



Centers for Disease Control  
Atlanta GA 30341-3724

January 6, 1994

Chief, Enrichment Branch  
Division of Fuel Cycle Safety and Safeguards  
Office of Nuclear Material Safety and Safeguards  
Mail Stop 4-E-4  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555

Dear Chief:

We have completed our review of the Draft Environmental Impact Statement (DEIS) for the Construction and Operation of Claiborne Enrichment Center, Homer, Louisiana. We are responding on behalf of the U.S. Public Health Service. Technical assistance for this review was provided by the Radiation Studies Branch (RSB), Environmental Hazards and Health Effects Division (EHHE), National Center for Environmental Health, Centers for Disease Control and Prevention (CDC).

Our review has revealed certain public health issues pertaining to the local health services that are not thoroughly addressed. In addition, a variety of technical comments are provided which need attention in preparing a Final EIS. These comments are provided in detail for your consideration in the attached memo from the RSB, EHHE.

Thank you for the opportunity to review and comment on this draft document. Please ensure that we are included on your mailing list to receive a copy of the Final EIS, and future EIS's which may indicate potential public health impact and are developed under the National Environmental Policy Act (NEPA). If you have any questions about the attached comments, you may contact Mr. Robert Whitcomb at (404) 488-7040, or me at (404) 488-7070.

Sincerely yours,

Kenneth W. Holt, M.S.E.H.  
Special Programs Group (F29)  
National Center for Environmental  
Health

Attachment

cc: Robert Whitcomb, Jr.  
Art Schletty

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PDR ADDOCK 07003070  
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**Memorandum**

Date . January 6, 1994 \*

From Physical Scientist, Radiation Studies Branch, Division of  
Environmental Hazards and Health Effects (EHHE), NCEH (F35)

Subject Review of 'Draft Environmental Impact Statement for the  
Construction and Operation of Claiborne Enrichment Center,  
Homer, Louisiana'

To Ken Holt  
Environmental Health Scientist  
Special Programs Office, NCEH (F29)

The following is a review of material contained in the subject document:

**Comments on Public Health Issues**

There are certain public health issues that are not thoroughly addressed. These issues pertain to impacts to the local health services located near the proposed facility. Specific comments about these are made in 5) b) and 6) c) below.

It is suggested several facts should be considered. No new nuclear power plants are being built. Current nuclear power plants may have to cease operations because spent fuel pools are near full capacity and no other permanent storage option exists. Two new nuclear power plants have halted attempts for full power operation due to public opposition. Lastly, current DOE demands for enriched uranium are sharply lower due to the end of the cold war. Thus, the existing enrichment facilities should meet future demands. Highly enriched uranium from the weapons program has been proposed to be incorporated into the nuclear fuel cycle to supply fuel to commercial nuclear power plants. These items should be addressed in the section entitled 'Purpose and Need'.

**General Comments**

One convention should be used when expressing numbers in scientific notation. Example: on page xix, third paragraph, MegaBecquerel is expressed as 1E+6 Bq, whereas on the next page (page xx), last paragraph, it is expressed as  $1 \times 10^6$  Bq.

The use of acronyms is acceptable considering the length of the document. However, before an acronym is used, it should first be defined (spelled out). Each new section should be treated as a separate document, even though the acronym has been defined in a previous section, it should be defined again. This should always be done in addition to supplying

the reader with a List of Acronyms.

There are numerous one-sentence paragraphs in the document. Many of these can be restructured (incorporated into nearby paragraphs or separated into two or three individual sentences) to improve the document's 'readability'.

#### Specific Comments

##### 1) Summary and Conclusions:

a) Radiological Impacts section, page xx, first paragraph,

"Radiological impacts are bound to the new 10 CFR Part 20 which provides an explicit total effective dose equivalent (TEDE) limit for members of the public of 1 mSv/yr (100 mrem/yr) from all sources and pathways."

b) Radiological Impacts section, page xx, second paragraph,

"Estimated dose (CEDE) to the maximally exposed ..."

An estimate of the Total Effective Dose Equivalent should be included, in addition to the Committed Effective Dose Equivalent, based on the statements made in this section (see 1) a) above).

