WORLD ENERGY DATA SYSTEM

MASTER

VOLUME X
NUCLEAR FACILITY PROFILES
PO—ZA

OFFICE OF PROGRAM MANAGEMENT SUPPORT

ARGONNE NATIONAL LABORATORY

ARGONNE, ILLINOIS 60439

WORLD ENERGY DATA SYSTEM
WENDS

VOLUME X
NUCLEAR FACILITY PROFILES
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THE WORLD ENERGY DATA SYSTEM

The World Energy Data System (WENDS) is a managerial level information bank containing organized data on those countries and international organizations that may have critical impact on the world energy scene. The system was developed by the Office of Program Management Support at Argonne National Laboratory for the Office of International Affairs of the Department of Energy (DOE). The Office of International Affairs also provided funds for the collection of the following information:

- Country data which provides general background information on the economy, government, and energy orientation.
- Similar compilations of information concerning energy-related international organizations.
- Summaries of energy-related international agreements.

Nuclear fission information was collected for the Plans and Analysis Division, Office of Nuclear Energy Programs, DOE. It includes the following:

- Nuclear facility profiles which provide resumes of facts concerning specific installations.
- Nuclear program summaries, that is, overviews of the fission R&D programs in selected countries.

All the WENDS data contains references to enable verification and expansion of the information. Since all data sources are non-classified, complete information is not always available. The Office of Program Management Support at Argonne welcomes any information that will complete these synopses in future publications. Please address comments to:

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This compendium of international energy-related information was compiled from a computerized database and is now available in a series of volumes. The total set of information is as follows:

<u>Volume</u>	<u>Title</u>	<u>Contents</u>
I	COUNTRY DATA Afghanistan, Algeria, Argentina, Australia, Austria, Bangladesh, Belgium, Bolivia, Brazil, Burma, Canada, China, Colombia	Review of background information for each country listed.
II	COUNTRY DATA Czechoslovakia, Denmark, Egypt, Finland, France, Germany (East), Germany (West), Greece, Guinea, India, Indonesia, Iran, Italy, Japan, Korea (South)	
III	COUNTRY DATA Libya, Luxembourg, Malaysia, Mexico, Netherlands, New Zealand, Niger, Nigeria, Norway, Pakistan, Peru, Philippines, Poland, Portugal	
IV	COUNTRY DATA Senegal, South Africa, Soviet Union, Spain, Sweden, Switzerland, Taiwan, Tanzania, Thailand, Turkey, United Kingdom, United States, Upper Volta, Venezuela, Yugoslavia	
V	INTERNATIONAL ORGANIZATION DATA Asian Development Bank, European Economic Community, Inter-American Development Bank, International Atomic Energy Agency, International Energy Agency, Nuclear Energy Agency, United Nations, World Bank	Review of background information for each international organization listed.

VI	INTERNATIONAL AGREEMENT PROFILES	Summaries of energy- related international agreements with indexes by country and by energy technology.
VII	NUCLEAR FACILITY PROFILES Algeria, Argentina, Australia, Austria, Belgium, Bolivia, Brazil, Bulgaria, Canada, Central African Republic, China	Fact sheets on nuclear facilities, with indexes by facility type and by country. Power reactors and U.S. installations excluded.
VIII	NUCLEAR FACILITY PROFILES Colombia, Czechoslovakia, Denmark, Egypt, Finland, France, Gabon, Germany (East), Germany (West), Greece, Greenland, Hungary	
IX	NUCLEAR FACILITY PROFILES India, Indonesia, Iran, Ireland, Israel, Italy, Japan, Korea (South), Mada- gascar, Mexico, Namibia, Netherlands, Niger, Norway, Pakistan, Peru, Philippines, Poland	
X	NUCLEAR FACILITY PROFILES Portugal, Puerto Rico, Romania, South Africa, Soviet Union, Spain, Sweden, Switzerland, Taiwan, Thailand, Turkey, United Kingdom, Venezuela, Vietnam, Yugoslavia, Zaire, Zambia	
XI	NUCLEAR FISSION PROGRAM SUMMARIES Argentina, Brazil, China, France, Germany (West), India, Iran, Israel, Italy, Japan, Peru, Pakistan, Saudi Arabia, South Africa, Spain, Taiwan, United Kingdom, Soviet Union, Venezuela	Overviews of fission R&D programs in 19 foreign countries.

