

TEST ANSWERS: RADIATION

The *BSO Plus Safety Topic* is a review designed from the BSO Plus agenda. This safety topic is your way to stay current on the safety information over the 3 years between BSO Plus and BSR.

1. Ionizing radiation is more dangerous than non-ionizing radiation.

- a. True
- b. False

RATIONALE: Ionizing radiation has sufficient energy to remove electrons from atoms or molecules. The damaging effects of ionizing radiation result from this ability to change the chemical composition of matter with which it interacts. Non-ionizing radiation has enough energy to move or vibrate atoms, but not enough to remove electrons.

2. Artificial sources of radiation include:

- a. X-ray machines
- b. Nuclear gauges
- c. Minerals in the soil
- d. All of the above

RATIONALE: If you work with x-ray equipment, radiography instruments for equipment inspection, or nuclear density gauges, you could be potentially exposed to radiation. Radioactive materials (including uranium, thorium, and radium) also exist naturally in soil and rock.

3. Exposure to ionizing radiation can result in:

- a. Burns
- b. Cancer
- c. Reproductive abnormalities
- d. All of the above

RATIONALE: People can be exposed to radiation without any sensation or awareness. When the body absorbs radiation, it can cause changes on a cellular level leading to cancer and reproductive abnormalities. Workers may also experience burns or radiation sickness/poisoning. Radiation Poisoning can result in nausea, vomiting, premature aging, and death. Non-ionizing radiation is unlikely to cause cancer. However, if the energy level is high enough, there may be other effects on human health.

4. Naturally Occurring Radioactive Materials (NORM) are: (Circle all that apply)

- a. Present in very low concentrations in Earth's crust
- b. Present on some local refinery sites
- c. Not a health risk
- d. All of the above

RATIONALE: Low levels of radiation are known to be present in some of the local refineries, including Naturally Occurring Radioactive Materials (NORM).

5. If you are working with or near radiation, exposure dosages will be carefully monitored and recorded.

a. True

b. False

RATIONALE: The main ways to control radiation exposure include engineering controls, administrative controls and personal protective equipment. If you are working with or near radiation, you must receive site specific training on how to deal with that hazard.