January 28, 199.

Docket No. 50-606

Dr. Kenneth Kersh, President
Arkansas Tech University
Russellville, Arkansas 72801-2222

Dear Dr. Kersh:

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION

We are continuing our review of your application for a construction permit/operating license for the Arkansas Tech TRIGA Research Reactor submitted on November 13, 1989. During our review of your application, questions have arisen for which we require additional information and clarification. Please provide responses to the enclosed Request for Additional Information within 120 days of the date of this letter. Following receipt of the additional information, we will continue our evaluation of your application. If you have any questions regarding this review, please contact me at (301) 492-1127.

The reporting and/or recordkeeping requirements contained in this letter affect fewer than ten respondents; therefore, OMB clearance is not required under P. L. 96-511.

Sincerely,

Original signed by:

Alexander Adams, Jr., Project Manager
Non-Power Reactors, Decommissioning and
Environmental Project Directorate
Division of Advanced Reactors
and Special Projects
Office of Nuclear Reactor Regulation

Enclosure:
As stated

cc w/enclosure:
See next page

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

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Alexander Adams

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Non-Power Reactors, Decommissioning and
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Office of Nuclear Reactor Regulation

Enclosure:
As stated

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REQUEST FOR ADDITIONAL INFORMATION

ARKANSAS TECHNICAL UNIVERSITY

1. Introduction page 1.1;

   a. Please use the standard notation of (%Δk/k), and (_____ $) throughout your documentation.

2. Section 1-2 page 1.1;

   a. You mention "core irradiation tubes," but have confined later discussion in the SAR to one central irradiation tube. Please clarify, or provide analyses for more than the central tube.

   b. Table 1-1, page 1.2 and 1.3; There are some entries that need to be addressed;

      (1) The notation of %Δk/k and dollar. (See comment No. 1.)

      (2) The ratio of hydrogen to zirconium in the fuel/moderator material.

      (3) The numerical magnitude of the reactor temperature coefficient of reactivity (justify value).

      (4) The absence of a void coefficient of reactivity.

      (5) Last part of Table needs the standard notation of cm(in) and m(ft).

   c. Page 1-3; Your reliance on 3.5 %Δk/k insertion, and peak powers of 8400 MW do not address possible differences of the GA reactor from the proposed ATU reactor. Please make quantitative comparisons of number of fuel elements, power distributions throughout the cores, average and maximum energy densities in the fuel, power densities in the fuel rods and average and maximum fuel temperatures.

3. Chapter 2

   a. Please provide distances from the reactor to the nearest major highways and rail lines.

   b. Do any major airways pass over the ATU campus? If yes, please address the density of air traffic and possible affect on the reactor.

4. Section 2.2; Please provide information on the distances and directions from the reactor to the nearest occupied building, such as a dormitory, and to the nearest permanent residence in the unrestricted area. In the later analyses for maximum potential radiation exposures to the public, include these locations for both routine operations and potential accidents, for both Argon-41 and fission products.

5. Section 3.2;

   a. Itemize all components, including all fuel elements, of the ATU reactor that have been previously used. Give detailed history and conditions of their use, interim storage, refurbishment, etc. Provide explicit criteria used to determine acceptability for ATU, and reasons that ATU deems that integrity and operability for the requested period of the operating license is reasonably assured.

   b. In Section 3.2.1.1, first paragraph, second sentence, should it be: "... enriched to <u>less than 20%</u> U-235."?

   c. In Section 3.2.1.1, second paragraph, the wording is confusing; please clarify. Also, Fig. 3-2 refers to a SS tube not a SS can, please use consistent wording and notation.

   d. Because GA has marketed both gapped and non-gapped stainless steel clad fuel, and because this affects heat transfer from both the fuel meat and the graphite end-pieces, please tell us which you will have, and address the effects on fuel temperatures and reactor performance in the appropriate sections of the SAR.

   e. In Section 3.2.1.2; Give the same information as in 5 a. for the instrumented fuel elements, and for your neutron detectors. How many instrumented fuel elements will be present at the ATUR, and where will they be located in the core?

   f. Section 3.2.1.3, Graphite dummy elements; If you intend to operate with such elements in any fuel location other than the outer ring, please provide an analysis of thermal and power density effects on nearby fuel elements, in both steady state and pulsed operation.

   g. Section 3.2.2.1; Were the grid plates designed by GA, Michigan State, or Arkansas Tech? What design review did they receive? Please provide a reference or discussion.

