STANDARD FORM 26, JULY 1966
GENERAL SERVICES ADMINISTRATION
FED. PROC. REG. (41CFR) 1-16.101

AWARD/CONTRACT

1. CONTRACT (Proc. Inst. Ident.) NO.: NRC-02-79-032
2. EFFECTIVE DATE: SEP 28 1979
3. REQUISITION/PURCHASE REQUEST/PROJECT NO.: NMS-79-032
4. CERTIFIED FOR NATIONAL DEFENSE UNDER BDSA REG. 2 AND/OR DMS REG. 1. RATING:

5. ISSUED BY — CODE:
U.S. Nuclear Regulatory Commission
Division of Contracts
Washington, DC 20555

6. ADMINISTERED BY (If other than block 5) — CODE:

7. DELIVERY FOR DESTINATION: [X] OTHER (See below)

8. CONTRACTOR NAME AND ADDRESS — CODE: — FACILITY CODE:
(Street, city, county, State, and ZIP code)
Science Applications, Inc
1200 Prospect Street
P.O. Box 2351
La Jolla, CA 92038

9. DISCOUNT FOR PROMPT PAYMENT: Net 30 days

10. SUBMIT INVOICES (4 copies unless otherwise specified) TO ADDRESS SHOWN IN BLOCK

11. SHIP TO/MARK FOR — CODE:
See paragraph Article I

12. PAYMENT WILL BE MADE BY — CODE:
U.S. Nuclear Regulatory Commission
Office of the Controller
Washington, DC 20555

13. THIS PROCUREMENT WAS [ ] ADVERTISED, [X] NEGOTIATED, PURSUANT TO: [ ] 10 U.S.C. 2304 (a)( ) [X] 41 U.S.C. 252 (c)(10)

14. ACCOUNTING AND APPROPRIATION DATA
50-19-03-02-1 B6428-9 OBLIGATE $277,832.00

15. ITEM NO.	16. SUPPLIES/SERVICES	17. QUANTITY	18. UNIT	19. UNIT PRICE	20. AMOUNT
	Systems Analysis of Shallow Land Burial				
		Estimated Cost			$256,066
		Fixed-Fee			$ 21,766
		Total CPFF			$277,832

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21. TOTAL AMOUNT OF CONTRACT $ 277,832

CONTRACTING OFFICER WILL COMPLETE BLOCK 22 OR 26 AS APPLICABLE

22. [ ] CONTRACTOR'S NEGOTIATED AGREEMENT (Contractor is required to sign this document and return 3 copies to issuing office.) Contractor agrees to furnish and deliver all items or perform all the services set forth or otherwise identified above and on any continuation sheets for the consideration stated herein. The rights and obligations of the parties to this contract shall be subject to and governed by the following documents: (a) this award/contract, (b) the solicitation, if any, and (c) such provisions, representations, certifications, and specifications, as are attached or incorporated by reference herein. (Attachments are listed herein.)

26. [ ] AWARD (Contractor is not required to sign this document.) Your offer on Solicitation Number _____, including the additions or changes made by you which additions or changes are set forth in full above, is hereby accepted as to the items listed above and on any continuation sheets. This award consummates the contract which consists of the following documents: (a) the Government's solicitation and your offer, and (b) this award/contract. No further contractual document is necessary.

23. NAME OF CONTRACTOR — BY: Diane E. Findley (Signature of person authorized to sign)

27. UNITED STATES OF AMERICA — BY: D J Dougherty (Signature of Contracting Officer)

24. NAME AND TITLE OF SIGNER (Type or print): Diane E. Findley, Contract Representative

25. DATE SIGNED: 9/27/79

28. NAME OF CONTRACTING OFFICER (Type or print): D.J. Dougherty

29. DATE SIGNED: SEP 28 1979

26-106 U.S. GOVERNMENT PRINTING OFFICE: 1976-200-984

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THIS CONTRACT CONSISTS OF:

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4. GENERAL PROVISIONS FEBRUARY 15, 1978

