM TEMP. (F) Outlet	STACK TEMP (F)	SAMPLE VOL (ft3)	PROBE TEMP (F)	FILTER TEMP (F)	IMP. OUT. (F)	VACUUM (Hg")
S	1	0	0.75	0.65	102	102	148	115.983	252	N/A	67	2
	2		0.80	0.69	101	102	150	116.70	252		67	2
	3	3	0.78	0.67	101	102	149	117.4	252		65	2
	4		0.80	0.69	101	102	149	118.1	252		61	2
	5	6	0.82	0.71	100	102	148	118.8	252		61	2
	6		0.84	0.73	100	102	150	119.5	252		61	2
	7	9	[illegible]	0.76	101	102	150	120.2	252		61	2
	8		0.90	0.77	101	102	149	120.93	252		61	2
	9	12	0.92	0.79	101	102	149	121.7	251		61	2
	10		0.92	0.79	101	102	148	122.42	251		61	2
	11	15	0.92	0.79	101	102	145	123.2	251		61	2
	12		0.92	0.79	102	103	147	123.92	251		61	2
W	1	18	0.82	[illegible]	103	103	147	124.674	252		65	2
	2		0.82	0.71	103	103	148	125.4	252		65	2
	3	21	0.90	0.79	103	103	148	126.13	252		61	2
	4		0.94	0.81	103	103	148	126.86	252		61	2
	5	24	0.92	0.79	103	103	149	127.67	252		61	2
	6		0.90	0.79	104	104	149	128.4	251		61	2
	7	27	0.85	0.73	104	104	149	129.12	252		61	2
	8		0.85	0.73	104	104	149	129.82	252		61	2
	9	30	0.85	0.73	104	104	149	130.55	252		61	2
	10		0.85	0.73	104	104	148	131.28	252		61	2
	11	33	0.85	0.73	104	104	148	132.01	252		61	2
	12		0.85	0.73	104	104	149	132.75	252		61	2
		36						133.464				
		average	0.9272	0.7413	102.56	148.46		17.481				

[redacted] Sa[redacted] T[redacted] [redacted]6 [redacted]N. [redacted] A[redacted] [redacted]k [redacted] [redacted]

SEACOR
RM-5 & 17 FIELD DATA

FBN-P1

Plant	L-P	Meter dH@	[redacted] 8x2 2.1118	Nozzle I.D.& Dia. (in.)	0.364
Location	OROVILLE, CA	K Factor	17.88	Filter No.	LP-46
Test Location	NORTH FAN BOX	Pitot Coefficient (Cp)	0.84	Probe & Filter Temp. (F)	248 / 225
Operator	JM	Ambient Temp.	85+	Leak Check Vacuum (Hg")	8 / 3
Date	6/18/94	Barometric Pres. (Bp)	29.82	Leak Rate (cfm)	0.000 / 0.001
Run No.	FBN-P1	Assumed H2O %	9-10	Static Pres. (H2O")	8.05
Control Box No.	2	Probe I.D.	7.0'	Test Time	12:20 ~~2:00~~ / 400

Moisture

Imp	Initial	Final
1	100	↓
2	100	↓
3	—	254
4	300	318.7
Net Gain		72.7

NOZ= 0.364 K= 17.88

PORT I.D.	POINT NO.	SAMPLE TIME	dP (H20")	dH (H20")	DGM TEMP. (F) Inlet	DGM TEMP. (F) Outlet	STACK TEMP (F)	SAMPLE VOL (ft3)	PROBE TEMP (F)	FILTER TEMP (F)	IMP. OUT. (F)	VACUUM (Hg")
1	1	0	0.01	0.18	85	84	145	149.032	233	240	70	1.5
	2	3	0.04	0.71	85	85	144	149.71	234	240	70	1.5
	3	6	0.08	1.43	85	86	145	151.10	236	238	69	2.5
2	1	9	0.01	0.18	86	85	142	152.86	236	236	70	1.5
	2	12	0.03	0.53	86	85	140	153.61	236	236	70	2.0
	3	15	0.08	1.43	88	85	139	154.79	235	242	70	2.5
3	1	18	0.01	0.18	88	86	138	156.64	236	240	70	1.0
	2	21	0.04	0.71	89	86	138	157.40	236	248	70	2.0
	3	24	0.08	1.43	90	86	139	158.70	235	241	70	2.5
4	1	27	0.01	0.18	89	86	141	160.53	235	241	70	1.0
	2	30	0.04	0.71	89	86	141	161.26	236	246	69	2.0
	3	33	0.08	1.43	90	86	146	163.64	236	242	69	2.5
5	1	36	0.01	0.18	89	86	146	164.53	236	244	70	1.0
	2	39	0.04	0.71	90	87	147	165.25	236	246	70	2.0
	3	42	0.08	1.43	90	87	146	166.62	235	242	69	2.5
6	1	45	0.02	0.36	91	88	139	168.48	233	241	70	1.0
	2	48	0.05	0.89	91	88	139	169.48	235	240	69	2.0
	3	51	0.08	1.43	92	88	139	171.00	235	242	69	2.5
7	1	54	0.02	0.36	92	89	136	172.85	236	241	70	1.0
	2	57	0.04	0.71	93	89	140	173.87	235	244	69	2.0
	3	60	0.08	1.43	94	90	138	175.30	236	244	69	2.5
8	1	63	0.01	0.18	93	90	137	177.12	235	240	70	1.0
	2	66	0.03	0.53	94	90	138	177.80	236	244	70	2.0
	3	69	0.08	1.43	94	90	137	178.80	236	245	70	2.5
		72						180.278				
		average	0.1965	0.7808		88.36	140.83	31.246				

FBN-P2

SEACOR
RM-5 & 17 FIELD DATA

Plant	L-P	Meter dH@	Box 2 2.1118	Nozzle I.D.& Dia. (in.)	0.364"
Location	OROVILLE, CA	K Factor	17.88	Filter No.	LP-47
Test Location	North Filter box	Pitot Coefficient (Cp)	0.84	Probe & Filter Temp. (F)	248 ±25
Operator	JM	Ambient Temp.	90+	Leak Check Vacuum (Hg")	5
Date	6/18/94	Barometric Pres. (Bp)	29.82	Leak Rate (cfm)	0.001
Run No.	FBN-P2	Assumed H2O %	9-10	Static Pres. (H2O")	.05
Control Box No.	#2	Probe I.D.	7.0'	Test Time	1535 - 1709

K = 17.88

Moisture

Imp	Initial	Final
1	100	↓
2	100	
3	—	258
4	300	305.4
Net Gain		

PORT I.D.	POINT NO.	SAMPLE TIME	dP (H20")	dH (H20")	DGM TEMP. (F) Inlet	DGM TEMP. (F) Outlet	STACK TEMP (F)	SAMPLE VOL (ft3)	PROBE TEMP (F)	FILTER TEMP (F)	IMP. OUT. (F)	VACUUM (Hg")
1	1	0	.01	.17	95	94	133	180.465	245	250	69	2.0
	2	3	.04	.71	95	94	135	181.34	245	250	68	2.0
	3	6	.08	1.43	95	94	135	182.45	246	251	67	2.0
2	1	9	.01	.17	95	95	126	184.32	246	249	65	2.0
	2	12	.05	.89	96	95	138	185.31	247	246	65	2.5
	3	15	.08	1.43	97	95	138	186.62	246	244	65	2.5
3	1	18	.01	.17	97	95	137	188.481	243	245	64	2.5
	2	21	0.05	0.89	97	96	137	189.20	246	245	64	2.0
	3	24	.08	1.43	98	96	137	190.91	246	252	65	2.5
4	1	27	.01	.17	98	96	128	192.64	246	252	65	2.0
	2	30	.04	.71	99	97	136	193.39	248	250	66	2.0
	3	33	.08	1.43	100	97	138	194.72	245	253	66	2.5
5	1	36	.02	.35	100	97	131	196.685	234	253	65	2.0
	2	39	.05	.89	101	98	137	198.02	235	255	66	2.0
	3	42	.08	1.43	102	98	136	199.52	236	254	65	2.5
6	1	45	.02	.35	102	98	128	201.21	236	252	66	2.0
	2	48	.06	1.07	101	98	132	202.18	237	257	66	2.0
	3	51	.08	1.43	101	98	132	204.02	236	250	66	2.5
7	1	54	.01	.17	101	98	120	205.886	235	251	67	2.0
	2	57	.05	.89	100	97	132	206.63	239	247	67	2.0
	3	60	.09	1.60	100	98	133	208.11	239	238	66	3.0
8	1	63	.02	.35	98	97	129	210.16	240	241	67	2.0
	2	66	.04	.71	97	96	133	211.8	239	237	68	2.5
	3	69	.09	1.60	97	96	133	212.5	240	242	67	3.0
		72						214.750				
average			0.2067	0.8517	97.40		133.08	34.285				

SEACOR
RM-5 & 17 FIELD DATA

Plant	LP	Meter dH@	2.1118	Nozzle I.D.& Dia. (in.)	0.364
Location	OROVILLE, CA	K Factor	17.88	Filter No.	LP-48
Test Location	North Filter Box	Pitot Coefficient (Cp)	0.84	Probe & Filter Temp. (F)	248±25°F
Operator	BL + JM	Ambient Temp.	91+	Leak Check Vacuum (Hg")	6.0 / 16.0
Date	6/19/94	Barometric Pres. (Bp)	29.82	Leak Rate (cfm)	0.000 / 0.000
Run No.	FRN-P3	Assumed H2O %	9-10	Static Pres. (H2O")	+.05
Control Box No.	#2	Probe I.D.	7' 5.5.	Test Time	1758 – 1922

Moisture

Imp	Initial	Final
1	100	↓
2	100	↓
3	—	260
4	300	318.2
Net Gain		78.2

PORT I.D.	POINT NO.	SAMPLE TIME	dP (H20")	dH (H20")	DOM TEMP. (F) Inlet	DOM TEMP. (F) Outlet	STACK TEMP (F)	SAMPLE VOL (ft3)	PROBE TEMP (F)	FILTER TEMP (F)	IMP. OUT. (F)	VACUUM (Hg")
1	1	0	.01	.17	83	82	132	214.848	236	242	67	2.0
	2	3	.04	.71	83	82	140	215.82	237	240	67	2.0
	3	6	.08	1.43	84	83	140	217.22	239	238	66	2.0
2	1	9	.01	.17	85	83	140	218.72	240	236	65	2.0
	2	12	.04	.71	84	82	139	219.53	239	237	64	2.0
	3	15	.085	1.6	86	83	140	221.34	240	242	63	2.5
3	1	18	.02	.35	86	83	140	222.79	240	239	64	2.0
	2	21	.05	.89	86	83	140	223.61	241	242	65	2.5
	3	24	.08	1.43	87	83	140	225.61	240	237	65	2.5
4	1	27	0.02	0.35	87	83	140	227.18	237	241	64	2.0
	2	30	.05	.89	87	83	138	228.12	237	236	63	2.0
	3	33	.08	1.43	87	83	139	230.18	236	235	62	2.0
5	1	36	.02	.35	87	83	141	231.5	230	231	63	2.0
	2	39	.045	.80	87	83	137	233.01	232	237	63	2.0
	3	42	.08	1.43	88	83	137	234.08	236	239	64	2.5
6	1	45	.025	.44	87	83	146	236.93	238	239	67	2.0
	2	48	.06	1.07	88	83	149	237.30	238	240	66	2.0
	3	51	.10	1.78	88	83	151	238.71	240	237	65	3.0
7	1	54	.03	.53	87	83	151	240.77	240	240	64	2.0
	2	57	.045	.80	87	83	150	242.28	234	254	67	2.5
	3	60	.09	1.60	87	83	146	244.8	239	252	66	2.5
8	1	63	.01	.17	86	83	138	245.61	239	243	65	2.0
	2	66	.04	.71	85	82	136	246.51	240	244	65	2.0
	3	69	.09	1.60	86	82	136	247.83	240	243	67	3.0
		72						244.888				
		average	0.2130	0.8921			8248	141.08			35.040	

SEACOR
RM-4 FIELD DATA FORM

Plant	L-P	Run No.	FBN-F1	Ambient Temp.	85°
Location	OROVILLE, CA	Control Box No.	1	Leak Check Vacuum (Hg")	8 / 5
Test Location	North Fifth box	Meter dH@	1.81	Leak Rate (cfm)	0.000 / 0.000
Operator	JM	Barometric Pres. (Bp)	29.82	Static Pres. (H2O")	+0.05
Date	6/18/94	Assumed H2O %	9-10	Test Time	11:53 — 1:25

NOZ #11

6' TFE Probe, NOZ = 0.336, K = 10.74

Moisture

Imp	Initial	Final
1	100	292
2	100	
3	—	0
4	300	311.6
Total		53.6

PORT I.D.	POINT NO.	SAMPLE TIME	dP (H20")	dH (H20")	DGM TEMP. (F) Inlet	DGM TEMP. (F) Outlet	STACK TEMP (F)	SAMPLE VOL (ft3)	PROBE TEMP (F)	FILTER TEMP (F)	IMP. OUT. (F)	VACUUM (Hg")
1	1	0	0.005	0.05	88	88	142	887.800			70	1.5
	2	3	0.04	0.43	86	87	146	888.30			70	3.0
	3	6	0.07	0.75	86	87	146	889.35			62	4.0
2	1	9	0.01	0.11	86	87	145	890.90			69	2.0
	2	12	0.03	0.32	86	86	147	891.40			70	2.5
	3	15	0.08	0.86	86	86	146	892.38			67	4.5
3	1	18	0.01	0.11	88	87	147	893.93			70	2.0
	2	21	0.04	0.43	88	87	148	894.52			70	3.0
	3	24	0.08	0.85	87	86	146	895.58			64	4.0
4	1	27	0.01	0.11	88	87	143	897.05			70	2.0
	2	30	0.03	0.32	88	87	143	897.65			70	2.5
	3	33	0.07	0.75	89	87	142	898.60			69	4.0
5	1	36	0.01	0.11	89	87	138	900.01			70	2.0
	2	39	0.04	0.43	89	88	139	900.60			69	3.0
	3	42	0.08	0.86	89	88	141	901.70			68	4.0
6	1	45	0.02	0.21	89	88	142	903.20			70	2.0
	2	48	0.06	0.64	89	88	143	904.02			70	4.0
	3	51	0.08	0.86	90	89	143	905.38			69	4.5
7	1	54	0.01	0.11	89	88	147	906.80			70	2.0
	2	57	0.04	0.43	90	88	147	907.38			70	3.0
	3	60	0.07	0.75	89	88	147	908.45			70	4.0
8	1	63	0.01	0.11	89	87	139	909.89			70	2.0
	2	66	0.03	0.32	89	88	139	910.45			69	2.5
	3	69	0.07	0.75	90	87	138	911.41			68	4.0
		72						912.827				
average			0.1903	0.4446		87.77	43.50	25.027				

FBN - F2

SEACOR
RM-5 & 17 FIELD DATA

Plant	L-P	Meter dH@	1.81	Nozzle I.D.& Dia. (in.)	#11 0.336"
Location	OROVILLE, CA	K Factor	10.74	Filter No.	—
Test Location	North Fitn Box	Pitot Coefficient (Cp)	0.84	Probe & Filter Temp. (F)	—
Operator	Sm	Ambient Temp.	90+	Leak Check Vacuum (Hg")	5 / 5
Date	6/18/94	Barometric Pres. (Bp)	29.82	Leak Rate (cfm)	0.001 / 0.001
Run No.	FBN-F2	Assumed H2O %	9-10	Static Pres. (H2O")	+0.05
Control Box No.	#1	Probe I.D.	6' TFE	Test Time	15:20 - 1658

K = 10.74

Moisture

Imp	Initial	Final
1	100	133
2	100	110
3	—	
4	300	310.6
Net Gain		53.6

PORT I.D.	POINT NO.	SAMPLE TIME	dP (H20")	dH (H20")	DGM TEMP. (F) Inlet	DGM TEMP. (F) Outlet	STACK TEMP (F)	SAMPLE VOL (ft3)	PROBE TEMP (F)	FILTER TEMP (F)	IMP. OUT. (F)	VACUUM (Hg")
1	1	0	0.01	0.11	90	90	136	912.896			70	2.0
	2	3	0.03	0.32	91	90	137	913.52			70	2.5
	3	6	0.07	0.75	91	90	137	914.50			69	3.5
2	1	9	0.01	0.11	91	90	136	915.89			70	2.0
	2	12	0.04	0.42	92	90	137	916.50			70	3.0
	3	15	0.08	0.85	92	90	137	917.54			69	4.0
3	1	18	0.01	0.11	93	90	134	919.01			70	2.0
	2	21	0.04	0.42	93	91	140	919.62			70	3.0
	3	24	0.08	0.85	94	91	139	920.68			68	4.0
4	1	27	0.01	0.11	94	91	137	922.15			70	2.0
	2	30	0.04	0.42	94	91	138	922.73			70	3.0
	3	33	0.08	0.85	95	92	139	923.80			69	4.0
5	1	36	0.01	0.11	94	92	135	925.28			70	2.0
	2	39	0.04	0.42	94	92	138	925.92			69	3.0
	3	42	0.08	0.85	95	92	139	927.00			69	4.0
6	1	45	0.02	0.21	94	92	136	928.60			70	2.0
	2	48	0.06	0.64	95	92	137	929.30			70	3.5
	3	51	0.08	0.85	96	92	136	930.60			69	4.0
7	1	54	0.02	0.21	95	92	132	932.10			70	2.0
	2	57	0.04	0.42	95	92	133	932.91			69	3.0
	3	60	0.08	0.85	95	92	132	934.01			68	4.0
8	1	63	0.01	0.11	94	92	128	935.50			70	2.0
	2	66	0.04	0.42	94	92	133	936.13			70	3.0
	3	69	0.08	0.85	94	92	133	937.18			68	4.0
		72						938.675				

average 0.1742 0.4400 92.3958 130.5833 25.7790

FBN-F3

SEACOR
RM-5 & 17 FIELD DATA

Plant	L-P	Meter dH@	1.81	Nozzle I.D.& Dia. (in.)	#11 0.336"
Location	ORVILLE, CA	K Factor	10.74	Filter No.	—
Test Location	North Filter Box	Pitot Coefficient (Cp)	0.84	Probe & Filter Temp. (F)	—
Operator	JM	Ambient Temp.	90+	Leak Check Vacuum (Hg")	6 / 5
Date	6/18/94	Barometric Pres. (Bp)	29.82	Leak Rate (cfm)	0.000 / 0.000
Run No.	FBN-F3	Assumed H2O %	9-10%	Static Pres. (H2O")	-0.04
Control Box No.	#1	Probe I.D.	6' TFE	Test Time	19:31 - 21:00

Moisture

Imp	Initial	Final
1	100	
2	100	243
3	—	
4	300	306.2
Net Gain		49.2

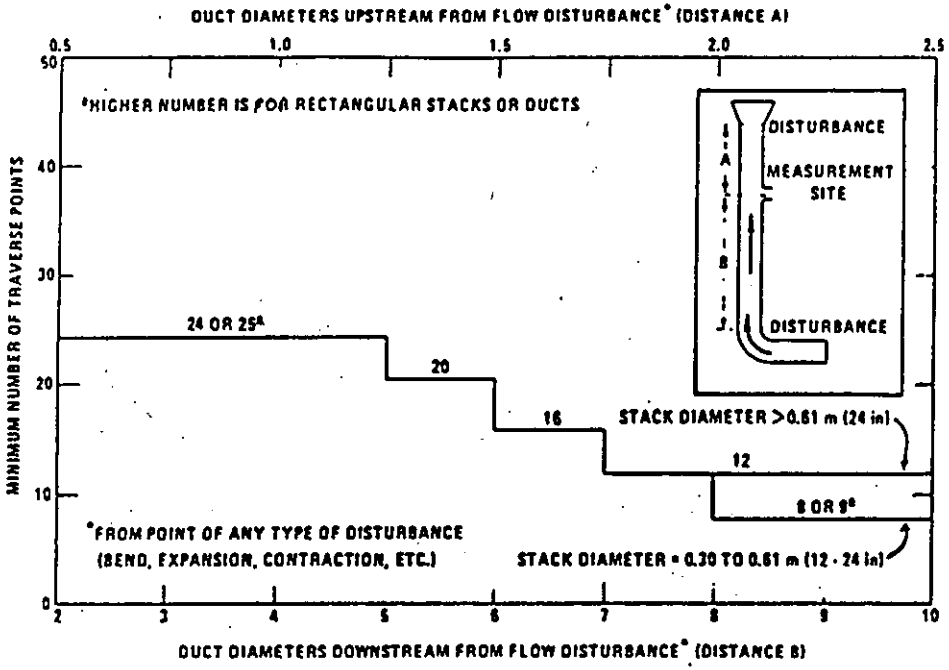
PORT I.D.	POINT NO.	SAMPLE TIME	dP (H20")	dH (H20")	DGM TEMP. (F) Inlet	DGM TEMP. (F) Outlet	STACK TEMP (F)	SAMPLE VOL (ft3)	PROBE TEMP (F)	FILTER TEMP (F)	IMP. OUT. (F)	VACUUM (Hg")
1	1	0	0.01	0.11	83	82	139	938.75			70	2.0
	2	3	0.04	0.43	83	83	142	939.65			70	3.0
	3	6	0.08	0.86	83	82	141	940.72			67	4.0
2	1	9	0.01	0.11	83	82	141	942.27			70	2.0
	2	12	0.03	0.32	83	82	141	942.83			69	3.0
	3	15	0.08	0.85	84	82	141	943.77			68	4.0
3	1	18	0.01	0.11	84	82	141	945.24			70	2.0
	2	21	0.04	0.43	84	82	140	945.84			68	3.0
	3	24	0.08	0.85	85	83	142	946.90			67	4.0
4	1	27	0.01	0.11	85	83	140	948.40			70	2.0
	2	30	0.04	0.43	85	83	141	949.02			69	3.0
	3	33	0.08	0.85	86	83	142	950.09			66	4.0
5	1	36	0.02	0.21	86	84	139	951.60			68	2.5
	2	39	0.04	0.43	86	83	142	952.35			69	3.0
	3	42	0.08	0.85	86	83	142	953.47			66	4.0
6	1	45	0.02	0.21	86	83	140	955.00			68	2.0
	2	48	0.06	0.64	86	83	138	955.75			68	3.5
	3	51	0.09	0.96	86	83	138	957.05			67	4.5
7	1	54	0.02	0.21	87	84	140	958.56			67	2.0
	2	57	0.04	0.43	87	84	138	959.38			70	3.0
	3	60	0.09	0.96	87	84	138	960.45			66	4.5
8	1	63	0.01	0.11	86	84	147	962.00			70	2.0
	2	66	0.03	0.32	86	84	149	962.56			70	3.0
	3	69	0.09	0.96	86	84	151	963.50			69	4.5
		72						965.015				

average 0.2012 0.4750 84.0625 141.375 26.265

SEACOR
RM-1 DATA FORM

Plant	LP
Location	Oroville, CA
Test Location	MEC Hot Oil Heater
Operator	J. Rosburg
Date	06-06-94

Stack Dia. (in.)	17.0"	
Port Dia. (in.)	2.0"	
Port Depth (in.)	Flush	
Upstream (A in.)	7.0'	4.9 Diameters
Downstream (B in.)	≅ 24'	16.9 Diameters



Traverse point number on a diameter	Number of traverse points on a diameter— 2	4	6	8	10	12	14	16	18	20	22	24
1	14.6	6.7	4.4	3.2	2.6	2.1	1.8	1.6	1.4	1.3	1.1	1.1
2	85.4	25.0	14.6	10.5	8.2	6.7	5.7	4.9	4.4	3.9	3.5	3.2
3		75.0	29.6	19.4	14.6	11.8	9.9	8.5	7.5	6.7	6.0	5.5
4		93.3	70.4	32.3	22.6	17.7	14.6	12.5	10.9	9.7	8.7	7.9
5			85.4	67.7	34.2	25.0	20.1	16.9	14.6	12.9	11.6	10.5
6			95.6	80.6	65.8	35.6	26.9	22.0	18.6	16.5	14.6	13.2
7				89.5	77.4	64.4	36.6	28.3	23.6	20.4	18.0	16.1
8				96.8	85.4	75.0	63.4	37.5	29.6	25.0	21.8	19.4
9					91.8	82.3	73.1	62.5	38.2	30.6	26.2	23.0
10					97.4	88.2	79.9	71.7	61.8	38.8	31.5	27.2
11						93.3	85.4	78.0	70.4	61.2	39.3	32.3
12						97.9	90.1	83.1	76.4	69.4	60.7	39.8
13							94.3	87.5	81.2	75.0	68.5	60.2
14							98.2	91.5	85.4	79.6	73.8	67.7
15								95.1	89.1	83.5	78.2	72.8
16								98.4	92.5	87.1	82.0	77.0
17									95.6	90.3	85.4	80.6
18									98.6	93.3	88.4	83.9
19										96.1	91.3	86.8
20										98.7	94.0	89.5
21											96.5	92.1
22											98.9	94.5
23												96.8
24												98.9

Point No.	Dist. From Wall (in.)	Dist. With Port (in.)
1	0.8	0.8
2	2.5	2.5
3	5.0	5.0
4	12.0	12.0
5	14.5	14.5
6	16.2	16.2

Point No.	Dist. From Wall (in.)	Dist. With Port (in.)

SEACOR
SULFUR DIOXIDE ANALYTICAL DATA FORM

Plant Louisiana Pacific Date 07-08-94

Location Oroville, CA Analyst J. Rosburg

Sample Location MEC Oil Heater

Standardization of NaOH

1. N_{NaOH} = (52.6 mg KHP) / (28.6 ml titrant)(204.23) = 0.0090
2. N_{NaOH} = (50.0 mg KHP) / (27.2 ml titrant)(204.23) = 0.0090
3. N_{NaOH} = (49.8 mg KHP) / (27.1 ml titrant)(204.23) = 0.0090

Average N_{NaOH} = 0.0090

Standardization of H_2SO_4

1. N_{H2SO4} = (27.2 ~~mg~~ ml NaOH)(0.0090 NNaOH) / 25 = 0.0098
2. N_{H2SO4} = (27.2 ~~mg~~ ml NaOH)(0.0090 NNaOH) / 25 = 0.0098
3. N_{H2SO4} = (27.2 ~~mg~~ ml NaOH)(0.0090 NNaOH) / 25 = 0.0098

Average N_{H2SO4} = 0.0098

Standardization of $Ba(ClO_4)_2$

1. $N_{Ba(ClO4)2}$ = (0.0098 N_{H2SO4}) 25 / 24.6 ml $Ba(ClO_4)_2$ = 0.0100
2. $N_{Ba(ClO4)2}$ = (0.0098 N_{H2SO4}) 25 / 24.7 ml $Ba(ClO_4)_2$ = 0.0099
3. $N_{Ba(ClO4)2}$ = (0.0098 N_{H2SO4}) 25 / 24.8 ml $Ba(ClO_4)_2$ = 0.0099

Average $N_{Ba(ClOH)2}$ = 0.0099

Louisiana Pacific J. Rosburg

Oroville, CA sample date: 06-17-94

MEC OIL HEATER SO_2 titration Results 07-08-94

Run #	Dilution	Aliquot	titrant volume 1	2	3	Ave
MEC-Blk	500	25	<0.1	<0.1		<0.1
MEC-1	500	25	0.1	0.2		0.15
MEC-2	500	25	0.2	0.2		0.2
MEC-3	500	25	0.1	0.1		0.1

SEACOR
RM-4 FIELD DATA FORM

Plant	L.P.	Run No.	M-1	Ambient Temp.	70°
Location	Oroville, CA.	Control Box No.	#1	Leak Check Vacuum (Hg")	12.0 / 10.0
Test Location	Boiler Stack MEC	Meter dH@		Leak Rate (cfm)	0.001
Operator	BL JR	Barometric Pres. (Bp)	29.85	Static Pres. (H2O")	-.07
Date	06-17-94	Assumed H2O %	14%	Test Time	~~2234~~ - 2134 - 2205

Moisture

Imp	Initial	Final
1	100	136
2	100	103
3	—	
4	300	3038
Total		42.8

PORT I.D.	POINT NO.	SAMPLE TIME	dP (H20")	dH (H20")	DGM TEMP. (F) Inlet	DGM TEMP. (F) Outlet	STACK TEMP (F)	SAMPLE VOL (ft3)	PROBE TEMP (F)	FILTER TEMP (F)	IMP. OUT. (F)	VACUUM (Hg")
W	1	0.0	.11	1.00	76	76	445	855.649	X		67	6.0
	2	10.0	.16	1.00	77	76	446	861.72	X		65	7.0
	3	20.0	.17					866.414				
	4	~~2350~~	.17									
	5		.16									
	6		.13									
N	1		.12									
	2		.12									
	3		.12									
	4		.14									
	5		.14									
	6		.12									
average			03709	1.00		76.25	445.5	10.765				

SEACOR
RM-4 FIELD DATA FORM

Plant	L.P.	Run No.	M-2	Ambient Temp.	70°
Location	Oroville CA	Control Box No.	#1	Leak Check Vacuum (Hg")	12.0
Test Location	Mec boiler stack	Meter dH@		Leak Rate (cfm)	0.004
Operator	BL JTR	Barometric Pres. (Bp)	29.85	Static Pres. (H2O")	-.08
Date	06-17-94	Assumed H2O %		Test Time	2210-2230

Moisture

Imp	Initial	Final
1	100	134
2	100	102
3	—	
4	300	304.1
Total		45.1

PORT I.D.	POINT NO.	SAMPLE TIME	dP (H20")	dH (H20")	DGM TEMP. (F) Inlet	DGM TEMP. (F) Outlet	STACK TEMP (F)	SAMPLE VOL (ft3)	PROBE TEMP (F)	FILTER TEMP (F)	IMP. OUT. (F)	VACUUM (Hg")
W	1	0.0	-.08	1.00	76	75	460	866.657	X		63	5.0
	2	10.0	.12	1.00	77	76	445	872.91			65	5.0
	3	20.0	.13					877.148				
	4		.14									
	5		.13									
	6		.12									
N	1		.10									
	2		.12									
	3		.14									
	4		.15									
	5		.16									
	6		.16									
average			0.3579	1.00		76.00	452.5	10.496				

SEACOR
RM-4 FIELD DATA FORM

Plant	L.P.	Run No.	M-3	Ambient Temp.	70°
Location	Oroville, CA.	Control Box No.	1	Leak Check Vacuum (Hg")	12.0
Test Location	MEC boiler stack	Meter dH@		Leak Rate (cfm)	0.004
Operator	BL JR	Barometric Pres. (Bp)	~~29.79~~ 29.85	Static Pres. (H2O")	-.08
Date	06-17-94	Assumed H2O %		Test Time	2314 - 2333

Moisture

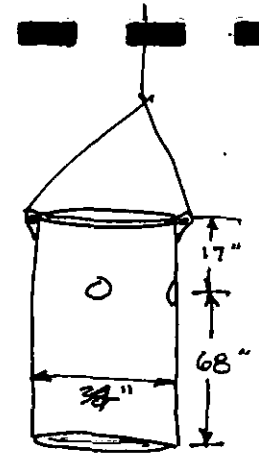
Imp	Initial	Final
1	100	132
2	100	106
3	—	
4	300	305.5
Total		43.5

PORT I.D.	POINT NO.	SAMPLE TIME	dP (H20")	dH (H20")	DGM TEMP. (F) Inlet	DGM TEMP. (F) Outlet	STACK TEMP (F)	SAMPLE VOL (ft3)	PROBE TEMP (F)	FILTER TEMP (F)	IMP. OUT. (F)	VACUUM (Hg")
W	1	0.0	.07	1.00	72	72	435	877.205	X		67	8.0
	2	10.0	.11	1.00	73	71	436	882.40			65	8.0
	3	20.0	.13					887.735				
	4		.14									
	5		.14									
	6		.12									
N	1		.12									
	2		.14									
	3		.16									
	4		.16									
	5		.15									
	6		.12									
	average		0.3588	1.00		72.00	435.5	10.530				

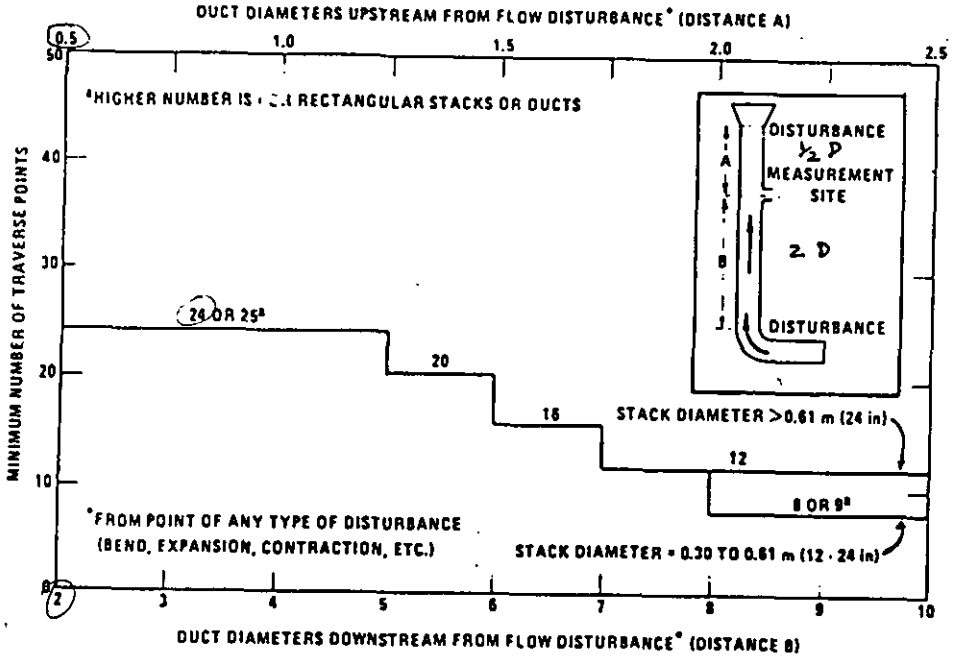
SEACOR
RM-1 DATA FORM

Plant	L-P
Location	OROVILLE, CA
Test Location	Cyclone
Operator	Kam
Date	6/15/94

Stack Dia. (in.)	34"
Port Dia. (in.)	3"
Port Depth (in.)	—
Upstream (A in.)	17"
Downstream (B in.)	68"



STACK EXTENSION



Traverse point number on a diameter	Number of traverse points on a diameter— 2	4	6	8	10	12	14	16	18	20	22	24
1	14.6	6.7	4.4	3.2	2.6	2.1	1.8	1.6	1.4	1.3	1.1	1.1
2	85.4	25.0	14.6	10.5	8.2	6.7	5.7	4.9	4.4	3.9	3.5	3.2
3		75.0	29.6	19.4	14.6	11.8	9.9	8.5	7.5	6.7	6.0	5.5
4		93.3	70.4	32.3	22.6	17.7	14.6	12.5	10.9	9.7	8.7	7.9
5			85.4	67.7	34.2	25.0	20.1	16.9	14.6	12.9	11.6	10.5
6			95.6	80.6	65.8	35.6	26.9	22.0	18.8	16.5	14.6	13.2
7				89.5	77.4	64.4	36.6	28.3	23.6	20.4	18.0	16.1
8				96.6	85.4	75.0	63.4	37.5	29.6	25.0	21.8	19.4
9					91.8	82.3	73.1	62.5	38.2	30.6	26.2	23.0
10					97.4	88.2	79.9	71.7	61.8	38.6	31.5	27.2
11						93.3	85.4	78.0	70.4	61.2	39.3	32.3
12						97.9	90.1	83.1	76.4	69.4	60.7	39.8
13							94.3	87.5	81.2	75.0	68.5	60.2
14							98.2	91.5	85.4	79.6	73.8	67.7
15								95.1	89.1	83.5	78.2	72.8
16								98.4	92.5	87.1	82.0	77.0
17									95.6	90.3	85.4	80.6
18									98.6	93.3	88.4	83.9
19										96.1	91.3	86.8
20										98.7	94.0	89.5
21											96.5	92.1
22											98.9	94.5
23												96.8
24												98.9

Point No.	Dist. From Wall (in.)	Dist. With Port (in.)
1	0.71	
2	7.28	
3	4.01	
4	6.02	
5	8.5	
6	12.1	

Point No.	Dist. From Wall (in.)	Dist. With Port (in.)
7	21.9	
8	25.5	
9	28.0	
10	30.0	
11	31.7	
12	33.3	

SEACOR
RM-5 & 17 FIELD DATA

Plant	LP	Meter dH@	N/A	Nozzle I.D.& Dia. (in.)	N/A
Location	Oroville, CA	K Factor	N/A	Filter No.	N/A
Test Location	Brown #1 — Cyclone	Pitot Coefficient (Cp)	0.84	Probe & Filter Temp. (F)	N/A
Operator	JR, BL, DD	Ambient Temp.	94	Leak Check Vacuum (Hg")	N/A
Date	06-19-94	Barometric Pres. (Bp)		Leak Rate (cfm)	N/A
Run No.	Flow 1	Assumed H2O %	1	Static Pres. (H2O")	
Control Box No.	N/A	Probe I.D.	3.0'	Test Time	1200 - 1300

Moisture

Imp	Initial	Final
1		
2		
3		
4		
Net Gain		

Pitot (-) (+)

PORT I.D.	POINT NO.	SAMPLE TIME	dP (H2O")	Yaw dH (H2O")	Yaw DOM TEMP. (F) Inlet	Outlet	STACK TEMP (F)	~~SAMPLE VOL (ft3)~~	~~PROBE TEMP (F)~~	FILTER TEMP (F)	IMP. OUT. (F)	VACUUM (Hg")	cc +	cc −
U	1		-0.00		20	(C)+	- (CC)	W	1	—	—	0		
	2		-0.05	15					2	—	—	0		
	3		0.05	15					3	—	—	-0.005		
	4		0.04	30					4	70		0.005		25
	5		-0.00		50				5	40		0.06		55
	6		- ?		45				6	30		0.54		65
	7		0.22	20					7		50	0.08	45	
	8		0.04	35					8		35	0.02	50	
	9		0.01	25					9		55	0.01	30	
	10		0	0					10	—	—	0		
	11		-0.04	15					11	45		neg		50
	12		-0.09	10					12	30		neg		65
S	1		-0.05		75	15	10							
	2		-0.03		65	20	20							
	3		-0.01	70		25		Static 0.19						
	4		0.02		65		20							
	5		0.05	45		50								
	6		0.27	25		70								
	7		0.35		35		50							
	8		0.05	30		65								
	9		0.0	0	0		—							
	10		-0.01		30		55							
	11		-0.03	30		65								
	12		-0.02	4		90								

average

SEACOR
ANALYZER CALIBRATION DATA

CLIENT	LP	ANALYZER	FID
LOCATION	OROVILLE, CA	SPAN VALUE	0-100
SOURCE I.D.	Carter Day #1 Baghouse	ANALYZER	O_2
OPERATOR(S)	JR	SPAN VALUE	0-25%
DATE	06-07-94	ANALYZER	CO_2
TEST METHOD(S)	25A	SPAN VALUE	0-25%

Pres. = 0.55

Analyzer: FID		Cylinder Value (ppm)	CEM System Response (ppm)	Absolute Difference (ppm)	Percent Difference (% of span)
INITIAL SYSTEM CALIBRATION	Zero	0.0	0.2	0.2	0.2
	Mid-range	49.87/29.95	51.6/30.2	1.7/0.3	1.7/0.3
	High-range	86.6	87.2	0.6	0.6
FINAL SYSTEM CALIBRATION	Zero	0.0	-0.5	0.5	0.5
	Mid-range	49.87/29.95	49.9/31.6	0.03/1.7	0.0/1.7
	High-range	86.6	87.0	0.4	0.4

Analyzer: O_2		Cylinder Value (ppm)	CEM System Response (ppm)	Absolute Difference (ppm)	Percent Difference (% of span)
INITIAL SYSTEM CALIBRATION	Zero	0.0	-0.03		
	Mid-range	12.1	12.12		
	High-range	20.90	20.90		
FINAL SYSTEM CALIBRATION	Zero				
	Mid-range				
	High-range				

Analyzer: CO_2		Cylinder Value (ppm)	CEM System Response (ppm)	Absolute Difference (ppm)	Percent Difference (% of span)
INITIAL SYSTEM CALIBRATION	Zero	0.0	0.07		
	Mid-range	12.0	11.98		
	High-range				
FINAL SYSTEM CALIBRATION	Zero				
	Mid-range				
	High-range				

START RUN 1 @ 1245 - 1345
RUN 2 @ 1350 - 1515 Down 1410 - 1435
RUN 3 @ 1515 - 1555 - DOWN 1555 - 1630 up 1630 - 1650 total 1515 - 1650 down 35 min

RUN 3A ~~CRDAT~~ ANALYSIS → Bag 1 O_2 = 20.90, CO_2 = 0.0 } Ambient

SEACOR
CALIBRATION BIAS & DRIFT DATA

CLIENT	LP	ANALYZER	FID
LOCATION	Oroville, CA	SPAN VALUE	0-100
SOURCE I.D.	Carter Bay #1 / Baghouse	ANALYZER	
OPERATOR(S)	JR	SPAN VALUE	
DATE	06-09-94	ANALYZER	
TEST METHOD(S)	25A	SPAN VALUE	

Analyzer: FID	System Response (ppm)	Initial Values		Final Values		Calibration Drift (% of span)
		Analyzer Response (ppm)	Calibration Bias (%)	Analyzer Response (ppm)	Calibration Bias (%)	
Zero	0.2	0.4	-0.2	-0.2	0.4	-0.7
High-range	87.2	83.9	3.3	85.6	1.6	-0.2

Analyzer:	System Response (ppm)	Initial Values		Final Values		Calibration Drift (% of span)
		Analyzer Response (ppm)	Calibration Bias (%)	Analyzer Response (ppm)	Calibration Bias (%)	
Zero						
High-range						

Analyzer:	System Response (ppm)	Initial Values		Final Values		Calibration Drift (% of span)
		Analyzer Response (ppm)	Calibration Bias (%)	Analyzer Response (ppm)	Calibration Bias (%)	
Zero						
High-range						

System Cal. Bias = (System Cal. Resp. – Analyzer Cal. Resp.) / Span * 100

Cal. Drift = (Final System Response – Initial System Response) / Span * 100

SEACOR
ANALYZER CALIBRATION DATA

CLIENT	LP	ANALYZER	FID
LOCATION	oroville, CA	SPAN VALUE	0-100 as propane
SOURCE I.D.	RVS	ANALYZER	
OPERATOR(S)	JR	SPAN VALUE	
DATE	06-10-94	ANALYZER	
TEST METHOD(S)	25A	SPAN VALUE	

Analyzer: FID		Cylinder Value (ppm)	CEM System Response (ppm)	Absolute Difference (ppm)	Percent Difference (% of span)
INITIAL SYSTEM CALIBRATION	Zero	0.0	0.2	0.2	0.2
	Mid-range	49.87 / 29.95	51.6 / 31.6	1.7 / 1.7	1.7 / 1.7
	High-range	86.6	86.6	0.0	0.0
FINAL SYSTEM CALIBRATION	Zero	0.0	0.0	0.0	0.0
	Mid-range	49.87 / 29.95	51.4 / 30.9	1.5 / 1.0	1.5 / 1.0
	High-range	86.6	85.4	1.2	1.2

Analyzer:		Cylinder Value (ppm)	CEM System Response (ppm)	Absolute Difference (ppm)	Percent Difference (% of span)
INITIAL SYSTEM CALIBRATION	Zero				
	Mid-range				
	High-range				
FINAL SYSTEM CALIBRATION	Zero				
	Mid-range				
	High-range				

Analyzer:		Cylinder Value (ppm)	CEM System Response (ppm)	Absolute Difference (ppm)	Percent Difference (% of span)
INITIAL SYSTEM CALIBRATION	Zero				
	Mid-range				
	High-range				
FINAL SYSTEM CALIBRATION	Zero				
	Mid-range				
	High-range				

RVS-VOC 1 1020-

SEACOR
CALIBRATION BIAS & DRIFT DATA

CLIENT	LP	ANALYZER	FID
LOCATION	Oroville, CA	SPAN VALUE	0-100 ppm as propane
SOURCE I.D.	RV 5	ANALYZER	
OPERATOR(S)	JR	SPAN VALUE	
DATE	06-10-94	ANALYZER	
TEST METHOD(S)	25A	SPAN VALUE	

Analyzer: FID	System Response (ppm)	Initial Values		Final Values		Calibration Drift (% of span)
		Analyzer Response (ppm)	Calibration Bias (%)	Analyzer Response (ppm)	Calibration Bias (%)	
Zero	0.2	1.0	-0.8	-0.2	0.4	-0.2
High-range	86.6	49.2	24	49.1	2.5	-1.2

Analyzer:	System Response (ppm)	Initial Values		Final Values		Calibration Drift (% of span)
		Analyzer Response (ppm)	Calibration Bias (%)	Analyzer Response (ppm)	Calibration Bias (%)	
Zero						
High-range						

Analyzer:	System Response (ppm)	Initial Values		Final Values		Calibration Drift (% of span)
		Analyzer Response (ppm)	Calibration Bias (%)	Analyzer Response (ppm)	Calibration Bias (%)	
Zero						
High-range						

System Cal. Bias = (System Cal. Resp. – Analyzer Cal. Resp.) / Span * 100

Cal. Drift = (Final System Response – Initial System Response) / Span * 100

SEACOR
ANALYZER CALIBRATION DATA

CLIENT	LP	ANALYZER	FID
LOCATION	OROVILLE, CA	SPAN VALUE	0-100
SOURCE I.D.	RU4	ANALYZER	
OPERATOR(S)	JR	SPAN VALUE	
DATE	06-11	ANALYZER	
TEST METHOD(S)	25A	SPAN VALUE	

Analyzer: FID		Cylinder Value (ppm)	CEM System Response (ppm)	Absolute Difference (ppm)	Percent Difference (% of span)
INITIAL SYSTEM CALIBRATION	Zero	0.0	0.2	0.2	0.2
49.81 - 29.95	Mid-range	49.81/29.95	50.5/32.1	0.6/2.2	0.6/2.2
	High-range	86.6	86.9	0.3	0.3
FINAL SYSTEM CALIBRATION	Zero	0.0	-0.8	0.8	0.8
	Mid-range	49.81/29.95	51.8/32.8	1.9/4.9	1.9/1.9
	High-range	86.6	87.1	0.5	0.5

Analyzer:		Cylinder Value (ppm)	CEM System Response (ppm)	Absolute Difference (ppm)	Percent Difference (% of span)
INITIAL SYSTEM CALIBRATION	Zero				
	Mid-range				
	High-range				
FINAL SYSTEM CALIBRATION	Zero				
	Mid-range				
	High-range				

Analyzer:		Cylinder Value (ppm)	CEM System Response (ppm)	Absolute Difference (ppm)	Percent Difference (% of span)
INITIAL SYSTEM CALIBRATION	Zero				
	Mid-range				
	High-range				
FINAL SYSTEM CALIBRATION	Zero				
	Mid-range				
	High-range				

SEACOR
CALIBRATION BIAS & DRIFT DATA

CLIENT	LP-	ANALYZER	FID
LOCATION	Olovi; lle	SPAN VALUE	0-100
SOURCE I.D.	RU 4	ANALYZER	
OPERATOR(S)	JR	SPAN VALUE	
DATE	06-11-94	ANALYZER	
TEST METHOD(S)	25A	SPAN VALUE	

Analyzer: FID	System Response (ppm)	Initial Values		Final Values		Calibration Drift (% of span)
		Analyzer Response (ppm)	Calibration Bias (%)	Analyzer Response (ppm)	Calibration Bias (%)	
Zero	0.2	-0.2	0.4	-1.1	1.3	-1.0
High-range	50.5	49.1	1.4	53.8	-3.3	0.2

Analyzer:	System Response (ppm)	Initial Values		Final Values		Calibration Drift (% of span)
		Analyzer Response (ppm)	Calibration Bias (%)	Analyzer Response (ppm)	Calibration Bias (%)	
Zero						
High-range						

Analyzer:	System Response (ppm)	Initial Values		Final Values		Calibration Drift (% of span)
		Analyzer Response (ppm)	Calibration Bias (%)	Analyzer Response (ppm)	Calibration Bias (%)	
Zero						
High-range						

System Cal. Bias = (System Cal. Resp. – Analyzer Cal. Resp.) / Span * 100

Cal. Drift = (Final System Response – Initial System Response) / Span * 100

SEACOR
ANALYZER CALIBRATION DATA

CLIENT	LP	ANALYZER	FID
LOCATION	DONALDSONVILLE, LA	SPAN VALUE	0-100
SOURCE I.D.	CO #2 & RV 3	ANALYZER	
OPERATOR(S)	JR	SPAN VALUE	
DATE	06-13-94	ANALYZER	
TEST METHOD(S)	25A	SPAN VALUE	

Analyzer: FID		Cylinder Value (ppm)	CEM System Response (ppm)	Absolute Difference (ppm)	Percent Difference (% of span)
INITIAL SYSTEM CALIBRATION	Zero	0.0	0.4	0.4	0.4
	Mid-range	49.87 / 29.95	51.2 / 30.3	1.3 / 0.4	1.3 / 0.4
	High-range	86.6	86.7	0.1	0.1
FINAL SYSTEM CALIBRATION	Zero	0.0	0.3	0.3	0.3
	Mid-range	49.87 / 29.95	50.3 / 31.6	0.4 / 1.7	0.4 / 1.7
	High-range	86.6	87.3	0.7	0.7

Analyzer:		Cylinder Value (ppm)	CEM System Response (ppm)	Absolute Difference (ppm)	Percent Difference (% of span)
INITIAL SYSTEM CALIBRATION	Zero				
	Mid-range				
	High-range				
FINAL SYSTEM CALIBRATION	Zero				
	Mid-range				
	High-range				

Analyzer:		Cylinder Value (ppm)	CEM System Response (ppm)	Absolute Difference (ppm)	Percent Difference (% of span)
INITIAL SYSTEM CALIBRATION	Zero				
	Mid-range				
	High-range				
FINAL SYSTEM CALIBRATION	Zero				
	Mid-range				
	High-range				

START CO #2 @ ~~1315~~ 1335-1810 06-13-94 MONDAY
RV #3 @ 1820 - 2145 06-13-94 MON

SEACOR
CALIBRATION BIAS & DRIFT DATA

CLIENT	LP	ANALYZER	FID
LOCATION	Oroville	SPAN VALUE	~~0-25~~ 0-100
SOURCE I.D.	CO #2 & RV 3	ANALYZER	
OPERATOR(S)	JR	SPAN VALUE	
DATE	06-13-94	ANALYZER	
TEST METHOD(S)	25A	SPAN VALUE	

Analyzer:	System Response (ppm)	Initial Values: Analyzer Response (ppm)	Initial Values: Calibration Bias (%)	Final Values: Analyzer Response (ppm)	Final Values: Calibration Bias (%)	Calibration Drift (% of span)
Zero	0.4	0.9	-0.5	0.5	-0.1	-0.1
High-range	86.7/51.2	49.1	2.1	50.2	1.0	0.6

Analyzer:	System Response (ppm)	Initial Values: Analyzer Response (ppm)	Initial Values: Calibration Bias (%)	Final Values: Analyzer Response (ppm)	Final Values: Calibration Bias (%)	Calibration Drift (% of span)
Zero						
High-range						

