AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

1. CONTRACT ID CODE	PAGE OF PAGES
	1 | 3

2. AMENDMENT/MODIFICATION NO.	3. EFFECTIVE DATE	4. REQUISITION/PURCHASE REQ. NO.	5. PROJECT NO. (If applicable)
Thirty-Four	12/12/90	NMS-88-005 dtd 12/10/90	

6. ISSUED BY — CODE

U. S. Nuclear Regulatory Commission
Division of Contracts & Property Management
Washington, D. C. 20555

7. ADMINISTERED BY (If other than Item 6) — CODE

8. NAME AND ADDRESS OF CONTRACTOR (No., street, county, State and ZIP Code)

Southwest Research Institute
6220 Culebra Road
San Antonio, TX 78228

CODE — FACILITY CODE

(X) 9A. AMENDMENT OF SOLICITATION NO.

9B. DATED (SEE ITEM 11)

10A. MODIFICATION OF CONTRACT/ORDER NO.
NRC-02-88-005

(X) 10B. DATED (SEE ITEM 13)
10/15/87

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

☐ The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offers ☐ is extended, ☐ is not extended.

Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended, by one of the following methods: (a) By completing Items 8 and 15, and returning _____ copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA (If required)

FIN: L1793-1 B&R: 150-19-31-010 APPN: 31X0200.150 Obligate: $100,000.00

13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS, IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.

(W) A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.

B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation data, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(b).

C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:

X Changes Clause - FAR 52.243-2

D. OTHER (Specify type of modification and authority)

E. IMPORTANT: Contractor ☐ is not, [X] is required to sign this document and return 2 copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)

SEE ATTACHED

9101040111 901219
PDR CONTR
NRC-02-88-005 PDR

Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER (Type or print)	16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)
Robert E. Chatten, C.P.M. Director, Contracts	Paul J. Edgeworth
15B. CONTRACTOR/OFFEROR (Signature of person authorized to sign)	15C. DATE SIGNED: 12-19-90
	16B. UNITED STATES OF AMERICA BY (Signature of Contracting Officer)
	16C. DATE SIGNED: 12/20/90

The purpose of this modification is to: 1) obligate $100,000.00 to the Waste Solidification Systems (WSS) Program Element, 2) authorize $50,000.00 for the WSS Program Element, 3) increase the authorized amount for the Research Project Plan by $527,268.00, from $4,932,732.00 to $5,460,000.00, 4) incorporate WSS Program Element, 5) add the Program Element Manager for the WSS Program Element, 6) incorporate the Program Element Plan for the WSS Work as Attachment 13, and 7) incorporate revisions to Modification No. 32.

The following changes are hereby incorporated into the contract:

1. The following changes are hereby made under Section B.2:

   a. Paragraph B is hereby revised as follows:

      "B. The amount presently obligated by the Government with respect to the contract is $23,666,200.00. Estimated reimbursable costs are $21,913,148.00. The available award fee is $1,753,052.00. The base fee is 0.

      Notwithstanding the award fee as referenced above, the actual award fee pool will be as stated in the award fee plan. The award fee plan will reflect the actual award fee pool based on cumulative estimated costs for performance of approved operations plans."

   b. Paragraphs D, and E are hereby revised to read as follows:

      "D. Total funds currently obligated are as follows:

      FIN: D1035
      AMOUNT: $17,344,000.00

      FIN: D1070
      AMOUNT: $ 596,200.00

      FIN: B6666
      AMOUNT: $ 5,460,000.00

      FIN: L15900
      AMOUNT: $ 166,000.00

      FIN: L1793-1
      AMOUNT: $ 100,000.00

      Total Amount Obligated: $23,666,200.00

      E. The amount authorized for each operations/project plan is as follows:

      High-Level Waste
      FIN: D1035
      $17,344,000.00

      Transportation
      FIN: D1070
      $ 596,200.00

      Research
      FIN: B6666
      $ 5,460,000.00

      Licensing Support System
      FIN: L15900
      $ 166,000.00

      Waste Solidification Systems
      FIN: L1793-1
      $ 50,000.00

      Total Amount Authorized: $23,616,200.00"

ATTACHMENT 13

PROGRAM ELEMENT PLAN
FOR
WASTE SOLIDIFICATION SYSTEMS
PROGRAM ELEMENT

INTRODUCTION

This statement of work (SOW) describes activities to be performed by the Center for Nuclear Waste Regulatory Analyses (CNWRA) in providing assistance to NRC in evaluating the Department of Energy's West Valley Demonstration Project (WVDP).

TASK DESCRIPTIONS

TASK 1: ASSESSMENT OF VITRIFICATION OFF-GAS GENERATION AND TREATMENT

Background:

The foremost processing activity to be conducted at the WVDP will be vitrification of high-level radioactive wastes into borosilicate glass logs. The high-level waste feed will be a homogeneous slurry formed by mixing three types of waste: an insoluble sludge containing most of the Sr-90 and actinides from the spent fuel processed at West Valley, a zeolite slurry containing the Cs-137 from the spent fuel, and a small volume of spent thorium fuel dissolved in nitric acid. When the high-level waste slurry is fed to the glass melter, large amounts of radioactive off-gas will be generated. The off-gas will be treated by condensation and filtration in large, remotely-operated process vessels. Correct design and operation of the off-gas treatment equipment will be the most important single factor in protecting public safety and the West Valley environment during vitrification operations. The vitrification system is scheduled for startup in late 1993.

Subtask A:

The first subtask will be to review sampling and analytical chemistry data to determine that all important constituents of the high-level waste have been measured with sufficient accuracy. Performance requirements for the off-gas treatment system will depend directly on the inventory of radioactivity that will enter the melter. All precautions must be taken to make sure that no significant off-gas components are overlooked or underestimated.

