ORDER FOR SUPPLIES OR SERVICES

PAGE OF PAGES: 1 | 3

IMPORTANT: Mark all packages and papers with contract and/or order numbers. BPA NO. NRC-DR-03-09-077

1. DATE OF ORDER: 3/1/2010	2. CONTRACT NO. (If any): GS23F0110M
3. ORDER NO.: NRC-T005 / MODIFICATION NO.:	4. REQUISITION/REFERENCE NO.: NRR-10-178

5. ISSUING OFFICE (Address correspondence to)
U.S. Nuclear Regulatory Commission
Div. of Contracts
Attn: Jeffrey R. Mitchell, 301-493-3639
Mail Stop: TWB-01-B10M
Washington, DC 20555

6. SHIP TO:
a. NAME OF CONSIGNEE: U.S. Nuclear Regulatory Commission
b. STREET ADDRESS: Attn: Rick Daniel
Mail Stop: T9-F29
11555 Rockville Pike
c. CITY: Rockville | d. STATE: MD | e. ZIP CODE: 20852

7. TO:
a. NAME OF CONTRACTOR: ENERGY RESEARCH, INC.
b. COMPANY NAME: ATTN: TRACEY MULLINIX
c. STREET ADDRESS: 6167 EXECUTIVE BLVD.
d. CITY: ROCKVILLE | e. STATE: MD | f. ZIP CODE: 208523901

f. SHIP VIA:

8. TYPE OF ORDER
[ ] a. PURCHASE
REFERENCE YOUR _____
Please furnish the following on the terms and conditions specified on both sides of this order and on the attached sheet, if any, including delivery as indicated.

[X] b. DELIVERY
Except for billing instructions on the reverse, this delivery order is subject to instructions contained on this side only of this form and is issued subject to the terms and conditions of the above-numbered contract.

9. ACCOUNTING AND APPROPRIATION DATA
020-15-111-126 J4276 252A 31x0200.020
Obligate $89,400.00
CONTRACTORS DUNS: 621211259

10. REQUISITIONING OFFICE: NRR

11. BUSINESS CLASSIFICATION (Check appropriate box(es))
[X] a. SMALL [ ] b. OTHER THAN SMALL [ ] c. DISADVANTAGED [ ] g. SERVICE-DISABLED VETERAN-OWNED
[ ] d. WOMEN-OWNED [ ] e. HUBZone [ ] f. EMERGING SMALLBUSINESS

12. F.O.B. POINT: N/A

13. PLACE OF		14. GOVERNMENT B/L NO.	15. DELIVER TO F.O.B. POINT ON OR BEFORE (Date)	16. DISCOUNT TERMS
a. INSPECTION	b. ACCEPTANCE			

17. SCHEDULE (See reverse for Rejections)

ITEM NO. (a)	SUPPLIES OR SERVICES (b)	QUANTITY ORDERED (c)	UNIT (d)	UNIT PRICE (e)	AMOUNT (f)	QUANTITY ACCEPTED (g)
	In accordance with Section A.10 entitled "Task Order Procedures" of the subject contract, this order definitizes Task Order No. 5. This effort shall be performed in accordance with the enclosed Statement of Work. Task Order No. 5 entitled "Technical Support for Research and Test Reactors (RTR) License Renewal Application Reviews with Streamlined Review Process; Dow Chemical TRIGA Research Reactor" The issuance of this task order does not amend any other terms or conditions of the subject contract.					

SEE BILLING INSTRUCTIONS ON REVERSE

18. SHIPPING POINT | 19. GROSS SHIPPING WEIGHT | 20. INVOICE NO.

21. MAIL INVOICE TO:
a. NAME: Department of Interior / NBC
NRCPayments@nbc.gov
b. STREET ADDRESS (or P.O. Box): Attn: Fiscal Services Branch - D2770
7301 W. Mansfield Avenue
c. CITY: Denver | d. STATE: CO | e. ZIP CODE: 80235-2230

17(h) TOTAL (Cont. pages)

17(i). GRAND TOTAL

22. UNITED STATES OF AMERICA
BY (Signature)

23. NAME (Typed)
Jeffrey R. Mitchell
Contracting Officer
TITLE: CONTRACTING/ORDERING OFFICER

AUTHORIZED FOR LOCAL REPRODUCTION
PREVIOUS EDITION NOT USABLE

TEMPLATE ADM002

SUNSI REVIEW COMPLETE

MAR 09 2010

OPTIONAL FORM 347 (REV. 2/2006)
PRESCRIBED BY GSA/FAR 48 CFR 53.213(f)

ADM002

In accordance with the Terms and Conditions, TASK ORDER PROCEDURES, of the subject contract, Task Order No. 05 is definitized. The effort shall be performed in accordance with the attached Statement of Work.

