

# ORDER FOR SUPPLIES OR SERVICES

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IMPORTANT: Mark all packages and papers with contract and/or order numbers.

BPA NO.

1. DATE OF ORDER <b>SEP 30 2005</b>		2. CONTRACT NO. (If any) NRC-03-03-039		6. SHIP TO:	
3. ORDER NO. T014		4. REQUISITION/REFERENCE NO. NRR-03-039-014		a. NAME OF CONSIGNEE U.S. Nuclear Regulatory Commission Ofc. of Nuclear Reactor Regulation	
5. ISSUING OFFICE (Address correspondence to) U.S. Nuclear Regulatory Commission Division of Contracts Contract Management Branch 2 Mail Stop T-7-I-2 Washington, DC 20555				b. STREET ADDRESS Attn: Sally Adams MailStop: OWF 12E5	
				c. CITY Washington	d. STATE DC
				e. ZIP CODE 20555	

7. TO:		f. SHIP VIA	
a. NAME OF CONTRACTOR ICF CONSULTING GROUP, INC.		8. TYPE OF ORDER	

b. COMPANY NAME		<input type="checkbox"/> 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.		<input checked="" type="checkbox"/> b. DELIVERY Except for billing instructions on the reverse, this delivery/task 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.	
c. STREET ADDRESS 9300 LEE HIGHWAY					
d. CITY FAIRFAX	e. STATE VA	f. ZIP CODE 220311207			


9. ACCOUNTING AND APPROPRIATION DATA 520-15-111-120D J-2990 252A 31X0200.520 OBLIGATE: \$15,000		10. REQUISITIONING OFFICE NRR Ofc. of Nuclear Reactor Regulation			
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11. BUSINESS CLASSIFICATION (Check appropriate box(es))					12. F.O.B. POINT N/A	
<input type="checkbox"/> a. SMALL	<input checked="" type="checkbox"/> b. OTHER THAN SMALL	<input type="checkbox"/> c. DISADVANTAGED	<input type="checkbox"/> g. SERVICE-DISABLED VETERAN-OWNED			
<input type="checkbox"/> d. WOMEN-OWNED	<input type="checkbox"/> e. HUBZone	<input type="checkbox"/> f. EMERGING SMALL BUSINESS				

13. PLACE OF		14. GOVERNMENT B/L NO.		15. DELIVER TO F.O.B. POINT ON OR BEFORE (Date) SEE BELOW		16. DISCOUNT TERMS N/A	
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)
	ISSUANCE OF TASK ORDER NO. 014 UNDER NRC-03-03-039  TITLE: PREPARATION OF REGULATORY ANALYSIS FOR POST-FIRE SAFE-SHUTDOWN CIRCUIT ANALYSIS SPURIOUS ACTUATIONS  PERIOD OF PERFORMANCE: DATE OF TASK ORDER AWARD THROUGH JULY 31, 2006.  ESTIMATED REIMBURSABLE COSTS: \$28,310 FEE: \$708 TOTAL COSTS AND FEE: \$29,018  CONTRACTOR SIGNATURE REQUIRED ON PAGE NO. 3					

18. SHIPPING POINT		19. GROSS SHIPPING WEIGHT		20. INVOICE NO.		17(h) TOTAL (Cont. pages)
21. MAIL INVOICE TO:						
a. NAME U.S. Nuclear Regulatory Commission Division of Contracts						
b. STREET ADDRESS (or P.O. Box) MailStop: T-7-I-2						
c. CITY Washington		d. STATE DC	e. ZIP CODE 20555		17(j) GRAND TOTAL	

22. UNITED STATES OF AMERICA BY (Signature)	 23. NAME (Typed) Stephen M. Pool Contracting Officer TITLE: CONTRACTING/ORDERING OFFICER
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PREVIOUS EDITION NOT USABLE

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OPTIONAL FORM 347 (REV. 3/2005)  
PREPARED BY: USAFAR 48 CFR 53.213(e)

ADM001

In accordance with Section G.5, Task Order Procedures, of contract number NRC-03-03-039, this definitizes Task Order No. 014. The effort shall be performed in accordance with the enclosed Statement of Work.

Task Order No. 014 shall be in effect from date of award through July 31, 2006, with a cost ceiling of \$29,018. The amount of \$28,310 represents the estimated reimbursable costs, and the amount of \$708 represents the fixed fee.