INTRODUCTION TO NUCLEAR FACILITY PROFILES

ORIENTATION

In this compendium each profile of a nuclear facility is a capsule summary of pertinent facts regarding that particular installation. The facilities described include the entire fuel cycle in the broadest sense, encompassing resource recovery through waste management. Power plants and all U.S. facilities have been excluded from this initial effort due to time and cost limitations.

To facilitate comparison the profiles have been recorded in a standard format. Because of the breadth of the undertaking some data fields do not apply to the establishment under discussion and accordingly are blank.

ORGANIZATION

The set of nuclear facility profiles occupies four volumes; the profiles are ordered by country name, and then by facility code. The list of countries with known nuclear facilities is in Table 1. It also includes the two-character State Department tags code, which is used to aggregate the nuclear facilities for each country in this publication. The nuclear facility code is obtained from the Advanced Nuclear Materials Information System. This code is composed of four capitalized characters (e.g., RIDJ) and appears at the extreme right side of the fifth line of each profile.

INDEXES

Each nuclear facility profile volume contains two complete indexes to the information. The first index aggregates the facilities alphabetically by country. It is further organized by category of facility, and then by the four-character facility code. It provides a quick summary of the nuclear energy capability or interest in each country and also an identifier, the facility code, which can be used to access the information contained in the profile.

The second index is ordered primarily by type or category of installation. Within this grouping, the profiles are listed alphabetically by country and by facility code. This index enables a worldwide comparison of nuclear energy-related activities.

The categories under discussion relate to general activities, such as mining, enrichment, and fuel reprocessing. The category and activity are described in the heading of each profile; their relationship is defined in Table 2.

Profile Contents

Each profile contains the following items:

Country code	Latitude
Activity	Longitude
Category	Technology source
Initials of researcher	Owner/Operator
Date of research	Supply source
Facility name	Safeguards
Location of installation	Product/Use
Facility type	Fuel storage capacity
Capacity	Process
Status	Schedule
Year related to status	Remarks
Facility code	References

Most of the data items have been discussed or are self-evident in meaning. Note that each profile is supported by references, in which any conflicting reference information is noted. Space limitations of the general purpose format necessitated abbreviations which are defined in three tables: Table 3 lists the abbreviations for facility types; Table 4 explains the capacity units; and Table 5 contains the status codes.

TABLE 1. Countries and State Department Tags Codes

ALGERIA	AG	JAPAN	JA
ARGENTINA	AR	KOREA (SOUTH)	KS
AUSTRALIA	AS	MADAGASCAR	MA
AUSTRIA	AU	MEXICO	MX
BELGIUM	BE	NAMIBIA	WA
BOLIVIA	BL	NETHERLANDS	NL
BRAZIL	BR	NIGER	NG
BULGARIA	BU	NORWAY	NO
CANADA	CA	PAKISTAN	PK
CENTRAL AFRICAN REPUBLIC	CT	PERU	PE
CHINA	CH	PHILIPPINES	RP
COLOMBIA	CO	POLAND	PL
CZECHOSLOVAKIA	CZ	PORTUGAL	PO
DENMARK	DA	PUERTO RICO	RQ
EGYPT	EG	ROMANIA	RO
FINLAND	FI	SOUTH AFRICA	SF
FRANCE	FR	SOVIET UNION	UR
GABON	GB	SPAIN	SP
GERMANY (EAST)	GE	SWEDEN	SW
GERMANY (WEST)	GW	SWITZERLAND	SZ
GREECE	GR	TAIWAN	TW
GREENLAND	GL	THAILAND	TH
HUNGARY	HU	TURKEY	TU
INDIA	IN	UNITED KINGDOM	UK
INDONESIA	ID	VENEZUELA	VE
IRAN	IR	VIETNAM, NORTH	VN
IRELAND	EI	YUGOSLAVIA	YO
ISRAEL	IS	ZAIRE	CG
ITALY	IT	ZAMBIA	ZA

TABLE 2. General Activities and Corresponding Categories**Resource Recovery****Mines****Mills****Conversion Plants****Enrichment Plant****Enrichment Plants****Fuel Fabrication****Heavy Water Production****Fuel Fabrication Plants****Research and Test Reactor****Research and Test Reactors****Spent Fuel Processing****Fuel Reprocessing Facilities****Separate Fuel Storage Facilities****Waste Management****Waste Disposal Facilities**

