435133

Key Words: Safety
Methods
Criteria
Proposal
NRC
Methodology

Retention Lifetime

Methods and Criteria for Safety Analysis (U)

(FIN L2535)

A Technical Proposal to

U. S. Nuclear Regulatory Commission
Office of Nuclear Material Safety and Safeguards
Attn: Director, Program Management, Policy
Development and Analysis Staff, NMSS
Washington, DC 20555 (Mail Stop 6E-6, OWFN)

In Response to Request for Proposal
October 20, 1992

Issued: December 1992

Westinghouse Savannah River Company
Savannah River Site
Aiken, SC 29808

SAFETY • RESPONSIBILITY • SECURITY
SRS
SAVANNAH RIVER SITE

PREPARED FOR THE U.S. DEPARTMENT OF ENERGY UNDER CONTRACT NO. DE-AC09-89SR18035

PROJECT: NRC PROPOSAL

DOCUMENT: WSRC-RP-92-1377

TITLE: Methods and Criteria for Safety Analysis (U)
(FIN L2535)

Classified by:

W. S. Durant Date: 12/8/92

W.S. Durant, Authorized Derivative Classifier

Approvals:

D B Sharp Date: 12/8/92

D. A. Sharp, Manager

M L Cowen Date: 12/11/92

M. L. Cowen, Manager

METHODS AND CRITERIA FOR SAFETY ANALYSIS

Introduction

In response to the NRC request for a proposal dated October 20, 1992, Westinghouse Savannah River Company (WSRC) is pleased to submit this proposal to provide contractural assistance for FIN L2535, "Methods and Criteria for Safety Analysis", as specified in the Statement of Work attached to the request for proposal.

The Statement of Work involves development of safety analysis guidance for NRC licensees, arranging a workshop on this guidance, and revising NRC Regulatory Guide 3.52.

This response to the request for proposal offers for consideration the following advantages of WSRC in performing this work:

- Experience
- Qualification of Personnel and Resource Commitment
- Technical and Organizational Approach
- Mobilization Plan
- Key Personnel and Resumes

In addition, attached are the following items required by the NRC:

- Schedule II, Savannah River Site - Job Cost Estimate
- NRC Form 189, Project and Budget Proposal for NRC Work, page 1
- NRC Form 189, Project and Budget Proposal for NRC Work, page 2
- Project Description:

1. Objective of Proposed Work
    a. Background
    b. Objective
2. Summary of Prior Efforts
3. Work to be Performed and Expected Results
    a. Work Required
    b. Meetings and Travel
    c. NRC Furnished Materials
4. Description of Follow-on Efforts
5. Relationship to Other Projects
6. Reporting Requirements and Schedule
7. Subcontractor Information
8. New Capital Equipment Required
9. Special Facilities Required
10. Conflict of Interest
11. Classification or Sensitivity

Experience

RAM is qualified for this work because it has been in the business of quantitative risk-based safety analysis since 1973. RAM methodology has been developed and applied to support an organization (NPSR) that performs safety analyses for all 19 fuel cycle facilities at the SRS:

- o Fuel Fabrication
- o Reprocessing
- o Product Finishing
- o Tritium Recovery
- o Waste Tank Farms
- o Solid Waste Disposal
- o Laboratories
- o Defense Waste Processing Facility

From this experience, RAM has developed (and maintains) a methods manual depicting recommended methods for quantitative risk assessment of facilities. The manual is used by NPSR in performing safety analyses for processing facilities at the Savannah River Site (SRS). New safety analysts are given training using the manual as a text.

The Department of Energy (DOE-HQ) has used RAM expertise in policy-making decisions for the DOE nuclear fuel cycle operations in such areas as radiological risk criteria, non-radiological risk criteria, and documentation of the methods used for Safety Analysis Reports, Technical Safety Requirements, and Unresolved Safety Questions.

RAM is the best source for these guidelines for the following reasons:

- o Experienced personnel
- o Demonstrated leadership
- o Cost-effective services
- o Availability
- o Quality work

Qualification of Personnel and Resource Commitment

The work will be performed by the Risk Assessment Methodology Group (RAM). RAM is part of the Savannah River Technology Center (SRTC) of the Westinghouse Savannah River Company.