   h. Section 3.2.3; What is the neutron source strength, in neutrons per second?

   i. Section 3.2.4; If the graphite reflector assembly is not new, what precautions have been taken to assure that the water tight integrity is still valid and the graphite is dry? Discuss in further detail sealing and capping the unused beam port. What would be the effect if the seal fails?

j. Section 3.2.5; Please reference the design review of the tank. What was the design criterion? What is the basis of the aluminum wall thickness being 1/4 in.?

k. Are there any penetrations in the reactor tank? If so, please discuss the impact on reactor safety if failure of integrity were to occur.

l. (1) Tank coating to prevent corrosion has lost integrity in some non-power reactors. Please discuss details of the design, what tests have been performed, and what assurances you have that the life-time of the proposed coating will extend at least as long as the proposed operating license.

(2) Discuss neutron fluxes beyond the tank surfaces and possible activation of soils and ground water.

m. Section 3.2.5, third paragraph, second sentence; Is the isotope production facility actually the rotary specimen rack? If so, please use consistent terminology or cross reference.

n. Please commit that you will develop written procedures for the use or movement of the "shielded isotope cask" above the reactor and its control rod mechanisms. Discuss the plans.

o. Provide an analysis of the effects on the reactor of using evacuated vertical tubes extending to the top or sides of the reflector. Include consequences related to inadvertent flooding.

p. (1) Pneumatic transfer system (PTS); Please discuss who will be in control of this system and its samples. How is use of the PTS controlled with the potential for reactivity changes if the receiver/sender unit is outside of the reactor room? What organizational group is responsible if the receiver/sender unit is in a location not explicitly covered in the reactor operating license?

(2) Discuss radiological impacts related to PTS use and operation.

q. Are the control rods new? If not, has there been any "burn-up" of the B-10? If used, discuss the implications to reactor operation and safety.

r. Section 3.2.7.2, Rod Drive Assemblies; Do the "limit switches" perform any function other than causing lights to indicate positions? Please discuss.

s. Figure 3-16; It is suggested this figure should be labeled Rack and Pinion Control Rod Drive.

t. Administrative controls to limit the transient rod reactivity addition might not be sufficient. A mechanical stop on the transient rod may be more appropriate. Please discuss.

u. Section 3.2.9.2, Storage Racks; How many 10 position racks are present in the tank? If all fuel elements must be removed from the core for some reason, how and where will they be moved and stored? Discuss reactivity and shielding conditions of all of the fuel storage facilities, for both irradiated and unirradiated fuel rods.

6. Section 3.3;

a. A NRC SER is not considered to be an acceptable substitute for a case-specific technical analysis by an applicant for a license.

b. Pages 3-33; With all of the "operating experience with TRIGA reactors" that you have noted, in addition to the University of Texas analyses, give a specific reference to experimentally verified operation of a 70 element reactor. Cite power levels, peak to average power densities, maximum operating thermal power level, peak fuel temperature, and burn-out ratio. Please provide the reference for the 1250°C phase transition for ZrH.

c. What is the power density (watts/gm) corresponding to the 180°C and the 265°C fuel temperatures?

7. Section 3.4;

a. Give the basis for the "neutron lifetime" for your reactor being 41 micro-seconds.

b. Page 3-34, paragraph 3. sentence 3; Please be more careful of your use of the term "shutdown margin." See the definition in your Technical Specifications.

c. Page 3-34, last sentence, and Table 3-5; Please give your basis for this table.

d. Page 3-35, sentence preceding Table 3-6, and the table; This sentence implies that ad hoc estimation of reactivity effects can serve to replace a measurement. Please discuss your basis for that.

8. Section 3.5;

a. What, specifically, are the relationships between Safety Settings and Safety Limits (Safety Limits are not mentioned)? What is the technical basis for stating that the Safety Settings are "conservative?"

b. Please give quantitative analysis, showing relation of temperature at the thermocouple in the scram circuit to the peak fuel temperature in the core. Discuss procedures for ensuring that no fuel temperature reaches 500°C, for both pulse and steady state operation.

c. Second paragraph of Section 3.5; Isn't there a scram on both temperature and power? If so, suggested wording might be: "... and if either 250 KW or 500°C is exceeded, the reactor will scram."

d. Please summarize in Section 3.5 the quantitative margins between these set-limits and the values of the corresponding parameters when you consider the hazards to be "significant," and discuss the bases.

