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DEACTIVATED BASINS' STORAGE CAPACITIES

AUTHOR

V. V. Johnson

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DEACTIVATED BASINS' STORAGE CAPACITIES

V. V. Johnson

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June 30, 1969

U. S. Atomic Energy Commission
Richland Operations Office
Richland, Washington

Attention: Mr. R. L. Plum, Chief
Production Reactor Operations Branch

Gentlemen:

DEACTIVATED BASINS' STORAGE CAPACITIES

Reference: DSI, R. L. Plum to V. V. Johnson, "Fuel Storage In
Deactivated Storage Basins," dated June 19, 1969.

The referenced DSI requested information on the storage capacity for irradiated fuels at the standby and abandoned basins. In addition, the time available and cost to rehabilitate and make basins available were requested.

At the single pass operating reactors, KE and KW, the total working storage in each basin for irradiated natural metal, 95 metal, special depleted metal, and thorium (with allowance for sufficient working space for handling dummies, special charges and nonscheduled discharges) is 1020 bucket stations.

Buckets of irradiated natural metal and thorium can be double-stacked to provide additional storage provided there are no voids under the basin floor and the integrity of the basin floor is not compromised. Bucket capacity is 0.94 tons of natural (K5N) fuel or 0.82 tons of enriched (K5E) fuel.

The capacities of each of the standby and abandoned reactor basins are:

Reactor Basin	Storage Bucket Stations	Tons of Natural Metal		Tons of Enriched Metal
		Single Stacked	Double Stacked	Single Stacked
B	770	725	1450	630
C	820	770	1540	670
D	750	705	1410	615
DR	838	790	1580	685
F*	718	675	1350	590
H*	1080	1015	2030	885

*Abandoned

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June 30, 1969

U. S. Atomic Energy Commission
Atten: Mr. R. L. Plum

Tonnages shown in natural and enriched columns are for full basin storage of that particular metal. The storage capacities assume that all available space, such as cross rows and chute area, is used for storage and that metal is handled on a "last in - first out" basis. At C Reactor basin, two rows, plus one cross row, are reserved for Component Testing use.

C basin is available with no capital cost.

B basin, if used in addition to C basin, would require a capital expenditure of \$20,000 for additional water pumping and about four months for procurement and installation.

D basin would require additional water pumping and back-up equipment, plus piping changes, at an estimated capital cost of \$97,000. Procurement and installation are estimated at six to eight months.

DR basin, if used in conjunction with D basin, will require an added capital cost of about \$20,000. Would require same time as D basin.

Equipment, including the crane at F Area, has essentially been removed from the F and H basins. The water supply is practically nonexistent and the basins and effluent system need major repairs. To repair the basins, supply water and drainage, and procure and install equipment would require 12 months or longer and an estimated cost of \$300,000 at F and \$200,000 at H.

To provide a central alarm (remote surveillance) system for the storage basins will cost an estimated \$12,000 per basin.

Irradiated metal can be shipped after a very short cooling period but a minimum cooling of 60 to 90 days should be considered to alleviate the heat load problem in the receiving basin and to allow a longer transfer time in the well car.

Irradiated elements should be capable of withstanding a storage period of up to five years. During this time minor corrosion problems may develop but no major problems should occur.

Very truly yours,

DOUGLAS UNITED NUCLEAR, INC.

V. V. Johnson
V. V. Johnson, Manager
Production Planning

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