RAM will provide a technical basis for the NRC to provide guidance to major fuel cycle licensees on methods and criteria for conducting integrated safety analysis. Specifically, the recommended text for a NUREG/CR document on methods for integrated safety analyses for fuel cycle facilities and a recommended text for a revised Reg. Guide 3.52 will be provided.

This NRC task will use only senior professionals with advanced technical degrees and many years of experience in the development of risk assessment methods and in the application of these methods to the analysis of a wide variety of nuclear fuel cycle facilities.

RAM proposes to provide the requested work in the form of a draft guideline with a team of well-qualified individuals consisting of a principal investigator (full time) supported by RAM's staff of consultants. Personnel that will be employed in this task, include:

- W. C. Perkins (Principal Investigator)
- W. S. Durant
- D. K. Craig
- C. R. Lux
- J. C. Huang
- D. A. Sharp (Task Manager)

Resumes are attached.

The resource commitment necessary is estimated at:

14 man-months during the first 12 calendar months and
10 man-months during the second 12 calendar months.

This task will also have to bear the production costs of:

17 monthly status reports
2 meeting reports
1 draft outline
1 NUREG/CR report, Draft and Final
1 REG. Guide report, Draft and Final

Technical and Organizational Approach

The tasks in the scope of work requires the talents of seasoned safety analysts in order to address the broad range of complex safety methods that must be covered in the final product. RAM is well qualified to supply the technical support in each area outlined in the statement of work. Each member has extensive experience in developing and applying safety analysis methods.

The team's experience will help ensure success. They have extensive experience applying safety analysis techniques to complex systems in nuclear and chemical process facilities. Other skills include HAZOP, FMEA, and PRA.

Mobilization Plan

The team can be mobilized and working on this plan within two weeks after authorization.

The work can proceed thereafter over a 17-month period, as scheduled in the Statement of Work received from the NRC in the letter dated October 20, 1992. The milestones are:

Task 1. Develop an Outline of a Safety Analysis Guidance Document

Draft due in three months

Task 2. Survey Current Licensee Methods

To be complete[illegible]0 days after Task 1

Task 3. Development of Safety Analysis Guidance

Draft due at seven months
Final due at eleven months

Task 4. Revision of Regulatory Guide 3.52

Draft due at fourteen months
Final due at seventeen months

Task 5. Workshop on Safety Analysis

To be scheduled

Key Personnel

The principal investigator is Dr. William C. Perkins, who has 32 years experience at SRS. The first 16 years were spent in research and development for reprocessing. The next 16 years were spent in performing safety analysis of reprocessing and waste management operations. Thus, he is very familiar with methods (e.g. HAZOPS, FMEA, PRA) and criteria for conducting integrated safety analyses of fuel cycle facilities. He also is very familiar with the fuel cycle facilities themselves.

Based on this experience, he has developed and edited a methods manual on conducting safety analysis:

"Methodology Manual for Nuclear Processes Safety Analysis", WSRC-TM-90-13, Issued February 1991 and revised December 1991 and May 1992.

He also developed training courses for new safety analysts, based on the manual.

He is an author of safety analyses and Safety Analysis Reports on the following SRS facilities:

Receiving Basin for Offsite Fuels
F-Canyon (Targets Reprocessing)
H-Canyon (Fuels Reprocessing)
A-Line (Uranium conversion)
Naval Fuels Manufacturing Facility (Uranium conversion)
B-Line (Pu conversion)
Waste Tank Farm (High-level liquid waste)

He has published papers on methods:

o "A Methodology for Chemical Hazards Analysis at Reprocessing Plants", DP-MS-86-107, AIChE International Symposium on Preventing Major Chemical Accidents, Washington, DC, February 1987.

o "Application of PRA to Reprocessing", DP-MS-84-16 and CONF-840257, DOE Nuclear Facility Safety Conference, Washington, DC, February 1984.

o "A Dispersion Model for Airborne Radioactive Particulates inside a Building", DP-1675 and CONF-840806, 18th DOE Air Cleaning Conference, Baltimore, MD August 1984.

o "Potential Safety-Related Incidents in Nuclear Fuel Reprocessing Plants", Nuclear Safety, p 477, Vol. 22, No. 4, July-August 1981.

o "Methodology Development for Risk Assessment of Fuel Processing", NUREG/CR-1604, July 1980.

