# Local Exhaust Ventilation (LEV) Commissioning Report

System ID: Date of Inspection: Report Reference:

Summary of the Assessment of Control				
Satisfactory	Unsatisfactory			

### Table of Contents

1	Exec	cutive Summary	4					
2	Clier	Clients Details						
3	Site	Site Details4						
4	LEV	Plant Details	4					
5	Test	t Engineers Details	5					
6	Witr	nessing	5					
7	Addi	litional Plant Information	6					
8	DSE	AR & ATEX	6					
9	Cond	clusions and Comments	6					
10	Drav	wings	7					
1	0.1	Schematic	7					
1	0.2	General Arrangement	8					
11	Phot	tographs	9					
12	Asse	essment	10					
1	2.1	Installation	10					
1	2.2	Hoods	11					
1	2.3	Capture hoods	11					
1	2.4	Clearance time	11					
1	2.5	Filter	11					
1	2.6	Quantitative assessment	12					
1	2.7	HEPA Filter	12					
1	2.8	Quantitative assessment	12					
1	2.9	Fan	13					
1	2.10	Quantitative assessment	13					
1	2.11	Fan Drive type	13					
1	2.12	Motor	13					
1	2.13	Controls	13					
1	2.14	Other	14					
1	2.15	Ducting	14					
1	2.16	Quantitative assessment	14					
1	2.17	Discharge Arrangement	14					
1	2.18	Air sampling results	14					
13	Calik	bration Certificates	15					

#### Date of Inspection:

#### **Report Reference:**

14	Appendix A – Design information checklist	16
15	Appendix A – Filter	17
16	Appendix A – Air mover (fan)	18
17	Appendix A – Hoods	21
18	Appendix A – Ducting	22
19	Appendix A – Other Equipment (please specify)	23

#### System ID: Date of Inspection: Report Reference:

### 1 Executive Summary

The "enter system description" has been subjected to a commissioning procedure, including a thorough examination and test to ensure it can provide adequate control to comply with the Control of Substances Hazardous to Health (COSHH) Regulations 2002 (as amended). The outcome of this assessment is that the system has been deemed satisfactory / Unsatisfactory, there are some areas that require attention to Improve the system or bring the system into compliance. These are listed below in order of priority

	Responsible	Due date
	person	
1		
2		
3		
4		
5		

#### 2 Clients Details

Name: Address:

Responsible Person: Contact details:

#### 3 Site Details

Address/site:

Area/room number/name:

Conditions during test:

#### 4 LEV Plant Details

Brief description of system:

Serial number:

Asset number:

(what to be controlled, how to be controlled, number of hoods to be used at any time, system details)

Description of process to be controlled: (including: type of tool/equipment/machinery, frequency of process, duration of process, quantities of substances, operating temperatures, other control measures to be used)

Hazardous substance to be controlled: (including: substance name, WEL, quantity being used, physical form, corrosivity, vapour density)

### 5 Test Engineers Details

I can confirm that the system addressed by this report has been carried out in full accordance with COSHH Regulation 9 and can be used as the data required for a comparison for ongoing Text Reports.
Name:
Signature:

Contact details:

#### 6 Witnessing

The objective is formally to witness, on behalf of the client or his/her representative, the degree to which the requirements of the commissioning specification have been met.

The witnessing agent should:

- 1. be satisfied that, throughout the installation and balancing process, the requirements of the commissioning specification have been met
- check the flow rate at any selected flow measurement point using a similar instrument and compare with the data recorded by the commissioning engineer and with the designer's requirements, which should include any permitted tolerance
- 3. check performance of all plant and systems
- 4. visually inspect any part of the system to ensure that certification is correct
- 5. countersign and endorse as necessary the certificate of the appointed commissioning specialist verifying that systems have been balanced in accordance with the specification requirements
- 6. where required, complete a separate witnessing certificate confirming satisfaction, one copy of which is handed to the commissioning specialist
- 7. check correct operation of the control system
- 8. check the correct operation of life safety systems.
- 9. check the system is in a clean acceptable condition.

