United States Government **Department of Energy**

memorandum

DATE: March 31, 2008

REPLY TO ATTN OF: NE-5

SUBJECT: Advanced Fuel Cycle Facility (AFCF) Data For the Los Alamos National Laboratory (LANL) Site-wide Environmental Impact Statement (SWEIS)

TO: Elizabeth Withers, Los Alamos National Laboratory Site-Wide Environmental Impact Statement Document Manager

Below is a list of data regarding the proposed Advanced Fuel Cycle Facility (AFCF) for use in the cumulative impacts analysis for the Los Alamos National Laboratory (LANL) Site-wide Environmental Impact Statement (SWEIS). This data is based on the most current, predecisional draft Global Nuclear Energy Partnership (GNEP) Programmatic Environmental Impact Statement (PEIS). As such, the data could change prior to public release of the Draft GNEP PEIS, and the data should be identified as preliminary in the LANL SWEIS. The following data is provided for the Greenfield AFCF Alternative where all four process modules are constructed at one Department of Energy (DOE) site.

1. Total square feet (building foot print): 1,000,000 ft2

2. Acres, total and within PIDAS:
   - Total site maintained clear of obstruction: 373 acres
   - Inside Property Protection Fence: 144 acres
   - Inside IDAS: 62 acres

3. MEI and population dose estimate:
   - The MEI and population dose attributable to AFCF is under analysis and not currently available.

4. Worker population dose estimate:
   - The dose to the noninvolved worker (assumed to be located 100 m from the radiological emissions stack) is 6.27 mrem.
   - Average AFCF radiation worker dose is 50 mrem/year

5. Operational employment:
   - 1,330 workers, operating in three shifts (655 persons + 332 persons + 332 persons)

6. Operational water usage:
   - Process water: 352 ML/yr
   - Potable water: 92 ML/yr

7. Operational electricity demand: 45 MWe peak demand

8. LLW generation: 2,640 m3 per year (maximum)

9. MLLW generation: 3.4 m3 per year (maximum)

10. Non-defense TRU waste generation:
    - non-defense TRU maximum annual waste generation: 691.6 m^3
    - non-defense Mixed TRU maximum annual waste generation: 17.9 m^3
    - Estimated lifetime volume of non-defense TRU (includes mixed): 22,887 m^3

11. HLW generation: 26 m3 per year (maximum)

12. Transportation impacts:
    - Construction would require approximately 607,000 vehicle trips to/from LANL
        - 560,000 worker commutes
        - 33,000 shipments of aggregate
        - 1,000 shipments of steel
        - 13,000 shipments of debris from site
    - Operational phase would require approximately 106,000 worker commutes per year
        - Assumes staff of 1,330 employees
        - 240 days/work year
        - Carpooling with average of 3 employees/vehicle
    - A maximum of 1570 shipments of radioactive material
        - 39 receipts of LWR spent fuel
        - 50 shipments of transmutation fuel
        - 50 receipts of spent fast reactor fuel
        - 1431 waste shipments

If DOE selects LANL as the site for AFCF, then DOE would prepare a site-specific EIS containing more detailed, site-specific analysis than will be in the GNEP PEIS. Please contact me at (301) 903-7120 if you have additional questions.

Andrew R. Griffith, Acting Director
For Recycled Fuel Development
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cc: Frank Schwartz, NE