EDUCATION

BS Chemistry Duke University 1955
MA Physical Chemistry The Johns Hopkins University 1957
PhD Nuclear Chemistry The Johns Hopkins University 1960

WILLIAM STINSON DURANT

Born Mobile, Alabama, September 5, 1932
BS, Chemical Engineering, Auburn University, 1953
MS, Chemical Engineering, Auburn University, 1955
E. I. du Pont de Nemours and Co. and Westinghouse Savannah River Company, Savannah River Laboratory, 1955 to date
Present Position: Senior Advisory Engineer, Nuclear Processes Safety Research Section
Specialties: Accident analysis; identification and quantification of risks of nuclear facilities; methodology development for risk assessment; data banks for risk assessment

Experience:

1955-1973

Durant performed research and development in nuclear reactor thermal/hydraulics including departure from nucleate boiling, roughened surface heat transfer, and hydrodynamic flow instability; confinement of radioactivity, transient safety analysis; core meltdown. He served as a Consultant ACRS on reactor core meltdown. He wrote significant portions of the Safety Analysis Reports for SRS reactors.

Durant developed computer codes to predict transient behavior of nuclear reactor during core meltdown and developed a computed code to predict transient behavior of debris and thermal response following a postulated reactor core meltdown.

1973 - Present

He served as Task Group Leader and Charter Member of first non-reactor risk analysis group. He is the Principal Investigator for developing methodology for probabilistic risk assessment for nonreactor nuclear facilities.

Durant is a Senior Advisor to Savannah River safety analysis groups. He developed the first extensive data bank on operating problems and equipment failures in the DOE complex and continues active role in data bank growth. He is Chairman of Westinghouse M&O risk methodology subcommittee.

Durant is a lecturer for ORINS traveling lecture series on risks of fuel reprocessing plants. He has served on peer review panels for EPRI nonreactor risk assessment studies, INTERTRAN transportation risk calculation system, Guide to Radiological Accident Considerations for Siting and Design of DOE Nonreactor Nuclear Facilities, Rocky Flats safety analysis guide, and lecturer at DOE training course on prevention of significant nuclear events.

WILLIAM STINSON DURANT (continued)

Durant has authored or co-authored more than 35 publications in the public domain and more than 300 internal safety analysis reports, systems analyses, safety assessment documents, technical memoranda, etc.

Douglas K. Craig, Ph.D. Telephone: (803) 644-5407

Experience:

1990-present: **Westinghouse Savannah River Company, Aiken, SC.**
As a Senior Fellow Scientist in the Risk Assessment Methodology Group, have worked in the area of nonradiological risk assessment criteria development and assessment of chemical hazards.

1986-1990: **Battelle Memorial Institute, Columbus, OH.**
Senior Research Scientist, General Toxicology Dept. Served as principal investigator and/or inhalation specialist on whole-body and nose-only toxicity studies of inhaled gases, vapors, mists, and particles in experimental animals. Drafted protocols, estimated costs, supervised exposures, reviewed data, and wrote final reports for inhalation studies.

1984-1985: **Hazleton Laboratories America, Inc. (formerly Litton Bionetics) (LBI), Rockville, MD.**
Senior Inhal. Tox. P.I. and inhalation toxicologist on animal toxicity and carcinogenicity studies of inhaled test compounds.

1980-1984: **Head of LBI Department of Toxicology.**
Supervised work of 5 to 7 Ph.D.-level scientists and more than 30 technical and support staff involved in the conduct of animal toxicology research and testing for clients.

1978-1980: **US Dept. of Energy, Washington, DC.**
Radiation Biologist (Toxicologist). Supervised planning, implementation, review, and evaluation of the Department's national program in nuclear-energy-related health effects research, with an annual budget in excess of $16 million.

1973-1978: **Battelle Pacific Northwest Laboratory, Richland, WA.**
Section Manager, Inhalation Technology & Toxicology. Managed research section of 85 people involved in a wide range of health effects studies, coordinating activities 19 Ph.D.-level people, contributing personal expertise and technical knowledge to the resolution of problems. P.I. on some studies.