The system performance, and effective control of the hazardous substance (or surrogate), was demonstrated by the above in the presence of:

Name:

Signature:

Contact details:

Date of Inspection:

**Report Reference:** 

Frequency of testing:	Monthly	6 monthly	14 monthly	Other (specify)
(Tick one)				
Evidence of:	COSHH Reg 6 Risk Assessment	DSEAR Reg 5 Risk Assessment	Material Safety Data Sheets	
(Tick)				
Evidence of	Design	Laghaak		Llear training records
Evidence of:	Specification	LOGDOOK		User training records
(Tick)				

Is the substance:	Flammable?	Y/N	Explosiv	e? Y/N	
Is the generation of	an explosive atmo	osphere:	Present	Likely	Unlikely
(Tick one)					
					·
DSEAR Zoning:			Work area	Hood	Plant
Lower Explosive Lim	it:			Upper Explosive Limit:	
1			·		
Explosion vent pane	l:				
Is one required?			Y/N	Is one fitted?	Y/N
Is it venting to a safe	e place?		Y/N	Is it in good condition?	Y/N
Explosion non-retur	n damper:				
Is one required?			Y/N	Is one fitted?	Y/N

Y/N

### 9 Conclusions and Comments

Is the connecting ductwork suitable?

- 1
- 2
- 3
- 4
- 5

Date of Inspection:

**Report Reference:** 

### 10 Drawings

10.1 Schematic

Line schematic to show key components of the system.

Notes/Comments:

Date of Inspection:

#### **Report Reference:**

10.2 General Arrangement

Dimensioned drawing of the system to include location of test points and DSEAR exclusion zones.

Notes/Comments:

Date of Inspection:

#### **Report Reference:**

11	Photographs	
	Photo	Description/Comments
1		
2		
_		
3		
4		
F		
5		

### 12 Assessment

12.1 Installation						
Element of system	Component check list completed (see Appendix A)	Installed in accordance with the system design? (Tick)	Installed in accordance with manufacturer's instructions? (Tick)	Comply with Regulations? (Tick)	Comply with industry standards and best practice? (Tick)	Comments
Hoods						
Air flow indication devices						
Ducting						
Test points						
Inspection panels						
Balancing dampers						
Filters						
Pressure gauge to filters						
Air mover						
Discharge arrangement						
Fixings and support systems						
Electrical installation						
On/off controls						
Earth bonding						
Waste collection						

**Date of Inspection:** 

#### **Report Reference:**

12.2 Hoods										
	Туре	Туре	Туре	Dimensions	Meas	ured	Air volume	Fut	ure	Test kit
Hood Ref	Receiving   Capture		Static pressure	Face Velocity	flowrate	Bencł	nmark	used		
Partial  Full Enclosure   Other (specify)		(Pa)			Velocity (m/sec)	Static Pressure (Pa)	Hotwire / Rotating Vane			

Hood diversity

in use at any given time.

Statement on effective capture zone:

Method of test: (Provide photographic evidence)

Notes/comments: e.g. Installed in accordance with design, appropriateness, usage, effectiveness of control, air flow indication devices etc. The contaminant is / is not released in the effective capture zone of the hood.

Smoke release | Dust Lamp | Other (specify)

of

12.3 Capture hood	ds <sup>I</sup>	Is appropriate?		YES (complete below) plete NO (move to next section)		
Hood Ref	Size	Capture velocity	Capture distance	Is working zone in capture zone?	Comments	
nood nei	(m x m)		(m)	Yes/No		

12.4 Clearance t	time Is app	propriate?	YES (complete belo	w) NO (move to next section)
Hood Ref	Size (m x m)	Air volume flow rate (m³/sec)	Clearance time (minutes)	Comments

12.5 Filter	Is a filter fitted?	YES (complete below) NO (move to next section)
Visual assessment		
Filter type		Manufacturer
Model		Serial number
Filter media type		Filtration area (m <sup>2</sup> )

**Date of Inspection:** 

#### **Report Reference:**

Antistatic

Air Return to working environment (if yes see below) Cleaning device type (compressed air/shaker/water pump etc) Duration of cleaning period

**ATEX Rating** 

Earth bonding

Explosion non-return damper

Condition of filter media

Filter Monitoring e.g. Alarms

Conditio

Frequency of cleaning

**Explosion Relief** 

Explosion relief location

High pressure ducting (between plant and non-return damper)

12.6 Quantitative assessment	
Inlet Static pressure (Pa)	Out
Differential Pressure (Pa)	Volu

Contaminant Breakthrough

Notes/comments: e.g. Installed in accordance with manufacturers design, pressure gauges fitted either side of filter, noise levels, vibration, corrosion etc. Outlet Static (Pa) Volume Airflow rate (m<sup>3</sup>/hr) Filter efficiency

12.7 HEPA Filter	Is the air returned to the working environment?	YES (complete below) NO (move to next section)
	Is a HEPA filter fitted?	YES (complete below) NO (move to next section)
Visual assessment		
Filter type		Manufacturer
Model		Serial number
Filter media type		Filtration area (m <sup>2</sup> )
Condition of filter media		Filter Monitoring e.g. Alarms
Has it been tested to ISO14644-3		Test results
Date of last test		Date of next test (minimum 6 to 12month)