##### 2) List of Acronyms, page xxxi:

There are many acronyms (and special units) that are not defined in the 'List of Acronyms'. I have identified the following (see Table 2.5 and related text on page 2-23); MegaBecquerel (MBq), scf, kg, lbs, J/hr, and BTU/hr.

##### 3) Section 1, Purpose and Need:

a) Table 1.1, World enrichment services requirements, mid-range projection in millions of SWU, page 1-7,

The title is missing the last word, "... millions of SWU"

b) Table 1.1, (continued), page 1-8,

The title is complete on this page but, uses upper case letters instead of lower case, as is done throughout the remainder of the document.

4) Section 2, Proposed Actions and Alternatives:

a) page 2-7, paragraph 2,

"The gaseous effluent vent stacks are approximately 37 m (125 ft) in height...."

Thirty-seven meters equals 121.4 ft according to my calculation;

$$37 \text{ m} \times 3.2808 \text{ ft/m} = 121.4 \text{ ft}$$

In section 4.2.2.2, page 4-39, a stack height of 36.6 meters (120 ft) is given. The entire document must be consistent.

b) Figure 2.7, Locations of feed material sources and product destinations, page 2-41,

The map shows the Illinois conversion facility near the center of the state (Bloomington/Normal) when it is actually located at the bottom tip of the state near Metropolis, Illinois. A change in the map is suggested.

c) Section 2.9, Conclusions and Recommendations, page 2-57,

Item 1 indicates that "If a parameter important to the dose assessment changes, ..."

Please list the important parameters and rank them according to their importance. Then provide a list of values that represent how much of a change in each parameter results in a report being written.

This section goes on to say, "...and includes an estimate of the resultant change in dose commitment."

This (dose commitment) implies that the only parameters important are those that affect the internal dose. Since the facility will have to comply with a Total Effective Dose Equivalent, the factors that lead to an external (not a dose commitment) dose will be important parameters as well. Perhaps it is more correct to say '...and includes an estimate of the resultant change in the TEDE'.

Item 3 states, "The LLD shall be at least 0.1 percent of the 10 CFR Part 20, Appendix B, Table 2 limit."

This should read "The LLD shall be no greater than 0.1 percent..". The way it is written now ('at least'), implies that the LLD can be greater than 0.1 percent."

5) Section 3, The Affected Environment:

- a) Section 3.3.2, Groundwater Resources, page 3-41, last paragraph, and Table 3.51, page 3-129,

Many chemical analyses were conducted during a screening program prior to the pre-operational environmental monitoring proposed in this report. Radiological analyses (or at least more specific analyses) should be performed such as gross alpha/beta, uranium, radium and radon. Especially since these (uranium in particular) are the nuclides with the greatest potential for release from the facility.

- b) Section 3.6.2.3, Health Services/Facilities, page 3-102,

There will be impacts to these facilities with respect to their ability to respond to potential accidents. These potential accidents could involve contaminated/injured persons. The hospital staff, police, fire, ambulance and other responding personnel will need training, additional staff and supplies for this special situation resulting from siting the proposed facility here. Add these impacts (i.e., training and resources) to these sections.

6) Section 4, Environmental Consequences:

- a) Table 4.3, Predicted support vehicle emissions, page 4-14,

This table is presented differently than those on the following page and throughout the rest of the document. The column headings are separated by vertical lines in this table but not so in others. Put it in the same form as other tables in the document.

- b) Section 4.2.1.1, Hydrology, page 4-22, last paragraph, 3rd sentence,

Well depths are presented beginning with correct conversions (120 m = 394 ft) then rounded numbers are

presented (210 m = 700 ft, should be 689 ft). This continues in the following paragraph on page 4-23, where 180 m (600 ft), 30 and 90 m (100 and 300 ft) should read 591 ft, 98 ft, and 295 ft respectively. These should be corrected.

- c) Section 4.2.1.7.1, Public Services, page 4-32,

See comment 5) b) regarding the impact this facility will have on the Public Safety and Health Services from Emergency Planning & Response requirements and activities.