1969-1973: **Battelle Pacific Northwest Laboratory, Richland, WA.**
Principal Research Scientist. Developed and implemented animal exposure, test compound generation, sampling, and characterization techniques for a wide range of materials and animal species.

1964-1969: **National Nuclear Research Centre, Pelindaba, South Africa.**
Subdivision Head, Isotopes & Radiation Division. Organized and developed radiation control and protection group of 27 health physicists and technicians. Also responsible for conventional safety program.

1956-1960: **Chamber of Mines Research Laboratory, Johannesburg, South Africa.**
Physicist. Worked on mine dust sampling and the development and implementation of physical characterization techniques.

Education:

Ph.D. Aerosol Physics, Radiation Biology Dept, University of Rochester (1964)
M.S. Health Physics, Radiation Biology Dept, University of Rochester (1961)
M.Sc. Physics, University of Witwatersrand, Johannesburg, South Africa (1960)
B.Sc. Mathematics & Physics, University of Witwatersrand, South Africa (1953)

Dr. C. Ray Lux

Dr. C. Ray Lux has worked in the nuclear field for over 16 years. The first 4 years were spent serving as the radiochemist for a nuclear material inventory survey team. During the next 4 years he worked as a system engineer on the Gas Centrifuge Enrichment Plant (GCEP) project. The GCEP work included engineering review, fault tree analysis, and human factors analysis. The last 8 years were spent performing safety analyses for SRS facilities. This has involved a wide variety (fault tree, event tree, process hazards analysis) of risk assessment techniques.

He is an author of safety analyses and Safety Analysis Reports on the following SRS facilities:

F-Canyon (Targets Reprocessing)
H-Canyon (Fuels Reprocessing)
Uranium Solidification
Plutonium Storage Facility (Storage & Analysis)
Naval Fuels Storage Vault
Actinide Billet Line (Pu-238 Target Preparation)

He has published papers on risk assessment:

- "Safety Class Methodology", Energy Facility Contractors Group, Safety Analysis Workshop 1992, Salt Lake City, Utah, August 1992
- "Applications of Probabilistic Risk Assessment to Criticality Safety at the Savannah River Site". Proceedings of International Topical Meeting on Safety Margins in Criticality Safety, San Francisco, CA, November 1989
- "Savannah River Data Banks for Probabilistic Risk Assessment". PSA '89 International Topical Meeting, Probability, Reliability, and Safety Assessment, Pittsburgh, PA, April 1989
- "Data Bank for Probabilistic Risk-Assessment of Nuclear-Fuel Reprocessing Plants", IEEE Transactions on Reliability Vol. 10, No. 2, pp. 138-143, June 1988

EDUCATION

BS Chemistry Missouri Southern State College 1970
MS Physical Chemistry Purdue University 1972
PhD Nuclear Chemistry Purdue University 1975

Ju-Chrong Huang

During his 14 year at SRS, Dr. Ju-Chrong Huang has conducted a variety of R/D work. He is currently a fellow engineer at the SRTC, specializing in the development and applications of consequence analysis methodology. In addition, he is the project leader for wind-tunnel modeling of near-field dispersion.

His prior experience includes: managing SRS air quality protection programs; developing environmental dispersion/dosimetry codes for accident consequence analysis; and co-developing a curves-fitting statistical code for failure data analysis..

He has been a registered Professional Engineer since 1974.

He has published the following papers related to risk assessment methodology:

- "Performing Wind Tunnel Experiments for Better Management of Near-Field Risk." A paper presented at the Safety Analysis Workshop '92 in Salt Lake City, UT. (August 1992)
- "Worst Source Term Determination for Radionuclides of Given Ranges." A paper presented at the Safety Analysis Workshop '92 in Salt Lake City, UT. (August 1992)
- "Air Quality Protection Program at SRP." A paper presented at the 33rd Annual Health Physics Society Meeting, Boston, MA. (July 1988)
- Technical Manual on Environmental Risk Assessment. DPSTM-86-700-1, Savannah River Laboratory. (April 1986)
- "Standardization of Natural Phenomena Risk Assessment Methodology at SRP." A paper presented at the DOE Natural Phenomena Hazards Mitigation Conference. Las Vegas, NV.(October 1985)
- "AXAIR: A Computer Code for SAR Assessment of Plume-Exposure Doses from Potential Process-Accident Releases to the Atmosphere." DPST-85-304, Savannah River Laboratory (June 1985)

