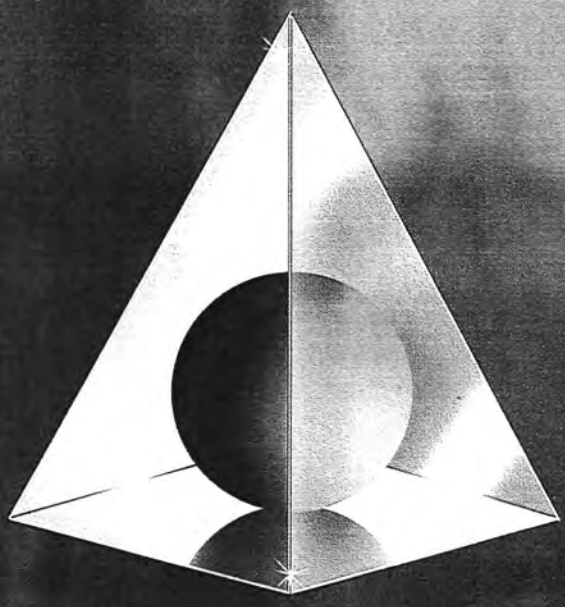

OEH
GROUP LTD

Understanding your environment

MEASUREMENT OF ENVIRONMENTAL EMISSIONS

FROM

THE MANUFACTURE OF PRINTING INKS

at

LINX PRINTING TECHNOLOGIES plc
BURREL ROAD
ST IVES
HUNTINGDON
CAMBRIDGESHIRE
PE17 4LE

REPORT NO:	OEH/17843/STAK/SL27	CLIENT REF:	Purchase Order No:051784
DATE OF VISIT:	5 September 2001	CONTACT ON SITE:	Mr A Craker
DATE OF REPORT:	12 October 2001	DISK REFERENCE:	C:\Reports\OEH17843.doc 12/10/2001 10:17
DATA PROTECTION ACT REGISTRATION NO: B0479 03 4			

CONFIDENTIALITY UNDERTAKING

We undertake that we will not knowingly make use or disclose any confidential information or photographs relating to your business which may have come to our knowledge or attention as a result of our visit on site or otherwise as a result of the work carried out by us in connection with the preparation of this report.

TABLE OF CONTENTS

EXECUTIVE SUMMARY

- The new stack from the ink manufacturing process was tested for the emissions of volatile organic compounds and total particulate matter during normal and typical workloads.
- Levels of volatile organic compounds were significantly above the authorised limit.
- Emission data indicated that the levels of total particulate matter were significantly below the authorised limit.
- Sampling for total particulate matter was conducted under isokinetic conditions in accordance with BS3405:1983.
- As the levels of volatile organic compounds were significantly above the authorised limit some thought needs to go into reducing these levels to achieve compliance with the authorisation.

Surveyed and reported by:

Mr P J Calland
Divisional Manager - Air Quality

Verified by:

Andrew Barnes BSc (Hons)
Environmental Technician

for and on behalf of OEH Group Limited

If you have any queries or comments regarding this report, please contact the Customer Services, OEH Group Ltd. Tel: 0121 359 5361.

1 INTRODUCTION

1.1 Purpose of Survey

The aim of the survey described in this report was to establish compliance with the requirements of the process authorisation issued by the Local Authority for an ink manufacturing process, with reference to variation notice EPA 10/01, Authorisation reference 4/94

OEH Group is accredited under ISO-9002 for the provision of health, safety and environmental consultancy services. The work described in this report was carried out in accord with our ISO-9000 Standard Operating Procedures and Level III: Consultancy Work Instructions.

The field sampling and interpretations made in this report are not covered by the scope of OEH's accreditation under UKAS.

1.2 Terms of Reference

Linx Printing Technologies Limited, Burrel Road, St Ives, Cambridgeshire, PE17 4LE has commissioned OEH Group plc to carry out the work described in this report. Monitoring was carried out on 5 September 2001 by Paul Calland at the request of Mr Andrew Craker.

The work was carried out in accordance with OEH Proposal ref: AL - 8760 dated 3 August 2001.

1.3 Plant conditions

Production schedules on the date of the survey were described as normal. Thus, the data reported herein must be considered typical and representative of the environmental levels experienced during normal daily workloads on this site.

2 PROCESS

2.1 Description

A full description of the processes involved can be found in previous OEH REPORT NO.16829. Although it should be noted that a new stack has been erected with a particulate filtration unit before the final exit to atmosphere.