CONSIDERATION AND OBLIGATION--COST REIMBURSEMENT (JUN 1988)

(a) The total estimated cost to the Government for full performance under this contract is $194,612.18.

(b) The amount obligated by the Government with respect to this contract is $89,400.00. This obligated amount may be unilaterally increased from time to time by the Contracting Officer by written modification to this contract. The obligated amount shall, at no time, exceed the contract ceiling as specified in paragraph a above. When and if the amount(s) paid and payable to the Contractor hereunder shall equal the obligated amount, the Contractor shall not be obligated to continue performance of the work unless and until the Contracting Officer shall increase the amount obligated with respect to this contract. Any work undertaken by the Contractor in excess of the obligated amount specified above is done so at the Contractor's sole risk.

DURATION OF CONTRACT PERIOD (MAR 1987)

This contract shall commence on Day of Award and will expire December 31, 2010.

PRICE/COST SCHEDULE

The following is a summary of the labor categories, number of hours and hourly labor rates.

Task Order No. 5 Day of Award through December 31, 2010				
TASK 5 CLIN	LABOR CATEGORY	EST. HOURS	RATES (FIXED)	ESTIMATED LABOR
001	Executive	[redacted]	[redacted]	[redacted]
002	Executive Engineer Scientist			
003	Senior Engineer/Scientist			
004	Support Staff			
005	Senior Consulting Engineer			
			Sub Total (Labor)	[redacted]

Task 5 Travel Estimate		(AWARD – December 31, 2010)
Line Item	Category	Total Estimated Costs
006	Travel (Cost Reimbursable) The government will pay up to the rates specified in the Government Federal Travel Regulations (FTR) for travel destination. NO PAYMENT WILL BE MADE WITHOUT BACKUP DOCUMENTATION/RECEIPTS. *All travel must be approved in advance by the NRC Project Officer.*	[redacted]
Estimated Total Travel		[redacted]

GS23F0110M NRC-T005

Task 5 ODC Estimate				(AWARD – December 31, 2010)
BPA Line Item	Description	Estimated Quantity	Unit Rate	Estimated Total
007A	Other Direct Cost (Copies)	[redacted]	[redacted]	[redacted]
007B **	Other Direct Cost (Phone, FAX, Postage & Courier)	[redacted]	Actual Cost	[redacted]
Estimated Total ODC Total				$[redacted]

(B) ** These items are Open Market and do not apply to the Federal Supply Schedule Terms and Conditions. These items must comply with the following clauses incorporated by reference:

	NUMBER	TITLE	DATE
REFERENCE	FAR 52.212-4	CONTRACT TERMS AND CONDITIONS COMMERCIAL ITEMS	MARCH 2001
REFERENCE	FAR 52.212-5	CONTRACT TERMS AND CONDITIONS REQUIRED TO IMPLEMENT STATUES OR EXECUTIVE ORDERS – COMMERCIAL ITEMS	MARCH 2001

TOTAL ESTIMATED AMOUNT (TASK ORDER 5)	$194,612.18

Your contacts during the course of the work order are:

Technical Matters: Rick Daniel, Project Officer
301-415-6319

Contractual Matters: Jeffrey R. Mitchell, Contract Specialist
301-492-3639

The issuance of this work order does not amend any terms or conditions of the delivery order under the GSA FSS Contract.