5. REPRESENTATIONS AND CERTIFICATIONS ARE INCORPORATED BY REFERENCE

6. EXHIBIT NRC MANUAL CHAPTER 3202, PUBLICATION OF UNCLASSIFIED REGULATORY AND TECHNICAL DOCUMENTS PREPARED BY NRC CONTRACTORS, INCLUDING REPORTS PREPARED UNDER OR PURSUANT TO INTERAGENCY AGREEMENTS

7. ATTACHMENT A CONTRACTOR ORGANIZATIONAL CONFLICTS OF INTEREST

SCHEDULE

ARTICLE I
DESCRIPTION OF WORK

The Contractor shall furnish all the necessary qualified personnel, facilities, materials and services and perform the specific tasks delineated below:

A. Task 1 - Identify Potential Radionuclide Release Pathways from Shallow Land Burial Waste Disposal

1. Make an exhaustive shallow land burial radionuclide release pathway list for existing shallow land burial sites and a reference site utilizing release pathways postulated in existing literature, and systematic techniques such as technological forecasting, morphological and fault/event tree analysis. This list shall include radionuclide release pathways from all aspects of shallow land burial including waste packaging, transportation, site operations and burial.

Task 2 - Develop a Systems Methodology and Calculational Computer Model To Assess Shallow Land Burial Sites

1. From the exhaustive list developed in Task 1, recommend major potential release pathways for the system model. Criteria for recommending major release pathways for the system model will be:

- The system model shall contain release pathways from packaging, transportation, site operations (controlled leakages and releases caused by freak occurrence, i.e., flooding of an open trench, on site fire, hurricane, etc.), post burial

- Release pathways used shall account for pathway interactions; in which case a closely bounding or integrated scenario should be used. Perhaps fault/event tree analysis techniques or a morphological approach could be used to identify pathway interactions.

The final list of major potential release pathways will be subject to approval of the Project Manager.

2. Develop or obtain models and transport dose equations for the potential radionuclide release pathways and calculate uncertainty bands for each pathway. Insofar as practicable, the contractor shall utilize existing models or codes for incorporation into the final product. Where new development is undertaken, justification for not utilizing existing models must be provided. Before developing a new model, the contractor must obtain written approval from the Project Manager.

3. Develop the computer code modeling the shallow land burial system. The code shall be written in American National Standard Institute (ANSI) standard Fortran IV compatible with a CDC 6600/7600. Documentation of the code shall be done in accordance with ANSI-N413, and the documentation provided to NRC along with a users manual as part of the Task report of this work. Make recommendations for methods of verifying the code. Based on an evaluation of these recommendations, the Project Manager will direct the contractor to verify the code, insofar as possible.

Task 3 - Sensitivity and Optimizing Parameter Relationships

1. Using the system model, perform a parametric study and a sensitivity analysis varying operational, solids performance, site suitability, site design and other parameters.

2. Identify functional parameter relationships optimizing waste containment (e.g., show which groups of parameters operating together minimize exposures from shallow land burial and the corresponding magnitudes of reduction associated with each).

Task 4 - Dose Assessment

1. Utilizing the system model, assess release pathway doses, isotope doses, and total site impacts from a reference shallow land burial facility and source term (see Paragraph 5.0 "NRC Furnished Material).

B. Task Reports and Final Report

A report documenting results of each Task (Tasks 1, 2, 3 and 4) shall be prepared and submitted by the contractor within three (3) weeks of the completion of each task. Copies of the reports shall be distributed as follows:

Project Officer (8) FCLL
Office of the Director, NMSS (Attn: Program Support Branch)
(one [1] copy)
D. Dougherty, Division of contracts (one [1] copy)

The Project Manager will provide the contractor with comments on each task report within four (4) weeks of receipt of each report. Any such comments will be reviewed and incorporated in the draft final report, were appropria

After completion of all tasks, the contractor shall prepare and submit a draft final report (staff estimates work should be completed within 12 months). The report shall document work accomplished under this contract including:

a. Assessment methodology

b. Exhaustive radionuclide release pathway list, models and transport-dose equations of each considered

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c. Major release pathways used in system model and supporting rationale

d. Computer program of the system using the developed methodology and a users manual

e. List of functional group parameter relationships and their corresponding incremental sensitivity.

