



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

July 17, 2001

Advanced Technologies and Laboratories  
International, Inc.  
ATTN.: Ms. Ray-way Hwang  
20010 Century Boulevard, Suite 500  
Germantown, Maryland 20874

SUBJECT: TASK ORDER NO. 11 ENTITLED "TECHNICAL ASSISTANCE IN THE  
DEVELOPMENT OF A HANDBOOK TO SUPPORT RISK ANALYSIS WITH  
METHODOLOGY OF NUREG 6642" UNDER CONTRACT NO. NRC-02-00-010

Dear Ms. Hwang:

In accordance with Section G.5(c) entitled "Task Order Award," of the subject contract, this letter definitizes the subject Task Order. This effort shall be performed in accordance with the enclosed Statement of Work .

Task Order No. 11 shall be in effect from July 18, 2001 through November 1, 2001. The total cost ceiling is \$41,069.00, of which the sum of \$38,027.00 represents the reimbursable costs and the sum of \$3,042.00 represents the fixed fee.

This Task Order No. 11 obligates funds in the amount of \$24,159.81.

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.

Accounting data for this task order is as follows:

B&R No.: 15015203115  
Job Code No.: J5332  
BOC: 252A  
APPN No.: 31X0200  
FFS No. : 5001R107  
Obligated Amount: \$24,159.81

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ersonnel shall not be removed from the effort under the task order without compliance with Contract Clause H.5, Key Personnel.

NRC-02-00-010 - Task Order No. 11

Your contacts during the course of this task are:

Technical Matters: James Smith, Technical Monitor  
(301) 415-6459


Penelope Kinney, Project Officer  
(301) 415-7805

Contractual Matters: Joyce Fields, Contracting Officer  
(301) 415-6564

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

Please indicate your acceptance of this task order by having an official, authorized to bind your organization, execute three (3) copies of this document in the space provided below and return two (2) copies to the U.S. Nuclear Regulatory Commission, ATTN: Ms. Joyce Fields, Division of Contracts and Property Management, T-712, ADM/DCPM/CMB2, Washington, D.C. 20555. You should retain the third copy for your records.

Sincerely,



Joyce A. Fields, Contracting Officer  
Contract Management Branch No. 2  
Division of Contracts and  
Property  
Office of Administration

Enclosure:  
As stated

ACCEPTED:

  
\_\_\_\_\_  
NAME

Director of Contracts  
\_\_\_\_\_  
TITLE

July 18, 2001  
\_\_\_\_\_  
DATE

PROJECT TITLE: Technical Assistance in the Development of a Handbook to Support Risk Analysis with Methodology of NUREG-6642  
JOB CODE NO.: J5332  
TASK ORDER NO.: 11  
B&R NUMBER: 15015203115  
CONTRACT NO.: NRC-02-00-010  
NRC TECHNICAL  
PROJECT MANAGER: James Smith (301) 415-6459  
NRC TECHNICAL ASSISTANCE  
PROJECT MANAGER: Penny Kinney (301) 415-7805  
FEE RECOVERABLE: No

#### BACKGROUND:

In 1997, the staff initiated a process for the development and implementation of a risk analysis methodology appropriate to the systems regulated under 10 CFR Parts 30-36 and 39. Working with a contractor, a risk assessment methodology was developed, implemented, and used to develop options for regulating materials activities. The methodology and the study results were reported in NUREG-6642, *Risk Analysis and Evaluation of Regulatory Options for Nuclear Byproduct Material Systems*.

NUREG-6642, *Risk Analysis and Evaluation of Regulatory Options for Nuclear Byproduct Material Systems*, provides a method for ranking byproduct materials systems (similar to the various programs identified in Inspection Manual Chapter 2800) according to potential risk. The study evaluated various scenarios that might result in unintended doses for workers or members of the public and their respective probabilities of occurrence. The ranking is based on the quantitative analysis of eight measures of risk which includes factors addressing individual worker dose, normal use versus accident scenarios, and doses that might be received by individual members of the public, among others.

The Task Group working on Phase II of the Mallinckrodt Lessons Learned project evaluated the materials inspection program in light of the results of the Nuclear Materials Risk Review and the Phase I study to determine if programmatic changes were warranted to improve efficiency and effectiveness while maintaining safety. This evaluation included assessment of the Phase I recommendations specific to the materials inspection program; detailed analysis of the Byproduct Materials Risk database; and evaluation of the current program and operational data including inspection scheduling data (License Tracking System), historical enforcement data and event-related data.

