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MEMORANDUM FOR: Charles E. Norelius, Director, Division of Radiation Safety and Safeguards

FROM: William L. Axelson, Deputy Director, Division of Radiation Safety and Safeguards

SUBJECT: TRIP REPORT - COMBUSTION ENGINEERING (CE) FUEL FACILITY

On September 20, 1991, William Radcliffe, Co-op, and I visited CE to discuss the air sampling (particle size) project with Messrs. Rode and Eskridge. The licensee was very receptive to our project and expressed interest and willingness to cooperate with us. The scope, objectives, and schedule of the project were discussed. We agreed to a start date of mid-October after the licensee's senior staff HP returns from training.

During our review of quarterly area and derived air sampling data, it was evident that the new 10 CFR Part 20 derived air concentrates for Y-compounds (uranium) will have a significant impact on annual dose limits at this facility. Currently, the licensee's MPC-HR data shows concentrations at 25-30% of the quarterly limit, and as such, they will exceed the new 10CFR Part 20 annual limit of intake within about 60% of a calendar year. Further, their current lung counting program is limited, and compliance with 10CFR20 limits is primarily based on air sampling. The licensee has conducted no particle size studies for the various stages of oxide or pellet production. However, particle size measurements of the UO2 oxide have been done showing large particles (greater than 10 micron) during early stages of oxide production down to 1 micron after the oxides are micronized. Solubility studies have shown the oxides to be Y-compounds.

We toured the oxide building and UF6 steam chest containment building, as well as the micronizing/blending area, pellet feed and press areas, pellet sintering area, and uranium recycle facility. All areas had proper criticality and radiation posting. The overall plant was very clean, and since their remodeling, all facilities are now connected thus eliminating the need to travel outside buildings with protective clothing. No radiation or industrial safety problems were noted.

One potential criticality issue was noted in the oxide conversion building. The licensee uses a water cooled tube heat exchange to cool the oxide prior to bulk storage transfer. As you are aware, moisture controls are the principal criticality hazard with low enriched uranium oxide. The licensee has only <u>one</u> moisture inline detector to shutdown the process in the event of

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a heat exchanger tube failure. Other criticality controls include oxide sampling for moisture content prior to loading it into the bulk storage hopper. I question whether redundant mechanical physical criticality control should be considered in addition to an administrative control. I suggest we discuss this issue with NMSS.

William L. Axelson
Deputy Director

cc: C. J. Paperiello, RIII

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