The Project Manager will furnish comments on the draft final report within 30 days of receipt. Based upon those comments, the Contractor shall revise the draft final report and submit the final report in eleven (11) copies (including one (1) camera ready copy) to the Project Manager, one (1) to the Division of Contracts, and one (1) to the Office of the Director, NMSS (Attn: Program Support Branch) within 30 days of receipt of theProject Manager's comments.

This statement of work identifies the reports that are due, review schedules and milestone schedules for the delivery dates for all reports including the revised final report. Offeror's proposals must include a specific schedule in which the completion dates on the work required for each of the four tasks is clearly identified. A milestone chart or other suitable devise must depict the due date for each event and deliverable specified within this statement of work.

C. Monthly Letter Report

Each month, the contractor shall submit 3 copies of a brief letter report which summarizes: (1) the work performed during the previous month; (2) personnel time expenditures during the previous month; and (3) costs: (i) current period, (ii) cumulative to date, and (iii) cost projection by month to completion of the work effort. (The first monthly report shall provide the initial cost projection and subsequent reports shall either provide revised projections or indicate "no change in the cost projection.") The reports shall be due by the 15th of each month with distribution as follows:

Contracting Officer's Authorized Representative (1 cy)
Office of the Director, NMSS (ATTN: Program Support) (1 cy)
Mr. Dennis Dougherty, Contracting Officer (1 cy)

D. Task Reports and Final Reports

For task and final reports prepared under the provisions of this contract, the format shall be in accordance with the provisions as stated in NRC Manual Appendix 3202 for either "Formal Contractor Documents" or "Interim Contractor Documents" as appropriate.

E. Meetings

The contractor will meet with the Project Manager within ten (10) days of contract award and at the conclusion of each task to discuss results of contractor work. These meetings will usually be of one to two days duration and be held at the NRC offices in Silver Spring, Maryland. Upon completion of the draft final report, the contractor shall brief the NRC staff on the report at the NRC Silver Spring, Maryland office. Contractor shall be prepared to brief the NRC staff on the results of the Task Reports.

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F. NRC Furnished Material

Within ten (10) days of the award of the contract for this statement of work the Project Manager shall supply the following material:

1. NUREG-0456 - A Classification System for Radioactive Waste Disposal-What Waste Goes Where

2. NRC - Shallow Land Burial Source Term

3. NUREG-0170, Volumes 1 and 2 (Transportation)

4. Reference Shallow Land Burial Facility Description

5. Leddicotte, G.W., et. al, "Suggested Concentration Limits For Shallow Land Burial of Radionuclides," 1978

If the Government-furnished property, suitable for its intended use, is not so delivered to the Contractor, the Contracting Officer shall, upon timely written request made by the Contractor, and if the facts warrant such action, equitably adjust any affected provision of this contract pursuant to the procedures of the "Changes" clause hereof.

The work called for above shall be performed in accordance with the Contractor's proposal, No. 1-013-71-800-02, dated March 2, 1979 and the Best & Final Offer letter dated July 3, 1979 which by this reference are incorporated herein and made a part of this contract as though set forth in full text.

ARTICLE II
Period of Performance

Performance under this contract shall commence on the effective date of this contract and shall continue for a period of fifteen (15) months, at which time all work shall have been completed and all reports shall have been delivered.

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Article III- PROTECTION OF PROPRIETARY AND COMPANY CONFIDENTIAL INFORMATION

If proprietary or company confidential data is provided to the contractor by the Commission in connection with this contract, the contractor agrees to safeguard said information and agrees not to release said information to any person not directly involved in the performance of the work under this contract, unless such release is authorized in advance by the Contracting Officer. Upon completion or termination of this contract, all copies of any such proprietary or company confidential data shall be returned to the Commission.

Article IV-PRIVATE USE AND PROTECTION OF UNCLASSIFIED GOVERNMENT INFORMATION

(a) Except as specifically authorized by this contract, or as otherwise approved by the Contracting Officer, records or other information, documents, and material furnished by the Commission to the contractor in the performance of this contract shall be used only in connection with the work performed under this contract. The contractor shall, upon completion or termination of this contract, transmit to the Commission, all records or other information, documents, and material, and all copies thereof, furnished by the Commission to the contractor in the performance of this contract.

