

ORDER FOR SUPPLIES OR SERVICES

PAGE OF PAGES
1 3

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

BPA NO.

1. DATE OF ORDER JAN 07 2009		2. CONTRACT NO. (if any) NRC-02-05-002		6. SHIP TO:	
3. ORDER NO. NRC-T005		4. REQUISITION/REFERENCE NO. 02-05-002T005		a. NAME OF CONSIGNEE U.S. Nuclear Regulatory Commission	
5. ISSUING OFFICE (Address correspondence to) U.S. Nuclear Regulatory Commission Div. of Contracts, CMB3 Attn: Manon Butt, Cont Spc, 301-492-3629 Mail Stop TWB-01-B10M Washington, DC 20555				b. STREET ADDRESS Attn: Edna Knox-Davin, FSME/PBPA Mail Stop T-8-A-23 11555 Rockville Pike	
				c. CITY Rockville	e. ZIP CODE 20852
		7. TO:		d. STATE MD	
a. NAME OF CONTRACTOR ICF INCORPORATED, L.L.C. ICF INCORPORATED				f. SHIP VIA	
b. COMPANY NAME				8. TYPE OF ORDER	
c. STREET ADDRESS 9300 LEE HWY				<input type="checkbox"/> a. PURCHASE <input checked="" type="checkbox"/> b. DELIVERY	
d. CITY FAIRFAX		e. STATE VA	f. ZIP CODE 220316050	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.	
9. ACCOUNTING AND APPROPRIATION DATA B&R: 95515-344-C80 JCN: F1097 BOC: 252A APPNO: 31X0200 FPS # 5509R002 ICF DUNS # 072648579 Obligate \$100,000.00		\$100,000.00		10. REQUISITIONING OFFICE NMS FSME	

11. BUSINESS CLASSIFICATION (Check appropriate box(es))			12. F.O.B. POINT Destination		
<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 SMALLBUSINESS			
13. PLACE OF		14. GOVERNMENT B/L NO.		15. DELIVER TO F.O.B. POINT ON OR BEFORE (Date) 01/07/2009-7/06/2009	
a. INSPECTION	b. ACCEPTANCE			16. DISCOUNT TERMS Net 30	

17. SCHEDULE (See reverse for Rejections) See CONTINUATION Page

ITEM NO. (a)	SUPPLIES OR SERVICES (b)	QUANTITY ORDERED (c)	UNIT (d)	UNIT PRICE (e)	AMOUNT (f)	QUANTITY ACCEPTED (g)
	ICF DUNS # 072648579 Issuance of Task Order No. 005 under Contract NRC-02-05-002. Title: "Cost-Benefit Analysis for Potential Alternative Technologies for Category 1 and 2 Radioactive Sources" Period of Performance: January 7, 2009 through July 6, 2009. Estimated Reimbursable Costs: \$210,115.00 Fee: \$7,879.00 Total Costs and Fee: \$217,994.00 See following pages for a description of the task order. Reference ICF Proposal 2008856 dated November 14, 2008. ICF Program Manager: [REDACTED] [REDACTED]@nrc.gov NRC Project Officer: Edna Knox-Davin, 301-415-6577, Edna.Knox-Davin@nrc.gov TPM: Joseph DeCicco, 301-415-7833, Joseph.DeCicco@nrc.gov					

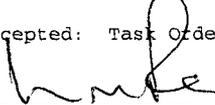
SEE BILLING INSTRUCTIONS ON REVERSE	18. SHIPPING POINT	19. GROSS SHIPPING WEIGHT	20. INVOICE NO.	17(h) TOTAL (Cont. pages)
	21. MAIL INVOICE TO:			
	a. NAME Dept of Interior/National Business Ctr email NRCPayments@nbc.gov			
	b. STREET ADDRESS (or P.O. Box) Attn: Fiscal Services Branch - D2770 7301 W. Mansfield Avenue			
	c. CITY Denver	d. STATE CO	e. ZIP CODE 80235-2230	17(i) GRAND TOTAL \$ 217,994.00