#### 12.8 Quantitative assessment

Inlet Static pressure (Pa)

Differential Pressure (Pa)

Contaminant Breakthrough

Notes/comments: e.g. Installed in accordance with manufacturers design, pressure gauges fitted either side of filter, compliance to ISO14644-3 etc. Outlet Static (Pa)

Volume Airflow rate (m<sup>3</sup>/hr) Filter efficiency

Date of Inspection:

#### **Report Reference:**

<b>12.9 Fan</b> Visual assessment		
Fan type	Type of impeller	
Manufacturer	Impeller plate RPM	
Model	Impeller direction of rotation	
Fan Serial number	Fan Monitoring - Alarms	
ATEX Rating	Fan size	
Direction of Rotation		
12.10 Quantitative assessment		
Static pressure:	Fan Volume Airflow rate (m <sup>3</sup> /hr)	
Inlet (Pa)	Total pressure (Pa)	
Outlet (Pa)		

Notes/comments: e.g. Installed in accordance with manufacturers design Are pressure gauges fitted either side of fan, noise levels, vibration, corrosion etc.

12.11 Fan Drive type	Direct		Belt	
Fan pulley size	No.	of belts		
Motor pulley size	Belt	type		
Pulley centres	Belt	tension		
Measured fan RPM	Mea	asured mo	tor RPM	
Notes/comments:				

12.12 Motor	
Electrical supply – Voltage	Motor rating (kW)
Manufacturer	Motor Current Plated (Amps)
Model	Motor Current Measured (Amps)
Motor Serial number	Motor plate RPM
ATEX Rating	
Notes/comments:	

#### 12.13 Controls

On/Off or Variable Speed Drive

#### Speed setting

Electrical compliance (evidence of certification to IEE BS7671) Manual / Automatic Alarms / Warning devices fitted Condition

Date of Inspection:

#### **Report Reference:**

Notes/comments:

#### 12.14 Other

Fire suppression system

Notes/comments:

<b>12.15 Ducting</b> Visual assessment	
Material	Condition – inside
Balancing dampers	Condition – outside
Flexible ducting condition	Inspection hatches
Earth bonding	Explosion hatches
Notes/comments: e.g. Installed in accordance with design	

Test point Ref	Test point	Diameter	Measured Static pressure	Measured Transport Velocity	Future Benchmark		Future Benchmark		Future Benchmark		Future Benchmark		Future Benchmark		Future Benchmark		Future Benchmark		Future Benchmark		Balancing damper position	Comment
		(Pa)		Velocity (m/sec)	Static Pressure (Pa)	% closed	of access, suitability of test point etc.															

12.17 Discharge Arrangement	
Туре	Location
Stack height	Stack discharge velocity
Notes/comments: e.g. Effectiveness, risk of recirculation, effect on neighbours, source of make up air etc.	

12.18 Air sampling results	Has air monitoring been conducted?	YES (complete below)	NO (move to next section)	
Report reference		Date of report		

Notes/comments:

System ID: Date of Inspection: Report Reference:

### 13 Calibration Certificates

Hotwire Anemometer

#### Rotating Vane Anemometer

Manometer

#### Tachometer

Other:....

Other:....

### 14 Appendix A – Design information checklist

I. AIR DISTRIBUTION SYSTEM – DESIGN INFORMATION CHECKLIST				IST		
Client:				DC	DIA	
Proj	ect:				B2	RIA
Syst	em:					
Che	ck that the design docume	entation includes:		√/×	Comments	/ Follow-up references
Sys	tem information					
I.	Description of system op	peration			I.	
2	Drawing showing air dist	tribution system layout			2.	
3.	Numbering system for a	I main ducts and terminals			3.	
4.	Location of dampers and	flow measuring positions			4.	
5.	Fan characteristic curves	; for each fan duty			5.	
6.	Controls schematic and	description of operation			6.	
Sch	ematic drawings incor	porating:				
1.	sectional areas at:	* supply fan			7.	
8.		* extract fan			8.	
9.		* air handling unit	5		9.	
10.		* main ducts			10.	
п.		* branch ducts			п.	
12.		* sub-branches			12.	
13.		* terminals			13.	
14.	Static pressure loss:	* filters			14.	
15.		* cooling batterie	5		15.	
16.		* heating batterie	5		16.	
17.		* air washers			17.	
18.		* silencers			18.	
Wi	ring diagrams covering	1				
19.	System				19.	
20.	Method of operation				20.	
21.	Fans				21.	
22.	Controls				22.	
23.	Interlock arrangements				23.	
24.	Fuse ratings				24.	
25.	Design times for staged :	starting and motor run up control			25.	
26.	Voltages for electrostation	c filters			26.	
27.	Design times for staged :	starting and motor run up control			27.	
28.	Design values for reduce	d voltage starting or speed control			28.	
Filt	ers					
29.	* Identity of filter media				29.	
30.	* Tolerances on air veloc	city distribution across electrostatic filt	ers		30.	
Far	15					
31.	* Clearances for fan imp	eller			31.	
32.	Static deflection at vibrat	tion mountings			32.	
33.	Grade of lubricant for fa	n and fan motor bearings			33.	
Dat	e / /	Engineer:	Approved	by:		Sheet: /

