



NSW DEPARTMENT OF  
PRIMARY INDUSTRIES

# SAFETY ALERT

## Severe Scald From Radiator Cap Removal

### INCIDENT

An operator received extensive hot water burns to more than 20 per cent of his body when he removed the radiator cap of a water truck.

### CIRCUMSTANCES

The water truck had returned to the service bay for refuelling and other service checks. In the process of checking all the systems the operator noticed the radiator cap was leaking. In endeavouring to find what was causing the leak, the operator removed the radiator cap with his foot. The depressurised radiator caused the coolant to boil violently and erupt through the outlet of the radiator top tank, causing severe burns to the operator.



*Coolant Cap on a New Truck*

### INVESTIGATION

The truck was at normal operating temperature when it was brought into the service area for refuelling and service checks. The normal engine coolant operating temperature of equipment is generally in the 70 – 80° Celsius range because of thermostat settings and radiator cooling capacity.

Cooling system temperatures can rise considerably when equipment is shut down as no coolant is being circulated through the radiator for cooling.

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The operator removed the radiator cap by depressing the cap and turning it with his foot. There was no legible signage to warn operators of the hazards of removing hot radiator caps. There was no means of safely relieving radiator cap pressure.

## RECOMMENDATIONS

Under Clause 51(2) Coal Mines (General) Regulation 1999 (ref: SA 01-19), mine managers must have mine rules in place which:

1. Prevent anyone from taking off the radiator cap from any radiator, heat exchanger or cooling system where the temperature of the cooling fluid is higher than 55°C. Where this is not possible, make sure **all** pressure is vented before removing the cap.
2. Ensure mine personnel take any machine or combination of machines out of normal service where it is clear that they are likely to overheat during routine work.

Include requirements to;

- Have in place a Design Standard (equipment specification) of Engineering Practice that addresses item (1) above.
- Ensure radiator caps for cooling systems are fitted with a means of safely relieving pressure to prevent burning of personnel
- Ensure there are clear and concise signs adjacent to radiator caps to warn operators of the hazards of removing hot radiator caps.
- Cover the above items in the training and competence assessment of operators
- Train tradespeople to diagnose cooling system problems and in the maintenance of engineering standards.

**Signed**



**Rob Regan**  
**DIRECTOR, MINE SAFETY OPERATIONS BRANCH**  
**NSW DEPARTMENT OF PRIMARY INDUSTRIES**

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