2.2 Running Parameters

With reference to the graph in appendix 2 the following are applicable to the peaks marked on the graph:

1) Big Vessel solvent mix 1400 litres.

2) 2030 ink in small vessel 400 litres.

3) Mixing 1240 ink 1000 litres big vessel.

4) 1055 ink 450 litres small vessel.

5) Mixing 1240 ink 1000 litres big vessel.

3 METHODS

3.1 Stack Sampling

3.1.1 Stack Velocity & Temperature Measurements

Stack velocity was investigated using an ellipsoidal nosed, pitot tube coupled to an electronic manometer. Temperature measurements were taken using a K-type thermocouple connected to an electronic thermometer.

The manometer and thermometer are subject to regular calibration by a UKAS accredited test house using NPL traceable standards.

3.1.2 Particulates

Periodic extractive sampling was conducted using a Stackmite 9096. Within the limitations of the stack and field conditions, the sampling protocol was in accordance with BS3405:1983. The sampling train was set up and checked for leaks before commencement of the survey and between each sample.

3.1.3 Volatile Organic Compounds (VOC)

Continuous extractive sampling for VOCs was conducted using a Research Engineers Flame Ionisation Detector. The VOC test instrumentation was calibrated using standard span gas methane traceable to an NPL standard. Calibration Certificate Number 13247; dated 28 February 2001.

3.2 Analysis

3.2.1 Techniques & Detection Limits

Analyte	Analysis Technique	Detection Limit (mg)	Analytical Precision, %	Method Reference
VOCs	Gas Chromatograph	0.6	1	OEH Internal
Total Particulate Matter	Gravimetric	20	1	LSOP 202

3.2.2 Accreditation

Service Category	ISO-9002	UKAS[1]	IIP
Consultancy	Yes	No	Yes
Analysis			
- total dusts and fumes	Yes	Yes	Yes
- selected solvents	Yes	Yes	Yes
[1] *UKAS lab number 1821*			
Stack sampling team is a member of the Source Testing Association			

4 PRESENTATION OF RESULTS

The report lists in tabular form details of the results for each sample. For ease of interpretation, the data are classified under the following columns.

- *Location of sampling and activity monitored.*
- Time of sampling.
- Analyte monitored.
- Release limits, in milligrammes per cubic metre.
- Stack release concentrations, in milligrammes per cubic metre. Release data were corrected for standard temperature (273K), and pressure (101.3kPa).
- Stack Parameters; Mean air velocity (Nm/min), mean volume flow rate (Nm^3/hr), mean temperature (°C), cross sectional area (m^2).

5 DISCUSSION

The process monitored is covered by PG6/11(97) - Secretary of States Guidance – Manufacture of Printing Ink. The emission limits are:

Emissions	Concentration
Volatile Organic Compounds (expressed as total carbon excluding particulate matter)	150 $mg.m^{-3}$
Particulate matter	20 $mg.m^{-3}$

* No 30 minute mean emission concentration shall exceed twice the emission concentration limits specified above.

5.1 Total Particulate Matter

Particulate monitoring was undertaken at times when powder was being added to the mixing vessel, which would give the maximum particulate discharge from the process.

The levels of particulate matter monitored averaged 0.23$mg.m^{-3}$, with a maximum figure of 0.3 $mg.m^{-3}$. These figures suggest that the abatement plant is operating very effectively.

5.2 Volatile Organic Compounds

Levels of volatile organic compounds averaged 315.1 $mg.m^{-3}$ over the 8 hour monitoring period, obviously this figure is significantly above the 150 $mg.m^{-3}$ limit, thus compliance with the authorisation was not achieved.

6 CONCLUSIONS

It can be seen from the data that the process is fully compliant with the authorisation for total particulate matter.

For volatile organic compounds the process did not demonstrate compliance with the authorisation. Some form of abatement technology, such as activated charcoal beds should be considered. Alternatively a solvent reduction strategy could be implemented or the use of compliant inks be used to help reduce these levels to an acceptable level.

