

Mr. Alex G. Fremling, Manager
Richland Operations Office
P. O. Box 550
Richland, Washington 99352

JUL 28 1983

Dear Mr. Fremling:

Subject: PNL Technical Assistance to DSI, NRR, NRC -- "Review of High
Burnup Licensing Topical Reports," (FIN ~~REDACTED~~)

This letter is a request for a proposal from the Pacific Northwest Laboratory to provide technical assistance to the Division of Systems Integration, NRC. The Statement of Work in Enclosure 1 details the required work and should be used as the basis for preparing a proposal for submission to this office.

Standard terms and conditions for NRC work, as provided in the DOE/NRC Memorandum of Understanding of February 24, 1978, and described in NRC Manual Chapter 1102, should be used as the basis for preparing a proposal. If a portion of this work is to be subcontracted, it is required that PNL have a professional assigned to the contract who is qualified to defend the results. Also, prior approval by me in writing is required before initiation of any subcontractor effort. Please submit a proposal containing, as a minimum, the information set forth in Enclosure 2, Proposal Content, in the format of the Statement of Work within 30 days to:

Mrs. Sybil Boyd
Program Assistant to the Director, P-1102
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Work under this program is not anticipated to be classified, but it will concern proprietary information that is provided in vendor topical reports and should be handled in accordance with the Rules of Practice 10 CFR 2.790.

This request for proposal is not an authorization to start work. Authorization to commence work becomes effective upon Pacific Northwest Operations Office acceptance of an appropriately executed NRC Form 173, Standard Order for DOE Work.

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OFFICE							
SURNAME							
DATE							

Mr. Alex G. Fremling

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JUL 28 1983

If you have any questions about this request, please contact Mrs. S. Boyd at FTS 492-7685. Thank you for your assistance.

Sincerely,
Original signed by
Roger J. Mattson

Roger J. Mattson, Director
Division of Systems Integration
Office of Nuclear Reactor Regulation

Enclosures:

1. Statement of Work
2. Proposal Content

cc: R. Barber, HQ-DOE
P. Sherfy, PNL
M. Plahuta, DOE-RL

DISTRIBUTION:

NRR Official Project File (B. Grenier)

CPB r/f

R. Mattson

S. Boyd

L. Rubenstein

C. Berlinger

R. Meyer

M. Tokar

V. Zeoli, CON

D. Dandois, CON

Z. Rosztoczy

OFFICE	DSI:CPB	DSI:CPB:SL	DSI:CPB:BC	DSI:C&PS:AD	DSI	NRR	DSI:Dir
SURNAME	MTokar:ew	RMeyer	CBerlinger	LRubenstein	SBoyd	BGrenier	RMattson
DATE	07/19/83	07/19/83	07/19/83	07/20/83	07/21/83	07/21/83	07/21/83

ENCLOSURE 1

STATEMENT OF WORK

Title: Review of High Burnup Licensing Topical Reports
FIN Number: B2533
B&R Number: 20-19-10-12-3
Project Manager: Michael Tokar (FTS 492-9478)

BACKGROUND

There has been a recent industry trend to operate reactor fuel to higher exposures than have been addressed in safety analyses. While preliminary information indicated that extended-burnup operation was justifiable, the NRC asked the U.S. fuel manufacturers to document information leading to that conclusion and to provide that information to the NRC in report form for review. These reports were received by NRC in 1982 and the review of these reports was begun in house. Some questions have already been sent to the vendors and other questions are being prepared. The contractor must assume responsibility for these incomplete review actions and carry them to completion.

OBJECTIVE

The objective of this program is to provide for the balance of the review and the preparation of the TER for each of the five vendor topical reports on extended-burnup effects. The reviews are to be conducted with full awareness of Sections 4.2, 4.3, 4.4, and Chapter 15 of the Standard Review Plan to ensure that the effects of high-burnup operation are accommodated for all of the regulatory requirements addressed by these parts of the SRP.