Analyzer:	System Response (ppm)	Initial Values: Analyzer Response (ppm)	Initial Values: Calibration Bias (%)	Final Values: Analyzer Response (ppm)	Final Values: Calibration Bias (%)	Calibration Drift (% of span)
Zero						
High-range						

System Cal. Bias = (System Cal. Resp. – Analyzer Cal. Resp.) / Span * 100

Cal. Drift = (Final System Response – Initial System Response) / Span * 100

SEACOR
ANALYZER CALIBRATION DATA

CLIENT	LP	ANALYZER	FID
LOCATION	OROVILLE, CA	SPAN VALUE	0-100
SOURCE I.D.	RV 2	ANALYZER	
OPERATOR(S)	JR	SPAN VALUE	
DATE	06-14-94	ANALYZER	
TEST METHOD(S)	25A	SPAN VALUE	

Analyzer: FID		Cylinder Value (ppm)	CEM System Response (ppm)	Absolute Difference (ppm)	Percent Difference (% of span)
INITIAL SYSTEM CALIBRATION	Zero	0.0	0.2	0.2	0.2
	Mid-range	49.87/29.95	50.5/30.2	0.6/0.3	0.6/0.3
	High-range	86.6	87.1	0.5	0.5
FINAL SYSTEM CALIBRATION	Zero	0.0	0.8	0.8	0.8
	Mid-range	49.87/29.95	51.3/31.5	1.4/1.6	1.4/1.6
	High-range	86.6	85.8	0.8	0.8

Analyzer:		Cylinder Value (ppm)	CEM System Response (ppm)	Absolute Difference (ppm)	Percent Difference (% of span)
INITIAL SYSTEM CALIBRATION	Zero				
	Mid-range				
	High-range				
FINAL SYSTEM CALIBRATION	Zero				
	Mid-range				
	High-range				

Analyzer:		Cylinder Value (ppm)	CEM System Response (ppm)	Absolute Difference (ppm)	Percent Difference (% of span)
INITIAL SYSTEM CALIBRATION	Zero				
	Mid-range				
	High-range				
FINAL SYSTEM CALIBRATION	Zero				
	Mid-range				
	High-range				

START RV2 @ 1520 – 1850
START RV1 @ 1900 – 2250

SEACOR
CALIBRATION BIAS & DRIFT DATA

CLIENT	LP	ANALYZER	FID
LOCATION	OROVILLE, CA	SPAN VALUE	0-100
SOURCE I.D.	RV 2	ANALYZER	
OPERATOR(S)	JR	SPAN VALUE	
DATE	06-14-94	ANALYZER	
TEST METHOD(S)	25A	SPAN VALUE	

Analyzer: FID	System Response (ppm)	Initial Values: Analyzer Response (ppm)	Initial Values: Calibration Bias (%)	Final Values: Analyzer Response (ppm)	Final Values: Calibration Bias (%)	Calibration Drift (% of span)
Zero	0.2	-0.2	0.4	0.7	-0.5	0.6
High-range	87.1/SAS	48.2	2.3	50.6	-0.1	-1.3

Analyzer:	System Response (ppm)	Initial Values: Analyzer Response (ppm)	Initial Values: Calibration Bias (%)	Final Values: Analyzer Response (ppm)	Final Values: Calibration Bias (%)	Calibration Drift (% of span)
Zero						
High-range						

Analyzer:	System Response (ppm)	Initial Values: Analyzer Response (ppm)	Initial Values: Calibration Bias (%)	Final Values: Analyzer Response (ppm)	Final Values: Calibration Bias (%)	Calibration Drift (% of span)
Zero						
High-range						

System Cal. Bias = (System Cal. Resp. – Analyzer Cal. Resp.) / Span * 100

Cal. Drift = (Final System Response – Initial System Response) / Span * 100

SEACOR
ANALYZER CALIBRATION DATA

CLIENT	LP	ANALYZER	F10
LOCATION	OROVILLE, CA	SPAN VALUE	0-100
SOURCE I.D.	CO #4 & CO #5	ANALYZER	
OPERATOR(S)	JR	SPAN VALUE	
DATE	06-15-94	ANALYZER	
TEST METHOD(S)	25A	SPAN VALUE	

Analyzer: F10		Cylinder Value (ppm)	CEM System Response (ppm)	Absolute Difference (ppm)	Percent Difference (% of span)
INITIAL SYSTEM CALIBRATION	Zero	0.0	0.2	0.2	0.2
	Mid-range	29.95 / 49.87	31.6 / 51.1	1.7 / 1.2	1.7 / 1.2
	High-range	86.6	87.1	0.5	0.5
FINAL SYSTEM CALIBRATION	Zero	0.0	0.4	0.4	0.4
	Mid-range	29.95 / 49.87	31.8 / 50.5	1.9 / 0.6	1.9 / 0.6
	High-range	86.6	86.1	0.5	0.5

Analyzer:		Cylinder Value (ppm)	CEM System Response (ppm)	Absolute Difference (ppm)	Percent Difference (% of span)
INITIAL SYSTEM CALIBRATION	Zero				
	Mid-range				
	High-range				
FINAL SYSTEM CALIBRATION	Zero				
	Mid-range				
	High-range				

Analyzer:		Cylinder Value (ppm)	CEM System Response (ppm)	Absolute Difference (ppm)	Percent Difference (% of span)
INITIAL SYSTEM CALIBRATION	Zero				
	Mid-range				
	High-range				
FINAL SYSTEM CALIBRATION	Zero				
	Mid-range				
	High-range				

START CO #4 @ 1210 — 1600
CO #5 @ 1620 - 1925

SEACOR
CALIBRATION BIAS & DRIFT DATA

CLIENT	LP	ANALYZER	FID
LOCATION	OROVILLE, CA	SPAN VALUE	0-100
SOURCE I.D.	CO #4 & CO #5	ANALYZER	
OPERATOR(S)	JR	SPAN VALUE	
DATE	06-15-94	ANALYZER	
TEST METHOD(S)	25A	SPAN VALUE	

Analyzer:	System Response (ppm)	Initial Values: Analyzer Response (ppm)	Initial Values: Calibration Bias (%)	Final Values: Analyzer Response (ppm)	Final Values: Calibration Bias (%)	Calibration Drift (% of span)
Zero	0.2	-0.4	0.6	0.1	0.1	0.2
High-range	87.1/50.1	50.2 ~~49.6~~	0.9	48.8	2.3	-1.0

Analyzer:	System Response (ppm)	Initial Values: Analyzer Response (ppm)	Initial Values: Calibration Bias (%)	Final Values: Analyzer Response (ppm)	Final Values: Calibration Bias (%)	Calibration Drift (% of span)
Zero						
High-range						

Analyzer:	System Response (ppm)	Initial Values: Analyzer Response (ppm)	Initial Values: Calibration Bias (%)	Final Values: Analyzer Response (ppm)	Final Values: Calibration Bias (%)	Calibration Drift (% of span)
Zero						
High-range						

System Cal. Bias = (System Cal. Resp. – Analyzer Cal. Resp.) / Span * 100

Cal. Drift = (Final System Response – Initial System Response) / Span * 100

SEACOR
ANALYZER CALIBRATION DATA

CLIENT	LP	ANALYZER	FID
LOCATION	Oroville, CA	SPAN VALUE	0-100 ppm as propane
SOURCE I.D.	MEC Oil Heater	ANALYZER	NO_x
OPERATOR(S)	J. R.	SPAN VALUE	0-250 ppm
DATE	06-17-94	ANALYZER	CO
TEST METHOD(S)	25A, 7E, 10	SPAN VALUE	0-5000 ppm

Analyzer: ~~NO_x~~ FID		Cylinder Value (ppm)	CEM System Response (ppm)	Absolute Difference (ppm)	Percent Difference (% of span)
INITIAL SYSTEM CALIBRATION	Zero	0.0	0.2	0.2	0.2
	Mid-range	49.87 / 29.95	50.6 / 31.2	0.7 / 1.3	0.7 / 1.3
	High-range	86.6	86.0	0.6	0.6
FINAL SYSTEM CALIBRATION	Zero	0.0	-0.4	0.4	0.4
	Mid-range	49.87 / 29.95	51.3 / 31.4	1.4 / 1.5	1.4 / 1.5
	High-range	86.6	87.2	0.6	0.6

Analyzer: NO_x		Cylinder Value (ppm)	CEM System Response (ppm)	Absolute Difference (ppm)	Percent Difference (% of span)
INITIAL SYSTEM CALIBRATION	Zero	0.0	0.2	0.2	0.1
	Mid-range	36.84	36.0	0.8	0.3
	High-range	195.2	193.3	1.9	0.8
FINAL SYSTEM CALIBRATION	Zero	0.0	0.2	0.2	0.1
	Mid-range	36.84	35.9	0.9	0.4
	High-range	195.2	188	6.2	2.5

Analyzer: CO		Cylinder Value (ppm)	CEM System Response (ppm)	Absolute Difference (ppm)	Percent Difference (% of span)
INITIAL SYSTEM CALIBRATION	Zero	0.0	-1.0	1.0	0.1
	Mid-range	400	402	2.0	0.2
	795.9 High-range	400.0 / ~~795.9~~	402 801	5.1	0.5
FINAL SYSTEM CALIBRATION	Zero	0.0	-1.2	1.2	0.1
	Mid-range	400.0	398	6	0.6
	High-range	795.9	796	0.1	0.0

Run 1 @ 2100 - 2200
Run 2 @ 2200 - 2300
Run 3 @ 2300 - 2400

SEACOR
CALIBRATION BIAS & DRIFT DATA

CLIENT	LP	ANALYZER	FID
LOCATION	OROVILLE, CA	SPAN VALUE	0-100 ppm as propane
SOURCE I.D.	MEC oil Heater	ANALYZER	NO_x
OPERATOR(S)	JR	SPAN VALUE	0-250 ppm
DATE	06-17-94	ANALYZER	CO
TEST METHOD(S)	25A, 7E, 10	SPAN VALUE	0-1000 ppm

Analyzer: FID	System Response (ppm)	Initial Values: Analyzer Response (ppm)	Initial Values: Calibration Bias (%)	Final Values: Analyzer Response (ppm)	Final Values: Calibration Bias (%)	Calibration Drift (% of span)
Zero	0.2	-0.5	0.7	0.1 ~~0.4~~	0.1	-0.6
High-range	31.2 ~~86.0~~	29.8	1.4	86.0	0.0	1.2

Analyzer: NO_x	System Response (ppm)	Initial Values: Analyzer Response (ppm)	Initial Values: Calibration Bias (%)	Final Values: Analyzer Response (ppm)	Final Values: Calibration Bias (%)	Calibration Drift (% of span)
Zero	0.2	1.1	-0.4	0.4	-0.1	0.0
High-range	193.3	202	-3.5	200.8	-3.0	-2.1

Analyzer: CO	System Response (ppm)	Initial Values: Analyzer Response (ppm)	Initial Values: Calibration Bias (%)	Final Values: Analyzer Response (ppm)	Final Values: Calibration Bias (%)	Calibration Drift (% of span)
Zero	-1.0	2.8	-0.4	-1.0	0.0	-0.02
High-range	801	832.4	-3.1	834	-3.3	-0.5

System Cal. Bias = (System Cal. Resp. – Analyzer Cal. Resp.) / Span * 100

Cal. Drift = (Final System Response – Initial System Response) / Span * 100

SEACOR
ANALYZER CALIBRATION DATA

CLIENT	LP	ANALYZER	O_2
LOCATION	Oroville	SPAN VALUE	0-25%
SOURCE I.D.	MEL Oil Heater	ANALYZER	CO_2
OPERATOR(S)	JA	SPAN VALUE	0-25%
DATE	06-17-94	ANALYZER	
TEST METHOD(S)	3A	SPAN VALUE	

Analyzer: O_2		Cylinder Value (ppm)	CEM System Response (ppm)	Absolute Difference (ppm)	Percent Difference (% of span)
INITIAL SYSTEM CALIBRATION	Zero	0.0	0.03	0.03	.01
	Mid-range	12.10	12.05	0.05	0.2
	High-range	20.00	19.98	0.02	0.1
FINAL SYSTEM CALIBRATION	Zero	0.0	0.10	0.1	0.4
	Mid-range	12.10	12.14	0.04	0.2
	High-range	20.00	20.01	0.01	0.04

Analyzer: CO_2		Cylinder Value (ppm)	CEM System Response (ppm)	Absolute Difference (ppm)	Percent Difference (% of span)
INITIAL SYSTEM CALIBRATION	Zero	0.0	-0.07	0.07	0.3
	Mid-range	12.00	12.15	0.15	0.6
	High-range	20.0	19.91	0.09	0.4
FINAL SYSTEM CALIBRATION	Zero	0.0	0.11	0.11	0.4
	Mid-range	12.00	11.88	0.12	0.5
	High-range	20.00	19.72	0.28	1.1

Analyzer:		Cylinder Value (ppm)	CEM System Response (ppm)	Absolute Difference (ppm)	Percent Difference (% of span)
INITIAL SYSTEM CALIBRATION	Zero				
	Mid-range				
	High-range				
FINAL SYSTEM CALIBRATION	Zero				
	Mid-range				
	High-range				

Run 1 @ 2100-2200

SEACOR
CALIBRATION BIAS & DRIFT DATA

CLIENT	LP	ANALYZER	O_2
LOCATION	Oroville CA	SPAN VALUE	0-25%
SOURCE I.D.	MEC OIL HEATER	ANALYZER	CO_2 0-8
OPERATOR(S)	JR	SPAN VALUE	0-25%
DATE	06-17-94	ANALYZER	
TEST METHOD(S)	3A	SPAN VALUE	

Analyzer: O_2	System Response (ppm)	Initial Values: Analyzer Response (ppm)	Initial Values: Calibration Bias (%)	Final Values: Analyzer Response (ppm)	Final Values: Calibration Bias (%)	Calibration Drift (% of span)
Zero	0.03	-0.06	0.4	-0.07	0.4	0.3
High-range	12.05	11.99	0.2	11.95	0.4	0.1

Analyzer: CO_2	System Response (ppm)	Initial Values: Analyzer Response (ppm)	Initial Values: Calibration Bias (%)	Final Values: Analyzer Response (ppm)	Final Values: Calibration Bias (%)	Calibration Drift (% of span)
Zero	-0.07	-0.07	0.0	-0.09	0.1	0.7
High-range	12.15	12.38	-0.9	12.40 ~~11.95~~	-1.0	-0.8

Analyzer:	System Response (ppm)	Initial Values: Analyzer Response (ppm)	Initial Values: Calibration Bias (%)	Final Values: Analyzer Response (ppm)	Final Values: Calibration Bias (%)	Calibration Drift (% of span)
Zero						
High-range						

System Cal. Bias = (System Cal. Resp. – Analyzer Cal. Resp.) / Span * 100

Cal. Drift = (Final System Response – Initial System Response) / Span * 100

SEACOR
ANALYZER CALIBRATION DATA

CLIENT	LP	ANALYZER	FID
LOCATION	ORDVILLE CA	SPAN VALUE	0-100
SOURCE I.D.	DCS, DCN,	ANALYZER	
OPERATOR(S)	JR	SPAN VALUE	
DATE	06-18-94 → 06/19/94	ANALYZER	
TEST METHOD(S)	25A	SPAN VALUE	

Analyzer: FID		Cylinder Value (ppm)	CEM System Response (ppm)	Absolute Difference (ppm)	Percent Difference (% of span)
INITIAL SYSTEM CALIBRATION	Zero	0.0	0.4	0.4	0.4
Initial Cal 06-18-94 →	Mid-range	49.87 / 29.95	50.4 / 31.6	0.5 / 1.7	0.5 / 1.7
	High-range	86.6	86.7	0.1	0.1
FINAL SYSTEM CALIBRATION	Zero	0.0			
change Range	Mid-range	49.87 / 29.95			
calverification	High-range	86.6			
		857.2	854	3.2	0.3

Analyzer: FID		Cylinder Value (ppm)	CEM System Response (ppm)	Absolute Difference (ppm)	Percent Difference (% of span)
INITIAL SYSTEM CALIBRATION	Zero				
	Mid-range				
	High-range	857.2	854	3.2	0.3
FINAL SYSTEM CALIBRATION	Zero	0.0	1.0	1.0	0.1
06-19-94	Mid-range	501 / 303.6	511 / 304	10 / 0.4	0.1 / 0.0
	High-range	857.2	862	4.8	0.5

Analyzer:		Cylinder Value (ppm)	CEM System Response (ppm)	Absolute Difference (ppm)	Percent Difference (% of span)
INITIAL SYSTEM CALIBRATION	Zero				
	Mid-range				
	High-range				
FINAL SYSTEM CALIBRATION	Zero				
	Mid-range				
	High-range				

Range 0-1000 DCS Run 1 @ 1510 - 1610
Run 2 @ 1610 - 1710
Run 3 @ 1710 - 1810
06-18-94.DAT

DCN Run 1 @ 1815 - 1915
Run 2 @ 1915 - 2015
Run 3 @ 2015 - 2115

FBN @ 06-18-94 2215 - 06-19-94 0930
FBS @ 1040 - 1140 R1
1140 - 1240 R2
1240 - 1340 R3
06194.B

SEACOR
CALIBRATION BIAS & DRIFT DATA

CLIENT	LP	ANALYZER	FID
LOCATION	OROVILLE, CA	SPAN VALUE	0-100
SOURCE I.D.	DCS	ANALYZER	
OPERATOR(S)	JR	SPAN VALUE	
DATE	06-18-94 } 6-19-94	ANALYZER	
TEST METHOD(S)	25 A	SPAN VALUE	

Analyzer: FID	System Response (ppm)	Initial Values: Analyzer Response (ppm)	Initial Values: Calibration Bias (%)	Final Values: Analyzer Response (ppm)	Final Values: Calibration Bias (%)	Calibration Drift (% of span)
06-18-94 Initial CAL Zero	0.4	0.2	0.2	X	X	X
High-range	50.4	48.2	2.2	X	X	X

Analyzer:	System Response (ppm)	Initial Values: Analyzer Response (ppm)	Initial Values: Calibration Bias (%)	Final Values: Analyzer Response (ppm)	Final Values: Calibration Bias (%)	Calibration Drift (% of span)
06-19-94 Zero	1.0	X	X	0.0	0.1	0.6
High-range	511	X	X	520	-0.9	0.8

Analyzer:	System Response (ppm)	Initial Values: Analyzer Response (ppm)	Initial Values: Calibration Bias (%)	Final Values: Analyzer Response (ppm)	Final Values: Calibration Bias (%)	Calibration Drift (% of span)
Zero						
High-range						

System Cal. Bias = (System Cal. Resp. – Analyzer Cal. Resp.) / Span • 100

Cal. Drift = (Final System Response – Initial System Response) / Span • 100

5-MINUTE AVERAGE VOC MEASUREMENT RESULTS
CARTER DAY #1 - BAGHOUSE
LOUISIANA PACIFIC - OROVILLE CALIFORNIA
JUNE 9, 1994

TIME (5-min)	CONC. (ppm C_3)	CONC. (ppm C)	TIME (5-min)	CONC. (ppm C_3)	CONC. (ppm C)
1205	0.2	0.6	1435	5.1	15.3
1210	68.5	205.5	1440	4.8	14.4
1215	28.2	84.6	1445	5.7	17.1
1220	71.5	214.5	1450	6.2	18.6
1225	42.7	128.1	1455	6.4	19.2
1230	3.9	11.7	1500	6.5	19.5
1235	6.0	18.0	1505	6.3	18.9
1240	5.4	16.2	1510	6.3	18.9
1245	5.5	16.5	1515	6.6	19.8
1250	5.0	15.0	1520	6.7	20.1
1255	5.4	16.2	1525	7.1	21.3
1300	5.4	16.2	1530	7.0	21.0
1305	5.4	16.2	1535	6.6	19.8
1310	5.3	15.9	1540	6.7	20.1
1315	5.3	15.9	1545	6.5	19.5
1320	6.4	19.2	1550	6.7	20.1
1325	6.1	18.3	1555	6.9	20.7
1330	6.0	18.0	1600	7.0	21.0
1335	5.9	17.7	1605	6.8	20.4
1340	5.9	17.7	1610	6.1	18.3
1345	6.0	18.0	1615	5.7	17.1
1350	22.8	68.4	1620	5.6	16.8
1355	6.4	19.2	1625	5.2	15.6
1400	6.5	19.5	1630	5.0	15.0
1405	7.0	21.0	1635	5.1	15.3
1410	6.4	19.2	1640	5.4	16.2
1415	6.6	19.8	1645	5.8	17.4
1420	6.4	19.2	1650	6.2	18.6
1425	6.0	18.0	1655	6.5	19.5
1430	5.4	16.2	1700	6.7	20.1

5-MINUTE VOC MEASUREMENT RESULTS
BOARD COOLER VENT
LOUISIANA PACIFIC – OROVILLE, CA
JUNE 10, 1994

TIME	VOC (ppm C_3)	VOC (ppm C)	TIME	VOC (ppm C_3)	VOC (ppm C)
1405	6.7	20.1	1535	4.7	14.1
1410	7.2	21.6	1540	4.8	14.4
1415	6.9	20.7	1545	4.6	13.8
1420	9.3	27.9	1550	4.8	14.4
1425	7.2	21.6	1555	4.8	14.4
1430	6.6	19.8	1600	4.9	14.7
1435	6.4	19.2	1605	4.6	13.8
1440	6.6	19.8	1610	4.8	14.4
1445	6.5	19.5	1615	4.7	14.1
1450	4.9	14.7	1620	5.0	15.0
1455	4.2	12.6	1625	4.9	14.7
1500	4.6	13.8	1630	4.8	14.4
1505	4.5	13.5	1635	5.1	15.3
1510	4.7	14.1	1640	5.4	16.2
1515	4.3	12.9	1645	5.2	15.6
1520	4.9	14.7	1650	5.2	15.6
1525	4.8	14.4	1655	5.0	15.0
1530	4.8	14.4	1700	5.0	15.0

5-MINUTE VOC MEASUREMENT RESULTS
CUT-OFF SAW VENT
LOUISIANA PACIFIC - OROVILLE, CA
JUNE 11, 1994

TIME (5-min)	VOC (ppm C_3)	VOC (ppm C)	TIME (5-min)	VOC (ppm C_3)	VOC (ppm C)
1005	21.2	63.6	1335	7.6	22.8
1010	12.6	37.8	1340	7.7	23.1
1015	25.8	77.4	1345	8.1	24.3
1020	4.5	13.5	1350	8.1	24.3
1025	4.8	14.4	1355	8.3	24.9
1030	4.9	14.7	1400	8.1	24.3
1035	5.1	15.3	1405	8.4	25.2
1040	5.5	16.5	1410	8.3	24.9
1045	5.9	17.7	1415	8.2	24.6
1050	5.9	17.7	1420	8.2	24.6
1055	6.0	18.0	1425	8.3	24.9
1100	6.1	18.3	1430	8.7	26.1
1105	6.2	18.6	1435	8.1	24.3
1110	5.8	17.4	1440	8.2	24.6
1115	6.2	18.6	1445	8.4	25.2
1120	6.1	18.3	1450	8.3	24.9
1125	6.2	18.6	1455	8.6	25.8
1130	6.4	19.2	1500	8.5	25.5
1135	6.6	19.8	1505	8.5	25.5
1140	6.9	20.7	1510	8.5	25.5
1145	6.9	20.7	1515	8.5	25.5
1150	6.9	20.7	1520	9.0	27.0
1155	6.9	20.7	1525	8.3	24.9
1200	6.6	19.8	1530	8.5	25.5
1205	6.7	20.1	1535	8.7	26.1
1210	6.6	19.8	1540	8.5	25.5
1215	6.7	20.1	1545	8.2	24.6
1220	7.2	21.6	1550	8.0	24.0
1225	7.1	21.3	1555	8.5	25.5
1230	7.6	22.8	1600	8.7	26.1
1235	7.0	21.0	1605	8.0	24.0
1240	7.6	22.8	1610	8.5	25.5
1245	7.0	21.0	1615	8.2	24.6
1250	6.8	20.4	1620	8.3	24.9
1255	7.0	21.0	1625	7.9	23.7
1300	7.5	22.5	1630	8.5	25.5
1305	7.2	21.6	1635	7.9	23.7
1310	7.2	21.6	1640	7.3	21.9
1315	7.3	21.9	1645	7.6	22.8
1320	7.1	21.3	1650	8.1	24.3
1325	7.3	21.9	1655	8.2	24.6
1330	7.5	22.5	1700	7.6	22.8

5-MINUTE VOC MEASUREMENT RESULTS
CARTER DAY #2 BAGHOUSE & NORTH HOT PRESS VENT
LOUISIANA PACIFIC - OROVILLE, CA
JUNE 13, 1994

TIME (5-min)	VOC (ppm C_3)	VOC (ppm C)	TIME (5-min)	VOC (ppm C_3)	VOC (ppm C)	TIME (5-min)	VOC (ppm C_3)	VOC (ppm C)
1340	6.2	18.6	1625	6.5	19.5	1910	9.3	27.9
1345	5.7	17.1	1630	6.6	19.8	1915	9.3	27.9
1350	5.8	17.4	1635	6.7	20.1	1920	9.5	28.5
1355	6.0	18.0	1640	7.0	21.0	1925	10.1	30.3
1400	6.1	18.3	1645	6.8	20.4	1930	10.2	30.6
1405	6.2	18.6	1650	6.8	20.4	1935	9.6	28.8
1410	6.5	19.5	1655	6.8	20.4	1940	9.8	29.4
1415	6.3	18.9	1700	7.1	21.3	1945	9.3	27.9
1420	6.6	19.8	1705	6.8	20.4	1950	9.7	29.1
1425	6.3	18.9	1710	6.9	20.7	1955	9.6	28.8
1430	6.8	20.4	1715	7.0	21.0	2000	9.6	28.8
1435	6.6	19.8	1720	7.3	21.9	2005	9.8	29.4
1440	6.9	20.7	1725	7.5	22.5	2010	9.7	29.1
1445	6.9	20.7	1730	7.5	22.5	2015	9.5	28.5
1450	7.6	22.8	1735	7.4	22.2	2020	9.5	28.5
1455	7.6	22.8	1740	7.4	22.2	2025	9.6	28.8
1500	8.5	25.5	1745	7.3	21.9	2030	9.8	29.4
1505	6.9	20.7	1750	7.7	23.1	2035	10.0	30.0
1510	6.8	20.4	1755	7.7	23.1	2040	9.5	28.5
1515	7.0	21.0	1800	7.5	22.5	2045	10.1	30.3
1520	6.8	20.4	1805	7.4	22.2	2050	10.3	30.9
1525	6.6	19.8	1810	7.3	21.9	2055	9.8	29.4
1530	7.0	21.0	1815	7.4	22.2	2100	9.3	27.9
1535	6.6	19.8	1820	6.5	19.5	2105	9.6	28.8
1540	6.4	19.2	1825	7.0	21.0	2110	9.3	27.9
1545	6.7	20.1	1830	10.2	30.6	2115	9.2	27.6
1550	6.4	19.2	1835	11.1	33.3	2120	9.2	27.6
1555	6.5	19.5	1840	10.4	31.2	2125	9.3	27.9
1600	6.4	19.2	1845	10.4	31.2	2130	8.9	26.7
1605	6.1	18.3	1850	10.5	31.5	2135	9.2	27.6
1610	5.9	17.7	1855	9.9	29.7	2140	9.1	27.3
1615	6.1	18.3	1900	10.0	30.0	2145	9.2	27.6
1620	7.0	21.0	1905	9.8	29.4			

5-MINUTE AVERAGE VOC MEASUREMENT RESULTS
MIDDLE HOT PRESS VENT & SOUTH HOT PRESS VENT
LOUISIANA PACIFIC – OROVILLE, CA
JUNE 14, 1994

TIME	VOC (ppm C_3)	VOC (ppm C)	TIME	VOC (ppm C_3)	VOC (ppm C)
1525	7.3	21.9	1910	6.2	18.6
1530	8.1	24.3	1915	6.5	19.5
1535	8.8	26.4	1920	6.4	19.2
1540	8.8	26.4	1925	6.1	18.3
1545	9.2	27.6	1930	6.1	18.3
1550	9.1	27.3	1935	5.8	17.4
1555	9.7	29.1	1940	5.3	15.9
1600	9.6	28.8	1945	5.4	16.2
1605	9.8	29.4	1950	5.8	17.4
1610	9.5	28.5	1955	5.3	15.9
1615	9.5	28.5	2000	5.1	15.3
1620	10.2	30.6	2005	5.2	15.6
1625	10.1	30.3	2010	5.4	16.2
1630	9.8	29.4	2015	5.6	16.8
1635	9.4	28.2	2020	5.5	16.5
1640	7.8	23.4	2025	5.8	17.4
1645	6.6	19.8	2030	6.2	18.6
1650	6.4	19.2	2035	6.2	18.6
1655	8.6	25.8	2040	5.9	17.7
1700	9.5	28.5	2045	6.6	19.8
1705	7.2	21.6	2050	6.0	18.0
1710	6.5	19.5	2055	6.3	18.9
1715	6.3	18.9	2100	5.9	17.7
1720	6.3	18.9	2105	6.1	18.3
1725	6.3	18.9	2110	6.4	19.2
1730	6.2	18.6	2115	5.9	17.7
1735	5.9	17.7	2120	6.0	18.0
1740	6.2	18.6	2125	6.0	18.0
1745	6.2	18.6	2130	6.3	18.9
1750	6.4	19.2	2135	6.7	20.1
1755	6.2	18.6	2140	6.8	20.4
1800	6.3	18.9	2145	6.2	18.6
1805	6.2	18.6	2150	6.0	18.0
1810	6.2	18.6	2155	5.9	17.7
1815	6.0	18.0	2200	6.0	18.0
1820	6.1	18.3	2205	5.6	16.8
1825	6.2	18.6	2210	5.8	17.4
1830	6.3	18.9	2215	5.7	17.1
1835	6.0	18.0	2220	6.1	18.3
1840	6.2	18.6	2225	5.9	17.7
1845	6.3	18.9	2230	5.8	17.4
1850	6.2	18.6	2235	5.8	17.4
1855	6.2	18.6	2240	5.8	17.4
1900	6.4	19.2	2245	5.8	17.4
1905	6.5	19.5	2250	5.8	17.4

5–MINUTE VOC MEASUREMENT RESULTS
CARTER DAY #4 BAGHOUSE & CARTER DAY #5 BAGHOUSE
LOUISIANA PACIFIC – OROVILLE, CA
JUNE 15, 1994

TIME	VOC (ppm C_3)	VOC (ppm C)	TIME	VOC (ppm C_3)	VOC (ppm C)
1215	4.3	12.9	1555	3.7	11.1
1220	4.6	13.8	1600	3.9	11.7
1225	5.3	15.9	1605	3.7	11.1
1230	4.2	12.6	1610	3.8	11.4
1235	4.2	12.6	1615	3.3	9.9
1240	3.8	11.4	1620	3.4	10.2
1245	3.7	11.1	1625	3.7	11.1
1250	3.7	11.1	1630	5.1	15.3
1255	3.7	11.1	1635	5.8	17.4
1300	3.8	11.4	1640	6.3	18.9
1305	3.6	10.8	1645	6.1	18.3
1310	4.1	12.3	1650	6	18
1315	4	12	1655	5.6	16.8
1320	3.9	11.7	1700	6.1	18.3
1325	3.7	11.1	1705	6.2	18.6
1330	4	12	1710	6.7	20.1
1335	3.7	11.1	1715	6.6	19.8
1340	3.9	11.7	1720	6.5	19.5
1345	3.6	10.8	1725	6.9	20.7
1350	4.1	12.3	1730	7.3	21.9
1355	3.8	11.4	1735	6.9	20.7
1400	4.1	12.3	1740	7.3	21.9
1405	4.3	12.9	1745	7.6	22.8
1410	4	12	1750	7.4	22.2
1415	4.3	12.9	1755	8.1	24.3
1420	3.9	11.7	1800	8.4	25.2
1425	4	12	1805	7.1	21.3
1430	4	12	1810	6.9	20.7
1435	4.1	12.3	1815	6.9	20.7
1440	4.2	12.6	1820	7.1	21.3
1445	4	12	1825	7.4	22.2
1450	3.9	11.7	1830	7.5	22.5
1455	3.8	11.4	1835	8.1	24.3
1500	4.2	12.6	1840	7.4	22.2
1505	3.9	11.7	1845	7.4	22.2
1510	4	12	1850	7.1	21.3
1515	3.9	11.7	1855	7.1	21.3
1520	4.1	12.3	1900	7.4	22.2
1525	4.4	13.2	1905	7.5	22.5
1530	4.4	13.2	1910	7.1	21.3
1535	4.4	13.2	1915	7	21
1540	3.7	11.1	1920	7.5	22.5
1545	3.7	11.1	1925	7.8	23.4
1550	3.9	11.7			

CEM MEASUREMENT RESULTS
MEC OIL HEATER
LOUISIANA PACIFIC – OROVILLE, CA
JUNE 17, 1994

TIME	NOx	CO	VOC (as C_3)	VOC (as C)	O_2	CO_2
2105	80.7	−2.0	0.1	0.3	3.03	10.08
2110	79.3	0.0	0.1	0.3	2.98	10.25
2115	79.0	−1.0	−0.3	−0.9	2.88	10.30
2120	80.3	−3.0	−0.6	−1.8	3.29	10.07
2125	80.7	−2.0	−0.3	−0.9	3.25	10.09
2130	81.2	−2.0	−0.3	−0.9	3.28	10.07
2135	80.4	−3.0	−0.2	−0.6	3.15	10.17
2140	80.3	−4.0	−0.2	−0.6	3.02	10.23
2145	81.3	−3.0	−0.1	−0.3	3.28	10.07
2150	81.5	−2.0	0.3	0.9	3.44	9.99
2155	81.2	−2.0	0.0	0.0	3.32	10.05
2200	79.9	−3.0	−0.2	−0.6	2.90	10.29
2205	81.0	−3.0	−0.3	−0.9	3.24	10.09
2210	82.2	−3.0	−0.2	−0.6	3.53	9.93
2215	81.4	−2.0	−0.1	−0.3	3.37	10.04
2220	80.7	−3.0	0.0	0.0	2.98	10.25
2225	81.4	−3.0	0.0	0.0	3.25	10.08
2230	81.9	−3.0	0.0	0.0	3.44	10.00
2235	81.5	−3.0	0.0	0.0	3.50	9.94
2240	80.2	−3.0	0.3	0.9	3.27	10.07
2245	79.5	−3.0	0.3	0.9	3.07	10.22
2250	80.0	−3.0	0.0	0.0	3.34	10.02
2255	80.5	−3.0	−0.3	−0.9	3.47	10.00
2300	80.4	−3.0	−0.3	−0.9	3.38	9.98
2305	79.7	−4.0	−0.4	−1.2	3.08	10.18
2310	79.7	−3.0	−0.6	−1.8	3.15	10.19
2315	80.3	−3.0	−0.6	−1.8	3.44	10.02
2320	81.0	−4.0	−0.6	−1.8	3.57	9.89
2325	81.2	−3.0	−0.6	−1.8	3.44	9.97
2330	79.3	−3.0	−0.6	−1.8	3.02	10.19
2335	79.5	−3.0	−0.5	−1.5	3.10	10.18
2340	80.2	−3.0	−0.4	−1.2	3.44	9.97
2345	80.7	−4.0	−0.3	−0.9	3.43	9.94
2350	79.2	−3.0	0.1	0.3	3.24	10.08
2355	78.4	−3.0	0.1	0.3	3.03	10.20
2400	79.3	−4.0	0.4	1.2	3.33	10.05

5-MINUTE VOC MEASUREMENT RESULTS
NORTH DOWNCOMER, SOUTH DOWNCOMER
& NORTH FILTER BOX OUTLET
LOUISIANA PACIFIC- OROVILLE, CA
JUNE 18, 1994

TIME	VOC (ppm C_3)	VOC (ppm C)	TIME	VOC (ppm C_3)	VOC (ppm C)	TIME	VOC (ppm C_3)	VOC (ppm C)
1515	62	186	1810	124	372	2105	68	204
1520	72	216	1815	130	390	2110	66	198
1525	76	228	1820	108	324	2115	69	207
1530	87	261	1825	119	357	2120	75	225
1535	91	273	1830	117	351	2125	85	255
1540	132	396	1835	93	279	2130	97	291
1545	177	531	1840	93	279	2135	101	303
1550	162	486	1845	81	243	2140	91	273
1555	139	417	1850	72	216	2145	73	219
1600	140	420	1855	71	213	2150	76	228
1605	142	426	1900	76	228	2155	629	1887
1610	147	441	1905	71	213	2200	860	2580
1615	137	411	1910	72	216	2205	450	1350
1620	144	432	1915	71	213	2210	26	78
1625	132	396	1920	79	237	2215	8	24
1630	118	354	1925	79	237	2220	30	90
1635	116	348	1930	86	258	2225	87	261
1640	102	306	1935	93	279	2230	85	255
1645	100	300	1940	83	249	2235	89	267
1650	108	324	1945	82	246	2240	102	306
1655	112	336	1950	81	243	2245	105	315
1700	122	366	1955	85	255	2250	103	309
1705	126	378	2000	88	264	2255	97	291
1710	135	405	2005	93	279	2300	93	279
1715	130	390	2010	85	255	2305	100	300
1720	143	429	2015	121	363	2310	87	261
1725	140	420	2020	125	375	2315	66	198
1730	124	372	2025	110	330	2320	63	189
1735	124	372	2030	96	288	2325	63	189
1740	116	348	2035	76	228	2330	64	192
1745	115	345	2040	93	279	2335	62	186
1750	117	351	2045	89	267	2340	65	195
1755	129	387	2050	92	276	2345	69	207
1800	120	360	2055	83	249	2350	73	219
1805	124	372	2100	65	195	2355	77	231
						0	80	240

5–MINUTE VOC MEASUREMENT RESULTS
NORTH FILTER BOX OUTLET
LOUISIANA PACIFIC– OROVILLE, CA
JUNE 19, 1994

TIME	VOC (ppm C_3)	VOC (ppm C)	TIME	VOC (ppm C_3)	VOC (ppm C)	TIME	VOC (ppm C_3)	VOC (ppm C)
5	87	261	315	72	216	625	57	171
10	90	270	320	74	222	630	54	162
15	86	258	325	81	243	635	51	153
20	85	255	330	78	234	640	49	147
25	84	252	335	75	225	645	50	150
30	83	249	340	76	228	650	49	147
35	82	246	345	81	243	655	49	147
40	85	255	350	88	264	700	49	147
45	85	255	355	81	243	705	51	153
50	88	264	400	79	237	710	52	156
55	85	255	405	86	258	715	58	174
100	110	330	410	98	294	720	75	225
105	107	321	415	95	285	725	144	432
110	81	243	420	92	276	730	111	333
115	86	258	425	96	288	735	77	231
120	104	312	430	100	300	740	76	228
125	125	375	435	96	288	745	71	213
130	116	348	440	103	309	750	57	171
135	99	297	445	101	303	755	56	168
140	105	315	450	112	336	800	61	183
145	119	357	455	125	375	805	61	183
150	121	363	500	127	381	810	66	198
155	131	393	505	98	294	815	62	186
200	106	318	510	87	261	820	67	201
205	123	369	515	71	213	825	62	186
210	92	276	520	70	210	830	65	195
215	92	276	525	71	213	835	63	189
220	81	243	530	69	207	840	66	198
225	85	255	535	62	186	845	67	201
230	88	264	540	66	198	850	68	204
235	90	270	545	68	204	855	66	198
240	88	264	550	61	183	900	65	195
245	83	249	555	63	189	905	71	213
250	77	231	600	63	189	910	77	231
255	77	231	605	60	180	915	83	249
300	73	219	610	58	174	920	86	258
305	75	225	615	60	180	925	79	237
310	74	222	620	58	174	930	83	249

5–MINUTE VOC MEASUREMENT RESULTS
SOUTH FILTER BOX OUTLET
LOUISIANA PACIFIC – OROVILLE, CA
JUNE 19, 1994

TIME	VOC (ppm C_3)	VOC (ppm as C)	TIME	VOC (ppm C_3)	VOC (ppm as C)
1045	77	231	1215	101	303
1050	74	222	1220	102	306
1055	76	228	1225	100	300
1100	88	264	1230	108	324
1105	90	270	1235	107	321
1110	98	294	1240	109	327
1115	102	306	1245	109	327
1120	112	336	1250	112	336
1125	116	348	1255	110	330
1130	134	402	1300	126	378
1135	115	345	1305	125	375
1140	94	282	1310	132	396
1145	90	270	1315	134	402
1150	101	303	1320	153	459
1155	90	270	1325	150	450
1200	94	282	1330	134	402
1205	92	276	1335	126	378
1210	98	294	1340	117	351

END RUN 1 @ 1345

0 20 40 60 80 100

CHART NO. B9565AW

Jun. 09. 94
3:00

0
INLET
20mm/h
GREEN

10.00
VOCPPm

READ 11.9% CO_2

START 12.0 CO_2 STD

0 20 40 60 80 100

START CO_2 CAL

← START RUN 1 @ 1245 5.8 ppm

960 cm

READ 0.4 BIAS

← START ZERO BIAS

READ 83.9

BIAS → START 86.6 STD → ← PRO. MAS.

