# STATE OF COLORADO

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Colorado Department
of Public Health
and Environment

MAY 2 0 2011

Mr. Jim Cain, RSO
Cotter Cañon City Milling Facility
P.O. Box 1750
Cañon City, CO 81215-1750

**Subject: "Radiological Survey and Dose Assessment for Cotter Property Near Air Particulate Monitoring Station AS-210.**
Docket #: 9746

Mr. Cain,

Radiation Management Staff have completed their initial review of the subject document. The survey provides a qualitative survey of the area. It will be considered complete when samples of the material in question have been analyzed for their petrographic properties. CDPHE wants to have a better understanding of the composition of the material in addition to its radiologic characteristics[1]. The primary question is whether these materials are vitrified (e.g., ash, slag) or a tailings material.

Additional comments are attached for your consideration. If you have additional questions, contact me at (303) 692-3423 or electronically at steve.tarlton@state.co.us or Phil Egidi in Grand Junction at (970) 248-7162 or electronically at phil.egidi@state.co.us.

Sincerely,

Steve Tarlton, Manager
Radiation Programs

[1] Two examples: email from P. Egidi to Cotter (Cain and Whicker) dated 2/9/2010 calling for petrographic analysis of samples; and formal comments on the survey plan dated 2/24/2010 – the first comment again called for petrographic analysis of samples.

SFT:pve

CC:
Edgar Ethington
Phil Egidi
File 3, 369-01

Specific Comments

1. Page 10. The text refers to gross alpha analysis but we do not see the results reported. The relationship between gross alpha and the isotopes of concern should be better derived. Do the amount of alphas in the primary isotopes of concern account for the gross alpha results or do other alpha emitters contribute (e.g., Th-nat, Po-210). Experience has shown CDHPE that gross alpha analysis of soils can be uncertain due to variation in sample prep methods.
2. The population of radium values being considered is qualitative and statistical values shown in Table 2 only show that the population is not normally distributed. This is adequate for the nature of the investigation.
3. We note the relationship in Figure15 shows a raido of 1:1.7. The later comparison in Figures 22 & 23 show a raio of about 1:2 between the radium values given by measurement and the radium values given by kriging. Using the kriged values is conservative in its estimate.
4. What is the ingrowth relationship? We understand not wanting to wait for ingrowth prior to counting, but the reliance on the curve should be demonstrated. How many samples were used to derive the ingrowth curve?
5. Pg 24. While we concur that doses are very low, it does not appear that major mobilization would be required to clean up the soils in this area since it is a small area with surficial contamination (we agree the road bed would be larger project).
6. Appendix A. Report the uncertainty for each analysis and explain how it is propagated. Table 2 in the text shows standard deviations for the three analytes that are of concern.