WORK REQUIREMENTS

All reviews are to proceed concurrently to the extent practical to ensure uniformity of the technical evaluations.

Task 1: Review ENC Report, XN-NF-82-06.

Estimated Level of Effort: 0.3 PSY
Projected Completion Date: June 30, 1984

Review background documents, preliminary questions, and notes provided by NRC. Complete a technical review of the subject report to determine adequacy of the vendor's design and safety analysis to meet regulatory requirements at high fuel exposures. Determine the exposure (burnup) beyond which operation has not been justified.

<u>Milestone</u>	<u>Projected Completion Date</u>
1. Provide draft technical questions.	October 31, 1983
2. Recommend staff positions and/or provide additional technical questions.	March 31, 1984
3. Meet with vendor as required to resolve outstanding issues.	April 30, 1984
4. Issue technical evaluation report (TER).	June 30, 1984

Task 2: Review GE Report, NEDE-22148.
(All requirements same as Task 1.)

Task 3: Review Westinghouse Report, WCAP-10125.
(All requirements same as Task 1.)

Task 4: Review B&W Report, BAW-10153.
(All requirements same as Task 1.)

Task 5: Review C-E Report, CENPD-269.
(All requirements same as Task 1.)

LEVEL OF EFFORT AND PERIOD OF PERFORMANCE

The level of effort is estimated at 1.5 PSY over a 12-month period.

REPORTING REQUIREMENTS

Technical Reports

1. At the completion of Milestones 1 and 2, submit to the Project Manager a letter report that provides appropriate questions and positions for each Task.
2. Approximately 30 days after completion of Milestone 3, submit to the Project Manager a draft technical evaluation report for each Task that summarizes all of the work performed, the findings and conclusions reached, and the bases upon which they are reached.
3. After receipt of NRC comments, submit to the Project Manager camera-ready copies of the final technical evaluation reports thus completing Milestone 4.

Business Letter Report

A monthly business letter report will be submitted by the 15th of the month to the Project Manager with copies provided to the Director, Division of Systems Integration, ATTN: S. Boyd, C. Berlinger, and B. L. Grenier, NRR. These reports will identify the title of the project, the FIN, the Principal Investigator, the period of performance, and the reporting period and will contain three sections as follows:

Project Status Section

1. A listing of the efforts completed during the period; milestones reached, or if missed, an explanation provided.
2. Any problems or delays encountered or anticipated and recommendations for resolution.¹
3. A summary of progress to date (this may be expressed in terms of percentage completion for the project).
4. Plans for the next reporting period.

¹If the recommended resolution involves a Work Order modification, i.e., change in work requirements, level of effort (costs), or period of performance, a separate letter should be prepared and submitted to the Director, Division of Systems Integration, ATTN: S. Boyd, and a copy provided to the NRR Project Manager and B. L. Grenier, NRR.

Financial Status Section

1. Provide the total cost (value) of the project as reflected in the proposal (NRC Form 189), the total amount of funds obligated to date, and the balance of funds required to complete the work by fiscal year as follows:

Total Projected Project Cost	Funds Obligated To Date	Balance of Funds By Fiscal Year FY- FY- FY-
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2. Provide the total direct staff use and amount of funds expended (costed) during the period and total cumulative to date in the following categories:

(a) <u>Direct Lab Staff Effort</u>	<u>Project</u>	<u>Cumulative</u>
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(b) Funds (\$000)

Direct Salaries
 Materials and Services
 (Excluding ADP)
 ADP Support
 Subcontracts
 Travel Expenses
 Indirect Labor Costs
 Other (Specify)
 General and Administrative

TOTAL

_____ (%)²

Fee Recovery Cost Status Section

Pursuant to the provisions of NRC Regulations, 10 CFR 170, provide the total amount of funds expended (costed) during the period and cumulative to date for each task on a separate page in the following format.