9. Section 4.1;

a. Table 4.1; Are the set points scrams, interlocks, or some other action?

b. Table 4.1 and Section 4.2.3

Power level set points should not exceed the licensed power level of the reactor. Either change the percent power set points to "100% or less" or increase the licensed power level to 275kW(t). If power level is increased, please analyze the increased power level in the SAR.

c. Control console; Please provide information on type, model number, year of initial operation and history of use, including any modifications, improvements, and refurbishments.

d. Page 4-2, first paragraph; If water temperatures are read through a selector switch, please explain how the "core inlet coolant water temperature below 50°C" is ensured at all times.

10. Section 4.2;

a. Discuss whether the reactor period signal from the Wide Range Log Power Channel is used to provide a reactor scram signal.

b. Section 4.2.3; It is stated that the two safety channels are completely independent. Do they operate from independent high voltage (ion-collecting voltage) supplies? Please discuss.

c. Section 4.2.5; Two temperature scram channels are discussed. Please discuss how both are correlated to the peak fuel temperature in the core. How are power density and fuel temperature distributions within individual fuel rods, including the instrumented elements, accounted for between pulse conditions and steady state conditions? By what criteria do you determine which of the two temperature channels is the Technical Specification LSSS?

11. Section 4.3;

a. Are all of the control/safety rods scramable?

b. Please discuss the use of the percent power channel in Transient Mode. How is linearity ensured, and how is the channel calibrated?

12. Section 4.4;

    a. Last paragraph; Reference is made to pump pressure less than 90%. What pump? Please describe.

    b. Please provide the basis for the alarms listed in this section.

13. Chapter 4, references; It is not indicated in the text where the various references apply. Please address this comment.

14. Chapter 5;

    a. Section 5; Does the statement about the cooling system being "above grade" mean that all parts of it are at an elevation higher than the surface of the water in the reactor tank? Please discuss.

    b. Section 5.1; You have N-16 produced by a (n,B) reaction instead of (n,p). Please correct.

    c. Section 5.1, page 5-3; Is the 1 psi pressure differential independent of operation of the primary coolant system pump? Please discuss, including radiological implications in the event of a water leak between primary and secondary systems within the heat exchanger.

    d. Section 5.3; How is back flow from the pool to the city water system prevented under all possible water pressure conditions? What precautions are taken to assure no primary or secondary water enters the city or campus water supply?

    e. An inadvertent leaking of the pool water down to the siphon break would result in about 950 gallons lost. Assuming this water contains the maximum calculated radio-nuclide level resulting from prolonged operation at the maximum licensed power level:

        (1) What precautions, if any, are taken to ensure this water is not released to the unrestricted area? Assess radiological consequences to restricted area personnel.

        (2) If this water is allowed to enter the unrestricted area (sewer or storm drain or etc.), assess the potential dose consequences to personnel in the unrestricted area.

    f. How often is the radio-nuclide level in the primary coolant system (PCS) checked and compared with 10 CFR Part 20 allowable concentration for release to the environment? What is the maximum allowed electrical conductivity level in the PCS?

    g. How is the pool water level determined?

15. Chapter 6;

   a. Figure 6.1; Please show and define the "restricted area" as defined in 10 CFR Part 20, and the "reactor facility" to which the reactor operating license will apply.

   b. Section 6.2.2, Fuel storage; Discuss Keff for fuel storage pits containing 19 elements, both dry and water flooded. How does one transfer the fuel from the reactor; discuss procedures.

   c. Section 6.2.3, Ventilation system; please discuss:

      (1) Fail-safety features in case of loss of electricity.

      (2) Normal configuration; where is the fresh air intake relative to exit from the exhaust stack?

      (3) Automatic features causing dampers to close and isolation to be achieved. What functions are changed by monitor response?

      (4) Are "sealed doors" and windows closed during operation?

      (5) Discuss the actions, automatic and otherwise, of the ventilation system in the event discussed in Section 7.3 of the SAR.

      (6) Must air from the Control Room and Room 3 enter the Reactor Room to be exhausted? What is the pressure difference between the Reactor Room and the rest of the building?

      (7) What is the air flow path in the Control Room, Room 3, and the Reactor Room? Is there any time when reactor room air is forced or circulated into any other room in the reactor building?

      (8) Under what circumstances is air routed thru the HEPA filter? Is switch over to the HEPA system automatic?