EDUCATION

B.S.Nuclear Engineering National Tsing-Hua University Taiwan (1968)
M.S. Operations Research University of Missouri (1970)
Ph.D.Environmental Engineering University of Missouri (1979)

David A. Sharp
Manager, Risk Assessment Methodology Group
Nuclear Processes Safety Research Section

Education

Ph.D., Nuclear Engineering, North Carolina State University (1970)
M.S., Nuclear Engineering, North Carolina State University (1966)
B.S., Nuclear Engineering, Tennessee Technological University (1963)

Summary of Experience

1992 - Present: Nuclear Processes Safety Research - Savannah River Technology Center

He manages a group of 20 professionals in various aspects of process (non-reactor) facility risk assessment. The group is responsible for development and implementation of advanced risk assessment technology in support of Safety Analysis and Risk Assessment activities for all non-reactor facilities at Savannah River Site (SRS). Projects underway include:

- Risk Assessment techniques for site D&D programs,
- Development and implementation of uniform chemical risk acceptance criteria,
- Toxicity analyses for CERCLA risk assessments,
- Development and implementation of uncertainty analysis methods for SAR accident initiator frequencies ,
- Nuclear criticality safety logic model development and quantification,
- Site incident data base development and maintenance,
- Development and implementation of methods to characterize and defend the margins of conservatism present in the SAR Safety analyses, and
- Development and application of Risk assessment methods for DWPF and related process facilities.

1985-1992: Reactor Safety Research-Savannah River Laboratory

He managed a Risk Analysis Group of 10 - 20 professionals plus subcontract budget of $ 2.0 M per year. He was responsible for performing a Probabilistic Risk Assessment of SRS reactors. His principal accomplishments included:

- Planning and implementation of the program and schedule for performing the full-scope PRA,
- Development and management of the technical resources required to perform and defend the PRA,
- Management and technical participation in completion of all aspects of the PRA (Level 1,2,3 analyses),

David A. Sharp (continued)

- Application of PRA methods, insights, and results to evaluate reactor projects and safety issues associated with K-reactor restart, and to improve safety of plant operation.

1978-1985: Nuclear Engineering Division

Manager of Reactor Physics Group. He was responsible for development and maintenance of SRS reactor physics analysis methods, and for technical support of SRS reactor charge design and physics analysis.

1968-1978: Theoretical Physics Division and Computer Applications Division - Savannah River Laboratory

He worked in development and application of reactor charge design technology and in development of reactor physics and thermal-hydraulics analysis methods.

SCHEDULE II

SAVANNAH RIVER SITE - JOB COST ESTIMATE

(FOR PRICING SALES OF MISCELLANEOUS MATERIALS AND SERVICES)

JOB DESCRIPTION: METHODS AND CRITERIA FOR SAFETY ANALYSIS

RESPONSIBLE ORGANIZATION: L2740 SRTC/NPSR/RAM

DATE: 12/09/92

		HOURLY RATE	HOURS	FULL COST RECAMOUNT
1.	DIRECT LABOR			
	a. OPERATING LABOR - CLS (BY DEPARTMENT)			
	EXEMPT SALARY	26.00 (CLS) X	3865.00 =	$100,490
	WEEKLY SALARY	15.44 (CLS) X	60.00 =	$926
	WAGE ROLL	0.00 (CLS) X	0.00 =	$0
	TOTAL DIRECT LABOR			$101,416

2. DIRECT MATERIALS

a.	EMCODE	NAME	QTY	UNIT PRICE	
	_____	_____	0.00	$0	$0
	_____	_____	0.00	$0	$0
b.	WMS MATERIAL				$0
	TOTAL DIRECT MATERIALS				$0

3.	OTHER DIRECT COST		
	a. POWER		$0
	b. TRAVEL		$10,000
	c. SUPPLIES		$1,000
	d. OTHER		$0
	TOTAL OTHER DIRECT COST		$11,000
	TOTAL DIRECT COST		$112,416
4.	OVERHEAD (CLS)	234.8% X TOTAL DIRECT LABOR	$238,116
5.	DEPRECIATION	0.00% X TOTAL DIRECT LABOR	$0
6.	TOTAL PLANT COST		$350,532
7.	DOE EXPENSE FACTOR	~~3.00%~~ X TOTAL PLANT COST	~~$0~~ 10,486 (M&W)
	DOE-SR OVERHEAD	~~7.80~~ 0.00% X TOTAL PLANT COST	~~$0~~ 27,263 (M&W)
8.	TOTAL ESTIMATED COST		* ~~$350,532~~ 388,281 (M&W)

