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UNIVERSITY OF CALIFORNIA, BERKELEY

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COLLEGE OF ENGINEERING
DEPARTMENT OF NUCLEAR ENGINEERING
BERKELEY, CALIFORNIA 94720

June 9, 1988
File No.: 336001
88-0269

Mr. Charles Hillman
Division of Safeguards
Office of Nuclear Material Safety and Safeguards
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Ref: Docket 50-224, License R-101
University of California, Berkeley Research Reactor
Request for Advance Route Approval

Dear Mr. Hillman:

The University of California at Berkeley (UCB) is preparing to decommission its 1 MW TRIGA Mark III research reactor, license R-101. We wish to return the irradiated fuel to its owner, the Department of Energy (to be received at the Idaho facility). We plan to utilize the Model BMI-1 shipping cask, type USA/5957/B()F, and have received NRC approval (#0649,Rev.0, dtd. 3/10/88) for the Quality Assurance Program governing activities associated with use of that package. The purpose of this letter is to request advance route approval as required by 10 CFR 73.37 (b)(7).

The number of used fuel elements to be transported, one-hundred and eleven (111), will require three (3) trips which we intend to make in a single, uninterrupted campaign. The quantity of fuel in each of these three shipments will exceed 100 grams, as defined in 10 CFR 73.1 (b)(5) and have a dose rate exceeding 100 rems per hour at a distance of 3 feet without intervening shielding. A physical protection system meeting the requirements of Part 73 will be utilized.

We understand from prior, informal discussions with your office that the majority of the recommended route, that portion from the Pleasanton, CA area to the Idaho National Engineering Laboratory was inspected and approved in February of 1988. Further, we have had informal contact with the Commercial and Technical Services Section of the Department of California Highway Patrol for the purpose of arriving at local routing meeting the regulations of the (California) State Department of Health Services. Sgt. Keith Bradow of the Department of California Highway Patrol has been particularly helpful in

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connection with development of the local routing. The route information described in Attachment 1, reflects what we believe to be a consensus of the inputs sought and received in the investigatory phase of this transportation planning.

Portions of the planned defueling work have been subcontracted to Proto-Power Bisco Nuclear, Inc., 440 Williams Street, New London, CT 06320, including the investigatory and planning work leading to the development of the Transportation Plan, of which this request for advance route approval is a part. This request has been prepared by Proto-Power, at the direction of the University Administration. If you require additional data or clarifications, please contact Mr. Richard Patenaude at the above address or telephone him at (203) 444-2100.

Your prompt action on this request will be greatly appreciated.

Sincerely,

T. K. Fowler
Reactor Administrator

Attachment

Proposed Route for Spent Fuel Shipment

Proposed Route for Shipment of Spent Fuel from University of Califonia at Berkeley to I.N.E.L.

A. Description of Shipments

1. A total of one-hundred and eleven (111) TRIGA reactor fuel elements will be shipped in three (3), approximately equal quantity loads.

2. The BMI-1 shipping cask, type USA/5957/B()F will be used for each of these three shipments.

3. The loaded weight of the cask will not exceed 23,660 pounds. The gross vehicle weight will not exceed 65,000 pounds.

B. Anticipated Schedule

1. Three shipments are planned in an uninterrupted series.

2. The duration of each shipment from point of origin to destination is 1.25 days (30 hours).

3. The first shipment is presently scheduled to leave Berkeley sometime after November 1, 1988. The second shipment would leave Berkeley not later than 5 days after INEL personnel release the cask for return to UCB. The third shipment would leave Berkeley not later than 6 days after INEL personnel release the cask for return to UCB.

C. Route Information

1. The origin of each shipment is: University of California at Berkeley, Etcheverry Hall, located between Hearst Avenue and Ridge Road, just east of the North Gate to the main campus, Berkeley, California. The destination is the Department of Energy, Idaho Chemical Processing Plant located within the Idaho National Engineering Laboratory, west of Idaho Falls, Idaho. Westinghouse Idaho Nuclear Company, Inc. DOE's site operator has not yet provided a specific receiving address.

