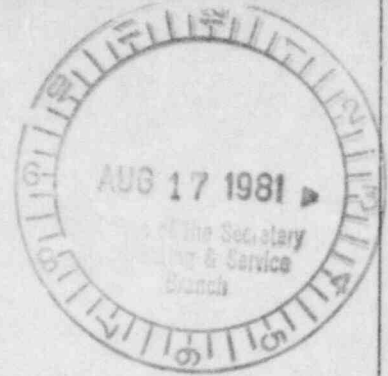


RELATED CORRESPONDENCE



UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

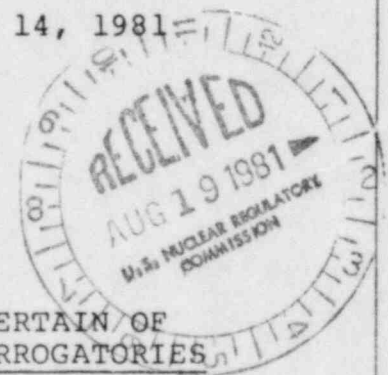
BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

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In the Matter of )  
THE REGENTS OF THE UNIVERSITY )  
OF CALIFORNIA )  
(UCLA Research Reactor) )

) Docket No. 50-142  
) (Proposed Renewal of Facility  
) License Number R-71)

) August 14, 1981



APPLICANT'S SUPPLEMENTAL RESPONSES TO CERTAIN OF  
INTERVENOR'S FIRST AND SECOND SET OF INTERROGATORIES

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Attorneys for Applicant

THE REGENTS OF THE UNIVERSITY  
OF CALIFORNIA

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1 Applicant, THE REGENTS OF THE UNIVERSITY OF  
2 CALIFORNIA, supplements its responses to certain of Intervenor's  
3 first and second set interrogatories as follows.

4  
5 Supplemented Response to Interrogatory No. 17h, i and j  
6 (CONTENTION I).

- 7  
8 h. Not to the knowledge of Applicant's staff.  
9 i. Not applicable  
10 j. Engineering courses 135AL, 135BL, 135F, 139A and  
11 XL497.17. In addition, without changing curricular objectives  
12 or diminishing the educational effectiveness of each, the  
13 following laboratory courses, a portion of which require the use  
14 of the reactor to perform neutron activation analyses, could  
15 also not be taught without the use of the reactor: Physics 180A,  
16 Chemistry 184 and 221 and Earth and Space Science 298.

17  
18 Supplemented Response to Interrogatory No. 18 (CONTENTION I).

19  
20 [Applicant's protective order request denied.]  
21 Currently, approximately 14 graduate students and  
22 post-doctoral scholars are known to depend upon the reactor for  
23 all or part of their research study. Additional graduate  
24 students may depend upon the reactor for part of their research;  
25 however Applicant's reactor staff does not track the progress of  
26 graduate student research related to the reactor and only knows  
27 of such research as it identified by project title, name of  
28 principal investigator (usually the faculty advisor for certain

1 graduate students) and sometimes the name of the students that  
2 appear on the Experimental Safety Analysis forms.

3  
4 a. J. Grossman, G. Kallemeyn, F. Kyte, G. Rambaldi,  
5 D. Sears, P. Warren and C. Zhou, Meteorite and Lunar Rock  
6 Analysis (UCLA; J. Wasson, advisor); J. Conca, R. Heuser and J.  
7 Jones, Track Radiography (Calif. Institute of Technology; D.  
8 Burnett, advisor); M. Dunmke, C. Meins, R. Mendenhall,  
9 Sputtering of U-235 (California Institute of Technology, T.  
10 Tombrello, advisor); G. McMurtry, Studies of Boron Distribution  
11 (UCSD, J. D. McDongall, advisor).

12  
13 b. Unknown

14 c. Unknown

15 d. Not applicable

16  
17 Supplemented Response to Interrogatory No. 28h (CONTENTION I).

