

## DEFINITION OF SAFETY CULTURE

A safety culture is comprised of core values and behaviors resulting from a collective commitment by leaders and individuals to emphasize safety over competing goals to ensure protection of people and the environment.

## TRAITS OF A POSITIVE RADIOLOGICAL AND NUCLEAR SAFETY CULTURE

Experience has shown that certain personal and organizational traits are present in a positive safety culture. The following are traits of a positive safety culture:

- **Leadership Safety Values and Actions-** Workers demonstrate a commitment to safety in their decisions and behaviors.
- **Problem Identification and Resolution-** Issues potentially impacting safety are promptly identified, fully evaluated, and promptly addressed and corrected commensurate with their significance.
- **Personal Accountability-** All individuals take personal responsibility for safety.
- **Work Processes-** The process of planning and controlling work activities is implemented so that safety is maintained.
- **Continuous Learning-** Opportunities to learn about ways to ensure safety are sought out and implemented.
- **Environment for Raising Concerns-** A safety-conscious work environment is maintained where personnel feel free to raise safety concerns without fear of retaliation, intimidation, harassment, or discrimination.
- **Effective Safety Communication-** Communications maintain a focus on safety.
- **Respectful Work Environment-** Trust and respect permeate the organization.
- **Questioning Attitude-** Individuals avoid complacency and continuously challenge existing conditions and activities in order to identify discrepancies that might result in error or inappropriate action.

There may be additional traits not included here that are also important in a positive safety culture.

## BUREAU OF RADIATION PROTECTION

**“Building on the past to shape the future.”**

**BRP’s mission is to safeguard the public health and safety and the environment from harmful and unwanted, unnecessary, or inappropriate exposure from controllable radiation sources.**

**This is ensured by making every reasonable effort to maintain exposures to ionizing radiation As Low As Reasonably Achievable.**

**BRP leads by example and values:**

- **Public Service**
- **Teamwork**
- **Professional Development**
- **Open Communication**
- **Effective Radiation Protection**



**pennsylvania**  
DEPARTMENT OF ENVIRONMENTAL  
PROTECTION

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This brochure is based on the U.S. Nuclear Regulatory Commission's Safety Culture Policy Statement that was issued in March 2011.



# Radiological SAFETY CULTURE



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## SAFETY CULTURE STATEMENT

The Pennsylvania Department of Environmental Protection (DEP), Bureau of Radiation Protection (BRP), with the U.S. Nuclear Regulatory Commission (NRC), endorses and promotes a positive safety culture.

BRP expects individuals and organizations performing regulated activities to establish and maintain a positive safety culture commensurate with the safety and security significance of their activities and the nature and complexity of their organizations and functions. This expectation applies to all licensees, registrants, certificate holders, vendors, suppliers of safety-related components, and all applicants that are subject to BRP authority. Because safety and security are the primary pillars of the BRP regulatory mission, consideration of both safety and security issues, appropriate for their significance, is an underlying principle of the Safety Culture Statement.

In March 2011, the NRC approved its Safety Culture Policy Statement, following a three-year development period during which the agency engaged its licensees, agreement states, and other interested parties.

As an NRC agreement state, the Commonwealth of Pennsylvania's BRP encourages the development and implementation of safety culture policies and practices among all its licensees, registrants, and certificate holders. In doing so, BRP believes radiation exposure to workers, patients, and the public will be kept as low as reasonably achievable.



## BACKGROUND

The 1986 nuclear accident at the Chernobyl nuclear power plant in Ukraine revealed the importance of safety culture and the major impact of weaknesses in safety culture. Since then, the importance of a positive safety culture has been further demonstrated by a number of significant events in the United States and the international community. Assessments of these events revealed that safety culture weaknesses were an underlying cause or increased the severity of problems.

Examples of past safety culture weaknesses in Pennsylvania include:

- A fixed gauge that was not in its shielded position caused unnecessary radiation exposure to workers.
- A radiation overexposure to personnel was caused by a malfunction of the locking mechanism on an exposure device. The personnel did not follow safety protocols when problems were identified with their rate alarms prior to beginning work.
- A source from a high dose rate radiation therapy device broke off its wire guide and was left in a patient. Radiation alarms were ignored, and the clinic failed to recognize the missing source. This resulted in a patient fatality and overexposure to workers.
- A company with hundreds of thousands of radium gauges in unsafe storage failed to disclose these materials and endangered public safety.
- X-ray radiologic technologists performed imaging duties for years without taking any continuing education relating to radiation protection.

DEP BRP seeks to further emphasize to organizations the importance of strengthening their safety culture by utilizing the Safety Culture traits.



## IMPORTANCE FOR REGULATED ENTITIES

BRP aims to inspect all facilities on a one- to five- year inspection year inspection frequency in order to ensure that patients, workers, and the environment are protected and that operators are properly trained and radiation equipment and facilities meet current protection standards.

Facilities with radiation-producing machines are required to register with BRP. Registration allows BRP to maintain an inventory of X-ray equipment in Pennsylvania so that all users can be inspected for compliance with the applicable radiological health regulations.

Users of all radioactive material are required to obtain a license from the BRP prior to obtaining those materials. The objective of the licensing program is to ensure radioactive material is used safely and disposed of properly, and that facilities are free from contamination when licensed operations are terminated.

BRP is responsible for the registration of service providers/vendors throughout the state. Those who provide services for radiation-producing machines.

Accelerators are required to be registered with BRP.

Natural radon is a major source of radiation dose to the public. BRP also administers a certification program for radon testing, mitigation, and laboratory analysis for individuals and firms.

BRP will inspect and review for compliance with radiological health regulations (25 Pa. Code 215–240); however, ultimately the individuals and organizations bear the responsibility for safety and security. This Safety Culture Statement is not a regulation; therefore, it is the organization's responsibility, as part of its Radiation safety culture program, to consider how to apply the Safety Culture Traits to its regulated activities.