Safety Corner

What is HEART?

Human Error Assessment and Reduction Technique (HEART) is a simple human reliability assessment method that enhances safety by evaluating the likelihood of potential human errors committed when performing a specific task, so that risk control measures can be provided to reduce the occurrence of such errors.

HEART assumes that basic human reliability relates to a generic task and workers tend to achieve a nominal level of reliability under ideal conditions rather consistently when working under perfect working conditions; this reliability level is called the "best-case-scenario" estimate of the failure probability.  Given that perfect conditions do not always exist, the nominal human reliability degrades as a function of the extent to which one or more Error Producing Conditions (EPCs), such as distraction, tiredness, cramped conditions etc., apply. The HEART system includes 9 Generic Task Types (GTTs), each with an associated nominal human error potential (HEP), and 38 EPCs that may affect task reliability, each with a maximum amount by which the nominal HEP can be multiplied.

The key steps of the HEART method are:
1. Classify a work task for analysis into one of the nine GTTs and assign the associated nominal HEP to the task

2. Decide which one or more EPCs may affect task reliability and then consider the assessed proportion of effect (APOE) for each EPC using this formula: Assessed Effect = ((Max Effect − 1) × APOE) + 1

3.  Calculate the final HEP by multiplying the nominal HEP to the assessed effect of each identified ECP

HEART is regarded as a quick and simple method of calculating human-reliability with a relative small demand for resources. It can give users suggestions for error reduction, and is flexible enough to be applicable to any industry or situation.  The main criticism is its heavy reliance on expert opinion and the subjective selection of EPCs, Max Effect and APOE.

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