← READ 30.2

← START 29.95 STD

← READ 51.6

START 49.87 STD

0 20 40 60 80 100

0
OUTLET
120mm/h
RED

READ 87.2

300
VOCPPm

START 86.6 STD

← READ 0.2 ppm

SCALE 0-100 ppm as propane

06-09-94 LP

START ZERO FID STD

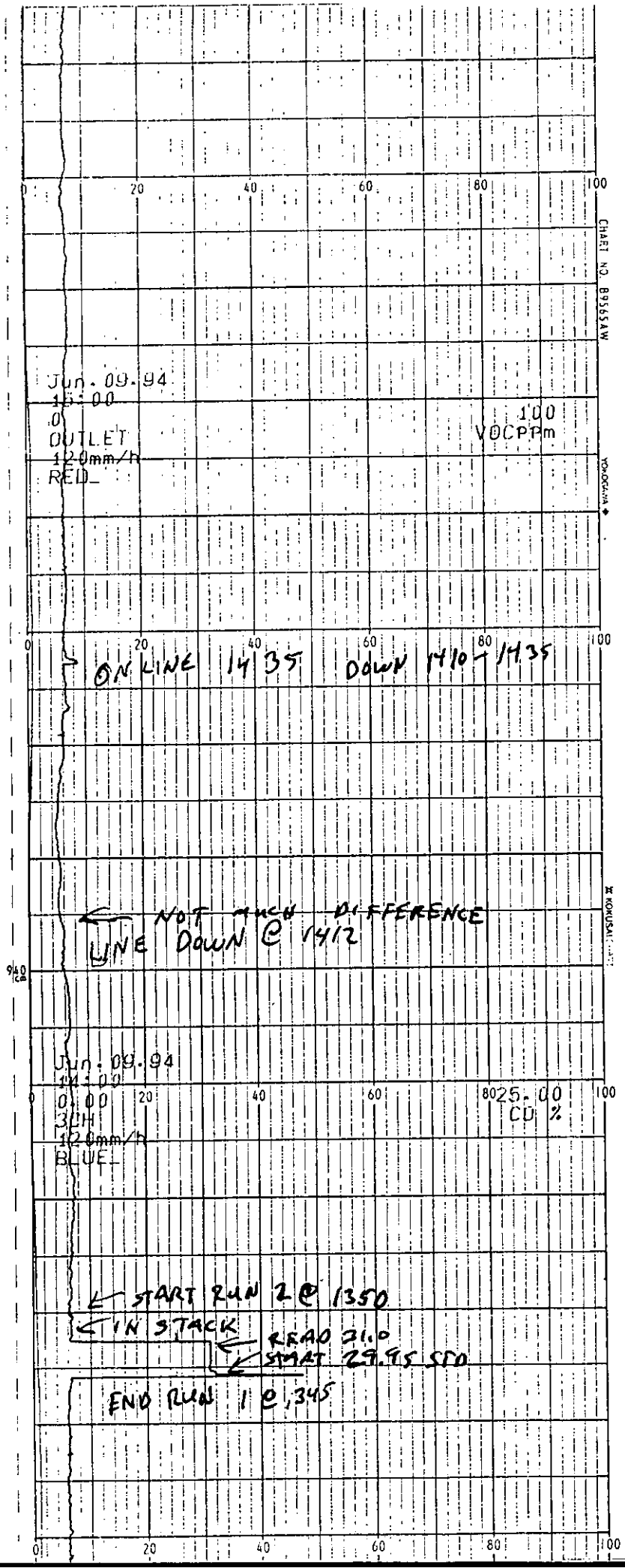
CARTER DAY 1

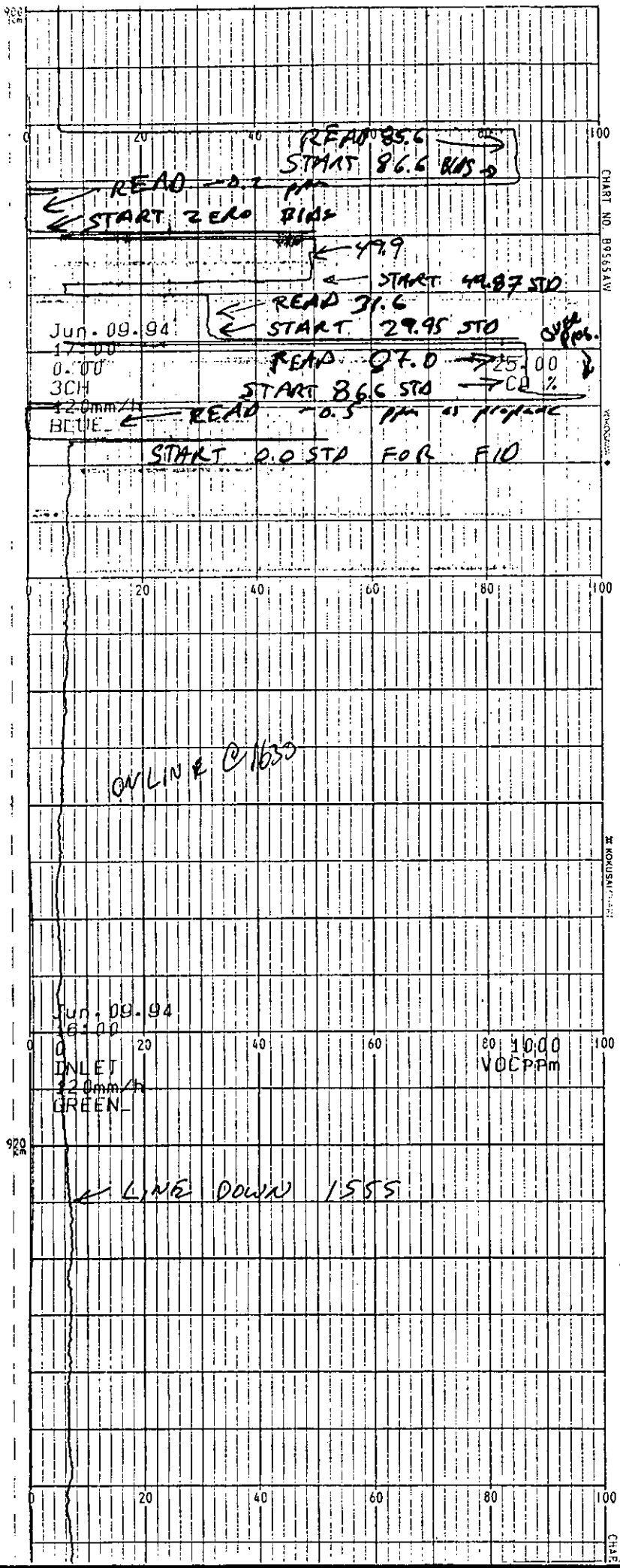
21:00
0.00
3CH
120mm/h

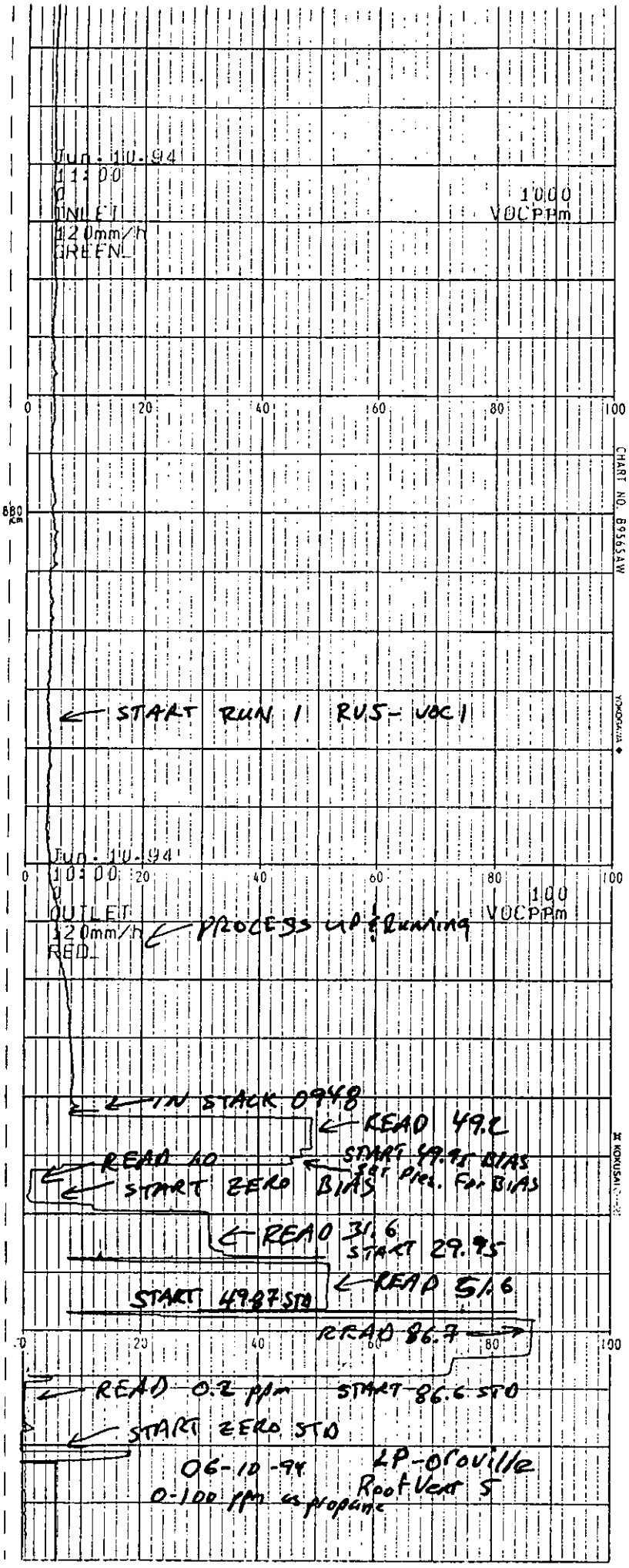
25.00
CO %

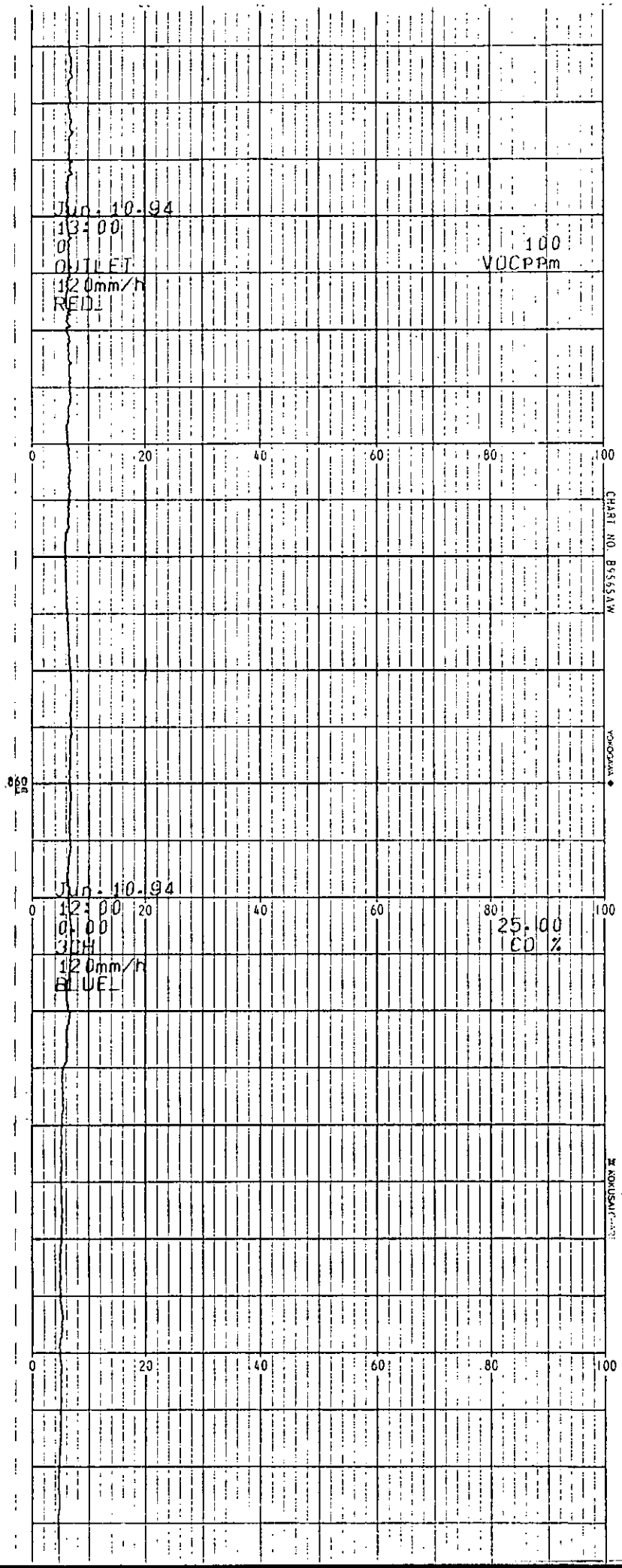
DR 9-22-94

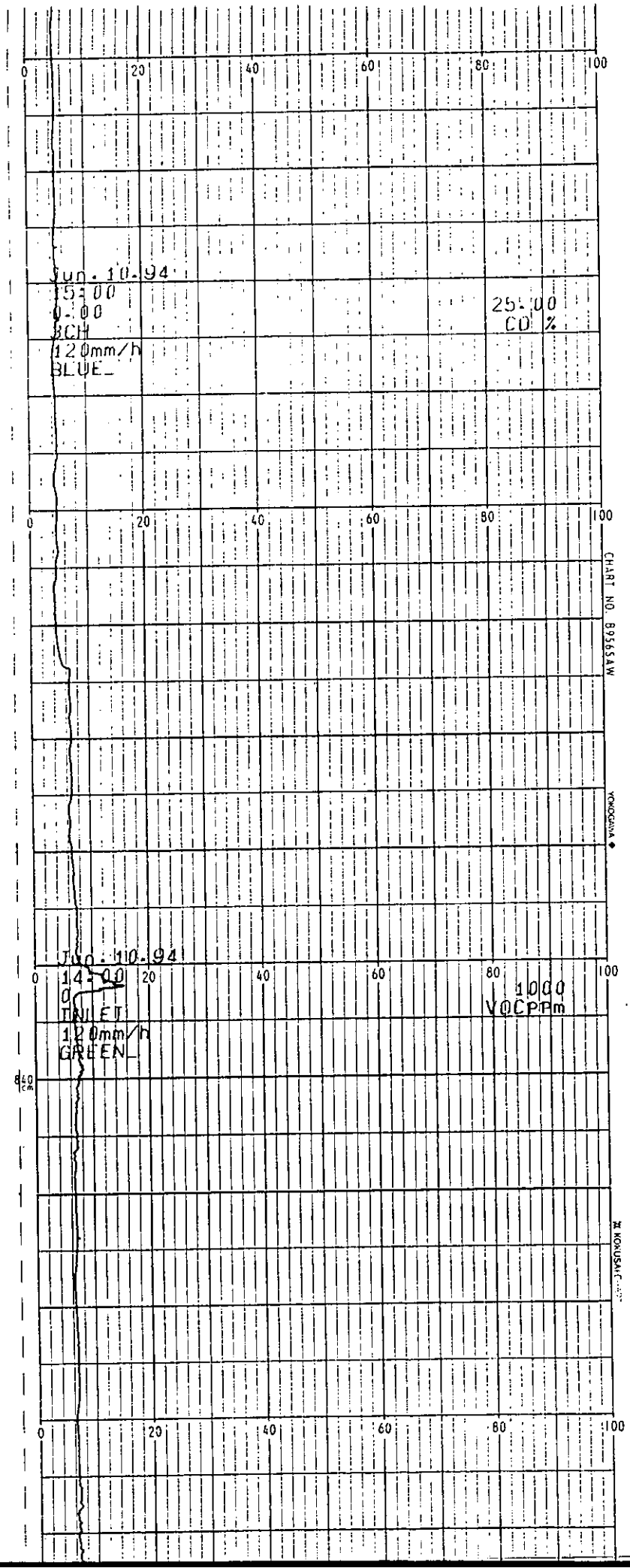
CHKLEN DAY #1

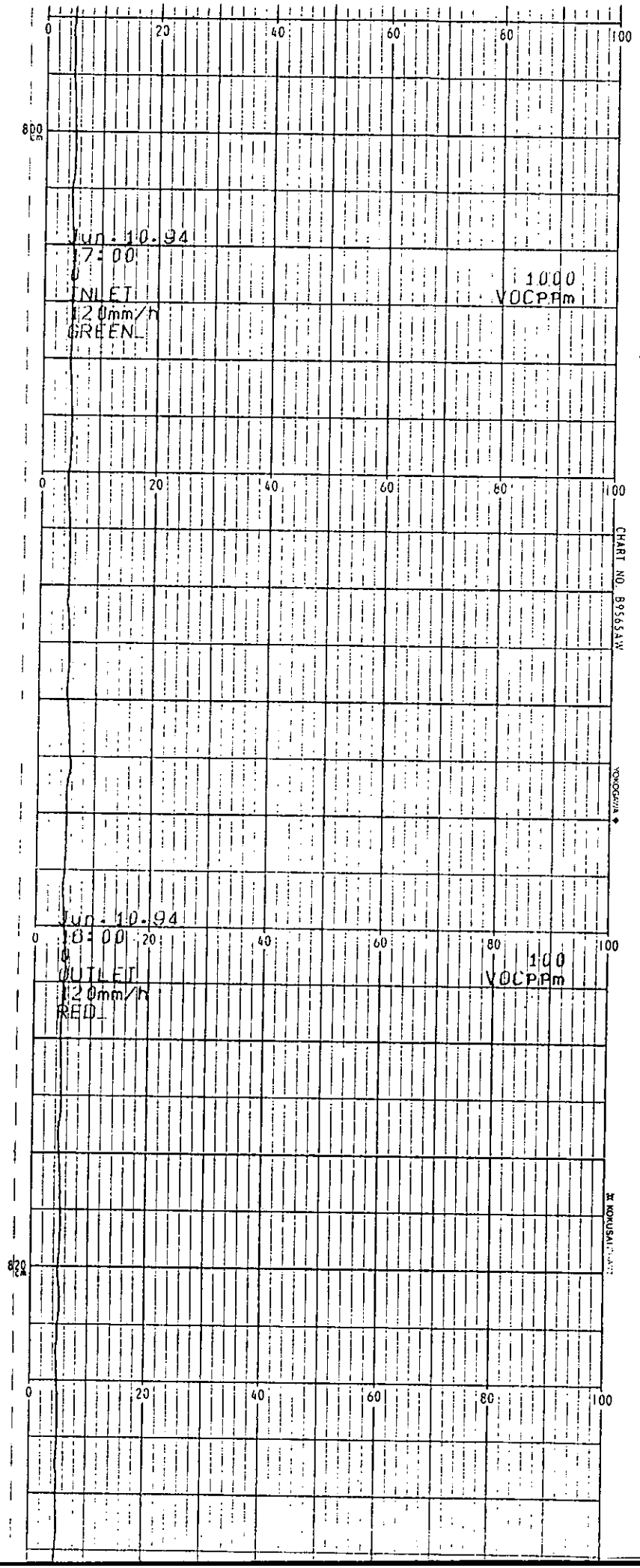

0
20
40
60
80
100
CHART NO. B9565AW
Jun. 09. 94
15:00
0
OUTLET
120mm/h
RED
100
VOCPPm
YOKOGAWA
ON LINE 1435 DOWN 1410 - 1435
NOT MUCH DIFFERENCE
LINE DOWN @ 1412
Jun. 09. 94
14:00
0.00
3UH
120mm/h
BLUE
8025.00
CO %
START RUN 2 @ 1350
IN STACK
READ 31.0
SMAT 29.95 SFD
END RUN 1 @ 1345


READ 85.6
START 86.6 BIAS
READ -0.2 ppm
START ZERO BIAS
49.9
START 49.87 STD
READ 31.6
START 29.95 STD
Jun. 09. 94
17:00
0.00
3CH
120mm/h
BLUE
READ 97.0
25.00
START 86.6 STD
CO2 %
READ -0.5 ppm as propane
START 0.0 STD FOR F10
ON LINE @ 1630
Jun. 09. 94
16:00
INLET
120mm/h
GREEN
1000
VOC PPm
LINE DOWN 1555
CHART NO. B9565AW
KOKUSAI

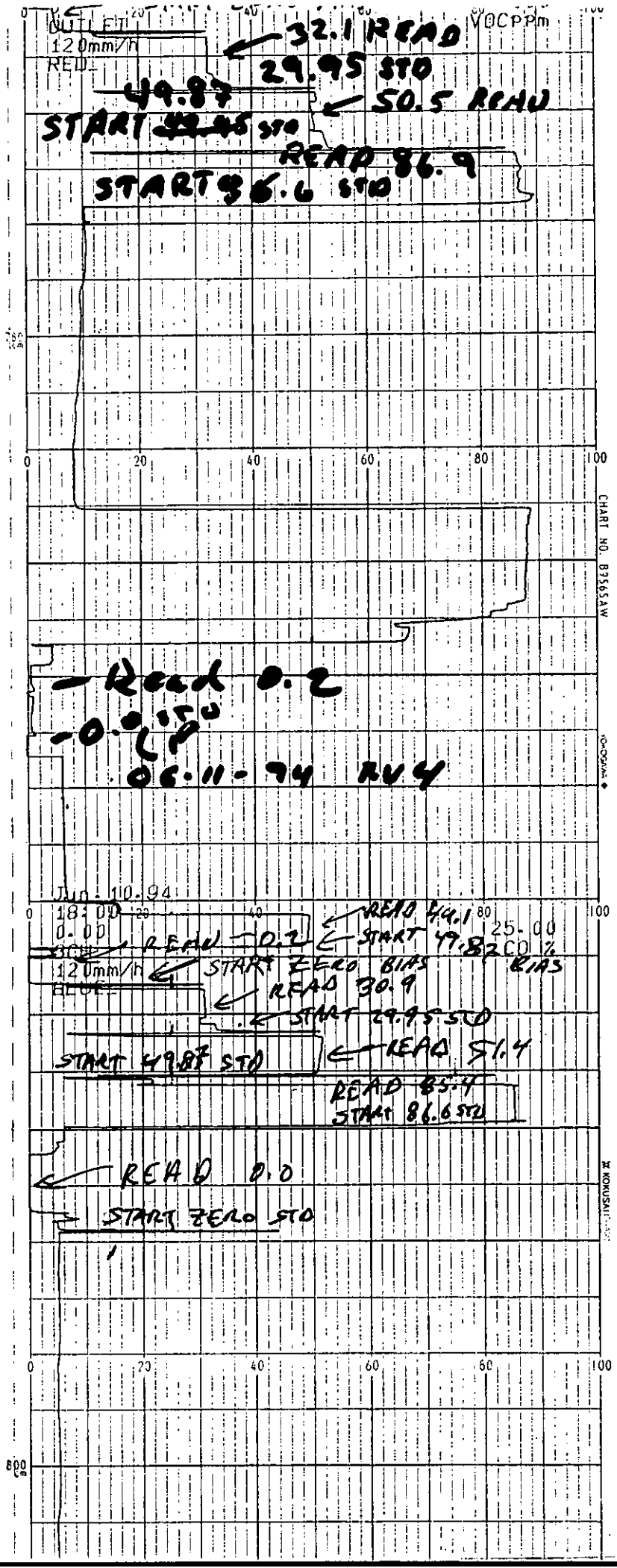

Jun-10-94
11:00
0
INLET
120mm/h
GREEN
1000
VOCPPm
0
20
40
60
80
100
CHART NO. B9565AW
880
START RUN 1 RUS-VOC 1
YOKOGAWA
Jun-10-94
10:00
0
OUTLET
120mm/h
RED
PROCESS UP & Running
100
VOCPPm
IN STACK 0948
READ 49.2
READ 40
START 49.95 BIAS
SET Pot. For BIAS
START ZERO BIAS
READ 31.6
START 29.95
START 49.87 STD
READ 51.6
READ 86.7
READ 0.2 ppm
START 86.6 STD
START ZERO STD
06-10-94
LP-Orville
Root Vent 5
0-100 ppm as propane

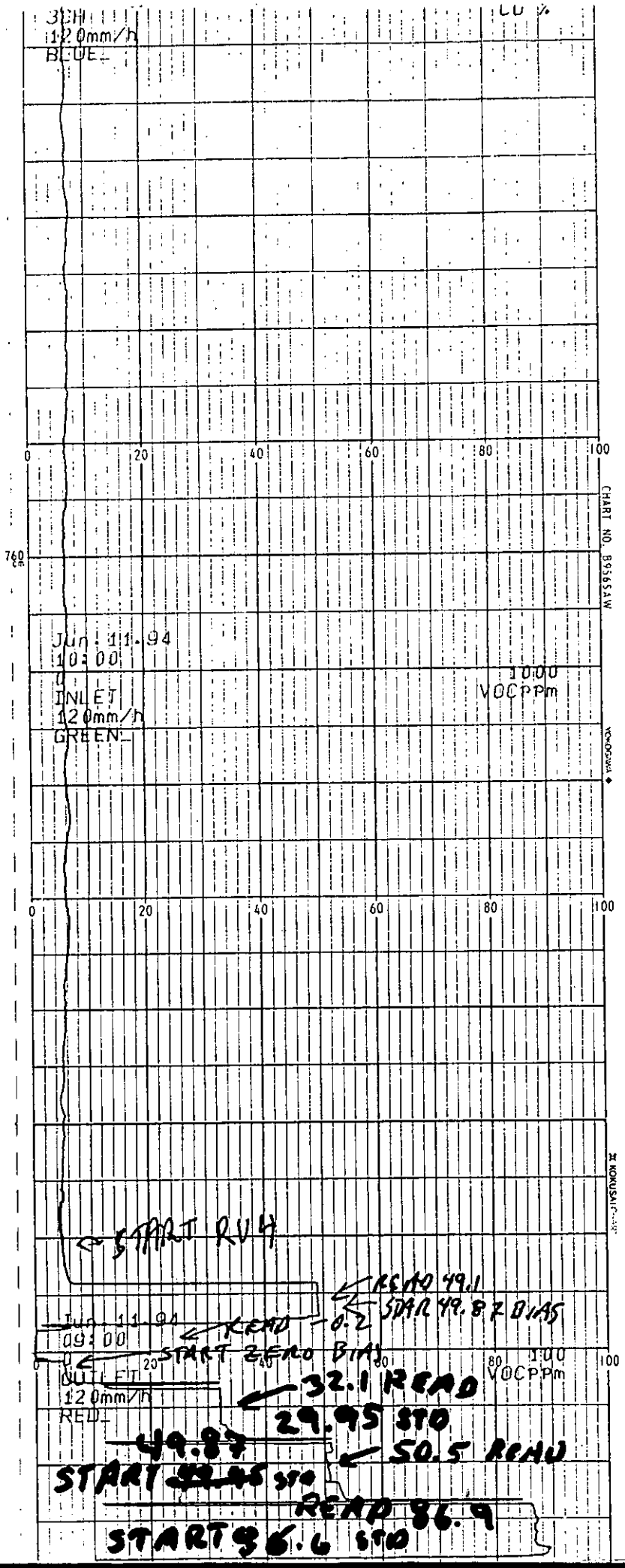

Jun. 10.94
13:00
0
OUTLET
120mm/h
RED
100
VOCPPm
0
20
40
60
80
100
CHART NO. B9565AW
YOKOGAWA
Jun. 10.94
12:00
0.00
3CH
120mm/h
BLUE
25.00
CO %
0
20
40
60
80
100
KOKUSAI


0
20
40
60
80
100
Jun. 10. 94
15:00
0.00
BCH
120mm/h
BLUE
25.00
CO %
CHART NO. B9565AW
YOKOGAWA
Jun. 10. 94
14:00
0
INLET
120mm/h
GREEN
1000
VOCPPm
KONUSAI


0
20
40
60
80
100
800
Jun.10.94
17:00
INLET
120mm/h
GREEN
1000
VOCPPm
CHART NO. B9563AW
YOKOGAWA
Jun.10.94
18:00
OUTLET
120mm/h
RED
100
VOCPPm
KOKUSAI
820

30603


VOCPPm
OUTLET
120mm/h
RED
32.1 READ
29.95 STD
49.87
50.5 READ
START STD
READ 86.9
START 86.6 STD
0
20
40
60
80
100
CHART NO. B3565AW
READ 0.2
0.0 STD
06.11-94 RV4
JUN-10-94
18:00
0.00
READ 0.2
START ZERO BIAS
READ 44.1
START 49.82
25.00 %
BIAS
READ 30.9
START 29.95 STD
READ 51.4
START 49.87 STD
READ 85.4
START 86.6 STD
READ 0.0
START ZERO STD
800


3CH
120mm/h
BLUE
0
20
40
60
80
100
760
CHART NO. B9565AW
Jun. 11. 94
10:00
INLET
120mm/h
GREEN
1000
VOCPPm
START RUN
READ 49.1
START 49.87 BIAS
Jun. 11. 94
09:00
READ -0.2
START ZERO BIAS
OUTLET
120mm/h
RED
32.1 READ
29.95 STO
49.87
50.5 READ
START 32.45 STO
READ 86.9
START 86.6 STO

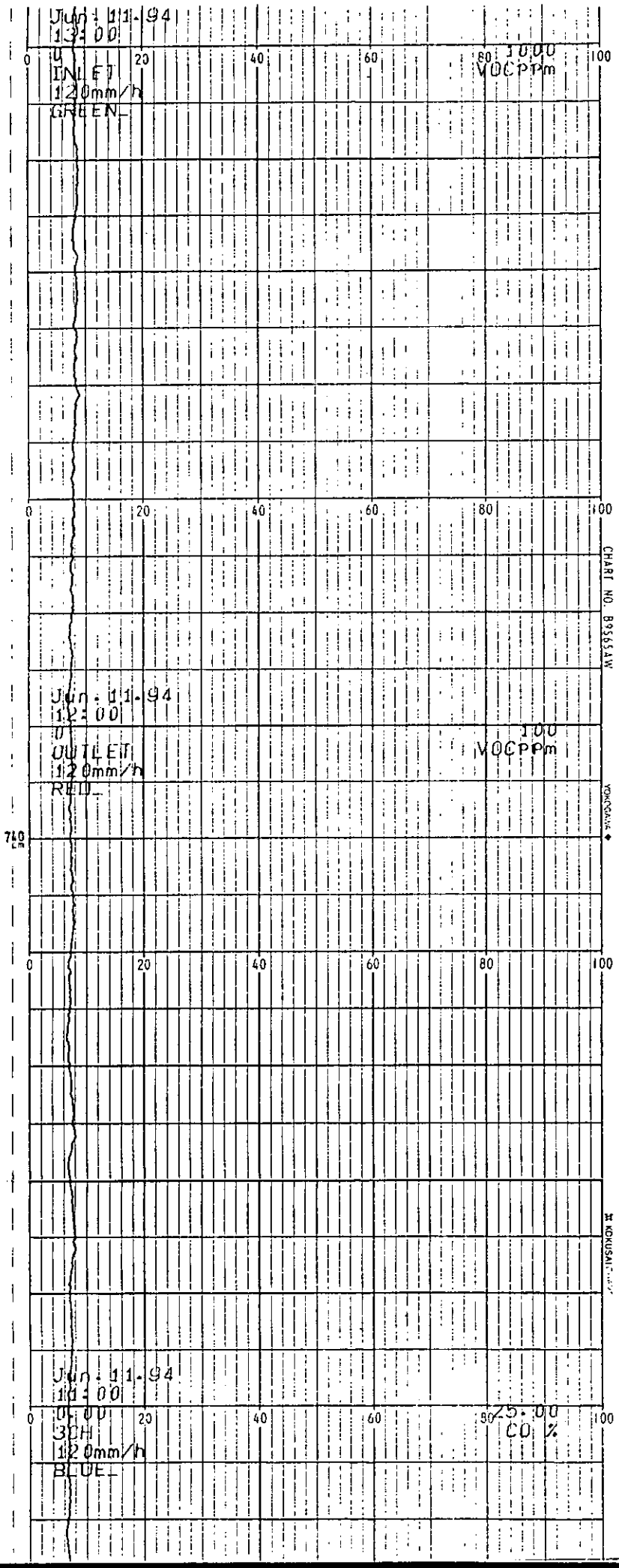
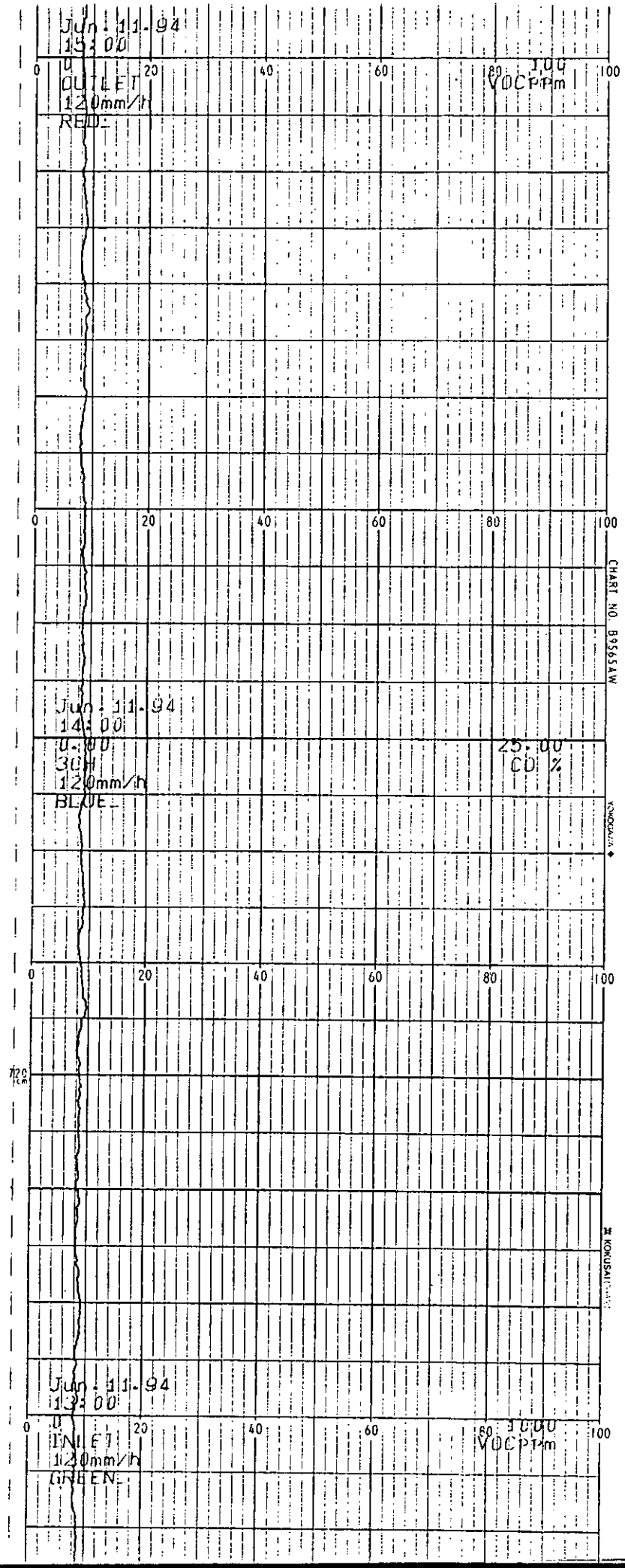
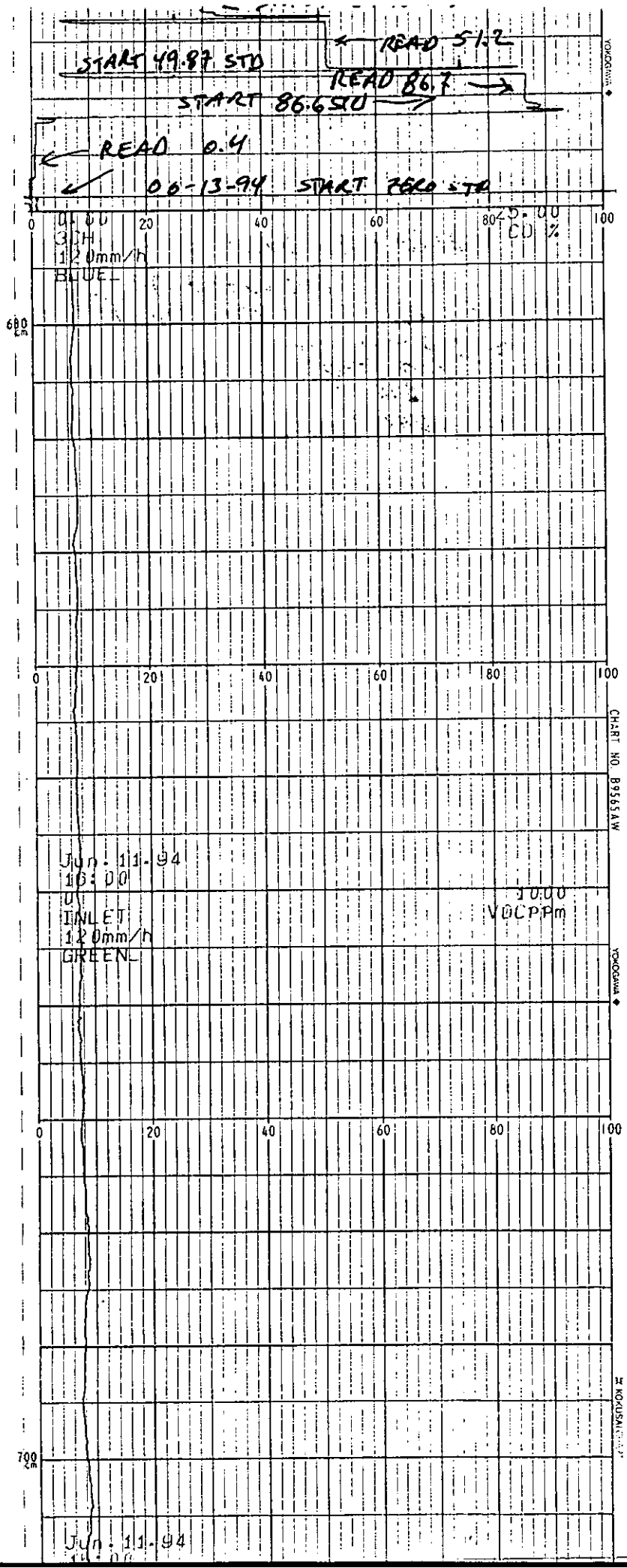


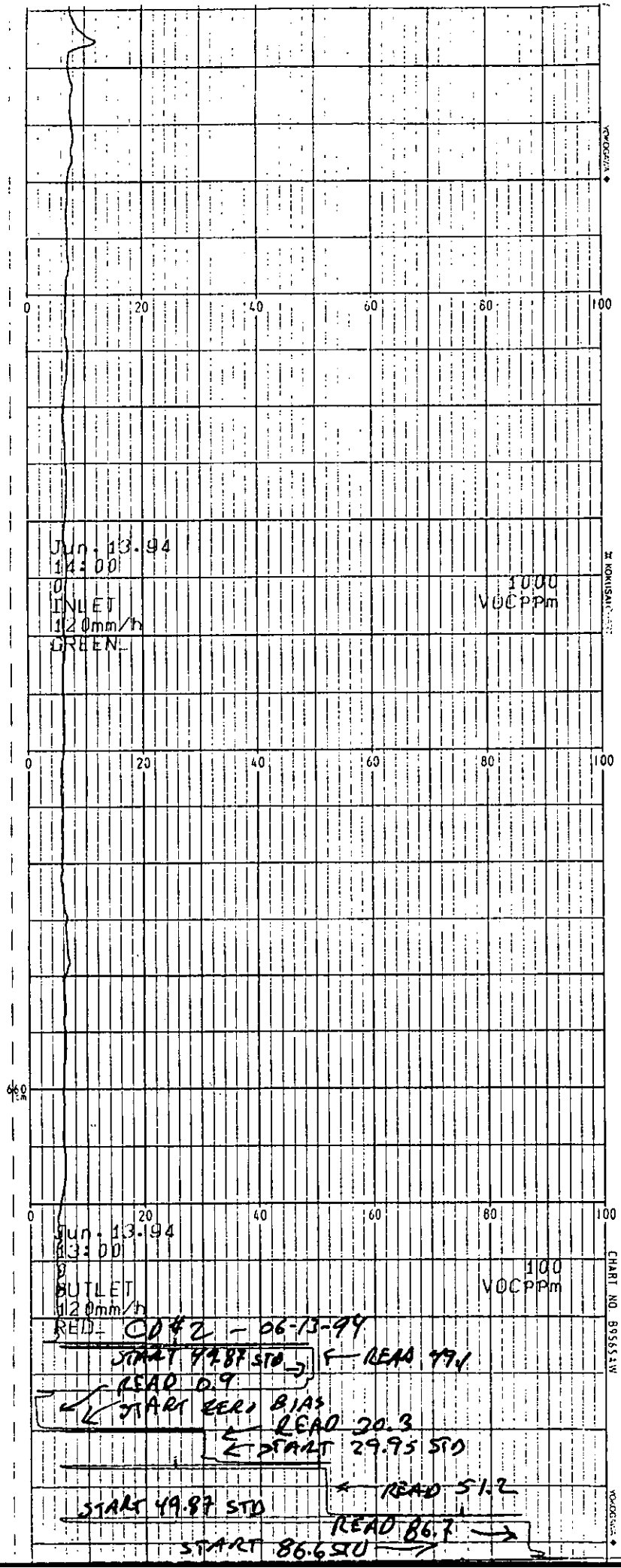
CHART NO. B9565AW

YOKOGAWA

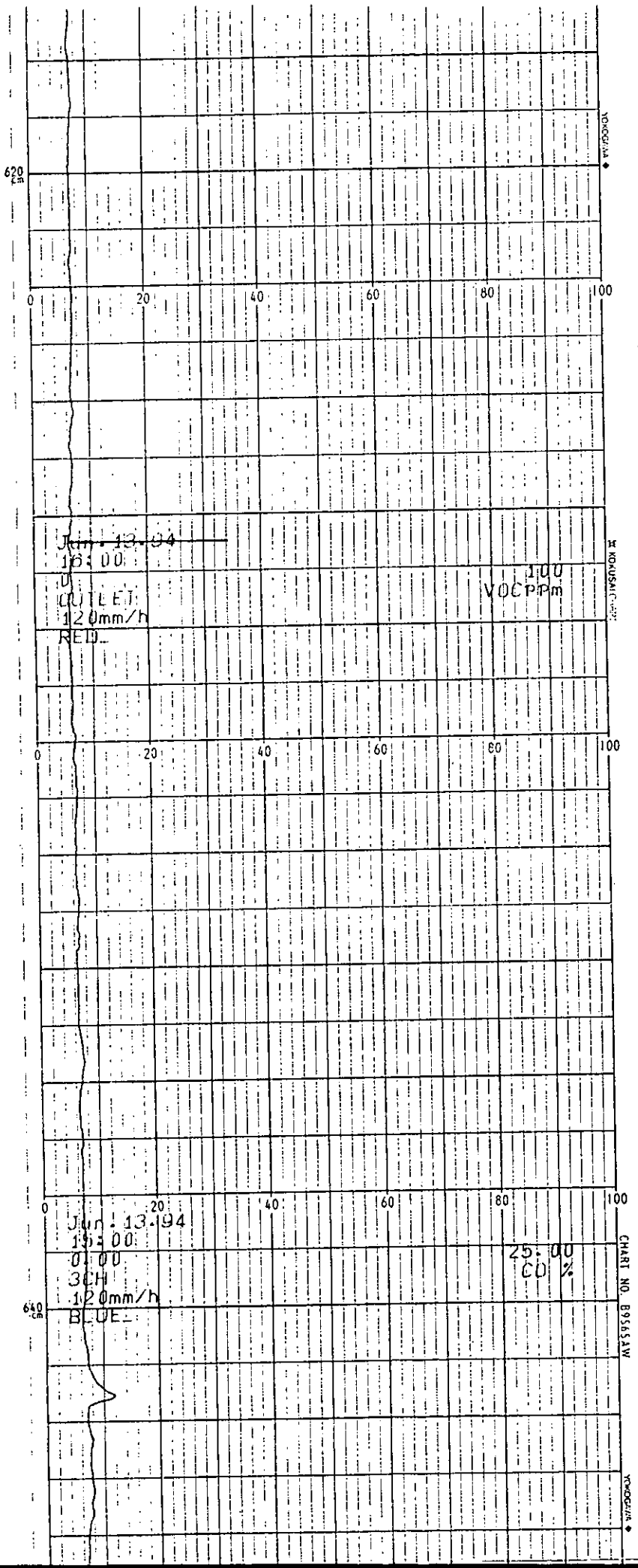
HOKUSAI


Jun. 11. 94
15:00
OUTLET
120mm/h
RED
0
20
40
60
80
100
VOCPPm
Jun. 11. 94
14:00
0.00
30H
120mm/h
BLUE
25.00
CO %
Jun. 11. 94
13:00
INLET
120mm/h
GREEN
CHART NO. B9565AW
KONOSHIMA
KONUSAI

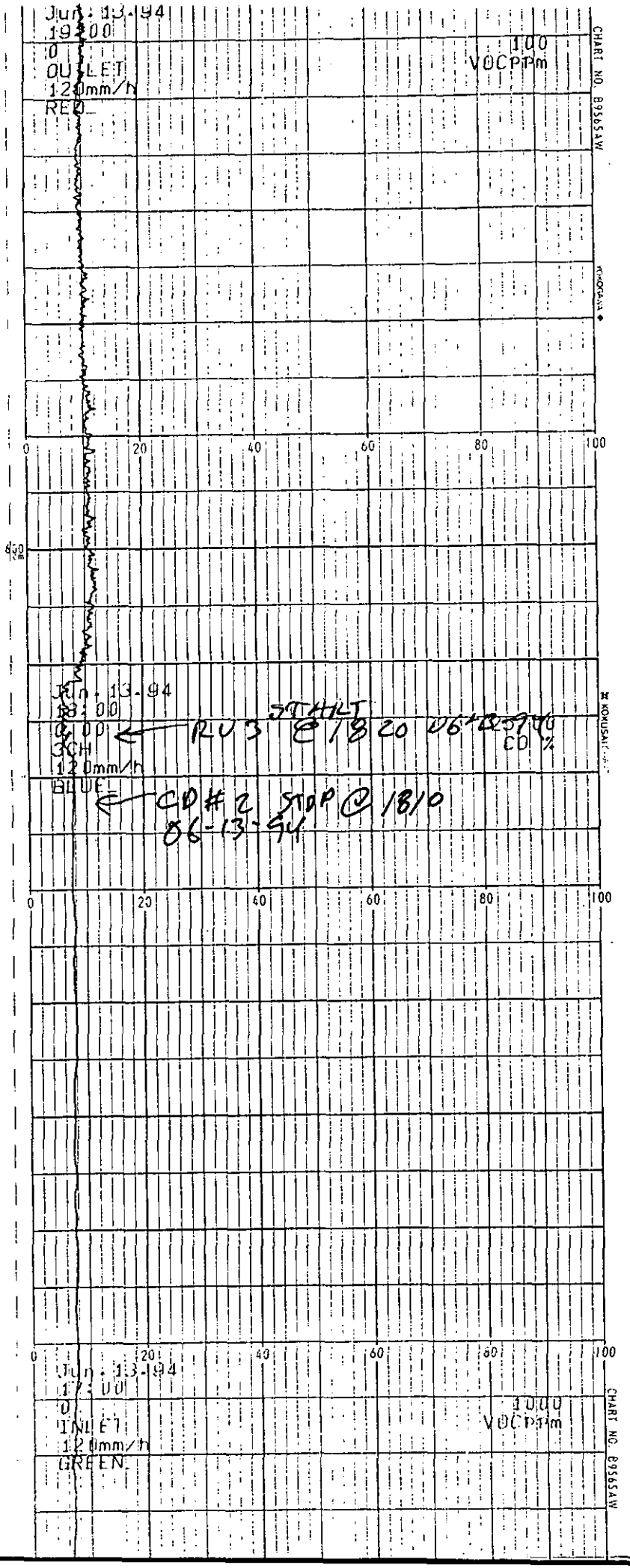

READ 51.2
START 49.87 STD
READ 86.7
START 86.650
READ 0.4
06-13-94 START ZERO STD
0.00
CH
120mm/h
BLUE
25.00
CO %
680 cm
Jun-11-94
16:00
10.00
VOCPPm
INLET
120mm/h
GREEN
700 cm
Jun-11-94
YOKOGAWA
CHART NO. B9665AW
KOKUSAI


0
20
40
60
80
100
Jun. 13. 94
14:00
0
INLET
120mm/h
GREEN
1000
VOCPPm
Jun. 13. 94
13:00
0
OUTLET
120mm/h
RED
100
VOCPPm
CO#2 - 06-13-94
START 49.87 STD
READ 49.1
READ 0.9
START ZERO BIAS
READ 20.3
START 29.95 STD
READ 51.2
START 49.87 STD
READ 86.7
START 86.650
CHART NO. 895654W
YOKOGAWA

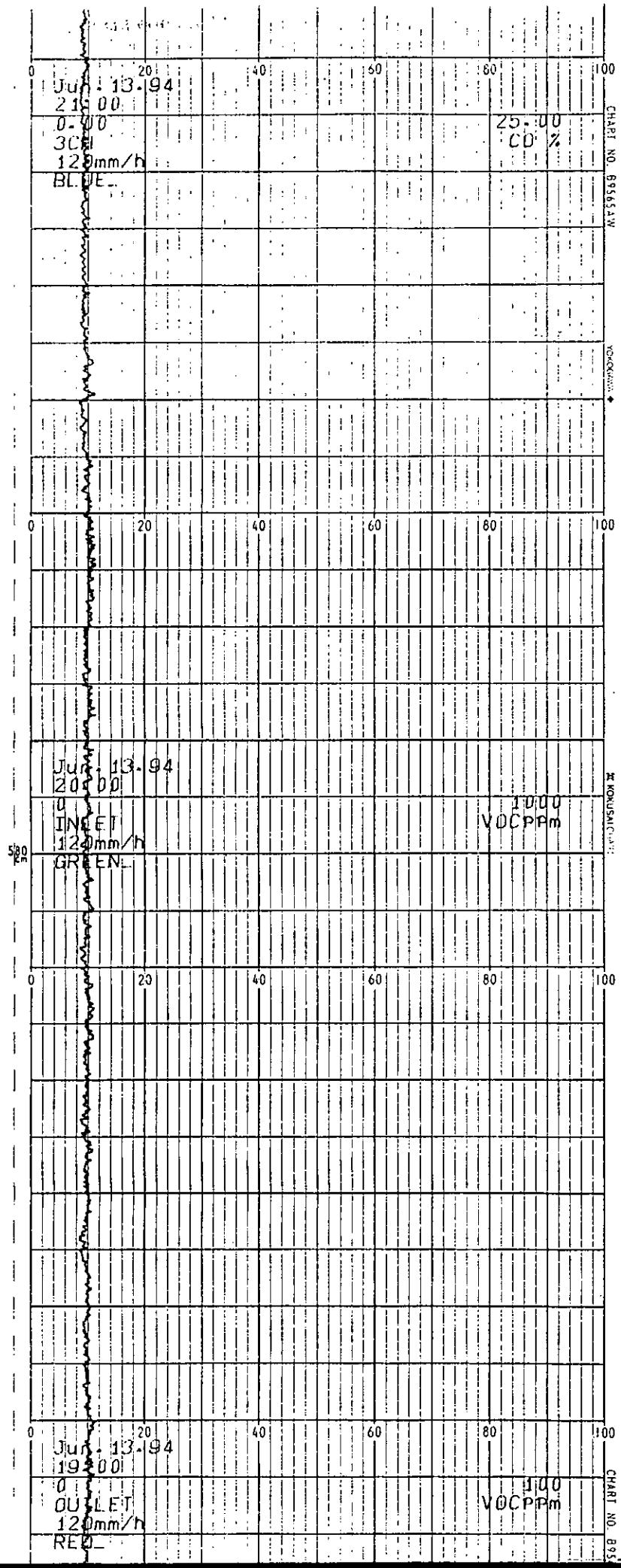
30858


620 cm
0
20
40
60
80
100
Jun. 13. 94
16: 00
0
OUTLET
120mm/h
RED
100
VOCPPm
0
20
40
60
80
100
0
20
40
60
80
100
Jun. 13. 94
15: 00
0.00
3CH
120mm/h
BLUE
25.00
CO %
640 cm
CHART NO. B956SAW
YOKOGAWA

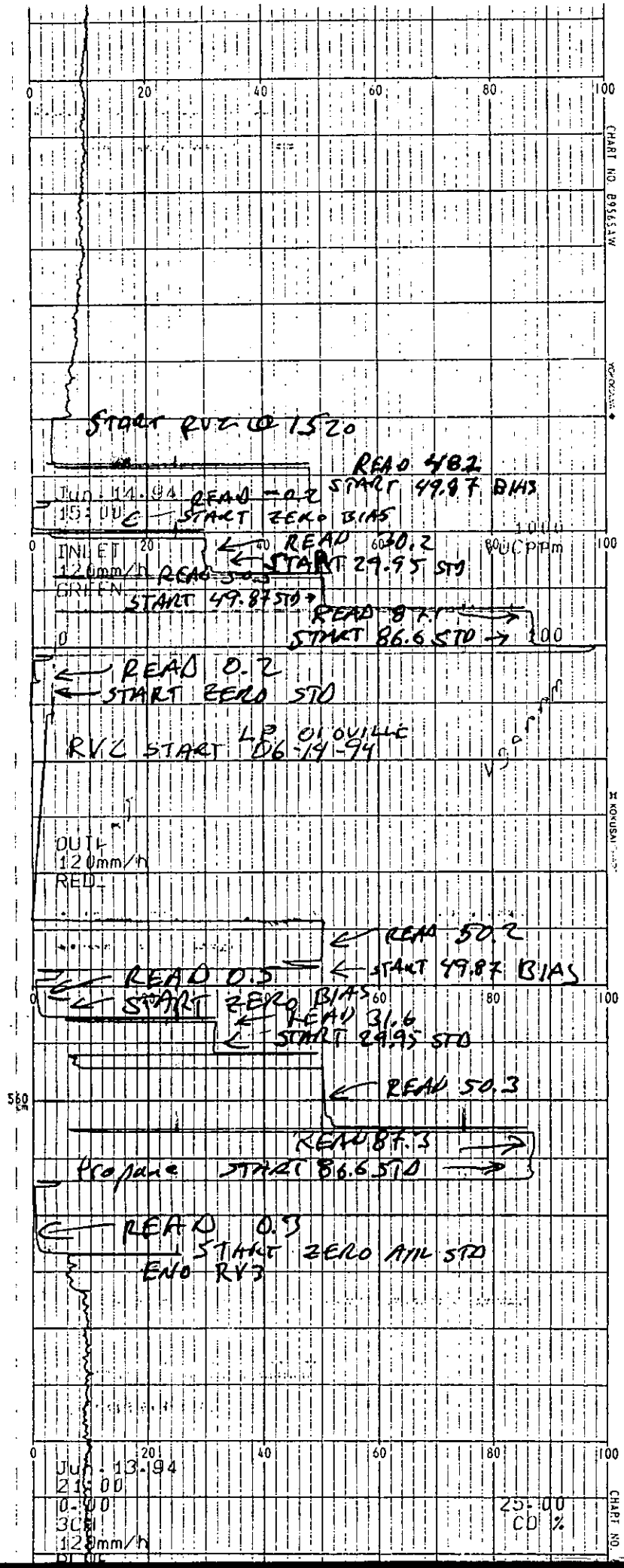
30808


Jun. 13. 94
19:00
0
OUTLET
120mm/h
RED
100
VOCPPm
CHART NO. 89565AW
0
20
40
60
80
100
Jun. 13. 94
18:00
0.00
3CH
120mm/h
BLUE
RUN START 8/8 20 06-28-94
CO %
CO #2 STOP @ 1810
06-13-94
0
20
40
60
80
100
Jun. 13. 94
17:00
0
INLET
120mm/h
GREEN
1000
VOCPPm
CHART NO. 89565AW

30868


0
20
40
60
80
100
Jun. 13. 94
21:00
0.00
3CFH
120mm/h
BLUE
25.00
CO %
CHART NO. 895654W
Jun. 13. 94
20:00
0
INLET
120mm/h
GREEN
1000
VOCPPm
580 ppm
Jun. 13. 94
19:00
0
OUTLET
120mm/h
RED
100
VOCPPm
CHART NO. 895

306608


START RVC @ 1520
READ 48.2
START 49.87 BIAS
Jun 14 94
15:00
READ -0.2
START ZERO BIAS
INLET
120mm/h
READ 30.2
START 29.95 STD
GREEN
READ 50.3
START 49.87 STD
READ 87.1
START 86.6 STD
READ 0.2
START ZERO STD
RVC START 6-14-94
OUT
120mm/h
RED
READ 50.2
START 49.87 BIAS
READ 0.3
START ZERO BIAS
READ 31.6
START 29.95 STD
READ 50.3
READ 87.3
Propane START 86.6 STD
READ 0.3
START ZERO AIR STD
END RV3
Jun 13 94
21:00
0.00
25.00
CO %
CHART NO. B9565AW

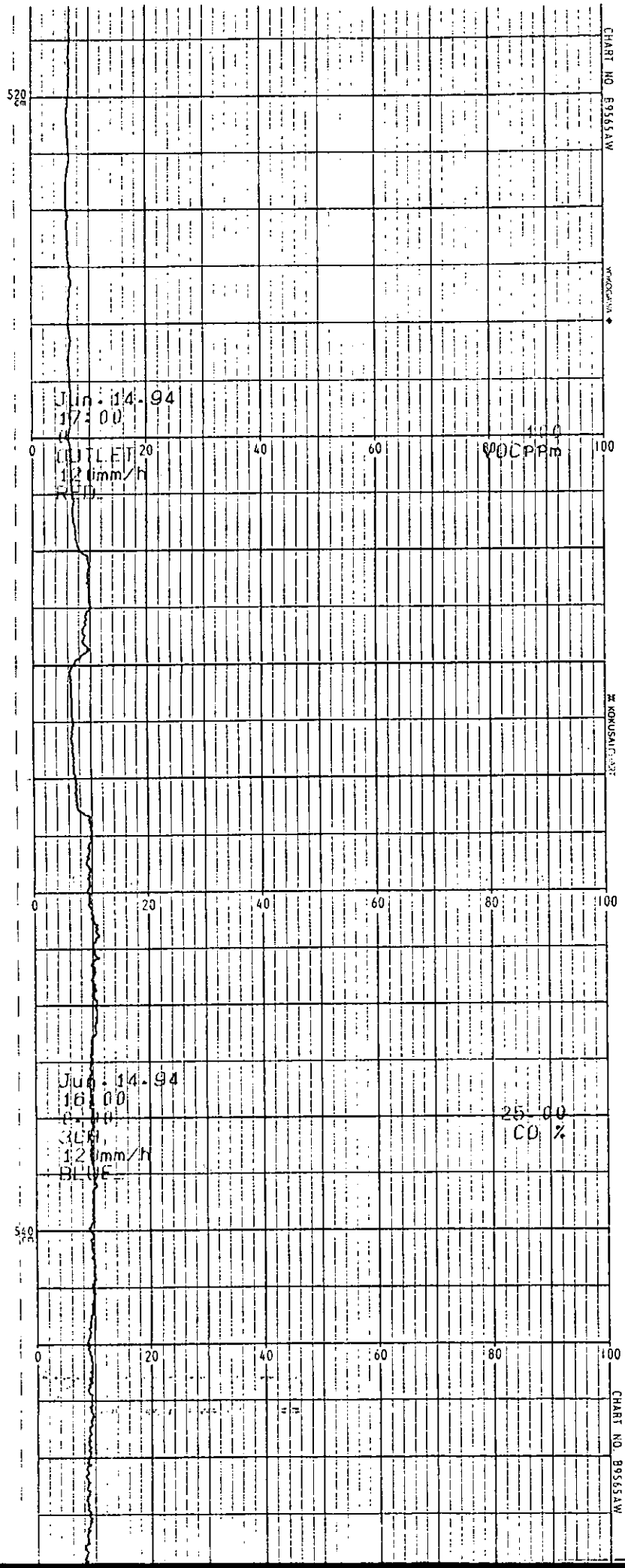
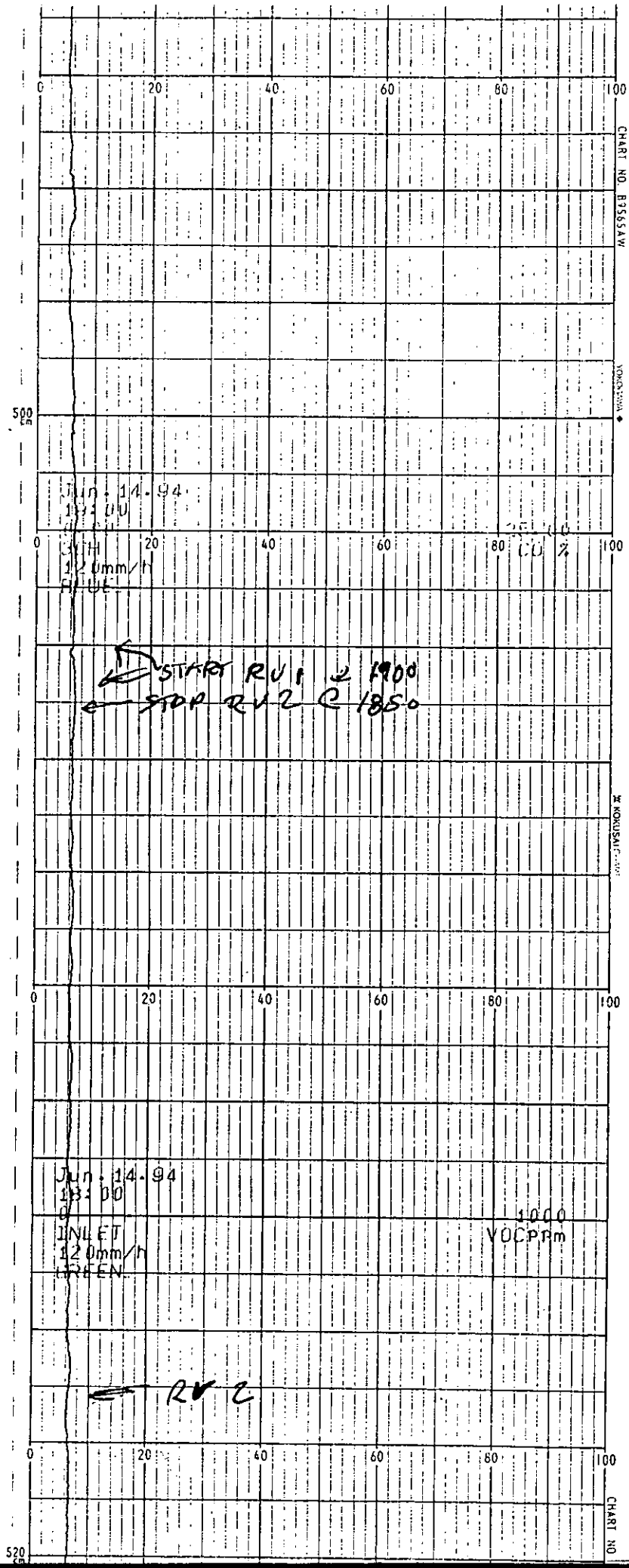
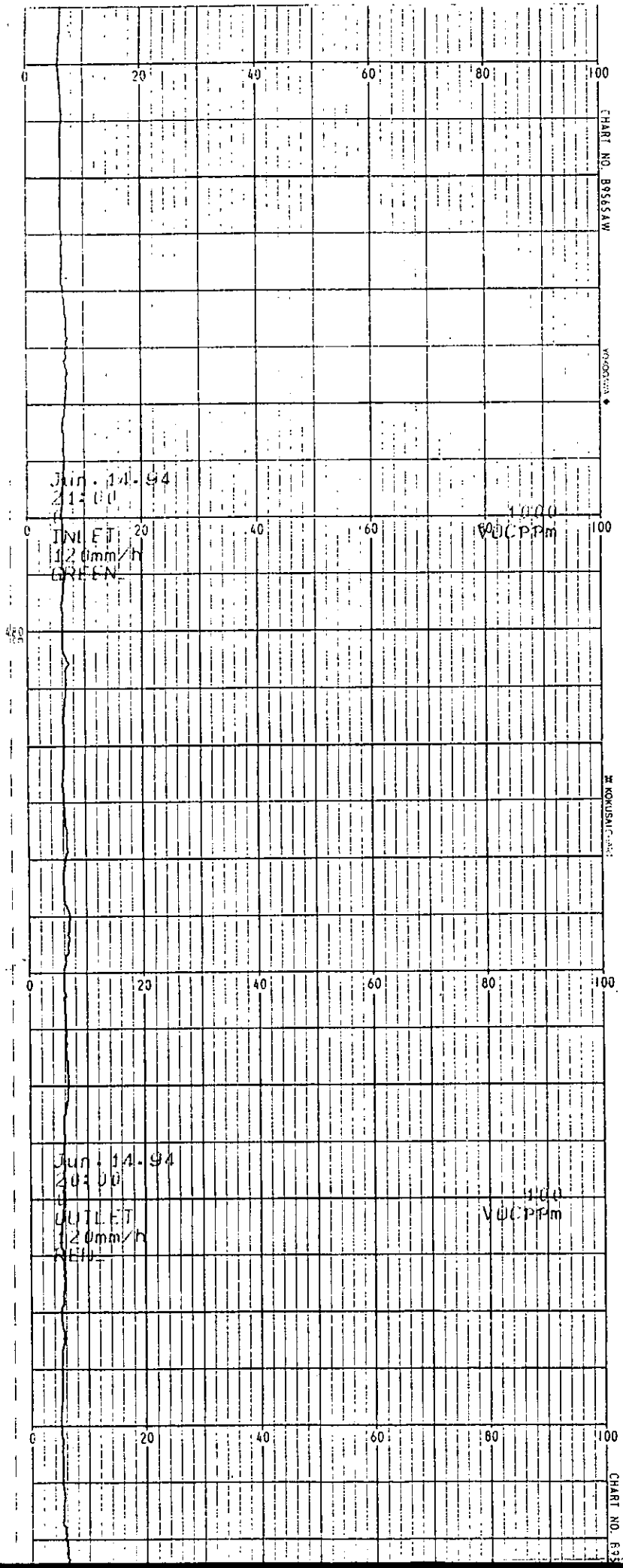


CHART NO. B9565AW
520
Jun. 14. 94
17:00
OUTLET
12 mm/h
RED
0
20
40
60
80
100
100
CO CPPm
KOKUSAI
0
20
40
60
80
100
Jun. 14. 94
16:00
INLET
12 mm/h
BLUE
25.00
CO %
540
0
20
40
60
80
100
CHART NO. B9565AW

30868


0
20
40
60
80
100
CHART NO. B7565AW
500
Jun. 14. 94
13:00
CO %
INLET
120mm/h
BLUE
START RU1 @ 1900
STOP RU2 @ 1850
Jun. 14. 94
13:00
0
1000
VOCPPm
INLET
120mm/h
GREEN
RU2
520
CHART NO


0
20
40
60
80
100
CHART NO. B9565AW
Jun. 14-94
21:00
1000
VOCPPm
INLET
120mm/h
GREEN
KOKUSAI
Jun. 14-94
20:00
100
VOCPPm
OUTLET
120mm/h
RED
CHART NO. B35

30652

START 86.6 STD

READ 0.2

0.4 START ZERO STD

CO 4

← 06-15-94 LP - Oroville

CHART NO. B9565AW

END 06-14-94

← READ 50.6

Jun. 14. 94 READ 0.7 START 49.87 BIAS

← START ZERO BIAS

BUTLET

120mm/h

RED

READ 31.5

← START 29.95 STD

START 49.87 STD

← READ 51.3

READ 85.9 →

START 86.6 STD →

← READ 0.8

← START ZERO STD

STOP RVI @ 2245

460 cm

Jun. 14. 94
22:00
0.00
3CH
120mm/h
BLUE

25.00
CO %

CHART NO.

