EFFECTIVE TEMPERATURE: IS IT AN EFFECTIVE HEAT STRESS MANAGEMENT INDEX?

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ABSTRACT

This paper reports on a recent re-examination on use of effective temperature heat stress index in the heat trigger action response plans (TARP) in mines. . The paper examines the methodology of calculating normal and basic effective temperature and compares the results against an equation used to develop the UK Health and Safety Executives nomogram for Basic Effective Temperature. In addition the calculated results are also compared against the simple wet-bulb temperature, air cooling power and Thermal Work Limit indices using operational data. As a result of these investigations a number of flaws in the Effective Temperature method are revealed and allow the question to be asked 'is Effective Temperature an effective heat transfer index?' The authors implore the mine ventilation community and regulators to re-visit the current legislative requirements on the use of Effective Temperature parameter against a more practical and proven heat stress parameter such as wet bulb temperature, ACP etc.