      (9) Do all facility fans shutdown upon Reactor Room isolation?

   d. Section 6.2.4; Discuss the Ar-41 monitor in more detail. Where is it located, how is it calibrated, and what functions does it perform? Justify not listing it in the Technical Specifications.

   e. Section 6.3.1; Radioactive Waste

      (1) Describe your planned facilities to collect and store liquid radioactive waste pending release. Discuss which waste drains lead to installed storage facilities, and how inadvertent or uncontrolled release of radioactive liquid to the public sanitary sewer system is prevented.

(2) Discuss plans and provided equipment to assess radioactive content of liquids before release. What are the criteria to be used in determining if a release will comply with applicable regulations?

(3) In accordance with the Nuclear Waste Policy Act of 1982, do you have a written agreement with DOE that they will accept all used fuel for reprocessing or other disposition?

f. Section 6.3.2, Counting Laboratory; Please describe and discuss the disposition of air-borne and liquid radioactive materials used in this Laboratory including potential effluents to the unrestricted environment.

g. Section 6.4.1, Argon;

(1) Please give the projected annual dose to the most highly exposed individual in the unrestricted area from all sources of Ar-41. Describe the actual location and elevation of the exhaust stack and provide a quantitative estimate of the factor by which projected doses are over-estimated. Justify the arguments.

(2) Please give the projected annual dose at the site of the nearest permanent residence and the nearest temporary residence (dormitories, e.g.) in the unrestricted area. Show methods and details in going from reactor room concentration to annual doses. Provide an estimate of the factor by which the projected doses are over-estimated, and justify it.

(3) Please state the assumptions that entered into your calculations of releases from experimental facilities. What are the experimental facility exhaust paths?

(4) At the bottom of page 6-13 it is mentioned that air from experimental facilities may be filtered... "to further reduce Argon-41 activities." Please discuss the plans, including methods and equipment.

(5) Please give the maximum projected annual dose to reactor operations personnel in the restricted area.

(6) Please justify your factor of 25 reduction in the Ar-41 level at the bottom of page 6-13.

(7) Discuss the operating principles of the pneumatic transport system, including the formation and release of Ar-41 in neutron-irradiated air.

(8) It is understood that the University of Texas is revising the material of your reference number 1. Please update your submittal as necessary.

h. Section 6.4.2, Nitrogen-16; Please discuss the expected dilution factor of nitrogen-16 by the diffuser system at the ATU facility. Provide the bases.

i. Section 6.4.2, page 6-15, paragraph 1; It is stated that water of conductivity = 2 micromhos affects nitrogen-16 chemical reactions in certain ways. Will your Technical Specifications require this conductivity during operations? If not, what is the effect on the assumptions in this section of the SAR of the projected conductivity?

j. Section 6.4.2, last paragraph; Please justify why a thin disk on the pool surface is an adequate representation of the nitrogen-16 distribution in the pool water, and give a more quantitative discussion of the last sentence, about transport times and "substantial" dose reductions.

16. Chapter 7;

a. Section 7.1.1; The discussion of Safety Limits gives certain values for stainless steel rupture pressures. When you are reasonably certain of which fuel you will be using, please address what effect the history of the ATU fuel will have on such nominal parameters, and on the Safety Limits for the proposed ATU fuel.

b. Section 7.1.2; Please provide the references for the equations and the calculational approach used to compute Ph, Pfp, Pair.

c. Section 7.1.2, page 7-4; Please justify the statements made in the last two complete sentences on this page. Give primary references.

d. Section 7.1.2, page 7-5; Please relate the assumed burn-up of "standard TRIGA fuel" to the history of the projected ATU fuel.

e. Section 7.1.2, page 7-5, next to last paragraph; Please cross reference the Technical Specification implementation of the not-immersed-fuel Safety Limit. Please discuss the Safety Limits of not-immersed fuel in terms of the pressure vs temperature diagram.

f. Section 7.1.2, page 7-5, last paragraph; Please justify the values given for fuel temperatures for $\%\Delta k/k = 2.25\%$. Give primary references.

g. Section 7.2, page 7-7;

(1) Discuss the uncertainties in the results plotted in figure 7-2.

(2) Address whether the calculations are directly applicable to the proposed ATU fuel. For example, are the internal gap situations the same?

(3) Justify the statements and values given in the last two sentences of paragraph 1.

