Table 17.1: Guidelines for Risk Assessment

OCCUPANCY	REQUIRMENTS
1. **GENERAL**	i. As a first step in Risk Assessment, PHA (Preliminary Hazard Analysis) shall be carried out followed by detailed examination by other known hazard analysis method such as HAZOP studies. ii. The Risk Assessment Study should evaluate all possible risks arising within the premises/operations and/or off- site due to the operations and recommend necessary mitigation measures. iii. A detailed evaluation of regular/irregular operations, activities, tasks and main installations, including physical-chemical characteristics of materials being stored/handled/processed, quantitative data on amounts, volumes, production/storage conditions etc. shall be carried out. iv. Site suitability with regard to wind, flooding etc. shall be evaluated. v. FAULT TREE and EVENT TREE analysis shall be carried out to provide a graphic description of the accident sequences associated with plant operations and storage. vi. Evaluate/Clarify risks (Frequency, Severity and Probability) using accepted Risk Assessment Technique and Criteria leading to determination of risks to be eliminated or controlled. vii. Accident Consequence Analysis and its effects on human, environment and nearby installations and site shall be analyzed. viii. Provide for clarification of risks and identification of those to be eliminated or controlled. ix. Evaluate Fire & Explosion hazard using F & EI Index. x. Evaluate Fire Protection System, Alarm System and Ventilation systems. xi. Evaluate Hazardous materials classification based on internationally accepted standards such as NFPA, U.N. or International Maritime Dangerous Goods (IMDG) code, etc. xii. Hazardous Area Classification and identification with mapping of the proposed facility shall be carried out. xiii. Effects of emergency situations/major environmental events such as lightning, flooding and acts of mischief or sabotage shall be analyzed. xiv. Evaluate occupational health hazards & environmental risks involved in process and operations. xv. For all of the above, measures should be developed and recommended for technical and organizational protection to bring down risks AS LOW AS REASONABLY PRACTICABLE. xvi. Develop ON SITE & OFF SITE emergency action plan in co-ordination with Civil Defence. xvii. Wherever a risk/operation/situation cannot be managed feasibly, it shall be the duty of the consultant to highlight the same in the report.
2. LIKELIHOOD AND CONSEQUENCE	i. The evaluation of likelihood may be based on past experience (e.g., statistics) for well-understood events or on a combination of available knowledge and accepted mathematical treatment (subjective) for less-understood events and where uncertainty and variability are high. ii. The evaluation of consequences may be based on expert knowledge (e.g., risk indices), probabilistic modeling (e.g., life safety tree to arrive at safe or unsafe conditions), or deterministic modeling (e.g., fire growth, smoke spread, and occupant evacuation to arrive at safe or unsafe conditions).