Accepted Task Order No. 05:

[signature]

NAME

President

Title

3/1/10

Date

Statement of Work
For
Task Order 5
The Dow Chemical Company TRIGA Research Reactor

Technical Support for Research and Test Reactors (RTR)
License Renewal Application Reviews with Streamlined Review Process

Technical Monitor: Geoffrey Wertz
Project Officer: Richard Daniel

December 16, 2009

Statement of Work
For
Task Order 5
Technical Support for Research and Test Reactors
License Renewal Application Reviews with Streamlined Review Process
For The Dow Chemical Company TRIGA Research Reactor

1.0 Background

The Nuclear Regulatory Commission (NRC) has the authority and responsibility to review and evaluate requests for licensing actions made by its licensees. The Dow Chemical Company (licensee) submitted an application for license renewal together with a request to increase the licensed power level to 750 kilowatts (kW) thermal for its Dow TRIGA Research Reactor (DTRR). As part of the license renewal application (LRA) and power uprate request, the licensee submitted the DTRR's Safety Analysis Report (SAR), Technical Specifications (TS), Environmental Report, the Operator Requalification Program, and the Emergency Plan. Issuance of a renewed license would authorize operation of the DTRR for a period of 20 years at 750 kW licensed power level.

This task order falls under the full review in the streamlined review process in the "Scope of Work" section of the Statement of Work (SOW) for the base ordering contract. For the full review, the NRC evaluates the licensee's SAR and TS using the guidance contained in NUREG-1537, "Guidance for Preparing and Reviewing Applications for the Licensing of Non-Power Reactors," Part 2, Standard Review Plan and Acceptance Criteria, to ensure that those portions of the application satisfy the requirements of Title 10 of *The Code of Federal Regulations.* The license renewal process may include public, NRC management, Commission, and Congressional meetings. It may also include a public hearing with the Atomic Safety Licensing Board or the Commission.

2.0 Objective

The objective of this task order is to obtain necessary technical services to assist the NRC staff in the review and evaluation of the Dow Chemical Company's application for license renewal and licensed power level increase for its DTRR. Specifically, the contractor shall support the staff in determining the technical adequacy in accordance with review guidance provided in NUREG-1537, perform independent calculations to verify the applicant's statement in the SAR and TS submitted as part of the licensee's application for license renewal and power level increase, and to obtain safety evaluation (SE) input that formalizes the recommended safety and radiological conclusions made by the contractor.

3.0 Technical and Other Special Qualifications Required

The contractor shall provide personnel who have knowledge and practical experience with RTR technology and SAR analyses. These personnel shall have knowledge and experience in areas such as health physics, core physics, thermal hydraulics, system and nuclear engineering as appropriate for conducting the review of the SAR and TS.

The contractor shall also provide a Program Manager to oversee the efforts of its team and to ensure the timely submittal of quality deliverables such that all information is

accurate and complete. The contractor shall also provide a technical editor to edit the final safety evaluation report input.

4.0 Scope of Work

The contractor shall perform the tasks below in accordance with the estimated completion schedule. The specific dates for these deliverables will be agreed upon between the NRC Technical Monitor (TM) and the contractor's program manager prior to start of work.

Task 1 LRA Review Plan

Requirement
The contractor shall conduct an initial review of the Dow Chemical Company's LRA and previously issued safety evaluation report. The contractor shall accompany NRC staff on a one-day visit to DTRR facility to observe the site configuration and to conduct general discussions regarding the LRA with the licensee. The site visit is expected to occur within three weeks after award of task order. The contractor shall prepare a draft review plan that includes, at a minimum the scope of the review, milestones to be completed and expected completion dates, any changes to the proposed staffing plan and resource loading data. The contractor shall incorporate comments provided by the NRC TM into the draft review plan and provide the final review plan.

Standard
The contractor participates in the site visit to the DTRR facility.

Review plan covers all required tasks and contains all milestones that must be completed for the Final SE Input to be accepted by the NRC.

The Review Plan shall be on time with no spelling or grammatical error.

Deliverable
Within two weeks after the site visit to DTRR facility, contractor shall provide a Draft Review Plan.

Within one week after the receipt of NRC comments, contractor shall provide a Final Review Plan.

Meetings and Travel
One, 3-person, 3-day trip (1-day meeting and travel) to the DTRR facility for familiarization, and general discussion of application

Task 2 Revised Draft Safety Evaluation (SE) Input and Request for Additional Information (RAI)

Requirement
The contractor shall conduct a comprehensive review of the LRA. Based on the requirements of 10 CFR 20, 30, 40, 50 and 70 as appropriate, and the guidance contained in NUREG-1537, Part 2, the contractor shall determine the applicant's conformance to the regulatory requirements and NRC guidance. The contractor shall

prepare a draft SE input in accordance with the outline contained in Attachment 1, with any open items that the contractor may identify, that documents the evaluative analysis of how the applicant met the applicable regulation requirements. The Draft SE Input shall state the applicable regulations or standards, discuss the applicant's method for satisfying the regulations or standards, and provide an analysis of whether the applicant's method does indeed satisfy the regulations or standards.

