

August 22, 2000

MEMORANDUM TO: Jack Rosenthal, Chief, REAHFB:DSARE:RES

FROM: Jose Ibarra, REAHFB:DSARE:RES /RA/
Isabelle Schoenfeld, REAHFB:DSARE:RES /RA/

SUBJECT: TRIP REPORT ON MEETING WITH PPL STAFF, IN ALLENTOWN,
PA., AUGUST 15–16, 2000

A meeting was held with PPL personnel to gather information regarding their Corrective Action Program (CAP) and development of the PARROT (Performance Assessor of Risk and Reliability and Optimization of Task, formerly called RIWMS, or the Risk-Informed Work Management System) model for evaluating the risk importance of open corrective action items (CAIs). A list of attendees can be found in Attachment 1. This trip report describes what was learned from the meeting and the implications for the Human Performance Evaluation Process (HPEP). The meeting was announced to the public in advance. The public meeting notice was coordinated with the NRR Project Manager.

Corrective Action Program

The Susquehanna corrective action program (CAP) is managed within the Operating Experience Services (OES) group. Problems are identified by plant personnel, who write Condition Reports (CRs) that are entered daily into the Nuclear Information Management System (NIMS) for tracking and disposition. When a CR is received, a multi-disciplinary group, comprised of OES staff and representatives of other departments within the plant (e.g., Operations, Maintenance, Work Planning), reviews it and performs a preliminary screening. The screening criteria include: operability, reportability, maintenance rule. This group recommends whether additional information should be gathered to understand the problem and may suggest corrective actions (the individual who identified the problem may have also suggested corrective actions in the CR). A senior management group that meets twice weekly then evaluates the CRs and the OES recommendations for disposition.

The senior management group prioritizes the problems described in the CRs. Level 1 CRs (e.g., major program breakdown, safety system, reportable), the highest priority, are investigated and a root cause analysis is performed within 20 days of the initial report. Level 2 CRs receive a "cause determination," which entails additional investigation without a formal root cause analysis within 30 days of the initial report. Level 3 CRs are "evaluated," while lower level CRs are handled as data points that are entered into NIMS for tracking and possible future trending purposes. The priority currently assigned to a CR is primarily based upon traditional regulatory and design basis considerations.

Information about each CR is coded and stored in NIMS. Cause codes for Level 1 and 2 CRs that entail human performance problems are assigned by an individual in the OES Group when the investigation and causal analyses have been completed. The cause codes used are those

from the NRC's Human Factors Information System (HFIS). Lower level CRs are assigned process and event category codes, many of which pertain to human performance problems, such as wrong unit and foreign material exclusion (FME) events. The coded information is used for tracking and identifying trends.

PARROT

The PPL Systems Analysis group has been developing a method for assessing the risk impacts of open corrective action items and prioritizing them on that basis. The software program used is entitled PARROT.

CAIs in NIMS are downloaded into a database and then the system or major component affected by each item is identified. The CAI is scored, either by the user or automatically, based on performance deviation (severity of the problem), performance contribution (the importance of the problem for the performance of the system/component), and performance relevance (weight of observed performance to future performance). PARROT also calculates the cumulative risk impact of the work items (e.g. CRs, engineering work requests). These scores are used to adjust the likelihood of system/component failure (the IPE may be requantified to account for the identified impacts). The PARROT model then analyzes the items to rank them according to the increase in risk associated with each item. PARROT has also been used to analyze maintenance backlog items for economic generation risk, i.e., to identify those items which, when corrected, will have the greatest impact on improving plant availability.

The Systems Analysis group is in the process of turning over the PARROT application to OES. OES personnel have been trained, but additional work is required to simplify use of the application. Additional work is also underway to identify how PARROT results will be used in the CAP.

Because the current method of prioritizing CRs and the PARROT prioritizations are based upon different dimensions (e.g., reportability/operability vs. risk), results of the two methods differ. For example, a CR that was identified as the highest priority item in risk terms was rated as a Level 3 item using the traditional method for prioritizing items. A description of the item and its impact on the relevant system suggested that the PARROT analysis provided insights that were not readily apparent from the more traditional prioritization method.

Systems Analysis staff reported that they had validated use of PARROT for prioritizing maintenance backlog items by comparing PARROT results with those provided by a panel of plant experts. Although the rankings given to the items by the experts vs. the PARROT model varied to some degree, the set of items selected as most important by the experts and the model were highly similar.

A trending report produced by OES showed that there had been 51 events in the first quarter of this year that were related to a specific type of human performance problem. Although the analysis had not been performed at the time of the site visit, it was clear that PARROT could be used to assess the risk impacts of those 51 events and provide an overall assessment of the risk importance of that specific human performance problem. The risk importance of all Level 1 and 2 CRs that have been coded for specific human performance causes (e.g., procedure adherence, fatigue, training) could be similarly assessed using PARROT.

Implications for HPEP

A listing of the process codes, event categories and cause codes pertaining to human performance events were obtained and will be very useful for providing examples of the types of CAIs that inspectors may encounter that have a human performance component. PSHA will use these examples in the HPEP without identifying Susquehanna.

Attachment: List of Attendees

cc w/att.: F. Eltawila
J. Persensky

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