General

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PROGRAM AND BUDGET PROPOSAL

OPERATING COSTS AND EQUIPMENT

Division of Waste Management and Transportation

189c No. LS-15-1-6-A

DATE April 5, 1974

1. BUDGET ACTIVITY NO. RY-06-02

2. SITE NA

3. PROJECT TITLE Related Site Studies: USGS/LASL Solid Waste Disposal Study

4. FREQUENCY OF PROGRESS REPORTING
- [ ] 1. Monthly
- [ ] 2. Quarterly
- [ ] 3. Semi Annual
- [x] 4. Annual

5. PERSON IN CHARGE LaMar J. Johnson

PRINCIPAL INVESTIGATOR(S) M. A. Rogers

6. CONTRACTOR University of California Los Alamos Scientific Lab.

10. CONTRACT NO. W-7405-36

15. LEAD BRANCH WO

7. WORKING LOCATION Los Alamos Scientific Lab. Los Alamos, NM

12. WASTE APPLICATION
- AEC [x]
- Industry [ ]

18. PROJECT TERM
- 1. Open [x]
- 2. Limited [ ]
- From _____ (date)
- To _____ (date)
- Funding Termination _____ (date)
- Reference:

9. TYPE
- 1. Industry [ ]
- 2. AEC Lab [x]
- 3. Educational [ ]
- 4. Government [ ]
- 5. Other Non-Profit [ ]

13. TYPE OF WASTE
- 1. High-Level [ ]
- 2. Solid-Transuranium [x]
- [ ]
- 4. Tritium [x]
- 5. Gaseous or Airborne [ ]
- 6. Other [ ]

21. MAN YEARS	FY 19 PY 74	FY 19 CY 75	FY 19 BY 76
Scientific	1.0	1.0	1.0
Other Direct	0	0.5	1.0
Total Direct	1.0	1.5	2.0
22. COSTS			
a) Direct Salaries	21.5	28.5	36.2
b) Materials & Services	7.5	4.9	8.3
c) Subcontracts	0	0	5.0
Total Direct Costs	29.0	33.4	49.5
d) Indirect Costs	11.0	14.6	18.5
e) Fee	0	0	0
Total Costs (In Thousands)	40.0	48.0	68.0
24. EQUIPMENT			
a) Budget Activity No.	35-RY-90		
b) Equipment Obligations (In Thousands)	0	6.0	12.0
c) Equipment Costs (In Thousands)	0	6.0	12.0

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25. Milestone Chart:

