

10/5/78

UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

| | | |
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| In the Matter of | ) | Docket No. 50-409 |
| | ) | Amendment to |
| DAIRYLAND POWER COOPERATIVE | ) | Provisional Operating |
| | ) | License No. DPR-45 |
| (La Crosse Boiling Water Reactor) | ) | |

APPLICANT'S RESPONSE TO
CREC'S FIRST SET OF
INTERROGATORIES DATED SEPTEMBER 18, 1978

Pursuant to 10 CFR § 2.740b(b), Dairyland Power Cooperative (Dairyland), the applicant for an amendment to Provisional Operating License No. DPR-45 in the above-captioned proceeding, hereby submits the following answers and objections [1/] in response to Intervenor Coulee Region Energy Coalition's (CREC) Interrogatories (Set No. 1) to the Applicant and Requests for Production of Documents dated September 18, 1978:

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1/ Dairyland is furnishing these responses in the hope of expediting this proceeding. In doing so, Dairyland has purposefully limited its objections only to the most obvious cases and, unless otherwise indicated, Dairyland does not concede either (a) that the information sought by any of the subject interrogatories is relevant to any of the four CREC contentions identified in Appendix A to the Licensing Board's Prehearing Conference Orders (Sept. 5, 1978) which have been admitted as matters in controversy in this proceeding and to which the inquiry in this proceeding is limited, or (b) that this information is even reasonably calculated to lead to the discovery of admissible evidence. Cf. 10 CFR § 2.740(b)(1).

Interrogatory Nos. 1-11, 14, and 24

Dairyland objects to Interrogatory Nos. 1-11, 14, and 24 on the grounds of relevance and materiality in that the information sought through these interrogatories concerns issues which go well beyond the scope of the CREC contentions which were admitted as matters in controversy in this proceeding. As noted by the Licensing Board in Allied-General Nuclear Services, et al. (Barnwell), LBP-77-13, 5 NRC 489, 492 (1977), the NRC Rules of Practice only permit

> discovery of information or documents 'relevant to the subject matter involved in the proceeding,' and then further qualifies and limits the term 'subject matter' to the contentions admitted by the presiding officer in the proceeding. See 10 CFR § 2.740(b)(1).

Pursuant to its September 5, 1978 Prehearing Conference Order, the Licensing Board in this proceeding admitted four CREC contentions dealing with (a) the long-term integrity of components in the LACBWR spent fuel storage pool, (b) the health and safety implications associated with the proposed two-tier storage rack design, (c) the risks associated with a cask drop accident and (d) the increased threat to the environment and maintenance personnel associated with the storage of failed fuel rods. [2/] It is significant that the Licensing

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2/ CREC Contention Nos. 1, 5, 6, and 7 respectively.

Board specifically rejected CREC's Contention No. 10 in which CREC sought to raise issues concerning Dairyland's management abilities and alternatives to the proposed expansion of the LACBWR spent fuel storage pool capacity. 3/ Thus, CREC's discovery in this proceeding must, by definition, be limited to information or documents related to these four contentions and not information or documents related to alternatives to the proposed expansion of the LACBWR spent fuel pool.

Nevertheless, CREC's Interrogatory Nos. 1-11 and 24 request detailed information concerning such alternatives including, inter alia, documents and correspondence related to negotiations with Nuclear Fuel Services and General Electric and others for the storage of spent fuel at an alternative site, the alternative of returning stored spent fuel to the reactor for further burn-up, the alternative of expanding the physical area of the existing pool, the alternative of constructing a separate new SFP, the alternative of temporary storage off-site, the alternatives to reactor shutdown once SFP capacity has been reached and the alternative of reprocessing spent fuel. Similarly, in Interrogatory No. 14,

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3/ Prehearing Conference Orders at 4-5 (Sept. 5, 1977). Moreover, CREC itself rejected a proposed stipulation which might have permitted such issues to be considered in this proceeding. (Tr. 144-148).

CREC requests information concerning the ability of LACBWR to meet certain seismic criteria in spite of the fact that none of the CREC contentions address seismic issues.