The CNWRA will visit the West Valley site to collect the latest data on sampling and analysis of the high-level waste. The CNWRA will confirm that all components of the radioactive source term for the off-gas are adequately known. Preliminary work in this area has already been done by the NRC staff (a NRC staff paper of 3/18/90 will be provided to the CNWRA). The CNWRA will use recent high-level waste analytical data obtained at West Valley to update and crosscheck the preliminary staff conclusions.

Subtask B:

The second subtask will be to evaluate routine operating and maintenance requirements for the off-gas treatment equipment. As the vitrification facility is constructed, the design and installation of the off-gas equipment will be reviewed by NRC for consistency with the key operating and maintenance requirements.

The CNWRA will determine as far as possible, and update as necessary, the exact design of the West Valley vitrification off-gas system, including component specifications, piping layouts, operating conditions, and maintenance strategies. The CNWRA will confer with West Valley staff and experts at other facilities to identify the operating and maintenance features most important to public safety and environmental protection. The results will be used in issuing a Safety Evaluation Report on the vitrification facility and as a guide to NRC for inspection and monitoring of vitrification facility construction and operation.

Subtask C:

The third subtask will be to estimate the frequency and magnitude of off-gas surges, and to evaluate their effect on off-gas system performance. Evidence to date shows that the melter tends to form an unstable crust on top of the molten glass. As feed slurry accumulates on top of the crust, or as the crust breaks up and reforms, there is the potential for large off-gas surges. The capacity of the off-gas system to treat such surges is an important safety feature. The CNWRA will consult with West Valley staff and experts at other facilities to determine the largest off-gas surges that could occur at West Valley. The CNWRA will evaluate the effect of such surges on the performance of each component of the off-gas system. The results will be used in issuing a Safety Evaluation Report on the vitrification system.

Subtask D:

The fourth subtask will be to identify the mechanisms by which a failure of a major off-gas system component could occur and to assess the consequences of such a failure. An earthquake, a crane accident, or a severe operator error could cause the loss of part or all of the off-gas treatment system. The objective of this subtask is to consider the consequences of a major failure and the mechanisms by which a major failure could occur. Quantitative failure probabilities will not be calculated in this activity.

Based on knowledge gained in Subtask B, the CNWRA will identify failure mechanisms for the major off-gas system components. The consequences in terms of loss of system performance will be calculated for each type of system failure. The results will be used in issuing a Safety Evaluation Report and in identifying key safety issues for investigation in future accident analysis.

TASK 2: SLUDGE MOBILIZATION AND MIXING

Most of the high-level waste at West Valley is stored in a large underground tank. About half of the fission products and nearly all of the actinides are in a thick layer of insoluble sludge at the bottom. The sludge must be loosened from the tank bottom, washed to remove any trapped soluble constituents, mixed into a relatively homogeneous slurry, and blended with the other high-level waste liquids before vitrification can begin. Sludge mobilization is scheduled to start in July 1991.

The CNWRA will visit West Valley to become acquainted with the sludge mobilization system and to discuss safety and environmental issues with the West Valley staff. DOE is scheduled to submit a Safety Analysis Report (SAR) to NRC in January 1991. The CNWRA will review the SAR and prepare a draft Safety Evaluation Report in accordance with guidelines to be provided by the NRC Program Element Manager.

TASK 3: SEISMIC ANALYSIS OF THE VITRIFICATION FACILITY

The safety-related structures at West Valley must be able to withstand the design basis earthquake for the site. DOE has done a seismic analysis of some aspects of the vitrification facility design, and NRC has reviewed the DOE work and done some independent assessments. Some important features of the vitrification facility, such as the high-level waste transfer pipes, the processing equipment, and the canister transport system, have not been analyzed yet for seismic competence.

The CNWRA will provide a specialist in seismic structural analysis to assist NRC in reviewing DOE submittals on these systems. The CNWRA will meet with West Valley staff to discuss analysis methods, ground motion assumptions, and design details. The CNWRA will prepare an independent assessment of the completeness and general correctness of the DOE analyses. It will not be necessary for the CNWRA to do a full confirmatory dynamic analysis.

PRODUCTS/SCHEDULES

Intermediate Milestones:	Due Date:
Task 1, Subtask A - letter report on the completeness of radioactive source term data for vitrification off-gas treatment	April 30, 1991
Task 1, Subtask B - letter report describing the baseline vitrification off-gas system, and identifying operating and maintenance features important to safety	August 31, 1991

Task 1, Subtask C - letter report evaluating off-gas surges in the vitrification system and their effect on off-gas treatment performance	October 31, 1991
Task 1, Subtask D - letter report on vitrification off-gas system failure mechanisms	December 31, 1991
Task 2 - letter report containing outline of Safety Evaluation Report on the sludge washing system	January 15, 1991
Task 3 - letter report on the seismic competence of the high-level waste transfer pipes, processing equipment, and canister transport system	Not scheduled

Major Milestones:	Due Date:
Task 1 - draft Safety Evaluation Report on the vitrification off-gas system	January 31, 1992
Task 2 - draft Safety Evaluation Report on the sludge washing system	February 28, 1991

ESTIMATED LEVEL OF EFFORT FOR FY91 AND FY92

Task 1:	
Subtask A:	4 staff weeks
Subtask B:	10 staff weeks
Subtask C:	8 staff weeks
Subtask D:	10 staff weeks
Task 1 Total	32 staff weeks
Task 2:	6 staff weeks
Task 3:	8 staff weeks
Total Level of Effort for Technical Staff	56 weeks

CONTACTS

NRC Program Element Manager: Davis Hurt (492-0694)
NMSS/IMSB