TABLE 3. Facility Type Abbreviations

MINES

URAN - Uranium
THOR - Thorium
UTh - Uranium and Thorium

MILLS

URAN - Uranium
THOR - Thorium
UTh - Uranium and Thorium

CONVERSION PLANTS

UO2 - Conversion to Uranium Dioxide
UF6 - Conversion to Uranium Hexafluoride
UF4 - Conversion to Uranium Tetrafluoride

ENRICHMENT PLANTS

DIFF - Gaseous Diffusion
CENT - Gaseous Centrifuge
LASR - Laser Isotope Separation
STAT - Stationary Wall Centrifuge
CHEM - Chemical Exchange
JET - Becker Jet-Nozzle

FUEL FABRICATION PLANTS

UO - Uranium Oxide
UM - Uranium Metal
UPuO - Uranium-Plutonium Mixed-Oxide
FB - Fast Breeder
UC - Uranium Carbide
U3O8 - Yellowcake

RESEARCH AND TEST REACTORS

TANK - Tank-type
TK-L - Tank-type, light water moderated
TK-H - Tank-type, heavy water moderated
POOL - Pool type
OMRR - Organic moderated research reactor
GMRR - Graphite moderated research reactor
FNRR - Fast neutron research reactor
SHRR - Solid homogeneous research reactor
LHRR - Liquid homogeneous research reactor
ARGO - Argonaut-type research reactor

TABLE 3 continued. Facility Type Abbreviations

FUEL REPROCESSING FACILITIES

FB - Fast Breeder
UO - Uranium Oxide
UM - Uranium Metal
UThO - Uranium-Thorium Mixed-Oxide
HTGR - High Temperature Graphite Reactor

SEPARATE FUEL STORAGE FACILITIES

ROCK - Hard-rock formations
SURF - Surface
HOLE - Near-surface Hole
SALT - Salt deposit
POOL - Pool-type

WASTE DISPOSAL FACILITIES

PREP - Waste Preparation
DISP - Waste Disposal

TABLE 4. Capacity Units of Measurement

kg/d	kilograms/day
kg/h	kilograms/hour
KSWU	1000 tonnes of separative work units (yearly)
KWt	1000 watts thermal (yearly)
l/d	liters/day
l/h	liters/hour
MWt	1 million watts thermal (yearly)
m ³ /h	cubic meters/hour
te	metric ton (tonne)
Wt	Watts thermal

TABLE 5. Status Codes

R&D	Research and development operation
Explor	Mine under exploration
Plan	Planned facility
Constr	Facility under construction
Oper	Facility in operation
Inactv	Facility inactive
(blank)	Status unknown

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NFP INDEX BY COUNTRY

COUNTRY	FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	NFP CODE
ALGERIA							
CATEGORY-MINES (URANIUM & THORIUM)							
		Tamanrasset	URAN		Explor	82	RAGA
		Timgaouine/Abankor	URAN		Explor		RAGC
ARGENTINA							
CATEGORY-MINES (URANIUM & THORIUM)							
		Los Gigantes	URAN		Explor		RANA
		Comechingones	URAN		Explor		RANB
		Los Chihvidos	URAN		Explor		RANC
		Sierra Cavdrada	URAN		Explor		RAND
		Los Adobes	URAN	50 te/y	Plan		RANE
		Don Otto	URAN	30 te/y	Oper	83	RARC
		Sierra Pintada	URAN	600 te/y	Constr	83	RARR
		Malargue	URAN	30 te/y	Oper		RARS
		Sierra de Pichinan	URAN		Explor		RART
		Tonco-Amblayo	URAN		Explor		RARW
		Conquin	URAN		Explor		RARX
		Sano Gasta					RARY
		Guandacol	URAN		Explor		RARZ
CATEGORY-HEAVY WATER PRODUCTION							
		Buenos Aires			Plan	84	RARF
CATEGORY-FUEL FABRICATION PLANTS							
		Constituyentes Pilot	UO	50 te/yr	Oper	77	RARA
CATEGORY-RESEARCH AND TEST REACTORS							
	RA-0	Cordoba			Oper	68	RARC
	RA-1	Buenos Aires	TANK	.15 MWt	Oper	58	RARK
	RA-2	Buenos Aires			Oper	58	RARL
	RA-3	Buenos Aires	TANK	5 MWt	Oper	67	RARM
	RA-4	Rosario	SHRR		Oper	66	RARN
	RA-5		FNRR		Constr	75	RARV
CATEGORY-FUEL REPROCESSING FACILITIES							
		Ezeiza Atomic Centre	UM	(small)	Oper	77	RARG
AUSTRALIA							
CATEGORY-MINES (URANIUM & THORIUM)							
		Maureen	URAN		Explor		RASA
		Ben Lomond	URAN		Explor		RASB
		Ngalia Basin	URAN		Explor		RASC
		Beverley	URAN		Explor		RASD
		Radium Hill	URAN		Inactv	61	RASF