18  
19 [The Board ruled: "Deny protective order as  
20 modified. Has any analysis been performed at UCLA on the SPERT  
21 and BORAX tests? What is the basis for the statement in the  
22 application? Was UCLA data furnished to Pacific Northwest  
23 Laboratory (Battelle) on SPERT and BORAX tests for  
24 NUREG/CR-2079, PNL-3691?"]

25 h. To Applicant's knowledge no analyses have been  
26 performed at UCLA on the SPERT and BORAX tests. The statement,

1 which was poorly paraphrased in the Application, follows from  
2 the 1960 Hazards Analysis wherein results from the SPERT and  
3 BORAX tests are discussed generically (cf. page 4 of  
4 NUREG/CR-2079). Applicant's staff did not directly furnish any  
5 data to Pacific Northwest Laboratory (PNL). PNL did reference  
6 the UCLA Argonaut Safety Analysis Report (1980) and had a copy,  
7 presumably, of UCLA's license renewal application, or excerpts  
8 thereof.

9  
10 Supplemented Response to Interrogatories Nos. 54 and 55

11 (CONTENTION II)

12  
13 [Applicant's protective order request denied.]

14  
15 54. The names, academic programs and last known  
16 addresses are as follows: James Everett, Engineering, 401 Circle  
17 Drive West, Box 121, Los Angeles, CA 90024; Dave Proffer,  
18 Computer Science, 196 Sandberg, Thousand Oaks, CA 91360; Robert  
19 Schaffer, Engineering, 1611 Penmon Ave. #1, Venice, CA 90291;  
20 Paul Smith, Computer Science, 350 De Neve Circle Drive  
21 #572, Los Angeles, CA 90024; Karen Ujihara, Engineering, 401 S.  
22 Barrington #105, Los Angeles, CA 90025; Philip Wheaton,  
23 Engineering, 3733 Keystone Ave. #5, Los Angeles, CA 90034.

24 55. Proffer and Smith, computer programmers, were  
25 used to develop data reduction procedures; the others prepared  
26 samples, loaded and unloaded samples and recorded data.

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- a. No
- b. Yes
- c. The activities enabled students to learn

experimental techniques and the use of sophisticated nuclear engineering equipment and instruments which could not be learned in the classroom.

Supplemented Response to Interrogatory No. 60 (CONTENTION II).

[The Board ruled: "Deny protective order as modified but UCLA does not have to chart or tabulate the data. Information should be released if it exists in its present form."]

To Applicant's knowledge subsequent to the publication of the 1967-68 Annual Report the data requested by this question was not routinely or systematically collected by the NEL staff. Some data does appear in the 1976 and 1977 Annual Report, which have already been made available to Intervenor; however, Applicant's staff is unaware of any compilation of the requested data for other years.

Supplemented Response to Interrogatory No. 38 (CONTENTION III).

Yes, February 25, 1980.

Supplemented Response to Interrogatory No. 43a (CONTENTION III).

1 a. Neill C. Ostrander, Nuclear Energy Laboratory,  
2 Room 2567, Boelter Hall, UCLA, telephone (213) 825-2040.

3  
4 Supplemented Response to Interrogatory No. 58 (CONTENTION III).

5  
6  
7 a. July 10, August 1 and 4, and September 23 and 24  
8 of 1975; October 12, November 22 and December 1, 3 and 9 of  
9 1976; September 6, 7, 8, 9, 21 and 23 of 1977; November 29 and  
10 30, and December 7 of 1978; December 13, 17 and 19 of 1979;  
11 October 21, 23 and 28 of 1980; and January 28 and 29 of 1981.

- 12 b. Yes
- 13 c. No
- 14 d. Not applicable
- 15 e. Not applicable
- 16 f. C. E. Ashbaugh of NEL; yes.
- 17 g. None
- 18 h. Not applicable
- 19 i. Not applicable
- 20 j. Not applicable
- 21 k. Not applicable
- 22 k. Not applicable
- 23 l. Not applicable
- 24 m. Not applicable
- 25 n. Not applicable
- 26 o. Not applicable
- 27 p. Not applicable

1 Supplemented Response to Interrogatory No. 11 (CONTENTION IV).

2  
3 [The Board ruled: "Deny protective order as  
4 modified. UCLA need not compile a study but should furnish  
5 relevant information if it exists."]

