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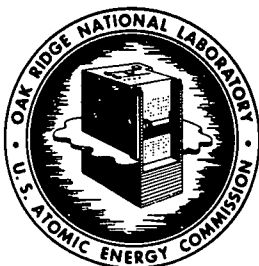
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Revision No. 22 - Part A
TO: F. L. Culler
FROM: J. W. Ullmann

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Abstract

The power and estimated reprocessing load is tabulated for existing and proposed United States and United States built reactors over 10 Kw.

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ESTIMATE OF POTENTIAL FUEL REPROCESSING
Revision No. 22 - Part A

Reactor	Designer	Location	Heat Mw	Electric Mw	Comple- tion Date	Estimated Annual Processing		
						Kg U ²³⁵	Metric tons U	Metric tons Th
<u>AEC CIVILIAN POWER REACTORS</u>								
ARBOR	Argonne	Arco, Idaho	~200	--	1960*	?	--	--
BORAX-4	Argonne	Arco, Idaho	15	3	1957	--	--	0.3
EBR-1	Argonne	Arco, Idaho	1.4	0.2	1957	30	1	--
EBR-2	Argonne	Arco, Idaho	62	18	1960*	60	1	--
EBWR	Argonne	Lemont, Ill.	20	5	1957	--	2	--
(Graphite-Gas)	ACF Industries	Arco, Idaho	~200	40	?	--	20	--
HRE-3	ORNL	Oak Ridge, Tenn.	60	14	1962	--	--	3
HRT	ORNL	Oak Ridge, Tenn.	5	0.3	1957	4	--	--
LAMPRE-1	Los Alamos	Los Alamos, N. M.	1	--	1959	? ^a	--	--
LAMPRE-2	Los Alamos	Los Alamos, N. M.	10	--	?	? ^a	--	--
LAMPRE-3	Los Alamos	Los Alamos, N. M.	~50	15	?	? ^a	--	--
LAPRE-2	Los Alamos	Los Alamos, N. M.	1	--	1957	1	--	--
LAPRE-3	Los Alamos	Los Alamos, N. M.	?	?	?	?	--	--
LMFRE	Babcock & Wilcox	Lynchburg, Va.	20	--	1959	?	--	--
OMRE	Atomics Int., NAA	Arco, Idaho	16	--	1957	15	--	--
PRTR	General Electric	Richland, Washington	70	1.5	1960	~60 ^a	3	--
PWR	Westinghouse	Shippingport, Pa.	230	60	1957	60	15	--
SRE	Atomics Int., NAA	Santa Susana, Cal.	20	6.5	1957	--	2	--
(Merchant Ship)	?	?	60	--	?	--	4	--
(Passenger-Cargo Ship)	Babcock & Wilcox	"N.S. Savannah"	64	--	1960	--	4	--
			(1105)	(164)		(230)	(52)	(3)

*Indicates change since last issue of report.

^aPlutonium alloy.