7 APPENDICES

Appendix I: Results Tables

Appendix II: Profiling Data

APPENDIX I

RESULTS TABLES

ENVIRONMENTAL RELEASE DATA FOR LINX PRINTING

			ENVIRONMENTAL RELEASE LEVELS[1]			
	POINT REFERENCE AND ACTIVITY MONITORED		NEW STACK – INK MANUFACTURING			
	TIME OF SAMPLING		12:07 – 12:23	12:34 – 12:50	13:06 – 13:22	08:25 - 16:26
	DATE OF SAMPLING		05 September 2001			
ANALYTE(S)	**UNITS**	**RELEASE LIMIT**				
TPM	$mg.m^{-3}$	20	0.3	0.2	0.2	
VOC	$mg.m^{-3}$	150				315.1
STACK PHYSICAL PARAMETERS						
Mean Air Velocity	Nm/sec		14 ±1%	-	-	-
Mean Volume Flow Rate	Nm^3/hr		4604 ±1%	-	-	-
Mean Temperature	°C		17 ±2	-	-	-
Cross Sectional Area	M^2		0.10	-	-	-

[1] Release data and stack flow parameters have been corrected for standard temperature (273K) and pressure (101.3kPa) but no correction has been made for water vapour.

< dl – less than detection limit

APPENDIX II

PROFILING DATA

Job Ref:	OEH 17843
Client Name:	Linx Printing
Location:	New Stack - Ink
Date:	5-Sep-01
Scientist:	Paul Calland

Technical Details

Instrument Type	FID
Calib Gas	Methane
% C:	75%
Sample Number:	861
Spilt Ratio:	1
Emission Limit:	150

Sampling Time	VOC as Carbon (ppm)	Stack Temp. (°C)	VOC as C at STP (mg/m³)
08:25	3.1	17	7.87
08:26	3.3	17	8.35
08:27	3.3	17	8.35
08:28	3.5	17	8.92
08:29	3.5	17	8.92
08:30	0.5	17	1.14
08:31	0.2	17	0.57
08:32	100.0	17	253.03
08:33	2.4	17	6.17
08:34	1.3	17	3.32
08:35	0.2	17	0.57
08:36	1.3	17	3.32
08:37	1.8	17	4.46
08:38	2.2	17	5.60
08:39	1.5	17	3.89
08:40	1.8	17	4.46
08:41	6.0	17	15.09
08:42	8.0	17	20.11
08:43	92.5	17	234.06
08:44	87.2	17	220.58
08:45	35.9	17	90.70
08:46	35.0	17	88.42
08:47	44.3	17	111.95
08:48	39.2	17	99.05
08:49	44.3	17	111.95
08:50	33.6	17	85.10
08:51	46.9	17	118.69
08:52	42.0	17	106.35
08:53	41.8	17	105.79
08:54	40.1	17	101.33
08:55	44.3	17	111.95
08:56	44.0	17	111.38
08:57	41.8	17	105.79
08:58	36.9	17	93.45
08:59	34.3	17	86.81
09:00	39.4	17	99.62
09:01	38.3	17	96.87
09:02	31.4	17	79.51
09:03	42.5	17	107.49
09:04	150.5	17	380.73
09:05	158.9	17	401.99
09:06	128.3	17	324.66
09:07	109.3	17	276.56
09:08	95.1	17	240.70
09:09	76.6	17	193.73
09:10	71.5	17	180.83
09:11	80.6	17	203.79
09:12	71.0	17	179.69

Job Ref: OEH 17843
Client Name: *Linx Printing*
Location: New Stack - Ink
Date: 5-Sep-01
Scientist: Paul Calland

Technical Details

Instrument Type	FID
Calib Gas	Methane
% C:	75%
Sample Number:	861
Spilt Ratio:	1
Emission Limit:	150

Sampling Time	VOC as Carbon (ppm)	Stack Temp. (°C)	VOC as C at STP (mg/m³)
09:13	125.3	17	316.88
09:14	45.8	17	115.84
09:15	49.1	17	124.29
09:16	52.9	17	133.77
09:17	52.9	17	133.77
09:18	49.1	17	124.29
09:19	45.8	17	115.84
09:20	55.3	17	139.94
09:21	57.8	17	146.11
09:22	47.8	17	120.97
09:23	52.0	17	131.59
09:24	47.4	17	119.83
09:25	46.9	17	118.69
09:26	42.5	17	107.49
09:27	36.5	17	92.41
09:28	37.2	17	94.02
09:29	33.4	17	84.53
09:30	28.3	17	71.63
09:31	23.9	17	60.44
09:32	20.8	17	52.66
09:33	16.6	17	42.03
09:34	19.0	17	48.10
09:35	16.6	17	42.03
09:36	18.4	17	46.49
09:37	15.5	17	39.18
09:38	18.2	17	45.92
09:39	14.2	17	35.86
09:40	16.4	17	41.46
09:41	13.7	17	34.72
09:42	14.0	17	35.29
09:43	14.4	17	36.34
09:44	14.6	17	36.91
09:45	14.2	17	35.86
09:46	18.4	17	46.49
09:47	44.9	17	113.66
09:48	20.6	17	52.09
09:49	17.7	17	44.78
09:50	18.6	17	47.06
09:51	15.5	17	39.18
09:52	13.5	17	34.16
09:53	17.9	17	45.35
09:54	14.0	17	35.29
09:55	25.7	17	64.89
09:56	25.7	17	64.89
09:57	27.5	17	69.45
09:58	27.2	17	68.88
09:59	23.3	17	58.82
10:00	18.8	17	47.63