22. UNITED STATES OF AMERICA BY (Signature) 	23. NAME (Typed) Eleni Jernell Contracting Officer TITLE: CONTRACTING/ORDERING OFFICER
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**ORDER FOR SUPPLIES OR SERVICES
SCHEDULE - CONTINUATION**

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

DATE OF ORDER	CONTRACT NO. NRC-02-05-002	ORDER NO. NRC-T005
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ITEM NO. (A)	SUPPLIES OR SERVICES (B)	QUANTITY ORDERED (C)	UNIT (D)	UNIT PRICE (E)	AMOUNT (F)	QUANTITY ACCEPTED (G)
	<p>Please indicate your acceptance of Task Order 5 by having an official authorized to bind your organization execute three copies of this document in the space provided below and return two copies to the U.S. Nuclear Regulatory Commission, Attn: Manon Butt, Division of Contracts, Mail Stop TWB-01-B10M, 11555 Rockville Pike, Rockville, MD 20852. Please retain the third copy for your records.</p> <p>Accepted: Task Order No. 5 under NRC-02-05-002:</p> <p></p> <p>Signature</p> <p><u>Lawrence M. Rose</u></p> <p>Name</p> <p><u>N.P. CONTRACTS</u></p> <p>Title</p> <p><u>1/13/9</u></p> <p>Date</p> <p>Enclosure: Statement of Work</p>					

TOTAL CARRIED FORWARD TO 1ST PAGE (ITEM 17(H))

In accordance with the task order procedures of Contract NRC-02-05-002, this definitizes Task Order No. 5. This effort shall be performed in accordance with the enclosed Statement of Work, and the terms and conditions of Contract NRC-02-05-002.

Period of Performance and Cost

Task Order No. 5 shall be in effect from January 7, 2009, through July 6, 2009 (six months).

This is a cost plus fixed fee task order, with a cost ceiling of \$217,994.00. The amount of \$210,115.00 represents the estimated reimbursable costs, and the amount of \$7,879.00 represents the fixed fee.

Price Schedule – A price schedule is attached.

Consideration and Obligation

This task order is funded with FY 2009 funds in the amount of \$100,000.00. This obligated amount may be unilaterally increased from time to time by the Contracting Officer by written modification to 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 is done so at the Contractor's sole risk.

Key Personnel

The following individuals are considered to be essential to the successful performance of work hereunder: [REDACTED] and [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 Task Order No. 5 does not change any terms and conditions of the subject contract.

NRC contacts during the course of this task order are:

Technical Matters:

Edna Knox-Davin, Project Officer, phone 301-415-6577, FSME/PBPA, Mail Stop T-8-A-23, email Edna.Knox-Davin@nrc.gov.

Joseph E. DeCicco, Technical Project Manager, phone 301-415-7833, FSME/DMSSA, Mail Stop T-8-E-24, email Joseph.DeCicco@nrc.gov.

Contractual Matters:

Manon L. Butt, Contract Specialist, phone 301-492-3629, ADM/DC/CMB3, Mail Stop TWB-01-B10M, email manon.butt@nrc.gov.