It is clear that all of these interrogatories request information concerning issues which go beyond the scope of this proceeding. Accordingly, under the NRC Rules of Practice and case law precedents, these interrogatories are objectionable and should be denied. 4/

Interrogatory No. 12

The proposed rack capacity (440 assemblies) was selected because it will provide the maximum feasible storage capacity for the LACBWR storage pool, and at the same time provide adequate protection for the public health and safety and Dairyland's employees. Space will be provided for handling equipment to move fuel assemblies in and out of the pool and to store a number of irradiated control rods. The proposed two-tier storage rack design will enhance the usage of the pool floor area available for fuel storage and provide sufficient water depth for shielding during fuel transfers.

Interrogatory No. 13

(a) The time for the fuel pool to reach saturation without the cooling system in service was calculated as follows:

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4/ Boston Edison Co. (Pilgrim 2), LBP-75-42, 2 NRC 159 (1975); Allied-General Nuclear Services (Barnwell), LBP-77-13, 5 NRC 489 (1977). See also Glass v. Philadelphia, 64 F.R.D. 559 (E.D. Pa. 1974) (interrogatories subject to objection when they exceed the scope of discovery suggested in court order).

Parameters and Assumptions (Part 1)

Heat Load = $9.31 \times 10^5$ BTU/hr (From LAC-5341)

Initial Pool Temperature = 120°F, density ($\rho$) = 61.71 lb/ft$^3$

Initial Water Depth = 38 feet

20% of pool volume taken by racks, fuel, etc.

Specific Heat of Water = 1 BTU/lb °F

Calculation (Part 1)

Water Volume = 80% (11' x 11' x 38') = 3,680 ft$^3$

Water Weight = 3,680 ft$^3$ x 61.71 lb/ft$^3$ = $2.3 \times 10^5$ lb

$$\text{Heatup Rate } (\Delta T_1) = \frac{9.31 \times 10^5 \text{ BTU/hr}}{2.3 \times 10^5 \text{ lb} \times 1 \text{ BTU/lb °F}} = 4 \text{ °F/hr}$$

$$\text{Time for Pool Temperature to Rise From } \underset{120\text{-}150°F}{} = \frac{150\text{-}120°F}{4 \text{ °F/hr}} = 7.5 \text{ hrs.}$$

Parameters and Assumptions (Part 2)

When pool temperature reaches 150°F, the pool will be filled from the Overhead Storage Tank (OHST) through the existing interconnecting piping.

OHST Water Temperature = 70°F, $\rho$ = 62.31 lb/ft$^3$

Calculation (Part 2)

Final Water Depth = 700'-9-1/2" (Overflow El.) - 659'-5-5/8" (Pool Floor El.)

= 41'-4-1/8"

Water Volume Added from OHST = (41'-4-1/8"-38') x 11' x 11'

= 404 ft$^3$

Water Weight = 404 x 62.31 = $0.25 \times 10^5$ lb

Pool Conditions After Mixing

Water Weight = $2.3 \times 10^5 + 0.25 \times 10^5 = 2.55 \times 10^5$ lb

$$\text{Temperature} = \frac{(2.3 \times 10^5 \text{ lb})(150°F) + 0.25 \times 10^5 \text{ lb})(70°F)}{2.55 \times 10^5 \text{ lb}}$$

$$= 142$$

$$\text{Heatup Rate } (\Delta T_7) = \frac{9.31 \times 10^5}{2.55 \times 10^5} = 3.6°F/hr$$

Time for Pool Temperature to Rise from 142-212°F =

$$= \frac{212-142}{3.6} = 19.4 \text{ hrs}$$

Total Heatup Time = 7.5 + 19.4 = 26.9 hrs

(b) Fuel pool cooling system flow is indicated in the Main Control Room. In the event of pump failure and loss of coolant flow, the standby pump can be started immediately from the Control Room. There is no additional occupational exposure involved in this action.

Interrogatory No. 15

See Appendix A hereto.