Job Ref:	OEH 17843
Client Name:	Linx Printing
Location:	New Stack - Ink
Date:	5-Sep-01
Scientist:	Paul Calland

Technical Details

Instrument Type	FID
Calib Gas	Methane
% C:	75%
Sample Number:	861
Spilt Ratio:	1
Emission Limit:	150

Sampling Time	VOC as Carbon (ppm)	Stack Temp. (°C)	VOC as C at STP (mg/m³)
10:01	20.1	17	50.95
10:02	15.3	17	38.61
10:03	18.2	17	45.92
10:04	14.2	17	35.86
10:05	14.6	17	36.91
10:06	14.0	17	35.29
10:07	17.7	17	44.78
10:08	20.1	17	50.95
10:09	15.7	17	39.75
10:10	13.5	17	34.16
10:11	19.2	17	48.67
10:12	20.8	17	52.66
10:13	30.1	17	76.09
10:14	28.1	17	71.06
10:15	35.6	17	90.13
10:16	42.0	17	106.35
10:17	38.5	17	97.44
10:18	34.5	17	87.29
10:19	31.9	17	80.64
10:20	30.8	17	77.80
10:21	32.5	17	82.26
10:22	33.2	17	83.96
10:23	31.2	17	78.94
10:24	24.6	17	62.14
10:25	36.3	17	91.84
10:26	30.8	17	77.80
10:27	68.6	17	173.53
10:28	35.9	17	90.70
10:29	34.3	17	86.81
10:30	33.0	17	83.40
10:31	28.1	17	71.06
10:32	26.8	17	67.74
10:33	30.1	17	76.09
10:34	21.5	17	54.27
10:35	21.2	17	53.70
10:36	24.6	17	62.14
10:37	36.1	17	91.27
10:38	580.9	17	1469.61
10:39	245.6	17	621.43
10:40	135.0	17	341.55
10:41	285.4	17	722.00
10:42	132.8	17	335.86
10:43	150.4	17	380.45
10:44	214.5	17	542.69
10:45	238.9	17	604.35
10:46	343.1	17	868.11
10:47	241.1	17	610.05
10:48	99.4	17	251.42

Job Ref:	OEH 17843
Client Name:	Linx Printing
Location:	*New Stack - Ink*
Date:	5-Sep-01
Scientist:	Paul Calland

Technical Details

Instrument Type	FID
Calib Gas	Methane
% C:	75%
Sample Number:	861
Spilt Ratio:	1
Emission Limit:	150

Sampling Time	VOC as Carbon (ppm)	Stack Temp. (°C)	VOC as C at STP (mg/m³)
10:49	154.9	17	391.83
10:50	166.1	17	420.30
10:51	163.9	17	414.60
10:52	166.1	17	420.30
10:53	172.5	17	436.43
10:54	172.5	17	436.43
10:55	172.5	17	436.43
10:56	177.0	17	447.81
10:57	177.0	17	447.81
10:58	177.0	17	447.81
10:59	183.8	17	464.89
11:00	194.6	17	492.40
11:01	192.4	17	486.71
11:02	194.6	17	492.40
11:03	196.9	17	498.09
11:04	188.3	17	476.27
11:05	194.6	17	492.40
11:06	190.1	17	481.02
11:07	163.9	17	414.60
11:08	152.6	17	386.14
11:09	145.9	17	369.06
11:10	150.4	17	380.45
11:11	152.6	17	386.14
11:12	157.1	17	397.53
11:13	154.9	17	391.83
11:14	150.4	17	380.45
11:15	152.6	17	386.14
11:16	154.9	17	391.83
11:17	152.6	17	386.14
11:18	154.9	17	391.83
11:19	145.9	17	369.06
11:20	148.1	17	374.76
11:21	154.9	17	391.83
11:22	154.9	17	391.83
11:23	157.1	17	397.53
11:24	152.6	17	386.14
11:25	154.9	17	391.83
11:26	157.1	17	397.53
11:27	152.6	17	386.14
11:28	154.9	17	391.83
11:29	152.6	17	386.14
11:30	143.6	17	363.37
11:31	152.6	17	386.14
11:32	145.9	17	369.06
11:33	154.9	17	391.83
11:34	145.9	17	369.06
11:35	154.9	17	391.83
11:36	150.4	17	380.45