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NFP INDEX BY COUNTRY

COUNTRY	FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	NFP CODE
AUSTRALIA (CONT.)							
CATEGORY-MINES (URANIUM & THORIUM) (CONT.)							
		Flinders Range	URAN		Explor		RASJ
	Lake Way	Wiluna			Explor		RASK
	Olympic Dam		URAN		Explor		RASL
	Honeymoon	Honeymoon	URAN		Explor		RASM
		Yeelirrie	URAN	2300te/y	Plan	84	RAUL
	Jabirv	Ranger	URAN	3000te/y	Plan	81	RAUM
		Alligator Rivers	URAN		Explor		RAUP
		Koongarra		1500te/y	Plan		RAUQ
		Nabarlek	URAN	900 te/y	Plan	81	RAUR
		Jabiluka	URAN	2500te/y	Plan	83	RAUT
		Westmoreland	URAN		Explor		RAUU
	Mary Kathleen	Mt. Isa	URAN	700 te/y	Oper	56	RAUV
		Rum Jungle	URAN	200 te/y	Inactv	71	RAUX
	South Alligator	Northern Territory	URAN		Inactv	62	RAUY
	El Sherana	El Sharana	URAN		Inactv	65	RAUZ
CATEGORY-MILLS							
	Jabiru	Ranger	URAN	3000te/y	Plan	82	RAUN
		Nabarlek	URAN	900 te/y	Plan	81	RAUS
	Mary Kathleen	Mt. Isa	URAN	700 te/y	Oper	56	RAUW
CATEGORY-ENRICHMENT PLANTS							
	Lucas Heights	Lucas Heights	CENT LASR		Oper R&D	65	RASE RASH
CATEGORY-RESEARCH & TEST REACTORS							
	High Flux Australian	Sutherland, New S.W.	TANK	10 MWt	Oper	58	RAUE
	Moata Reactor	Lucas Heights	ARGO	.01 MWt	Oper	61	RAUH
AUSTRIA							
CATEGORY-MINES (URANIUM & THORIUM)							
		Forstau	URAN		Explor		RATP
		Tweng	URAN		Explor		RATQ
CATEGORY-RESEARCH AND TEST REACTORS							
	ASTRA Adapted Swim.	See remarks	POOL	Remarks	Oper	60	RATE
	Sar-Graz	Graz	ARGO	.001 MWt	Oper	65	RATH
	Triga Mark II	Vienna	SHRR	25 MWt	Oper	62	RATK
BELGIUM							
CATEGORY-FUEL FABRICATION PLANTS							
	Dessel Pu Fuel Prod.	Dessel	UPuO	35 te/yr	Oper	73	RBEE
	FBFC	Dessel	UO	200 te	Oper	59	RBER
	Plutonium Lab.	Mol	UPuO (small)		Oper	60	RBEZ