(4) On page 7-7, the peaking factor is 2. On page 7-3, Section 7.2.1, the peaking factor is 3.1. Explain the difference.

h. Section 7.2.2, page 7-9, paragraph 1; Compare the thickness and material of the ATU reactor building roof with the assumed "thick concrete." Give a reasonable estimate of the factor by which the assumption over-computes the likely dose rate due to scattered radiation.

i. Section 7.2.2, page 7-9, paragraph 2; Give reasonable estimates of the "optimistic" and "conservative" factors, and then lumped together, the net effect on the calculated dose rates. Discuss.

j. Section 7.2.2, page 7-12, first paragraph; This states that scattered radiation outside the building would "not be too high." However, the calculations of scattered radiation do not apply directly to this location. Please address in a quantitative manner the projected dose rate at the nearest unrestricted area due to "loss of coolant" core radiation.

k. Your analysis assumed 1.25 MW-yr. burnup. What additional burnup will exist on your proposed fuel at the time of initial criticality of your reactor? Please adjust your calculations to include this additional burnup.

l. Section 7.3.1;

(1) Table 7-3 and 7-4 should be more clearly labeled to indicate one relates to a semi-infinite volume (assuming the hemisphere referred to in step 4, page 7-15, is of infinite radius) and one relates to a finite radius volume. Note, in step 5, page 7-15, it is more usual practice to use the radius of a hemisphere rather than a sphere.

(2) Please compare your results with results you would obtain using the methods of Regulatory Guide 1.109, as applicable to the ATU scenario.

(3) Step 6, page 7-15; Are you calculating ingestion or inhalation dose here? Please discuss.

(4) Table 7-5; Your Rem/Ci factor for I-135 seems to be at least an order of magnitude high. Please adjust or explain.

m. Section 7.3.2;

(1) Explain and discuss the reasons for the differences between the whole body doses of 1.9×10^{-3} mr and 4.7×10^{-2} mr in one hour. Give a single "most likely" value, and justify it.

(2) Is there also a range for the projected thyroid doses as for the total body doses? Explain. If so, please furnish the best estimate value.

(3) Compare the ATU approach with the methods of NRC Regulatory Guide 1.109 for potential annual doses in the unrestricted area, as applicable. What is the location of maximum exposure in the unrestricted area?

n. For the fission product release analyses, please discuss the ATU methods and results in comparison with the applicable guidance of ANSI/ANS 15.7, the ANS standard for research reactor site evaluation.

o. The ATU Technical Specifications permit the irradiation of fueled experiments, and other experiments that could affect reactivity. Please provide safety analyses of potential accidents involving these types of experiments. Include the potential impact on in-core experiments of a reactor excursion involving the total authorized excess reactivity. Address the impact on the health and safety of the public of an accidental step reactivity insertion equal to the maximum licensed excess reactivity.

p. Section 7.4;

Please provide additional detail that justifies the assumptions and shows the calculations for this section.

17. Chapter 8

a. Section 8.1.7; Please provide additional information such as charter, quorums, minutes, and details of review and audit functions concerning the Reactor Safety and Utilization Committee.

b. Section 8.2.4; Please describe the "special training" the Reactor Supervisor will receive to be qualified for this position.

c. Please clarify what is acceptable experience. Is this experience in the nuclear field or directly with research reactors?

d. Explain how persons with unescorted access to the facility will be trained to meet the requirements of 10 CFR Part 19 and the requirements of your Emergency Plan.

e. Section 8.3.1; You discuss the need for documented concurrence from a senior reactor operator for recovery from unplanned or unscheduled shutdowns. How does this relate to the requirements of 10 CFR 50.54(m)(1) to have a senior reactor operator present at the facility.

f. Please provide additional detail on your staffing requirements for experiments.

g. Section 8.3.3; For a substantive change to an experiment, who will be responsible for making the determination that the change does not constitute an unreviewed safety question and thus subject to NRC review and approval?

h. Section 8.4.2; What is the time limit for reporting violations of safety limits to the NRC?

i. Section 8.5.3; What plans do you have to retain information concerning events that may have a significant effect upon decommissioning of the facility?