The contractor shall identify the portions of the application needing further clarification to complete the Draft SE Input. The specific questions, in the form of an RAI, that are derived from the evaluation, shall be provided with the Draft SE Input. The contractor shall incorporate comments provided by the NRC TM into the Draft SE Input and RAI and provide the Revised Draft SE Input and RAI.

Standard
The contractor conducts a comprehensive review of the Dow Chemical Company's LRA.

Draft SE Input is in accordance with the review guidance specified in NUREG-1537, includes all information requested in the SOW with place holders as necessary for open items.

Draft SE Input describes the contractor's evaluation of the applicant's conformance to regulatory requirements and clearly identifies areas where additional information is warranted. Where necessary, contractor performs independent calculation to verify applicant's statement discussed in the SAR.

Draft SE Input shall be on time, technically acceptable, with no spelling or grammatical error and in the specified format.

Draft RAI contains technical and regulatory basis.

Revised Draft SE Input and Revised Draft RAI incorporate contain NRC comments.

Revised Draft SE Input and Revised Draft RAI shall be on time with no spelling or grammatical error.

Deliverable
Within six weeks after completion of Task 1, contractor shall provide Draft SE Input and Draft RAI

Within one week after the receipt of NRC comments, contractor shall provide Revised Draft SE Input and Revised Draft RAI

Meetings and Travel
No meeting and travel is require for this for this task

Task 3 Conduct 2nd Site Visit, Final RAI, and Conduct 3rd Site Visit

Requirement
The contractor shall prepare for and participate in a meeting at the DTRR facility to observe license renewal related equipment and materials and to discuss the RAI with

the license staff and NRC staff. The meeting is expected to occur within two weeks after completion of Task 2. The meeting is intended to ensure that the RAI is understood and the responses will enable the completion of the review of the LRA. The meeting may also be conducted by teleconference call, as determined by the NRC TM. Following the meeting, the contractor shall revise the RAI developed under Task 2 to incorporate NRC staff written comments reflecting clarifications and decisions reached during the site visit and provide the Final RAI.

The contractor shall prepare for and participate in a meeting at the DTRR facility to discuss the licensee's responses to the Final RAI. The meeting is expected to occur within four to six weeks after issuance of the Final RAI. This meeting is intended to gage the licensee's response to the RAI to ascertain that the responses will enable the completion of the review of the LRA. The meeting may also be conducted by teleconference call, as determined by the NRC TM.

Standard
The contractor participates in both site visits at the DTRR facility or participates via teleconference calls, as appropriate.

Final RAI includes all required information needed to complete the SE Input.

Final RAI shall be on time with no spelling or grammatical error.

Deliverable
Within one week after the receipt of NRC comments, contractor shall provide Final RAI.

Meetings and Travel
One, 3-person, 3-day trip (1-day meeting and travel) to UUNRF for discussion of RAI

One, 3-person, 3-day trip (1-day meeting and travel) to UUNRF for discussion of RAI responses

Task 4 Final SE Input

Requirement
The contractor shall review and evaluate the licensee's responses to the Final RAI to determine adequacy and acceptability for the supporting safety conclusions based on the guidance in NUREG-1537, Part 2. The contractor shall prepare a second revision to the Draft SE Input to incorporate information from the final RAI responses and add any additional recommended safety conclusions. The contractor shall incorporate comments provided by the NRC TM into the second revision of the draft SE Input and provide the final SE Input.

Standard
Final SE Input shall be provided on time, technically acceptable, with no spelling or grammatical errors, and in the specified format.

Deliverable
Within four weeks after receipt of RAI responses from the licensee, the contractor shall provide a revision to the Draft SE Input.