2. The proposed route is:

a) West on Hearst Avenue (City of Berkeley street) - - 0.4 miles.
b) South on Oxford Street (City of Berkeley street)- - 0.1 miles.
c) West on University Avenue (City of Berkeley street) 2.0 miles.
d) South on Interstate 80 (East Shore Freeway) - - - - 2.7 miles.
e) South on Interstate 880 (Nimitz Freeway) - - - - - 14.0 miles.
f) East on Interstate 238- - - - - - - - - - - - - - - - 2.0 miles.
g) East on Interstate 580 - - - - - - - - - - - - - - - - 21.0 miles.

This 42 mile segment of the proposed route lies completely within Alameda County. This route segment has not, to the best of our knowledge, been recently inspected and approved by NRC. This route has been discussed with Sgt. Bladow, CHP, along with two alternative routes. This route was selected based upon the safest, most direct available routing, and utilizes Interstate highway to the maximum. About 32 of these 42 miles of local routing appears to be in heavily populated areas as defined in NuReg-0561, Rev.1.

The remaining route, from the intersection of California 84 and Interstate 580 in Livermore, CA, (near Lawrence Livermore Laboratory) to the Idaho National Engineering Laborator, understood to have been inspected and approved by NRC in February of 1988, and is stated below to ensure that we correctly interpreted that information.

h) East on Interstate 580 to Interstate 205
i) East on Interstate 205 to Interstate 5
j) North on Interstate 5 to Interstate 80
k) East on Interstate 80 to Interstate 15 (at Salt Lake City)
l) North on Interstate 15 to US 26 (near Blackfoot, Idaho)
m) West on US 26 to the DOE facility (INEL)

These portions of the route total approximately 970 miles and pass through five (5) additional heavily populated areas in Stockton, CA, Sacramento, CA, Reno, NV, Salt Lake City, UT, and Ogden, UT.

3. As indicated in NuReg-0561, Rev.1, we anticipate that NRC will provide details of the route segments in the approved portion of the proposed route.

4. As indicated in NuReg-0561, Rev.1, we anticipate that NRC will provide Route Overview data, including travel time for each segment of the approved portion of the proposed route. The estimated travel time for the unapproved 42 mile segment is 1 hour and 15 minutes.

5. There are no planned stopover points in the unapproved segment of the proposed route. We anticipate that NRC will provide stopover points for the approved route segments. We request that NRC consider a stopover at the Tracy, CA facility of Tri-State Motor Transit (near intersection of Interstate 580 and Interstate 205) on the last of the 3 shipments only, for the purpose of transferring the BMI-1 cask and pallet to the 40 foot trailer.

6. The unapproved route segment in the San Francisco / Oakland area passes thorough approximately 32 miles of heavily populated areas, starting at the UCB campus and extending to a point on Interstate 580 estimated to be the intersection with Interstate 680 near Dublin, CA. The remaining heavily populated areas are Stockton and Sacramento, CA, Reno, NV and Salt Lake City and Ogden, UT.

D. Physical Protection Arrangements Planned for Heavily Populated Areas on Route

1. Escort arrangements for travel through the heavily populated areas of the previously approved route segments will be completed after evaluation of the Route Overview data and related data provided by NRC. The University of California will provide trained campus police as escorts through the initial segment traversing the heavily populated area in the San Francisco / Oakland area and may choose to carry through to INEL, after review of the NRC provided data.

2. (type, caliber or gage and number of firearms carried by the campus police will be provided later)

3. The communications center for the entire route will be the Joplin, MO facilities of the Tri-State Motor Transit Co. Staffing of the center will comply with Section 73.37(b)(4) requirements.

4. Long-range radio communications will be provided by radiotelephone. In addition, citizens band radio will be provided for transport vehicle to escort vehicle and Local Law Enforcement Agency communications.

DOCKET NO. 50-224
CONTROL NO. 24500
DATE OF DOC. 6/1/88
DATE RCVD. 7/15/88
FCUF _____ PDR ✓
FCAF _____ LPDR _____
I & E REF. _____
SAFEGUARDS ✓
FCTC _____ OTHER _____
DATE 7/15/88 INITIAL _____