A. Staffing of project

B. Liasion with U.S.G.S.

C. Literature and records search

D. Survey of regional and local geology and hydrology

E. On-site investigation of burial and storage areas

F. Compilation, interpretation of data, and review of results

G. Draft report

H. Review and apply U.S.G.S. recommendations and LASL recommendations

I. Determine the efficiency of various monitoring techniques

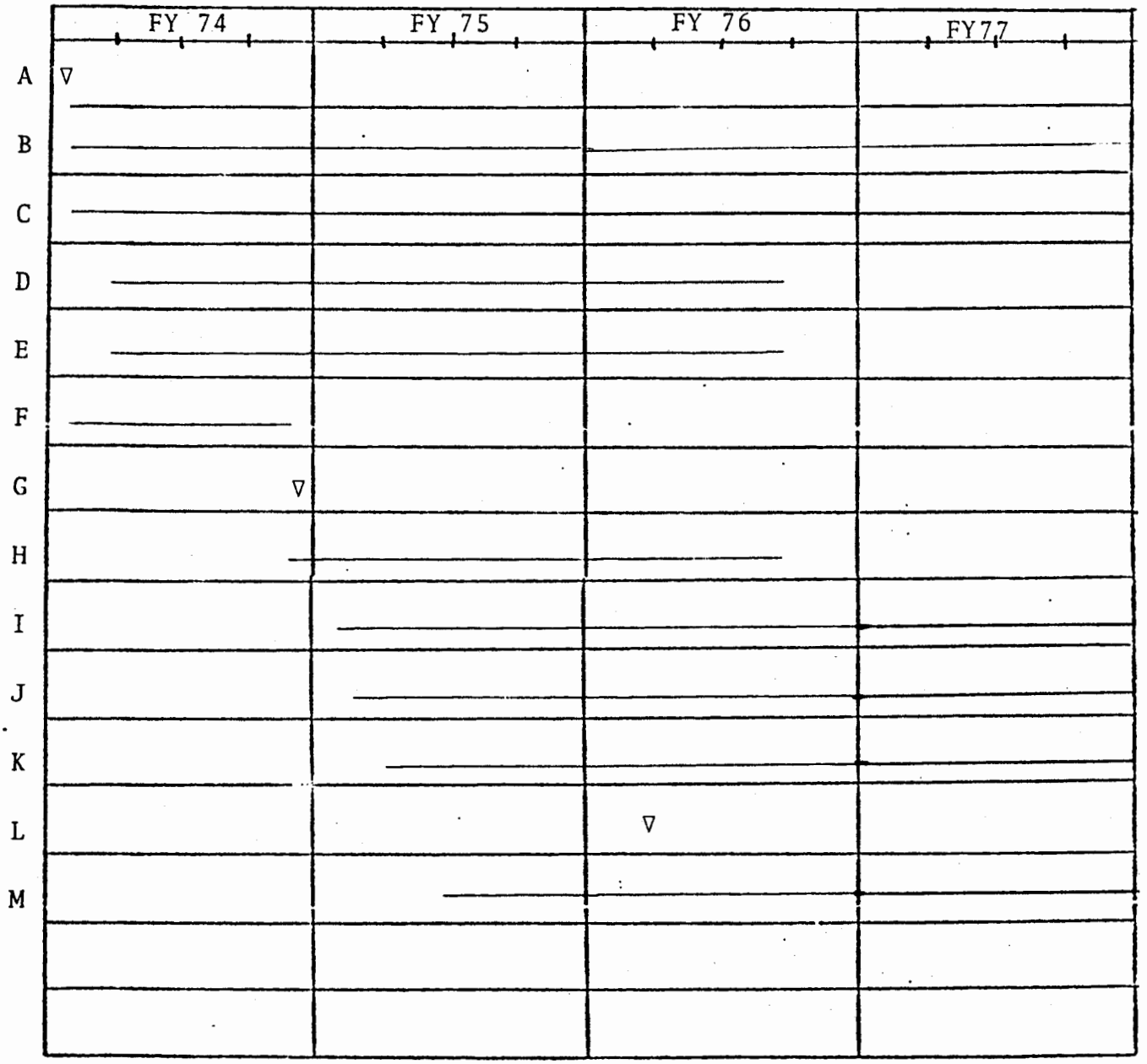
J. Intensify monitoring net

K. Collection and analyses of data from monitoring net

L. Establish preliminary criteria for monitoring

M. Initiate study to develop monitoring techniques to detect radionuclide movement after wastes are buried.

25. Milestone Chart



26. Publications:

History of LASL Near-Surface Land Burial Facilities for Solid Radioactive Wastes. In preparation.

Planned:

1. Detailed geologic map of area where burial sites are located.
2. Preliminary criteria for monitoring.

27. Scope:

The initial phase of the study, an evaluation of current monitoring practices to predict migration of radioisotopes through or from LASL burial grounds, is expected to be completed with the presentation of the U.S.G.S. report to the USAEC. LASL will publish "History of LASL Near-Surface Land Burial Facilities for Solid Radioactive Waste." Both reports will be published by the end of FY-74.

The secondary phase of the study to evaluate and apply the recommendations made by U.S.G.S. and LASL personnel for monitoring burial and storage areas, will begin in FY-75.

The third phase (two parts) also begins in FY-75. One part consists of detailed geologic mapping of the burial sites' area. This project provides basic data for establishing points where migration of radionuclides might take place. With this data a more precise monitoring grid can be established. The other part consists of the development of possible monitoring techniques to detect radionuclide movement in buried wastes. The techniques will be designed to provide information over both short and long periods.

