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Dr. D. L. Timsa

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Survey of the methods of isotope separation indicated that sufficient technical information or design data did not exist to permit a rational choice of method or to allow design of a facility of sufficient capacity for the recycle phase of the hydriaside program. Therefore, development progress in electrolysis, thermal-diffusion columns, and low-temperature distillation were started to gain technical information and to develop engineering design data for these separations methods. An evaluation will be made of the individual methods or combination of methods to determine the most economical process for tritium recovery.

Project nonexistent

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(See continuation sheet)

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MOUND DECLASSIFICATION REVIEW	
1ST REVIEW DATE: <u>1/7/98</u>	DETERMINATION (CIRCLE NUMBER(s))
AUTHORITY: <input type="checkbox"/> AOC <input checked="" type="checkbox"/> ADAC <input type="checkbox"/> ADD	1. CLASSIFICATION RETAINED
NAME: <u>J. W. FRANKLIN</u>	2. CLASSIFICATION CHANGED TO _____
2ND REVIEW DATE: <u>2/10/98</u>	3. CONTAINS NO DOE CLASSIFIED INFO
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NAME: <u>Dr. D. L. Timsa</u>	5. CLASSIFICATION CANCELLED
	6. CLASSIFIED INFO BRACKETED
	7. OTHER SPECIFY _____

55	56	57
62,000	93,000	93,000
24,000	36,000	36,000
114,000	171,000	171,000
200,000	300,000	300,000
200,000	300,000	300,000

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PROJECT PROPOSAL AND AUTHORIZATION (continuation sheet)

15. Expected Results This Fiscal Year 1954

During this fiscal year a preliminary metal column and a glass column have been installed to test the performance of components and auxiliary devices being designed. Designs have been completed on two experimental columns, their auxiliary equipment, hoods, and facility for housing them. Construction of this equipment and facility will be started this fiscal year. Preliminary testing of components to go into the experimental column installation will continue through this fiscal year. *FDK*

Prototype electrolysis cells and auxiliary equipment for production recovery have been designed. Designs for experimental electrolysis cells and auxiliary equipment will be completed. Modification of the room to house the experimental equipment will be finished. Construction of experimental equipment will be started.

A flow sheet for the cryogenic process has been developed and specifications will be written for the components. Design of the process equipment, hoods, building facility, and auxiliary equipment will be started. Procurement of some items will start this year. A subcontract has been initiated with the National Bureau of Standards Cryogenic Engineering Laboratory for the design, construction and testing of the refrigeration generating equipment and the low-temperature still.

16. Anticipated Problems (If Project will Continue)

(A) Next Fiscal Year (1955)

Construction and installation of the two hot-wire thermal columns will be completed. Testing of the equipment is expected to be time-consuming. Experimental work on these columns will be possible for about half of this year. Design and construction of a concentric cylinder column will be completed. This column will use many of the auxiliaries and building facilities already installed. Installation and testing of this column will be started.

Experimental electrolysis equipment will be finished, installed and tested. Investigations using this equipment will be underway the last half of this fiscal year. Design of a hood required for protection of workers while handling radioactive materials will be completed. The hood will be constructed and installed and equipment assembled in it to allow work with radioactive materials.

Procurement, construction, installation and testing of the cryogenic distillation facility will be completed. Beneficial occupancy of the installation will occur during the last quarter of this fiscal year.

(B) Next Budget Year (1956)

Experimental data from the thermal column, electrolysis, and cryogenic facilities will be available for detailed evaluation and comparison. The cryogenic installation will continue to be operated as an interim tritium recovery plant. Experimental work on this problem should be concluded this fiscal year. Final selection of the most advantageous process may indicate the further exploration of that process.