Interrogatory No. 16

Approximately 270 gallons per minute.

Interrogatory No. 17

The practical removal capacity for either system is approximately 30 curies. The filters or demineralizers are taken out of service long before they reach their maximum removal capacity.

Interrogatory No. 18

The time between filter changes and the replacement of demineralizer resins varies according to the concentration of transportable or soluble materials which have been introduced into the storage well, the pressure drop across the filter, and the decontamination factor associated with the resin. Filters and demineralizer resins have been changed approximately every 6 to 9 months over the past several years. The presence or absence of grossly failed fuel rods in the pool does not appreciably affect the service life of filters or demineralizer resins at LACBWR.

Interrogatory No. 19

Approximately 30 grams, however, all but a small fraction of a gram of this material has been collected in the storage well cleanup systems.

Interrogatory No. 20

By conservative estimate, the present leakage rate to the environment per day is approximately 0.263 percent of the total pool coolant activity or approximately .00057 curies per day. There are no significant (i.e., detectable) quantities of gaseous contaminants in the pool coolant.

Interrogatory No. 21

If the pool coolant did reach a boiling condition, the Containment Building would be isolated. Thus, no additional

gaseous releases would reach the environment. The liquid releases would remain at the level indicated in the answer to Interrogatory No. 20.

Interrogatory No. 22

(a) Approximately $9.31 \times 10^5$ BTU/hr.

(b) Approximately $8 \times 10^5$ BTU/hr. This occurred in April 1973, when all fuel elements were transferred from the reactor to the fuel pool for cleaning and inspection.

Interrogatory No. 23

The Component Cooling Water (CCW) System has redundant pumps and has never been unavailable to provide cooling service to the Spent Fuel Pool Cooling System. However, cooling service to the fuel pool could also be provided by adding water to the fuel pool from the Overhead Storage Tank (OHST) or the Demineralized Water System until the pool is full, isolating the fuel pool cooler from the CCW System and installing piping from the High Pressure Service Water (HPSW) to the cooler in lieu of CCW, and installing return piping for HPSW from the cooler to the Containment Building floor drain system.

Cooling water makeup to the pool could be started in less than 5 minutes. HPSW piping is located near the fuel pool cooler and it is estimated that the necessary piping connecting HPSW to the fuel pool cooler could be installed in less than 8 hours.

Interrogatory No. 25

By conservative estimate, the maximum amount of additional costs associated with storing spent fuel in the modified spent fuel pool over the next ten years is $38,597. This figure is based upon the assumptions that there will be two additional filter changes per year at a cost of approximately $315 per year, one additional replacement of the ion exchange resin bed per year at a cost of approximately $2,467 per year, and an annual inflation rate of 8%.

Interrogatory No. 26

No, not at the present time. The Applicant will supplement its response to this interrogatory in accordance with the requirements of 10 CFR § 2.740(e) as necessary.

Interrogatory No. 27

The Applicant presently intends to install the new spent fuel racks in accordance with the Proposed Rack Installation Plan described below. The major pieces of equipment which the Applicant presently plans to utilize to carry out this proposed plan are the Containment Building overhead crane, remote tooling, an underwater TV camera, and the fuel transfer bridge.

PROPOSED RACK INSTALLATION PLAN

1. The core spray bundle stand and energy absorption pad are removed from the storage well using the overhead crane.

2. The 36-cell rack section is lowered into the storage well and located in the south portion parallel to the south wall, using overhead crane.

3. Fuel assemblies from the existing racks on the north wall are transferred to the 36-cell rack section using fuel transfer bridge.

4. The two rows of racks on the north wall are removed, excluding control rod racks, using the overhead crane.

5. The 40-cell rack section is lowered into the storage well by overhead crane and positioned close to the north wall and running parallel to west wall.

6. Fuel assemblies from the existing racks on the east wall are transferred to the empty 4x10 section.

7. The three rows of racks on the east wall including the control rod rack in the northeast corner are removed using overhead crane.