Incremental funds in the amount of \$15,000 are being obligated under this task order. The obligated amount shall, at no time, exceed the task order ceiling. 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 task order. Any work undertaken by the Contractor in excess of the obligated amount specified above is done so at the Contractor's sole risk.

For this Task Order 14, the ceiling rates reimbursable for indirect costs for ICF Strategic Mid Home & Branch are as follows:

Cost Pool	Rate	Cost Base
Overhead		Total Labor & Fringe Benefits
General & Administrative		Total Labor, Fringe Benefits & Overhead

In the event that indirect rates developed by the cognizant audit activity on the basis of actual allowable costs result in a lower amount for indirect costs, the lower amount will be paid. The Government may not be obligated to pay any additional amounts for indirect costs above the ceiling rates set forth above for Task Order 14.

Pending establishment of final indirect rates which must be negotiated based on audit of actual costs, the contractor shall be reimbursed for allowable indirect costs at the following provisional rates for ICF Strategic Mid Home & Branch as follows for this Task Order 14:

Cost Pool	Rate	Cost Base
Fringe Benefits		Total Labor

The following individuals are considered to be essential to the successful performance for work hereunder: [REDACTED]. The Contractor agrees that such personnel shall not be removed from the effort under the task order without compliance with Contract Clause H.1, Key Personnel.

The issuance of this task order does not amend any terms or conditions of the subject contract.

Your contacts during the course of this task order are:

Technical Matters:	Sally Adams Project Officer (301) 415-0209	Contractual Matters:	Rachel Glaros Contract Specialist (301) 415-0115
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Acceptance of Task Order No. 014 should be made by having an official, authorized to bind your organization, execute three copies of this document in the space provided and return two copies to the Contract Specialist. You should retain the third copy for your records.

ACCEPTED: Task Order No. 014

Paul E. Bailey

NAME

Sr. Vice President

TITLE

9/30/05

DATE

**STATEMENT OF WORK**  
**NRC Contract NRC-03-03-039**  
**Task Order No. 14**

**Preparation of Regulatory Analysis for Post-Fire Safe-Shutdown Circuit Analysis**  
**Spurious Actuations**

**BACKGROUND**

The regulatory requirements regarding post-fire safe-shutdown are contained in Title 10 of the *Code of Federal Regulations* (CFR) Section 50.48 (10 CFR 50.48), and 10 CFR Part 50, Appendix A, General Design Criterion (GDC) 3. Additionally, all nuclear power plants (NPPs) licensed to operate before January 1, 1979, are required to comply with 10 CFR Part 50, Appendix R, paragraph III.G, "Fire Protection of Safe Shutdown Capability." All NPPs licensed to operate after January 1, 1979, were evaluated against Section 9.5-1 of the Standard Review Plan (SRP), NUREG-0800, and their fire protection licensing bases are contained in each NPP's fire protection license condition. All NPP licensees are required to meet commitments in their fire protection plans, as well as their fire protection license conditions.

Both the NRC and the nuclear industry used the term "one-at-a-time" with respect to post-fire spurious actuations caused by hot shorts, it has not been defined in 10 CFR Part 50 guidance documents for fire protection. The term has been interpreted in at least two different ways. Some licensees have interpreted one-at-a-time to mean that only one spurious actuation need be postulated for any single fire event. Other licensees have interpreted the term to mean that multiple spurious actuations do not occur simultaneously, and that there would be sufficient time between spurious actuations to allow operators to take corrective actions. While both interpretations have been accepted by the NRC for specific situations in specific plants, current NRC regulations only allow these interpretations with respect to design of alternate shutdown capability.

The NRC safety evaluation report (SER) for at least two nuclear power plants specifically allows a design assumption of a single spurious actuation per fire event when performing the post-fire safe-shutdown circuit analysis. However, the majority of plants included postulation of multiple spurious actuations in their licensing basis. In the S.J. Collins (NRR) letter of March 11, 1997, to NEI, the NRC reiterated its position that multiple spurious actuations must be considered and evaluated.

Subsequent to the Collins letter, the Electric Power Institute/Nuclear Energy Institute (EPRI/NEI) cable fire testing in 2001 demonstrated that multiple spurious actuations can occur and that they can occur simultaneously or in rapid succession without sufficient time for mitigation between actuations. One of the key observations and conclusions of the test report states that, "Given that a hot short occurs in a multi-conductor cable, it is highly probable (over 80 percent likely) that multiple target conductors will be affected (i.e., multiple simultaneous dependent hot shorts)." The testing covered all of the types of cable insulation and jacketing materials and types of raceway commonly used in nuclear power plants. During the testing, numerous variables were introduced to investigate the impact of various factors that could influence cable performance and failure characteristics.