Within three weeks after the receipt of NRC comments, contractor shall provide Final SE Input

Meetings and Travel
No meeting and travel is require for this for this task

Task 5 Related Support

Requirement
If requested, the contractor shall provide up to 108 hours of related support to the NRC staff following delivery of the Final SE Input. This related support may, for example, consist of, responding to questions on the final deliverable, attending meetings with NRC Management, or any hearings, to discuss the results of the application review, and assisting staff in resolution of outstanding issues from these meetings.

The scope of the related support activity and amount of hours to be used shall be agreed upon between the contractor project manager and the NRC TM before starting the activity. The NRC TM will confirm the request, assistance due date, and estimated level of effort for the specific activity by e-mail to the contractor with a carbon copy to the NRC Project Officer.

Standard
The contractor shall participate in related meeting support, if request by the NRC TM.

All information/support provided for these meetings shall be technically correct.

Deliverable
The contractor shall provide support for the preparation of these meetings, including support services for the dry run. All deliverable due dates will be specified by the NRC TM.

Meetings and Travel
One, 3-person, 3-day trip (1-day meeting and travel) to NRC Headquarters in Rockville, Maryland to support the NRC staff in meeting of the type specified in the requirement described above.

5.0 Period of Performance

This Task Order will commence on the date of contract award and will expire on December 31, 2010.

6.0 Deliverables and Report Requirements

Deliverables

All deliverables shall be submitted to the NRC TM electronically with a copy provided to the NRC Project Officer (PO). These deliverables shall be prepared in Microsoft Office Word format, and in Adobe Acrobat file (pdf). The transmittal letter, at a minimum, shall contain the job code number (JCN), contract number, the license renewal application being reviewed, and the contract title. Below is an example of an estimated delivery

schedule for review of UUNRF license renewal application. The specific dates for these deliverable will be agreed upon between the NRC TM and the contractor's program manager prior to start of work.

Tasks	Deliverables	Nominal Schedule
LRA Review Plan	Draft Review Plan	Two weeks after completion of site visit
	Final Review Plan	One week after receipt of NRC comments
Revised Draft SE Input and RAIs	Draft SE Input and RAI	Six weeks after completion of Task 1
	Revised Draft SE Input and RAI	One week after receipt of NRC comments
Conduct 2nd Site Visit, Final RAI, and Conduct 3rd Site Visit	Final RAI	One week after receipt of NRC comments
Final SE Input	Second revision to the Draft SE Input	Four weeks after receipt of RAI responses from the NRC
	Final SE Input	Three weeks after receipt of NRC comments
Related Support	As requested	As requested
Status Report	Monthly Status Report	15th of each month

Monthly Status Report

The contractor shall provide an electronic version of the Monthly Status Report to the NRC Project Officer (PO), Technical Monitor (TM), Contracting Officer (CO), NRR Funds Certifying Official and Office of the Chief Financial Officer (OCFO) by the 15th of each month, in a format similar to the sample contained in Attachment 2. The report shall provide the technical and financial status of the effort.

The technical status section of the report shall contain a summary of the work performed during the reporting period, and milestones reached, or if missed, an explanation why; any problems or delays encountered or anticipated with recommendations for resolution; and plans for the next reporting period. The status shall include information on travel during the period to include trip start and end dates, destination, and traveler for each trip.

The financial status section of the report shall include the total contract award amount and funds obligated to date; total costs incurred in the reporting period, broken down by direct and other direct costs, and total cumulative costs incurred to date. The status shall also contain the balance of obligations remaining at the end of the period and balance of funds required to complete the contract. Additionally, if applicable, the report shall address the status of the Contractor Spending Plan (CSP), showing the percentage of project completion and any significant changes in either projected expenditures or percentage of completion. The report should also identify the acquisition cost,

description (model number, manufacturer) and acquisition date of any property/equipment acquired for the project during the month with an acquisition cost more than $500.

If the data in this report indicates a need for additional funding beyond that already obligated, this information may only be used as support to the official request for funding required in accordance with the Limitation of Cost (LOC) Clause (FAR 52.232-20) or the Limitation of Funds (LOF) Clause FAR 52.232-22.

License Fee Recovery Cost Status Report

The work specified in this SOW is not license fee recoverable.

Performance Requirements

The deliverables required under this effort must conform to the standards contained or referenced in this SOW. The table on performance requirements summarizes the performance requirements, deliverables, acceptable standards, surveillance method, incentives and deductions applicable to this effort.