FIN:

TITLE: Review of High Burnup Licensing Topical Reports

Period:

Task 1: Review ENC Report XN-NF-82-06

<u>Facility</u>	<u>Docket #</u>	<u>TAC #</u>	<u>Period</u>	<u>Cumulative</u>
Exxon Nuclear Company	N/A	48067		

Task 2: Review GE Report NEDE-22148

<u>Facility</u>	<u>Docket #</u>	<u>TAC #</u>	<u>Period</u>	<u>Cumulative</u>
General Electric Company	N/A	48568		

Task 3: Review Westinghouse Report WCAP-10125

<u>Facility</u>	<u>Docket #</u>	<u>TAC #</u>	<u>Period</u>	<u>Cumulative</u>
Westinghouse Electric Corporation	N/A	48689		

Task 4: Review B&W Report BAW-10153

<u>Facility</u>	<u>Docket #</u>	<u>TAC #</u>	<u>Period</u>	<u>Cumulative</u>
Babcock & Wilcox Company	N/A	48917		

Task 5: Review C-E Report CENPD-269

<u>Facility</u>	<u>Docket #</u>	<u>TAC #</u>	<u>Period</u>	<u>Cumulative</u>
Baltimore Gas and Electric	50317 50318	48946		

MEETINGS AND TRAVEL

One trip to Bethesda, Maryland should be planned and budgeted for each Task.

- * Common costs are for those costs incurred for effort such as preparatory or start-up efforts to interpret and reach agreement on methodology, approach, acceptance criteria, regulatory position, or TER format; efforts associated with the "lead plant" concept that might be involved during the first one or two plant reviews as estimated by the contractor; meetings/discussions involving the above efforts to provide orientation, background knowledge, or guidance at the beginning or during performance of work; and any technical effort applied to a category of facilities, e.g., reactor analyses on all BWR facilities. In the case of the latter example, these costs should be prorated equally to only those facilities to which the effort applies.

Development of methodologies, criteria, or technical positions are not fee-recoverable and, therefore, should not be categorized as common costs. Management and related support costs chargeable directly to the effort are not to be reported as common costs and should, therefore, be charged in proportion to the other direct costs associated with those facilities during the reporting period.

NOTE: Common costs are to be accrued on a monthly basis and prorated equally among the facilities identified under the effort at the end of each fiscal year or at the completion of the effort, whichever occurs first.

NRC FURNISHED MATERIALS

Copies of the following reports will be provided:

1. XN-NF-82-06, "Qualification of Exxon Nuclear Fuel for Extended Burnup," June 1982.
2. NEDE-22148, "Extended Burnup Evaluation Methodology," June 1982.
3. WCAP-10125, "Extended Burnup Evaluation of Westinghouse Fuel," July 1982.
4. BAW-10153, "Extended-Burnup Evaluation," September 1982.
5. CENPD-269, "Extended Burnup Operation of Combustion Engineering PWR Fuel," April 1982.

The following items are required to prepare DOE proposals (NRC Form 189):

Project Title - The title should be a unique identifier of the project reflecting a general idea of the encompassed work. In most cases, the title on the NRC Statement of Work (SOW) should be used.

Date of Proposal - Self explanatory; include revision number when applicable.

NRC Office - Indicate the NRC Office(s) supporting or requesting the work.

FIN Number and B&R Number - Indicate NRC's FIN Number and B&R Number, as provided on the Statement of Work.

DOE Contractor - Performing organization's name.

Site - Indicate location(s) of organization that will perform the work.

Contractor Account and DOE B&R Number - Provide the information for the highest level feasible.

Cognizant Personnel - NRC Project Manager and other NRC Technical Staff, if applicable; DOE Project Manager; and, the performing organization's key personnel: Project Manager and principal investigator(s); and, FTS phone numbers for each; include resumes for contractor personnel.

Period of Performance - Provide proposed date of commencement of work and best-estimated completion date of the project.

Staff-Years of Effort and Costs - Estimate costs to be incurred by DOE contractors and subcontractors. For consultants, provide the cost of the services on a per staff-year of Technical Support basis. This shall include direct salary, indirect expenses and other reimbursable amounts; the cost shall also be stated on a per-day basis.