8. A 72 cell rack section is lowered into the storage well and located in its final position in the northeast corner by overhead crane.

9. Fuel assemblies from the existing racks on the south wall are transferred to the 72-cell rack section.

10. Fuel assemblies from the 36-cell rack section are transferred to the 72-cell rack section.

11. The empty 36-cell rack section is shifted northward for added working area on south racks.

12. The two rows of racks on the south wall are removed by overhead crane including the control rod rack in the southeast corner.

13. The empty 36-cell rack section is relocated into final position in the southeast corner.

14. Fuel assemblies from the 40-cell rack section are transferred to the 36-cell rack section and the partially filled 72-cell rack section.

15. The empty 40-cell rack section is moved southward and positioned parallel to south wall.

16. Fuel assemblies are transferred from the three rows of racks on the west wall to the 72-cell rack section with the remainder to the empty 40-cell rack section.

17. The three rows of racks on the west wall are removed including control rod racks from the northwest and southwest corners.

18. The remaining 72-cell rack section is lowered into the storage well and positioned in its final location in the northwest corner.

19. Fuel assemblies are transferred from the partially filled 40-cell rack section to the empty 72-cell section.

20. The empty 40-cell rack section is relocated into position in the southwest corner.

21. The modified energy absorption pad, seismic bracing, core spray bundle support stand, control rod storage rack, and upper tier rack sections are installed.

The Applicant presently plans to have the fuel racks preassembled in the fabricator's shop to ensure proper fitup and alignment. The individual sections and components will then be shipped to LACBWR and reassembled in the fuel storage well as described above.

Interrogatory No. 28

The Applicant has not yet identified the persons whom it expects to call as expert witnesses in this proceeding.

The background information requested by CREC and the affidavits required by 10 CFR § 2.740b(b) for each of the persons answering these interrogatories are attached as Appendix B hereto.