6 Applicant does not possess information sufficient to  
7 permit answering the question. Applicant would need information  
8 for each hypothetical situation concerning the following: the  
9 purity of the ore sample, the enrichment level of the ore  
10 sample; whether a positive or negative reactivity is being  
11 introduced; where and how the sample is being inserted in the  
12 reactor; the nature of the diluent and the concentration; and  
13 the nature of the impurities present in the ore.

14  
15 Supplemented Response to Interrogatories Nos. 39, 43, 45, 47, 48  
16 and 50 (CONTENTION V).

17  
18 [The Board ruled: "Deny protective order as  
19 modified. UCLA need not create a complex and extensive study  
20 but should furnish existing information. Under 10 C.F.R. Sec.  
21 2.740(e) UCLA should supplement its response if it develops  
22 additional information prior to the hearing."]

23  
24 Respecting Nos. 39, 43, 45, 48 and 50, information  
25 sufficient to enable Applicant's staff to answer these questions  
26 and the subparts of each does not exist beyond that which is  
27 contained in the 1960 Hazards Analysis and what may be found in  
28 NUREG/CR-2079.

1 47. Probably not.

- 2 a. There is no unique or direct relationship  
3 b. Almost everything  
4 d. Unknown; applicant's staff have not examined  
5 this question.  
6 e. Not for samples of reasonable size  
7 ("rabbits") in the UCLA reactor.

8  
9 Supplemented Response to Interrogatory No. 21 (CONTENTION VI).

10  
11 The film badges are responding only to beta rays  
12 (electrons) and are not sufficiently sensitive to detect the  
13 gamma (photon) radiation. The TLD's discriminate against the  
14 electron radiation and see only the gamma radiation. An  
15 electron is intensely ionizing in a local domain, the photon is  
16 weakly ionizing in a large domain.

17  
18 a. The individual outside of the stack is  
19 well-shielded from the non-penetrating electron flux within the  
20 stack (film badge 203). Sitting with a head height of four  
21 feet, the head is 8.5 feet from the top of the stack (film badge  
22 265). An electron must have a minimum energy of about 0.82 Mev  
23 to penetrate 8.5 feet of air. Approximately 6% of the electrons  
24 from the decay of argon-41 have that energy or greater. Because  
25 of this and the inverse square law, the beta radiation level at  
26 a distance of 8.5 feet from the stack top can be expected to  
27 fall from 350 mr/yr to  $350 \times 0.06 \times (1/8.5)^2 = 0.29$  mr/yr. This  
28 calculation ignores the shadowing effect of the stack itself.



1 The referenced quotation refers to the gamma radiation level  
2 measured by the TLD's.

3  
4 b. Since film badges and TLD's are not measuring the  
5 same thing, comparing accuracies is meaningless.

6  
7 Supplemented Response to Interrogatory Nos. 3, 4, 8(c), and 15  
8 (CONTENTION VII).

9  
10 [The Board Ruled: "What language does UCLA use to  
11 describe the occurrences which would be reported under this  
12 contention? 8(c) and 15 should be answered."]

13  
14 In addition to the information contained in the May  
15 20 "Answers" of Applicant, the following information is  
16 submitted in general response to Nos. 3, 4, 8(c) and 15.