While the staff has maintained that post-fire multiple spurious actuations should be considered, the number of actuations that must be considered has not been defined. In addition, the regulations do not address consideration of the cumulative effect of multiple spurious actuations. Since the deterministic approach to post-fire safe-shutdown analyses assumes that all cables in a fire area are damaged by the fire (except where III.G.2 protection is provided), it follows that all possible spurious actuations, as well as the cumulative effect of those actuations, should be considered.

### **CONTRACT OBJECTIVES**

The objective of this contract is to obtain technical assistance to prepare a regulatory analysis in support of a generic letter for post-fire safe-shutdown circuit analysis spurious actuations for a compliance backfit.

### **WORKSCOPE**

The contractor shall supply the personnel, materials and facilities necessary to provide technical services needed to complete the regulatory analysis in support of regulatory actions associated with a generic letter for post-fire safe-shutdown circuit analysis spurious actuations.

**Task 1a.** The contractor shall provide a draft regulatory analysis within which all compliance backfit analysis requirements are addressed (see NUREG/BR-0184, Section 2.2, "When a Backfit Regulatory Analysis is Required"). The contractor shall perform the regulatory analysis consistent with the guidance contained in NUREG/BR-0058, Revision 4. The NRC TM will provide direction in writing on which, if any, proposed modifications are to be included in the regulatory analysis.

The contractor shall provide base case regulatory analysis results utilizing both 3% and 7% real discount rates. This is consistent with the most recent guidance included in OMB Circular A-4.

Note that after the contractor submits the draft regulatory analysis (integrated costs and benefits), NRC will review the analysis and inform the contractor as to the revisions the NRC staff directs be made.

**Task 1b.** After receiving comments from the NRC on the draft regulatory analysis prepared under the above task, the contractor shall prepare a final regulatory analysis to support the final Generic Letter. This version of the regulatory analysis shall incorporate the NRC comments, and include any resolutions to public comments received on the regulatory analysis which accompanied the draft generic letter.

**Task 2.** The contractor shall prepare an OMB information collection burden analysis in accordance with the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 *et seq.*).

**Task 3.** At the direction of the TM, the contractor shall provide up to 20 hours of related assistance to support any needed workshops, meetings, and briefings of the ACRS, CRGR, Commission, and to provide for any updates to the regulatory analysis as a result of public comments.

### **DELIVERABLES**

#### **Task 1 & 2:**

Draft and final regulatory analysis including OMB information collection burden analysis.  
-Draft due: See Schedule  
-ACRS draft regulatory analysis with NRC comments incorporated due: Later  
-Final due: See Schedule

#### **Task 3:**

Assistance and support as needed to prepare for and attend workshops, meetings and briefings; and updated regulatory analysis.

### **PERIOD OF PERFORMANCE**

The period of performance for this task order shall be from award of the order through July, 2006.

### **REQUIRED EXPERTISE**

Technical expertise in engineering, nuclear engineering, cost engineering and project management is required. Technical expertise is also required in cost/benefit analysis, risk analysis and environmental sciences. Further, demonstrated knowledge of NRC's rules and regulations which apply to regulatory actions and NRC licensees.

### **MATERIALS PROVIDED**

Many of the documents associated this Statement of Work may be found in ADAMS. Any other relevant information will be provided to the Contractor by NRC.

### **TRAVEL REQUIREMENTS**

Only local travel is anticipated.

### **TENTATIVE SCHEDULE**

08/19/2005	Contractor submits draft regulatory analysis
11/01/2005	Deadline to submit information to ACRS for January 17 meeting
01/17/06	ACRS Subcommittee meeting

02/14/2006 Full ACRS meeting  
03/13/2006 Contractor submits final regulatory analysis  
04/13/2006 CRGR meeting

**PROJECT OFFICER**

The Project Officer for the contract is Sally Adams (301) 415-0209, the Technical Monitor for the Task Order is Brian Richter (301) 415-1978, and the technical contact for technical issues related to execution of the effort is Robert Wolfgang (301) 415-1624.