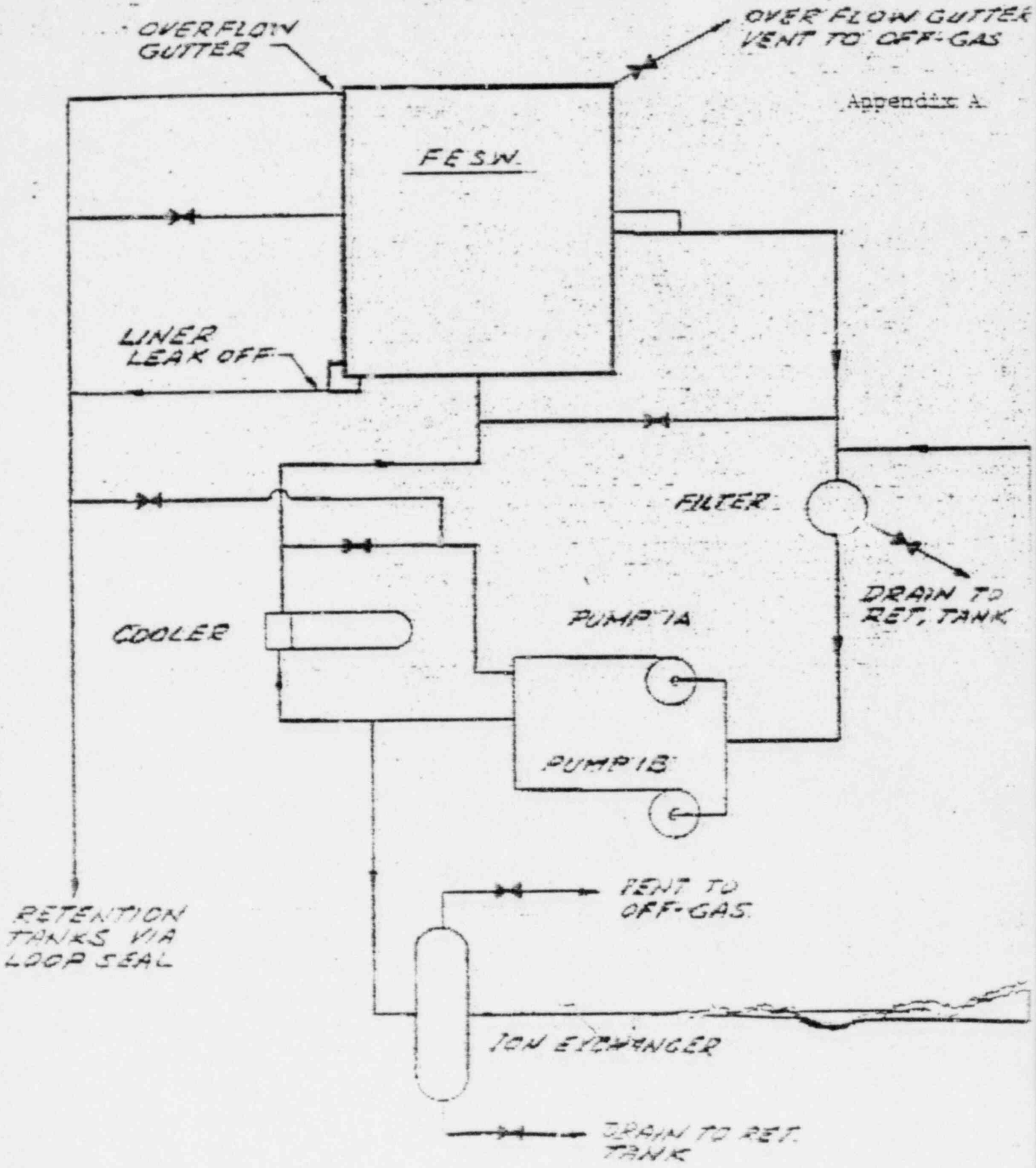
Respectfully submitted,

O. S. Hiestand
Attorney for
Dairyland Power Cooperative

Of Counsel

Kevin P. Gallen
Morgan, Lewis & Bockius
Dated: October 5, 1978

System and the interconnections, if any, to the plant radwaste treatment system.




Appendix A

NOTE: ⋈ represents normally closed valve to show normal flow route.

SPENT FUEL POOL COOLANT SYSTEM

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| | ) | Amendment to |
| DAIRYLAND POWER COOPERATIVE | ) | Provisional Operating |
| | ) | License No. DPR-45 |
| (La Crosse Boiling Water Reactor) | ) | |

AFFIDAVIT OF SEYMOUR J. RAFFETY

State of Wisconsin: County of Vernon:

Seymour J. Raffety being first duly sworn, on oath says as follows:

1. That he is employed by Dairyland Power Cooperative, 2615 East Avenue South, La Crosse, Wisconsin, as Reactor Engineer.

2. That he is duly authorized to answer the Interrogatories numbered 1-12, 1-19 propounded by the Coulee Region Energy Coalition under date of September 18, 1978, on behalf of the Applicant Dairyland Power Cooperative.

3. That the above-mentioned and attached answers are true and correct to the best of his knowledge and belief.

Seymour J. Raffety

S. J. Raffety

Subscribed and sworn to before me this 4th day of October, 1978.

SEAL

Kathleen A. Hudkins

Signature of Notary Public

My Commission expires 11-8-79.

NAME: Seymour J. Raffaty

ADDRESS: Dairyland Power Cooperative
P. O. Box 135
Genoa, Wisconsin 54632

CURRENT OCCUPATION: Reactor Engineer

EDUCATION: Grinnell College, Grinnell, Iowa
BA-1954, Physics

Iowa State University, Ames, Iowa:
M.S.-1960 and Ph.D.-1964 in Nuclear Engineering

Professional Engineer, Wisconsin
License No. 13099

DISSERTATIONS: Master's Dissertation: "Thermal Neutron Shielding Measurements in the UTR-10 Shield Tank Facility", (1960).

Doctor of Philosophy Dissertation: "Design of UTR-10 Fission Plate", (1964).