Price Schedule

Task Order 5 under NRC-02-05-002

Cost Plus Fixed Fee	Labor Category	Indirect Pool	Hrly Rate	Hours	Amount
[REDACTED]	Project Manager	[REDACTED]	[REDACTED]	[REDACTED]	\$12,407
[REDACTED]	Project Manager	[REDACTED]	[REDACTED]	[REDACTED]	\$11,072
[REDACTED]	Project Manager	[REDACTED]	[REDACTED]	[REDACTED]	\$1,825
[REDACTED]	Project Manager	[REDACTED]	[REDACTED]	[REDACTED]	\$1,277
[REDACTED]	Sr. Professional	[REDACTED]	[REDACTED]	[REDACTED]	\$9,183
[REDACTED]	Sr. Professional	[REDACTED]	[REDACTED]	[REDACTED]	\$8,703
[REDACTED]	Sr. Professional	[REDACTED]	[REDACTED]	[REDACTED]	\$10,010
[REDACTED]	Sr. Professional	[REDACTED]	[REDACTED]	[REDACTED]	\$6,616
[REDACTED]	Professional	[REDACTED]	[REDACTED]	[REDACTED]	\$1,468
[REDACTED]	Professional	[REDACTED]	[REDACTED]	[REDACTED]	\$211
[REDACTED]	Jr. Professional	[REDACTED]	[REDACTED]	[REDACTED]	\$2,068
[REDACTED]	Admin/Clerical	[REDACTED]	[REDACTED]	[REDACTED]	\$1,229
<u>Indirect Rate Pool Allocation Subtotals</u>					
	Subtotal - Labor (H&B)	[REDACTED]	[REDACTED]	[REDACTED]	\$45,081
	Subtotal - Labor (Field)	[REDACTED]	[REDACTED]	[REDACTED]	\$8,703
	Subtotal - Labor (Field Casual)	[REDACTED]	[REDACTED]	[REDACTED]	\$1,277
	Subtotal - Labor (Strategic Mid H&B)	[REDACTED]	[REDACTED]	[REDACTED]	\$11,008
	Subtotal - ICF Direct Labor			[REDACTED]	\$66,069
<u>Fringe</u>					
	Fringe (H&B)	[REDACTED]	[REDACTED]	[REDACTED]	\$14,872
	Fringe (Field)	[REDACTED]	[REDACTED]	[REDACTED]	\$2,871
	Fringe (Field Casual)	[REDACTED]	[REDACTED]	[REDACTED]	\$121
	Fringe (Strategic Mid H&B)	[REDACTED]	[REDACTED]	[REDACTED]	\$3,631
	Subtotal - ICF Labor Fringe			[REDACTED]	\$21,495
<u>Overhead</u>					
	Overhead (H&B)	[REDACTED]	[REDACTED]	[REDACTED]	\$44,545
	Overhead (Field)	[REDACTED]	[REDACTED]	[REDACTED]	\$3,534
	Overhead (Field Casual)	[REDACTED]	[REDACTED]	[REDACTED]	\$637
	Overhead (Strategic Mid H&B)	[REDACTED]	[REDACTED]	[REDACTED]	\$6,134
	Subtotal - ICF Labor Overhead			[REDACTED]	\$54,849
	G&A		[REDACTED]	[REDACTED]	\$23,171
Total ICF Labor (Fully-Loaded)					\$165,584
<u>Other Direct Costs (ODCs)</u>					
	Reproduction				\$300
	Conference Call				\$400
	Telephone				\$2,000
	Purchased Documents				\$5,000
	On-Line Searches				\$500
	Local Travel				\$100

Travel				\$30,000
Subtotal - ODCs				\$38,300
G&A on ODCs				\$6,231
Total - ODCs				\$44,531
Total Estimated Costs				\$210,115
Fixed Fee				\$7,879
Total Estimated Cost and Fixed Fee				\$217,994

STATEMENT OF WORK

Technical Assistance to Support
The Development of Regulations
NRC-02-05-002

Task Order No. 5
Cost-Benefit Analysis for Potential Alternative Technologies
for Category 1 and 2 Radioactive Sources

Fee Recoverable: No
Job Code: F1097
B&R No.: 95515-344-C96

1.0 BACKGROUND

The Energy Policy Act of 2005 (EPAAct) required the establishment of an interagency Task Force on radiation source protection and security under the lead of the U.S. Nuclear Regulatory Commission (NRC). The Task Force is to evaluate and provide recommendations to the President and Congress relating to the security of radiation sources in the United States from potential terrorist threats, including acts of sabotage, theft or use of a radiation source in a radiological dispersal device. The EPAAct names 12 Federal agencies to the Task Force and the NRC Chairman (or his designee) as its Chairman.

The Task Force will evaluate and make recommendations for possible regulatory, legislative, and administrative changes on several specific topics related to the protection and security of radiation sources. For the purposes of the Task Force, the EPAAct defines a radiation source as a Category 1 source or a Category 2 source as defined in the International Atomic Energy Agency (IAEA) Code of Conduct on the Safety and Security of Radioactive Sources, and any other material that poses similar risks, as determined by the NRC by regulation, other than spent nuclear fuel and special nuclear material.

