

## Section 27 – Radiation

(orig. 7-12-05)

### A. Standards

1. The proposed development shall evaluate and mitigate naturally occurring and man-made radiation hazards through the following: (reloc. 7-12-05; am. 4-4-06, am. 12-13-16)
  - a. A radon mitigation system shall be required for new residential construction in accordance with the International Residential Code to address the health hazard associated with radiation from radon gas. (orig. 12-13-16)
  - b. During the evaluation of the Environmental Questionnaire/Assessment, if radiation not associated with radon gas is identified as a potential hazard, a Radiation Assessment will be required. (orig. 12-13-16)

### B. Radiation Assessment

1. Preparation

The Radiation Assessment shall be prepared and signed by a professional engineer, registered in the State of Colorado. (orig. 4-4-06)
2. Content

Identification of all existing and potential radiation hazards, such as radon, uranium mill tailings, nuclear reactors, processing, handling or disposal and/or deposition of radioactive materials. (orig. 4-4-06, am. 12-13-16)
3. Approval
  - a. The Radiation Assessment shall be verified by Public Health in conjunction with the Colorado Department of Public Health and Environment. (orig. 4-4-06; am. 12-21-10)
  - b. If the Radiation Assessment yields evidence of radiation hazards, a Radiation Report shall be required. (orig. 4-4-06)

### C. Radiation Report

1. Preparation

The Radiation Report shall be prepared and signed by a professional engineer, registered in the State of Colorado and qualified in the field of nuclear engineering or health physics. (orig. 4-4-06)
2. Content
  - a. Land use histories of the proposed development shall include, if applicable, but not be limited to, the following: (reloc. 7-12-05; am. 4-4-06)
    - (1) Areas of virgin or undisturbed ground. (reloc. 7-12-05)
    - (2) Areas that have had, but not limited to, the following type disturbances (specify depth). (reloc. 7-12-05)
      - (a) Specific dates of any on-site excavations. (reloc. 7-12-05)
      - (b) Routine (yearly) excavation which includes, but is not limited to, contour or strip plowing. (reloc. 7-12-05)
  - b. Areas of concern shall include, if applicable, but not be limited to the following: (reloc. 7-12-05)
    - (1) General areas of natural deposits of uranium and/or thorium identified by the U.S. Geological Survey as possessing significant quantities and concentrations or as otherwise identified. (reloc. 7-12-05)
    - (2) General areas surrounding nuclear production and/or utilization facilities, as defined by the U.S. Nuclear Regulatory Commission regulations. (reloc. 7-12-05)
  - c. The method of taking representative samples shall be in accordance with the following: (reloc. 7-

12-05)

- (1) Detailed description of sample acquisition and its justification in relation to hazard analysis. (reloc. 7-12-05)
  - (2) Depth of sample of the disturbed/undisturbed soil situation. (reloc. 7-12-05)
  - (3) Involved surface area of individual sample. (reloc. 7-12-05)
  - (4) The number of samples taken per unit of land area indicating how different land forms and/or water bodies and/or streams affected the number of samples taken. (reloc. 7-12-05)
- d. The method of analysis of samples shall be in accordance with the following: (reloc. 7-12-05)
- (1) Describe the method in detail, or if by documented procedure, reference the procedure and qualify any changes in that referenced procedure. (reloc. 7-12-05)
  - (2) Quality control procedures for the analytical procedure employed. (reloc. 7-12-05)
    - (a) Number of analyses per sample (replicates). (reloc. 7-12-05)
    - (b) Participation of currently available federal government inter-laboratory crosscheck programs. (reloc. 7-12-05)
    - (c) Standards used must be traceable to the National Bureau of Standards. (reloc. 7-12-05)
- e. Evaluation of the analysis shall include, but not be limited to the following: (reloc. 7-12-05)
- (1) Methods of "averaging" and handling anomalous data. (reloc. 7-12-05)
  - (2) Criteria or guidelines used in the hazard evaluation. (reloc. 7-12-05)
  - (3) All assumptions used and their use qualified. (reloc. 7-12-05)
- f. The date the fieldwork was performed, and a list of references and other supportive data used. (reloc. 7-12-05; am. 4-4-06))
- g. Radiation Area Map showing
- (1) The proposed development including lots, tracts, and street/road alignments. (reloc. 7-12-05; am. 4-4-06)
  - (2) The natural topography as shown by contour lines. (reloc. 7-12-05)
  - (3) Radioactive conditions. (reloc. 7-12-05; am. 4-4-06)
3. Approval
- a. The Radiation Report shall be approved by Public Health in conjunction with the Colorado Department of Public Health and Environment. (orig. 4-4-06; am. 12-21-10)
  - b. If the Radiation Report yields evidence of radiation hazards, a Radiation Plan shall be required. (orig. 4-4-06)

#### **D. Radiation Plan(s)**

##### 1. Preparation

- a. Radiation Plan(s) shall be prepared and signed by a professional engineer, registered in the State of Colorado and qualified in the field of nuclear engineering or health physics. (reloc. 7-12-05; am. 4-4-06)
- b. The Radiation Plans shall assure that radiation factors are recognized and mitigated. (am. 7-12-05; am. 4-4-06)

##### 2. Content

- a. The radioactive processes, constraints and hazards which will or could affect the proposed development. (reloc. 7-12-05; am. 4-4-06)
- b. The results of the final evaluation of the analysis shown by a table and map identifying specific sampling sites, land use histories and areas of concern. (reloc. 7-12-05)
- c. Alternatives, solutions and methods for abatement and/or control of the radiation hazard. (reloc. 7-

12-05)

- d. The entity/entities that will implement the Radiation Plan, construct required improvements and be responsible for the maintenance of the improvements and appropriate easements, if any. (reloc. 7-12-05; am. 4-4-06)

3. Approvals

The Radiation Plans shall be approved by Public Health in conjunction with the Colorado Department of Public Health and Environment prior to the proposed development's approval. (reloc. 7-12-05; am. 4-4-06; am. 12-21-10)