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Pacific Northwest Laboratory
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PROJECT D-306, ADDITION TO 3720 BUILDING

H. C. Riches
R. H. Jones

September 1976

Jones

Rt Exempt
Nancy File

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PNL-8160

September 29, 1976

Mr. L. J. Adams, Director
Construction Division
Richland Operations Office
Energy Research & Development Administration
P.O. Box 550
Richland, WA 99352

Dear Mr. Adams:

PROJECT D-306, ADDITION TO 3720 BUILDING

Attached are twenty (20) copies of the Preliminary Project Proposal for the subject project. A directive modification is requested approving funds for continued Title II design effort.

Very truly yours,

H. C. Riches

H. C. Riches, Manager
Facilities Engineering

HCR/rm

In triplicate

Distribution (See Attached)

RECEIVED
[illegible] 1976
[illegible]

PRELIMINARY

PROJECT PROPOSAL

PACIFIC NORTHWEST LABORATORY

SUPPLEMENTAL APPROVAL SHEET

DATE September 24, 1976

PROJECT NO. D-306 REV. NO. 0

TITLE

ddition to 3720 Building,
00 Area

PREPARED BY: R M Jones — 9/24/76 DATE
Facilities Engineering

[signature] — 9-24-76 DATE
Manager, Facilities Planning & Engineering

[signature] — 9-27-76 DATE
Manager, Occupational & Environmental Safety

[signature] — 9-27-76 DATE
Manager, Craft and Operations Services

[signature] — 9-27-76 DATE
Controller

[signature] — 9-24-76 DATE
Department Manager

[signature] — 9-28-76 DATE
Director, Research

USING AGENCY

attelle-Northwest

PROJECT MANAGEMENT RESPONSIBILITY:

chland Operations Office
.S. Energy Research and Development
Administration

ENGINEERING BY: R. M. Jones — DATE

DATE

PRELIMINARY PROJECT PROPOSAL
ADDITION TO 3720 BUILDING, 300 AREA
PROJECT D-306

I. INTRODUCTION

A. Purpose and Scope

The purpose of this project is to provide additional general laboratory space at the 3720 Building to meet current program needs. The proposed addition, approximately 1750 to 2250 square feet, will be attached to the north end of the building.

B. Request for Authorization

It is requested that a directive modification be issued approving continued Title II design effort and construction of the proposed addition. It is recommended that the Construction Management Division, ERDA-RL (RL-CMO) continue as project manager and be authorized to incur costs in the amount of $57,200 for total Title I and Title II design services. Further, it is recommended that in accordance with the RL supplement to ERDA Manual Chapter 6101, design services be performed by Vitro Engineering, the onsite architect-engineer, and construction be performed by a fixed price subcontractor to J. A. Jones Construction Company, the onsite contractor. The total estimated cost of the project is $460,000.

II. HISTORY

The Functional Design Criteria were approved on November 10, 1975. A Request for Directive, Revision No. 1, dated June 16, 1976, requested approval of the project and authority for ERDA-RL to incur costs in the amount of $25,000 for performance of Title I design and initiation of Title II design. The total estimated cost of the project was $505,000. Directive No. D-306, dated June 29, 1976, approved the project, assigned management to RL-CMD and authorized expenditure of funds in the amount of $16,000 for the Title I and Title II services described above. The Title I design was completed on September 3, 1976 and distributed for comment. The Title II design effort has been initiated.

III. PHYSICAL DESCRIPTION OF THE PROPOSED PROJECT

The proposed addition to the north end of 3720 Building will provide 1750 to 2250 square feet of space needed for general laboratory and office usage. The one story addition will be at basement grade to effectively utilize the topography of the site. Exterior walls will be concrete and will have structural elements sized for the future addition of the first floor.

Interior walls will be gypsum wallboard on metal studs. The ceilings in the offices and corridors will be suspended "T" bar with laid-in acoustical mineral board.

B. Pollution

In laboratories where radioactive materials are being used, personnel will follow the applicable procedures as defined in Battelle-Northwest - Radiation Protection Procedures Manual BNW-MA-6. Work with radioactive materials will be confined to fume hoods.

Airborne radioactive particulates and solid and liquid radioactive materials are the only expected source of contaminants.

The room and hood air containing any airborne particulates will be exhausted through stainless steel ductwork and will be separated from the exhausted air and held by a double HEPA filter system. Vacuum air sampler assemblies will be located downstream of the HEPA filter as well as within the laboratories to monitor the air for radioisotope content.