30633

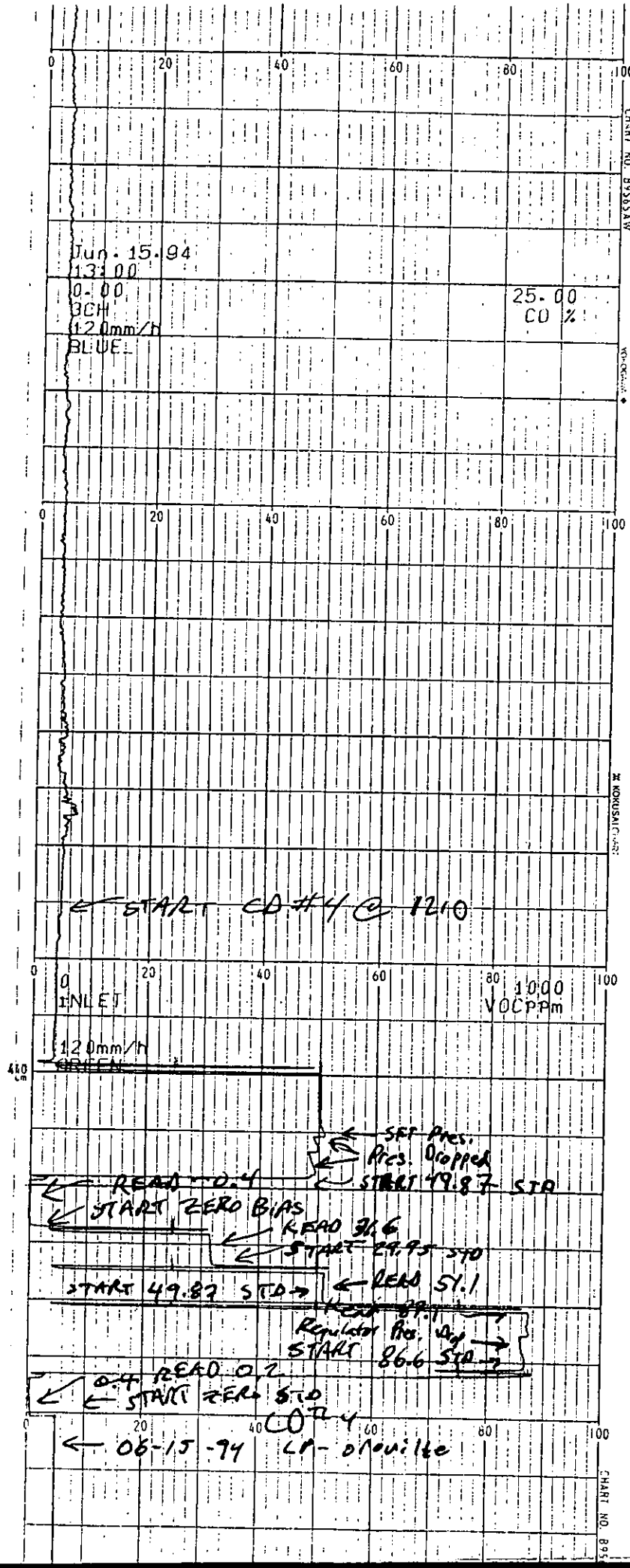
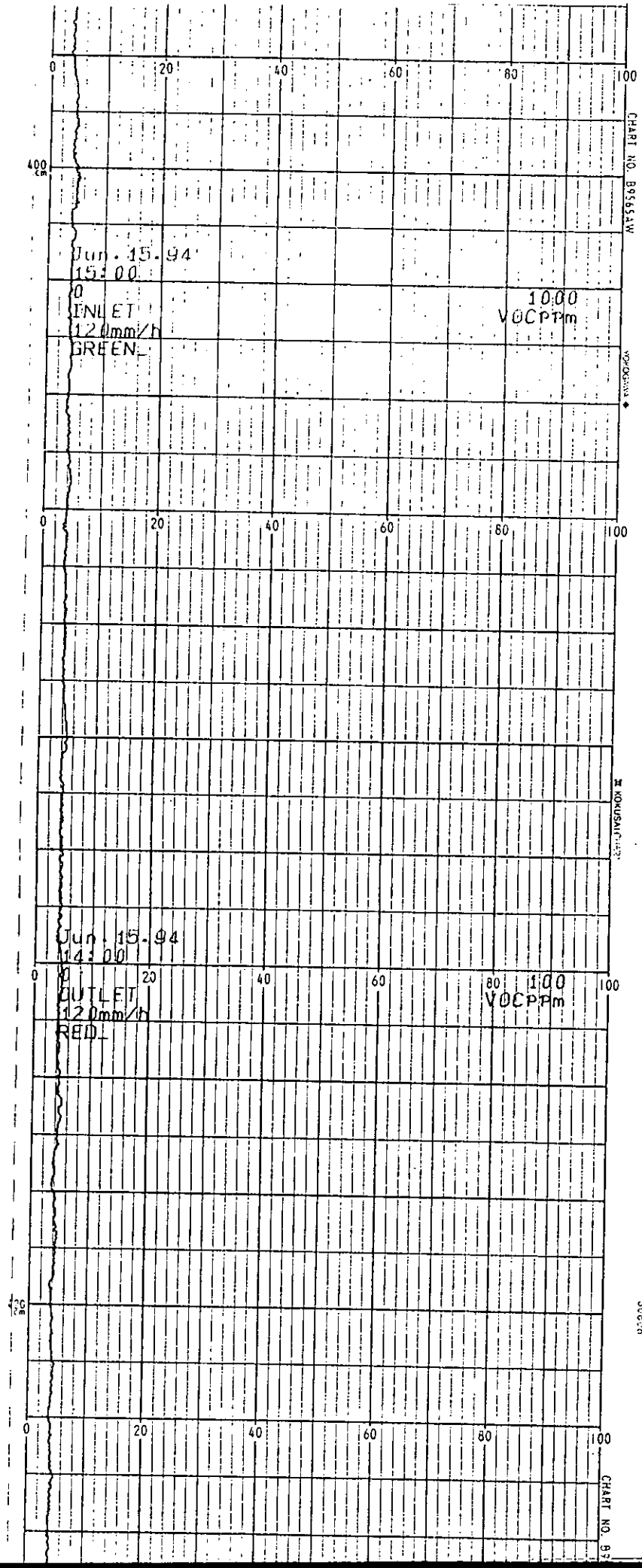
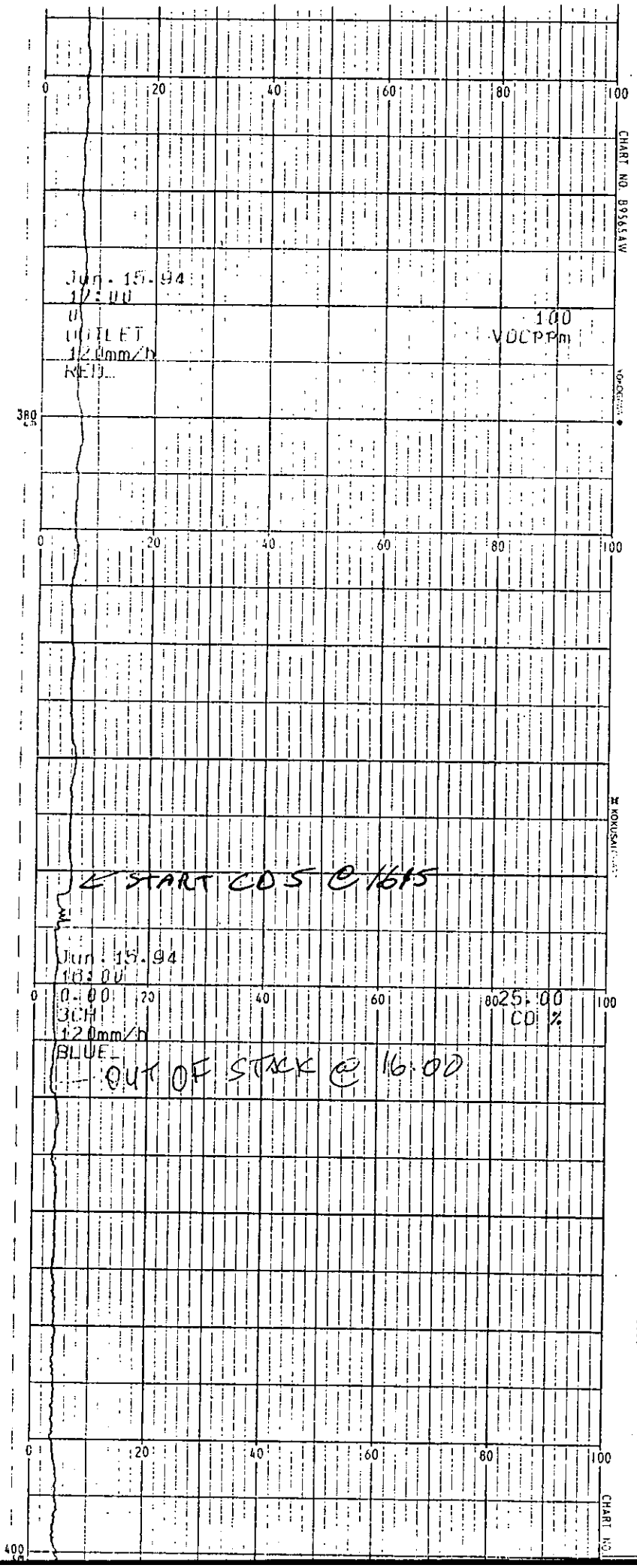
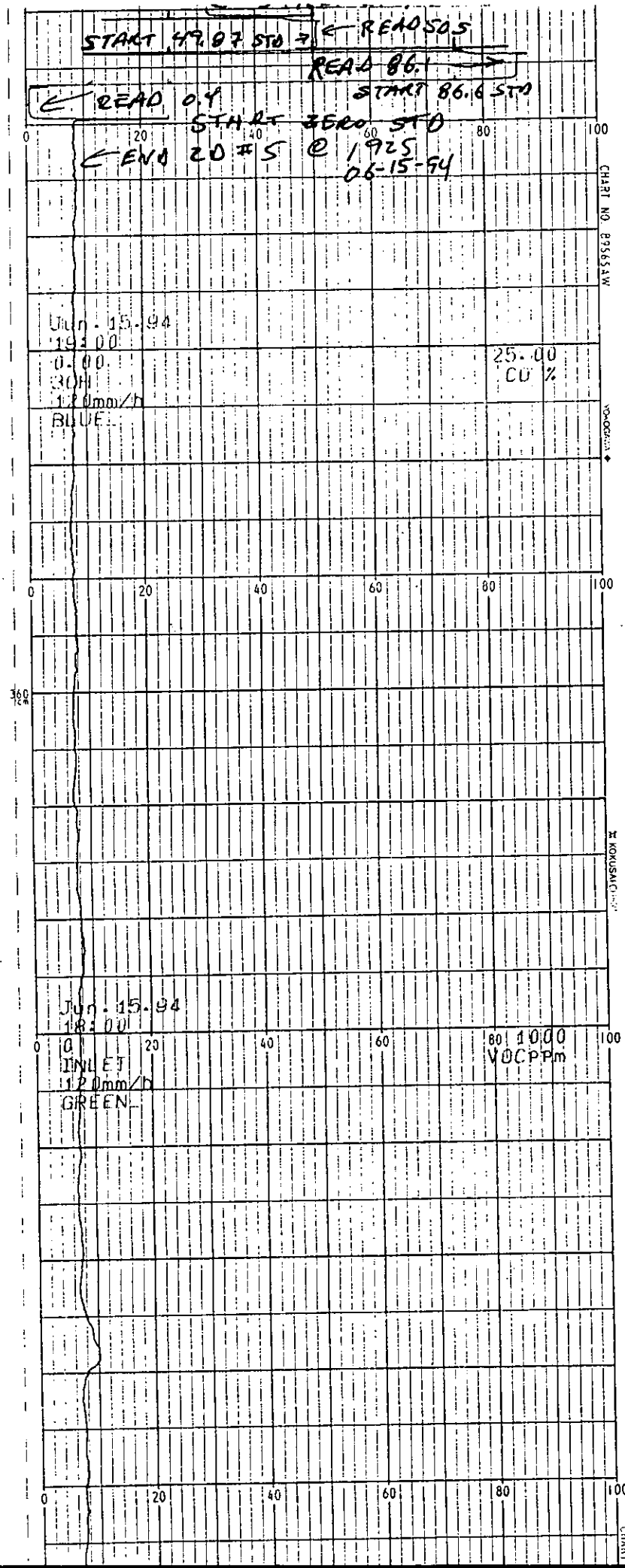
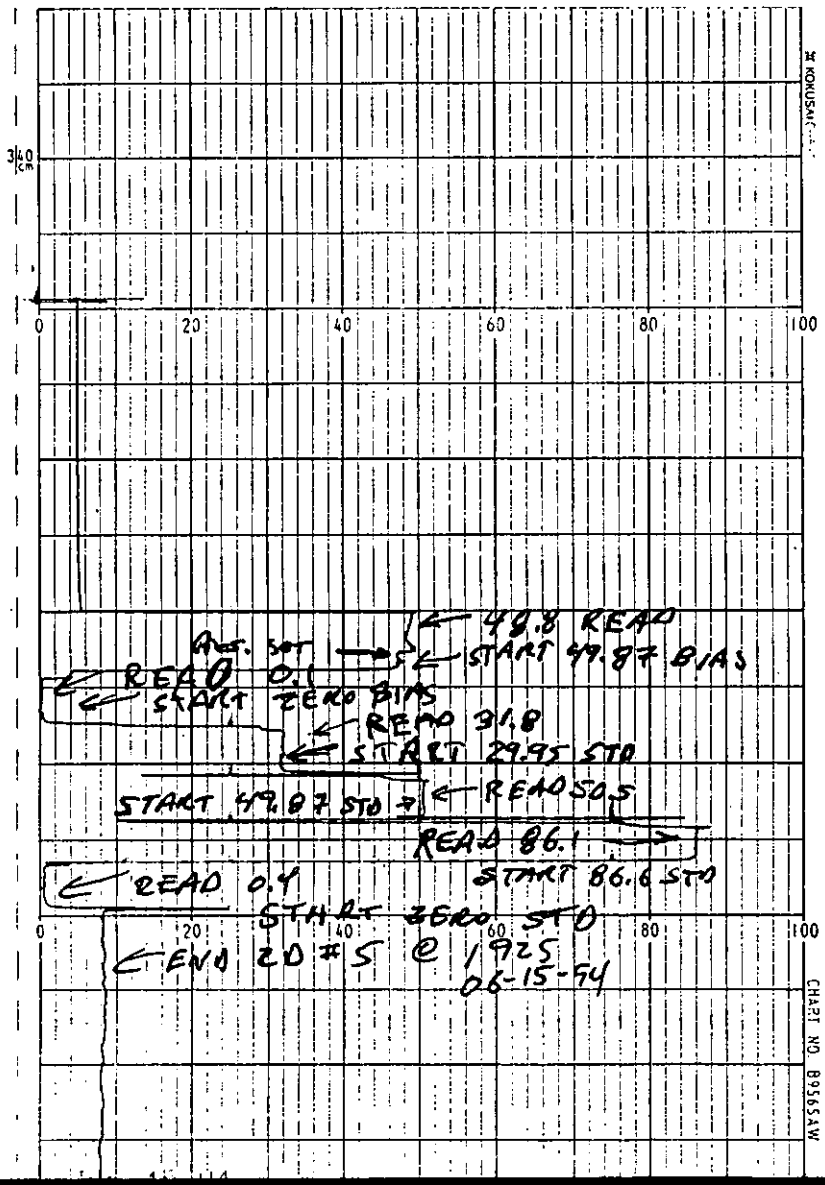


CHART NO. B9565AW
Jun. 15.94
13:00
0.00
BCH
120mm/h
BLUE
25.00
CO %
START CO #4 @ 1210
0
INLET
1000
VOCPPm
120mm/h
GREEN
SET Pres.
Pres. Dropped
START 49.87 STD
READ -0.4
START ZERO BIAS
READ 31.6
START 29.95 STD
START 49.87 STD
READ 51.1
Regulator Pres. Dropped
START 86.6 STD
READ 0.2
START ZERO STD
CO #4
06-15-94 LP- Oroville
CHART NO. B95


0
20
40
60
80
100
CHART NO. B9565AW
400 cm
Jun. 15. 94
15:00
0
INLET
120mm/h
GREEN
10.00
VOCPPm
0
20
40
60
80
100
Jun. 15. 94
14:00
0
OUTLET
120mm/h
RED
100
VOCPPm
0
20
40
60
80
100
CHART NO. B9


0
20
40
60
80
100
CHART NO. B9565AW
Jun. 15. 94
17:00
0
OUTLET
120mm/h
100
VOCPPm
380
0
20
40
60
80
100
START CO5 @1615
Jun. 15. 94
16:00
0.00
3CH
120mm/h
BLUE
25.00
CO %
OUT OF STACK @ 16.00
0
20
40
60
80
100
400


START 49.87 STD
READ 50.5
READ 86.1
START 86.6 STD
READ 0.4
START ZERO STD
END 20 #5 @ 1925
06-15-94
0
20
40
60
80
100
CHART NO 835654W
Jun. 15. 94
19:00
0.00
30H
120mm/h
BLUE
25.00
CO %
360
Jun. 15. 94
18:00
0
INLET
120mm/h
GREEN
1000
VOCPPm
CHART


KOKUSAI
0
20
40
60
80
100
48.8 READ
AVG. SET
START 49.87 BIAS
READ 0.1
START ZERO BIAS
READ 31.8
START 29.95 STD
START 49.87 STD
READ 50.5
READ 86.1
START 86.6 STD
READ 0.4
START ZERO STD
END 2D #5 @ 1925
06-15-54
CHART NO. B956SAW

30808

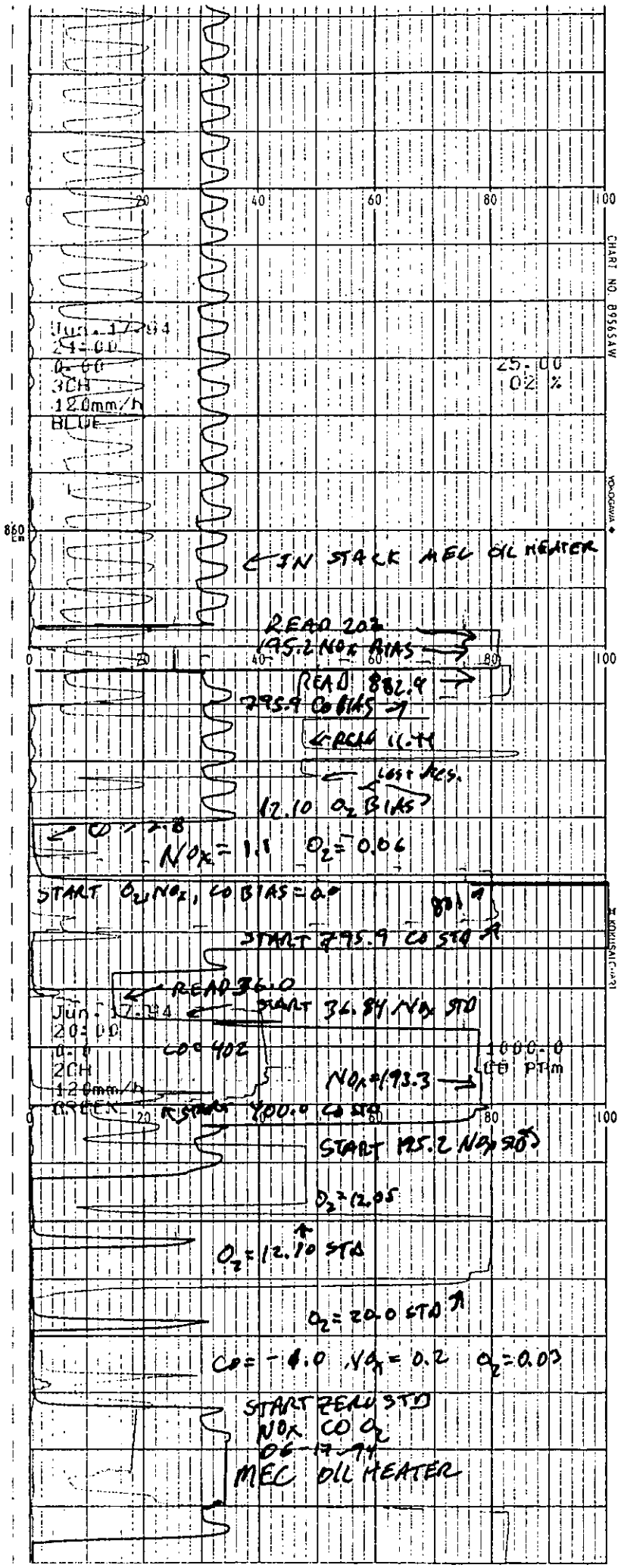
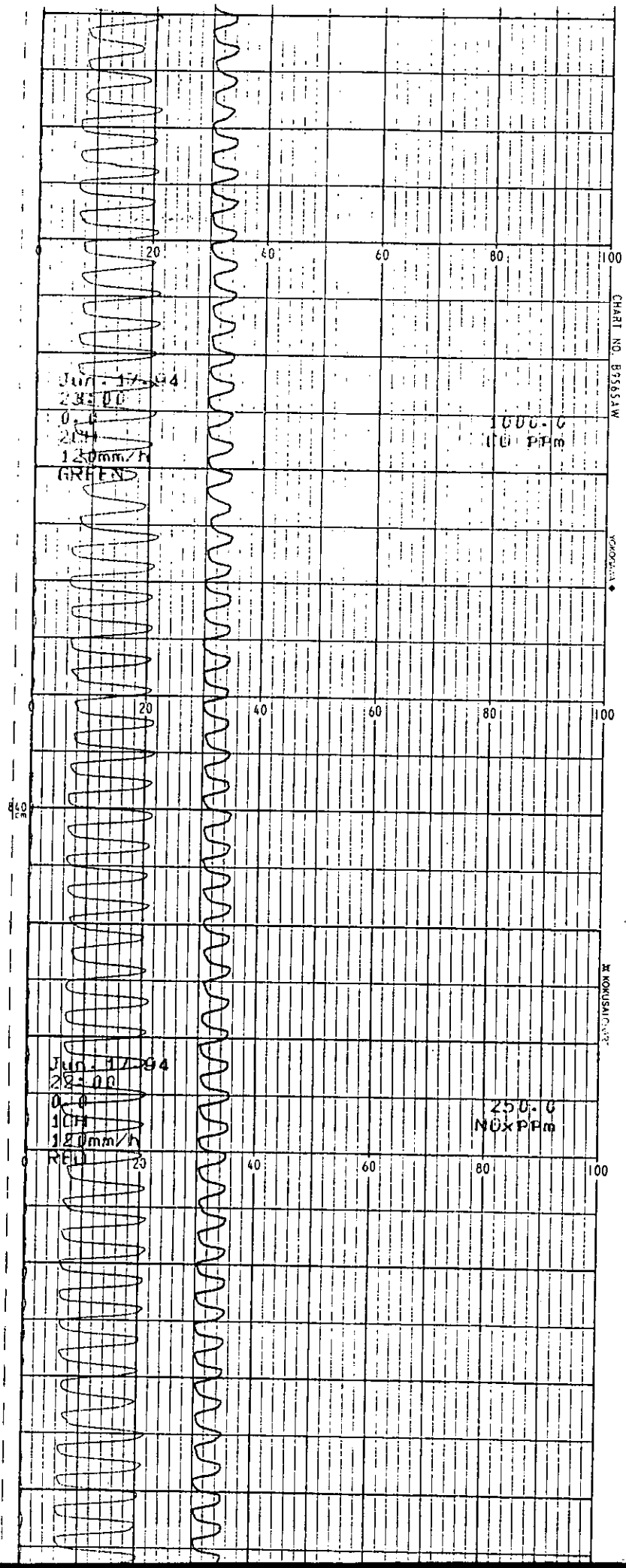


CHART NO. 8856SAW
YOKOGAWA
Jun. 17 '94
24:00
0.00
3CH
120mm/h
BLUE
25.00
O2 %
860
IN STACK MEC OIL HEATER
READ 20%
195.2 NOx BIAS
READ 882.9
795.9 CO BIAS
READ 11.44
LOST RES.
12.10 O2 BIAS
NOx = 1.1 O2 = 0.06
START O2 NOx, CO BIAS = 0.0
START 795.9 CO STD
READ 36.0
START 36.84 NOx STD
Jun. 17 '94
20:00
0.0
2CH
120mm/h
GREEN
CO = 402
1000.0
(ppm)
NOx = 193.3
START 400.0 CO STD
START 195.2 NOx STD
O2 = 12.05
O2 = 12.10 STD
O2 = 20.0 STD
CO = -1.0 NOx = 0.2 O2 = 0.03
START ZERO STD
NOx CO O2
06-17-94
MEC OIL HEATER


0
20
40
60
80
100
Jun. 17,94
23:00
0.0
2CH
120mm/h
GREEN
1000.0
CO PPm
840
Jun. 17,94
22:00
0.0
1CH
120mm/h
RED
250.0
NOxPPm
CHART NO. B5653-W
KOKUSAI

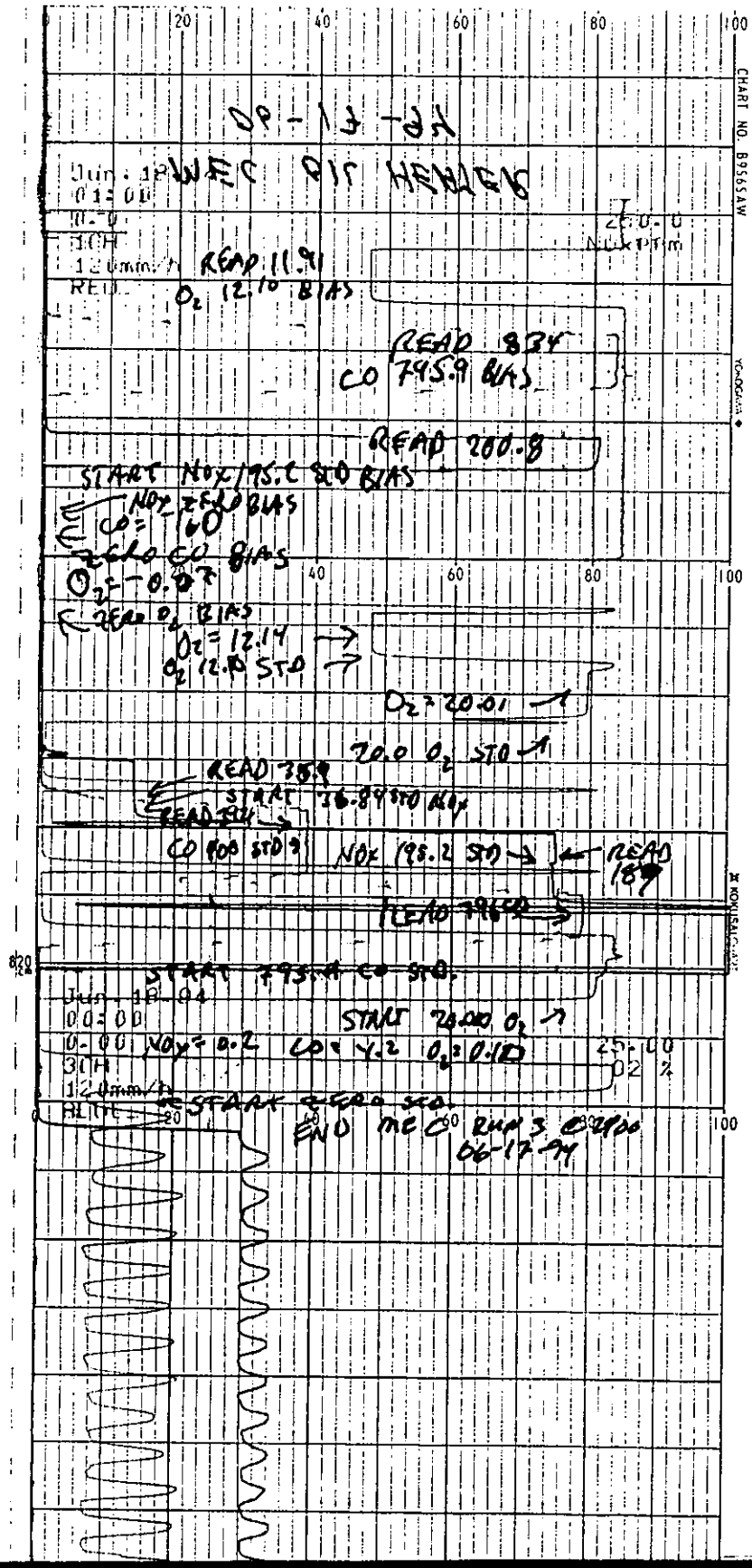
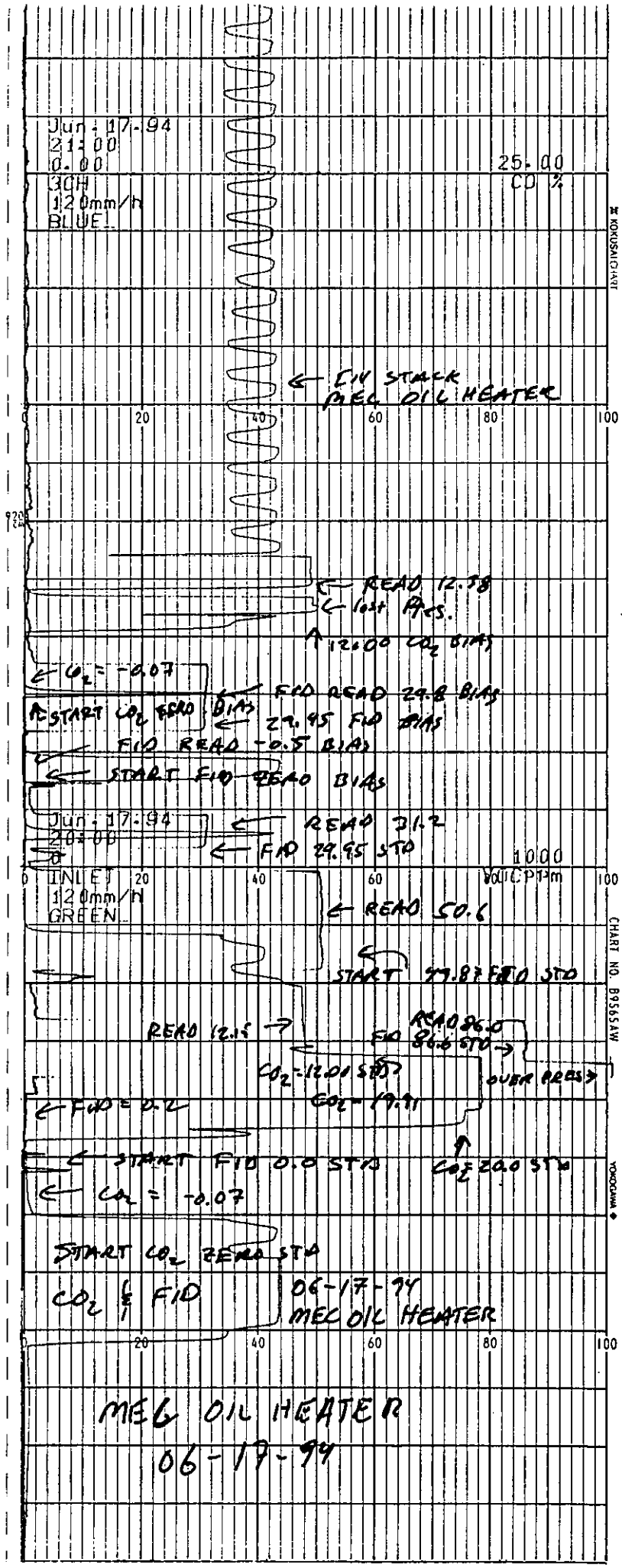
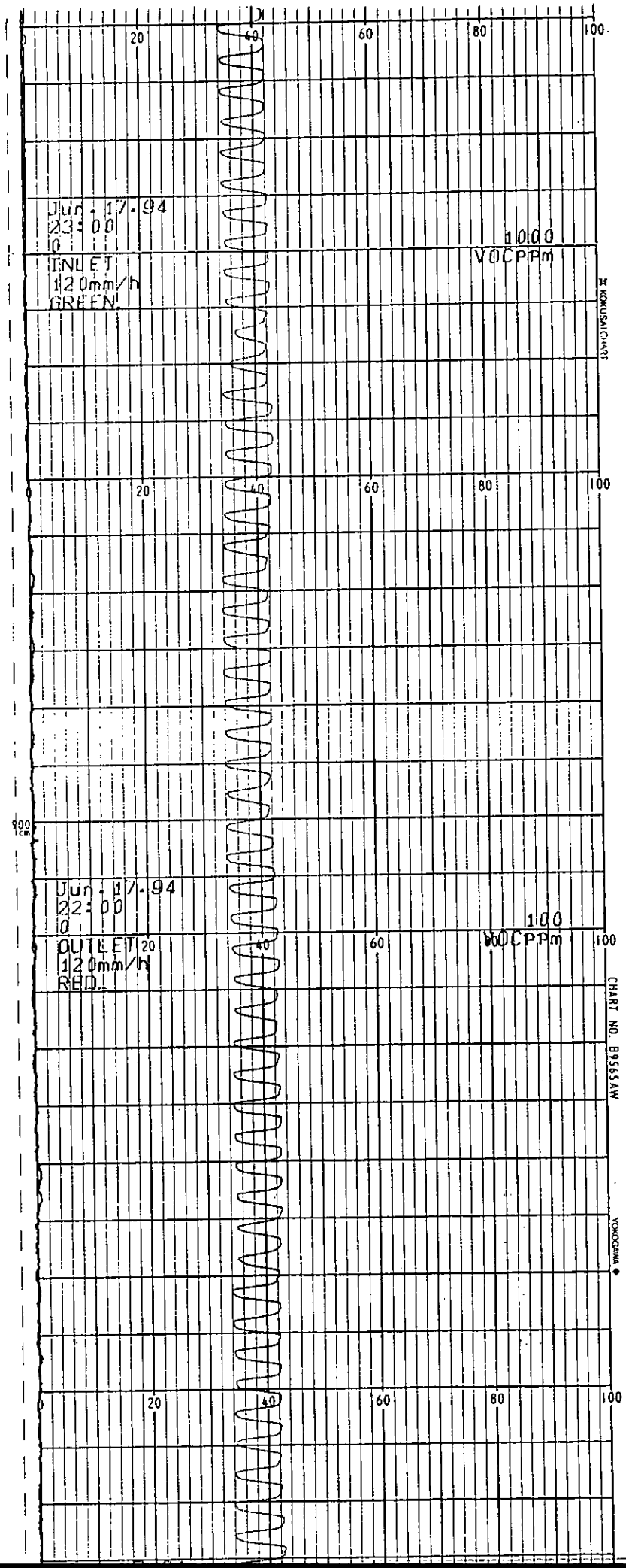
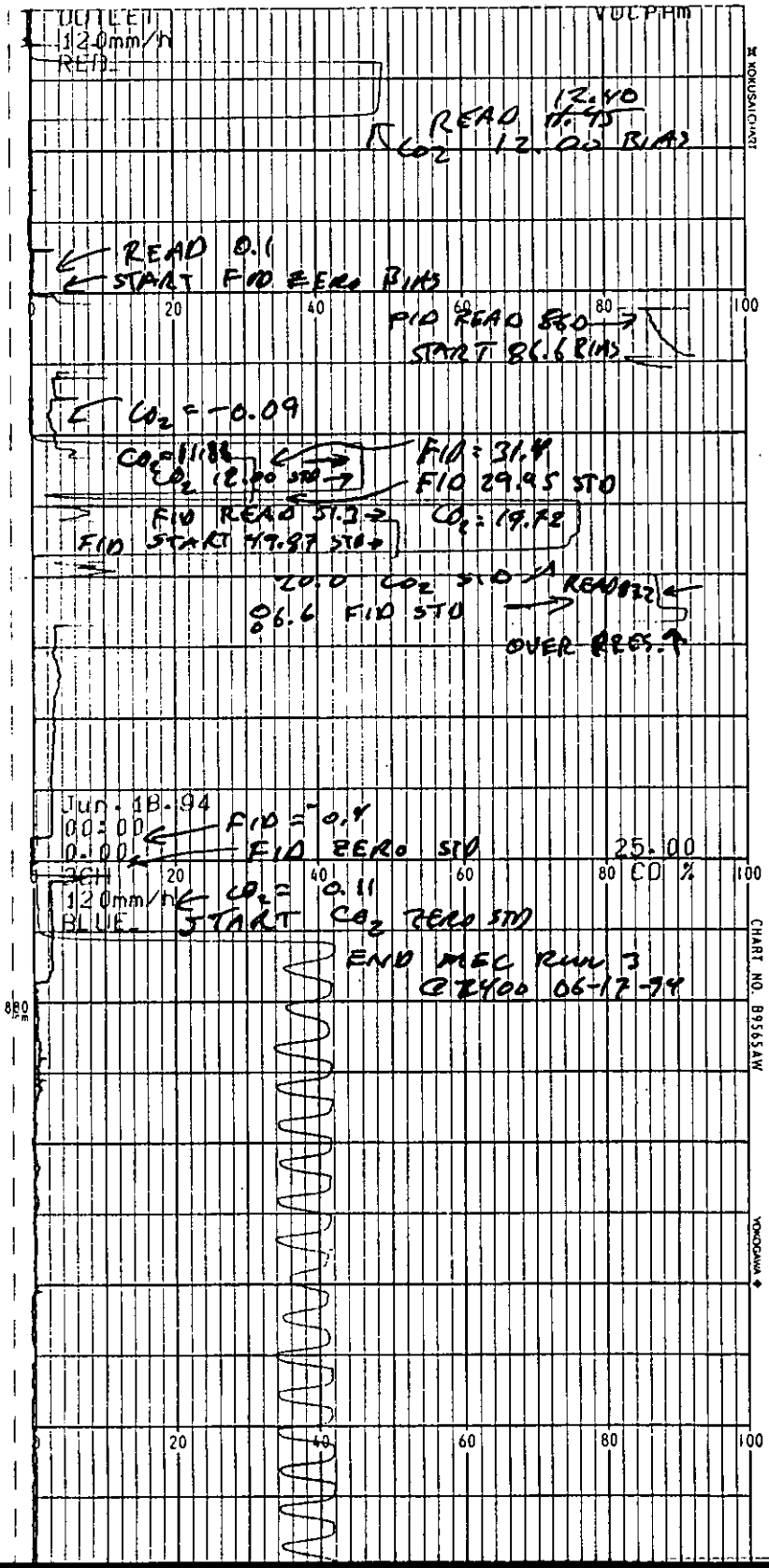
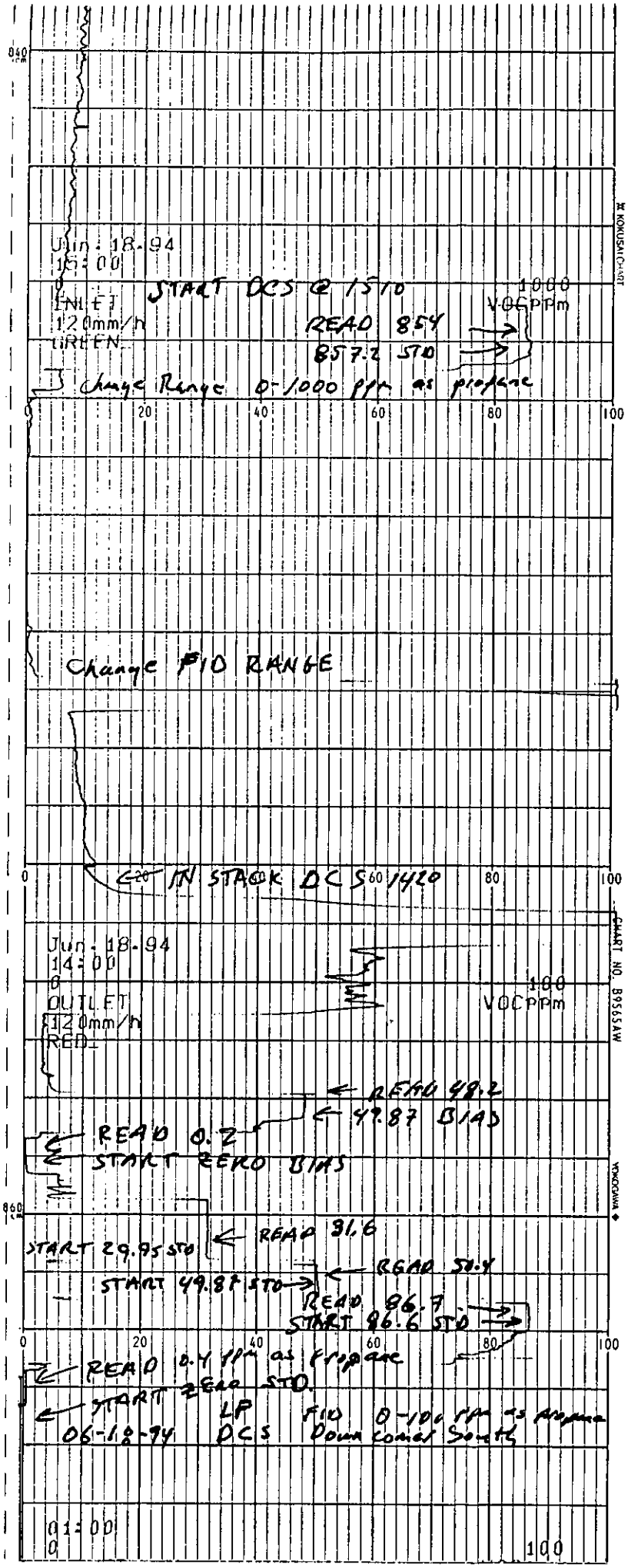


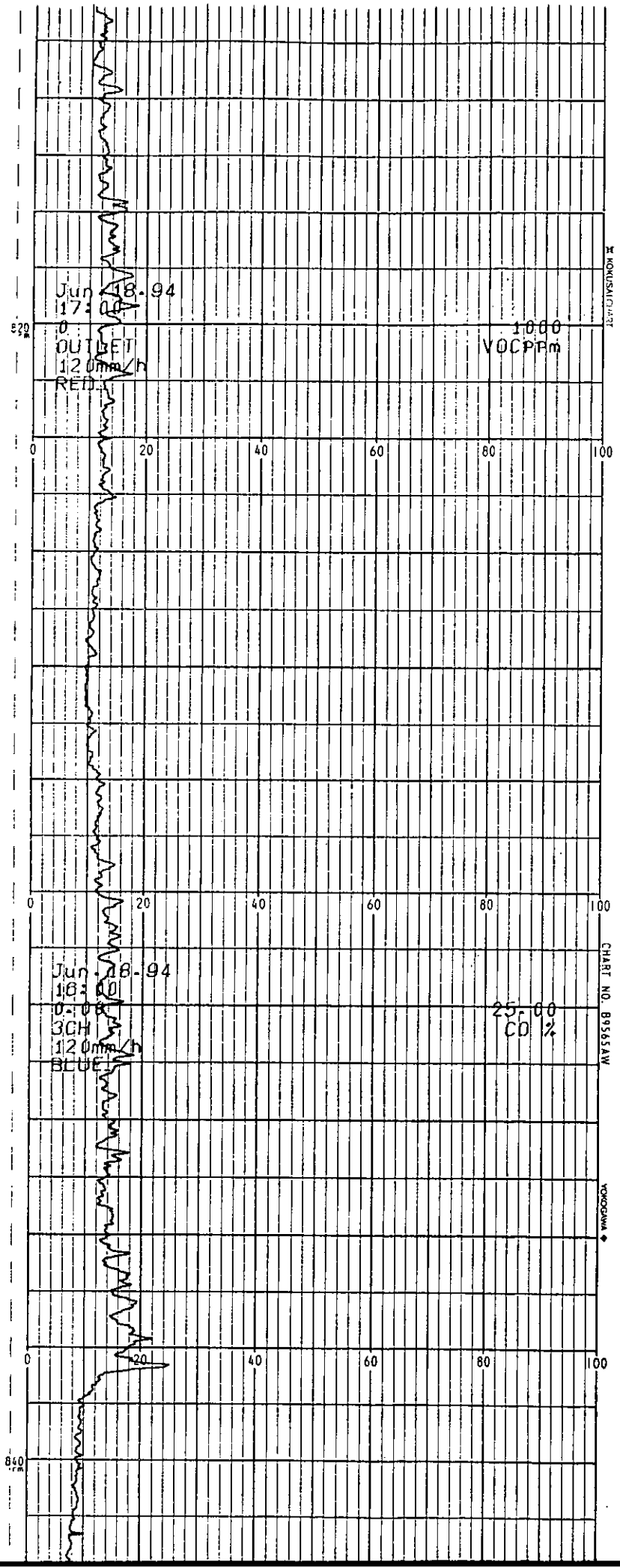
CHART NO. B9565AW
06-17-94
WEC PIT HEATER
Jun. 18
01:00
30H
READ 11.91
O2 12.10 BIAS
READ 834
CO 795.9 BIAS
READ 200.8
START NOx/95.C STD BIAS
NOx ZERO BIAS
CO = 160
ZERO CO BIAS
O2 = -0.07
ZERO O2 BIAS
O2 = 12.14
O2 12.0 STD
O2 = 20.01
20.0 O2 STD
READ 38.9
START 36.89 STD NOx
CO 900 STD
NOx 195.2 STD
READ 189
START 795.4 CO STD.
Jun. 18 94
00:00
START 20.00 O2
0.00 NOx = 0.2 CO = 4.2 O2 = 0.10
30H
START ZERO STD.
END MEC RUN 3 @ 2400
06-17-94