28. Related Work:

A. Data obtained from the study will aid in the DWMT study, "The Evaluation of Plutonium Contaminated Radioactive Waste Disposal Areas with Respect to Their Environmental Potential and Eventual Disposition."

B. Coordinator will serve as consultant in geologic and hydrologic problems to the DWMT sponsored LASL programs: "Transuranic Waste Research and Development" and "Contaminated Solid Waste Disposal/Storage."

29. Prior Results:

The USAEC retained the U. S. Geological Survey to evaluate the geological and hydrological aspects of waste burial or storage at the Los Alamos Scientific Laboratory. A joint effort by LASL and the U.S.G.S. is providing the necessary data to make a complete evaluation of the waste burial sites described in the current submission of the radioactive waste management site plan, i.e., Areas A, B, C, D, E, F, G, and T.

The initial phase of the study, an evaluation of current monitoring practices to predict migration of radioisotopes through or from LASL burial grounds, will have been accomplished by the end of FY-74. The evaluation will have been based upon: (1) field inspections which determined the physical characteristics of the burial facilities and the surface geohydrologic features of each burial site, and (2) literature and record searches plus interviews which determined the adequacy of past and present monitoring systems in relation to the geohydrology of the burial sites. As a result of the evaluation recommendations for improvement of the existing monitoring system will have been made.

30. Expected Results FY-75:

D. Initiation of detailed geologic mapping of burial sites' area.

E. Continuation of on-site investigation of burial or storage areas.

H. Review and application of U.S.G.S. recommendations and LASL recommendations.

I. Initiation of efficiency determination of various monitoring techniques.

J. Intensification of monitoring net of waste burial and storage areas.

K. Collection and analysis of data from monitoring net.

M. Initiation of study to develop monitoring techniques to detect radionuclide movement after wastes are buried.

31. Expected Results FY-76:

D. Completion and publication of detailed geologic map of burial sites' area.

E. Completion of on-site investigation of burial or storage areas.

I. Continuation of efficiency determination of various monitoring techniques.

K. Collection and analysis of data from monitoring net.

L. Creation of preliminary criteria for monitoring waste burial and storage areas.

M. Continuation of development of monitoring device to detect radionuclide movement after wastes are buried.

32. Expected Results FY-77:

N.A.

33. Major Materials:

None

34. Items of Equipment:

Those items of equipment needed to complete the geologic mapping project and begin development of monitoring techniques include:

Geologic Equipment:

(a) Petrographic microscopes

A stereo microscope is used for study of rock slabs and a polarizing microscope is used for study of thin sections. Microscopic study provides better lithologic descriptions of the rock units mapped. The lithology or physical character of a rock unit determines how it will weather, what its ion exchange capacity is, and what porosity and permeability characteristics it has. In waste management weathering, ion exchange capacity, porosity and permeability are important items to consider in evaluating a waste disposal practice.

(b) Rock saw and sectioning equipment

This equipment is used to prepare rock samples for microscopic study.

(c) Photographic equipment

Camera and accessories to be used in the preparation of geologic maps for each disposal site.

Cartographic Equipment:

(a) Map and chart projector and enlarger. This equipment speeds and simplifies compilation, base map work, revisions, and updating from any planimetric or topographic map as well as from aerial photos, negatives or color transparencies.

(b) Stereo contour plotter. It is used with overlapping pairs of aerial photos to measure elevations and compile vertical data.

(c) Jena Sketchmaster. The Jena Sketchmaster is an aerial-photo-to-map converter. The photograph is observed subjectively and the conversion is made by manual tracing.

Radiation Dosimetric Equipment:

This is to be used in testing and designing monitoring systems specifically for migration of radionuclides from solid waste disposal sites.

(a) Thermoluminescent dosimetric equipment; including device placement and retrieval equipment.

(b) Ionization detectors and associated sensing electronics.

(c) Equipment for remote detection device and sample placement and acquisition.

TOTAL COST: $12,000