Performance Requirement and Deliverables	Standard	Method of Review	Incentives/Deduction
LRA Review Plan	Review plan covers all required tasks and contains all milestones that must be completed for the final SE input to be accepted by the NRC. No spelling or grammatical errors.	NRC TM will review the plan.	Full Payment for 100% compliance. Items determined to be missing or incorrect will be corrected by contractor. If not incorporated after initial identification by NRC, contractor will add/correct at its own expense.

Provide Draft Safety Evaluation (SE) Input and Request for Additional Information (RAI)	Draft SE Input is in accordance with the review guidance specified in NUREG-1537, includes all information requested in the SOW with place holders as necessary, and incorporates all comments from the NRC TM. Thoroughly researched LRA, regulatory requirements, and regulatory guidance before issuing RAI. RAI will have direct correlation to safety related information and is appropriate for the level of review being conducted. No spelling or grammatical errors	NRC TM will review the Draft SE Input and RAI.	Full payment for 100% compliance. Items determined to be missing or incorrect will be corrected by contractor. If not incorporated after initial identification by NRC, contractor will add/correct at its own expense.
Provide Final SE Input	SE Input is in accordance with the review guidance specified in NUREG-1537, includes all information requested in the SOW and incorporates all comments by the NRC TM. Technical conclusions are properly supported. No spelling or grammatical errors.	NRC TM will review the SE Input.	Full payment for 100% compliance. Items determined to be missing or incorrect will be corrected by contractor. If not incorporated after initial identification by NRC, contractor will add/correct at its own expense.

7.0 Meeting and Travel

For the purpose of preparing a proposal, the contractor shall assume the following meetings and travel:

One, 3-person, 3-day trip (1-day meeting and travel) to the DTRR facility for familiarization, and general discussion of application

One, 3-person, 3-day trip (1-day meeting and travel) to the DTRR facility for discussion of RAI

One, 3-person, 3-day trip (1-day meeting and travel) to the DTRR facility for discussion of RAI responses

One, 3-person, 3-day trip (1-day meeting and travel) to NRC Headquarters in Rockville, Maryland to support the NRC staff in meeting of the type specified in the above description of Task 5.

8.0 NRC-Furnished Materials

NUREG-0544, Revision 4, "NRC Collection of Abbreviations" (ML041050544)

NUREG-1537 Part 1, "Guidelines for Preparing and Reviewing Applications for the Licensing of Non-Power Reactors, Format and Content" (ML042430055)
NUREG-1537 Part 2, "Guidelines for Preparing and Reviewing Applications for the Licensing of Non-Power Reactors, Standard Review Plan and Acceptable Criteria" (ML042430048)

The above NUREG documents are available in the NRC's Agencywide Documents Access and Management System (ADAMS) using the number provided at: http://www.nrc.gov/reading-rm/adams.html

The LRA for DTRR, including SAR and TS will be mailed to the contractor after issuance of the task order.

Attachment 1

Outline of Content and Format for The Safety Evaluation Input

Outline of Content and Format
for
The Safety Evaluation Input

Note: The numbering of chapters and sections is not always sequential because some specialized areas of review specified in NUREG-1537, Part 2 are not included in the safety evaluation report input. Each chapter should have a list of references used to conduct the technical review. Not every section included in the outline will necessarily be relevant to the particular application under review.

1 THE FACILITY

1.1 Introduction
1.2 Summary and Conclusions on Principal Safety Considerations
1.3 General Description
1.4 Shared Facilities and Equipment
1.5 Comparison with Similar Facilities
1.6 Summary of Operations
1.7 Compliance with the Nuclear Waste Policy Act of 1982
1.8 Facility Modifications and History

2 SITE CHARACTERISTICS

2.1 Geography and Demography
2.2 Nearby Industrial, Transportation, and Military Facilities
2.3 Meteorology
2.4 Hydrology
2.5 Geology, Seismology, and Geotechnical Engineering

3 DESIGN OF STRUCTURES, SYSTEMS, AND COMPONENTS

3.1 Design Criteria
3.2 Meteorological Damage
3.3 Water Damage
3.4 Seismic Damage
3.5 Systems and Components

4 REACTOR DESCRIPTION

4.1 Summary Description
4.2 Reactor Core
4.2.1 Reactor Fuel
4.2.2 Control Rods
4.2.3 Neutron Moderator and Reflector
4.2.4 Neutron Startup Source
4.2.5 Core Support Structure
4.3 Reactor Tank or Pool
4.4 Biological Shield