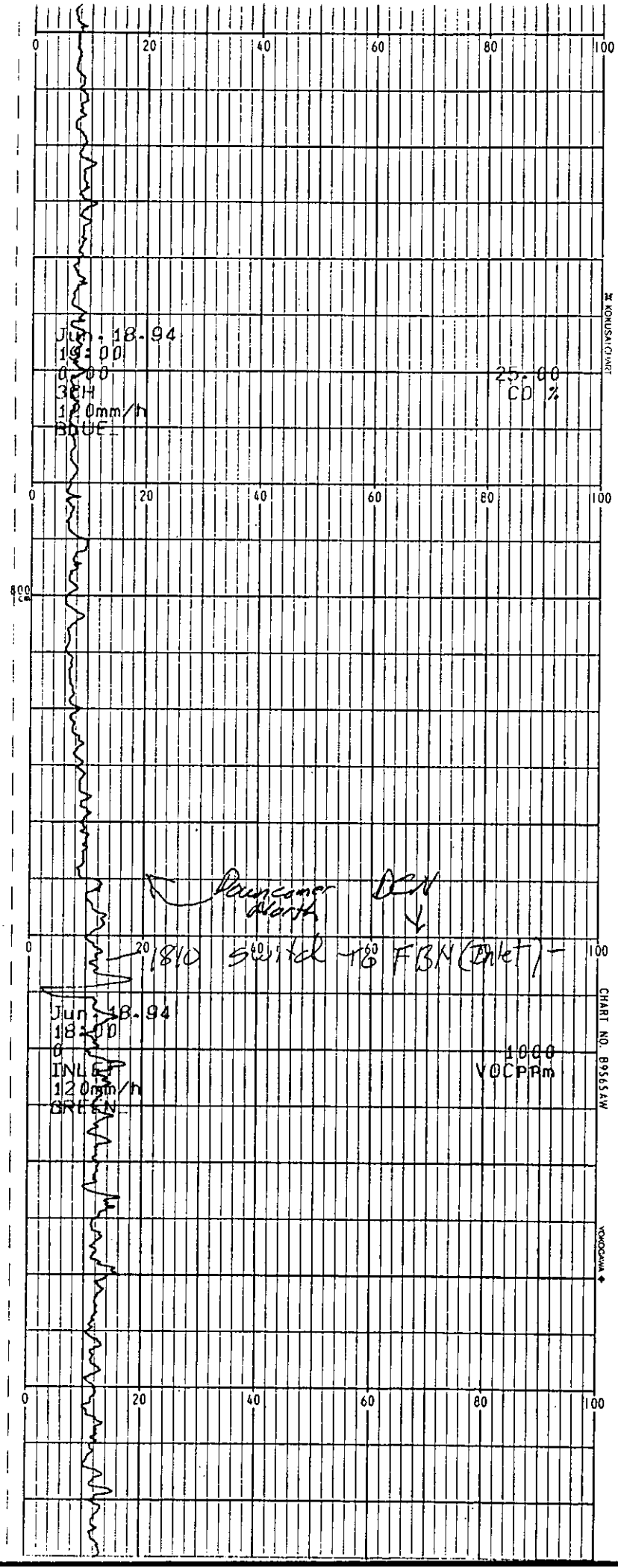

Jun. 17. 94
21:00
0.00
25.00
CO %
30H
120mm/h
BLUE
KOKUSAI CHART
← EN STACK
MEL OIL HEATER
0
20
40
60
80
100
← READ 12.58
← lost PRES.
↑ 12.00 CO2 BIAS
← O2 = -0.07
FID READ 29.8 BIAS
↑ START CO2 ZERO BIAS
← 29.95 FID BIAS
FID READ -0.5 BIAS
← START FID ZERO BIAS
Jun. 17. 94
20:00
← READ 31.2
← FID 29.95 STD
1000
INLET
120mm/h
GREEN
VOLCPPm
← READ 50.6
START 49.87 FID STD
READ 12.5 →
READ 86.0
FID 86.0 STD →
CO2 = 12.01 STD
OVER PRES →
CO2 = 19.91
← FID = 0.2
← START FID 0.0 STD
CO2 20.0 STD
← CO2 = -0.07
START CO2 ZERO STD
CO2 & FID
06-17-94
MEL OIL HEATER
CHART NO. B956SAW
YOKOGAWA
MEL OIL HEATER
06-17-94

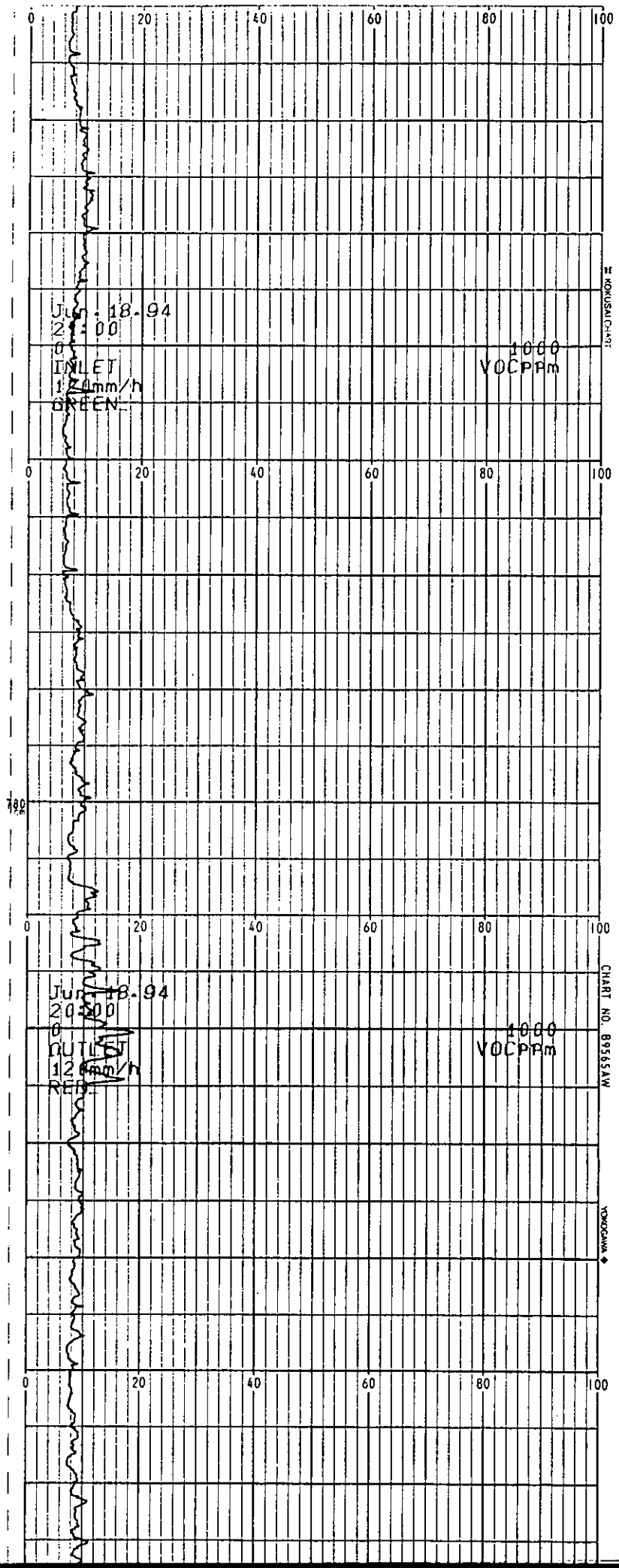

Jun. 17. 94
23:00
0
INLET
120mm/h
GREEN
1000
VOCPPm
Jun. 17. 94
22:00
0
OUTLET
120mm/h
RED
100
VOCPPm
20
40
60
80
100
CHART NO. B9565AW
YOKOGAWA

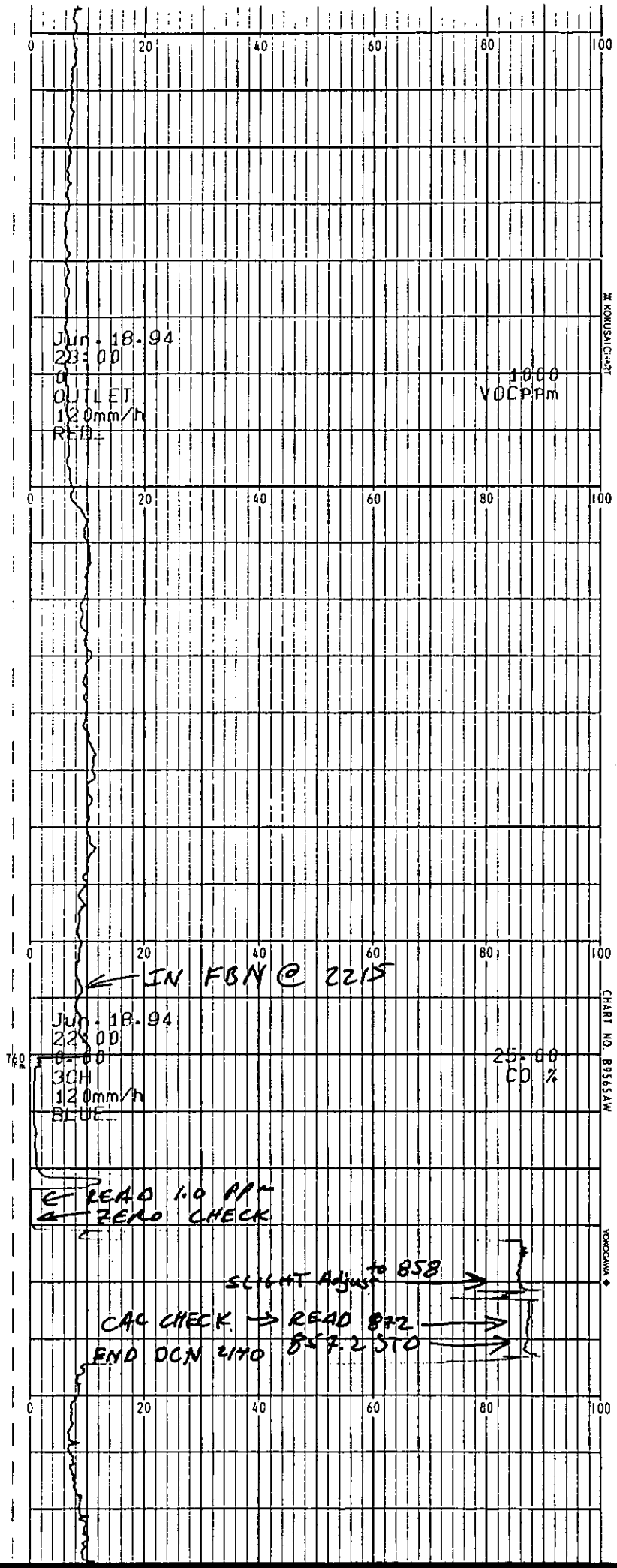

VOL PPM
120mm/h
RED
READ 12.40
CO2 12.00 BIAS
READ 0.1
START FID ZERO BIAS
FID READ 86.0
START 86.6 BIAS
CO2 = -0.09
CO2 11.88
CO2 12.00 STD
FID = 31.4
FID 29.95 STD
FID READ 51.3
CO2 = 19.72
FID START 49.87 STD
20.0 CO2 STD
READ 22
06.6 FID STD
OVER RECS.
Jun 18 94
00:00
0.00
FID = -0.4
FID ZERO STD
25.00
CO %
3CH
120mm/h
BLUE
CO2 = 0.11
START CO2 ZERO STD
END MEC RUN 3
@ 2400 06-17-94
KOKUSAI CHART
CHART NO. B9565AW
YOKOGAWA

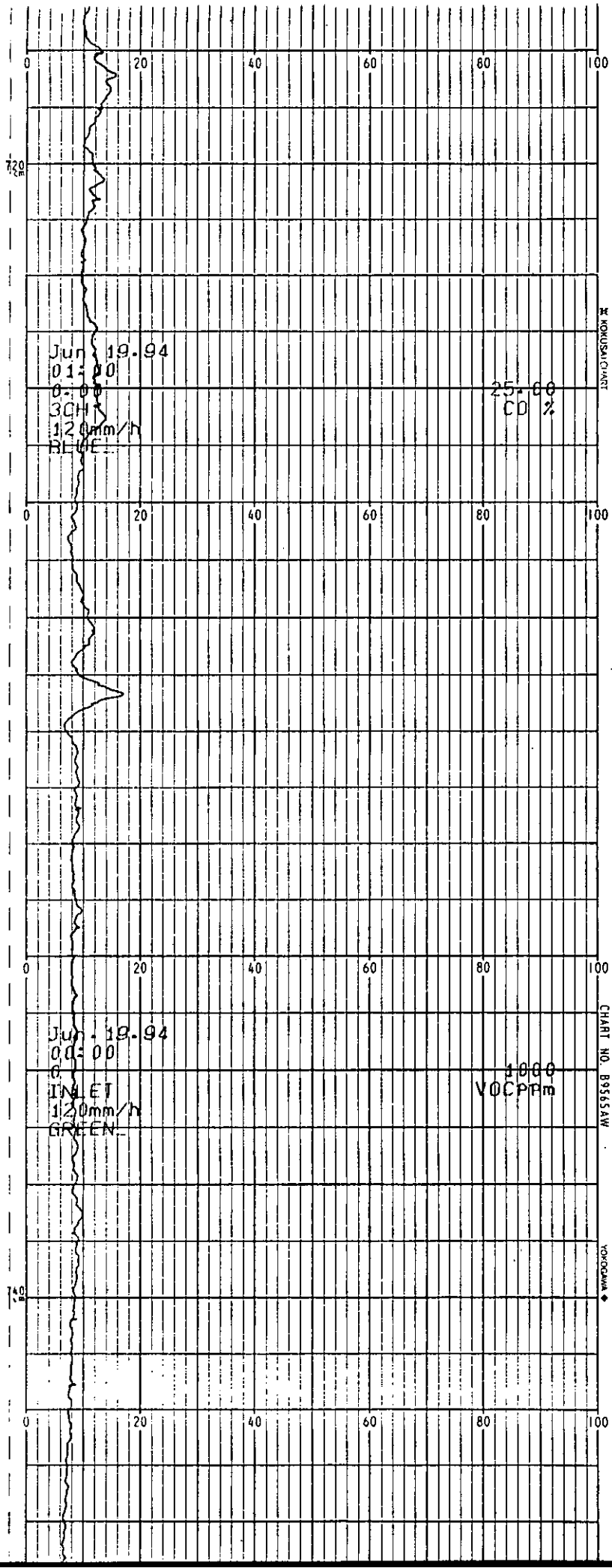

Jun. 18. 94
15:00
INLET
120mm/h
GREEN
START DCS @ 1510
1000
VOCPPm
READ 854
857.2 STD
Change Range 0-1,000 ppm as propane
0
20
40
60
80
100
Change FID RANGE
IN STACK DCS 1420
Jun. 18. 94
14:00
OUTLET
120mm/h
RED
100
VOCPPm
READ 48.2
49.87 BIAS
READ 0.2
START ZERO BIAS
START 29.95 STD
READ 31.6
START 49.87 STD
READ 50.4
READ 86.7
START 86.6 STD
READ 0.4 ppm as propane
START ZERO STD.
LP
FID 0-100 ppm as Propane
06-18-94 DCS Down comer South
01:00
0
100
KOKUSAI CHART
CHART NO. B9565AW
YOKOGAWA

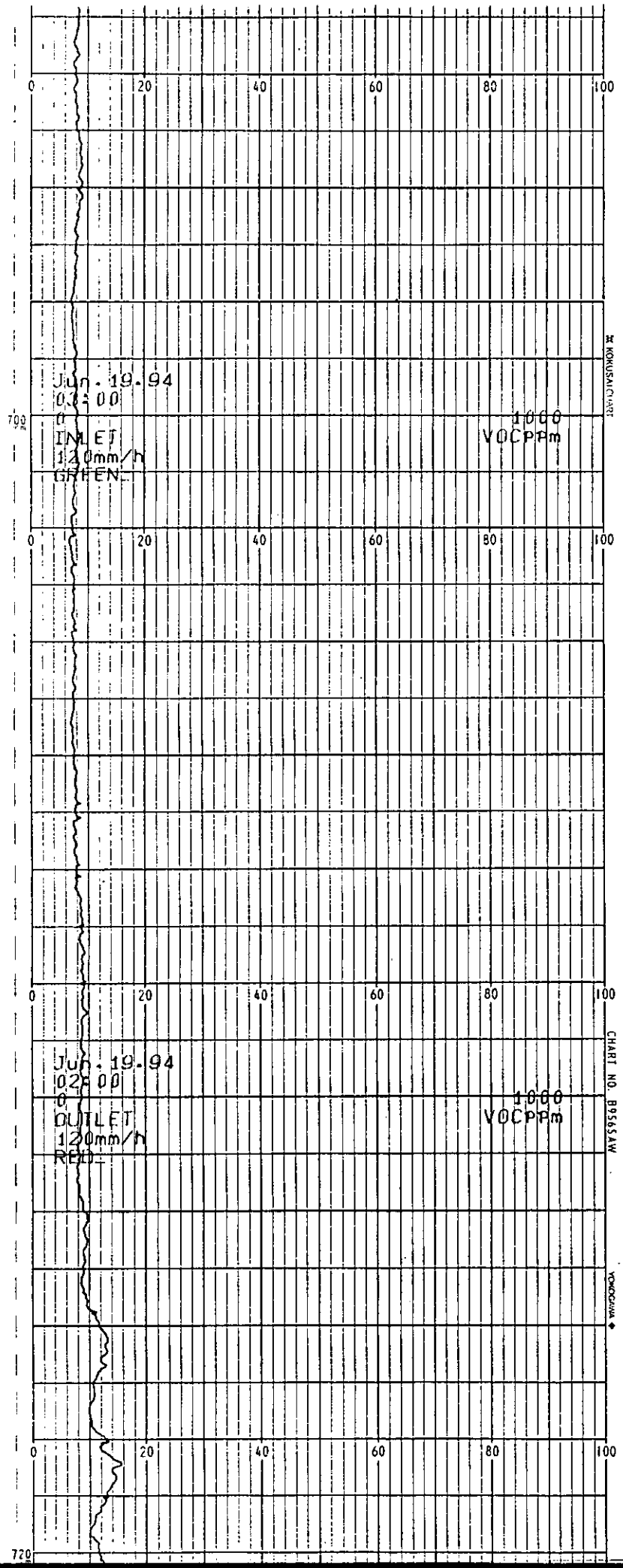

Jun 18-94
17:00
0.
OUTLET
120mm/h
RED
1000
VOCPPm
0
20
40
60
80
100
Jun 18-94
16:00
0.00
3CH
120mm/h
BLUE
25.00
CO %
0
20
40
60
80
100
0
20
40
60
80
100
HOKUSAI
CHART NO. B9565AW
YOKOGAWA

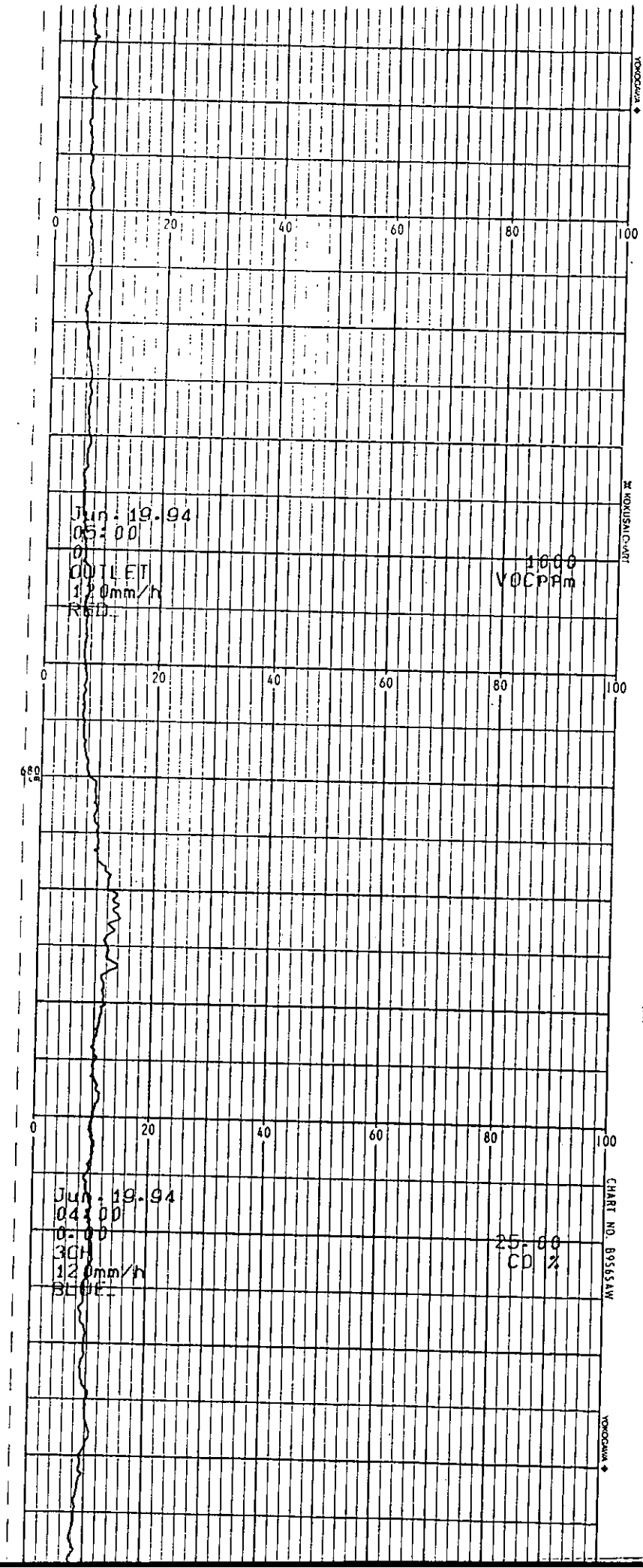

0
20
40
60
80
100
Jun. 18. 94
16:00
0.00
25.00
CO %
3CH
120mm/h
BLUE
800 cm
Downcomer Alarm
DCN
1810 Switch 16 FBN (Inlet)
Jun. 18. 94
18:00
0
1000
VOCPPm
INLET
120mm/h
GREEN
KOKUSAI CHART
CHART NO. 89565AW
YOKOGAWA

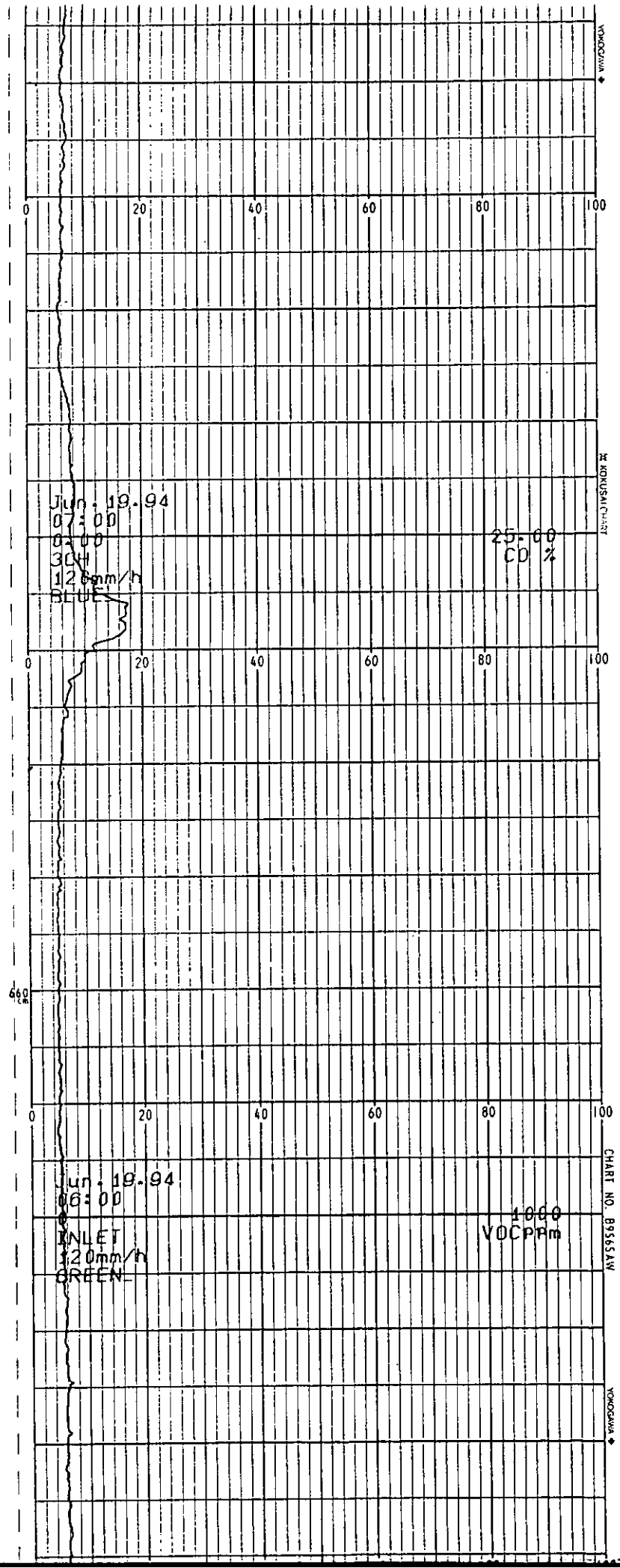

0
20
40
60
80
100
Jun. 18.94
20:00
0
INLET
12mm/h
GREEN
1000
VOCPPm
780
Jun. 18.94
20:00
0
OUTLET
12mm/h
RED
1000
VOCPPm
KOKUSAI CHART
CHART NO. B9565AW
YOKOGAWA

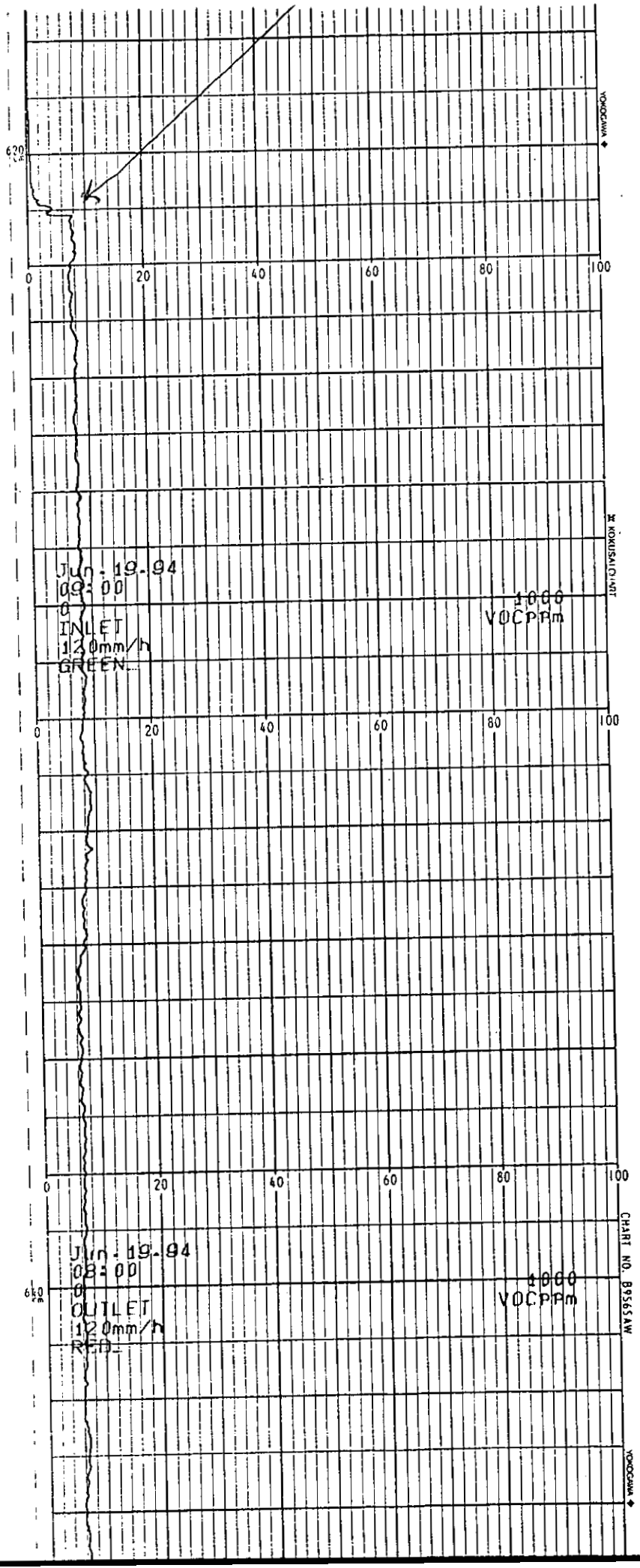

0
20
40
60
80
100
Jun. 18. 94
23:00
0
1000
OUTLET
VOCPPm
120mm/h
RED
IN FBN @ 2215
Jun. 18. 94
22:00
0.00
25.00
CO %
3CH
120mm/h
BLUE
READ 1.0 PPM
ZERO CHECK
SLIGHT Adjust to 858
CAL CHECK → READ 872
END OCN 2140 857.2 STD
KOKUSAI CHART NO. B9565AW
YOKOGAWA

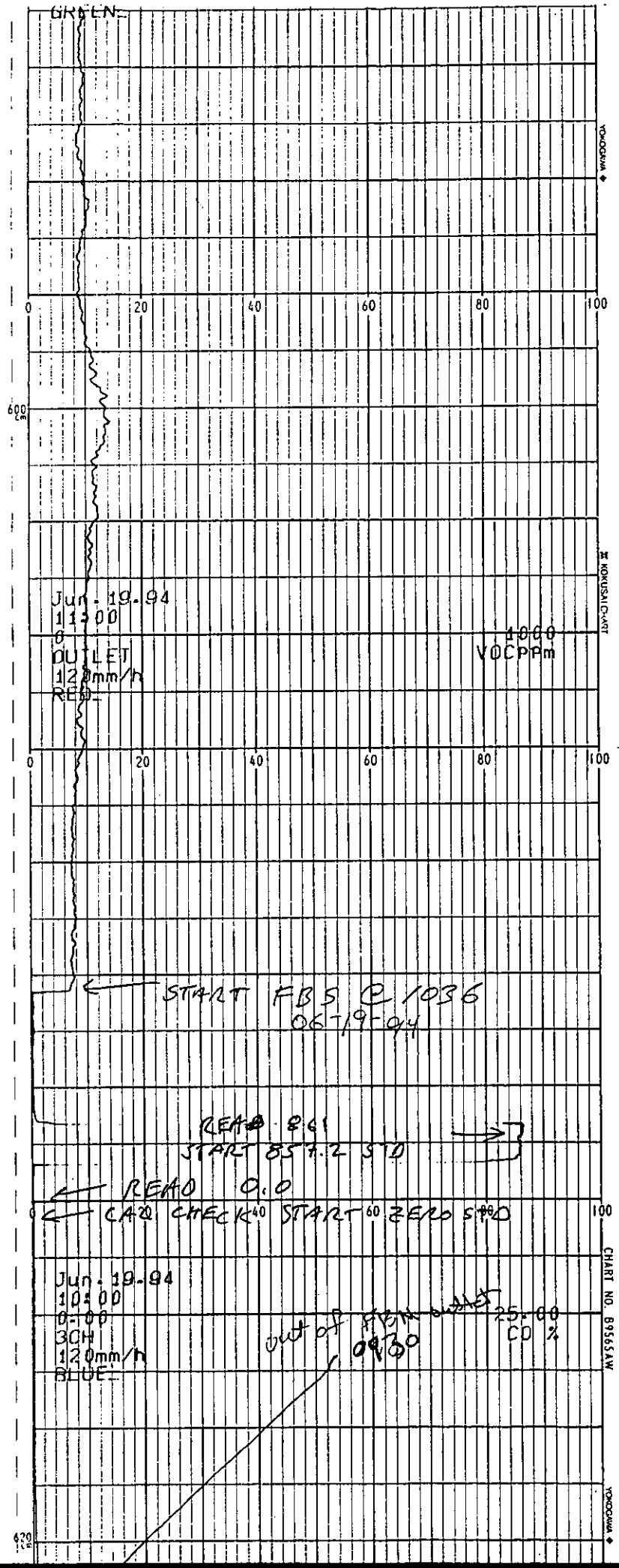

0
20
40
60
80
100
720
Jun 19.94
01:00
0.00
3CH
120mm/h
BLUE
25.00
CO %
KOKUSAI CHART
Jun 19.94
00:00
0.
INLET
120mm/h
GREEN
1000
VOCPPm
CHART NO. B9565AW
YOKOGAWA
740

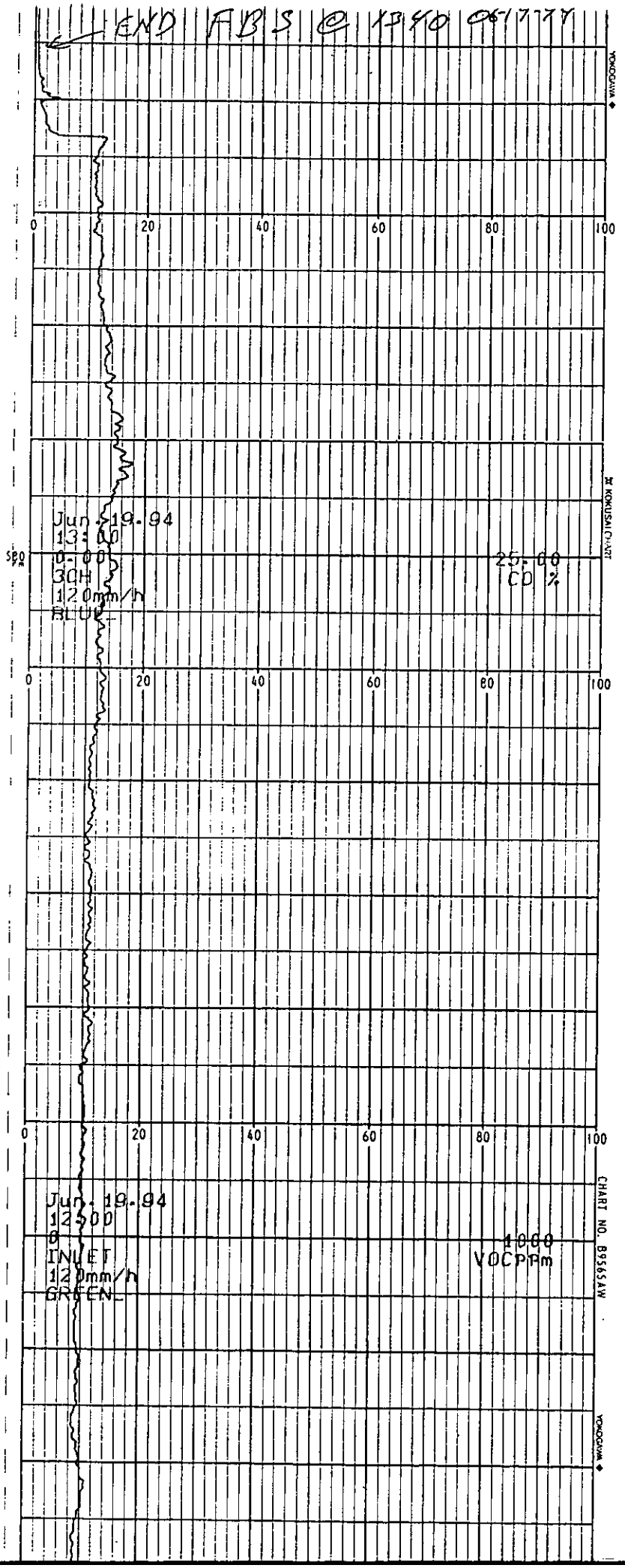

0
20
40
60
80
100
Jun. 19. 94
03:00
0
INLET
120mm/h
GREEN
1000
VOCPPm
700
0
20
40
60
80
100
0
20
40
60
80
100
Jun. 19. 94
02:00
0
OUTLET
120mm/h
RED
1000
VOCPPm
0
20
40
60
80
100
720
KOKUSAI CHART
CHART NO. B9565AW
YOKOGAWA

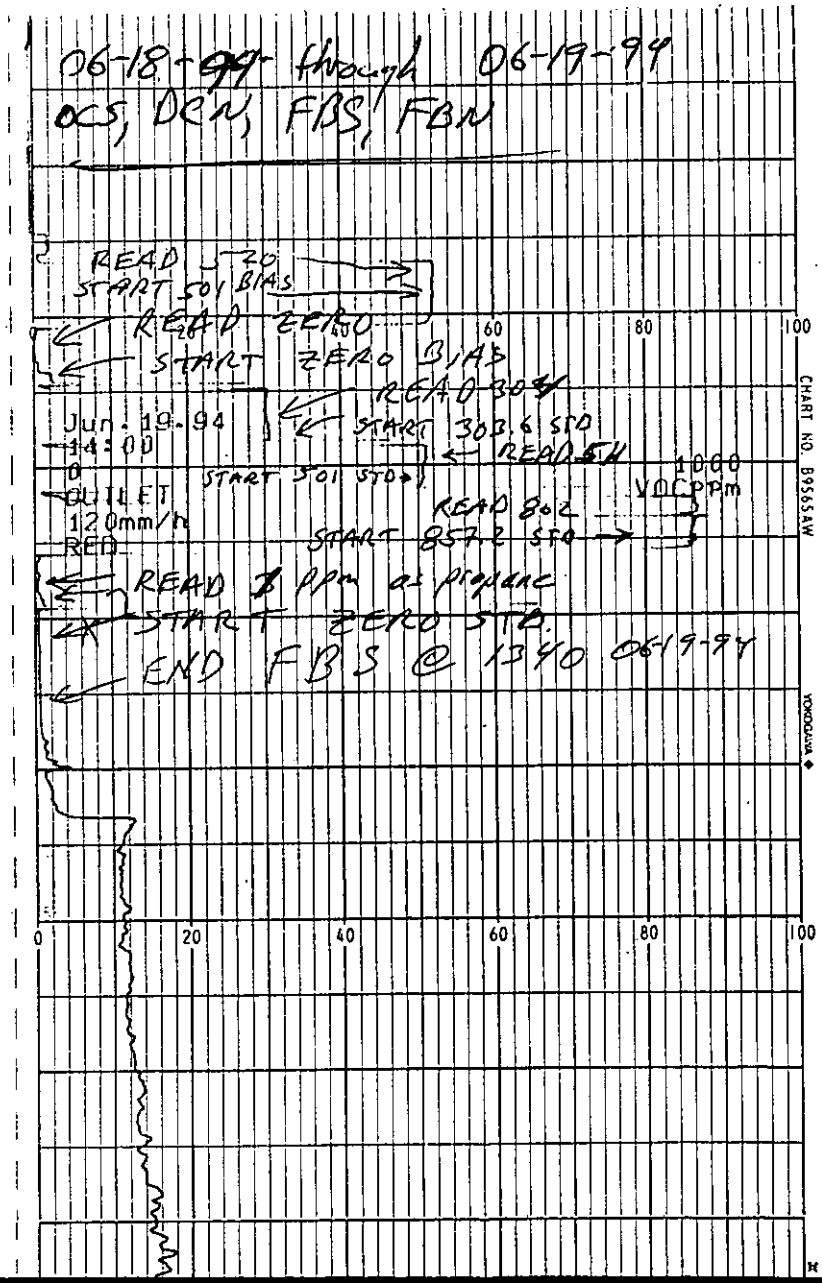

0
20
40
60
80
100
Jun. 19. 94
05:00
0
OUTLET
120mm/h
RED.
1000
VOCPPm
0
20
40
60
80
100
0
20
40
60
80
100
Jun. 19. 94
04:00
0.00
3CH
120mm/h
BLUE.
25.00
CO %
YOKOGAWA
KOKUSAI CHART
CHART NO. B9565AW
YOKOGAWA


YOKOGAWA
0
20
40
60
80
100
Jun. 19. 94
07:00
0.00
304
120mm/h
BLUE
25.00
CO %
KOKUSAI CHART
660
Jun. 19. 94
06:00
0
INLET
120mm/h
GREEN
1000
VOCPPm
CHART NO. B9565AW
YOKOGAWA


YOKOGAWA
0
20
40
60
80
100
Jun. 19. 94
08:00
0
INLET
120mm/h
GREEN
1000
VOCPPm
KOKUSAI CO.,LTD
0
20
40
60
80
100
0
20
40
60
80
100
Jun. 19. 94
08:00
0
OUTLET
120mm/h
RED
1000
VOCPPm
CHART NO. B9565AW
YOKOGAWA


GREEN
0
20
40
60
80
100
600
Jun. 19. 94
11:00
0
OUTLET
120mm/h
RED
1000
VOCPPm
START FBS @ 1036
06-19-94
READ 8.61
START 854.2 STD
READ 0.0
CAL CHECK START ZERO STD
Jun. 19. 94
10:00
0.00
3CH
120mm/h
BLUE
out of stack
0930
25.00
CO %
620
YOKOGAWA
KOKUSAI CHART
CHART NO. 89565AW


END FBIS @ 1740 06/7/77
YOKOGAWA
0
20
40
60
80
100
Jun. 19. 94
13:00
0.00
30H
120mm/h
BLUE
25.00
CO %
KOKUSAI CHART
Jun. 19. 94
12:00
0
INLET
120mm/h
GREEN
1000
VOCPPm
CHART NO. B956SAW
YOKOGAWA


06-18-94 through 06-19-94
OCS, DCN, FBS, FBN
READ -20
START 501 BIAS
READ ZERO
START ZERO BIAS
READ 303
START 303.6 STD
READ 5K
Jun. 19. 94
14:00
START 501 STD
1000
VOC PPM
OUTLET
120mm/h
RED
READ 802
START 857.2 STD
READ % PPM as propane
START ZERO STD.
END FBS @ 1340 06-19-94
0
20
40
60
80
100
CHART NO. B9565AW
YOKOGAWA

APPENDIX B

ANALYTICAL RESULTS

Atmospheric Analysis & Consulting

LABORATORY ANALYSIS REPORT

CLIENT: SEACOR
PROJECT NO: 300-01-109 / D0027-008-01, TASK #LP34
SAMPLING DATE: JUNE 10-19, 1994
ANALYSIS DATE: JUNE 24-28, 1994
REPORT DATE: JULY 5, 1994

RUN #	ACETONE RINSE PARTICULATES MG/SAMPLE	DI WATER RINSE *) PARTICULATES MG/SAMPLE	DI WATER RINSE **) PARTICULATES MG/SAMPLE	FILTERS FILTER ID #	FILTERS PARTICULATES MG/FILTER
CD1-P1	13.1	1.5	15.3	LP-10	0.0
CD1-P2	13.2	1.8	3.1	LP-11	0.0
CD1-P3	13.9	1.4	10.2	LP-12	0.0
CD2-P1	20.6	1.3	1.9	LP-4	0.0
CD2-P2	15.2	0.9	1.4	LP-8	0.0
CD2-P3	11.7	0.8	16.5	LP-9	0.0
CD4-P1	34.5	1.1	34.0	LP-1	9.0
CD4-P2	31.8	0.0	0.0	LP-2	10.3
CD4-P3	29.2	0.7	1.5	LP-3	4.1
CD5-P1	14.1	0.0	17.8	LP-13	0.0
CD5-P2	13.2	0.0	2.2	LP-24	0.2
CD5-P3	3.2	0.3	1.9	LP-25	0.0
RV5-P1	15.5	1.3	1.9	LP-7	0.0
RV5-P2	21.5	0.5	2.7	LP-6	0.0
RV5-P3	16.5	1.7	2.2	LP-5	0.0
DCS-P1	71.0	1.2	4.0	LP-37	46.8
DCS-P2	36.6	1.0	1.9	LP-44	7.0
DCS-P3	51.6	1.3	0.0	LP-45	29.2
RV1-P1	16.8	0.4	5.4	LP-36	0.5
RV1-P2	19.6	0.3	2.6	LP-39	1.6
RV1-P3	13.9	0.4	1.8	LP-38	1.0
RV2-P1	11.5	0.5	5.3	LP-20	0.7
RV2-P2	17.3	1.0	2.0	LP-18	0.1
RV2-P3	15.2	2.7	1.9	LP-21	1.0
RV3-P1	14.6	2.4	2.2	LP-22	0.0
RV3-P2	5.9	0.7	6.0	LP-23	1.1
RV3-P3	11.6	2.0	5.2	LP-16	0.0
FBN-P1	14.2	1.7	4.4	LP-46	0.0
FBN-P2	11.9	1.3	3.0	LP-47	0.1
FBN-P3	16.6	1.5	2.1	LP-48	0.1
DCN-P1	25.6	1.8	2.9	LP-50	16.8
DCN-P2	37.7	1.6	2.2	LP-51	12.2
DCN-P3	46.1	1.5	1.7	LP-49	13.0
RV4-P1	12.6	1.5	1.5	LP-17	0.0
RV4-P2	15.5	0.3	2.2	LP-15	1.0
RV4-P3	25.5	1.9	1.9	LP-14	0.0
FBS-P1	20.1	1.2	2.9	LP-40	0.0
FBS-P2	15.6	0.9	2.5	LP-42	0.9
FBS-P3	14.4	0.0	0.8	LP-41	0.0

NOTE: *) MECL2 EXTRACTABLE PARTICULATES IN AQUEOUS RINSE
**) MECL2 NON-EXTRACTABLE PARTICULATES IN AQUEOUS RINSE

Sucha Parmar
Dr. Sucha Parmar
President

4572 Telephone Rd., Ste. 920 • Ventura, CA 93003 (805) 650-1642 • FAX (805) 650-1644

Atmospheric Analysis & Consulting

LABORATORY ANALYSIS REPORT

CLIENT: SEACOR
PROJECT NO: D0027-008-01/300-01-109
PROJECT MANAGER: JOHN ROSBURG
SAMPLING DATE: JUNE 7-10, 1994
ANALYSIS DATE: JUNE 16, 1994
REPORT DATE: JUNE 20, 1994

FORMALDEHYDE ANALYSIS

SAMPLE ID	FORMALDEHYDE (ug/ml)	MECL2 EXTRACT VOLUME, ml	FORMALDEHYDE (ug/sample)
CD4-F1	15.87	170	2697.81
CD4-F2	33.86	138	4673.73
CD4-F3	49.48	117	5789.11
CD1-F1	6.48	147	953.66
CD1-F2	8.83	177	1562.91
CD1-F3	2.93	164	480.50
RV5-F1	4.68	92	430.56
RV5-F2	10.00	122	1220.00
FORM BLANK-1	0.25	90	22.50
LAB BLANK	< 0.01		

QUALITY ASSURANCE SUMMARY

REPLICATE:

SAMPLE ID	RUN#1 (ug/ml)	RUN#2 (ug/ml)	MEAN (ug/ml)	% DIFF. FROM MEAN
CD4-F1	15.80	15.94	15.87	0.44

MATRIX SPIKE: (Concentration in ug/ml)

SAMPLE ID	EXPERIMENTAL	THEORETICAL	% RECOVERY
RV5-F2	5.28	5.50	104.16

Note: Minimum Detection Limit is 0.02 ug/ml

Dr. Sucha Parmar
President

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Atmospheric Analysis & Consulting

LABORATORY ANALYSIS REPORT

CLIENT: SEACOR
PROJECT NO: D0027-008-01 / 300-01-109
PROJECT MANAGER: JOHN ROSBURG
SAMPLING DATE: JUNE 10-19, 1994
RECEIVING DATE: JUNE 21, 1994
ANALYSIS DATE: JUNE 22, 1994
REPORT DATE: JULY 6, 1994

TOTAL FORMALDEHYDE

SAMPLE ID	FORMALDEHYDE (uG/SAMPLE)	MECL2 EXTRACT VOLUME, mL	FORMALDEHYDE (uG/mL)
RV5-F3	621.2	186	3.34
RV4-F1	596.8	160	3.73
RV4-F2	462.0	140	3.37
RV4-F3	522.6	130	4.02
RV3-F1	27683.3	175	158.19
RV3-F2	24685.2	180	137.14
RV3-F3	25120.2	210	119.62
RV2-F1*)	NA		
RV2-F2	845.0	130	6.50
RV2-F3	13531.5	155	87.30
RV1-F1	2780.4	140	19.86
RV1-F2	3236.4	120	26.97
RV1-F3	3445.2	180	19.14
FORM BLANK-2	43.7	112	0.39
FORM SPIKE-1	541.8	98.5	5.50
FORM BLANK-3	57.0	114	0.50
FBN-F1	12513.8	130	90.68
FBN-F2	14260.0	155	92.10
FBN-F3	13870.0	190	73.00
LAB BLANK	1.4	45	0.03
CD2-F1	1025.2	220	4.66
CD2-F2	811.8	132	6.15
CF2-F3	833.7	210	3.97
CD5-F1	1514.9	133	11.39
CD5-F2	1314.8	173	7.60
CD5-F3	1295.4	127	10.20
DCN-F1	11868.0	230	51.60
DCN-F2	15826.0	205	77.20
DCN-F3	11675.6	202	57.80
DCS-F1	16317.0	185	88.20
DCS-F2	19643.0	260	77.55
DCS-F3	20303.3	165	123.05
FBS-F1	10077.7	184	54.77
FBS-F2	9531.0	150	63.54
FBS-F3	11497.8	95	121.03
FORM BLANK-SG	38.0	100	0.38

NOTE: *) BOTTLE WITH SAMPLE WAS BROKEN UPON RECEIPT.

