Risk Assessment of Operational Events Handbook

RES/DRA (Updated August 12, 2009)

Objectives. The primary objective of the Risk Assessment of Operational Events Handbook ('Handbook') is to provide methods and guidance that NRC staff could use to achieve more consistent results when performing risk assessments of operational events and licensee performance issues. Additionally, the Handbook provides best practices for risk analysts and Standardized Plant Analysis Risk (SPAR) model developers to ensure that SPAR models used in the risk analysis of operational events represent the as-built, as-operated plant to the extent needed to support the analyses. The principal users of the Handbook are NRC Senior Reactor Analysts (SRAs) and risk analysts involved with performing risk analyses of operational events.

Applications. The methods and processes described in the Handbook can be primarily applied to risk analysis of plant conditions in the Significance Determination Process (SDP) Phase 3 and Accident Sequence Precursor (ASP) programs, and the risk analysis of events/conditions in ASP and event assessment programs (NRC's Incident Investigation Program in accordance with Management Directive 8.3).

Contents. The Handbook consists of three volumes, designed to address internal events analysis (Vol. 1), external events analysis (Vol. 2), SPAR model reviews (Vol. 3), and shutdown event analysis (Vol. 4). The Handbook represents best practices based on feedback and experience from the analyses of precursors in the ASP Program and numerous SDP Phase 3 analyses. The current revision of the handbook can be downloaded from the public NRC Web site from the following link: http://www.nrc.gov/reactors/operating/oversight/program-documents.html (see Inspection Guidance).

Revisions. It is intended that the Handbook will be updated on a periodic and as-needed basis, based on user comments and insights gained from "field application" of the document. New topics will also be added as needed, and the handbook can also be re-configured and/or reformatted based on user suggestions. Current plans for future revisions of the Handbook will include the following additional method guides for common-cause failure (CCF) analysis in event assessment, parameter estimation and update in event assessment, human reliability analysis in event assessment.

Completed Tasks	**Completion Date**
Posted Vols. 1, 2, and 3 on public website	January 2008
Issued guidance for risk analysis of shutdown events for trial use (Rev. 0, Vol. 4)	September 2009

Future Tasks (Issue Guidance for Trial Use)	**Estimated Date**
Issue guidance for CCF analysis in operational events, parameter estimation in SPAR models, parameter convolution, uncertainty analysis, simplified expert elicitation, and examples of internal event analyses (Rev. 2, Vol. 1)	December 2009
Issue guidance for human reliability analysis in event assessment (Rev. 3, Vol. 1)	September 2011
Enhancements to existing guidance	As-needed