Job Ref:	OEH 17843
Client Name:	Linx Printing
Location:	New Stack - Ink
Date:	5-Sep-01
Scientist:	Paul Calland

Technical Details

Instrument Type	FID
Calib Gas	Methane
% C:	75%
Sample Number:	861
Spilt Ratio:	1
Emission Limit:	150

Sampling Time	VOC as Carbon (ppm)	Stack Temp. (°C)	VOC as C at STP (mg/m³)
11:37	145.9	17	369.06
11:38	143.6	17	363.37
11:39	201.4	17	509.48
11:40	201.4	17	509.48
11:41	174.8	17	442.12
11:42	174.8	17	442.12
11:43	168.0	17	425.04
11:44	177.0	17	447.81
11:45	179.3	17	453.50
11:46	145.9	17	369.06
11:47	141.8	17	358.63
11:48	135.0	17	341.55
11:49	135.0	17	341.55
11:50	159.4	17	403.22
11:51	179.3	17	453.50
11:52	157.1	17	397.53
11:53	174.8	17	442.12
11:54	168.0	17	425.04
11:55	157.1	17	397.53
11:56	152.6	17	386.14
11:57	148.1	17	374.76
11:58	137.3	17	347.24
11:59	132.8	17	335.86
12:00	130.5	17	330.17
12:01	139.5	17	352.94
12:02	130.5	17	330.17
12:03	130.5	17	330.17
12:04	135.0	17	341.55
12:05	130.5	17	330.17
12:06	135.0	17	341.55
12:07	354.0	17	895.62
12:08	243.4	17	615.74
12:09	232.5	17	588.23
12:10	190.1	17	481.02
12:11	179.3	17	453.50
12:12	174.8	17	442.12
12:13	161.6	17	408.91
12:14	152.6	17	386.14
12:15	307.5	17	777.98
12:16	243.4	17	615.74
12:17	228.0	17	576.84
12:18	161.6	17	408.91
12:19	150.4	17	380.45
12:20	157.1	17	397.53
12:21	163.9	17	414.60
12:22	166.1	17	420.30
12:23	168.0	17	425.04
12:24	174.8	17	442.12

Job Ref:	OEH 17843
Client Name:	Linx Printing
Location:	New Stack - Ink
Date:	5-Sep-01
Scientist:	Paul Calland

Technical Details

Instrument Type	FID
Calib Gas	Methane
% C:	75%
Sample Number:	861
Spilt Ratio:	1
Emission Limit:	150

Sampling Time	VOC as Carbon (ppm)	Stack Temp. (°C)	VOC as C at STP (mg/m³)
12:25	174.8	17	442.12
12:26	172.5	17	436.43
12:27	174.8	17	442.12
12:28	181.5	17	459.20
12:29	170.3	17	430.73
12:30	170.3	17	430.73
12:31	168.6	17	426.56
12:32	168.2	17	425.51
12:33	171.5	17	433.86
12:34	169.5	17	428.84
12:35	170.0	17	429.97
12:36	169.5	17	428.84
12:37	167.5	17	423.81
12:38	164.0	17	414.79
12:39	163.3	17	413.18
12:40	162.0	17	409.77
12:41	150.0	17	379.59
12:42	154.5	17	390.79
12:43	147.2	17	372.29
12:44	146.1	17	369.54
12:45	144.0	17	364.41
12:46	131.2	17	331.97
12:47	133.9	17	338.70
12:48	133.0	17	336.43
12:49	146.7	17	371.15
12:50	143.2	17	362.23
12:51	151.6	17	383.48
12:52	156.9	17	396.96
12:53	207.6	17	525.13
12:54	191.9	17	485.38
12:55	193.6	17	489.84
12:56	195.0	17	493.26
12:57	208.2	17	526.84
12:58	204.5	17	517.26
12:59	191.0	17	483.10
13:00	187.2	17	473.62
13:01	208.9	17	528.45
13:02	189.4	17	479.21
13:03	180.8	17	457.39
13:04	163.8	17	414.32
13:05	158.0	17	399.71
13:06	151.1	17	382.35
13:07	176.1	17	445.63
13:08	249.6	17	631.49
13:09	170.2	17	430.54
13:10	245.9	17	622.00
13:11	343.9	17	870.00
13:12	462.3	17	1169.52