Reactor	Designer	Location	Heat Mw	Electric Mw	Comple- tion Date	Estimated Annual Processing		
						Kg U ²³⁵	Metric tons U	Metric tons Th
<u>INDUSTRIAL REACTOR PROPOSALS</u>								
Carolinas-Virginia NPA	Westinghouse	Parr Shoals, S. C.	~70	17	1962	--	4	--
Chugach Elec. Assn.	Nuclear Dev. Corp	Anchorage, Alaska	37	10	1962	--	9	--
City of Piqua	Atomics Int., NAA	Piqua, Ohio	45	12	1960	--	3	--
Commonwealth Edison ^a	General Electric	Morton, Ill.	620	180	1960	--	15	--
Consolidated Edison	Babcock & Wilcox	Peekskill, N. Y.	580	163 ^b	1961	--	--	9
Consumers Public Power	Atomics Int., NAA	Hallam, Neb.	240	75	1962	--	25	--
Detroit Edison-PRDC	APDA	Monroe, Mich.	300	100	1960	770 ^c	33	--
Florida-East Central	Gen. Nuc. Eng.	Tampa, Florida	~200	50*	1963*	--	20*	--
Isotope Products	Gen. Nuc. Eng.	?	25	--	1958	?	?	--
Middle South Utilities	Atomics Int., NAA	?	~80	20	?	--	--	?
New England Electric	?	?	~700	200	1964	--	35	--
Northern Sts. Power	Allis-Chalmers	Sioux Falls, S.D.	133	~36 ^d	1962	--	4	--
PAR	Westinghouse	Pennsylvania	550	150	1963*	--	--	12
Pacific Gas & Elec.	General Electric	Eureka, Calif.	~250*	60*	1962*	--	10*	--
Rural Coop. Power Assoc.	ACF Industries*	Elk River, Minn.	58	18 ^e	1961	?	--	1
Ships, Inc.	?	Hull No. 205	~60	--	1961	--	4	--
VBWR	General Electric	Pleasanton, Calif.	30*	5	1957	20	--	--
West Penn Group #1	B & W, NDA, or GE	Ohio Valley	~50	13	1962	--	4	--
West Penn Group #2	?	Ohio Valley	~700	200	1965	--	30	--
Yankee Atomic	Westinghouse	Rowe, Mass.	480 ^f	134 ^f	1960	--	22	--
			(5208)*	1443*		(790)	(218)*	(22)

^aWith Nuclear Power Group.

^bAdditional 112 Mw electricity from oil-fired superheater (first core 500 Mw heat, 140 Mw electricity).

^cAs 26% U-235.

^dAdditional 30 Mw electricity from hydrocarbon-fired superheater.

^eAdditional 4 Mw electricity from hydrocarbon-fired superheater.

^fFirst core will produce 392 Mw heat, 107 Mw electricity.

Reactor	Designer	Location	Heat Mw	Electric Mw	Comple- tion Date	Estimated Annual Processing		
						Kg U ²³⁵	Metric tons U	Metric tons Th
<u>RESEARCH REACTORS</u>								
Armour Research Inst.	Atomics Int., NAA	Chicago, Ill.	0.05	--	1956	--	--	--
Battelle Memorial Inst.	AMF Atomics	Columbus, Ohio	1	--	1956	0.3	--	--
Brookhaven Research	Brookhaven	Upton, N. Y.	20	--	1950	15	--	--
Brookhaven Medical CP-5	Nuclear Dev. Corp. Argonne	Upton, N. Y. Lemont, Ill.	1 4	--	1957 1954	1 3	--	--
Curtiss-Wright	Curtiss-Wright	Quehanna, Pa.	1	--	1957	1	--	--
General Dynamics	Convair	San Diego, Cal.	1	--	1957	1	--	--
Georgia Inst. of Tech	Gen. Nuc. Eng.	Atlanta, Ga.	4	--	1959	3	--	--
Ind. Reactor Labs.	AMF Atomics	Plainsboro, N. J.	5	--	1958	4	--	--
LITR	ORNL	Oak Ridge, Tenn.	3	--	1950	2	--	--
LPTR	Foster Wheeler	Livermore, Cal.	1	--	1958*	1	--	--
MIT	ACF Industries	Cambridge, Mass.	1	--	1958	1	--	--
Naval Research Lab.	N. R. L.	Washington, D. C.	0.1	--	1956	--	--	--
N. C. State College	Nucledyne	Raleigh, N. C.	0.1	--	1958	--	--	--
NRX	AECL	Chalk River, Canada	40	--	1947	--	~10	?
Omega West	Los Alamos	Los Alamos, N. M.	2	--	1956	2	--	--
ORNL Graphite	ORNL(1958 version)	Oak Ridge, Tenn.	10	--	1943	7	--	--
ORR	ORNL	Oak Ridge, Tenn.	20	--	1958*	17	--	--
Pennsylvania State	Penn. State U.	University Park, Pa.	1	--	1955	1	--	--
Union Carbide	AMF Atomics	Sterling Forest, N.Y.	5	--	1958	4	--	--
U. of Buffalo	AMF Atomics	Buffalo, N. Y.	1	--	1958	1	--	--
U. of California	Atomics Int., NAA	Los Angeles, Cal.	0.05	--	1956	--	--	--
U. of Miami	Prosperity	Coral Gables, Fla.	0.1	--	1957	--	--	--
U. of Michigan	Babcock & Wilcox	Ann Arbor, Mich.	1	--	1957	1	--	--
U. of Virginia	Babcock & Wilcox	Charlottesville, Va.	1	--	1958	1	--	--
Washington State College	General Electric	Pullman, Wash.	0.1	--	1958	--	--	--
Water Boiler	Los Alamos	Los Alamos, N. M.	0.04	--	1944	--	--	--
Watertown Arsenal	Bendix	Boston, Mass.	1	--	1958	1	--	--
			(125)*	(0)		(67)*	(10)	(0)