\* These items will sometimes be the installer's responsibility

### 15 Appendix A – Filter

System:			Location:			HC-1:		
Service:			Manufacturer:			AC-1:		
Drawing:			Certification:			DATE:		
Supplier:			Classification:					
MODEL No.:			SERIAL No.:		TYPE:			
CHECK		CHECK	DESCRIPTION		STATUS	INIT.	DATE	
1	Verify the fal information.	bric filter physical characteris	tics comply with the sp	ecifications and vendor				
2	Inspect for shipping or installation damage.							
3	Verify that d order.	Verify that doors, door hardware, and gaskets are properly installed and in good working order.						
4	Verify that fi material, fini	lter media is in compliance w ish, grounding, etc)	ith specifications and ir	stalled properly (type, bag				
5	Manual cont	rol damper fitted (if required	) functional and left in (	open state.				
6	Verify static pressure dro	pressure sensors or test ports p across filter media.	are properly located a	nd installed to measure				
7	Verify that fi installed. If p pressure and	lter cleaning mechanism (puls oossible, operate cleaning syst I quality.	se-jet, reverse air) is pro tem prior to start-up. V	ovided and properly erify compressed air				
8	Verify that d Check belt of conveyor rot	ust removal system complies r chain tension and gearbox o cation.	with specifications and il levels. Verify rotary v	is installed properly. alve and/or screw				
9								
10								
11								
12								
Notes and/	comments:							
		Completed By:	Approved By:	Accepted By:				
Company:								
Signature:								
Name:								
Date:								

### System ID: Date of Inspection:

#### Report Reference:

### 16 Appendix A – Air mover (fan)

System:	Location:						HC-1:	
Service:			Manufacturer:			AC-1:		
Drawing:			Certification:			DATE:		
Supplier:			Classification:					
MODEL No.:			SERIAL No.:		TYPE:			
CHECK		CHECK	DESCRIPTION		STATUS	INIT.	DATE	
1	Check all Note mis	parts against shipping list and pusion of the second second second second second second second second second se	urchase order.					
2	Verify na	meplate data with specifications	and vendor information	on.				
3	Verify ph discharge	ysical characteristics agree with e, materials of construction, etc.)	specifications and vend	dor drawings (rotation,				
4	Verify co the whee	rrect type and size of fan wheel i el if of correct rotation and not in	s installed per vendors stalled backwards.	data sheets. Make certain				
5	Check for interior f	r physical damage, fan casing and for debris.	d wheel cracks, defects	and welding purity. Check				
6	Verify dra provided	ain(s), access door(s), heat slinge I per specification.	rs, shaft/bearing guarc	ls, belt guard(s) are				
7	Verify the guard. Re	at shaft turns freely, fan wheel do otate by hand not less than 5 full	oes not rub or wobble, revolutions.	belts do not contact				
8	Verify that accessibl	at all grease fittings are extended e.	external to guarding.	Fittings must be easily				
9	Verify that that that $\varnothing$ 20	at there is a tachometer access h 0mm (¾").	ole in belt guard. Hole	diameter must not be less				
10	Verify the sheave/p	at the fan wheel hub key is in pla bulley key is in place and set screv	ce and set screws are t ws are tight.	ight. Verify that drive				
11	Check fai	n wheel-to-inlet clearance agains	t manufacturers specs					
12	Verify the	at all motor bearings are correctl	y lubricated.					
Notes and/	comments	::						
Completed By: Approved By: Accepted By:								
Company:								
Signature:								
Name:								
Date:	ate:							