The Task Force submitted its first report to Congress and the President in August 2006. Recommendation 12-1 of that report reads:

“The Task Force recommends that the Alternatives Technology Subgroup evaluate financial incentives; research needs for both alternative technologies and alternative designs, including financial support; and the cost-benefit of potential alternatives for Category 1 and 2 radioactive sources.”

The NRC formed the interagency Alternatives Technologies Subgroup to evaluate alternatives to existing sealed sources utilized in targeted applications. The Alternatives Technologies Subgroup needs a cost-benefit analysis (CBA) product by May 2009.

2.0 OBJECTIVE

The objective of this work is to provide the NRC Technical Project Manager (TPM) and Alternative Technologies Subgroup with technical assistance in identifying alternatives to

existing uses of radioactive sources, and performing a CBA for alternative technologies for IAEA Category 1 and 2 radiation sources of cesium-137, cobalt-60, iridium-192, and americium-241.

When the CBA is performed, alternative technologies to consider should include:

- replacing existing radioactive sources with a process that does not use radioactive material or a radioactive device;
- replacing the current radioactive material with a radionuclide of lower risk;
- replacing the chemical/physical form of the radioactive material with one that is more dispersion resistant; and
- reducing the quantity of radioactive material in the device or source (below IAEA Category 2 quantities).

The alternative technologies to be considered shall be those that are currently available (current in research, development or production) or could be available through appropriate research, development, and production within the next 5 to 10 years.

3.0 PERIOD OF PERFORMANCE

The period of performance for this task order starts on the effective date of issuance and continues for 6 months.

4.0 SCOPE OF WORK

For the purpose of developing a written report to address Recommendation 12-1 of the Task Force report, the Alternative Technologies Subgroup has limited information on the life-cycle costs of current and alternative technologies to IAEA Category 1 and 2 quantity levels of cesium-137, cobalt-60, iridium-192, and americium-241 uses. The scope of work is part of the technical assistance needed for the subgroup to develop a final report to the Task Force on alternative technologies.

The contractor shall provide technical assistance in undertaking the following tasks that incorporates the elements below:

4.1 Develop a Model for Performing a CBA

- 4.1.1 Provide a detailed outline of a CBA that can be applied to alternative technologies for cesium-137, cobalt-60, iridium-192, and americium-241 sources greater than IAEA Category 2 quantities, and their current industry practices listed in Table 1 below:

Table 1 - Summary of Category 1 and 2 Radiation Sources

Nuclide	T _{1/2}	Current Industry Practices	Typical Activity Ci	Form	IAEA Category 1 / 2 Quantities (Ci)
Am-241	432.2 y	Well logging	13-22	Pressed powder (oxide)	1600/16
Cs-137	30.17 y	1. Research irradiator 2. Blood irradiator 3. Calibrators	2,000 1,400 400	Pressed powder (chloride)	2700/27
Co-60	5.27 y	1. Panoramic irradiator 2. Self-contained irradiators 3. Industrial radiography 4. Gamma Knife	4,000,000 24,000 100 6,000	Metal pellets	810/8.1
Ir-192	72 d	Industrial radiography	100	Metal	2100/21

4.1.2. Provide the analytical models that will be used for the CBA.

4.1.3 Provide components of the CBA that include: costs to manufacture, sell, and transport the radioactive source(s); operational costs of the devices that use these radioactive sources; costs of radioactive source replacement; disposal or ultimate disposition costs; and security necessary for replaced IAEA Category 1 and 2 sources until disposal.

4.2 CBA for Current IAEA Category 1 and 2 Radiation Sources Using Cesium-137, Cobalt-60, Iridium-192, and Americium-241

4.2.1 Using the CBA outline developed in Task 4.1, populate the CBA outline with current industry practices listed in Table 1.

4.2.2 Include the disposal/final disposition and/or security costs for the existing radiological device and source technologies in the CBA.