* TOTAL COST WILL BE EXPENDED OVER TWO YEARS: 1993 (50%), 1994 (50%)

D.M. Hoy
MANAGER
FINANCIAL RES - SRTC

M. J. Woolsey
DOE FINANCE DIVISION

SECTION MANAGER

SEND PURCHASE ORDER TO: US DEPARTMENT OF ENERGY
SAVANNAH RIVER SITE
P. O. BOX A
ATTENTION: TOM REYNOLDS
AIKEN, SC 29802

NRC FORM 189 (1-84)

U.S. NUCLEAR REGULATORY COMMISSION

PROJECT AND BUDGET PROPOSAL FOR NRC WORK

DATE OF PROPOSAL: Dec. 1992

[X] NEW

[ ] REVISION NO

PROJECT TITLE: METHODS AND CRITERIA FOR SAFETY ANALYSIS

FIN NUMBER: L2535

NRC B&R NUMBER:

NRC OFFICE: Nuclear Material Safety and Safeguards

DOE CONTRACTOR: Westinghouse Savannah River Co.

CONTRACTOR ACCOUNT NUMBER:

SITE: Savannah River Site

DOE B&R NUMBER:

COGNIZANT PERSONNEL	ORGANIZATION	FTS PHONE NUMBER
NRC PROJECT MANAGER: Robert Wilson	NRC/NMSS	301-504-2126
OTHER NRC TECHNICAL STAFF: Polly Schofield	NRC/NMSS	301-504-2691
DOE PROJECT MANAGER: E. C. Goodson	DOE/SR	803-725-3965
CONTRACTOR-PROJECT MANAGER: D. A. Sharp	WSRC/SRTC	803-644-5080
PRINCIPAL INVESTIGATOR(S): William C. Perkins	WSRC/SRTC	803-644-5450

PERIOD OF PERFORMANCE

STARTING DATE:

COMPLETION DATE:

STAFF YEARS OF EFFORT (Round to nearest tenth of a year)	FY 93	FY 94	FY	FY	FY
Direct Scientific/Technical	1.0	1.0			
Other Direct (Graded)	0	0			
TOTAL DIRECT STAFF YEARS	1.0	1.0			
COST PROPOSAL					
Direct Salaries	50,708	50,708			
Material and Services (Excluding ADP)	0	0			
ADP Support	0	0			
Subcontracts	0	0			
Travel Expenses — Foreign	0	0			
Travel Expenses — Domestic	6,000	5,000			
Indirect Labor Costs	119,058	119,058			
Other (Specify) DOE Expense Factor	5,243	5,243			
General and Administrative (7.8%) DOE-SR Overhead	13,631	13,632			
TOTAL OPERATING COST	194,140	194,141			
CAPITAL EQUIPMENT	0	0			
TOTAL PROJECT COST	194,140	194,141			

FY ____	OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH
MONTHLY FORECAST EXPENSE	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER

NRC FORM 189 (1-84)

11-641

PROJECT AND BUDGET PROPOSAL FOR NRC WORK

PIN NUMBER: 25333

PROJECT TITLE

METHODS AND CRITERIA FOR SAFETY ANALYSIS

PERFORMING ORGANIZATION

Savannah River Technology Center/Westinghouse Savannah River Co.