18. Chapter 10

Please provide an updated SAR Chapter providing specific information on how your program meets the requirements of the regulations and any particular standards that you believe are applicable to your facility. Please consider the following issues in your update:

a. Section 10.1; Please provide a copy of the Arkansas Tech University ALARA policy statement.

b. Page 10-1; Neither the Introduction nor the Policy and Organization sections mention that the requirements of 10 CFR Part 20 should be the minimum bases for an acceptable Radiological Protection Program.

c. Section 10.1.1; This section should be expected to assign the campus responsibility to an Office or organizational unit.

d. Section 10.1.2; It seems inappropriate to assign full implementation to the Reactor Supervisor. As a minimum, it seems that the Facility Director should hold that responsibility.

e. Section 10.1.2; What is the "special training" that the Reactor Supervisor will receive? Please provide additional detail.

f. Section 10.1.2; Please elaborate on the definition of academic training. Do you mean at least a B.S. degree? Justify how someone with training in biology or industrial engineering can substitute this training for nuclear experience.

g. Section 10.2; Discuss how you will meet the training requirements of 10 CFR Part 19.

h. Section 10.3; Please supply additional information on how the requirements discussed in Section 10.3 will be specifically applied to the material in Sections 10.3.1, 10.3.2 and 10.3.3.

i. Section 10.4, Radiation Monitoring; An environmental monitoring program should be established and it should be required in conjunction with the Construction Permit so that baseline data can be accumulated for at least a year before reactor operations start.

j. Section 10.4.1, Radioactive Effluent Monitoring; Monitoring of effluents is required unless you can clearly justify that there is no health and safety problem if they are not measured. Please discuss.

k. Section 10.4.2, Facility Monitoring; Requirements are set by 10 CFR Part 20 plus ALARA, and by Technical Specifications. Please relate the SAR to these requirements.

l. Provide details on monitoring of noble gas effluents, gaseous or airborne radioactive materials and liquid effluents. Include monitoring equipment, set points, alarm actions, etc. How does this relate to Section 10.5?

m. Section 10.6; Please provide additional detail on the ALARA design features of the facility.

n. Section 10.6.2, Facility Operation; Various review functions seem to be assigned to the same office (Reactor Supervisor) as do the implementation functions. Review should be done at a level above that of implementation, no matter who it is.

o. Section 10.7; Please discuss your plans for retention of records concerning radiological events that can significantly impact decommissioning of the facility.

p. Section 10.8, Emergency Plan; This plan is required by 10 CFR Part 50, not by the Radiological Protection Plan. The Office responsible should be at least as high as Facility Director.

19. Chapter 11

Fire protection is normally considered as part of the facility design, with a description of the facility equipment and systems present to detect and minimize the effects of a fire. Please incorporate Chapter 11 into the SAR section on facility design.

20. Chapter 12

Please address the requirements of 10 CFR Part 55, and in particular 10 CFR 55.59.

21. Chapter 13

    a. Section 13.0; The NRC has the responsibility for the licensing of reactor operators, not General Atomics. Please correct your SAR.

    b. Please discuss your plans for monitoring construction activity to ensure that the facility is built in accordance with the SAR.

22. Chapter 14

    Section 14.3; Please provide additional detail on the design features of the ATU reactor to accommodate decommissioning.

23. The following questions apply to the Environmental Report;

    a. Page 2, paragraph 2; Please be specific about the references to "other facilities" and their production of Ar-41. Please justify your quantities of "less than 50 Ci," and "less than 20 Ci." Please relate these quantities to your analyses in Section 6.4 of the SAR.

    b. Page 2, paragraph 3; Please justify the statements you make about the quantities of hydrogen isotopes and liquid radioactive wastes released to the environment.

    c. Page 2, paragraph 4; Please provide quantitative values and justify them in place of the statement "... expected to represent a fraction..."

    d. Page 2, paragraph 4; Please explain the statement about "activation products are accumulated in an ion exchange resin..."

    e. Page 3, paragraph 1; Please explain how liquid radioactive waste is stored and evaluated to ensure that releases remain "a fraction" of 10 CFR Part 20 constraints. What fraction?

    f. Page 3, paragraph 2; The licensee will be responsible for potential environmental effects of irradiated fuel, until DOE actually takes possession, which might include packaging and shipping. Please discuss your plans in more detail.

    g. Page 3; Because you have not discussed potential environmental impacts related to eventual decommissioning of your reactor at the end of its useful life, please discuss those effects in your Environmental Report.

    h. Page 3, section C; You dismiss potential environmental effects of accidents too briefly. Please discuss them, and justify your statement that they are "negligible."

    i. Page 4, both paragraphs; The word "minimal" is used. Please be more specific and quantitative.