CRSP

Examination Preparation Workshop

Manual

Based on the BCRSP 2015 Examination Blueprint

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Tips for Writing the CRSPEX

- Formulas and tables needed to solve questions will be provided, but you have to know when and how to apply them; know some of the basic formulas, especially calculating frequency and severity rates, averages, etc.

- Units of measurement will be expressed according to the International System of Units (SI); know the metric symbols.

- Safety terminology, processes, systems, etc. differ from industry to industry, so apply a general, broad-based approach to answering the questions; do not overly focus on how your particular company, organization or industry operates; remember, the CRSPEX is generic.

- Watch the time closely; you have 3.5 hours for a possible 210 questions; that is a minute per question; balance the need to answer all the questions with the need to fully understand them.

- Read questions and case studies carefully to ensure you understand them.

- There will be 4 answer choices for each question (A. B. C. and D.); one is the correct answer and the other 3 are distracters; some distracters are very close to being correct; select the “best” or “most correct” of the 4 answer choices.

- One of the 3 distracters is often a “red herring”, or is totally inappropriate; eliminate these obviously wrong answers quickly; this makes your opportunity for success better.

- Answer the independent questions first, and then go back to the case-based questions.

- Do not get hung up on difficult questions; move on, answer those that you do know, then go back and tackle the unanswered questions; make sure question numbers are not misaligned.

- If you do not know the answer, try re-wording the question; it may leave one obvious answer; for example changing “is”, to “is not”, “has” to “has not”, “means” to “does not mean”, etc.

- Points are not deducted for wrong answers, so answer all the questions; as a last resort, guess!

- Time permitting, go back over the questions and your answers, but remember, studies show your first answer is most often the correct one.

Hierarchy of Hazard Controls (Also covers RM9)

A hierarchy establishes an order of effectiveness of hazard controls. Sequential consideration is given to each of the actions listed below with the understanding that a lower action is not chosen until practical applications of the preceding higher levels are exhausted:

1. **Eliminate hazards and risks through system design and redesign -** eliminate human interaction in the process, eliminate pinch points by increasing clearance

2. **Reduce risks by substituting less-hazardous methods or materials -** automated material handling, replace a flammable solvent with a non-flammable, reduce energy/speed/pressure

3. **Incorporate engineering controls -** isolation or enclosure, ventilation (general dilution/local exhaust), machine guarding, barriers, interlocks, two-hand controls, circuit breakers

4. **Provide warning and alerting techniques -** monitors, alarms, horns, lights, labels, signs

5. **Apply administrative controls -** policies, job procedures, safe work practices, job rotation/work scheduling, purchasing, training and education

6. **Provide personal protective equipment (PPE) -** head protection, eye/face protection, fall protection systems, respiratory protection, hearing protection, protective footwear, protective work clothing (gloves, fire retardant clothing, chemical suits, etc.)

ASF9 Fire Situations–Chemicals, Explosives & Radioactive Materials (see FPP)

Hazard awareness is the critical component of safety management when dealing with fire and other undesired incidents involving hazardous materials. Addressing the fire prevention and fire protection needs of an operation that includes hazardous materials requires a clear understanding of the properties and hazard potential of the materials in the workplace.

Fire *prevention* addresses the methods in which hazardous materials could be subjected to unintended reactions. Such unintended reactions may occur as a result of the properties of a material on its own or as a result of a stable material coming in contact with another material or circumstance that creates an unstable situation.

Careful hazard analysis will identify the *potential* incident producing situations associated with each hazardous material and between each material and other materials and processes in the work environment. The basic safety strategies of Elimination, Substitution, Engineering, Administrative procedures and training and PPE controls flow from the hazard awareness and identification process. Where hazardous materials must be present and in use, clear work procedures, training and supervision are frequently necessary to supplement engineering controls.