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NFP INDEX BY COUNTRY

COUNTRY	FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	NFP CODE
BELGIUM (CONT.)							
CATEGORY-RESEARCH AND TEST REACTORS							
	BR-02	Mol	TK-L	500Wt	Oper	59	RBEE
	BR-1	Mol		4 MWt	Oper	56	RBEF
	Belgian Reactor BR-2	Mol	TK-L	100 MWt	Oper	60	RBEG
	BR-3/VN	Mol	TANK	40.9 MWt		65	RBEJ
	Thetis	Ghent		41 MWt	Oper	67	RBET
	VENUS	Mol	TANK	500Wt	Oper	64	RBEX
	BR-3	Mol	PWR	10.5 MWe	Oper	72	RBGE
CATEGORY-FUEL REPROCESSING FACILITIES							
	Eurochemic	Mol	UMUO	60 te/yr	Inactv	66	RBEQ
CATEGORY-WASTE DISPOSAL FACILITIES							
	Eurobitum	Mol	PREP	650 m3	Oper	77	RBGF
	PAMELA II	Mol	PREP	40 l/hr	Plan	81	RBGG
		Mol	DISP	10000 m3	Plan	79	RBGH
		Mol	PREP	80 l/hr	Oper	64	RBGJ
	EUROSTORAGE	Mol	DISP		Oper		RBGK
		Mol	PREP	150 Kg/h	Oper	75	RBGL
		Atlantic Ocean	DISP	2000 te	Oper		RBGM
	Eurowatt	Mol	PREP	1000 l/d	Constr		RBGN
		Mol	PREP	200 kg/h	Inactv	60	RBGP
		Mol	PREP	10 Kg/hr	Oper	70	RBGR
BOLIVIA							
CATEGORY-MINES (URANIUM & THORIUM)							
		Cotaje	URAN		Plan	80	RBOC
BRAZIL							
CATEGORY-MINES (URANIUM & THORIUM)							
		Campos Belos	URAN		Explor		RBRT
		Figueira	URAN		Explor		RBZI
		Pocos de Caldas	URAN	500 te/y	Constr	79	RBZG
		Pocos de Caldas	URAN	500 te/y	Constr	79	RBZE
		Olinda	URAN		Explor		RBZJ
		Araxa	URAN		Explor		RBZK
		Amorinopolis	URAN		Explor		RBZL
		Quadilatero	URAN		Explor		RBZM
		Itabapoana	THOR		Oper		RBZN
		Cumuruxatiba	THOR		Oper		RBZF
CATEGORY-ENRICHMENT PLANTS							
	Nuclei	Sepetiba	JET	180 KSWU	Plan	82	RBRA
		Sepetiba	JET	5000 K	Plan		RBZA

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NFP INDEX BY COUNTRY

COUNTRY	FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	NFP CODE
BRAZIL (CONT.)							
CATEGORY-FUEL FABRICATION PLANTS							
	Inst Energie Atomica	Sao Paulo	U308	10 te/yr	Oper		RBRS
	Sepetiba	Sepetiba	UO	50 te/yr	Constr	78	RBZE
CATEGORY-RESEARCH AND TEST REACTORS							
	IEAR-1	Sao Paulo, Brazil	POOL	5 Mwt		58	RBRR
	RIEN-1	Rio de Janeiro	ARGO	.01 Mwt	Oper	65	RBRW
	Triga-Brazil	Belo Horizonte	SHRR	30 Kwt	Oper	59	RBRV
CATEGORY-FUEL REPROCESSING FACILITIES							
	Sepetiba	Sepetiba	UO	5 kg/day	Plan	86	RBRB
BULGARIA							
CATEGORY-MINES (URANIUM & THORIUM)							
	Buhovo	Sofia			Oper		RBLI
CATEGORY-RESEARCH AND TEST REACTORS							
	IRT-Sofia	Sofia	POOL		Oper	61	RBLE
CANADA							
CATEGORY-MINES (URANIUM & THORIUM)							
	Cluff Lake	Cluff Lake	URAN	1500te/y	Constr	79	RDCG
	Birch Island	Clearwater	URAN	110 te/y	Constr	80	RDCK
	Beaverlodge	Beaverlodge	URAN	460 te/y	Oper	53	RDCL
	Key Lake	La Ronge	URAN	2300te/y	Plan	83	RDCN
	Rabbit Lake	Rabbit Lake		1730te/y	Oper	75	RDCP
	Baker Lake	Baker Lake	URAN		Explor		RDCR
	Preston	Elliot Lake	URAN		Inactv	61	RDCS
	Rio Algon	Elliot Lake	URAN	1900te/y	Oper	68	RDCU
	Agnew Lake	Sudbury	URAN	270 te/y	Oper	77	RDCW
	James Bay	James Bay	URAN		Explor		RDCZ
	Wollaston Lake	Wollaston Lake	URAN		Explor		RDDA
	Madawaska	Bancroft	URAN	320 te/y	Oper	76	RDDC
	Kitts-Michelin	Makkovik	URAN		Explor	83	RDDE
	Johan Beetz	Quebec	URAN		Explor		RDJH
		Port Radium	URAN		Inactv	60	RDJU
	Rayrock	Lake Marion	URAN		Inactv	57	RDJV
		Great Slave Lake	URAN		Explor		RDJW
		St. Armand	URAN		Explor		RDJX
		Otish Mountains	URAN		Explor		RDJY
		Mont Laurier	URAN		Explor		RDJZ
	Charlebois Lake	Charlebois Lake	URAN		Explor		RDKA
		St. Germaine Lake					RDKB
		Tyee Lake					RDKC

