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		April 2011
KLM Technology Group #03-12 Block Aronia, Jalan Sri Perkasa 2 Taman Tampoi Utama 81200 Johor Bahru Malaysia	SPECIFICATION FOR STEAM TRACING OF PIPING (PROJECT STANDARDS AND SPECIFICATIONS)	

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SCOPE

This Project Standard and Specification prescribes the requirements for the design, material and installation of steam tracing for small equipment (as indicated on P&ID's), instruments, and piping to protect their contents.

Steam tracing shall be, for the purpose of this Project Standard and Specification, applied to piping systems, instruments, and equipment where the temperature of the process must be maintained.

GENERAL REQUIREMENTS

Tracing Medium

Low pressure steam shall be used for tracing medium unless otherwise specified.

Tracing Method

Tracer (heating pipe) shall be installed as single line, in contact with pipe or piece of equipment to be traced, in parallel along the traced pipe and insulated together with process pipe as shown in Attachment 8.

Sizing

1. Steam Distribution Manifold (D.M)

"D.M." shall be installed to minimize the number of branches from the low pressure steam main header at a location where valves can easily be operated.

The size of connection piping and D.M. is determined from Table 1.

Table 1 – Sizing for D.M. Header

Total number of steam supply tracer piping per one D.M. Header	Nominal size of D.M. Header (inch)	Nominal size of steam feed connection piping (inch)
1 – 3	2"	1"
4 – 6	2"	1-1/2"
7 - 15	3"	2"

2. Steam Tracer

The size of tracer shall be 3/8" or 1/2" with 37 m of max. traced length. Longer tracer runs may be possible based on the actual calculated heat loss for a given pipe under equilibrium conditions and the allowable circuit pressure.

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3. Number and Size of Tracers

Tracer sizes shall only be 3/8" or 1/2" copper tube, carbon steel or stainless steel tube. The below table should be used as a guideline to indicate the number of tracers required.

Table 2 – Size number and material of tracer

Traced Pipe Size (inch)	Tracer	
	Size	Q'ty
1-1/2" and smaller	3/8"	1
2" ~ 3"	1/2"	1
4"	1/2"	1
6" ~ 16"	1/2"	2
18" ~ 24"	1/2"	3
26" and larger	1/2"	4

4. Condensate Collection Manifold (C.M)

The header size of "C.M." shall be of 2" or 3". Condensates will be either collected by being routed to a close condensate header as per Attachment 4 and 5, or drained gravel funnels as per Attachment 6, depending on the area of plant.

The condensate discharge from condensate collector in onsite process areas shall be discharges into a closed condensate return system as shown on Attachment 4 and 5.

The condensate discharge from condensate collector in offsite areas shall be discharged into a dry well (open system: 6" gravel funnel) as shown on Attachment 6.

The condensate collection manifold, including valve and steam trap, shall be accessible from grade or platform.

Table 3 – Sizing for C.M. Header

Total number of steam supply tracer piping per one C.M. Header	Nominal size of C.M. Header (inch)	Nominal size of condensate return piping (inch)
1 – 3	2"	1"
4 – 6	2"	1-1/2"
7 - 15	3"	2"