Liquid waste will be discharged into the process sewer and be processed in the 300 Area process sewer system. All radioactive wastes will be placed in containers under the supervision of radiation monitoring personnel and handled in accordance with Hanford contaminated waste disposal procedures.

C. Flood Control

The existing 3720 Building and this addition are not situated on a flood plain, nor is it vulnerable to flood damage in accordance with the recorded "worst flood of 1894", which crested at 367 feet elevation at the 300 Area. Elevation of the basement floor is 380 feet.

V. JUSTIFICATION OF NEED

At the request of the AEC, The Pacific Northwest Laboratory (PNL) assumed responsibilities July 1, 1971, for providing analytical chemistry service to United Nuclear, Incorporated. In the process, PNL took occupancy of the 3720 Building, formerly assigned to UNI. This move coincided approximately with the split-off of the FFTF project from PNL to the Westinghouse Hanford Company. A serious consequence of this major changeover was that many Pacific Northwest Laboratory staff members were dispersed among too many buildings for efficient operations. Among other moves that were made to correct this situation, the 3706 Building was vacated and many of its occupants, together with the Craft Services Department from 3706 and 314 Buildings, were regrouped in 3720 Building. Planning was also begun leading to Metallurgy Research Section being relocated to the 3720 Building from the 325 Building basement about a year later.

By late 1972, the 3720 Building was occupied with little room to spare by Craft Services Department and elements from Chemical Technology, Fuels and Materials, and Atmospheric Sciences Departments. Since then, growth has occurred in a number of program activities under way in the building and space has been adjusted several times to accommodate these developments. The latest of these moves was the relocating of the chemical instrumentation development function from the 3720 Building to the 305-B Building. This move was made to provide additional laboratory space for an increase in ARHCO-sponsored work carried on in the Particulate and Gaseous Waste Research Section. The building is now loaded to the overflow point with five people officed in the 306 and 314 Buildings. These staff members should be relocated to the 3720 Building because they have either laboratories there or subordinates working there.

ERDA-sponsored activities in the building, now involve annual expenditures totalling approximately $2.85 million and 76 assigned personnel (including those officed elsewhere). These activities are distributed organizationally approximately as follows:

Organization	Staff Size	ED	KG	EC	RT	Plant Serv. & Support	Rel.Serv.	Other	Total
Applied Chemistry	4	$ -	$ -	$ -	$ -	$ 140	$ -	$ -	$ 140
Corrosion Res. & Eng.	11	160	310	-	-	55	40	175	740
Particulate & Gaseous Waste Res.	7	-	-	-	150	160	10	40	360
Metallurgy Research	10	170	-	325	-	-	-	10	505
Craft Services	44	-	-	-	-	1,105	-	-	1,105
Total	76	$330	$310	$325	$150	$1,460	$ 50	$225	$2,850

Expectations are that program funding levels in the above organizations will increase by nearly $1.5 million to a total of about $4.35 million during the next three years. Manpower will increase by about 20, to a total of 95. Fifteen or more of this increase will be in the technical, as opposed to support, organizational components. These projections are consistent with those in the document "PNL Plans for AEC Programs, 1975-1981," furnished to AEC-RL in October 1974, and updated for ERDA-RL in January 1975.

There is now no reserve space available in the 3720 Building. The facility is loaded to its capacity and, as pointed out above, five staff members are inconveniently housed in other buildings. Additional laboratory and office space must be provided to meet growing program needs. An addition to the building is believed to be the most expedient way to meet these needs.

VI. ALTERNATE FACILITIES

The use of trailers and other existing facilities were considered as alternatives to the proposed building addition. Trailers would probably be acceptable, and may have to be used, as interim office space until conventional facilities can be made available. However, their use as a permanent solution to space problems is not considered acceptable for reasons given below.

The area around 3720 Building is quite congested, making trailer siting a more complicated matter than it would be at some other locations. Consequently, trailers would have to be located some distance away. This would exacerbate the problems and compound the inefficiencies that accompany the use of trailers as office annexes even under more normal conditions. Moreover, trailers would not relieve the problem of the growing shortage of laboratory space in the 3720 Building. To try to answer this problem by equipping trailers to serve as laboratories, even if space were conveniently available, is not recommended. The matters of radiation and fire protection, weather tightness and general suitability -- not to mention installation costs -- all argue strongly against this practice.