Reactor	Designer	Location	Heat Mw	Electric Mw	tion Date	Comple- Estimated Annual Processing		
						Kg U ²³⁵	Metric tons U	Metric tons Th
<u>TESTING REACTORS</u>								
ASTR	Convair	Fort Worth, Texas	1	--	1954	?	--	--
Bulk Shielding	ORNL	Oak Ridge, Tenn.	0.1	--	1950	--	--	--
CTR	Pratt & Whitney	Middletown, Conn.	?	--	1958	?	--	--
ETR	General Electric	Arco, Idaho	90	--	1957	75	--	--
GETR	General Electric	Pleasanton, Cal.	30	--	1958	25	--	--
GTR	Convair	Fort Worth, Texas	0.1	--	1953	--	--	--
Lockheed (RERL)	General Electric	Dawsonville, Ga.	10	--	1957	10	--	--
Lockheed (TTRL)	General Electric	Dawsonville, Ga.	10	--	1958	8	--	--
MTR	ORNL	Arco, Idaho	40	--	1952	35	--	--
NACA	NACA	Sandusky, Ohio	60	--	1959	45	--	--
NETR	ACF Industries	WADC, Dayton, Ohio	10	--	1958	10	--	--
NTR	General Electric	Pleasanton, Cal.	0.03	--	1957	--	--	--
RERC	Convair	Fort Worth, Texas	10	--	1957	8	--	--
Shield Mockup	ORNL	Oak Ridge, Tenn.	5	--	1958	2	--	--
Shield Test	General Electric	Arco, Idaho	0.1	--	?	--	--	--
Tower Shielding	ORNL	Oak Ridge, Tenn.	0.1	--	1954	--	--	--
WTR	Westinghouse	Yukon, Pa.	20	--	1958	15	--	--
			(286)	(0)		(233)	(0)	(0)
<u>PRODUCTION PROGRAMS</u>								
Hanford (8) ^a	General Electric	Richland, Wash.		--	1944			
Savannah River (5) ^b	DuPont	Aiken, S. C.		--	1954			
SCRUP(NRU)	AECL	Chalk River, Canada	200	--	1957	--	100	--
			(200)	(0)		(0)	(100)	(0)

^aB, C, D, DR, F, H, KE, KW.

^bR, P, K, L, C.