List by fiscal year from start to completion of the project (FIN). Cost estimate will be consistent with DOE Manual 2200, the Pricing Manual, and shown in thousands of dollars.

-- Staff-years of Effort (Laboratory personnel only):

- Direct Scientific/Technical
- Other Direct (Graded)

-- Costs:

- | | |
|---|--------------------------------------|
| - Direct Salaries (FTE's) | - Indirect Labor Costs |
| - Material and Services (Excl. ADP) <u>1/</u> | - Other (specify) |
| - ADP Support | - General and Admin. Expense (___%) |
| - Subcontracts | - Total Operating Cost |
| - Travel Expense | - Capital Equip. (FIN charged (___)) |
| o Domestic | - Total Project Cost |
| o Foreign | |

Monthly Forecast Expense - Provide the planned monthly rate of costs for first year. If not known at time of proposal submittal, this may be provided in the first monthly business letter report once the project is authorized. At the beginning of each subsequent year, include the planned monthly rate of costs for the ensuing year in the first monthly business letter report.

Forecast Milestone Chart - Complete as shown on NRC Form 189.

Approval Authority - Proposal must be signed by an appropriate laboratory or field activity representative. Note: This individual may or may not be the same person who signs the transmittal letter.

Project Description - Provide narrative descriptions of the following topics in the order listed on plain paper attached to the NRC Form 189. If an item is not applicable, so state on the NRC Form 189.

1. Objective of Proposed Work

- a. Background - Provide a brief summary of the technical problem, issue, or need so as to orient the reader to the requirements for the work or end project.
- b. Objective - State concisely the performing organization's understanding of the objective(s), i.e., what will be the end result(s).

2. Summary of Prior Efforts - Not applicable for NRR projects.

3.
 - a. Work Requirements - Describe the tasks and subtasks to be performed in such a manner that a disinterested third party can understand what is to be done and how it will be accomplished for the level of effort and period of performance proposed. Describe any assumptions being made pertinent to performing the work. Provide criteria or other bases upon which evaluations, judgment or other action will be taken. Describe potential problems and recommend solutions. State and describe separately any options being proposed that require NRC approval before proceeding.
 - b. Meetings and Travel - State the number of trips that the performing organization will require to perform the work and identify where and how many people are expected to travel. If no travel is expected or required, state none. Describe any foreign travel requirements; approval must be obtained by processing an NRC Form 445.
 - c. NRC Furnished Material - Specify any equipment (including ADP), background reports or data, or other specific materials required to be provided by NRC, or equipment to be purchased.

4. Description of Any Follow-On Efforts - Not applicable for NRR projects.

5. Relationship to Other Projects - Identify related projects that either (1) generate information that will be needed to accomplish the work proposed under this project or (2) will use information generated by this project, and (3) support a common objective. If none, so state on the NRC Form 189.

6. Reporting Requirements - State the number, type, and other content of the reports requested or proposed to be provided, to whom and when they are to be submitted, and, if requested by NRC, whether drafts will be provided prior to finalization.

7. Subcontractor Information - Identify the subcontractor or consultant and describe any effort that will be performed by a subcontractor or consultant, and reference the task or subtask described under the work requirements that the subcontractor or consultant effort will support. Any work performed by the subcontractor on behalf of the nuclear industry that might give rise to an apparent or actual conflict of interest must be described. If the subcontractor is not known at the time the proposal is being submitted, so indicate and describe status and expected time frame for selection of the subcontractor(s) or consultant(s).

8. New Capital Equipment Required - List all capital equipment which must be purchased by the performing organization to perform the work described and provide the estimated cost.

9. Special Facilities Required - Describe any new special facilities required.

10. Conflict of Interest Information - Describe any significant contractual and organizational relationships of the DOE and its contractor on this proposal with industries regulated by the NRC (e.g., utilities, etc.) and suppliers thereof (e.g., architect engineers and reactor manufacturers, etc.) that might give rise to an apparent or actual conflict of interest.