Mark Donham, President Regional Association of Concerned Environmentalists (RACE) R R # 1, Box 308 Brookport, IL 62910

SUBJECT: RESPONSE TO QUESTIONS CONCERNING CALCIUM FLUORIDE TRANSPORTED TO THE COTTER URANIUM MILL FROM THE HONEYWELL URANIUM CONVERSION FACILITY

Dear Mr. Donham:

I am responding to certain questions raised in your letter to the Colorado Department of Health concerning calcium fluoride (CaF_2) that has been received and processed at the Cotter Uranium Mill in Cañon City, Colorado. You sent a copy of your letter to the U.S. Nuclear Regulatory Commission (NRC). The State of Colorado is an NRC Agreement State and therefore, the State licenses the Cotter facility. The CaF₂ originated from the Honeywell Metropolis Works Uranium Conversion Facility in Metropolis, IL. The NRC licenses the Honeywell facility. I am responding to the questions you raised concerning the Honeywell facility.

The uranium that arrives at Honeywell is in the chemical form of U_3O_8 . The U_3O_8 concentration (by weight) varies between 70% and 90%, the balance (10-30%) being contaminates. Those contaminates consist of naturally-occurring minerals (such as mercury) and heavy metals such as thorium. Thorium (Th) (in all isotopes) is naturally-occurring, and is present throughout the earth's crust and, therefore, in the U_3O_8 used by Honeywell. A good source of information on radioactivity in nature can be found @ <u>http://www.physics.isu.edu/radinf/natural.htm</u>.

During one part of the conversion process, natural CaF_2 , supplied to Honeywell from various commercial sources, is utilized when uranium tetrafluoride (UF₄) is converted to uranium hexafluoride (UF₆). The process deposits certain solid impurities (impurities present in the original U₃O₈) in the CaF₂ bed, and other wastes are filtered out (described as filter fines). As the solids and other impurities increase, the CaF₂ bed material is periodically replaced. The CaF₂ waste and filter fines are placed in drums and eventually shipped to a reprocessing facility for recovery of the uranium. Alternately, Honeywell can ship these waste to a licensed low-level radioactive waste disposal facility. The following is an excerpt from the Safety Analysis Report (Section 5.6 - Radioactive Waste Management), prepared by Honeywell, in support of their most recent license application.

The solid radioactive wastes generated in the uranium conversion process consist of inorganic insoluble material (calcium fluoride) which contains small quantities of natural uranium. The average concentration of uranium (nat) is approximately 10,000-20,000 PPM. This material also contains other long-lived isotopes which have not been removed in the uranium milling process. The average concentration of significant isotopes is about 0.03 FCi/gm. These residues are dried, appropriately packaged stored in specifically designated areas, and then either shipped to a licensed off-site facility¹ for recovery of contaminated uranium, or disposed of at a LSA² waste disposal site.

The uranium and other contaminates, including heavy metals such as thorium, trapped within the CaF_2 matrix were within the allowable range for licensed operations at the Honeywell facility. The CaF_2 is not mixed waste, when shipped to Cotter; it is considered source material.

Natural radioactive components present within the CaF_2 matrix include Radium (Ra) -226 and Th-230. These isotopes are decay products of natural uranium. Natural uranium is slightly radioactive with a very long half-life³. However, there will always be some decay taking place and both Ra-226 and Th-230, being part of the natural decay chain, are expected to be present.

Regarding your questions concerning Honeywell's compliance with transportation requirements, we have recently completed an extensive review of NRC-licensed operations at the Honeywell facility. We did not identify any areas involving the improper transportation of material from the facility.

On page 2 of the letter the authors made the following statement.

We are also sending a copy of this letter to the US NRC, and will request them to initiate an investigation under 42 USC Section 2021(c)(4) [Section 274(c)(4) of the Atomic Energy Act (the Act)] and other applicable laws and regulations, including 42 USC Section 2021(j) [Section 274(j) of the Act].

Under Section 274(c)(4) of the Act, NRC must make a determination that all applicable regulatory requirements have been met. The applicable standards are Colorado Regulations that are equivalent to NRC's regulations for uranium mills. This determination is made when the licensee proposes to the State to terminate its milling license. This is not applicable to the action in the letter or the operating Cotter mill.

Under Section 274(j) of the Act, NRC is required to periodically review the actions taken by the States under its Agreements to ensure compliance with the provision of Section 274. NRC uses the Integrated Materials Performance Evaluation Program (IMPEP) to carry out this review responsibility. NRC does not review each licensing action taken by an Agreement State. Rather, the IMPEP reviews examine the performance of the State programs, including reviews of a range of licensing and inspection activities. The last IMPEP review of the Colorado program was February 5-9, 2001. The final report and letter were issued May 8, 2001, and may be found at http://www.hsrd.ornl.gov/nrc/reviews.htm#CO. The Colorado program was found

²Low Specific Activity

³Half-life is a measure of the time it takes for a radioactive isotope to decay to $\frac{1}{2}$ of its beginning activity. The half-life for natural uranium is 4.468 x 10⁹ years

¹Cotter Corporation Uranium Milling Site in this case.

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to be adequate and compatible. NRC is currently scheduling the next IMPEP review of the Colorado program which is planned for the summer of 2005. No other review or investigation of the Colorado program is planned.

If you have any further questions concerning the Honeywell facility, please contact Mr. Michael Raddatz of my staff at (301) 415-6334 or at mgr@nrc.gov.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/NRC/ADAMS/index.html.

Sincerely,

/RA/

Robert C. Pierson, Director Division of Fuel Cycle Safety and Safeguards Office of Nuclear Material Safety and Safeguards

cc: D. Benevento, CDH

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March 03, 2005

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Sincerely, /RA/

Robert C. Pierson, Director Division of Fuel Cycle Safety and Safeguards Office of Nuclear Material Safety and Safeguards

cc: D. Benevento, CDH

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* See Previous Concurrence

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