- d) Section 4.2.2.1, Dose Evaluation Methods, page 4-39, middle paragraph,

"The DCFs provide an estimate of the committed effective dose equivalent (CEDE) that would be incurred over a 50 year period due to 1 year's exposure and internal uptake."

This statement needs clarification. It is written in a way that sounds like it is defining a Total Effective Dose Equivalent; i.e. 1 year external exposure added to the Committed Effective Dose Equivalent (which is the effective dose equivalent in 50 years following the intake of material for 1 year). See comment 1) b).

Another important comment to make is that uptake and intake have different meanings from a dose assessment perspective. Intake represents material taken in the body by inhalation and ingestion. Uptake represents the fraction of material that is transferred to the blood for distribution to body organs. A re-wording is called for here.

- e) Section 4.2.2.2, Dose Estimates For Atmospheric Releases, page 4-39,

I recommend not capitalizing 'For' in this and the following section's title.

Table 4.12 Potential doses to adult individuals and the population from atmospheric releases,

The footnote at the bottom of the table states, Sievert (Sv) = 0.01 rem and Person-Sv = 0.01 person-rem. Actually there are 100 rem in 1 Sievert so the correct form should be Sievert (Sv) = 100 rem.



- Also, I would recommend calculating the Total Effective Dose Equivalent instead of (or in addition to) the Committed Effective Dose Equivalent. See comment 1) b).

Table 4.13, Potential doses to the 800 meter resident adult for major pathways from atmospheric releases,

See comment for Table 4.12

Table 4.12, Potential doses to adult individuals and the population from liquid releases,

See comment for Table 4.12

Table 4.13, Potential doses to Lake Claiborne adult resident for major pathways from liquid releases,

See comment for Table 4.12

- f) Section 4.2.2.4, Evaluation of Cumulative Radiological Impact for Routine Operations, page 4-44, last paragraph, first sentence,

- "...an estimate of the resultant change in dose commitment."

What is meant by dose commitment? A Committed Effective Dose Equivalent or Total Effective Dose Equivalent? See comment 1) b).

- f) Section 4.2.2.5, Transportation, page 4-44,

Two dose rates are presented in the International System form; 0.02 mSv/hr and 0.002 mSv/hr without their mrem/hr equivalents. They should be written as 0.02 mSv/hr (2 mrem/hr) and 0.002 mSv/hr (0.2 mrem/hr).

The collective dose ("1.4E-2 rem/yr") presented in the 2nd to the last sentence of the paragraph should read person-rem/yr.

- g) Section 4.2.2.6.4, Description and Evaluation of Accidents, page 4-59,

Table 4.21, Doses for hypothetical criticality accident (Sv)

The footnote at the bottom of the table states,

Sievert (Sv) = 10 mrem. Actually there are 100 rem in 1 Sievert so the correct form should be Sievert (Sv) = 100 rem or Sievert (Sv) = 100,000 mrem.

Page 4-60, top paragraph states,

"All estimated intakes are well below the NUREG-1391 guidelines..."

Present them here for comparison as was done with other guidelines and regulations in other parts of the document.

7) Section 5, Effluent and Environmental Monitoring Programs:

- a) Section 5.1.2, Radiological Environmental Monitoring Program, page 5-2, second paragraph, second sentence,

"The background data will then be used to determine the incremental increase in committed effective dose equivalent (CEDE) attributed to facility operation."

What about the Total Effective Dose Equivalent? See comment 1) b).

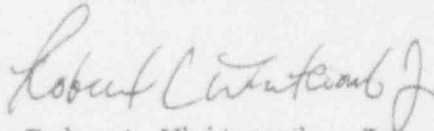
- b) Figure 5.1, Air particulate air sampler (AP) locations at CEC, page 5-6,

Recommend changing the title to; "Air particulate (AP) air sampler...."

- c) Section 5.3.1, Radiological Environmental Monitoring Program, page 5-20, fifth paragraph, second sentence,

"... corresponding to a CEDE of 0.0005 mSv (0.05 mrem) per uranium nuclide per year of exposure at that concentration."

This is confusing; presenting a 'dose per uranium nuclide per year'. This needs further explanation or perhaps correction.

  
Robert Whitcomb, Jr.