NUREG-6642 and its supporting data were reviewed extensively to gain insights on how this information could be used to risk inform the materials inspection program. The ranking of byproduct materials systems provides a framework for ordering, or grouping systems according to potential risk. In a general sense, the ranking can assist in making decisions regarding which systems or programs should receive the greatest inspection attention. The Task Group also determined that additional evaluation of the supporting data could provide insights on specific activities or aspects of a licensee's program that could lead to consequences or doses of interest to the NRC. The Task Group anticipated that this evaluation could lead to insights on

which aspects of a licensee's program should receive the greatest attention during an inspection.

As a result of the extensive review and use of NUREG-6642 and its supporting data, the Task Group gained insights on how this information could be used to risk inform the materials inspection program. Members of the Risk Task Group, working with the Phase II Task Group, recognized that better acceptance and utilization of NUREG 6642 by NRC staff could be obtained through a training course in the underlying methodologies and information used to populate the Byproduct Material System Risk Assessment Database. Therefore contractor assistance is required to develop a handbook.

## OBJECTIVE

The objective of this task is to develop a handbook that describes the methodologies and development of the information used to populate the database that underlies NUREG 6642.

## WORKSCOPE

The contractor shall develop a handbook as described below.

1. The handbook shall be designed for use by senior technical staff and policy makers to prepare a materials inspection program course which focuses on risk information.
2. The contractor shall ensure that the handbook is developed using the basic format of the System 24 Walk-Through report which was prepared by Sciencetech for use with NUREG 6642.
3. Since the System 24 Walk-Through report was delivered in a generic fashion, the handbook shall include all details, procedures, etc. which describes, in detail, to students the process of developing risk analysis to populate the underlying database and possible uses of the information in regulatory decision making.
4. The handbook shall include an overview of the risk analysis methodology, methods to define systems and sequences, uncertainty in human performance assessment, and basic utilization of the Byproduct Material System Risk Assessment Database.

## DELIVERABLES/SCHEDULE

All deliverables with an anticipated schedule are provided below. Each deliverable shall be submitted to the TPM in both hard copy and in an electronic medium form (Wordperfect).

1. A preliminary draft of the Handbook, due six weeks following the effective date of this task order.
2. NRC staff comments regarding the report. Due two weeks after receipt of the preliminary draft.
3. A final draft of the Handbook. The final draft should incorporate NRC staff comments. Due two weeks following receipt of NRC staff comments on the preliminary draft.

## NRC-FURNISHED MATERIAL

The NRC TPM will furnish the contractor with a copy of NUREG/CR-6642, the System 24 Walk-Through report, and any other documents pertinent to complete this task.

## MEETINGS AND TRAVEL

Meetings between the contractor and the NRC TPM will be conducted at least once a month at NRC Headquarters. Teleconferencing and exchanges of information via the internet will be employed to the maximum extent practicable.

## REQUIRED EXPERTISE

The contractor shall have available a health physicist or engineer who is familiar with the methodologies and underlying database for NUREG/CR-6642 sufficient to prepare the handbook. Expertise in risk assessment, including human factors assessment, sensitivity analyses, and uncertainty analysis is required.

## PERIOD OF PERFORMANCE

The period of performance for the work specified in this SOW shall commence on the effective date of this task order and shall continue until ~~November 1, 2001~~.

## LEVEL OF EFFORT

The estimated level of effort for this task order is 0.2 professional staff years.

## FINANCIAL AND TECHNICAL STATUS REPORTS

The contractor shall submit a monthly technical report in accordance with section F.3 - Technical Progress Report and a monthly financial status report each month in accordance with the requirements specified in Section F.4 - Financial Status Report of the basic contract with distribution to the (1) NMSS TAPM, (2) NMSS/TPM [2 copies], and (3) Contracting Officer.

## TECHNICAL/PROJECT DIRECTION

Penny Kinney is the NMSS Technical Assistance Project Manager (TAPM) and is the focal point for all contract-related activities. All work assignments and program funding are initiated by the NMSS TAPM who submits all requests to the Division of Contracts and Property Management (DCPM) for processing. All proposed work scope or schedule changes must be submitted through the NMSS TAPM for DCPM.

James Smith is designated the NMSS TPM and is responsible for providing technical guidance to the contractor regarding staff interpretations of the technical aspects of regulatory requirements, along with copies of relevant documents when requested by the contractor. All work products must be reviewed and approved by the TPM before they are submitted as final.

documents. All technical direction given to the contractor must be consistent with the work scope and schedule. The NMSS 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 Contracting Officer is the only individual authorized to make changes to this task.