Outline of Content and Format
for
The Safety Evaluation Input

4.5 Nuclear Design
4.5.1 Normal Operating Conditions
4.5.2 Reactor Core Physics Parameters
4.5.3 Operating Limits
4.6 Thermal-Hydraulic Design

5 REACTOR COOLANT SYSTEMS

5.1 Summary Description
5.2 Primary Coolant System
5.3 Secondary Coolant System
5.4 Primary Coolant Cleanup System
5.5 Primary Coolant Makeup Water System
5.6 Nitrogen-16 Control System
5.7 Auxiliary Systems Using Primary Coolant

6 ENGINEERED SAFETY FEATURES

6.1 Summary Description
6.2 Detailed Descriptions
6.2.1 Confinement
6.2.2 Containment
6.2.3 Emergency Core Cooling System

7 INSTRUMENTATION AND CONTROL

7.1 Summary Description
7.2 Design of Instrumentation and Control Systems
7.3 Reactor Control System
7.4 Reactor Protection System
7.5 Engineered Safety Features Actuation Systems
7.6 Control Console and Display Instruments
7.7 Radiation Monitoring Systems

8 ELECTRICAL POWER SYSTEMS

8.1 Normal Electrical Power Systems
8.2 Emergency Electrical Power Systems

9 AUXILIARY SYSTEMS

9.1 Heating, Ventilation, and Air Conditioning Systems
9.2 Handling and Storage of Reactor Fuel
9.3 Fire Protection Systems and Programs
9.4 Communication Systems

Outline of Content and Format
for
The Safety Evaluation Input

9.5 Possession and Use of Byproduct, Source, and Special Nuclear Material
9.6 Cover Gas Control in Closed Primary Coolant Systems
9.7 Other Auxiliary Systems

10 EXPERIMENTAL FACILITIES AND UTILIZATION

10.1 Summary Description
10.2 Experimental Facilities
10.3 Experiment Review

11 RADIATION PROTECTION PROGRAM AND WASTE MANAGEMENT

11.1 Radiation Protection
11.1.1 Radiation Sources
11.1.2 Radiation Protection Program
11.1.3 ALARA Program
11.1.4 Radiation Monitoring and Surveying
11.1.5 Radiation Exposure Control and Dosimetry
11.1.6 Contamination Control
11.1.7 Environmental Monitoring
11.2 Radioactive Waste Management
11.2.1 Radioactive Waste Management Program
11.2.2 Radioactive Waste Control
11.2.3 Release of Radioactive Waste

12 CONDUCT OF OPERATIONS

12.1 Organization
12.2 Review and Audit Activities
12.3 Procedures
12.4 Required Actions
12.5 Reports
12.6 Records
12.11 Startup Plan

13 ACCIDENT ANALYSES

13.1 Maximum Hypothetical Accident
13.2 Insertion of Excess Reactivity
13.3 Loss of Coolant
13.4 Loss of Coolant Flow
13.5 Mishandling or Malfunction of Fuel
13.6 Experiment Malfunction
13.7 Loss of Normal Electric Power

Outline of Content and Format
for
The Safety Evaluation Input

13.8 External Events
13.9 Mishandling or Malfunction of Equipment

14 TECHNICAL SPECIFICATIONS

16 OTHER LICENSE CONSIDERATIONS

16.1 Prior Use of Reactor Components
16.2 Medical Use of a Non-Power Reactor

Attachment 2

Sample Monthly Status Report

Subtask	Description	Planned Completion Date	Revised Completion Date	Actual Completion Date
1	xxx	09/30/2009		
2				

C. **Work Performed**

Work under this task order is XX percent complete.

D. **Problem/Resolution**

E. **Travel for This Period**

Name	Start Date	End Date	Destination

F. **Plans for Next Period**

G. **Staff Hour Summary**

Subtask	Staff Assigned	Hours Budgeted	Hours Expended	Task Status
1	xxxx	100	50	100% Completed
	xxxx		50	
2	xxxx	120	25	25% complete
	xxxx		0	