Sudha Ugarova Sr. chem
Dr. Sucha Parmar
President

4572 Telephone Rd., Ste. 920 • Ventura, CA 93003 (805) 650-1642 • FAX (805) 650-1644

Atmospheric Analysis & Consulting

LABORATORY ANALYSIS REPORT

CLIENT: SEACOR
PROJECT NO: D0027-008-01 / 300-01-109
PROJECT MANAGER: JOHN ROSBERG
SAMPLING DATE: JUNE 10-19, 1994
RECEIVING DATE: JUNE 21, 1994
ANALYSIS DATE: JUNE 22, 1994
REPORT DATE: JULY 6, 1994

TOTAL FORMALDEHYDE

SAMPLE ID	(uG/SAMPLE)
RV5-F3	621.2
RV4-F1	596.8
RV4-F2	462.0
RV4-F3	522.6
RV3-F1	27683.3
RV3-F2	24685.2
RV3-F3	25120.2
RV2-F1*)	NA
RV2-F2	845.0
RV2-F3	13531.5
RV1-F1	2780.4
RV1-F2	3236.4
RV1-F3	3445.2
FORM BLANK-2	43.7
FORM SPIKE-1	541.8
FORM BLANK-3	57.0
FBN-F1	12513.8
FBN-F2	14260.0
FBN-F3	13870.0
LAB BLANK	1.4
CD2-F1	1025.2
CD2-F2	811.8
CF2-F3	833.7
CD5-F1	1514.9
CD5-F2	1314.8
CD5-F3	1295.4
DCN-F1	11868.0
DCN-F2	15826.0
DCN-F3	11675.6
DCS-F1	16317.0
DCS-F2	19643.0
DCS-F3	20303.3
FBS-F1	10077.7
FBS-F2	9531.0
FBS-F3	11497.8
FORM BLANK-SG	38.0

Dr. Sucha Parmar
President

NOTE: *) BOTTLE WITH SAMPLE WAS BROKEN UPON RECEIPT.

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Atmospheric Analysis & Consulting

LABORATORY ANALYSIS REPORT

CLIENT: SEACOR
PROJECT NO: D0027-008-01 / 300-01-109
PROJECT MANAGER: JOHN ROSBERG
SAMPLING DATE: JUNE 10-19, 1994
RECEIVING DATE: JUNE 21, 1994
ANALYSIS DATE: JUNE 22, 1994
REPORT DATE: JULY 6, 1994

QUALITY ASSURANCE SUMMARY

REPLICATE:

SAMPLE ID	RUN#1 (uG/SAMPLE)	RUN#2 (uG/SAMPLE)	MEAN (uG/SAMPLE)	% DIFF. FROM MEAN
RV5-F3	3.40	3.31	3.34	0.90
RV4-F1	3.78	3.68	3.73	1.34
RV4-F2	3.30	3.45	3.37	2.10
RV4-F3	3.95	4.10	4.02	1.74

MATRIX SPIKE:

SAMPLE ID	THEORETICAL (uG/ML)	EXPERIMENTAL (uG/ML)	% RECOVERY
RV5-F3	0.90	0.85	97.37
RV4-F1	1.14	1.05	92.10
FBN-F1	9.27	9.50	102.50
DCS-F1	9.02	9.23	102.32

Dr. Sucha Parmar
President

4572 Telephone Rd., Ste. 920 • Ventura, CA 93003 (805) 650-1642 • FAX (805) 650-1644

Chain-of-Custody Number: A 10575

SEACOR Chain-of-Custody Record

Address
SEACOR
4700 McMurry Dr Ste 108
Fort Collins CO 80525

Project # John Rosburg Task # LP34
Project Manager D0027-008-01
Laboratory AAC
Turn-around time: Normal

Sampler's Name: Ian Faloona
Sampler's Signature: [signature]

Analysis Request

Sample ID	Date	Time	Matrix	TPHg/BTEX 8015 (modified)/8020	TPHd 8015 (modified)	TPH 418.1	Aromatic Volatiles 602/8020	Volatile Organics 624/8240 (GC/MS)	Halogenated Volatiles 601/8010	Semi-volatile Organics 625/8270 (GC/MS)	Pesticides/PCB's 608/8080	Total Lead 7421	Priority Pollutant Metals (13)	TCLP Metals	HPLC for Formaldehyde			Comments/ Instructions	Number of Containers
CD4 - F1	6/7/94		CH_2Cl_2 / HCl												X				1
CD4 - F2	6/7/94		↓												X				1
CD4 - F3	6/8/94		↓												X				1
CD1 - F1	6/9/94		↓												X				1
CD1 - F2	6/9/94		↓												X				1
CD1 - F3	6/10/94		↓												X				1

Special Instructions/Comments:
Analysis as per EPA Method 0011 for formaldehyde.

Relinquished by:
Sign [signature]
Print Ian Faloona
Company SEACOR
Time 15:15 Date 6/10/94

Received by:
Sign [signature]
Print
Company AAC
Time 6-13-94 Date 10:00

Relinquished by:
Sign
Print
Company
Time Date

Received by:
Sign
Print
Company
Time Date

Sample Receipt
Total no. of containers
Chain of custody seals:
Rec'd good condition/cold:
Conforms to record:

Client:
Client Contact:
Client Phone Number:

Date 6 / 10 / 94 Page 1 of 2

Chain-of-Custody Number: A 10576

SEACOR Chain-of-Custody Record

Address: SEACOR
4700 McMurry Dr. Ste 108
Fort Collins CO 80525

Project # D0027-008-01 Task # LP34
Project Manager JOHN ROSBURG
Laboratory AAC
Turn-around time: NORMAL
Sampler's Name: IAN FALOONA
Sampler's Signature: [signature]

Analysis Request

Sample ID	Date	Time	Matrix	TPHg/BTEX 8015 (modified)/8020	TPHd 8015 (modified)	TPH 418.1	Aromatic Volatiles 602/8020	Volatile Organics 624/8240 (GC/MS)	Halogenated Volatiles 601/8010	Semi-volatile Organics 625/8270 (GC/MS)	Pesticides/PCB's 608/8080	Total Lead 7421	Priority Pollutant Metals (13)	TCLP Metals	HPLC for Formaldehyde			Comments/ Instructions	Number of Containers
RV5-F1	6/10/94		CH_2Cl_2 / HCl												X				1
RV5-F2	6/10/94		↓												X				1
FORMBLANK-1	6/10/94		↓												X				1

Special Instructions/Comments:
Analysis for HCHO as per EPA Method 0011.

Relinquished by:
Sign [signature]
Print IAN FALOONA
Company SEACOR
Time 15:20 Date 6/10/94

Received by:
Sign [signature]
Print
Company AAC
Time 10:00 Date 6-13-94

Relinquished by:
Sign
Print
Company
Time Date

Received by:
Sign
Print
Company
Time Date

Sample Receipt
Total no. of containers
Chain of custody seals:
Rec'd good condition/cold:
Conforms to record:

Client:
Client Contact:
Client Phone Number:

Date 6 / 10 / 94 Page 2 of 2

Chain-of-Custody Number: A

SEACOR Chain-of-Custody Record

Address: SEACOR
4700 McMurray Dr Ste 108
Fort Collins, Co 80525

Project # D0027-008-01 Task # LP34
Project Manager John Rosberg
Laboratory AAC
Turn-around time: normal

Sampler's Name: Jeff Marchiori
Sampler's Signature: Jeff Marchiori

Analysis Request

Sample ID	Date	Time	Matrix	TPHg/BTEX 8015 (modified)/8020	TPHd 8015 (modified)	TPH 418.1	Aromatic Volatiles 602/8020	Volatile Organics 624/8240 (GC/MS)	Halogenated Volatiles 601/8010	Semi-volatile Organics 625/8270 (GC/MS)	Pesticides/PCB's 608/8080	Total Lead 7421	Priority Pollutant Metals (13)	TCLP Metals	HPLC Analysis for formaldehyde			Comments/ Instructions	Number of Containers
Formblank-SG ✓	6/19/94		CH_2Cl_2/Air												X				1

Special Instructions/Comments:

Analysis for formaldehyde as per EPA Method 0011.

Please report this sample separately

Relinquished by:
Sign Jeff Marchiori
Print Jeff Marchiori
Company SEACOR
Time 15:00 Date 6/19/94

Received by:
Sign Linda Ingar
Print
Company
Time 10:30 Date 6-21-94

Relinquished by:
Sign
Print
Company
Time Date

Received by:
Sign
Print
Company
Time Date

Sample Receipt
Total no. of containers
Chain of custody seals:
Rec'd good condition/cold:
Conforms to record:

Client:
Client Contact:
Client Phone Number:

Date 6 / 19 / 94 Page 1 of 3

Chain-of-Custody Number: A

SEACOR Chain-of-Custody Record

Address: SEACOR
4700 McMurray Dr Ste 108
Fort Collins, Co 80525

Project # D0027-008-01 Task # LP34
Project Manager John Rosberg
Laboratory AAC
Turn-around time: normal
Sampler's Name: Jeff Marchiorro
Sampler's Signature: Jeff Marchiorro

Analysis Request

Sample ID	Date	Time	Matrix	TPHg/BTEX 8015 (modified)/8020	TPHd 8015 (modified)	TPH 418.1	Aromatic Volatiles 602/8020	Volatile Organics 624/8240 (GC/MS)	Halogenated Volatiles 601/8010	Semi-volatile Organics 625/8270 (GC/MS)	Pesticides/PCB's 608/8080	Total Lead 7421	Priority Pollutant Metals (13)	TCLP Metals	HPLC Analysis for formaldehyde			Comments/ Instructions	Number of Containers
CD2 - F1 ✓	6/13/94		CH_2Cl_2/HCl												X				1
CD2 - F2 ✓	6/13/94		↓												X				1
CD2 - F3 ✓	6/13/94		↓												X				1
CD5 - F1 ✓	6/14/94		↓												X				1
CD5 - F2 ✓	6/14/94		↓												X				1
CD5 - F3 ✓	6/14/94		↓												X				1

Special Instructions/Comments:

Analysis for formaldehyde as per EPA method 0011.

Relinquished by:
Sign Jeff Marchiorro
Print Jeff Marchiorro
Company SEACOR
Time 16:00 Date 6/19/94

Received by:
Sign Leda Ngaro
Print
Company
Time 10:30 Date 6-21-94

Relinquished by:
Sign
Print
Company
Time Date

Received by:
Sign
Print
Company
Time Date

Sample Receipt
Total no. of containers
Chain of custody seals:
Rec'd good condition/cold:
Conforms to record:

Client:
Client Contact:
Client Phone Number:

Chain-of-Custody Number: A

SEACOR Chain-of-Custody Record

Address: SEACOR
4700 McMurry Dr Ste 108
Fort Collins, CO 80525

Project # D0027-008-01 Task # LP34
Project Manager: John Rosberg
Laboratory: ABC
Turn-around time: Normal
Sampler's Name: Jeff Marchioro
Sampler's Signature: Jeff Marchioro

Analysis Request

Sample ID	Date	Time	Matrix	TPHg/BTEX 8015 (modified)/8020	TPHd 8015 (modified)	TPH 418.1	Aromatic Volatiles 602/8020	Volatile Organics 624/8240 (GC/MS)	Halogenated Volatiles 601/8010	Semi-volatile Organics 625/8270 (GC/MS)	Pesticides/PCB's 608/8080	Total Lead 7421	Priority Pollutant Metals (13)	TCLP Metals	HPLC for Formaldehyde			Comments/ Instructions	Number of Containers
RV5-F3 ✓	6/10/94		~~CH_2Cl_2 / Air~~												X				1
RV4-F1 ✓	6/11/94		↓												X				1
RV4-F2 ✓	6/13/94														X				1
RV4-F3 ✓	6/13/94														X				1
RV3-F1 ✓	6/13/94														X				1
RV3-F2 ✓	6/13/94														X				1
RV3-F3 ✓	6/13/94														X				1
RV2-F1 —	6/14/94														X			Broken bottle	1
RV2-F2 ✓	6/14/94														X				1
RV2-F3 ✓	6/14/94		↓												X				1

Special Instructions/Comments:

Analysis as per EPA Method 0011 for formaldehyde

Relinquished by:
Sign: Jeff Marchioro
Print: Jeff Marchioro
Company: SEACOR
Time: 16:00 Date: 6/14/94

Received by:
Sign: Linda Ryan
Print:
Company:
Time: 10:30 Date: 6-21-94

Relinquished by:
Sign:
Print:
Company:
Time: Date:

Received by:
Sign:
Print:
Company:
Time: Date:

Sample Receipt
Total no. of containers:
Chain of custody seals:
Rec'd good condition/cold:
Conforms to record:

Client:
Client Contact:
Client Phone Number:

Date 6 / 19 / 94 Page 3 of 3

Chain-of-Custody Number: A 10552

SEACOR Chain-of-Custody Record

Address
SEACOR
4700 McMurry Dr Ste 108
Fort Collins, Co 80525

Project # D0027-008-01 Task # LP34
Project Manager John Rosberg
Laboratory AAC
Turn-around time: Normal
Sampler's Name: Jeff Marchioro
Sampler's Signature: Jeff Marchioro

Analysis Request

Sample ID	Date	Time	Matrix	TPHg/BTEX 8015 (modified)/8020	TPHd 8015 (modified)	TPH 418.1	Aromatic Volatiles 602/8020	Volatile Organics 624/8240 (GC/MS)	Halogenated Volatiles 601/8010	Semi-volatile Organics 625/8270 (GC/MS)	Pesticides/PCB's 608/8080	Total Lead 7421	Priority Pollutant Metals (13)	TCLP Metals	HPLC Analysis for formaldehyde			Comments/ Instructions	Number of Containers
DCN - F1 ✓	6/18/94		CH_2Cl_2/HCl												X				1
DCN - F2 ✓	6/18/94														X				1
DCN - F3 ✓	6/19/94														X				1
DCS - F1 ✓	6/17/94														X				1
DCS - F2 ✓	6/17/94														X				1
DCS - F3 ✓	6/18/94														X				1
FBS - F1 ✓	6/17/94														X				1
FBS - F2 ✓	6/17/94														X				1
FBS - F3 ✓	6/17/94														X				1
	6/17/94																		

Special Instructions/Comments:

Analysis as per EPA method 0011 for formaldehyde

Relinquished by:
Sign Jeff Marchioro
Print Jeff Marchioro
Company SEACOR
Time 16:00 Date 6/19/94

Received by:
Sign Linda Ingram
Print
Company
Time 10:30 Date 6-21-94

Relinquished by:
Sign
Print
Company
Time Date

Received by:
Sign
Print
Company
Time Date

Sample Receipt
Total no. of containers
Chain of custody seals:
Rec'd good condition/cold:
Conforms to record:

Client:
Client Contact:
Client Phone Number:

Date 6 / 19 / 94 Page 1 of 2

Chain-of-Custody Number: A

SEACOR Chain-of-Custody Record

Address: SEACOR
4700 McMurry Dr Ste 108
Fort Collins, Co 80525

Project # D0027-008-01 Task # LP34
Project Manager John Rosberg
Laboratory AAC
Turn-around time: Normal
Sampler's Name: Jeff Marchiore
Sampler's Signature: Jeff Marchiore

Analysis Request

Sample ID	Date	Time	Matrix	TPHg/BTEX 8015 (modified)/8020	TPHd 8015 (modified)	TPH 418.1	Aromatic Volatiles 602/8020	Volatile Organics 624/8240 (GC/MS)	Halogenated Volatiles 601/8010	Semi-volatile Organics 625/8270 (GC/MS)	Pesticides/PCB's 608/8080	Total Lead 7421	Priority Pollutant Metals (13)	TCLP Metals	HPLC analysis for formaldehyde			Comments/ Instructions	Number of Containers
RV1 - F1 ✓	6/15/94		CH_2Cl_2/HCl												X				1
RV1 - F2 ✓	6/15/94		↓												X				1
RV1 - F3 ✓	6/15/94		↓												X				1
Form blank-2 ✓	6/16/94		↓												X				1
Form spike-1 ✓			↓												X				1
Form blank-3 ✓	6/19/94		↓												X				1
FBN - F1 ✓	6/18/94		↓												X				1
FBN - F2 ✓	6/18/94		↓												X				1
FBN - F3 ✓	6/18/94		↓												X				1

Special Instructions/Comments:

Analysis as per EPA Method 0011 for formaldehyde

Relinquished by:
Sign Jeff Marchiore
Print Jeff Marchiore
Company SEACOR
Time 16:00 Date 6/19/94

Received by: Lida Ugarave
Sign
Print
Company
Time 10:30 Date 6-21-94

Relinquished by:
Sign
Print
Company
Time Date

Received by:
Sign
Print
Company
Time Date

Sample Receipt
Total no. of containers
Chain of custody seals:
Rec'd good condition/cold:
Conforms to record:

Client:
Client Contact:
Client Phone Number:

Date 6 / 19 / 94 Page 2 of 2

Chain-of-Custody Number: A

SEACOR Chain-of-Custody Record

Address
SEACOR
4700 McMurray Dr, Ste 108
Ft. Collins, CO 80525

Project # _____ Task # _____
Project Manager _____
Laboratory _____
Turn-around time: _____

Sampler's Name: _____
Sampler's Signature: _____

Analysis Request

	Sample ID	Date	Time	Matrix	TPHg/BTEX 8015 (modified)/8020	TPHd 8015 (modified)	TPH 418.1	Aromatic Volatiles 602/8020	Volatile Organics 624/8240 (GC/MS)	Halogenated Volatiles 601/8010	Semi-volatile Organics 625/8270 (GC/MS)	Pesticides/PCB's 608/8080	Total Lead 7421	Priority Pollutant Metals (13)	TCLP Metals	EPA RM-5			Comments/ Instructions	Number of Containers
✓	FBS-P1			Filter												X			Gravimetric Analysis	
✓	" -P2			"												X			" "	
✓	" -P3			"												X			" "	
																~~X~~				
																~~X~~				
																~~X~~				
																~~X~~				
																~~X~~				

Special Instructions/Comments:

Relinquished by:
Sign _____
Print _____
Company _____
Time _____ Date _____

Received by: Luda
Sign _____
Print _____
Company _____
Time _____ Date 6-21-94

Relinquished by:
Sign _____
Print _____
Company _____
Time _____ Date _____

Received by:
Sign _____
Print _____
Company _____
Time _____ Date _____

Sample Receipt

Total no. of containers
Chain of custody seals:
Rec'd good condition/cold:
Conforms to record:

Client: _____
Client Contact: _____
Client Phone Number: _____

Date ___ / ___ / ___ Page ___ of ___

Chain-of-Custody Number: A

SEACOR Chain-of-Custody Record

Address: SEACOR
4700 Mc Murry Dr. Ste 108
Ft. Collins, CO 80525

Project # D0027-008-01 Task # LP34
Project Manager JOHN ROSBURG
Laboratory AAC
Turn-around time: Normal
Sampler's Name: BRANT PORMAN
Sampler's Signature:

Analysis Request

Sample ID	Date	Time	Matrix	TPHg/BTEX 8015 (modified)/8020	TPHd 8015 (modified)	TPH 418.1	Aromatic Volatiles 602/8020	Volatile Organics 624/8240 (GC/MS)	Halogenated Volatiles 601/8010	Semi-volatile Organics 625/8270 (GC/MS)	Pesticides/PCB's 608/8080	Total Lead 7421	Priority Pollutant Metals (13)	TCLP Metals	EPA RM-5			Comments/ Instructions	Number of Containers
FBN-P1			Filter												X			Gravametric Analysis	1
" -P2			"												X			" "	1
" -P3			"												X			" "	1
DCN-P1			"												X			" "	1
" -P2			"												X			" "	1
" -P3			"												X			" "	1
RV4-P1			"												X			" "	1
" -P2			"												X			" "	1
" -P3			"												X			" "	1

Special Instructions/Comments:

Relinquished by:
Sign
Print BRANT PORMAN
Company SEACOR
Time Date 6/19/94

Received by:
Sign
Print
Company
Time Date 6-21-94

Relinquished by:
Sign
Print
Company
Time Date

Received by:
Sign
Print
Company
Time Date

Sample Receipt

Total no. of containers
Chain of custody seals:
Rec'd good condition/cold:
Conforms to record:

Client:
Client Contact:
Client Phone Number:

Date ___ / ___ / ___ Page ___ of ___

Chain-of-Custody Number: A

SEACOR Chain-of-Custody Record

Address: SEACOR
4700 McMurray Dr, Ste 108
Ft Collins, CO 80525

Project # 00027-0091-01 Task # LP34
Project Manager JOHN ROSBURG
Laboratory AAC
Turn-around time: Normal
Sampler's Name: BRANT DORMAN
Sampler's Signature:

Analysis Request

Sample ID	Date	Time	Matrix	TPHg/BTEX 8015 (modified)/8020	TPHd 8015 (modified)	TPH 418.1	Aromatic Volatiles 602/8020	Volatile Organics 624/8240 (GC/MS)	Halogenated Volatiles 601/8010	Semi-volatile Organics 625/8270 (GC/MS)	Pesticides/PCB's 608/8080	Total Lead 7421	Priority Pollutant Metals (13)	TCLP Metals	EPA RM-5			Comments/ Instructions	Number of Containers
CD1-P1			Filter												X			Gravimetric Analysis	1
" -P2			"												X			" "	1
" -P3			"												X			" "	1
CD2-P1			"												X			" "	1
" -P2			"												X			" "	1
" -P3			"												X			" "	1
CD4-P1			"												X			" "	1
" -P2			"												X			" "	1
" -P3			"												X			" "	1

Special Instructions/Comments:

Relinquished by:
Sign
Print BRANT DORMAN
Company SEACOR
Time Date 6/19/94

Received by:
Sign
Print
Company
Time Date 6-21-94

Relinquished by:
Sign
Print
Company
Time Date

Received by:
Sign
Print
Company
Time Date

Sample Receipt

Total no. of containers
Chain of custody seals:
Rec'd good condition/cold:
Conforms to record:

Client:
Client Contact:
Client Phone Number:

Date ___ / ___ / ___ Page ___ of ___

Chain-of-Custody Number: A

SEACOR Chain-of-Custody Record

Address: SEACOR
4700 McMurray Dr, Ste 108
FT. COLLINS, CO 80525

Project # P0027-008-01 Task # LP34
Project Manager JOHN ROSBURG
Laboratory AAC
Turn-around time: Normal

Sampler's Name: BRANT DORMAN
Sampler's Signature: [signature]

Analysis Request

Sample ID	Date	Time	Matrix	TPHg/BTEX 8015 (modified)/8020	TPHd 8015 (modified)	TPH 418.1	Aromatic Volatiles 602/8020	Volatile Organics 624/8240 (GC/MS)	Halogenated Volatiles 601/8010	Semi-volatile Organics 625/8270 (GC/MS)	Pesticides/PCB's 608/8080	Total Lead 7421	Priority Pollutant Metals (13)	TCLP Metals	EPA RM-5			Comments/ Instructions	Number of Containers
CD5-P1			Filter												X			Gravimetric Analysis	1
" -P2			"												X			" "	1
" -P3			"												X			" "	1
RV5-P1			"												X			" "	1
" -P2			"												X			" "	1
" -P3			"												X			" "	1
DCS-P1			"												X			" "	1
" -P2			"												X			" "	1
" -P3			"												X			" "	1

Special Instructions/Comments:

Relinquished by:
Sign [signature]
Print BRANT DORMAN
Company SEACOR
Time _____ Date 6/19/94

Received by:
Sign [signature]
Print
Company
Time _____ Date 6-21-94

Relinquished by:
Sign
Print
Company
Time _____ Date _____

Received by:
Sign
Print
Company
Time _____ Date _____

Sample Receipt
Total no. of containers
Chain of custody seals:
Rec'd good condition/cold:
Conforms to record:

Client:
Client Contact:
Client Phone Number:

Date ___ / ___ / ___ Page ___ of ___

Chain-of-Custody Number: A

SEACOR Chain-of-Custody Record

Address
SEACOR
4700 McMurray Dr, Ste 108
FT. COLLINS, CO 80525

Project # D0027-008-01 Task # LP34
Project Manager JOHN ROSBORG
Laboratory AAC
Turn-around time: NORMAL

Sampler's Name: BRANT DORMAN
Sampler's Signature:

Analysis Request

	Sample ID	Date	Time	Matrix	TPHg/BTEX 8015 (modified)/8020	TPHd 8015 (modified)	TPH 418.1	Aromatic Volatiles 602/8020	Volatile Organics 624/8240 (GC/MS)	Halogenated Volatiles 601/8010	Semi-volatile Organics 625/8270 (GC/MS)	Pesticides/PCB's 608/8080	Total Lead 7421	Priority Pollutant Metals (13)	TCLP Metals	EPA RM-5			Comments/ Instructions	Number of Containers
✓	RV1 - P1			Filter												X			Gravimetric Analysis	1
✓	" - P2			"												X			" "	1
✓	" - P3			"												X			" "	1
✓	RV2 - P1			"												X			" "	1
✓	" - P2			"												X			" "	1
✓	" - P3			"												X			" "	1
✓	RV3 - P1			"												X			" "	1
✓	" - P2			"												X			" "	1
✓	" - P3			"												X			" "	1

Special Instructions/Comments:

Relinquished by:
Sign
Print BRANT DORMAN
Company SEACOR
Time Date 6/19/94

Received by:
Sign
Print
Company
Time Date 6-21-94

Relinquished by:
Sign
Print
Company
Time Date

Received by:
Sign
Print
Company
Time Date

Sample Receipt

Total no. of containers
Chain of custody seals:
Rec'd good condition/cold:
Conforms to record:

Client:
Client Contact:
Client Phone Number:

Date ___ / ___ / ___ Page ___ of ___

Chain-of-Custody Number: A

SEACOR Chain-of-Custody Record

Address: SEACOR
4700 McMurray Dr. Ste 108
FT. COLLINS, CO 80525

Project # D0027-008-01 Task # LP34
Project Manager JOHN ROSBURG
Laboratory AAC
Turn-around time: NORMAL

Sampler's Name: BRANT DORMAN
Sampler's Signature:

Analysis Request

	Sample ID	Date	Time	Matrix	TPHg/BTEX 8015 (modified)/8020	TPHd 8015 (modified)	TPH 418.1	Aromatic Volatiles 602/8020	Volatile Organics 624/8240 (GC/MS)	Halogenated Volatiles 601/8010	Semi-volatile Organics 625/8270 (GC/MS)	Pesticides/PCB's 608/8080	Total Lead 7421	Priority Pollutant Metals (13)	TCLP Metals	EPA-RM 202			Comments/ Instructions	Number of Containers
✓	CD1-P1- FRONT 1/2			Acetone												X			Extraction/Gravimetric Analysis	1
✓	" -P2 "			"												X			" "	1
✓	" -P3 "			"												X			" "	1
✓	CD2-P1 "			"												X			" "	1
✓	" -P2 "			"												X			" "	1
✓	" -P3 "			"												X			" "	1
✓	CD4-P1 "			"												X			" "	1
✓	" -P2 "			"												X			" "	1
✓	" -P3 "			"												X			" "	1

Special Instructions/Comments:

Relinquished by:
Sign
Print BRANT DORMAN
Company SEACOR
Time Date 6/19/94

Received by:
Sign
Print
Company
Time Date 6-21-94

Relinquished by:
Sign
Print
Company
Time Date

Received by:
Sign
Print
Company
Time Date

Sample Receipt

Total no. of containers
Chain of custody seals:
Rec'd good condition/cold:
Conforms to record:

Client:
Client Contact:
Client Phone Number:

Date ___ / ___ / ___ Page ___ of ___

Chain-of-Custody Number: A

SEACOR Chain-of-Custody Record

Address: SEACOR
4700 McMurray Dr. Ste 108
FT. COLLINS, CO 80525

Project # D0027-008-01 Task # LP34
Project Manager JOHN ROSBURG
Laboratory AAC
Turn-around time: NORMAL
Sampler's Name: BRANT DORMAN
Sampler's Signature:

Analysis Request

	Sample ID	Date	Time	Matrix	TPHg/BTEX 8015 (modified)/8020	TPHd 8015 (modified)	TPH 418.1	Aromatic Volatiles 602/8020	Volatile Organics 624/8240 (GC/MS)	Halogenated Volatiles 601/8010	Semi-volatile Organics 625/8270 (GC/MS)	Pesticides/PCB's 608/8080	Total Lead 7421	Priority Pollutant Metals (13)	TCLP Metals	EPA-RM202			Comments/ Instructions	Number of Containers
✓	CD5-P1-FRONT ½			Acetone												X			Extraction / Gravimetric Analysis	1
✓	-P2 "			"												X			" "	1
✓	-P3 "			"												X			" "	1
✓	RV5-P1 "			"												X			" "	1
✓	-P2 "			"												X			" "	1
✓	-P3 "			"												X			" "	1
✓	DCS-P1 "			"												X			" "	1
✓	-P2 "			"												X			" "	1
✓	-P3 "			"												X			" "	1

Special Instructions/Comments:

Relinquished by:
Sign
Print BRANT DORMAN
Company SEACOR
Time Date 6/19/94

Received by:
Sign
Print
Company
Time Date 6-21-94

Relinquished by:
Sign
Print
Company
Time Date

Received by:
Sign
Print
Company
Time Date

Sample Receipt

Total no. of containers
Chain of custody seals:
Rec'd good condition/cold:
Conforms to record:

Client:
Client Contact:
Client Phone Number:

Date ___ / ___ / ___ Page ___ of ___

Chain-of-Custody Number: A

SEACOR Chain-of-Custody Record

Address: SEACOR
4700 McMurray Dr, Ste 108
Ft. Collins, CO 80525

Project # 20027-008-01 Task # LP34
Project Manager JOHN ROSBURG
Laboratory AAC
Turn-around time: Normal
Sampler's Name: BRANT DORMAN
Sampler's Signature:

Analysis Request

Sample ID	Date	Time	Matrix	TPHg/BTEX 8015 (modified)/8020	TPHd 8015 (modified)	TPH 418.1	Aromatic Volatiles 602/8020	Volatile Organics 624/8240 (GC/MS)	Halogenated Volatiles 601/8010	Semi-volatile Organics 625/8270 (GC/MS)	Pesticides/PCB's 608/8080	Total Lead 7421	Priority Pollutant Metals (13)	TCLP Metals	EPA RM 202			Comments/ Instructions	Number of Containers
RV1-P1-FRONTY2			Acetone												X			Extraction / Gravimetric Analysis	1
" -P2 "			"												X			" "	1
" -P3 "			"												X			" "	1
RV2-P1 "			"												X			" "	1
" -P2 "			"												X			" "	1
" -P3 "			"												X			" "	1
RV3-P1 - "			"												X			" "	1
" -P2 "			"												X			" "	1
" -P3 "			"												X			" "	1

Special Instructions/Comments:

Relinquished by:
Sign
Print BRANT DORMAN
Company SEACOR
Time Date 6/19/94

Received by:
Sign
Print
Company
Time Date 6-21-94

Relinquished by:
Sign
Print
Company
Time Date

Received by:
Sign
Print
Company
Time Date

Sample Receipt

Total no. of containers
Chain of custody seals:
Rec'd good condition/cold:
Conforms to record:

Client:
Client Contact:
Client Phone Number:

Date ___ / ___ / ___ Page ___ of ___

Chain-of-Custody Number: A

SEACOR Chain-of-Custody Record

Address: SEACOR
4700 McMurry Dr. Ste 108
Ft. Collins, Co 80525

Project # D0027-008-01 Task # LP34
Project Manager: JOHN ROSBURG
Laboratory: AAC
Turn-around time: NORMAL

Sampler's Name: BRANT DORMAN
Sampler's Signature: [signature]

Analysis Request

Sample ID	Date	Time	Matrix	TPHg/BTEX 8015 (modified)/8020	TPHd 8015 (modified)	TPH 418.1	Aromatic Volatiles 602/8020	Volatile Organics 624/8240 (GC/MS)	Halogenated Volatiles 601/8010	Semi-volatile Organics 625/8270 (GC/MS)	Pesticides/PCB's 608/8080	Total Lead 7421	Priority Pollutant Metals (13)	TCLP Metals	EPA RM-5			Comments/ Instructions	Number of Containers
FBN - P1-FRONT½			Acetone												X			Gravametric Analysis	1
FBN - P2 "			"												X			" "	1
- P3 "			"												X			" "	1
DCN - P1 "			"												X			" "	1
- P2 "			"												X			" "	1
- P3 "			"												X			" "	1
RV4 - P1 "			"												X			" "	1
- P2 "			"												X			" "	1
- P3 "			"												X			" "	1

Special Instructions/Comments:

Relinquished by:
Sign [signature]
Print BRANT DORMAN
Company SEACOR
Time _____ Date 6/19/94

Received by:
Sign [signature]
Print
Company
Time 10:30 Date 6-21-94

Relinquished by:
Sign
Print
Company
Time _____ Date _____

Received by:
Sign
Print
Company
Time _____ Date _____

Sample Receipt
Total no. of containers
Chain of custody seals:
Rec'd good condition/cold:
Conforms to record:

Client:
Client Contact:
Client Phone Number:

Date ___ / ___ / ___ Page ___ of ___

Chain-of-Custody Number: A

SEACOR Chain-of-Custody Record

Address
SEACOR
4700 Mc Murray Dr, Ste 108
FT. COLLINS, CO 80525

Project # D0027-008-01 Task # LP34
Project Manager JOHN ROSBURG
Laboratory AAC
Turn-around time: Normal

Sampler's Name: BRANT DORMAN
Sampler's Signature:

Analysis Request

Sample ID	Date	Time	Matrix	TPHg/BTEX 8015 (modified)/8020	TPHd 8015 (modified)	TPH 418.1	Aromatic Volatiles 602/8020	Volatile Organics 624/8240 (GC/MS)	Halogenated Volatiles 601/8010	Semi-volatile Organics 625/8270 (GC/MS)	Pesticides/PCB's 608/8080	Total Lead 7421	Priority Pollutant Metals (13)	TCLP Metals	EPA RM-5			Comments/ Instructions	Number of Containers
FBS-P1-FRONT½			Acetone												X			Gravimetric Analysis	1
" -P2 "			"												X			" "	1
" -P3 "			"												X			" "	1

Special Instructions/Comments:

Relinquished by:
Sign
Print BRANT DORMAN
Company SEACOR
Time Date 6/19/94

Received by:
Sign
Print
Company
Time 10:30 Date 6-21-94

Relinquished by:
Sign
Print
Company
Time Date

Received by:
Sign
Print
Company
Time Date

Sample Receipt
Total no. of containers
Chain of custody seals:
Rec'd good condition/cold:
Conforms to record:

Client:
Client Contact:
Client Phone Number:

Date ___ / ___ / ___ Page ___ of ___

Chain-of-Custody Number: A

SEACOR Chain-of-Custody Record

Address: SEACOR
4700 McMurry Dr. Ste 108
Ft. Collins, CO 80525

Project # 00027-008-01 Task # LP34
Project Manager: JOHN ROSBURG
Laboratory: AAC
Turn-around time: NORMAL
Sampler's Name: BRANT DORMAN
Sampler's Signature:

Analysis Request

	Sample ID	Date	Time	Matrix	TPHg/BTEX 8015 (modified)/8020	TPHd 8015 (modified)	TPH 418.1	Aromatic Volatiles 602/8020	Volatile Organics 624/8240 (GC/MS)	Halogenated Volatiles 601/8010	Semi-volatile Organics 625/8270 (GC/MS)	Pesticides/PCB's 608/8080	Total Lead 7421	Priority Pollutant Metals (13)	TCLP Metals	EPA RM-5			Comments/ Instructions	Number of Containers
✓	CD1-P1 - BACK 1/2			DI H2O												X			Gravimetric Analysis	1
✓	CD1-P2 - "			"												X			" "	1
✓	" -P3 - "			"												X			" "	1
✓	CD2-P1 - "			"												X			" "	1
✓	CD2-P2 "			"												X			" "	1
✓	-P3 "			"												X			" "	1
✓	CD4-P1 "			"												X			" "	1
✓	-P2 "			"												X			" "	1
✓	-P3 "			"												X			" "	1

Special Instructions/Comments:

Relinquished by:
Sign
Print BRANT DORMAN
Company SEACOR
Time Date 6/19/94

Received by: Suda Ngarove
Sign
Print
Company
Time 10:30 Date 6-21-94

Relinquished by:
Sign
Print
Company
Time Date

Received by:
Sign
Print
Company
Time Date

Sample Receipt
Total no. of containers
Chain of custody seals:
Rec'd good condition/cold:
Conforms to record:

Client:
Client Contact:
Client Phone Number:

Date ___ / ___ / ___ Page ___ of ___

Chain-of-Custody Number: A

SEACOR Chain-of-Custody Record

Address
SEACOR
4700 McMurry Dr. Ste 108
Ft. Collins, Co 80525

Project # D0027-008-01 Task # LP34
Project Manager John Rosberg
Laboratory AAC
Turn-around time: Normal

Sampler's Name: BRANT DORMAN
Sampler's Signature: [signature]

Analysis Request

Sample ID	Date	Time	Matrix	TPHg/BTEX 8015 (modified)/8020	TPHd 8015 (modified)	TPH 418.1	Aromatic Volatiles 602/8020	Volatile Organics 624/8240 (GC/MS)	Halogenated Volatiles 601/8010	Semi-volatile Organics 625/8270 (GC/MS)	Pesticides/PCB's 608/8080	Total Lead 7421	Priority Pollutant Metals (13)	TCLP Metals	EPA RM-202			Comments/ Instructions	Number of Containers
FBN - P1 - BACK ½			DI H_2O												x			Extraction / Gravametric Analysis	1
" - P2 "			"												X			" "	1
- P3 "			"												X			" "	1
DCN - P1 "			"												X			" "	1
" - P2 "			"												X			" "	1
" - P3 "			"												X			" "	1
RV4 - P1 "			"												X			" "	1
" - P2 "			"												X			" "	1
" - P3 "			"												X			" "	1

Special Instructions/Comments:

Relinquished by:
Sign [signature]
Print BRANT DORMAN
Company SEACOR
Time _____ Date 6/19/94

Received by:
Sign [signature]
Print _____
Company _____
Time _____ Date 6-21-94

Relinquished by:
Sign _____
Print _____
Company _____
Time _____ Date _____

Received by:
Sign _____
Print _____
Company _____
Time _____ Date _____

Sample Receipt
Total no. of containers
Chain of custody seals:
Rec'd good condition/cold:
Conforms to record:

Client:
Client Contact:
Client Phone Number:

Date ___ / ___ / ___ Page ___ of ___

Chain-of-Custody Number: A

SEACOR Chain-of-Custody Record

Address: SEACOR
4700 McMurray Dr, Ste 108
FT. COLLINS, CO 80525

Project # D0027-008-01 Task # LP34
Project Manager JOHN ROSBURG
Laboratory AAC
Turn-around time: Normal
Sampler's Name: BRANT DORMAN
Sampler's Signature:

Analysis Request

	Sample ID	Date	Time	Matrix	TPHg/BTEX 8015 (modified)/8020	TPHd 8015 (modified)	TPH 418.1	Aromatic Volatiles 602/8020	Volatile Organics 624/8240 (GC/MS)	Halogenated Volatiles 601/8010	Semi-volatile Organics 625/8270 (GC/MS)	Pesticides/PCB's 608/8080	Total Lead 7421	Priority Pollutant Metals (13)	TCLP Metals	EPA RM-5			Comments/ Instructions	Number of Containers
✓	CD5-P1 - BACK 1/2			DI H_2O												X			Gravimetric Analysis	1
✓	" -P2 "			"												X				1
✓	" -P3 "			"												X				1
✓	RV5-P1 "			"												X				1
✓	RV5-P2 "			"												X				1
✓	" -P3 "			"												X				1
	DCS-P1 "			"												X				1
	" -P2 "			"												X				1
	" -P3 "			"												X				1

Special Instructions/Comments:

Relinquished by:
Sign
Print BRANT DORMAN
Company SEACOR
Time Date 6/19/94

Received by:
Sign Linda Ngarora
Print
Company
Time 10:30 Date 6-21-94

Relinquished by:
Sign
Print
Company
Time Date

Received by:
Sign
Print
Company
Time Date

Sample Receipt

Total no. of containers
Chain of custody seals:
Rec'd good condition/cold:
Conforms to record:

Client:
Client Contact:
Client Phone Number:

Date ___ / ___ / ___ Page ___ of ___

Chain-of-Custody Number: A

SEACOR Chain-of-Custody Record

Address: SEACOR
4700 McMurry Dr. Ste 108
Ft. Collins, CO 80525

Project # 00077-008-01 Task # LP34
Project Manager JOHN ROSBURG
Laboratory AAC
Turn-around time: Normal

Sampler's Name: BRANT DORMAN
Sampler's Signature:

Analysis Request

Sample ID	Date	Time	Matrix	TPHg/BTEX 8015 (modified)/8020	TPHd 8015 (modified)	TPH 418.1	Aromatic Volatiles 602/8020	Volatile Organics 624/8240 (GC/MS)	Halogenated Volatiles 601/8010	Semi-volatile Organics 625/8270 (GC/MS)	Pesticides/PCB's 608/8080	Total Lead 7421	Priority Pollutant Metals (13)	TCLP Metals	EPA RM-5			Comments/ Instructions	Number of Containers
RV1-P1-BACK 1/2			PI #30												X			Gravimetric Analysis	1
" -P2 "			"												X			" "	1
" -P3 "			"												X			" "	1
RV2-P1 "			"												X			" "	1
" -P2 "			"												X			" "	1
" -P3 "			"												X			" "	1
RV3-P1 "			"												X			" "	1
" -P2 "			"												X			" "	1
" -P3 "			"												X			" "	1

Special Instructions/Comments:

Relinquished by:
Sign
Print BRANT DORMAN
Company SEACOR
Time Date 6/19/94

Received by: Luda Ugarova
Sign
Print
Company
Time 10:30 Date 6-21-94

Relinquished by:
Sign
Print
Company
Time Date

Received by:
Sign
Print
Company
Time Date

Sample Receipt
Total no. of containers
Chain of custody seals:
Rec'd good condition/cold:
Conforms to record:

Client:
Client Contact:
Client Phone Number:

Date ___ / ___ / ___ Page ___ of ___

Chain-of-Custody Number: A

SEACOR Chain-of-Custody Record

Address: SEACOR
4700 McMurray Dr, Ste 108
FT. COLLINS, CO 80525

Project # D0027-008-01 Task # LP34
Project Manager JOHN ROSBURG
Laboratory AAC
Turn-around time: Normal
Sampler's Name: BRANT DORMAN
Sampler's Signature: [signature]

Analysis Request

Sample ID	Date	Time	Matrix	TPHg/BTEX 8015 (modified)/8020	TPHd 8015 (modified)	TPH 418.1	Aromatic Volatiles 602/8020	Volatile Organics 624/8240 (GC/MS)	Halogenated Volatiles 601/8010	Semi-volatile Organics 625/8270 (GC/MS)	Pesticides/PCB's 608/8080	Total Lead 7421	Priority Pollutant Metals (13)	TCLP Metals	EPA RM-202			Comments/ Instructions	Number of Containers
FBS - P1 - BACK 1/2			DI H_2O												X			Extraction/Gravimetric Analysis	
" - P2 "			"												X			" "	
" - P3 "			"												X			" "	

Special Instructions/Comments:

Relinquished by:
Sign [signature]
Print BRANT DORMAN
Company SEACOR
Time _____ Date 6/19/94

Received by:
Sign [signature]
Print
Company
Time _____ Date 6-21-94

Relinquished by:
Sign
Print
Company
Time _____ Date _____

Received by:
Sign
Print
Company
Time _____ Date _____

Sample Receipt
Total no. of containers
Chain of custody seals:
Rec'd good condition/cold:
Conforms to record:

Client:
Client Contact:
Client Phone Number:

Date ___ / ___ / ___ Page ___ of ___

Analytical Service
3M Occupational Health
and Environmental Safety Division

3M Center, Building 76-01-01
St. Paul, MN 55107
Telephone: 800/243 4630

3M Diffusional Monitor Analysis Report

Form 23121 - H - PWO

Report Number	16-220-94D 1 OF 1
No. of Monitors	3
Analysis Performed	08/10/94
Prepared By	J.T. BROTHERTON

SEACOR
4700 MCMURRY DRIVE, STE. 108
FORT COLLINS, CO 80525

ATTN: JOHN ROSBURG

User Identification	Monitor Code	Sampling Date	Sampling Time	Compounds(s)	Weight Micrograms	Concentration mg/m³	Concentration PPM
	MY-8606	06/18/94	480 MIN.	FORMALDEHYDE	1.7	0.058	0.047
	MP-7416	06/18/94	480 MIN.	FORMALDEHYDE	2.3	0.078	0.064
	MY-8637	06/18/94	480 MIN.	FORMALDEHYDE	2.3	0.078	0.064

Comments

Printed on Recycled Paper.
PRINTED WITH SOY INK

Chain-of-Custody Number: A

SEACOR Chain-of-Custody Record

Address: SEACOR
4700 McMurray Dr, Ste 108
Fort Collins, Co, 80525

Project # D0027-008-01 Task # LP34
Project Manager John Rosbury
Laboratory AAL
Turn-around time: Normal

Sampler's Name: Jeff Marchioro
Sampler's Signature: Jeff Marchioro

Analysis Request

Sample ID	Date	Time	Matrix	TPHg/BTEX 8015 (modified)/8020	TPHd 8015 (modified)	TPH 418.1	Aromatic Volatiles 602/8020	Volatile Organics 624/8240 (GC/MS)	Halogenated Volatiles 601/8010	Semi-volatile Organics 625/8270 (GC/MS)	Pesticides/PCB's 608/8080	Total Lead 7421	Priority Pollutant Metals (13)	TCLP Metals	Formaldehyde Analysis			Comments/ Instructions	Number of Containers
Form badge - 7416	6/18/94		Badge												X				1
Form budge - 8637	6/18/94		Badge												X				1
Form badge - 8606	6/18/94		Badge												X				1

Special Instructions/Comments:

Relinquished by:
Sign Jeff Marchioro
Print Jeff Marchioro
Company SEACOR
Time _____ Date _____

Received by:
Sign Jon Brotherton
Print Jon Brotherton
Company 3M
Time Noon Date 8-9-94

Relinquished by:
Sign Jon Brotherton
Print Jon Brotherton
Company 3M
Time 1:30 PM Date 8-10-94

Received by:
Sign _____
Print _____
Company _____
Time _____ Date _____

Sample Receipt

Total no. of containers
Chain of custody seals:
Rec'd good condition/cold:
Conforms to record:

Client:
Client Contact:
Client Phone Number:

Date ___ / ___ / ___ Page ___ of ___

APPENDIX C

CALIBRATION DATA

Scott Specialty Gases, Inc.

500 WEAVER PARK ROAD, LONGMONT, CO 80501 (303) 442-4700, (303) 651-3094 FAX (303) 772-7673

CERTIFICATE OF ANALYSIS: EPA PROTOCOL GAS

Customer
Seacor
4700 McMurry Drive
Suite 108
Ft. Collins CO 80525

Assay Laboratory
Scott Specialty Gases, Inc.
500 Weaver Park Road
Longmont, CO 80501

Purchase Order 0120321
Scott Project # 0812205
CGA Fitting 590
QC Number 25159304
File Number 12205-01

ANALYTICAL INFORMATION

Certified to exceed the minimum specification of EPA Protocol 1 Procedure #G1, Section Number 3.0.4

Cylinder Number AAL-1811 **Certification Date** 11/15/93 **Expiration Date** 11/15/96
Cylinder Pressure 2000 psig **Previous Certification Dates** None

ANALYZED CYLINDER

Components	Certified Concentration	Analytical Uncertainty*
Propane	857.2 ppm	±1% NIST Directly Traceable
Air	Balance	

* Analytical uncertainty is inclusive of usual known error sources which at least include reference standard error & precision of the measurement process.

REFERENCE STANDARD

Type	Expiration Date	Cylinder Number	Concentration
NTRM 2646	10/12/95	AAL-18342	973ppm Propane / N2
GMIS	NONE	ALM-026045	95.09ppm Propane / N2

INSTRUMENTATION

Instrument/Model/Serial #	Last Date Calibrated	Analytical Principle
Hewlett Packard 5890A 3115A34623	10/20/93	Flame Ionization

ANALYZER READINGS

(Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

Components	First Triad Analysis	Second Triad Analysis	Calibration Curve
Propane	Date: 11/15/93 Response Units: mv Z1 = 0.0000 R1 = 0.9509 T1 = 8.5720 R2 = 0.9509 Z2 = 0.0000 T2 = 8.5720 Z3 = 0.0000 T3 = 8.5720 R3 = 0.9509 Avg. Conc. of Cust. Cyl. = 857.2 ppm		Concentration = A+Bx+Cx²+Dx³+Ex⁴ r = 0.999996 NTRM 2646 Constants: A = 0.000001 B = 100.000 C = 0 D = 0 E = 0

Special Notes

Susan J. Brandon
Analyst: Susan J. Brandon

Scott Specialty Gases, Inc.

500 WEAVER PARK ROAD, LONGMONT, CO 80501 (303) 442-4700, (303) 651-3094 FAX (303) 772-7673

CERTIFICATE OF ANALYSIS: EPA PROTOCOL GAS

Customer	Assay Laboratory	
Seacor	Scott Specialty Gases, Inc.	Purchase Order 012-0364
4700 McMurry Drive Suite 108	500 Weaver Park Road	Scott Project # 0814267
Ft Collins, CO 80525	Longmont, CO 80501	CGA Fitting 660
		QC Number 16019417
		File Number 14267-03

ANALYTICAL INFORMATION

This certification was performed according to EPA Traceability Protocol fo Assay and certification of Gaseous Calibration Standards; Procedure G1; September, 1993.

Cylinder Number ALM035038 Certification Date 05/20/94 Expiration Date 05/20/97

Cylinder Pressure 2000 psig Previous Certification Dates None

ANALYZED CYLINDER

Components	Certified Concentration	Analytical Uncertainty*
(Propane)	501 ppm	±1% NIST Directly Traceable
(Nitrogen)	Balance	±1% NIST Directly Traceable

* Analytical uncertainty is inclusive of usual known error sources which at least include precision of the measurement processes.

REFERENCE STANDARD

Type	Expiration Date	Cylinder Number	Concentration
SRM 2645A	01/05/96	FF-27139	497.7ppm C3H8 / Air
GMIS	NONE	ALM-026045	95.09ppm C3H8 / Air

INSTRUMENTATION

Instrument/Model/Serial #	Last Date Calibrated	Analytical Principle
Hewlett Packard 5890A 3115A34623	05/17/94	Flame Ionization

ANALYZER READINGS

(Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

Components	First Triad Analysis	Second Triad Analysis	Calibration Curve
(Propane)	Date: 05/20/94 Response Units: mv Z1 = 0.0000 R1 = 9.5090 T1 = 50.1000 R2 = 9.5090 Z2 = 0.0000 T2 = 50.1000 Z3 = 0.0000 T3 = 50.1000 R3 = 9.5090 Avg. Conc. of Cust. Cyl. = 501.000 ppm		Concentration = A+Bx+Cx²+Dx³+Ex⁴ r = 0.999998 SRM 2645A Constants: A = 0.000001 B = 10.000 C = 0 D = 0 E = 0

Special Notes Do not use when cylinder pressure is below 150 psig.

Analyst: Susan J. Brandon

PROTOCOL

Scott Specialty Gases, Inc.

500 WEAVER PARK ROAD, LONGMONT, CO 80501 - (303) 442-4700, (303) 651-3094, FAX (303) 772-7673

CERTIFICATE OF ANALYSIS - EPA PROTOCOL GAS

Customer
Seacor
4700 McMurry Drive
Suite 108
Ft. Collins, CO 80525

Assay Laboratory
Scott Specialty Gases, Inc.
500 Weaver Park Road
Longmont, CO 80501

Purchase Order 012-0256
Scott Project # 0810976
CGA Fitting 590
QC Number 21139324
File Number 10976-05

ANALYTICAL INFORMATION

Certified to exceed the minimum specification of EPA Protocol 1 Procedure #G1, Section Number 3.0.4

Cylinder Number ALM-005107 **Certification Date** 07/13/93 **Expiration Date** 07/13/96
Cylinder Pressure 2000 psig **Previous Certification Dates** None

ANALYZED CYLINDER

Components	Certified Concentration
Propane	303.6 ppm
Air	Balance

Analytical Uncertainty*
±1% NIST Directly Traceable

*Analytical uncertainty is inclusive of usual known error sources which at least include reference standard error & precision of the measurement process.