4.2.3 Determine the economic/societal benefits/impacts of the current radiation sources used in the industries in Task 4.2.1 above. (Calculate the economic/societal benefits in terms of the U.S. population.)

4.3 CBA for Alternative Technologies to IAEA Category 1 and 2 Radiation Sources Using Cesium-137, Cobalt-60, Iridium-192, and Americium-241

4.3.1 Using the product in Task 4.2:1, develop a CBA for alternative technologies to replace radiation sources using cesium-137, cobalt-60, iridium-192, and americium-241 for the current industry practices listed in Table 1.

- (a) For each radionuclide and each of the current practices listed in Table 1, identify one or more alternative technologies listed in Section 2.0;
- (b) Include the economic societal impact of substituting each alternative technology as a replacement to the current radionuclide, such as reduced security costs and lower probability of criminal misuse of the source; and
- (c) For each alternative technology identified, include the timeframe for research and development, testing, and distribution.

4.3.2 Determine the economic/societal benefits/impact of the alternative technologies identified in Task 4.3.1. Calculate the economic/societal benefits in terms of the U.S. population.

4.4 Interactions with Stakeholders

Conduct interviews with stakeholders and other individuals who have information on the costs associated with the current and potential alternative technologies.

4.5 Economic Incentives

Based on the results of Tasks 4.1, 4.2, 4.3, and 4.4, determine what types of incentives, if any, could be used to encourage adoption of each alternative technology analyzed. Incentive need not be limited to just financial.

4.6 Work Plan

Once the Task Order is issued, the contractor shall provide a work plan within 14 working days to include a DETAILED outline of the tasks and a timetable of deliverables for each proposed task.

5.0 TECHNICAL AND OTHER SPECIAL QUALIFICATIONS REQUIRED

The principal investigator and others assigned to this project should have a high level of experience and working knowledge in the areas of: 1) economics; 2) cost-benefit analysis; 3) environmental science and engineering; 4) nuclear engineering and health physics; 5) industrial and medical applications of radiation sources; 6) research and development; and 7) disposal of radioactive material.

The principal investigator and others assigned to this work shall be familiar with the Executive Order(s) and Office of Management and Budget (OMB) circular(s) relevant to governmental CBA, the IAEA Code of Conduct, the National Academies of Science report on Radiation Source Use and Replacement, the Task Force report on Radiation Source Protection and Security, and other relevant reference materials on radiation source use and alternatives to radiation sources.

6.0 SCHEDULE FOR DELIVERABLES

The schedule for the deliverables shall be adhered to by the contractor as shown in the following table:

Section/Task	Deliverable	Due Date
Section 4.0 Task 4.6	Work Plan	Within 14 working days of the task order issuance.
Section 9.0 Task 9.1.1	Kickoff Meeting to provide the contractor with directions/comments on the work plan and provide any comments on the work plan.	Within 14 working days of the Work Plan being submitted to the NRC TPM.
Section 4.0 Task 4.1	Alternative Technologies, which would include cost and life cycle costs (i.e., replacement parts, servicing, disposal) and model to be used to perform the CBA for industrial applications and radioactive sources listed in Table 1.	Within 30 working days after the first meeting with the subgroup.
Section 4.0 Tasks 4.2, 4.3, 4.5	Draft CBA of alternative technologies for Category 1 and 2 radioactive sources including a discussion of incentives.	Within 60 working days after the subgroup is presented with the Current Alternative Technologies.
Section 4.0 Tasks 4.2, 4.3, 4.5	Final CBA of potential alternatives for Category 1 and 2 radioactive sources including a discussion of incentives.	Within 30 working days after submission of the draft, and after the subgroup has provided any comments.
Section 9.0 Task 9.3.1	Trip Reports	Within 10 calendar days after completion of trip.
Section 7.0	Monthly Letter Status Reports	Within 15 calendar days after the end of the report period.

7.0 MONTHLY LETTER STATUS REPORTS

The contractor shall submit the required reports to the NRC TPM in accordance with the basic contract, Sections F.3, Technical Progress Report, and F.4, Financial Status Report.