17  
18 Applicant would use, where appropriate, the language  
19 of Part VIII of the Technical Specifications. A report to the  
20 NRC would typically begin with the phrase "Puruant to UCLA's  
21 Technical Specification, VIII. M.1.a (for example), this will  
22 advise you that ..." Intervenor's list of "unusual episodes"  
23 includes some terms that coincide with the terminology of the  
24 Technical Specifications (items a and b). Item c is an apparent  
25 synonym for item b and item e is an apprent synonym for item a.  
26 Items g, k, l, and m are not used in any precise sense by  
27 Applicant and, in any case, are not necessarily "unusual."  
28 However these items may be considered as corresponding to

1 certain items in the Technical Specifications: g to VIII. K.6,  
2 L.3.c, M.I.G, M.3.e; j to VIII. K.9, M.3.g; k to VIII K.3,  
3 L.3.d, M.2.c, M.3.c; l to VIII. L.3.e; and m to VIII. L.3.a.  
4 "Scram" can mean an unscheduled shutdown but is often used as a  
5 synonym for a scheduled shut down (for example, "Scram time will  
6 be 11:15"). The word "scram" is often modified by such words as  
7 "full," "overpower," "period," or "drop rod." Item f is not  
8 used in any special sense; item h is not used. Item n may  
9 induce an unscheduled shutdown (scram report) but would not  
10 normally be regarded as reportable unless it falls under  
11 Technical Specification VIII L.3.c or VIII M.I.G. Item i is  
12 only used to describe a utility failure or break that initiates  
13 an unscheduled shutdown in accordance with the reactor's design  
14 and should not be confused with a power reactor's load-change,  
15 turbine-trip event. Anything else that would fall under item o  
16 would be covered by Technical Specification VIII.L.3 (abnormal  
17 occurrence).

18  
19 Applicant's specific responses to Nos. 8(c) and 15  
20 follow.

21  
22 8(c). Applicant has the three categories of  
23 procedures required by Technical Specification VIII.J.2, J.3,  
24 and J.4 to take care of specific malfunctions and emergencies.  
25 These procedures (referred to generally as "Operating and  
26 Radiological Control Procedures") were identified as document  
27 number 37 of "Exhibit A" attached to Applicant's May 20  
28 "Answers" and have been made available to Intervenor. Applicant

1 does not have specific written procedures for any of  
2 Intervenor's "unusual event" items a through o. There are no  
3 health and safety considerations that would suggest that written  
4 procedures were needed for each of these items in view of that  
5 fact that Applicant has more generally applicable radiological  
6 control procedures.

7  
8 15. Applicant's staff does not maintain any file of  
9 "unusual events" distinct from the record keeping requirements  
10 of Technical Specification VIII.K. In addition to the documents  
11 mentioned in response to Interrogatory No. 14, scram reports are  
12 made and some of the inspection reports may contain descriptions  
13 of "unusual events." All of these documents have previously  
14 been made available to Intervenor.

15  
16 Supplemented Response to Interrogatory No. 8 (CONTENTION VIII).

17  
18 [The Board denied Applicant's protective order  
19 request].

20 Although the assumed operating conditions are  
21 specified adequately, as Applicant understands the assumed  
22 conditions Applicant's current license operating limits would  
23 permit operating under a through g and i, h and j would not be  
24 permitted.

25  
26 Supplemented Response to Interrogatory No. 14 (CONTENTION  
27 VIII).

1 Applicant does not possess the required  
2 information.

3 a. Not applicable

4 b. Not applicable

5  
6  
7 Supplemented Response to Interrogatories Nos. 22e, 23c and d,  
8 and 24 (CONTENTION VIII).

9  
10 [The Board ruled: "UCLA is neither expected nor  
11 required to perform any additional studies in order to respond  
12 to these interrogatories, but it may have some existing  
13 information which would be responsive to some degree to the  
14 information being sought. If so, it should be furnished. If  
15 not, UCLA should so state."]

16  
17 22e. Applicant does not possess the information  
18 needed to respond to the question.

19  
20 23c. Because the half-life is long relative to the  
21 assumed periodicities, the inventory is approximately the  
22 equilibrium inventory for the average power level of 24 kw  
23 (100 X 40/168). Using 24 percent of the I-131 inventory of  
24 Table 3, NUREG CR/2079 yields 39 Curies.

25  
26 23d. The calculation is similar to that in 23c  
27 above, except that the percent is doubled and the result is  
28 doubled, that is 78 Curies.

