

B3.4b

M1 Monitoring Guidance. Annex 1 - Check sheet of sample facility requirements.

Description

The emission point A1 will be located immediately alongside the gantry for the tanks. The location will allow safe access to a sample point that meets the criteria below. It is proposed that the monitoring is done using a handheld Photo Ionisation Detector for measurement of VOC's. The emission point is an abated, passive vent so measurement of flow is not relevant, only concentration.

Characteristic	Requirement	✓
Identification	Clearly identified and labelled measurement section	✓
Load bearing capacity	Permanent and temporary work platforms must have a load bearing capacity sufficient to fulfil the measurement objective	✓
	Some measurement objectives may require platforms that support up to six people plus up to 300 kg weight of equipment	✓
Position and work area	Sufficient work area to manipulate probe and operate the measuring instruments, without equipment overhanging guardrails	✓
	A sufficient depth of work area is given by the internal diameter or depth of the duct and the wall thickness plus 1.5 m	✓
	If two opposite measurement ports are installed for one measurement line, a correspondingly smaller work area is required	✓
	It is recommended that ports in vertical ducts are 1.2 to 1.5m above the floor of the platform	✓
	Provision of dual level platform. These are necessary if the selected sample plane is located in a horizontal section of a large rectangular duct, and some of the sample points are positioned above a convenient and safe working height (nominally 1.5m maximum for sample probe handling)	N/A
	Removable chains or self-closing gates at the platform to prevent workers falling through access hatches or ladders	N/A
	Prevent accumulation of free-standing water and, if necessary, provide drainage	N/A
Fall prevention	Upper hand rails at a minimum of 950mm (910mm allowed for old handrails). Gaps in rail no bigger than 470mm. Toe boards required	✓
	Consider installing personal protection systems on vertical ladders	N/A
Access	Easy and safe access available	✓
	Consider installing work restraint systems on vertical ladders	N/A
Power supply	Single phase 110V electrical power of a suitable current provided by a suitable number of outdoor waterproof sockets at the platform	N/A

Characteristic	Requirement	✓
Sample plane location	As far downstream or upstream from any disturbance, which could produce a change in direction of flow (e.g. bends, fans)	✓
	In a section of duct with constant shape and cross sectional area	✓
	Recommend five hydraulic diameters* upstream and two hydraulic diameters downstream (or five hydraulic diameters from the top of the stack)	✓
Sample plane orientation	Installation of sample plane in vertical stacks is preferred to horizontal ducts**	✓
Exploratory survey	It is advised that an exploratory velocity traverse is carried out before committing to installation	N/A
Flow criteria	Angle of gas flow less than 15° to duct axis	N/A
	No local negative flow	N/A
	Minimum velocity (a differential pressure of 5Pa, which equates to 3 m/s)	N/A
	Ratio of the highest to lowest gas velocity less than 3:1	N/A
Measurement ports	Planned at design stage because retrofitting can be expensive (for example ducts may have protective linings)	✓
	Allows access to sample points	✓
	It is recommended that access ports have a minimum diameter of 125mm. For small stacks (less than 0.7m diameter) a smaller socket (for example 75mm may be necessary)	✓
	The port socket must not project into the gas stream	✓
	Additional ports may be required to allow access for measurement of other quantities (for example velocity and water vapour)	N/A
	Additional ports may be required for CEMs	N/A
	For large ducts four ports may be necessary	N/A
	For rectangular ducts the ports should be installed on the longer side	N/A
	The operator must maintain the ports in good condition and free them up prior to work being undertaken	✓

Characteristic	Requirement	✓
Lifting equipment	Lifting systems for raising and lowering of equipment, where access to the sampling platform is by vertical, or steeply inclined, ladders or stairs	N/A
	Lifting systems (for example, hoists) and attachments (for example, eyes) must be inspected and maintained by a competent person	N/A
	Installation of a support structure for securing portable lifting systems (handrails are not usually suitable for supporting lifting systems)	N/A
Monorails	Consider sampling monorails above the sampling ports to enable certain designs of sampling train to be suspended	N/A
Exposure to gas	Avoid areas of sources which emit unexpectedly, for example rupture discs, overpressure valves and steam discharges	N/A
Exposure to stack gas	Avoid areas of significant positive pressure	✓
Awareness	Consider how stack emission monitoring personnel are informed of operating faults that may endanger them?	✓
Indoor location	Consider locating working platform within a building	N/A
Ventilation	Well ventilated	✓
Heat and dust	Protection of the working area from heat and dust	N/A
Weather protection	Protective measures (for example, weather protection and heating to ensure conditions are appropriate for personnel and equipment)	N/A
Lighting	Artificial lighting or facilities for temporary lighting	✓