REFERENCE STANDARD

Type	Expiration Date	Cylinder Number	Concentration
NTRM 2646	08/09/92	AAL-18342	973ppm Propane / N2
GMIS	NONE	ALM-026045	95.09ppm Propane / N2

INSTRUMENTATION

Instrument/Model/Serial #	Last Date Calibrated	Analytical Principle
Hewlett Packard 5890A 3115A34623	07/13/93	Flame Ionization

ANALYZER READINGS

(Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

Components: Propane

First Triad Analysis

Date: 07/06/93 Response Units: mv
Z1 = 0.0000 R1 = 0.9509 T1 = 3.0280
R2 = 0.9509 Z2 = 0.0000 T2 = 3.0280
Z3 = 0.0000 T3 = 3.0280 R3 = 0.9509
Avg. Conc. of Cust. Cyl. = 302.8 ppm

Second Triad Analysis

Date: 07/13/93 Response Units: mv
Z1 = 0.0000 R1 = 0.9509 T2 = 3.0440
R2 = 0.9509 Z2 = 0.0000 T2 = 3.0440
Z3 = 0.0000 T3 = 3.0440 R3 = 0.9509
Avg. Conc. of Cust. Cyl. = 304.4 ppm

Calibration Curve

Concentration = A+Bx+Cx²+Dx³+Ex⁴
r = 0.999998 NTRM 2646
Constants: A = 0.000001
B = 100.000 C = 0
D = 0 E = 0

Special Notes

Analyst: Susan J. Brandon

Scott Specialty Gases, Inc.

6141 EASTON ROAD, P.O. BOX 310, PLUMSTEADVILLE, PA 18949-0310 (215) 766-8861 FAX: (215) 766-0320

CERTIFICATE OF ANALYSIS: EPA PROTOCOL GAS

Customer
Seacor
4700 Mcmurry Drive
Suite 108
Ft Collins, CO 80525-6015

Assay Laboratory
Scott Specialty Gases, Inc.
6141 Easton Road
P.O. Box 310
Plumsteadville, PA 18949-0310

Purchase Order 0120256
Scott Project # 01-48686-001

ANALYTICAL INFORMATION

Certified to exceed the minimum specifications of EPA Protocol 1 Procedure #G1, Section Number 3.0.4

Cylinder Number AAL13269 **Certification Date** 07-06-93 **Expiration Date** 07-06-96
Cylinder Pressure 1850 psig **Previous Certification Dates** None

ANALYZED CYLINDER

Components	Certified Concentration	Analytical Uncertainty*
Propane	**86.6 ppm**	**±1% NIST Directly Traceable**
Balance Gas: Air		

*Analytical uncertainty is inclusive of usual known error sources which at least includes reference standard error & precision of the measurement processes.

REFERENCE STANDARD

Type	Expiration Date	Cylinder Number	Concentration
GMIS	09-22-93	ALM029208	125.5 ppm C_3H_8 in N_2

INSTRUMENTATION

Instrument/Model/Serial #	Last Date Calibrated	Analytical Principle
C_3H_8: Varian/VA3300/7945	06-22-93	FID

ANALYZER READINGS (Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

Components	First Triad Analysis	Second Triad Analysis	Calibration Curve
Propane	Date: 07-06-93 Response Units: Area Z1=000000 R1=348978 T1=241361 R2=351099 Z2=000000 T2=242127 Z3=000000 T3=241994 R3=351406 Avg. Conc. of Cust. Cyl. 86.6 ppm		Concentration=A+Bx+Cx^2+Dx^3+Ex^4 r=0.99999 Constants: A=0.0000E+00 B=0.0000E+00 C=0.0000E+00 D=0.0000E+00 E=0.0000E+00

Special Notes

Analyst Robert K. Kufrovich

Scott Specialty Gases, Inc.

500 WEAVER PARK ROAD, LONGMONT, CO 80501 (303) 442-4700, (303) 651-3094 FAX (303) 772-7673

CERTIFICATE OF ANALYSIS: EPA PROTOCOL GAS

Customer	Assay Laboratory		
Seacor	Scott Specialty Gases, Inc.	Purchase Order	012-0256
4700 McMurry Drive	500 Weaver Park Road	Scott Project #	0810976
Suite 108	Longmont, CO 80501	CGA Fitting	590
Ft. Collins CO 80525		QC Number	21139323
		File Number	10976-04

ANALYTICAL INFORMATION

Certified to exceed the minimum specification of EPA Protocol 1 Procedure #G1, Section Number 3.0.4

Cylinder Number ALM-003223 Certification Date 07/13/93 Expiration Date 07/13/96

Cylinder Pressure 2000 psig Previous Certification Dates None

ANALYZED CYLINDER

Components	Certified Concentration	Analytical Uncertainty*
Propane	49.87 ppm	±1% NIST Directly Traceable
Air	Balance	

*Analytical uncertainty is inclusive of usual known error accources which at least include reference standard error & precision of the measurement process.

REFERENCE STANDARD

Type	Expiration Date	Cylinder Number	Concentration
SRM 1667B	05/24/97	CLM-005284	47.3ppm Propane / Air
NTRM	03/05/95	ALM-017277	9.62ppm Propane / Air

INSTRUMENTATION

Instrument/Model/Serial #	Last Date Calibrated	Analytical Principle
Hewlett Packard 5890A 3115A34623	07/13/93	Flame Ionization

ANALYZER READINGS

(Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

Components: Propane

First Triad Analysis

Date: 07/06/93 Response Units: mv

Z1 = 0.0000	R1 = 0.9620	T1 = 4.9810
R2 = 0.9620	Z2 = 0.0000	T2 = 4.9810
Z3 = 0.0000	T3 = 4.9810	R3 = 0.9620

Avg. Conc. of Cust. Cyl. = 49.810 ppm

Second Triad Analysis

Date: 07/13/93 Response Units: mv

Z1 = 0.0000	R1 = 0.9620	T2 = 4.9920
R2 = 0.9620	Z2 = 0.0000	T2 = 4.9920
Z3 = 0.0000	T3 = 4.9920	R3 = 0.9620

Avg. Conc. of Cust. Cyl. = 49.920 ppm

Calibration Curve

Concentration = A+Bx+Cx²+Dx³+Ex⁴

r = 0.999998	SRM 1667B
Constants:	A = 0.000001
B = 10.000	C = 0
D = 0	E = 0

Special Notes

Analyst: Susan J. Brandon

Scott Specialty Gases, Inc.

500 WEAVER PARK ROAD, LONGMONT, CO 80501 (303) 442-4700, (303) 651-3094 FAX (303) 772-7673

CERTIFICATE OF ANALYSIS: EPA PROTOCOL GAS

Customer
Seacor
4700 McMurry Drive
Suite 108
Ft. Collins CO 80525

Assay Laboratory
Scott Specialty Gases, Inc.
500 Weaver Park Road
Longmont, CO 80501

Purchase Order 012-0256
Scott Project # 0810976
CGA Fitting 590
QC Number 21139322
File Number 10976-03

ANALYTICAL INFORMATION

Certified to exceed the minimum specification of EPA Protocol 1 Procedure #G1, Section Number 3.0.4

Cylinder Number ALM-019589 **Certification Date** 07/13/93 **Expiration Date** 07/13/96
Cylinder Pressure 2000 psig **Previous Certification Dates** None

ANALYZED CYLINDER

Components	Certified Concentration	Analytical Uncertainty*
Propane	29.95 ppm	±1% NIST Directly Traceable
Air	Balance	

*Analytical uncertainty is inclusive of usual known error sources which at least include reference standard error & precision of the measurement process.

REFERENCE STANDARD

Type	Expiration Date	Cylinder Number	Concentration
SRM 1667B	05/24/97	CLM-005284	47.3ppm Propane / Air
NTRM	03/05/95	ALM-017277	9.62ppm Propane / Air

INSTRUMENTATION

Instrument/Model/Serial #	Last Date Calibrated	Analytical Principle
Hewlett Packard 5890A 3115A34623	07/13/93	Flame Ionization

ANALYZER READINGS

(Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

Components
Propane

First Triad Analysis

Date: 07/06/93 Response Units: mv
Z1 = 0.0000 R1 = 0.9620 T1 = 2.9960
R2 = 0.9620 Z2 = 0.0000 T2 = 2.9960
Z3 = 0.0000 T3 = 2.9960 R3 = 0.9620
Avg. Conc. of Cust. Cyl. = 29.960 ppm

Second Triad Analysis

Date: 07/13/93 Response Units: mv
Z1 = 0.0000 R1 = 0.9620 T2 = 2.9940
R2 = 0.9620 Z2 = 0.0000 T2 = 2.9940
Z3 = 0.0000 T3 = 2.9940 R3 = 0.9620
Avg. Conc. of Cust. Cyl. = 29.940 ppm

Calibration Curve

Concentration = A+Bx+Cx²+Dx³+Ex⁴
r = 0.999998 SRM 1667B
Constants: A = 0.000001
B = 10.000 C = 0
D = 0 E = 0

Special Notes

Analyst: Susan J. Brandon

Scott Specialty Gases, Inc.

500 WEAVER PARK ROAD, LONGMONT, CO 80501 (303) 442-4700, (303) 651-3094 FAX (303) 772-7673

CERTIFICATE OF ANALYSIS: EPA PROTOCOL GAS

Customer
Seacor
4700 McMurry Drive
Suite 108
Fort Collins CO 80525

Assay Laboratory
Scott Specialty Gases, Inc.
500 Weaver Park Road
Longmont, CO 80501

Purchase Order	012-0322
Scott Project #	0812253
CGA Fitting	660
QC Number	25229327
File Number	12253-03

ANALYTICAL INFORMATION

Certified to exceed the minimum specification of EPA Protocol 1 Procedure #G1, Section Number 3.0.4

Cylinder Number ALM-036544 **Certification Date** 11/22/93 **Expiration Date** 11/22/95

Cylinder Pressure 2000 psig **Previous Certification Dates** None

ANALYZED CYLINDER

Components	Certified Concentration	Analytical Uncertainty*
Nitric Oxide	36.58 ppm	±1% NIST Directly Traceable
Nitrogen Oxides	36.84 ppm	Reference Value Only
Nitrogen	Balance	

* Analytical uncertainty is inclusive of usual known error scources which at least include reference standard error & precision of the measurement process.

REFERENCE STANDARD

Type	Expiration Date	Cylinder Number	Concentration
CRM 1683	09/11/94	ALM-024684	47.80ppm NO / N2
GMIS	NONE	AAL-2114	25.60ppm NO / N2

INSTRUMENTATION

Instrument/Model/Serial #	Last Date Calibrated	Analytical Principle
Monitor Labs 8840-857	10/28/93	Chemiluminescence

ANALYZER READINGS

(Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

Components	First Triad Analysis	Second Triad Analysis	Calibration Curve
Nitric Oxide	Date: 11/15/93 Response Units: mv Z1 = 0.0000 R1 = 0.5281 T1 = 0.7387 R2 = 0.5281 Z2 = 0.0000 T2 = 0.7387 Z3 = 0.0000 T3 = 0.7367 R3 = 0.5281 Avg. Conc. of Cust. Cyl. = 36.54 ppm	Date: 11/22/93 Response Units: mv Z1 = 0.0000 R1 = 0.5148 T2 = 0.7337 R2 = 0.5148 Z2 = 0.0000 T2 = 0.7337 Z3 = 0.0000 T3 = 0.7337 R3 = 0.5148 Avg. Conc. of Cust. Cyl. = 36.61 ppm	Concentration = A+Bx+Cx²+Dx³+Ex⁴ r = 0.999934 CRM 1683 Constants: A = -0.009427 B = 50.00987 C = 0 D = 0 E = 0

Special Notes

Susan J. Brandon

Analyst: Susan J. Brandon

Scott Specialty Gases, Inc.

500 WEAVER PARK ROAD, LONGMONT, CO 80501 (303) 442-4700, (303) 651-3094 FAX (303) 772-7673

CERTIFICATE OF ANALYSIS: EPA PROTOCOL GAS

Customer	Assay Laboratory		
Seacor	Scott Specialty Gases, Inc.	Purchase Order	012-0310
4700 McMurry Drive	500 Weaver Park Road	Scott Project #	0811878
Suite 108	Longmont, CO 80501	CGA Fitting	660
Fort Collins CO 80525		QC Number	24259307
		File Number	11878-02

ANALYTICAL INFORMATION

Certified to exceed the minimum specification of EPA Protocol 1 Procedure #G1, Section Number 3.0.4

Cylinder Number ALM-035465 | Certification Date 10/22/93 | Expiration Date 10/22/95

Cylinder Pressure 2000 psig | Previous Certification Dates None

ANALYZED CYLINDER

Components	Certified Concentration	Analytical Uncertainty*
Carbon Monoxide	400.0 ppm	±1% NIST Directly Traceable
Nitric Oxide	194.5 ppm	±1% NIST Directly Traceable
Nitrogen Oxides	195.2 ppm	Reference Value Only
Nitrogen	Balance	

* Analytical uncertainty is inclusive of usual known error sources which at least include reference standard error & precision of the measurement process.

REFERENCE STANDARD

Type	Expiration Date	Cylinder Number	Concentration
NTRM 1680	01/24/94	ALM-024841	474.4ppm CO / N2
GMIS	NONE	ALM-013865	244.5ppm CO / N2
NTRM 1685	11/19/94	ALM-024159	244.7ppm NO / N2
GMIS	NONE	1L-3223	101.5ppm NO / N2

INSTRUMENTATION

Instrument/Model/Serial #	Last Date Calibrated	Analytical Principle
Horiba AIA 24 564163071	10/09/93	Non-Dispersive Infrared
Monitor Labs 8840-857	07/09/93	Chemiluminescence

ANALYZER READINGS

(Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

Components	First Triad Analysis	Second Triad Analysis	Calibration Curve
Carbon Monoxide	Date: 10/15/93 Response Units: mv Z1 = 0.0000 R1 = 0.5360 T1 = 0.8220 R2 = 0.5360 Z2 = 0.0000 T2 = 0.8220 Z3 = 0.0000 T3 = 0.8220 R3 = 0.5360 Avg. Conc. of Cust. Cyl. = 399.9 ppm	Date: 10/22/93 Response Units: mv Z1 = 0.0000 R1 = 0.5350 T2 = 0.8220 R2 = 0.5350 Z2 = 0.0000 T2 = 0.8220 Z3 = 0.0000 T3 = 0.8220 R3 = 0.5350 Avg. Conc. of Cust. Cyl. = 400.1 ppm	Concentration = A+Bx+Cx²+Dx³+Ex⁴ r = 0.999986 NTRM 1680 Constants: A = 3.4247 B = 405.12 C = 95.82 D = 0 E = 0
Nitric Oxide	Date: 10/15/93 Response Units: mv Z1 = 0.0000 R1 = 0.4032 T1 = 0.7750 R2 = 0.4032 Z2 = 0.0000 T2 = 0.7750 Z3 = 0.0000 T3 = 0.7750 R3 = 0.4032 Avg. Conc. of Cust. Cyl. = 194.0 ppm	Date: 10/22/93 Response Units: mv Z1 = 0.0000 R1 = 0.4032 T1 = 0.7787 R2 = 0.4032 Z2 = 0.0000 T2 = 0.7787 Z3 = 0.0000 T3 = 0.7787 R3 = 0.4032 Avg. Conc. of Cust. Cyl. = 194.9 ppm	Concentration = A+Bx+Cx²+Dx³+Ex⁴ r = 0.999932 NTRM 1685 Constants: A = 0.799934 B = 249.1828 C = 0 D = 0 E = 0

Special Notes

David Chapman

Analyst: David Chapman

Scott Specialty Gases, Inc.

500 WEAVER PARK ROAD, LONGMONT, CO 80501 (303) 442-4700, (303) 651-3094 FAX (303) 772-7673

CERTIFICATE OF ANALYSIS: EPA PROTOCOL GAS

Customer	Assay Laboratory		
Seacor	Scott Specialty Gases, Inc.	Purchase Order	012-0310
4700 McMurry Drive	500 Weaver Park Road	Scott Project #	0811878
Suite 108	Longmont, CO 80501	CGA Fitting	660
Fort Collins CO 80525		QC Number	24259308
		File Number	11878-03

ANALYTICAL INFORMATION

Certified to exceed the minimum specification of EPA Protocol 1 Procedure #G1, Section Number 3.0.4

Cylinder Number ALM-034924 Certification Date 10/22/93 Expiration Date 10/22/95

Cylinder Pressure 2000 psig Previous Certification Dates None

ANALYZED CYLINDER

Components	Certified Concentration	Analytical Uncertainty*
Carbon Monoxide	795.9 ppm	±1% NIST Directly Traceable
Nitric Oxide	789.1 ppm	±1% NIST Directly Traceable
Nitrogen Oxides	795.0 ppm	Reference Value Only
Nitrogen	Balance	

* Analytical uncertainty is inclusive of usual known error scources which at least include reference standard error & precision of the measurement process.

REFERENCE STANDARD

Type	Expiration Date	Cylinder Number	Concentration
NTRM 1681	01/16/94	ALM-024818	966.1ppm CO / N2
NTRM 1680	01/24/94	ALM-024841	474.4ppm CO / N2
NTRM 1687	07/23/95	ALM-022418	951.0ppm NO / N2
GMIS	NONE	ALM-004240	479.9ppm NO / N2

INSTRUMENTATION

Instrument/Model/Serial #	Last Date Calibrated	Analytical Principle
Horiba AIA 24 564163071	10/09/93	Non-Dispersive Infrared
Monitor Labs 8840-857	07/09/93	Chemiluminescence

ANALYZER READINGS

(Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

Components	First Triad Analysis	Second Triad Analysis	Calibration Curve
Carbon Monoxide	Date: 10/15/93 Response Units: mv Z1 = 0.0000 R1 = 0.8150 T1 = 1.2030 R2 = 0.8150 Z2 = 0.0000 T2 = 1.2030 Z3 = 0.0000 T3 = 1.2030 R3 = 0.8150 Avg. Conc. of Cust. Cyl. = 796.1 ppm	Date: 10/22/93 Response Units: mv Z1 = 0.0000 R1 = 0.8130 T2 = 1.2020 R2 = 0.8130 Z2 = 0.0000 T2 = 1.2020 Z3 = 0.0000 T3 = 1.2020 R3 = 0.8130 Avg. Conc. of Cust. Cyl. = 795.7 ppm	Concentration = A+Bx+Cx²+Dx³+Ex⁴ r = 0.999921 NTRM 1681 Constants: A = 19.403 B = 393.42 C = 211.00 D = 0 E = 0
Nitric Oxide	Date: 10/15/93 Response Units: mv Z1 = 0.0000 R1 = 0.4801 T1 = 0.7908 R2 = 0.4801 Z2 = 0.0000 T2 = 0.7908 Z3 = 0.0000 T3 = 0.7908 R3 = 0.4801 Avg. Conc. of Cust. Cyl. = 790.7 ppm	Date: 10/22/93 Response Units: mv Z1 = 0.0000 R1 = 0.4786 T1 = 0.7871 R2 = 0.4786 Z2 = 0.0000 T2 = 0.7871 Z3 = 0.0000 T3 = 0.7871 R3 = 0.4786 Avg. Conc. of Cust. Cyl. = 787.5 ppm	Concentration = A+Bx+Cx²+Dx³+Ex⁴ r = 0.999937 NTRM 1687 Constants: A = −0.48618 B = 1000.5040 C = 0 D = 0 E = 0

Special Notes

David Chapman

Analyst: David Chapman

Scott Specialty Gases, Inc.

500 WEAVER PARK ROAD, LONGMONT, CO 80501 (303) 442-4700, (303) 651-3094 FAX (303) 772-7673

CERTIFICATE OF ANALYSIS: EPA PROTOCOL GAS

Customer	Assay Laboratory		
Seacor	Scott Specialty Gases, Inc.	Purchase Order	0120278
4700 McMurry Drive	500 Weaver Park Road	Scott Project #	0811203
Suite 108	Longmont, CO 80501	CGA Fitting	590
Ft. Collins CO 80525		QC Number	22119318
		File Number	11203-02

ANALYTICAL INFORMATION

Certified to exceed the minimum specification of EPA Protocol 1 Procedure #G1, Section Number 3.0.4

Cylinder Number ALM-004222 | Certification Date 08/10/93 | Expiration Date 08/10/96

Cylinder Pressure 2000 psig | Previous Certification Dates None

ANALYZED CYLINDER

Components	Certified Concentration	Analytical Uncertainty*
Carbon Dioxide	20.09 %	±1% NIST Directly Traceable
Oxygen	20.03 %	±1% NIST Directly Traceable
Nitrogen	Balance	

* Analytical uncertainty is inclusive of usual known error sources which at least include reference standard error & precision of the measurement process.

REFERENCE STANDARD

Type	Expiration Date	Cylinder Number	Concentration
SRM 2745	01/25/97	SX-20319	15.75% CO2 / N2
GMIS	NONE	ALM-033670	4.99% CO2 / N2
NTRM 2659	05/15/94	ALM-017724	20.63% O2 / N2
GMIS	NONE	AAL-18919	10.08% O2 / N2

INSTRUMENTATION

Instrument/Model/Serial #	Last Date Calibrated	Analytical Principle
Hewlett Packard 5730 1844A91333	07/15/93	Thermal Conductivity
Servomex 244A 244/701/1446	07/23/93	Paramagnetic

ANALYZER READINGS

(Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

Components	First Triad Analysis	Second Triad Analysis	Calibration Curve
Carbon Dioxide	Date: 08/03/93 Response Units: mv Z1 = 0.0000 R1 = 0.4999 T1 = 2.0111 R2 = 0.4999 Z2 = 0.0000 T2 = 2.0111 Z3 = 0.0000 T3 = 2.0111 R3 = 0.4999 Avg. Conc. of Cust. Cyl. = 20.113 %	Date: 08/10/93 Response Units: mv Z1 = 0.0000 R1 = 0.4999 T2 = 2.0058 R2 = 0.4999 Z2 = 0.0000 T2 = 2.0058 Z3 = 0.0000 T3 = 2.0058 R3 = 0.4999 Avg. Conc. of Cust. Cyl. = 20.060 %	Concentration = A+Bx+Cx²+Dx³+Ex⁴ r = 0.999998 SRM 2745 Constants: A = 0.000001 B = 10.000 C = 0 D = 0 E = 0
Oxygen	Date: 08/03/93 Response Units: mv Z1 = 0.0000 R1 = 0.4032 T1 = 0.8024 R2 = 0.4032 Z2 = 0.0000 T2 = 0.8024 Z3 = 0.0000 T3 = 0.8024 R3 = 0.4032 Avg. Conc. of Cust. Cyl. = 20.06 %	Date: 08/10/93 Response Units: mv Z1 = 0.0000 R1 = 0.4032 T1 = 0.8003 R2 = 0.4032 Z2 = 0.0000 T2 = 0.8003 Z3 = 0.0000 T3 = 0.8003 R3 = 0.4032 Avg. Conc. of Cust. Cyl. = 20.01 %	Concentration = A+Bx+Cx²+Dx³+Ex⁴ r = 0.999964 NTRM 2659 Constants: A = -0.05523 B = 25.067 C = 0 D = 0 E = 0

Special Notes

Analyst: Susan J. Brandon

Scott Specialty Gases, Inc.

500 WEAVER PARK ROAD, LONGMONT, CO 80501 (303) 442-4700, (303) 651-3094 FAX (303) 772-7673

CERTIFICATE OF ANALYSIS: EPA PROTOCOL GAS

Customer	Assay Laboratory		
Seacor	Scott Specialty Gases, Inc.	Purchase Order	0120278
4700 McMurry Drive	500 Weaver Park Road	Scott Project #	0811203
Suite 108	Longmont, CO 80501	CGA Fitting	590
Ft. Collins CO 80525		QC Number	22119317
		File Number	11203-01

ANALYTICAL INFORMATION

Certified to exceed the minimum specification of EPA Protocol 1 Procedure #G1, Section Number 3.0.4

Cylinder Number AAL-7176 | Certification Date 08/10/93 | Expiration Date 08/10/96

Cylinder Pressure 2000 psig | Previous Certification Dates None

ANALYZED CYLINDER

Components	Certified Concentration	Analytical Uncertainty*
Carbon Dioxide	11.90 %	±1% NIST Directly Traceable
Oxygen	12.03 %	±1% NIST Directly Traceable
Nitrogen	Balance	

* Analytical uncertainty is inclusive of usual known error ecources which at least include reference standard error & precision of the measurement process.

REFERENCE STANDARD

Type	Expiration Date	Cylinder Number	Concentration
SRM 2745	01/25/97	SX-20319	15.75% CO2 / N2
GMIS	NONE	ALM-033670	4.99% CO2 / N2
NTRM 2659	05/15/94	ALM-017724	20.63% O2 / N2
GMIS	NONE	AAL-18919	10.08% O2 / N2

INSTRUMENTATION

Instrument/Model/Serial #	Last Date Calibrated	Analytical Principle
Hewlett Packard 5730 1844A91333	07/15/93	Thermal Conductivity
Servomex 244A 244/701/1446	07/23/93	Paramagnetic

ANALYZER READINGS

(Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

Components	First Triad Analysis	Second Triad Analysis	Calibration Curve
Carbon Dioxide	Date: 08/03/93 Response Units: mv Z1 = 0.0000 R1 = 0.4999 T1 = 1.1901 R2 = 0.4999 Z2 = 0.0000 T2 = 1.1901 Z3 = 0.0000 T3 = 1.1901 R3 = 0.4999 Avg. Conc. of Cust. Cyl. = 11.899 %	Date: 08/10/93 Response Units: mv Z1 = 0.0000 R1 = 0.4999 T2 = 1.1912 R2 = 0.4999 Z2 = 0.0000 T2 = 1.1912 Z3 = 0.0000 T3 = 1.1912 R3 = 0.4999 Avg. Conc. of Cust. Cyl. = 11.910 %	Concentration = A+Bx+Cx²+Dx³+Ex⁴ r = 0.999998 SRM 2745 Constants: A = 0.000001 B = 10.000 C = 0 D = 0 E = 0
Oxygen	Date: 08/03/93 Response Units: mv Z1 = 0.0000 R1 = 0.4032 T1 = 0.4811 R2 = 0.4032 Z2 = 0.0000 T2 = 0.4811 Z3 = 0.0000 T3 = 0.4811 R3 = 0.4032 Avg. Conc. of Cust. Cyl. = 12.03 %	Date: 08/10/93 Response Units: mv Z1 = 0.0000 R1 = 0.4032 T1 = 0.4812 R2 = 0.4032 Z2 = 0.0000 T2 = 0.4812 Z3 = 0.0000 T3 = 0.4812 R3 = 0.4032 Avg. Conc. of Cust. Cyl. = 12.03 %	Concentration = A+Bx+Cx²+Dx³+Ex⁴ r = 0.999964 NTRM 2659 Constants: A = -0.05523 B = 25.067 C = 0 D = 0 E = 0

Special Notes

Susan J. Brandon

Analyst: Susan J. Brandon

CRITICAL ORIFICE DRY GAS METER CALIBRATION

Date	01/02/94
DGM ID#	1
DGM Cal.Y	1.0532

Critical Orifice ID#	1 "0.296"		2 "0.420"		3 "0.566"		4 "0.627"		5 "0.740"		6 "0.936"	
	Run Number		Run Number		Run Number		Run Number		Run Number		Run Number	
	1	2	1	2	1	2	1	2	1	2	1	2
DGM Volume (ft^3): Initial Vol., Vm_i	985.000	987.000	977.500	980.500	963.000	967.500	950.500	955.500	937.500	942.300	917.000	923.500
Final Vol., Vm_f	986.860	988.855	980.195	983.580	966.925	971.420	954.035	959.035	941.840	946.640	922.910	929.420
Difference, Vm	1.860	1.855	2.695	3.080	3.925	3.920	3.535	3.535	4.340	4.340	5.910	5.920
Meter Temperature (°F): Inlet, Tm_i	64	64	65	65	67	67	66	66	66	66	67	67
Outlet, Tm_o	63	63	63	63	63	64	63	63	63	63	63	63
Average, Tm	64	64	64	64	65	66	65	65	65	65	65	65
Run Time (minutes)	5.0	5.0	5.0	5.5	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Orifice Manometer dH (in. H_2O)	0.39	0.39	0.85	0.85	1.85	1.85	1.50	1.50	2.25	2.25	4.30	4.30
Barometeric Pressure (in.Hg)	25.23	25.23	25.23	25.23	25.23	25.23	25.23	25.23	25.23	25.23	25.23	25.23
Ambient Temp.,Ta (°F)	57	57	57	57	57	57	58	58	59	59	57	57
Pump Vacuum (in.Hg)	17	17	17	17	16	16	13	13	15	15	14	14
CALCULATIONS: K' Factor	0.296	0.296	0.420	0.420	0.627	0.627	0.566	0.566	0.740	0.740	0.936	0.936
Standard DGM Volume ($Vm_{(std)}$)	1.583	1.579	2.295	2.622	3.345	3.338	3.013	3.013	3.707	3.707	5.073	5.081
Critical Orifice Vol. ($Vcr_{(std)}$)	1.642	1.642	2.330	2.563	3.479	3.479	3.137	3.137	4.098	4.098	5.193	5.193
DGM Cal. Factor, Y	1.0374	1.0402	1.0155	0.9774	1.0399	1.0422	1.0413	1.0413	1.1054	1.1054	1.0237	1.0220
ΔH@	1.7334	1.7334	1.8797	1.8797	1.8429	1.8411	1.8352	1.8352	1.6206	1.6206	1.9495	1.9495

AVERAGE Y	1.0410
AVERAGE ΔH@	1.8101

CRITICAL ORIFICE DRY GAS METER CALIBRATION

Date: 07/21/94
DGM ID#: 1

☐ 15 Minute meter box warm up?

☐ Meter box leak check equal to zero? (Sect 7.2.2.1.1, Method 5)

Critical Orifice ID#	1 "0.296"		2 "0.420"		3 "0.566"		4 "0.627"		5 "0.740"		6 "0.936"	
	Run Number		Run Number		Run Number		Run Number		Run Number		Run Number	
	1	2	1	2	1	2	1	2	1	2	1	2
DGM Volume (ft³): Initial Vol., Vm_i			977.015	982.429	987.891	995.595	3.313	10.495				
Final Vol., Vm_f			982.429	987.891	995.595	1003.313	10.495	17.675				
Difference, Vm	0.000	0.000	5.414	5.462	7.704	7.718	7.182	7.180	0.000	0.000	0.000	0.000
Meter Temperature (°F): Inlet, Tm_i			80	80	80	81	82	83				
Outlet, Tm_o			77	77	77	78	79	80				
Average, Tm	ERR	ERR	78	78	78	80	80	81	ERR	ERR	ERR	ERR
Run Time (min)			10.0	10.0	10.0	10.0	10.0	10.0				
Orifice Manometer dH (in. H_2O)			0.83	0.83	1.77	1.77	1.51	1.51				
Barometeric Pressure (in. Hg)			25.17	25.17	25.17	25.17	25.15	25.15				
Ambient Temp.,Ta (°F)			80	81	81	82	82	83				
Pump Vacuum (in. Hg)			17.0	17.5	15.5	15.5	15.8	15.8				
Flow Rate of Run (ACFM)	ERR	ERR	0.541	0.546	0.770	0.772	0.718	0.718	ERR	ERR	ERR	ERR
CALCULATIONS: K' Factor	0.296	0.296	0.420	0.420	0.627	0.627	0.566	0.566	0.740	0.740	0.936	0.936
Standard DGM Volume ($Vm_{(std)}$)	ERR	ERR	4.477	4.516	6.386	6.385	5.925	5.913	ERR	ERR	ERR	ERR
Critical Orifice Vol. ($Vcr_{(std)}$)	0.000	0.000	4.548	4.546	6.786	6.782	6.114	6.109	0.000	0.000	0.000	0.000
DGM Cal. Factor, Y_d	ERR	ERR	1.0159	1.0066	1.0626	1.0622	1.0319	1.0333	ERR	ERR	ERR	ERR
ΔH@	ERR	ERR	1.8717	1.8730	1.8020	1.8006	1.8833	1.8828	ERR	ERR	ERR	ERR

AVERAGE Y_d: 1.0354
AVERAGE ΔH@: 1.8523

☐ Is each Y_d ±2% of the average Y_d?

☐ Is each dH@ ±0.20 of the average dH@?

CRITICAL ORIFICE DRY GAS METER CALIBRATION

Date	01/02/94
DGM ID#	2
DGM Cal.Y	1.0066

Critical Orifice ID#	1 "0.296"		2 "0.420"		3 "0.566"		4 "0.627"		5 "0.740"		6 "0.936"	
	Run Number		Run Number		Run Number		Run Number		Run Number		Run Number	
	1	2	1	2	1	2	1	2	1	2	1	2
DGM Volume (ft³): Initial Vol., Vm_i	378.500	987.000	369.500	372.500	353.000	358.000	339.000	343.000	323.000	328.000	302.000	308.500
Final Vol., Vm_f	380.325	988.855	372.285	375.285	357.500	362.070	342.660	346.655	327.500	332.960	308.140	314.660
Difference, Vm	1.825	1.855	2.785	2.785	4.500	4.070	3.660	3.655	4.500	4.960	6.140	6.160
Meter Temperature (°F): Inlet, Tm_i	59	58	60	60	63	62	62	63	65	65	64	66
Outlet, Tm_o	58	57	58	59	58	58	58	58	57	57	55	56
Average, Tm	59	58	59	60	61	60	60	61	61	61	60	61
Run Time (minutes)	5.0	5.5	5.0	5.0	5.5	5.0	5.0	5.0	5.0	5.5	5.0	5.0
Orifice Manometer dH (in. H_2O)	0.38	0.38	0.90	0.90	2.05	2.05	1.60	1.60	2.25	2.25	4.75	4.75
Barometeric Pressure (in.Hg)	25.23	25.23	25.23	25.23	25.23	25.23	25.23	25.23	25.23	25.23	25.23	25.23
Ambient Temp.,Ta (°F)	53	53	53	53	52	52	54	54	54	59	55	56
Pump Vacuum (in.Hg)	16	16	16	16	14	14	12	12	15	15	12	12
CALCULATIONS: K' Factor	0.296	0.296	0.420	0.420	0.627	0.627	0.566	0.566	0.740	0.740	0.936	0.936
Standard DGM Volume ($Vm_{(std)}$)	1.568	1.597	2.394	2.392	3.871	3.504	3.147	3.140	3.871	4.265	5.333	5.335
Critical Orifice Vol. ($Vcr_{(std)}$)	1.649	1.813	2.339	2.339	3.845	3.496	3.149	3.149	4.118	4.507	5.203	5.198
DGM Cal. Factor, Y	1.0513	1.1355	0.9769	0.9779	0.9934	0.9975	1.0007	1.0030	1.0637	1.0569	0.9756	0.9743
ΔH@	1.6696	1.6729	1.9945	1.9926	2.0422	2.0442	1.9604	1.9585	1.6165	1.6315	2.1735	2.1715

AVERAGE Y	**1.0172**
AVERAGE ΔH@	**1.9107**

CRITICAL ORIFICE DRY GAS METER CALIBRATION

Date 07/17/94
DGM ID# 2

☐ 15 Minute meter box warm up?

☐ Meter box leak check equal to zero? (Sect 7.2.2.1.1, Method 5)

Critical Orifice ID#	1 "0.296"		2 "0.420"		3 "0.566"		4 "0.627"		5 "0.740"		6 "0.936"	
	Run Number		Run Number		Run Number		Run Number		Run Number		Run Number	
	1	2	1	2	1	2	1	2	1	2	1	2
DGM Volume (ft³): Initial Vol., Vm_i			277.098	282.702	301.528	307.922	288.330	295.650				
Final Vol., Vm_f			282.702	288.311	307.922	314.324	295.650	301.527				
Difference, Vm	0.000	0.000	5.604	5.609	6.394	6.402	7.320	5.877	0.000	0.000	0.000	0.000
Meter Temperature (°F): Inlet, Tm_i			79	79	81	81	80	81				
Outlet, Tm_o			77	78	79	79	78	78				
Average, Tm	ERR	ERR	78	78	80	80	79	80	ERR	ERR	ERR	ERR
Run Time (min)			10.0	10.0	8.0	8.0	10.0	8.0				
Orifice Manometer dH (in. H_2O)			0.88	0.88	1.90	1.90	1.57	1.57				
Barometeric Pressure (in. Hg)			25.13	25.13	25.13	25.13	25.13	25.13				
Ambient Temp.,Ta (°F)			79	80	80	80	80	81				
Pump Vacuum (in. Hg)			17	17	177	17	17	18				
Flow Rate of Run (ACFM)	ERR	ERR	0.560	0.561	0.799	0.800	0.732	0.735	ERR	ERR	ERR	ERR
CALCULATIONS: K' Factor	0.296	0.296	0.420	0.420	0.627	0.627	0.566	0.566	0.740	0.740	0.936	0.936
Standard DGM Volume ($Vm_{(std)}$)	ERR	ERR	4.629	4.631	5.278	5.285	6.054	4.851	ERR	ERR	ERR	ERR
Critical Orifice Vol. ($Vcr_{(std)}$)	0.000	0.000	4.545	4.543	5.427	5.427	6.124	4.894	0.000	0.000	0.000	0.000
DGM Cal. Factor, Y_d	ERR	ERR	0.9818	0.9810	1.0282	1.0269	1.0116	1.0088	ERR	ERR	ERR	ERR
ΔH@	ERR	ERR	1.9854	1.9860	1.9285	1.9285	1.9572	1.9576	ERR	ERR	ERR	ERR

AVERAGE Y_d 1.0064
AVERAGE ΔH@ 1.9572

☐ Is each Y_d ±2% of the average Y_d?

☐ Is each dH@ ±0.20 of the average dH@?

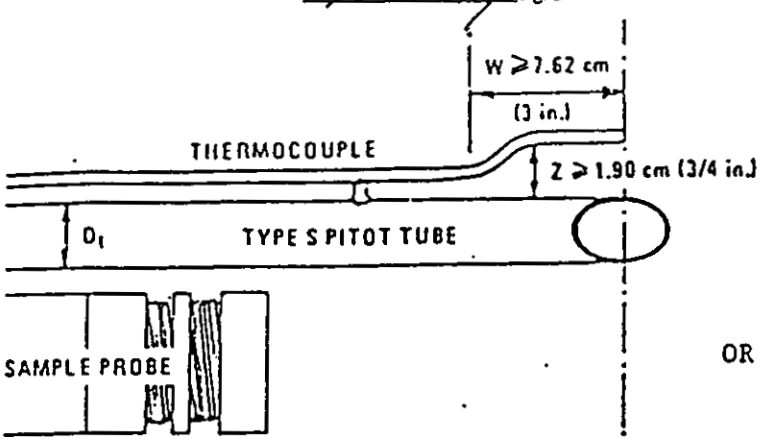
SEACOR
4700 McMurry Drive
Suite 108
Fort Collins, CO 80525

PROBE AND PITOT TUBE CALIBRATION

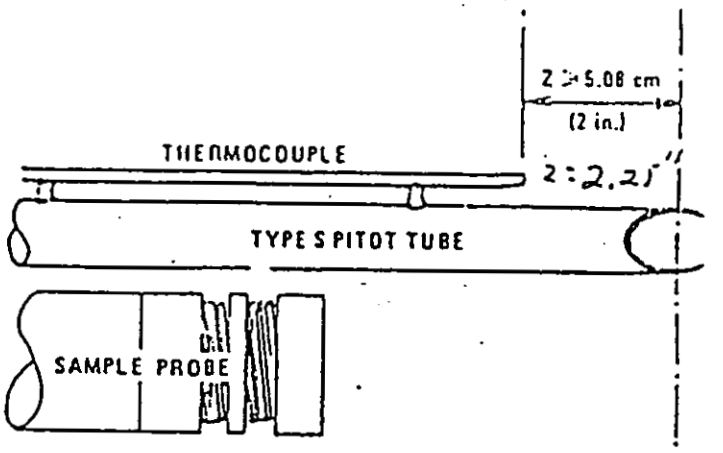
PROBE ID : 3.0'

DATE : 02-07-94

TECHNICIAN : B. Langwell

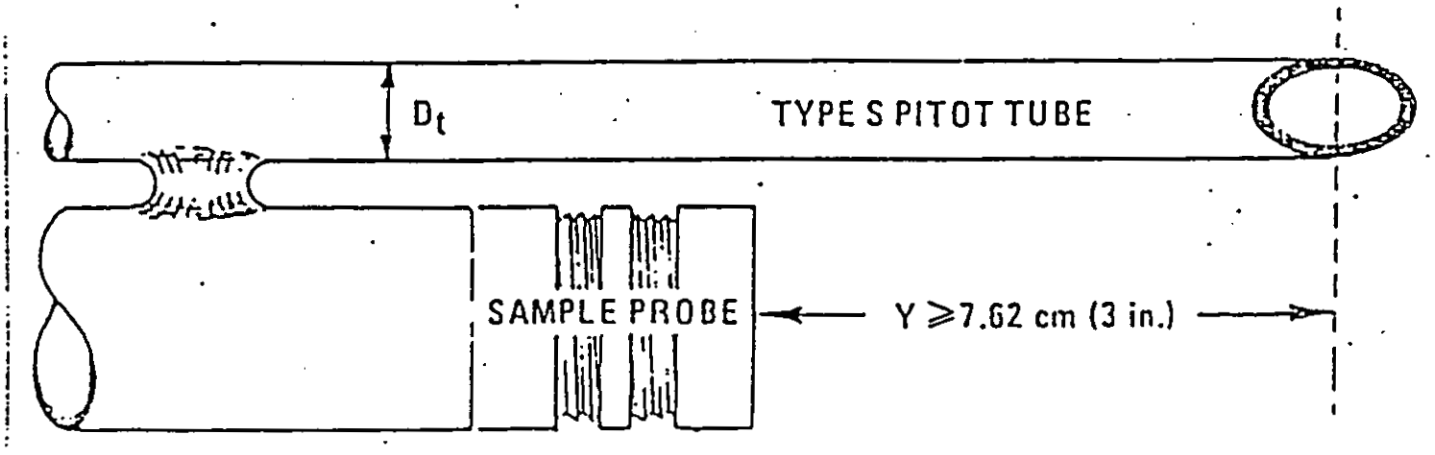


OR



W = 14.0" ; Z = 1.48"

Z = N/A



Y = 4.75"

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Suite 108
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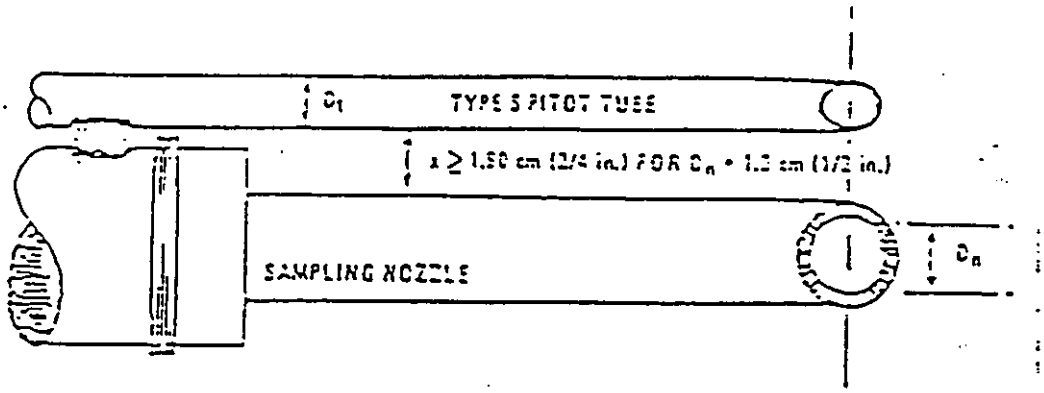
PROBE AND PITOT TUBE CALIBRATION

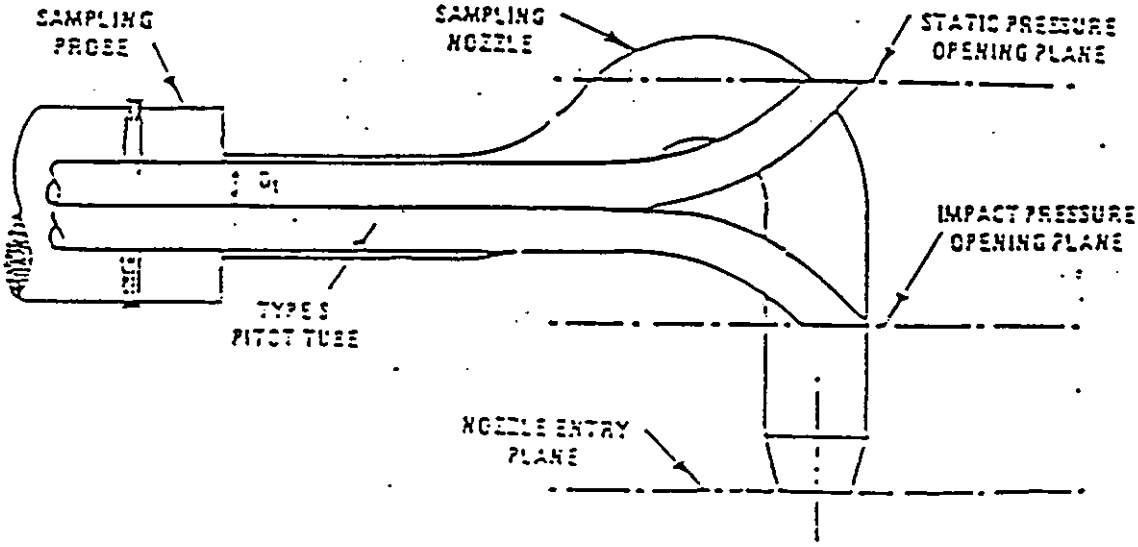
PROBE ID : 3.0'

DATE : 02-07-94

TECHNICIAN : B. Langwell



D_t = 0.375 x = 0.765 D_n = N/A



Configuration correct ? yes

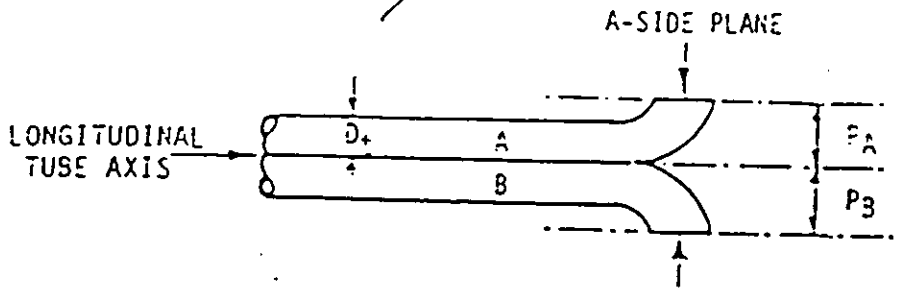
SEACOR
Fort McMurry Drive
Suite 108
Fort Collins, CO 80525

PITOT TUBE CALIBRATION

PITOT TUBE ID: 3.0'

DATE: 02.07.94

TECHNICIAN: B. Langwell

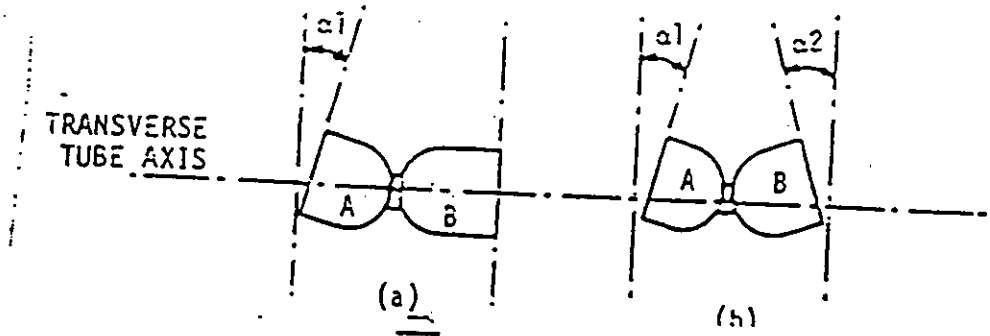


NOTE:

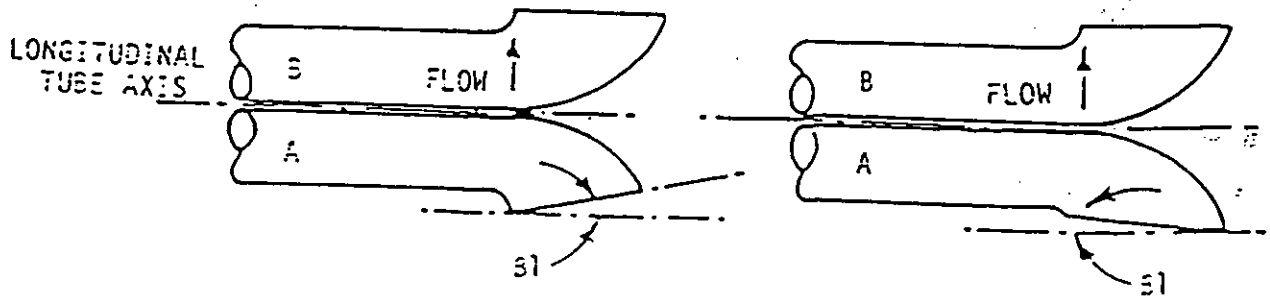
$$\begin{cases} 1.05\ D_t < P < 1.50\ D_t \\ P_A = P_B \end{cases}$$

0.48 CM $\leq D_t \leq$ 0.95 CM
(3/16 IN.) (3/8 IN.)

D_t = 0.375 P_A = 0.410 P_B = 0.440



1 = 1.0° 2 = 1.0°



1 = 1.0° 1 = 2.0°

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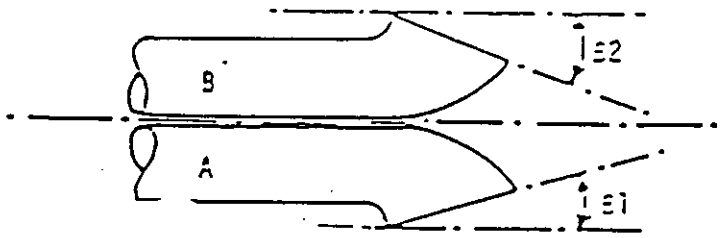
PITOT TUBE CALIBRATION

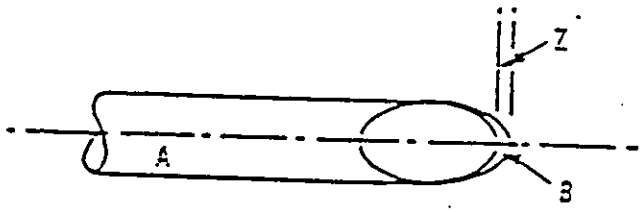
PITOT TUBE ID : 3.0'

