No. DGMS(Tech) Circular No. 10 Dhanbad, 30th July, 2004

Subject: Preventing fires in Heavy Earth Moving Machineries.

In the recent past there have been instances and reports of fire in HEMM with the increase in output; use of costly and large size HEMM has become imperative. Installation of automatic fire fighting systems in such Heavy Earth Moving Machines as required by Circular No. 3 of 1981 needs no emphasis.

In a recent fire incident in HEMM that took place in a heavily mechanized OC mine it was revealed that while a 35 T articulated dumper was hauling load of ore from the face to the top on the haulage road, the hydraulic oil from the return hose in the engine house spilled on to the hot exhaust pipe and it caught fire. The carriage and the cabin of the dumper were burnt.

Had the oil carrying hoses in the engine house been housed separately and away from the hot parts of the engine the incident would have been averted. The costly articulated dumper met the fate because neither the oil bearing hoses were compartmentalized nor the hot parts of the engine room were insulated in a manner not to ignite oil.

To avoid / fight such fire, the following recommendations are being made:-

1 This incident highlights that the oil- bearing hosepipes should be housed separately and away from the hot parts of the engine like turbocharger, exhaust and manifold. Simultaneously the hot parts of the engine should be insulated in a manner so that even if oil is spilled on them, it does not come in contact with the hot parts of the engine.

2 user Industry should also ensure that henceforth OEM of HEMM should provide proper type of automatic fire detection and suppression system (AFDSS) in all HEMM with recommendations for periodical testing procedure and maintenance schedule. In all existing shovels and dumpers for 50 tonne capacity and above, user industry must provided suitable AFDSS where OEM has not supplied AFDSS with the equipment. All AFDSS shall be maintained in safe working order in such dumpers / HEMM. Maintenance of such automatic fire detection and suppression system be carried out by the experts specially trained for the purpose.

3 In small dumpers and other HEMM like excavator etc. where OEM may not be in a position to provide automatic fire fighting arrangement with the equipment in near future, user Industry shall provide semi automatic fire fighting arrangement in such dumpers/ HEMM. Such system has been locally developed by M/s Sesa Goa Iron Ore Mines and M/s Western Coalfields Limited by providing 4/5 discharge nozzles at the vulnerable points in the engine room of the machine using dry chemical powder propelled by Nitrogen or Carbon-dioxide of system. In case of fire, the operator has to actuate a knob located near his sitting arrangement.

Such semi automatic fire fighting arrangements are also available indigenously.

4 All high pressure hydraulic hose fitted in the engine room must confirm to the specification as laid down by the OEM and their quality to be ensured. The hoses shall be replaced at the prescribed interval or earlier if there is any sign of deterioration.

5 User industry shall henceforth report any incident of fire in HEMM to the Regional Inspector of Mines Safety so that the matter is studied in depth to take corrective actions.

6 Although some of the manufactures of Heavy Moving Machineries have tried to cover this potent source of danger in the inherent manufacturing process, nevertheless such fires highlight the need to review from deign as well as maintenance angle.

The above stipulations shall be complied strictly in the interest of Safety.

Sd/-
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