<u>Reactor</u>	<u>Designer</u>	<u>Location</u>	<u>Heat Mw</u>	<u>Electric Mw</u>	<u>Comple- tion Date</u>	<u>Estimated Annual Processing</u>		
						<u>Kg U-235</u>	<u>Metric tons U</u>	<u>Metric tons Th</u>
<u>EXPORT REACTORS</u>								
Argentina	General Electric	Buenos Aires	3	--	?	2	--	--
Austria	?	Dollensheim	5	--	?	4	--	--
Belgium	Westinghouse	Mol	43	11.5	1959	--	2	--
Belgium	Nuclear Dev. Corp.	Mol	50	--	1959	40	--	--
Brazil	Babcock & Wilcox	Sao Paulo	5	--	1957	3*	--	--
Brazil	General Electric	Niteroi	~50	12.5	1960*	--	3	--
Canada	AMF Atomics	Hamilton	1	--	1958	1	--	--
Canada	General Dynamics	Chalk River	?	--	?	?	--	--
Colombo Plan	?	Manila, P. I.	?	--	?	?	--	--
Cuba	General Electric	Havana	~40	10.5	1960*	--	3	--
Denmark	Foster Wheeler	Risoe	5	--	1958	4*	--	--
Dominican Republic	Martin	Ciudad Trujillo	59	12.5	1959	--	4	--
*France	?	?	1	--	?	1	--	--
*France	?	?	1	--	?	1	--	--
*France	?	?	20	--	?	15	--	--
Germany	Babcock & Wilcox	Hamburg Shipbuilding	1	--	1957	1	--	--
Germany	AMF Atomics	University of Munich	1	--	1957	1	--	--
Germany	Atomics Int., NAA	Frank. U. - Darms. U.	0.05	--	1957	--	--	--
Germany	Atomics Int., NAA	City of W. Berlin	0.05	--	1958	--	--	--
Greece	AMF Atomics	Athens	1	--	1958	1	--	--
Israel	AMF Atomics	?	1	--	?	1	--	--
Italy	AMF Atomics	SORIN, Milan	1	--	?	1	--	--
Italy	ACF Industries	CNRN, Ispra	5	--	1958	4	--	--
Italy	Westinghouse	Milan	480	134	1961	--	22	--
Italy	Atomics Int., NAA	Milan	0.05	--	?	--	--	--
Italy	Vitro Engineering	Rome	500	150*	1962	--	25	--
Japan	General Electric	Tokyo	640	186	1962	--	30	--
Japan	Atomics Int., NAA	Tokai-Mura	0.05	--	1957	--	--	--

<u>Reactor</u>	<u>Designer</u>	<u>Location</u>	<u>Heat Mw</u>	<u>Electric Mw</u>	<u>Comple- tion Date</u>	<u>Estimated Annual Processing</u>		
						<u>Kg U-235</u>	<u>Metric tons U</u>	<u>Metric tons Th</u>
<u>EXPORT REACTORS, Continued</u>								
Japan	AMF Atomics	Tokai-Mura	10	--	1958	8	--	--
Mexico	Atomics, Int., NAA	?	~40	10	1960	--	3	--
Netherlands	ACF Industries	Petten	20	--	1959	15	--	--
Netherlands	AMF Atomics	Amsterdam	1	--	1957	1	--	--
NPD (Canada)	General Electric	Des Joachims, Ont.	86	20	1959	--	9	--
Peru	Babcock & Wilcox	Lima	~80	21	?	--	5	--
Portugal	AMF Atomics	Lisbon	1	--	1959	1	--	--
Puerto Rico	?	Mayaguez	1	--	1960	1	--	--
Spain	General Electric	Moncloa	3	--	1957	2	--	--
Sweden	ACF Industries	Studsvik	30	--	1958	25	--	--
Switzerland	ORNL	Wurenlingen	1	--	1955	1	--	--
Venezuela	General Electric	Caracas	3	--	1958	2	--	--
			<u>(2189)*</u>	<u>(568)*</u>		<u>(136)*</u>	<u>(106)</u>	<u>(0)</u>
TOTALS SHOWN (For Military Reactors see Part B)			9113*	2175*		1456*	486*	25

NOTE: The above data have been assembled from reports, magazines, and newspaper articles; and some of the listings are undoubtedly incorrect or out-of-date. In addition, some of the estimated processing rates are the author's estimates in cases where they have not been announced by the reactor's designers. Any additions or corrections will be welcome.

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