Job Ref:	OEH 17843
Client Name:	Linx Printing
Location:	New Stack - Ink
Date:	5-Sep-01
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Technical Details

Instrument Type	FID
Calib Gas	Methane
% C:	75%
Sample Number:	861
Spilt Ratio:	1
Emission Limit:	150

Sampling Time	VOC as Carbon (ppm)	Stack Temp. (°C)	VOC as C at STP (mg/m³)
13:13	172.2	17	435.57
13:14	162.0	17	409.77
13:15	158.2	17	400.28
13:16	146.7	17	371.15
13:17	141.8	17	358.82
13:18	138.3	17	349.90
13:19	192.9	17	488.13
13:20	225.5	17	570.48
13:21	268.8	17	680.16
13:22	596.6	17	1509.37
13:23	484.2	17	1224.93
13:24	331.1	17	837.56
13:25	276.2	17	698.66
13:26	236.8	17	599.04
13:27	209.8	17	530.73
13:28	172.4	17	436.14
13:29	148.9	17	376.75
13:30	136.1	17	344.30
13:31	128.1	17	324.19
13:32	137.0	17	346.58
13:33	188.5	17	476.94
13:34	176.8	17	447.34
13:35	174.6	17	441.74
13:36	164.2	17	415.36
13:37	152.3	17	385.19
13:38	167.5	17	423.81
13:39	153.6	17	388.51
13:40	148.5	17	375.61
13:41	145.8	17	368.97
13:42	138.5	17	350.47
13:43	140.3	17	354.93
13:44	130.8	17	330.83
13:45	170.2	17	430.54
13:46	147.8	17	374.00
13:47	171.5	17	433.86
13:48	206.3	17	521.81
13:49	177.0	17	447.90
13:50	191.0	17	483.10
13:51	177.3	17	448.47
13:52	170.6	17	431.68
13:53	171.3	17	433.29
13:54	173.5	17	438.89
13:55	164.9	17	417.07
13:56	176.8	17	447.34
13:57	151.6	17	383.48
13:58	175.7	17	444.49
13:59	170.4	17	431.11
14:00	177.0	17	447.90

Job Ref:	OEH 17843
Client Name:	Linx Printing
Location:	New Stack - Ink
Date:	5-Sep-01
Scientist:	Paul Calland

Technical Details

Instrument Type	FID
Calib Gas	Methane
% C:	75%
Sample Number:	861
Spilt Ratio:	1
Emission Limit:	150

Sampling Time	VOC as Carbon (ppm)	Stack Temp. (°C)	VOC as C at STP (mg/m³)
14:01	164.0	17	414.79
14:02	168.2	17	425.51
14:03	154.0	17	389.65
14:04	164.9	17	417.07
14:05	155.1	17	392.40
14:06	274.4	17	694.20
14:07	275.3	17	696.48
14:08	196.5	17	497.15
14:09	181.2	17	458.53
14:10	152.5	17	385.76
14:11	134.8	17	340.98
14:12	126.6	17	320.20
14:13	115.5	17	292.22
14:14	107.1	17	270.96
14:15	99.3	17	251.32
14:16	91.8	17	232.35
14:17	89.2	17	225.61
14:18	86.5	17	218.88
14:19	77.7	17	196.49
14:20	77.2	17	195.35
14:21	208.0	17	526.27
14:22	158.7	17	401.42
14:23	131.7	17	333.11
14:24	123.3	17	311.85
14:25	295.4	17	747.43
14:26	266.6	17	674.56
14:27	225.5	17	570.48
14:28	199.4	17	504.45
14:29	160.9	17	407.01
14:30	143.0	17	361.66
14:31	118.2	17	298.95
14:32	106.0	17	268.12
14:33	113.3	17	286.62
14:34	114.2	17	288.89
14:35	117.7	17	297.81
14:36	165.3	17	418.21
14:37	144.0	17	364.41
14:38	262.9	17	665.07
14:39	208.5	17	527.41
14:40	182.8	17	462.42
14:41	180.6	17	456.82
14:42	144.5	17	365.55
14:43	129.7	17	328.08
14:44	116.4	17	294.49
14:45	104.2	17	263.66
14:46	121.3	17	306.83
14:47	88.3	17	223.34
14:48	81.6	17	206.54