1           24. Applicant does not possess the information  
2 needed to respond to the question.

3 Supplemented Response to Interrogatory No. 28  
4 (CONTENTION VIII).

5  
6           [The Board ruled: "If UCLA has other information, it  
7 should be provided."]

8  
9           Applicant has no information other than that  
10 provided in its previous responses to this question. Applicant  
11 possesses no specialized information on this general subject.

12  
13 Supplemented Response to Interrogatory No. 64 (CONTENTION XX).

14  
15           The only portion of coolant or coolant-related  
16 equipment on the third floor is a water demineralizer. There is  
17 no such equipment on the eighth floor. The demineralizer is  
18 once-through, non-circulating equipment that provides "make-up"  
19 water on demand. Make-up water is required only at infrequent  
20 intervals, and the reactor normally operates for several months  
21 between additions of make-up water.

22  
23 Supplemented Response to Interrogatory No. 6 (CONTENTION II;  
24 Intervenor's First Set of Interrogatories).

25  
26           [In our "Further Answers" of June 11, 1981 we  
27 provided a chart ("Exhibit C" of that document) in response to  
28 Interrogatory No. 6. The chart (of reactor usage) covered the

1 years . 1975 to 1980. We state on page 15 of that document that  
2 we would attempt to supplement that answer at a future time by  
3 providing data for earlier years. The following information  
4 extends the data in the chart back to the year 1972.]

5  
6 See "Exhibit A" attached hereto.

7  
8  
9  
10 Dated: August 14, 1981

11  
12  
13 DONALD L. REIDHAAR  
14 GLENN R. WOODS  
15 CHRISTINE HELWICK

16 By Glenn R. Woods  
17 Glenn R. Woods  
18  
19  
20  
21  
22

REACTOR USAGE

USE CATEGORY	1972		1973		1974	
	PORT HOURS	\$	PORT HOURS	\$	PORT HOURS	\$
Classroom Instruction	25		25		36	
Maintenance	52		12		41	
Research						
NEL Staff Users	41		1		31	
Other UCLA Users	81	3345	122	5076	105	4258
College and University Users	25	2760	31	3720	45	5520
Other Extramural Users	2	240	1	120	--	--
Demonstrations	13		9		5	249
TOTALS		\$6345		\$8916		\$10018

NOTE: The totals do not agree with the annual reports for the corresponding years. No attempt has been made to reconcile the differences. Non-UCLA users were charged a higher rate than the rate which applied to UCLA users during this period. In 1975 a single rate was adopted which has been applied to all users from 1975 to the present.

1 UNITED STATES OF AMERICA  
2 NUCLEAR REGULATORY COMMISSION

3 BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

4 In the Matter of )  
5 THE REGENTS OF THE UNIVERSITY ) Docket No. 50-142  
6 OF CALIFORNIA ) (Proposed Renewal of Facility  
7 (UCLA Research Reactor) ) License Number R-71

8 CERTIFICATE OF SERVICE

9 I hereby certify that copies of the attached:  
10 APPLICANT'S SUPPLEMENTAL RESPONSES TO CERTAIN OF INTERVENOR'S  
11 FIRST AND SECOND SET OF INTERROGATORIES  
12 in the above-captioned proceeding have been served on the following by deposit  
13 in the United States mail, first class, postage prepaid, addressed as in-  
14 dicated, on this date: August 14, 1981.

13 Elizabeth Bowers, Esq.  
14 U.S. Nuclear Regulatory Commission  
15 Atomic Safety & Licensing Board  
16 Washington, DC 20555

Counsel for NRC Staff  
Office of the Executive Legal Director  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555

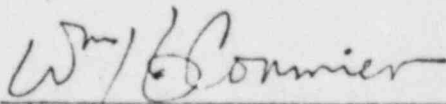
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21 Chief, Docketing and Service Section (3)  
22 Office of the Secretary  
23 U.S. Nuclear Regulatory Commission  
24 Washington, DC 20555

25   
26 William H. Cormier  
27 UCLA Representative  
28