EPUC Revised
Risk Lexicon
R.13-11-006

ATTRIBUTE VALUE:

Definition: the specific level of an attribute of an asset; a numerical quantity, either in absolute terms or on a scale

Sample Usage: A common attribute value used to measure system reliability is the number of load shedding events per year.

Annotation: Asset attributes are those variables that describe the asset for the purposes of risk assessment and asset management. Levels of asset attributes are changed by projects.

ENTERPRISE RISK MANAGEMENT:

Definition: comprehensive approach to risk management that engages organizational systems and processes together to improve the quality of decision making for managing risks that may hinder an organization's ability to achieve its objectives

Sample Usage: The organization used an enterprise risk management process to reduce risks associated with personnel turnover.

Annotation: Where internal risks threaten successful asset management, enterprise risk management seeks to ensure that internal systems and processes are designed and operated in order to provide the services for which the assets exist at least cost. The costs of operating the assets plus the costs of asset failure are minimized in order to find the best asset management policy.

FREQUENCY:

Definition: number of occurrences of an event per defined period of time or number of trials

Sample Usage: The frequency of hurricanes in the Atlantic Ocean has been observed to be on average four per year.

HAZARD:

Definition: natural or man-made cause of damages

Sample Usage: Improperly maintained or protected gas delivery pipes present a potential hazard.

HAZARD FUNCTION:

Definition: the conditional probability that an asset will fail in the next interval of time, given that it has survived up to the beginning of that interval; depends on the operating condition of the asset

Sample Usage: Repairing an asset will change its condition and the appropriate hazard function.

HUMAN CONSEQUENCE (HEALTH):

Definition: effect of an incident that results in injury, illness, or loss of life

Sample Usage: The human consequence of the pole failure was three minor injuries.

INCIDENT:

Definition: an event, caused by human action, natural phenomena, or both, that may cause harm and that may require action

Sample Usage: The goal of risk management is to operate the assets at least cost, including the costs associated with asset failure. This may or may not reduce the risk of any particular incident. In fact, some incidents may have increased risk while others have reduced risk under the optimal strategy.

LIKELIHOOD:

Definition: the probability that an event will take place

Sample Usage: The likelihood of occurrence of natural hazards can be estimated through the examination of historical data.

PROBABILISTIC RISK ASSESSMENT:

Definition: type of quantitative risk assessment that considers possible combinations of occurrences with associated consequences, each with an associated probability or probability distribution

Sample Usage: The engineers conducted a probabilistic risk assessment to determine the risk of an accident resulting from a series of compounding failures.

QUALITATIVE RISK ASSESSMENT METHODOLOGY:

Definition: set of methods, principles, or rules for assessing risk based on non-numerical descriptions of events and the consequences of events

Sample Usage: The qualitative risk assessment methodology allows for categories of: low risk, medium risk and high risk.

Annotation: Qualitative risk assessment must be replaced by quantitative analysis in order to make asset management decisions. Asset management decisions should never be based on qualitative descriptions. Assessments such as "low risk" are meaningless for asset management purposes, mainly because not all "low risks" are equal.

QUANTITATIVE RISK ASSESSMENT METHODOLOGY:

Definition: set of methods, principles, or rules for assessing risks based on the use of analytic descriptions of the occurrence of events and the consequences of those events

Sample Usage: Engineers at the plant used a quantitative risk assessment methodology to assess the risk of system failure.

Annotation: Only a purely quantitative methodology is appropriate for asset management.

RISK:

Definition: possible occurrence of one or more unwanted outcomes resulting from an incident with the implication that there is value in avoiding the unwanted outcome; if there is no value in avoiding the unwanted outcome or if the unwanted outcome is certain to occur, then there is no risk

Sample Usage: The team calculated the risk of a pole failure after analyzing asset condition and hazard rates.

Extended Definition: potential for an adverse outcome assessed as a function of threats, vulnerabilities, and consequences associated with an incident

RISK ASSESSMENT METHODOLOGY:

Definition: set of methods, principles, or rules used to identify and assess risks and to form priorities, develop courses of action, and inform decision making

Sample Usage: The risk assessment methodology considers asset condition as a primary input.

RISK MANAGEMENT METHODOLOGY:

Definition: set of methods, principles, or rules used to identify, analyze, assess, and communicate risk, and accept, avoid, transfer, or control it to an acceptable level considering associated costs and benefits of any actions taken

Sample Usage: Dynamic optimization as a method for optimal asset management is one risk management methodology tool.

RISK MANAGEMENT PLAN:

Definition: document that identifies risks and specifies the actions that have been chosen to manage those risks

Sample Usage: Businesses often have a risk management plan to address the potential risks that they might encounter.

RISK MANAGEMENT STRATEGY:

Definition: course of action or actions to be taken in order to manage risks

Sample Usage: Mutual aid agreements are a risk management strategy used by some emergency response authorities to respond to large scale incidents.

Extended Definition: proactive approach to reduce the usually negative impacts of various risks by choosing within a range of options that include complete avoidance of any risk that would cause harm or injury, accepting the risk, controlling the risk by employing risk mitigation options to reduce impacts, or transferring some or all of the risk to another entity based on a set of stated priorities.

RISK MITIGATION ALTERNATIVES:

Definition: measure, device, policy, or course of action taken with the intent of reducing risk

Sample Usage: The utility selected as the preferred risk mitigation alternative testing all poles over ten years old and replacing only bad poles.

RISK -INFORMED DECISION MAKING:

Definition: determination of a course of action predicated on an assessment of risk, the specification of the impacts of that course of action on that risk, and other relevant factors that provide value to the system

Sample Usage: He practiced risk-informed decision making in asset management, considering both the results of the risk assessment and logistical constraints.

THREAT:

Definition: natural or man-made occurrence, individual, entity, or action that has or indicates the potential to harm life, information, operations, the environment, and/or property

Sample Usage: Analysts suggested that the greatest threat to the building was from an earthquake.

Annotation: Threat as defined refers to an individual, entity, action, or occurrence; threat is generally estimated as the likelihood that a hazard will manifest.

UNCERTAINTY:

Definition: a situation in which more than one outcome is possible and one does not know which outcome will occur

Sample Usage: There is uncertainty about whether an asset will fail within the next year.

Annotation:

(1) The simplest case of an uncertain situation is the toss of a coin. There are two possible outcomes. Before the coin is tossed, one does not know which outcome will occur.

(2) The mathematical description of an uncertain situation is provided by an appropriate probability distribution.

(3) Probability is a measure of uncertainty.

(4) One may be uncertain about a fact, such as the height of the Empire State Building. In such a case, the uncertainty may be described by a probability distribution.