Job Ref: OEH 17843
Client Name: Linx Printing
Location: New Stack - Ink
Date: 5-Sep-01
Scientist: Paul Calland

Technical Details

Instrument Type	FID
Calib Gas	Methane
% C:	75%
Sample Number:	861
Spilt Ratio:	1
Emission Limit:	150

Sampling Time	VOC as Carbon (ppm)	Stack Temp. (°C)	VOC as C at STP (mg/m³)
14:49	158.2	17	400.28
14:50	197.6	17	499.90
14:51	123.5	17	312.42
14:52	128.6	17	325.23
14:53	103.8	17	262.52
14:54	85.2	17	215.56
14:55	75.0	17	189.75
14:56	74.1	17	187.57
14:57	88.1	17	222.77
14:58	94.5	17	239.09
14:59	98.7	17	249.71
15:00	99.8	17	252.46
15:01	117.7	17	297.81
15:02	224.8	17	568.78
15:03	149.1	17	377.32
15:04	134.8	17	340.98
15:05	147.4	17	372.86
15:06	134.3	17	339.84
15:07	130.8	17	330.83
15:08	125.9	17	318.59
15:09	138.5	17	350.47
15:10	136.1	17	344.30
15:11	137.6	17	348.19
15:12	129.5	17	327.51
15:13	123.5	17	312.42
15:14	120.2	17	303.98
15:15	136.3	17	344.87
15:16	138.5	17	350.47
15:17	141.0	17	356.64
15:18	150.3	17	380.16
15:19	140.3	17	354.93
15:20	138.8	17	351.04
15:21	170.2	17	430.54
15:22	180.3	17	456.25
15:23	184.3	17	466.31
15:24	171.0	17	432.72
15:25	399.2	17	1009.94
15:26	315.1	17	797.23
15:27	504.5	17	1276.45
15:28	104.9	17	265.37
15:29	77.4	17	195.92
15:30	100.9	17	255.31
15:31	117.9	17	298.38
15:32	133.2	17	337.00
15:33	126.3	17	319.63
15:34	110.0	17	278.27
15:35	110.0	17	278.27
15:36	91.4	17	231.21

Job Ref:	OEH 17843
Client Name:	Linx Printing
Location:	New Stack - Ink
Date:	5-Sep-01
Scientist:	*Paul Calland*

Technical Details

Instrument Type	FID
Calib Gas	Methane
% C:	75%
Sample Number:	861
Spilt Ratio:	1
Emission Limit:	150

Sampling Time	VOC as Carbon (ppm)	Stack Temp. (°C)	VOC as C at STP (mg/m³)
15:37	87.9	17	222.29
15:38	88.3	17	223.34
15:39	77.0	17	194.78
15:40	76.1	17	192.60
15:41	77.9	17	197.06
15:42	73.7	17	186.43
15:43	76.1	17	192.60
15:44	67.1	17	169.64
15:45	89.4	17	226.18
15:46	100.2	17	253.60
15:47	94.7	17	239.65
15:48	96.3	17	243.54
15:49	95.1	17	240.70
15:50	92.1	17	232.92
15:51	96.9	17	245.25
15:52	91.2	17	230.64
15:53	89.6	17	226.75
15:54	96.0	17	242.97
15:55	96.9	17	245.25
15:56	96.5	17	244.11
15:57	93.4	17	236.24
15:58	91.6	17	231.78
15:59	104.4	17	264.23
16:00	93.8	17	237.38
16:01	108.0	17	273.24
16:02	99.8	17	252.46
16:03	87.9	17	222.29
16:04	191.0	17	483.10
16:05	162.9	17	412.04
16:06	166.6	17	421.53
16:07	126.8	17	320.77
16:08	122.8	17	310.72
16:09	104.4	17	264.23
16:10	83.4	17	211.10
16:11	77.9	17	197.06
16:12	75.7	17	191.46
16:13	68.6	17	173.53
16:14	65.3	17	165.18
16:15	67.3	17	170.21
16:16	89.2	17	225.61
16:17	87.2	17	220.58
16:18	75.2	17	190.32
16:19	85.4	17	216.13
16:20	82.1	17	207.68
16:21	72.2	17	182.54
16:22	54.2	17	137.19
16:23	73.7	17	186.43
16:24	70.2	17	177.51

Job Ref:	OEH 17843
Client Name:	Linx Printing
Location:	New Stack - Ink
Date:	5-Sep-01
Scientist:	Paul Calland