#### Date of Inspection:

#### **Report Reference:**

System:			Location:			HC-1			
Service:	Manufacturer:				AC-1:				
Drawing:						AC-1.			
Supplier:						DATE.			
Supplier.									
No :			SERIAL No.:		TYPE:				
CHECK			DESCRIPTION		211772	INIT	DATE		
CHECK		CHECK	DESCRIPTION		31A103		DATE		
13	Verify that fan base is secure per specifications and that unit is level.								
14	If vibration per design.	isolators are specified, check t	hat they are installed for	or uniform deflection as					
15	Belt drive: o	check proper components; che	eck all fan shaft bearing	mounts are secure.					
16	Direct drive	e: verify mounting and alignme	ent per coupling manufa	octurer instructions.					
17	Belt drive: o meter (1/32	check sheave/pulley alignment 2" per foot) of motor / shaft ce	t. Axial alignment shall r entre-centre distance.	not exceed 2.5mm per					
18	Verify that	belt, shaft and coupling guards	s are installed and secu	re.					
19	Verify that are built an Verify align	Verify that all duct connections are not binding duct to fan. Verify that flexible connections are built and installed to specifications.							
20	Check any i operate ove	Check any inlet and outlet dampers for correct installation. Dampers must be free to operate over the desired range.							
21	Verify that variable inlet valve damper is installed with blades in proper alignment. As blades close they must cause air to spin in the same direction as the fan wheel.								
22	Verify the motor rotation will provide proper fan rotation.								
23	Verify the location of local disconnect and motor controls are er specifications and are weatherproof where required.								
24	Verify the fan is properly grounded.								
Notes and/	comments:								
Completed By: Approved By: Accepted By:									
Company:									
Signature:									
Name:	Name:								
Date:									

#### Date of Inspection:

#### **Report Reference:**

System:			Location:			HC-1:				
Service:			Manufacturer:			AC-1:				
Drawing:			Certification:			DATE:				
Supplier:			Classification:							
MODEL No.:			SERIAL No.:		TYPE:					
CHECK		CHECK	DESCRIPTION		STATUS	INIT.	DATE			
25	Verify th	at all painting is per specification								
26	Verify that insulation (if required) is provided and installed as per specifications.									
Notes and/	comments	:								
		Completed By:	Approved By:	Accepted By:						
Company:										
Signature:										
Name:										
Date:										

### 17 Appendix A – Hoods

System:		Location:			HC-1:				
Service:	Manufacturer:					AC-1:			
Drawing:	Certification:					DATE:			
Supplier:	Classification:								
MODEL No.:	SERIAL No.: TYPE:								
CHECK	CHECI	( DESCRIPTION		STATUS	INIT.	DATE			
1	All shipping stops, bracing and packaging	removed.							
2	Unit installed according to specification in correct location, orientation, airflow direction and adequately supported.								
3	Unit and all associated equipment undar components secure.	naged, clean and in good	condition with all						
4	Connections to ductwork secure, tighter	ed with gasket in place a	nd visually airtight.						
5	Balancing damper fitted and left in open	state.							
6	Non-sparking features provided.								
7	Adequate static earth bonding fitted.								
8	Airflow indication devices fitted and ope	rating within correct ran	ge.						
9									
10									
11									
12									
Notes and/	comments:								
	Completed By: Approved By: Accepted By:								
Company:									
Signature:									
Name:									
Date:	te:								

### 18 Appendix A – Ducting

System:	Location:					HC-1:			
Service:	Manufacturer:					AC-1:			
Drawing:	Certification:					DATE:			
Supplier:			Classification:						
MODEL			SERIAL No.:		TYPE:	1			
CHECK		CHECK	DESCRIPTION		STATUS	INIT.	DATE		
1	All packa	ging removed.							
2	Ducting i	Ducting installed according to specification in correct location and adequately supported.							
3	All ductir	ng components are undamaged, o	clean and in good condi	tion with all secure.					
4	Connecti	ons to ductwork secure, tightene	ed with gasket in place a	nd visually airtight.					
5	Control c	lamper fitted (if required) functio	onal and left in open sta	te.					
6	Balancing	g dampers fitted and left in open	state.						
7	Non spar	king features provided.							
8	Earth boi	Earth bonding (if required) in place and adequate.							
9	Sufficient	Sufficient leak proof access panels installed.							
10									
11									
12									
Notes and/	comments	::							
Completed By: Approved By: Accepted By:									
Company:									
Signature:									
Name:	ame:								
Date:	ate:								

#### System ID: Date of Inspection: Report Reference:

## 19 Appendix A – Other Equipment (please specify)

System:			Location:			HC-1	
Service:			Manufacturer:			AC-1:	
Drawing:			Certification:			DATE:	
Supplier:			Classification:				
MODEL No.:			SERIAL No.:		TYPE:	1	
CHECK		CHECK	DESCRIPTION		STATUS	INIT.	DATE
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
Notes and/	comments	:					
		Completed By:	Approved By:	Accepted By:			
Company:							
Signature:							
Name:							
Date:							