(b) The contractor shall be responsible for safeguarding from unauthorized disclosure any information or other documents and material exempt from public disclosure by the Commission's regulations and made available to the contractor in connection with the performance of the work under this contract. The contractor agrees to conform to all regulations, requirements, and direction of the Commission with respect to such material.

(c) The contractor's duties under this article shall not be construed to limit or to effect in any way the contractor's obligation to conform to all security regulations and requirements of the Commission pertaining to classified information and material.

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ARTICLE V
CONSIDERATION

A. Estimated Cost and Fixed Fee, Obligation of Funds

It is estimated that the total cost to the Government for full performance of this contract will be $277,832 of which the sum of $256,066 represents the estimated reimburseable costs, and of which $21,766 represents the fixed fee.

B. Indirect Costs

Reimbursement of indirect costs shall be governed by General Provisions No. 34, Negotiated Overhead Rates. Pending the establishment of final indirect rates the Contractor shall be reimbursed for labor overhead cost at the provisional rate of 82.5% of direct labor. Additionally the contractor shall be reimbursed for general and administrative expenses at the provisional rate of 12.5% of total direct cost and overhead.

ARTICLE VI
PROVISIONS APPLICABLE TO DIRECT COSTS

A. Items Unallowable Unless Otherwise Provided

Notwithstanding Clause No. 5 -- ALLOWABLE COST FEE AND PAYMENT, and Clause No 10 -- SUBCONTRACT, of the General Provisions of this contract, unless authorized in writing by the Contracting Officer, the costs of the following items or activities shall be unallowable as direct costs:

1. Acquisition, by purchase or lease, of any interest in real property.

2. Special rearrangement or alteration of facilities.

3. Purchase or lease of any item of general purpose office furniture or office equipment.

ARTICLE VII
AUTHORIZED REPRESENTATIVE

The following authorized representative will represent the Government for the purpose of this contract:

James D. Thomas

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The authorized representative is responsible for: (1) Monitoring the contractor's technical progress, including the surveillance and assessment of performance and recommending to the CO changes in requirements; (2) interpreting scope of work; (3) performing technical evaluation as required; (4) performing technical inspections and acceptances required by this contract; and (5) assisting the Contractor in the resolution of technical problems encountered during performance. Within the purview of this authority, the representative is authorized to approve payment vouchers for supplies/services required under the contract. The Contracting Officer is responsible for directing or negotiating any changes in terms, conditions, or amounts cited in the contract.

For guidance from the authorized representative to the Contractor to be valid, it must: (1) be consistent with the description of work set forth in this contract; (2) not constitute new assignment of work or change to the expressed terms, conditions, or specifications incorporated into this contract; (3) not constitute a basis for an extension to the period of performance or contract delivery schedule; (4) not constitute a basis for any increase in the contract fee.

ARTICLE VIII
KEY PERSONNEL

Pursuant to Clause No. 40 -- KEY PERSONNEL, the following individual(s) considered to be essential to the work being performed hereunder:

D.H. Lester — W.H. Horton

D.W. Buckley — V.P. Dura

ARTICLE IX
GENERAL SERVICES ADMINISTRATION SUPPLY SOURCES

The Contracting Officer may issue and the Contractor agrees to accept an authorization to utilize General Services Administration supply sources for property to be used in the performance of this contract. All property acquired under such an authorization shall be subject to Clause No. 22 -- GOVERNMENT PROPERTY, of the General Provisions.

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ARTICLE X
ORDER OF PRECEDENCE

In the event of an inconsistency between the terms and conditions of this contract, the inconsistency shall be resolved by giving precedence in the following order:

1. the SCHEDULE: (Note: - Nothing contained in the Contractor's proposal, whether or not incorporated by reference, shall constitute a waiver of any terms or conditions provided in the SCHEDULE.)

2. The General Provisions

3. Other terms and conditions of the contract, whether incorporated by reference or otherwise.