Technical Details

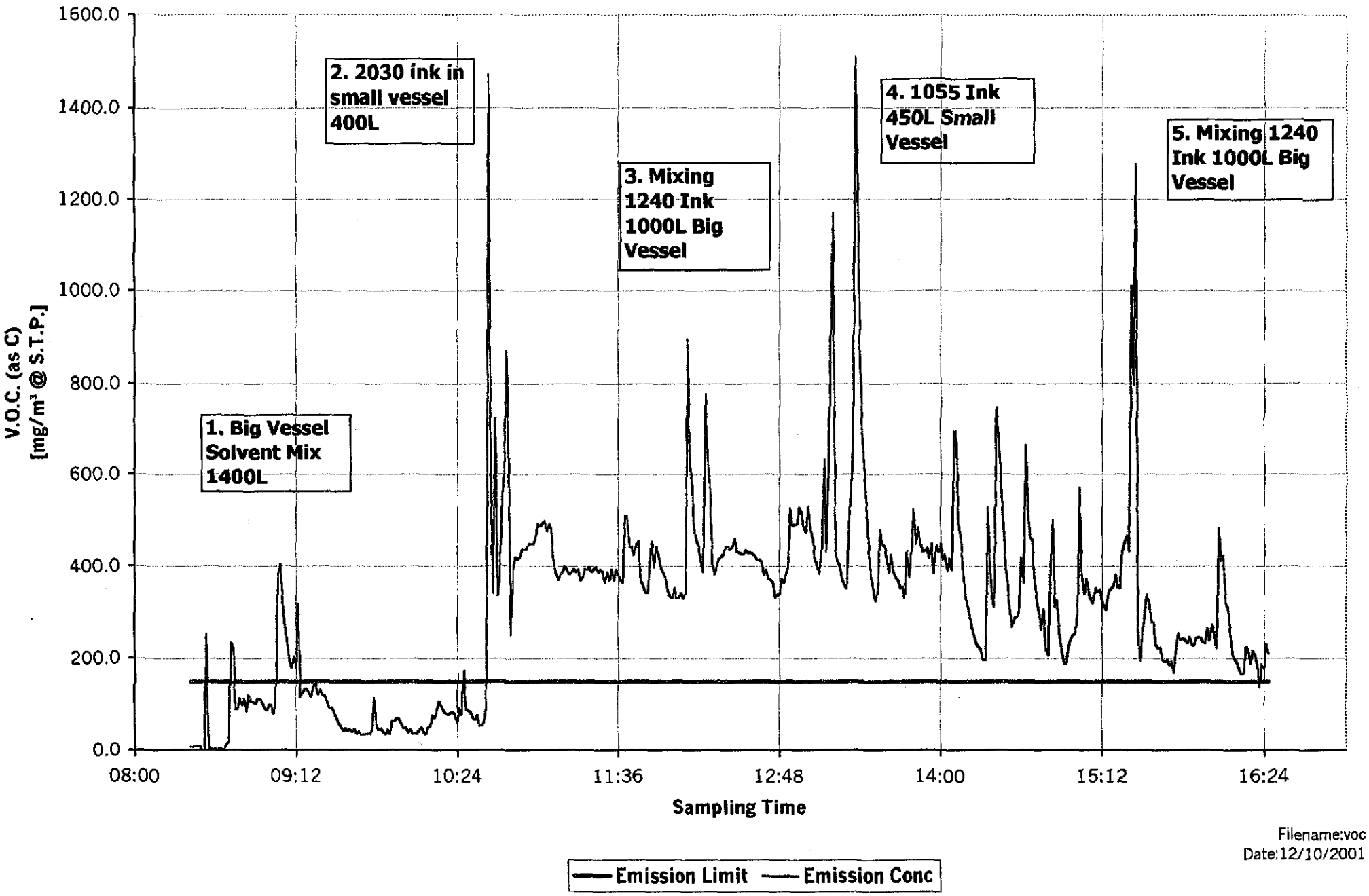
Instrument Type	FID
Calib Gas	Methane
% C:	75%
Sample Number:	861
Spilt Ratio:	1
Emission Limit:	150

Sampling Time	VOC as Carbon (ppm)	Stack Temp. (°C)	VOC as C at STP (mg/m³)
16:25	91.2	17	230.64
16:26	83.0	17	209.96

OEH 252
OEH_VOC_v1.1
Issue 2

VOC Profiling Data for New Stack - Ink Manufacturing

OEH Group Limited



Filename:voc
Date:12/10/2001

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