PUBLISHED WORKS:

1. S. J. Raffaty and J. T. Mihalczo, "Homogeneous Critical Assemblies of 2 and 3% Uranium-235 Enriched Uranium in Paraffin", Nuclear Science and Engineering: 48, 432-443 (1972).

2. S. J. Raffaty and J. T. Thomas, "Experimental Determination of Safe Handling Procedures for High Flux Isotope Reactor Fuel Elements Outside the Reactor", U.S. AEC Report ORNL-TM-1483, (1966).

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## AFFIDAVIT OF NORMAN L. HOEFERT

State of Wisconsin: County of Vernon:

Norman L. Hoefert being first duly sworn, on oath says as follows:

1. That he is employed by Dairyland Power Cooperative, 2615 East Avenue South, La Crosse, Wisconsin, as Mechanical Engineer.

2. That he is duly authorized to answer the Interrogatories numbered I-13, I-15, I-16, I-22, I-23, I-25, I-26, & I-27 propounded by the Coulee Region Energy Coalition under date of September 13, 1973, on behalf of the Applicant Dairyland Power Cooperative.

3. That the above-mentioned and attached answers are true and correct to the best of his knowledge and belief.

N. L. Hoefert

Subscribed and sworn to before me this 4 day of October, 1973.

SEAL

Signature of Notary Public

My Commission expires 11-5-76.

NAME: Norman L. Boefart

ADDRESS: Dairyland Power Cooperative
P. O. Box 135
Genoa, Wisconsin 54632

CURRENT OCCUPATION: Mechanical Engineer

EDUCATION: University of Wisconsin-Milwaukee;
B.S. Degree, Applied Science and Engineering

Registered Professional Engineer - State of Wisconsin

PUBLISHED WORKS: None

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AFFIDAVIT OF ROBERT J. PRINCE

State of Wisconsin: County of Vernon:

Robert J. Prince being first duly sworn, on oath says as follows:

1. That he is employed by Dairyland Power Cooperative, 2615 East Avenue South, La Crosse, Wisconsin, as Radiation Protection Engineer.

2. That he is duly authorized to answer the Interrogatories numbered 1-17, 1-18, 1-20 & 1-21 propounded by the Coulee Region Energy Coalition under date of September 18, 1973, on behalf of the Applicant Dairyland Power Cooperative.

3. That the above-mentioned and attached answers are true and correct to the best of his knowledge and belief.

Robert J. Prince

Robert J. Prince

Subscribed and sworn to before me this 4th day of October, 1973.

SEAL

Signature of Notary

My Commission expires 11-5-75.

NAME: Robert J. Prince

ADDRESS: Dairyland Power Cooperative
P. O. Box 135
Genoa, Wisconsin 54632

CURRENT OCCUPATION: Radiation Protection Engineer

EDUCATION: Lowell Technological Institute;
B.S. Degree in Radiological Health Sciences

University of Florida;
M.S. Degree in Health Physics

Master's Thesis: Occupational Radiation Exposure in the Florida Phosphate Industry

PUBLISHED WORKS: None

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CERTIFICATE OF SERVICE

Service has on this day been effected by personal delivery or first class mail on the following persons:

Ivan W. Smith, Esquire, Chairman
Atomic Safety and Licensing
Board Panel
U.S. Nuclear Regulatory
Commission
Washington, D.C. 20555

Mr. Ralph S. Decker
Route 4
Box 190D
Cambridge, Maryland 21613

Dr. George C. Anderson
Department of Oceanography
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Seattle, Washington 98195

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Atomic Safety and Licensing
Board Panel
U.S. Nuclear Regulatory
Commission
Washington, D.C. 20555

Atomic Safety and Licensing
Appeal Board
U.S. Nuclear Regulatory
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Office of Executive Legal Director
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Richard J. Goddard, Esquire
Office of Executive Legal Director
U.S. Nuclear Regulatory Commission
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Richard Shimshak
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La Crosse Boiling Water Reactor
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929 Cameron
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O. S. Hiestand, Jr.

Dated: October 5, 1978