8.0 SECURITY CLASSIFICATION OR SENSITIVITY

Classified information will not be involved. However, the work may involve sensitive unclassified information. Foreign proprietary and vendor proprietary data are considered sensitive unclassified information. To assure proper handling of these materials, the contractor and its subcontractors shall implement a security program in accordance with NRC Management Directive 12.6, NRC Sensitive Unclassified Information Security Program.

9.0 MEETINGS AND TRAVEL

The contractor shall plan on local travel for periodic meetings with the subgroup and, where necessary, domestic travel to potential sites to interview stakeholders.

- 9.1 The contractor shall plan on local travel to NRC Headquarters in Rockville, MD, to participate in meetings with the subgroup to include but is not limited to, the following in-person meetings:
 - 9.1.1 Two people for 1 day to attend the Kick-Off meeting to discuss the contractors work plan. The Kick-Off meeting shall be held within 14 days of the Work Plan being submitted to the NRC TPM;
 - 9.1.2 Two people for 1 day to attend a meeting to discuss the alternative technologies to the Category 1 and 2 radioactive sources identified by the contractor and the model to be used to perform the CBA. OMB guidelines require three alternatives for business case analysis, with one alternative being no change. Each viable alternative should be included;
 - 9.1.3. Two people for 1 day to attend a meeting to discuss the draft CBA performed by the contractor; for each alternative, collection from various sources of cost data should include cost to design, develop, and deploy each alternative; analysis should include the cost of disposal of replaced radioactive sources; and
 - 9.1.4 Two people for 1 day to attend a meeting to discuss the final deliverable.
- 9.2 The contractor's attendance may be required periodically at scheduled meetings with NRC technical staff and the Alternatives Technologies Subgroup members, as deemed necessary. The contractor may choose to participate in these meetings through alternate means such as teleconference or video conference.
- 9.3 The contractor shall plan on domestic travel, where necessary, for an estimated 5 trips for two people for 3 days to potential sites to interview stakeholders, such as with the technology user/operator/developer, to observe, discuss, and collect/record relevant information of operation and maintenance of each potential alternative technology identified. The interviews with the vendor, researcher, manufacturer or end-user are to obtain information necessary to perform cost-benefit analysis and develop incentives to implement alternative technologies.
 - 9.3.1 The contractor shall submit a trip report no later than 10 calendar days after completion of each trip to the NRC TPM. The report shall include information on the destination, purpose, persons with whom they interacted; and a short synopsis of what was accomplished.

10.0 NRC-FURNISHED MATERIALS

NRC will provide the contractor, as appropriate, with copies of NRC's current regulations and guidance documents identified as pertinent to performing the required work.

11.0 PERFORMANCE REQUIREMENTS AND STANDARDS

Requirement	Standard	QA Method	Deduction Schedule
Performance of Statement of Work	At least a satisfactory rating for performance of each task.	Performance Evaluation Report	Full payment of fixed fee if rated satisfactory or above on all tasks. 25% reduction of fixed fee if rated less than satisfactory on any one of the tasks.

12.0 TECHNICAL DIRECTION

NRC Project Officer: Edna Knox-Davin
FSME/PBPA
Mail Stop T-8A23
301-415-6577
Edna.Knox-Davin@nrc.gov

NRC TPM: Joseph E. DeCicco
FSME/DMSSA
Mail Stop: T-8E24
301-415-7833
Joseph.DeCicco@nrc.gov

The NRC TPM is responsible for providing technical guidance to the contractor regarding the NRC staff interpretations of the technical aspects of regulatory requirements, along with copies of relevant documents (e.g., Regulatory Guides) when requested by the contractor. All work products must be reviewed and approved by the NRC TPM before they are submitted as final documents. All technical directions given to the contractor must be consistent with the work scope and schedule. The NRC TPM is not authorized to unilaterally make changes to the approved work scope or schedule or give the contractor any direction that would increase costs over approved levels. The NRC Contracting Officer is the only individual authorized to make such changes to this task order.