NFP INDEX BY COUNTRY

COUNTRY	FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	NFP CODE
CANADA (CONT.)							
CATEGORY-MINES (URANIUM & THORIUM) (CONT.)							
		Mazenod Lake					RDKD
		Dudderidge Lake					RDKE
		Thunder Bay					RDKF
		Cape Dorset					RDKG
		Ungara					RDKH
		Jourdan Lake					RDKJ
		Sakami Lake					RDKK
		Uranium City					RDKL
		Lake Athabaska					RDKM
		Blind River					RDKN
		Cobeguid Mountain					RDKP
		Churchill					RDKQ
		Dismal Lake					RDKR
		Fond du Lac					RDKS
Denison		Elliot Lake	URAN	1900te/y	Oper	57	RDKZ
CATEGORY-MILLS							
	Beaverlodge	Beaverlodge		460 te/y	Oper	53	RDCM
	Rabbit Lake	Rabbit Lake		1730te/y	Oper	75	RDCQ
	Denison	Elliot Lake	URAN	1900te/y	Oper	57	RDCT
	Rio Algon	Elliot Lake	URAN	1900te/y	Oper	68	RDCV
	Agnew Lake	Sudbury	URAN	270 te/y	Oper	77	RDCX
	Madawaska	Bancroft	URAN	320 te/y	Oper	76	RDDD
CATEGORY-CONVERSION PLANTS							
	Eldorado Nuclear	Port Hope	UF6	4000 te	Oper	70	RDAY
	Eldorado Nuclear	Port Granby	UF6	10000 te	Plan	81	RDDN
CATEGORY-HEAVY WATER PRODUCTION							
	Port Hawkesbury	Port Hawkesbury		400te/y	Oper	70	RDFA
	Glace Bay	Glace Bay		400 te/y	Oper	76	RDJF
	Bruce A	Douglas Point		800 te/y	Oper	73	RDJC
	Bruce B	Douglas Point		800 te/y	Constr	78	RDJR
	Bruce C	Douglas Point		800 te/y	Plan	80	RDJS
	Bruce D	Douglas Point		800 te/y	Plan	79	RDJT
	La Prade	La Prade		800 te/y	Constr	79	RDKU
		Trail		6 te/y	Inactv		RDKV
CATEGORY-FUEL FABRICATION PLANTS							
	Canadian Gen Electr.	Peterborough	UO		Oper		RDAT
	Canadian Gen Electr.	Toronto	UO		Oper		RDAU
	Westinghouse	Port Hope	UO		Oper		RDCD
	Chalk River Nuclear	Chalk River	UPuO (small)		Inactv	76	RDDB
	Westinghouse	Varenes	UO		Oper		RDXH
CATEGORY-RESEARCH & TEST REACTORS							
	McMaster Nuclear	Hamilton, Ontario,	POOL 2 MWt		Oper	59	RDBF
	NRU Reactor	Chalk River, Ontario	TK-H 110 MWt		Oper	58	RDBJ