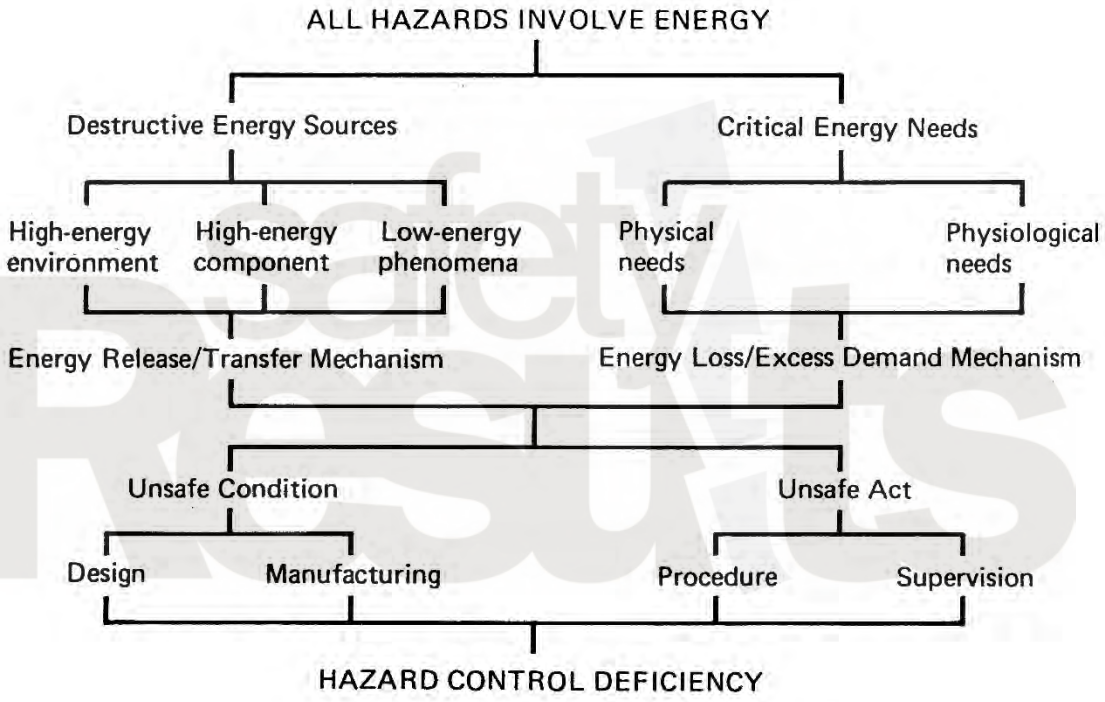
Hazard awareness in relation to combustible and otherwise volatile materials also requires an understanding of *methods* and *sources* of ignition (mentioned earlier in this section) as well as

Energy Models

These models focus on the concept of energy release as a necessary part of the incident causation process.

The Ball Energy Model

Dr. Leslie Ball's model assumes that all hazards involve some form of energy and that all accidents are caused by such hazards. The left side of the model indicates that an accident may occur due to destructive energy sources, while the right side shows an accident may be caused by critical energy needs.



From: H.W. Heinrich, Dan Petersen, Nestor Roos, *Industrial Accident Prevention, Fifth Edition,* McGraw-Hill, 1980, p. 54

Risk Management (RM)

This competency category has 10 competencies which represents 9% of the total 113 competencies in the BCRSPEX. Between 10 and 14 % of the exam questions will come from this domain. There may be as few as 19 and as many as 29 RM questions on the exam.

The registered safety professional will:

- ☐ RM1 Demonstrate an understanding of risk management principles.
- ☐ RM2 Demonstrate an understanding of risk assessments (e.g., inventory, risk matrix, prioritization, etc.).
- ☐ RM3 Demonstrate an understanding of the risk control process (e.g., weight of evidence, precautionary principle, ALARA, etc.).
- ☐ RM4 Demonstrate an understanding of residual risk management (e.g., monitoring, reassessment, etc.).
- ☐ RM5 Demonstrate an understanding of emergency preparedness and response planning (e.g., CSA Z731, NFPA 1600, etc.).
- ☐ RM6 Demonstrate an understanding of incident command systems (ICS).
- ☐ RM7 Demonstrate an understanding of business continuity planning (e.g., CSA Z1600, ISO 22301, NFPA 1600, etc.).
- ☐ RM8 Demonstrate an understanding of workplace violence and harassment prevention programs.
- ☐ RM9 Demonstrate an understanding of the hierarchy of controls.
- ☐ RM10 Demonstrate an understanding of hazard communication (e.g., symbols, safety data sheets, labeling, database research resources, hazard awareness training, etc.).

(Note: Many RM concepts are covered in other modules of this manual and are not always repeated again here. See “Risk Management Programs” below for a cross-walk between RM concepts and the other 8 modules.
Also, regarding **RM9** “Hierarchy of Controls, see Applied Safety Fundamentals “Hierarchy of Control” under “Hazard Control ASF9 through ASF25 and RM3 and RM9”)