FORECAST MILESTONE CHART: Scheduled to Start ▲ — Completed (Shown in Quarter Year)
PROVIDE ESTIMATED DOLLAR COST FOR EACH TASK FOR EACH FISCAL YEAR

TASK		FY 1st	FY 2nd	FY 3rd	FY 4th	FY 1st	FY 2nd	FY 3rd	FY 4th	FY 1st	FY 2nd	FY 3rd	FY 4th	FY 1st	FY 2nd	FY 3rd	FY 4th
1. Develop Outline of Safety Analysis Guidance Document	SCHEDULE	▲															
	COST																
2. Survey Current Licensee Methods	SCHEDULE		▲														
	COST																
3. Develop Safety Analysis Guidance	SCHEDULE	▲															
	COST																
4. Revision of Regulatory Guide 3.52	SCHEDULE					▲											
	COST																
5. Workshop on Safety Analysis	SCHEDULE						▲										
	COST																
TOTAL ESTIMATED PROJECT COST		194,140				194,141											

PROJECT DESCRIPTION: Provide Abstract. Attach on plain paper to this NRC Form 189. If an item is not applicable, so state.)

1. OBJECTIVE OF PROPOSED WORK
2. SUMMARY OF PRIOR EFFORTS
3. WORK TO BE PERFORMED AND EXPECTED RESULTS
4. DESCRIPTION OF ANY FOLLOW-ON EFFORTS
5. RELATIONSHIP TO OTHER PROJECTS
6. REPORTING REQUIREMENTS AND SCHEDULE
7. SUBCONTRACTOR INFORMATION
8. LIST NEW CAPITAL EQUIPMENT REQUIRED (Include all ADP equipment)
9. DESCRIBE SPECIAL FACILITIES REQUIRED
10. CONFLICT OF INTEREST INFORMATION
11. EXPECTED CLASSIFICATION OR SENSITIVITY (e.g. safeguards, proprietary, other)

SEE NRC MANUAL CHAPTER 1182 FOR ADDITIONAL INFORMATION

APPROVAL AUTHORITY—SIGNATURE | DATE

PROJECT DESCRIPTION (Attachment to NRC Form 189)

1. Objective of Proposed Work

a. Background

The NRC has found that license renewal applications from fuel cycle licensees do not show evidence of an integrated safety analysis that demonstrates that the scenarios which could in an unacceptable accident are well understood. In its Request for Proposal, the NRC desires more guidance for its licensees and staff on accident identification and controls as a basis for effective and comprehensive procedures.

b. Objective

The objective of this project is to provide a technical basis for the NRC to provide guidance to major fuel cycle licensees on methods and criteria for conducting integrated safety analyses.

2. Summary of Prior Efforts

In order to comply with the requirements of DOE Orders for the nuclear processing facilities at the SRS, methods had to be developed for the performance of integrated safety analyses of a variety of operations. Those methods were documented in a methodology manual for the SRS and used as a basis for training courses. Later, the contents of the manual were combined with contributions from other Westinghouse sites into a manual applicable to all of the Westinghouse M&O sites.

3. Work to be Performed and Expected Results

a. Work Required

3.1 Task 1. Develop outline of safety guidance document
3.2 Task 2. Survey current licensee methods
3.3 Task 3. Develop safety analysis guidance
3.4 Task 4. Revise Regulatory Guide 3.52
3.5 Task 5. Conduct workshop on safety analysis

b. Meetings and Travel

Six trips to Rockville, Maryland are anticipated as part of this work. Of those trips, one will be to attend a meeting required by Task 2, and one will be to attend a meeting required by Task 5. The others will be to deliver and discuss deliverables from Tasks 1, 3, and 4.

c. NRC Furnished Materials

None

PROJECT DESCRIPTION (CONTINUED)

4. Description of Any Follow-On Efforts

None have been defined at this time.

5. Relationship to Other Projects

None have been defined at this time.

6. Reporting Requirements and Schedule

The work will proceed over a 17-month period. Monthly progress reports will be made. The milestones are:

Task 1. Develop an Outline of a Safety Analysis Guidance Document
Draft due in three months

Task 2. Survey Current Licensee Methods
To be completed 60 days after Task 1

Task 3. Development of Safety Analysis Guidance
Draft due at seven months
Final due at eleven months

Task 4. Revision of Regulatory Guide 3.52
Draft due at fourteen months
Final due at seventeen months

Task 5. Workshop on Safety Analysis
To be scheduled

7. Subcontractor Information

None

8. New Capital Equipment Required

None

9. Special Facilities Required

None

10. Conflict of Interest

None

11. Classification or Sensitivity

This project is unclassified and intended for dissemination to the public in the form of the NRC licensees for fuel cycle operations. No safeguards, proprietary materials, or sensitive information are involved.