DATE : 02-07-94

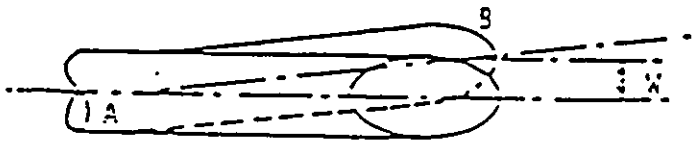
TECHNICIAN : B. Langwell



β 1 = 1.0° β 2 = 2.0°



Z = 1.0°



W = 1.0°

PITOT COEFFICIENT (Cp) = 0.84

SEACOR

SEACOR ENVIRONMENTAL ENGINEERING
S-TYPE PITOT CALIBRATION DATA

Pitot Tube ID# P3-1
Date 6/15/93
Technician Kam

D_t = 0.375 — $3/16" \leq D_t \leq 3/8"$
P_A = 0.466 — $P_A = P_B$
P_B = 0.466 — $1.05\ D_t \leq P \leq 1.50\ D_t$

α_1 = 0° — α_1 and $\alpha_2 < 10°$
α_2 = 0°
β_1 = 0° — β_1 and $\beta_2 < 5°$
β_2 = 0°

γ = 1°
θ = 0°
$z = A \sin \gamma$ = 0.016 — $z < 1/8"$ (0.125")
$w = A \sin \theta$ = 0 — $w < 1/32"$(0.03125")

Comments:

Calibration Required? No ✓

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2700 McMurry Drive
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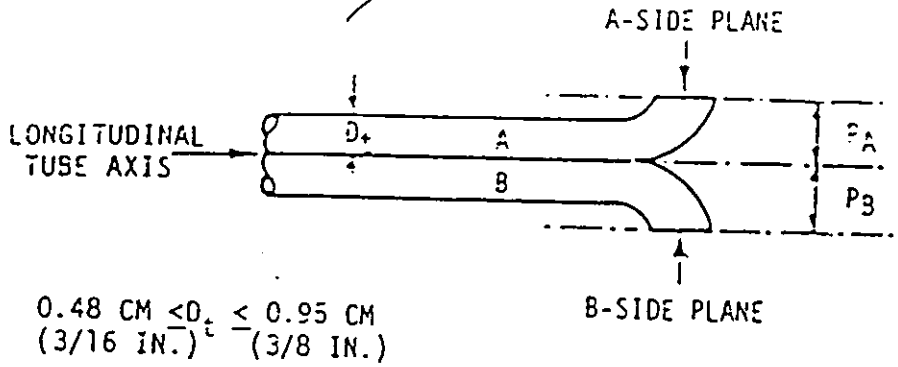
Fort Collins, CO 80525

PITOT TUBE CALIBRATION

PITOT TUBE ID: 6.0'

DATE: 02, 07, 94

TECHNICIAN: B. Langwell



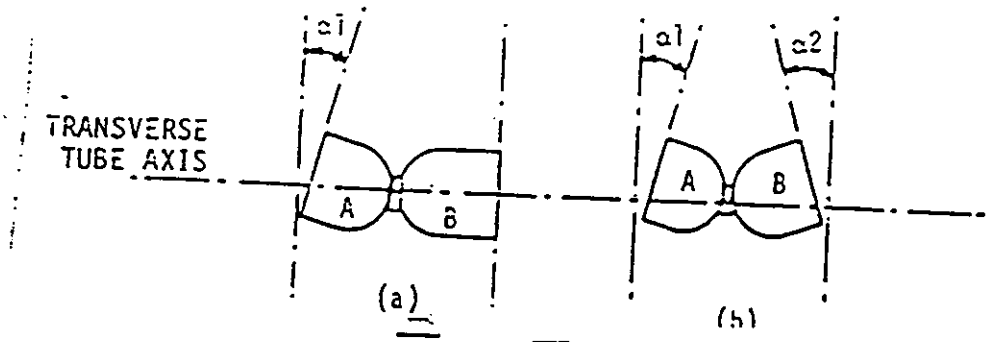
NOTE:

$1.05\ D_t < P < 1.50\ D_t$

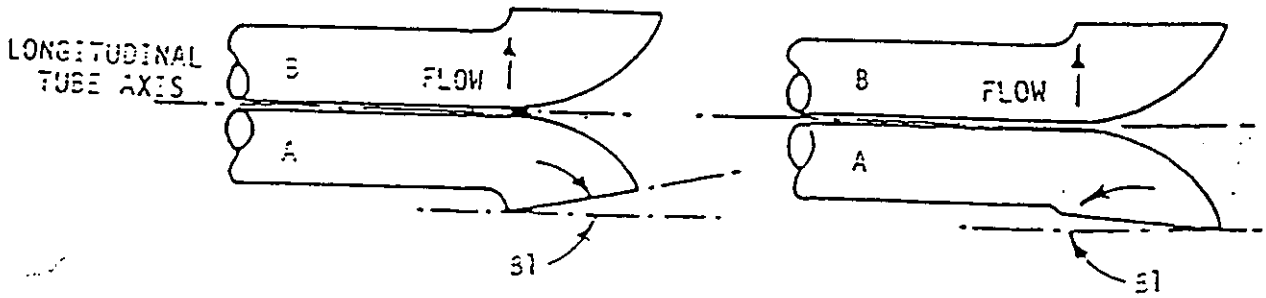
$P_A = P_B$

0.48 CM $\leq D_t \leq$ 0.95 CM
(3/16 IN.) (3/8 IN.)

D_t = 0.375 P_A = 0.432 P_B = 0.433



1 = 2.0° 2 = 2.0°



1 = +2.0° 1 = −2.0°

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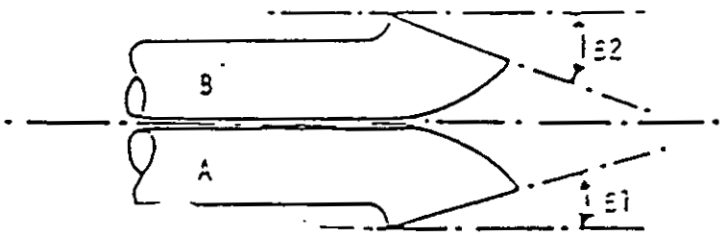
PITOT TUBE CALIBRATION

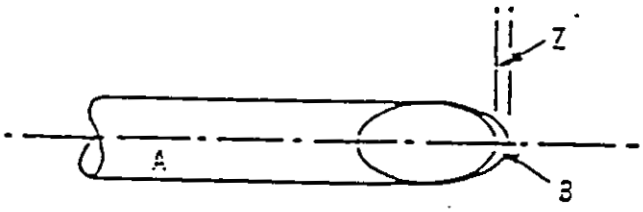
PITOT TUBE ID : 6.0'

DATE : 02-07-94

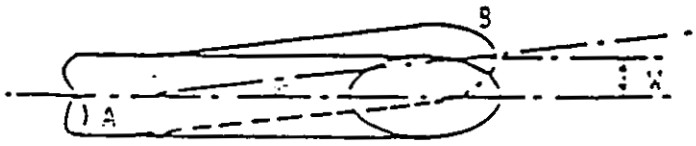
TECHNICIAN : B. Langwell



β 1 = 1.5° β 2 = 1.5°



Z = 2.0°



W = 1.0°

PITOT COEFFICIENT (C_p) = 0.84

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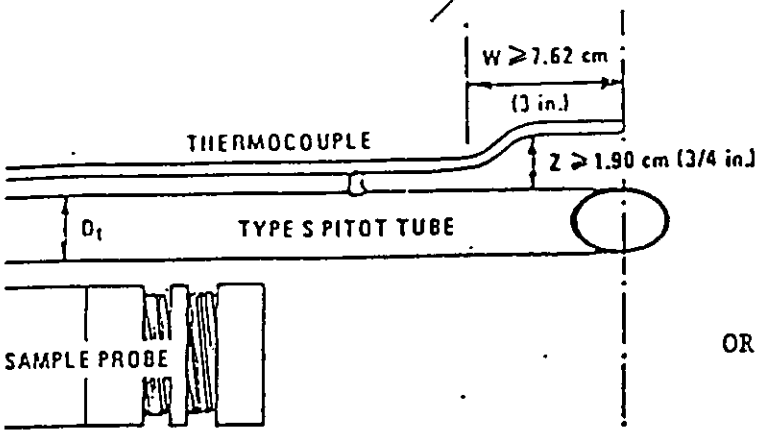
PROBE AND PITOT TUBE CALIBRATION

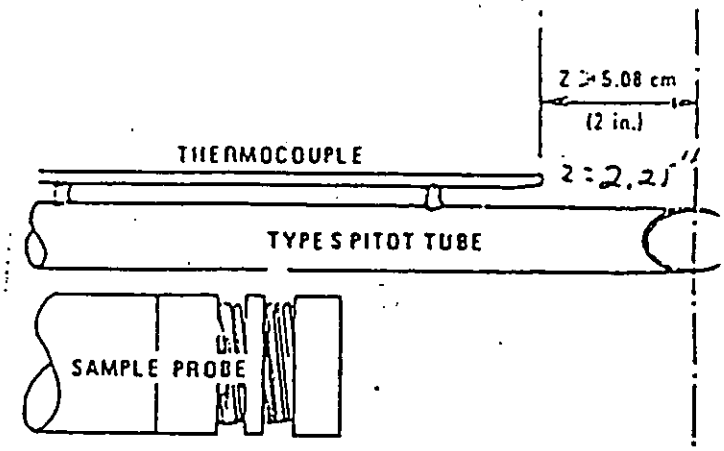
PROBE ID : 7.0'

DATE : 02-07-94

TECHNICIAN : B. Langwell

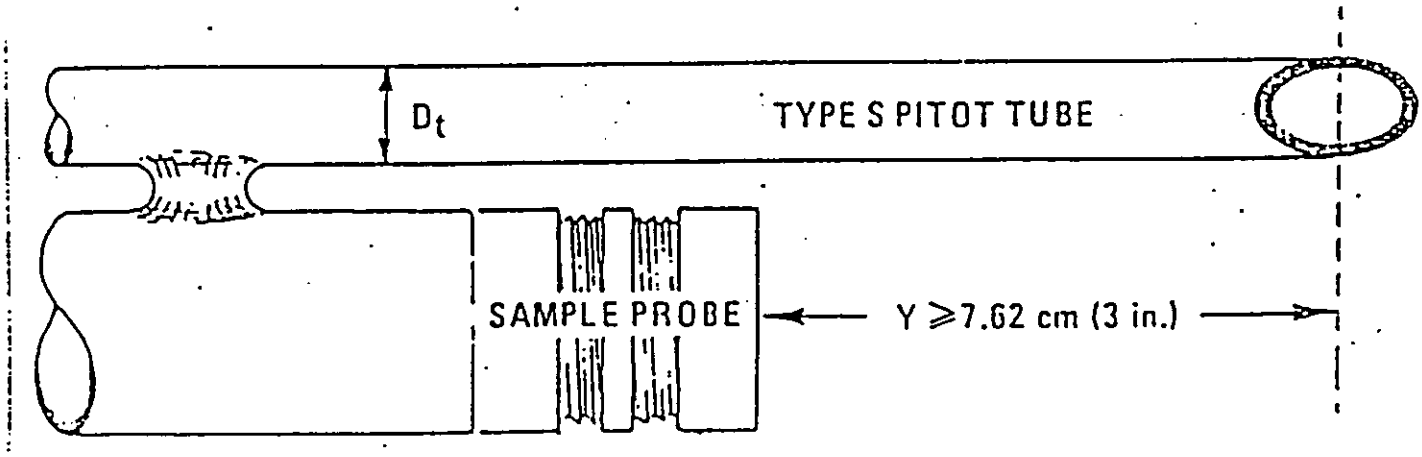


OR



W = 14.0" Z = 1.47"

Z = N/A



Y = 4.62"

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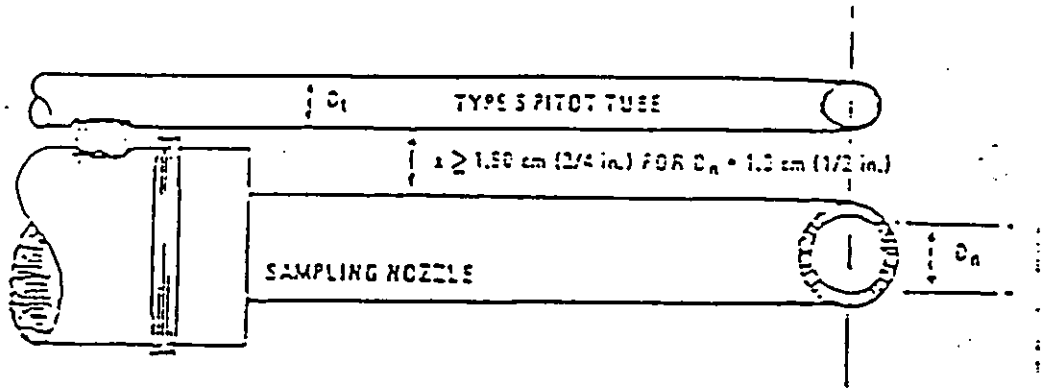
PROBE AND PITOT TUBE CALIBRATION

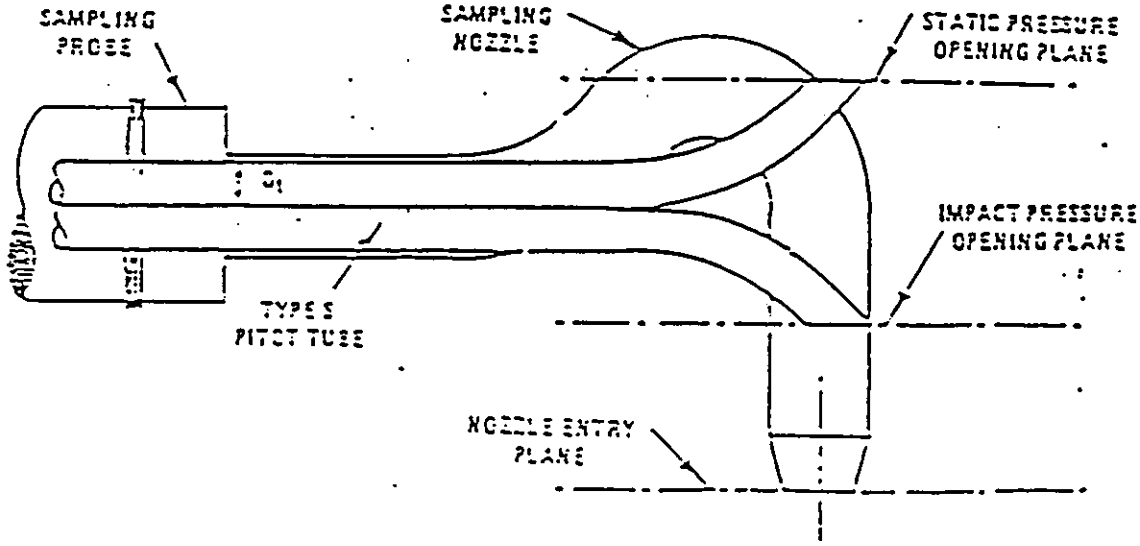
PROBE ID : 7.0'...

DATE : 02-07-94

TECHNICIAN : B. Langwell



D_t = 0.375 x = 0.753 D_n = N/A



Configuration correct ? yes

SEACOR
4700 McMurry Drive
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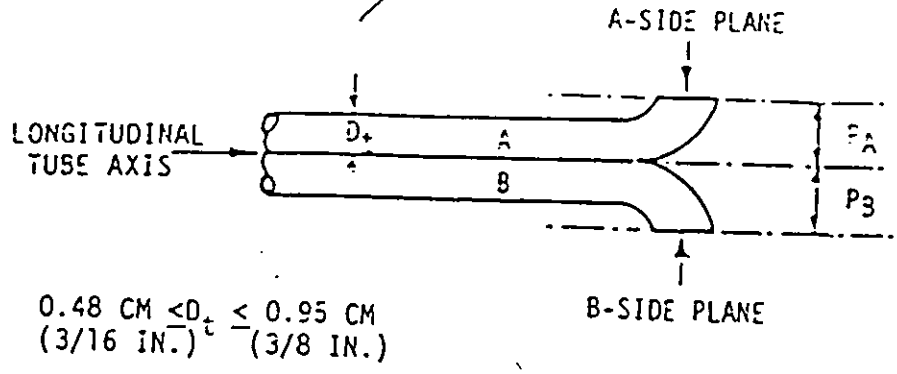
Fort Collins, CO 80525

PITOT TUBE CALIBRATION

PITOT TUBE ID: 7.0'

DATE: 02.07.94

TECHNICIAN: B. Langwell



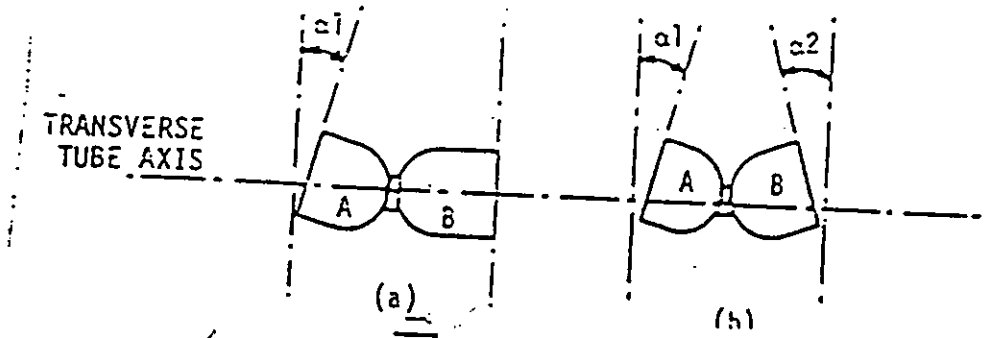
NOTE:

$1.05\ D_t < P < 1.50\ D_t$

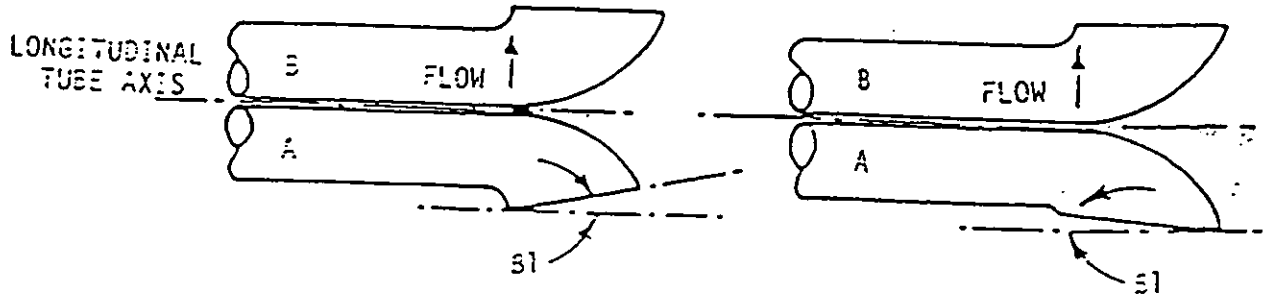
$P_A = P_B$

0.48 CM $\leq D_t \leq$ 0.95 CM
(3/16 IN.) (3/8 IN.)

D_t = 0.375 P_A = 0.433 P_B = 0.435



1 = 1.0° 2 = 0.5°



1 = 1.0° 1 = 2.0°

SEACOR
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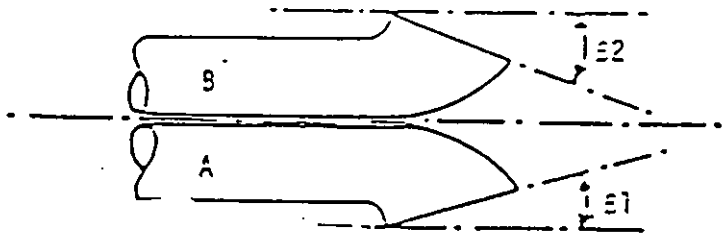
Suite 108
Fort Collins, CO 80525

PITOT TUBE CALIBRATION

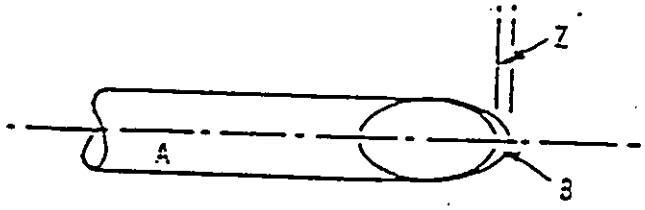
PITOT TUBE ID : 7.0'

DATE : 02-07-94

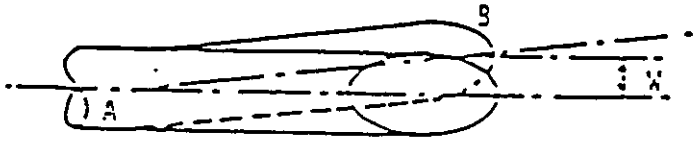
TECHNICIAN : B. Longwell



β1 = 1.0° β2 = 1.0°



Z = 0.5°



W = 1.5°

PITOT COEFFICIENT (Cp) = 0.84

SEACOR

SEACOR ENVIRONMENTAL ENGINEERING
S-TYPE PITOT CALIBRATION DATA

Pitot Tube ID# 7A
Date 12/08/93
Technician Kam

D_t = 0.375 — $3/16" \leq D_t \leq 3/8"$
P_A = 0.466 — $P_A = P_B$
P_B = 0.466 — $1.05\ D_t \leq P \leq 1.50\ D_t$

α_1 = <1° — α_1 and $\alpha_2 < 10°$
α_2 = <1°
β_1 = 0° — β_1 and $\beta_2 < 5°$
β_2 = 0°

γ = 1°
θ = 0°
$z = A \sin \gamma$ = 0.016 — $z < 1/8"$ (0.125")
$w = A \sin \theta$ = 0 — $w < 1/32"$(0.03125")

Comments: NUTECH STAINLESS STEEL S-TYPE PITOT TIP.

Calibration Required? NO ✓

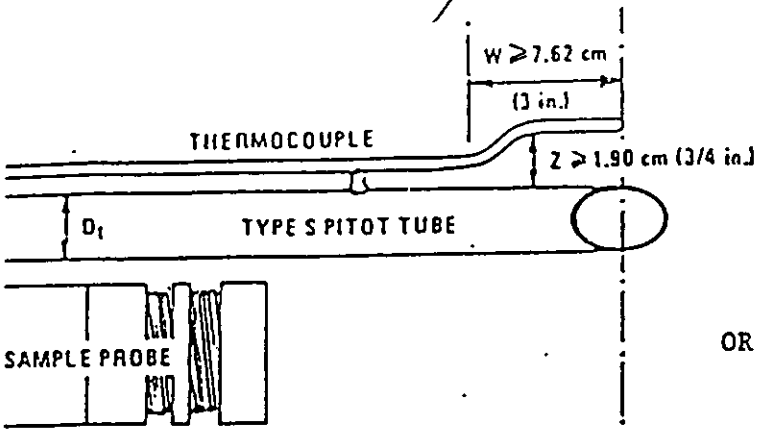
SEACOR
4700 McMurry Drive
Suite 108
Fort Collins, CO 80525

PROBE AND PITOT TUBE CALIBRATION

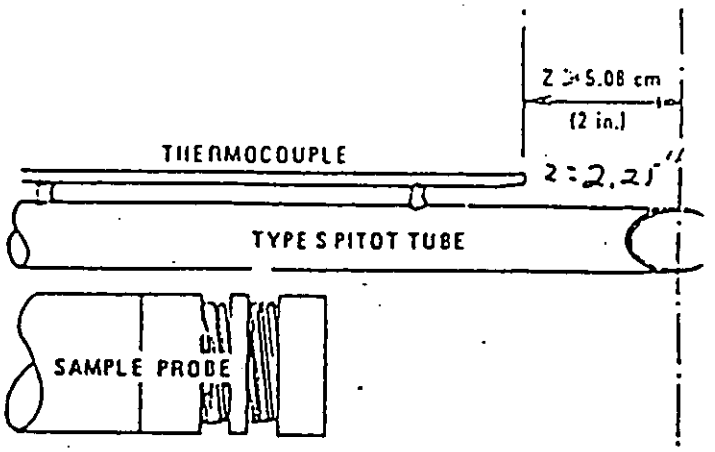
PROBE ID : 9.0'

DATE : 02-14-94

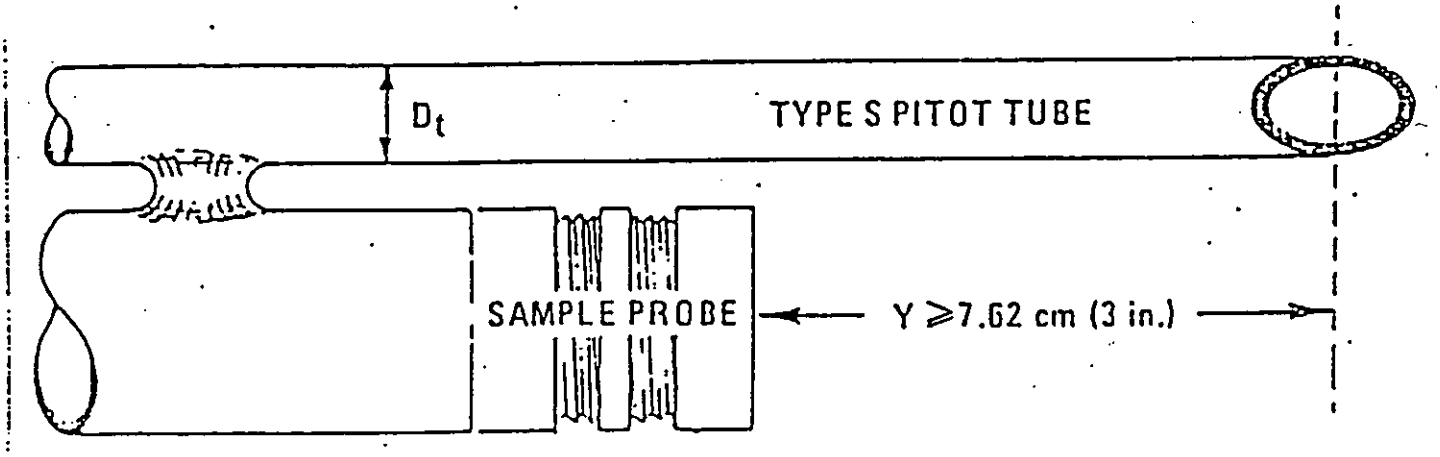
TECHNICIAN : B. Langwell



OR



W = 11.7" Z = 0.584 Z = N/A



Y = 2.35"

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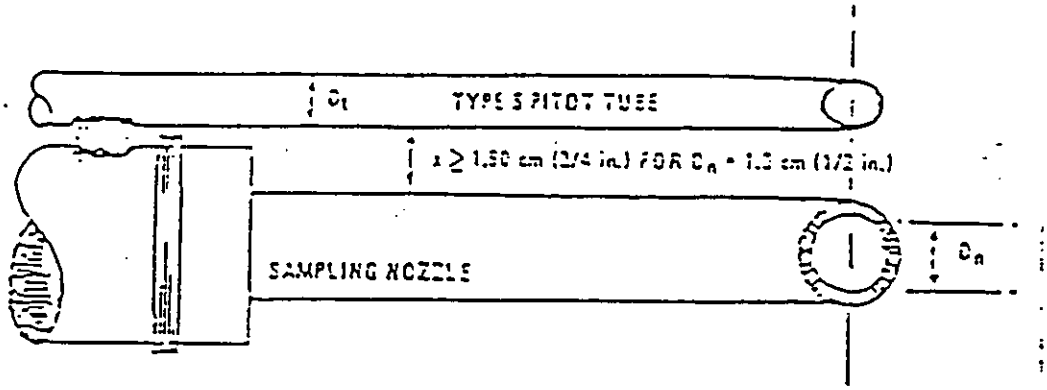
4700 McMurry Drive
Suite 108
Fort Collins CO 80525

PROBE AND PITOT TUBE CALIBRATION

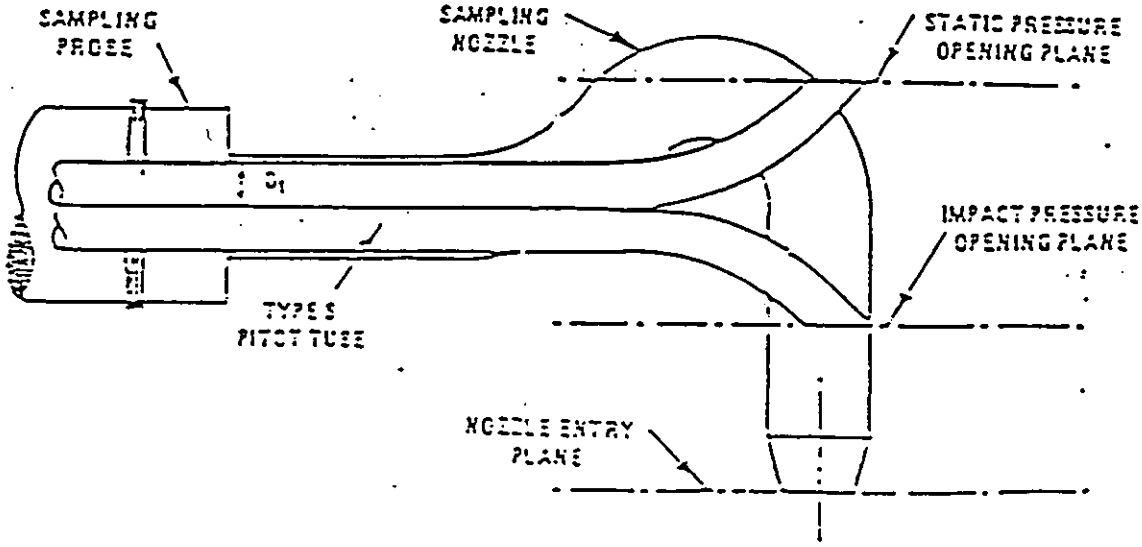
PROBE ID : 9.0'...

DATE : 02,14-94

TECHNICIAN : B. Langwell



D_t = 0.375 x = 0.635 D_n = N/A



Configuration correct ? 0.84

SEACOR
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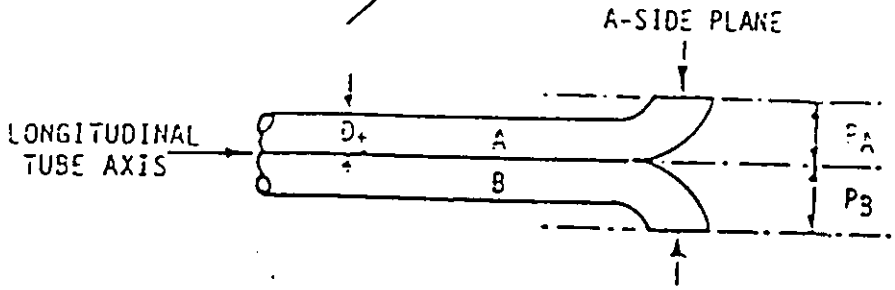
Fort Collins, CO 80525

PITOT TUBE CALIBRATION

PITOT TUBE ID: 9.0'

DATE: 02, 14, 94

TECHNICIAN: B. Langwell



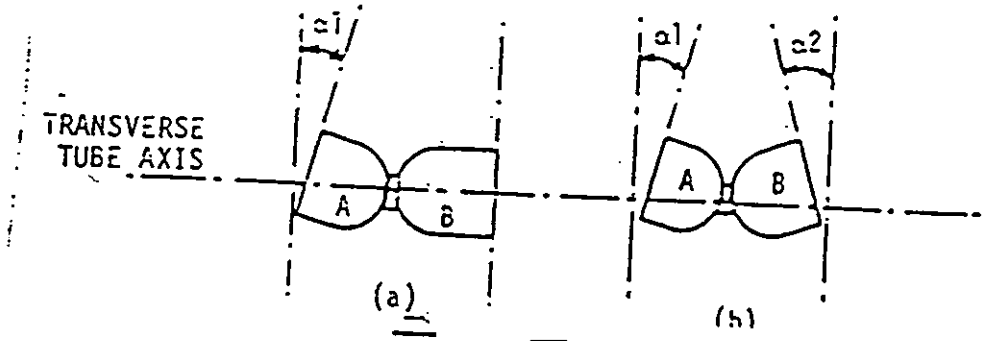
NOTE:

$1.05\ D_t < P < 1.50\ D_t$

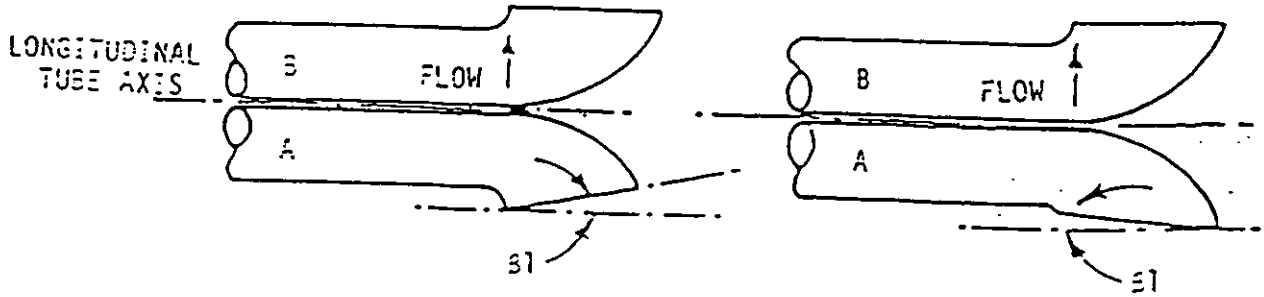
$P_A = P_B$

0.48 CM $\leq D_t \leq$ 0.95 CM
(3/16 IN.) (3/8 IN.)

D_t = 0.375 P_A = 0.491 P_B = 0.492



1 = 1.0° 2 = 1.0°



1 = 1.0° 1 = 20°

SEACOR
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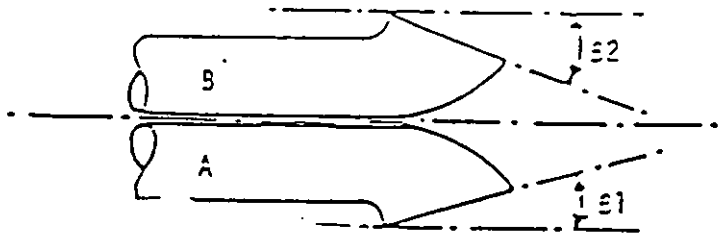
PITOT TUBE CALIBRATION

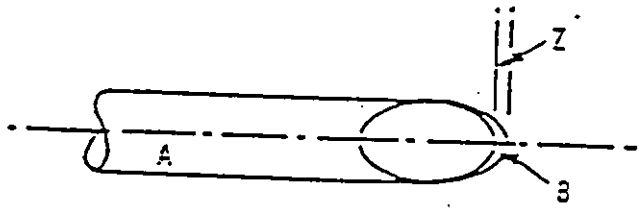
PITOT TUBE ID : 90'

DATE : 02-14-94

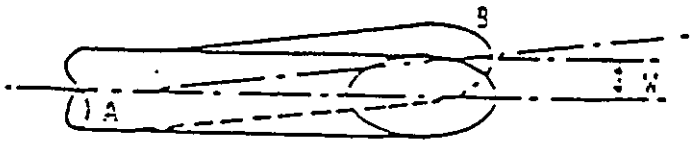
TECHNICIAN : B. Langwell



β1 = 10° β2 = 15°



Z = 10°



W = 20°

PITOT COEFFICIENT (Cp) = 0.84

SEACOR

THERMOCOUPLE CALIBRATION FORM

Thermocouple ID# 9.0'
Date 02-14-94
Barometric Pressure (in.Hg) 26.4"
Calibrator B. Lagunoc
J. Rosberg

Standard ID# Akins-39658
Ambient Temp 78.5 (F)

Temperature Reference Point	Source	Reference Temperature	Thermocouple Potentiometer Temperature	Temperature Difference (%)
0 C (32 F)	Ice Water			
		72.6/532.3	71/530.7	0.3 %
		153.6/613.3	152.0/611.7	0.26
100 C (212 F)	Boiling Water	153.6/613.3	152.0/611.7	0.26 %
150–250 C (300–500 F)	Hot Oil	219.0/678.7	216.0/675.8	.42 %

Temperature Difference (%) <= 1.5%

SEACOR

THERMOCOUPLE CALIBRATION FORM

Thermocouple ID# Imp. Out #1
Date 2/10/94
Barometric Pressure (in.Hg) 25.05
Calibrator I. Faloona

Standard ID# Meter Box #2
Ambient Temp 70° (F)

Temperature Reference Point	Source	Reference Temperature	Thermocouple Potentiometer Temperature	Temperature Difference (%)
0 C (32 F) ~~33.8°F~~	Ice Water	(49.8) 33.8 °F	32 ~~29°~~ (~~48.9~~)	-0.2
≈ 32°F		33.2	32	-0.3
		32.7	31	-0.1
~~100 C (212 F)~~	~~Boiling Water~~			
≈ 115 °F	Warm Water	118.2	114	-0.7
		117	114	-0.5
		117	113	-0.7
150–250 C (300–500 F)	Hot Oil			

Temperature Difference (%) <= 1.5%

SEACOR

THERMOCOUPLE CALIBRATION FORM

Thermocouple ID# Imp. Out #2
Date 2/10/94
Barometric Pressure (in.Hg) 25.05
Calibrator I. Faloona

Standard ID# Meter Box #2
Ambient Temp 70° (F)

Temperature Reference Point	Source	Reference Temperature	Thermocouple Potentiometer Temperature	Temperature Difference (%)
0 C (32 F)	Ice Water	33 °F	33 ~~29~~ °F	0.0
		33.2	32	-0.3
		32.7	31	-0.1
100 C (212 F)	Boiling Water			
		118.2	115	-0.6
		117	114	-0.5
		117	113	-0.7
150–250 C (300–500 F)	Hot Oil			

Temperature Difference (%) <= 1.5%

SEACOR

THERMOCOUPLE CALIBRATION FORM

Thermocouple ID# Imp. Out #3
Date 2/10/94
Barometric Pressure (in.Hg) 25.05
Calibrator I. Faloona

Standard ID# Meter Box #2
Ambient Temp 70° (F)

Temperature Reference Point	Source	Reference Temperature	Thermocouple Potentiometer Temperature	Temperature Difference (%)
0 C (32 F)	Ice Water	33 °F	32	-0.2
		33.2	32	-0.3
		32.7	31	-0.1
100 C (212 F)	Boiling Water			
		118.2	115	-0.6
		117	114	-0.5
		117	113	-0.7
150–250 C (300–500 F)	Hot Oil			

Temperature Difference (%) <= 1.5%

SEACOR

THERMOCOUPLE CALIBRATION FORM

Thermocouple ID# Imp. Out #4
Date 2/10/94
Barometric Pressure (in.Hg) 25.05
Calibrator I. Faloona

Standard ID# Meter Box #2
Ambient Temp 70° (F)

Temperature Reference Point	Source	Reference Temperature	Thermocouple Potentiometer Temperature	Temperature Difference (%)
0 C (32 F)	Ice Water	33°F	32 ~~28~~ °F	-0.2
		33.2	32	-0.3
		32.7	31	-0.1
100 C (212 F)	Boiling Water			
		118.2	114	-0.7
		117	113	-0.7
		117	113	-0.7
150–250 C (300–500 F)	Hot Oil			

Temperature Difference (%) <= 1.5%

Louisiana-Pacific Corporation

111 S.W. Fifth Avenue
Portland, Oregon 97204
503/221-0800
FAX: 503/796-0204

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August 25, 1994

VIA FEDERAL EXPRESS

Mr. Michael F. Wood, Director
Mr. Laxmi Kesari
Multi Media Enforcement & Strategic
Planning Division
U.S. EPA
Aerials Rios Blvd.
1200 Pennsylvania N.W., 7th Floor
Room 7120A
Washington, D.C. 20004

Re: Clean Air Enforcement Action - United States v. Louisiana-Pacific Corporation, No. CV 93-0869 (W.D. La.)

Subject: Testing and Evaluation of Oroville, CA MDF Plant

Dear Gentlemen:

Enclosed pursuant to the requirements of Paragraphs 121 and 122 of the Consent Decree in the above referenced lawsuit are the results of emission tests conducted at the Oroville, California Medium Density Fiberboard (MDF) Line No. 2 of Louisiana-Pacific Corporation (L-P) in June 1994 pursuant to the test protocol approved by the United States Environmental Protection Agency (EPA). Also enclosed is an evaluation by Science and Engineering Analysis Corporation of emissions for Line No. 2 after its startup in 1985 and today.

Based on the enclosed information L-P has determined that the 1985 addition of Line No. 2 triggered prevention of significant deterioration (PSD) permitting for total suspended particulate matter (PM) and nonattainment new source review permitting for volatile organic compound (VOC) emissions. Pursuant to Paragraph 134 of the Consent Decree, L-P has already paid a significant penalty for not obtaining appropriate permits for Line No. 2 in 1985. Pursuant to Paragraph 123 of the Consent Decree, L-P will submit a substantially complete PSD permit application to the EPA and a nonattainment new source review permit application for Line 2 to the Butte

County Air Pollution Control District on or before October 24, 1994. L-P's rationale for its new source permitting determinations at the Oroville Plant is set forth below.

Area Classification in 1985

In May 1985 when Line No. 2 at the Oroville Plant was authorized by the Butte County Air Pollution Control District and continuing through this date, ambient air in the vicinity of the plant site has been designated as attainment or unclassified for all criteria pollutants except ozone. Thus in 1985 and continuing through this date the plant site has been subject to nonattainment new source review requirements for VOC and PSD review requirements for all other regulated pollutants.

PSD Review

The actual emissions from Hardboard Line No. 1 and Boilers No. 1, 2, and 3 at the Oroville Plant in 1984 and 1985 clearly were sufficient to cause the Oroville Plant to be a major stationary source. Thus any net emission increases above the significant amounts defined in 40 C.F.R. 52.21(b)(23) would be considered a major modification and trigger PSD permitting. The addition of Line No. 2 in 1985 triggered PSD review because the PM emissions from Line No. 2 exceeded 25 tons per year (tpy). Because Line No. 2, unlike many other MDF lines, uses indirect heated dryers that in 1985 received steam from existing boilers operating within there allowable emission limits there was not a significant increase in the emission of other regulated pollutants subject to PSD permitting. The only combustion source added with Line No. 2 was a 10 million Btu/hr. natural gas-fired hot oil heater with emissions well below significant amounts.

Nonattainment New Source Review

For nonattainment new source review the existing Oroville Plant in 1985 was a major source of VOC emissions because VOC emissions from point sources at the plant exceeded 100 tpy. Because the actual increased VOC emissions from the addition of Line No. 2 exceeded 40 tpy, Line No. 2 was a major modification that was subject to nonattainment new source review permitting.

Conclusion

Line No. 2 at the Oroville Plant triggered a PSD permitting requirement for PM and a nonattainment new source review permitting requirement for VOC. Pursuant to Paragraph 123 of the Consent Decree, L-P will submit a substantially complete PSD permit application to the EPA and a substantially complete nonattainment new source review permit application to the Butte County Air Pollution Control District on or before October 24, 1994. As provided in Paragraph 123 the initial applications will not include air pollution modeling or detailed descriptions of the pollution control devices proposed by L-P.

Sincerely,

Elizabeth T. Smith (mjv)

Elizabeth T. Smith, Director
Environmental Affairs

ETS:mjv

Enclosures

cc w/encls: Julie Domike, U.S. EPA, Office of Civil Enforcement, Washington, DC
David Howekamp, U.S. EPA, Region IX, San Francisco, CA
Gina Facca, Butte County Air Pollution Control District, Durham, CA

w/out encls: Kirk Girard - Samoa
Rick Grimm - Oroville
Art Green - Oroville
Tom Hadden - Samoa
Bert Krages - Portland
Norm Radford Jr. - Vinson & Elkins, Dallas, TX

August 25, 1994

SEACOR
Science & Engineering
Analysis Corporation

Ms. Elizabeth Smith
Director of Environmental Affairs
Louisiana-Pacific Corporation
111 Southwest 5th Avenue, Suite 4200
Portland, Oregon 97204

RE: Brief Summary Letter
NSR/PSD Applicability - 1985 MDF Line No. 2 Expansion Project
L-P Oroville, California Manufacturing Facility
SEACOR PN: D0027-004-01

Dear Ms. Smith:

Science & Engineering Analysis Corporation (SEACOR) is pleased to provide a brief summary of our findings regarding the NSR/PSD applicability of the 1985 medium density fiberboard (MDF) Line No. 2 expansion project at the Louisiana-Pacific Corporation (L-P) Oroville, California manufacturing facility. These findings are based upon results from the source testing (Tables 1, 2; 3, and 4) performed on the emission points of criteria pollutants associated with MDF Line No. 2. The testing was conducted by SEACOR during a 14-day period beginning June 7, 1994 and ending June 20, 1994.

The L-P Fiberboard Plant was an existing major source for certain criteria pollutants prior to the expansion project that added MDF Line No. 2 in 1985. Table 1 presents the increase in emissions of criteria pollutants (tons/year) associated with the installation of MDF Line No. 2 (1985) and also shows the reductions associated the installation of the filter boxes on the dryer cyclones. Tables 2 and 3 present the emissions of total suspended particulate (TSP) and volatile organic compounds (VOCs) respectively, associated with the MDF Line No. 2 emission sources. The MEC oil heater exhaust stack is the only combustion source associated with the Line No. 2 expansion project and therefore the only source (associated with MDF Line No. 2) that contributes to emissions of nitrogen oxides (NO_x), sulfur dioxide (SO_2), and carbon monoxide (CO) (Table 4). The source testing results of the MDF Line No. 2 expansion project indicates that TSP emissions were 187.6 tons per year (tpy) which exceeds the 25 tpy PSD significance level. The measured VOC emissions of 266.1 tpy also exceeds the 40 tpy PSD significance level. The area where the L-P fiberboard manufacturing facility is located was classified as nonattainment for ozone in 1985 and therefore a nonattainment NSR applicability determination must be made. Emissions of all other measured criteria pollutants are below applicable significance levels.

Please call me at (503) 691-2030 if you have any questions.

Sincerely,
Science & Engineering Analysis Corporation

Jay W. Russell
Air Quality Manager

NSR-PSD.LTR
August 25, 1994

7614 S.W. Mohawk Street, P.O. Box 1508, Tualatin, OR 97062-1508 (503) 691-2030 Ph (503) 692-7074 Fax

TABLE 1
L-P Oroville, California
MDF Line No. 2
EMISSIONS SUMMARY

POLLUTANTS	Emission Rate (tons/yr) (1985*)	(1994**)
PARTICULATE	187.61	132.28
VOC	266.08	185.03
NO_X	3.17	3.17
SO_2	0.02	0.02
CO	ND	ND

* After installation of MDF Line No. 2

** After filter boxes were installed on the dryer cyclones

ND = not detected

Note: Filter boxes on the dryer cyclones were installed in 1992 to reduce emissions. See comments on pages 3-27 and 3-31 of SEACOR's August 1994 report titled "Medium Density Fiberboard Production Line No. 2 Emission Measurement Evaluation" for a discussion of partial emission reduction related to reduced flow from the Fiber Dryer Filter Box Outlets (north and south).

TABLE 2
L-P Oroville, California
MDF Line No. 2
PARTICULATE EMISSIONS

Emission Source	Emission Rate (tons/yr) (1985*)	(1994**)
CARTER DAY #1 - BAGHOUSE	4.31	4.31
CARTER DAY #2 - BAGHOUSE	4.58	4.58
CARTER DAY #4 - BAGHOUSE	22.71	22.71
CARTER DAY #5 - BAGHOUSE	15.14	15.14
ROOF VENT #1 - SOUTH HOT PRESS	15.12	15.12
ROOF VENT #2 - MIDDLE HOT PRESS	13.83	13.83
ROOF VENT #3 - NORTH HOT PRESS	13.93	13.93
ROOF VENT #4 - CUT OFF SAW VENT	17.36	17.36
ROOF VENT #5 - BOARD COOLER VENT	8.81	8.81
FIBER DRYER DOWNCOMER - NORTH	24.50	NA
FIBER DRYER FILTER BOX OUTLET - NORTH	NA	7.89
FIBER DRYER DOWNCOMER - SOUTH	47.32	NA
FIBER DRYER FILTER BOX OUTLET - SOUTH	NA	8.60
TOTALS* **	**187.61**	**132.28**

* After Installation of MDF Line No. 2

** After MDF Line 2 Emission Reduction

*** The 1994 total excludes the Fiber Dryer Downcomer emission rates because they are now routed through the filter box

NA = emission point did not exist during this time period

Note: Filter boxes on the dryer cyclones were installed in 1992 to reduce emissions. See comments on pages 3-27 and 3-31 of SEACOR's August 1994 report titled "Medium Density Fiberboard Production Line No. 2 Emission Measurement Evaluation" for a discussion of partial emission reduction related to reduced flow from the Fiber Dryer Filter Box Outlets (north and south).

TABLE 3
L-P Oroville, California
MDF Line No. 2
VOC EMISSIONS

Emission Source	Emission Rate (tons/yr as Carbon) (1985*)	(1994**)
CARTER DAY #1 - BAGHOUSE	8.64	8.64
CARTER DAY #2 - BAGHOUSE	10.69	10.69
CARTER DAY #4 - BAGHOUSE	14.82	14.82
CARTER DAY #5 - BAGHOUSE	10.97	10.97
ROOF VENT #1 - SOUTH HOT PRESS	5.52	5.52
ROOF VENT #2 - MIDDLE HOT PRESS	2.63	2.63
ROOF VENT #3 - NORTH HOT PRESS	1.79	1.79
ROOF VENT #4 - CUT OFF SAW VENT	3.34	3.34
ROOF VENT #5 - BOARD COOLER VENT	7.18	7.18
FIBER DRYER DOWNCOMER - NORTH	72.10	NA
FIBER DRYER FILTER BOX OUTLET - NORTH	NA	48.83
FIBER DRYER DOWNCOMER - SOUTH	128.40	NA
FIBER DRYER FILTER BOX OUTLET - SOUTH	NA	70.62
TOTALS* **	**266.08**	**185.03**

* After Installation of MDF Line No. 2

** After filter boxes were installed on the dryer cyclones

*** The 1994 total excludes the Fiber Dryer Downcomer emission rates because they are now routed through the filter box

NA = emission point did not exist during this time period

Note: Filter boxes on the dryer cyclones were installed in 1992 to reduce emissions. See comments on pages 3-27 and 3-31 of SEACOR's August 1994 report titled "Medium Density Fiberboard Production Line No. 2 Emission Measurement Evaluation" for a discussion of partial emission reduction related to reduced flow from the Fiber Dryer Filter Box Outlets (north and south).

TABLE 4
L-P Oroville, California
MDF Line No. 2 MEC Oil Heater
EMISSIONS

POLLUTANTS	Emission Rate (tons/yr) (1985*)	(1994**)
VOC	ND	ND
NO_x	3.17	3.17
SO_2	0.02	0.02
CO	ND	ND

* After Installation of MDF Line No. 2

** After MDF Line No. 2 Emission Reduction

ND = not detected

Note: The MEC oil heater exhaust stack is the only combustion source associated the MDF Line No. 2 expansion project. This is the only source that would contribute NO_x, SO_2, and CO emissions.