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NFP INDEX BY COUNTRY

COUNTRY	FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	NFP CODE
CANADA (CONT.)							
CATEGORY-RESEARCH & TEST REACTORS (CONT.)							
	NRX	Chalk River, Ontario	TK-H	33 MWt	Oper	47	RDBK
	NRX Reactor	Chalk River, Ontario	TK-H	40 MWt	Oper	48	RDBL
	Pool Test Reactor	Chalk River, Ontario	POOL	10 Wt	Oper	57	RDBZ
	Slowpoke-2	Ottawa, Ontario	POOL	.021 MWt	Oper	71	RDCA
	Slowpoke-1	Toronto, Ontario	POOL	.021 MWt	Oper	70	RDCB
	WR-1	Pinawa, Manitoba	TK-H	40 MWt	Oper	65	RDCB
	ZED-2	Chalk River, Ontario	TK-H	200 Wt	Oper	60	RDCH
	ZEEP	Chalk River, Ontario	TK-H	Remarks	Remark	45	RDCJ
CATEGORY-FUEL REPROCESSING FACILITIES							
	Chalk River Nucl Lab	Chalk River	UO	(small)	Inactv		RDAD
CATEGORY-SEPARATE FUEL STORAGE FACILITIES							
	Whiteshell	Whiteshell	SURF		Oper		RDJJ
	Chalk River Nuclear	Chalk River	HOLE		Oper		RDJL
	Pickering Nucl Power	Pickering	POOL		Oper		RDJM
	Bruce Nuclear Power	Tiverton	POOL		Oper		RDJN
CATEGORY-WASTE DISPOSAL FACILITIES							
		White Lake	ROCK		Oper		RDJK
	Chalk R Nucl Lab	Chalk River	PREP	200 kg/h	Inactv	60	RDKW
	RWVRF	Tiverton	PREP		Oper	77	RDKX
	Chalk R Nucl Lab	Chalk River	PREP		Oper		RDKY
CENTRAL AFRICAN REPUBLIC							
CATEGORY-MINES (URANIUM & THORIUM)							
		Bakouma	URAN	1000te/y	Plan	81	RCAA
CHINA							
CATEGORY-MINES (URANIUM & THORIUM)							
		Kuetchou	UTh		Oper		RPCD
		Tsinghai	UTh		Oper		RPCB
		Szechwan	UTh		Oper		RPCF
		Sinkiang	UTh		Oper		RPCG
		Chuannan	URAN		Oper		RPCJ
		Chuchou	URAN		Oper		RPCK
		Chushan	URAN		Oper		RPCL
	Hsia Chuang	Weiyuan	URAN		Oper		RPCM
CATEGORY-ENRICHMENT PLANTS							
	China 1	Lanchou	DIFF	180 KSWU	Oper	63	RPCB
			LASR		R&D		RPCN

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NFP INDEX BY COUNTRY

COUNTRY	FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	NFP CODE
COLOMBIA							
	CATEGORY-RESEARCH & TEST REACTORS Instituto De Asuntos Bogota		POOL	20 Kw	Oper	65	RCOB
CZECHOSLOVAKIA							
	CATEGORY-MINES (URANIUM & THORIUM) Pribram		URAN URAN		Oper	54	RCKE RCZN
	CATEGORY-FUEL FABRICATION PLANTS Nuclear Fuel Inst. Prague				Oper		RCKF
	CATEGORY-RESEARCH AND TEST REACTORS HWGCR (KS-150) Bohunice, Slovakia WWR-C Prague Rez		TK-L	590 MWt 2 MWt	Oper Oper	65 57	RCKD RCZL
	CATEGORY-WASTE DISPOSAL FACILITIES NRI-Rez Prague		PREP	3.6 m3/h	Oper	61	RCKG
DENMARK							
	CATEGORY-FUEL FABRICATION PLANTS Riso Research Est. Roskilde Elsinore		UOUM		Oper Oper		RENF RENR
	CATEGORY-RESEARCH AND TEST REACTORS DR-1 Roskilde DR-2 Roskilde DR-3 Copenhagen		LHRR POOL TK-H	500wt 5 MWt 10 MWt		57 58 59	RENG RENJ RENL
EGYPT							
	CATEGORY-RESEARCH & TEST REACTORS UAR WWR-C Reactor Inshas		TK-L	2 MWt	Oper	61	RVAE
FINLAND							
	CATEGORY-MINES (URANIUM & THORIUM) Joensuu		URAN		Inactv	61	REFF
	CATEGORY-RESEARCH AND TEST REACTORS FIR-1 Helsinki Fir-1 Otaniemi		SHRR	250 MWt Remarks	Oper Oper	62 62	REFA REFB

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NFP INDEX BY COUNTRY

COUNTRY	FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	NFP CODE
FRANCE							
CATEGORY-MINES (URANIUM & THORIUM)							
	Vendee		URAN		Oper		RFEW
	La Crouzille		URAN	200 te/y	Oper	50	RFEZ
	St. Priest		URAN				RFFA
	Lodeve		URAN	500 te/y	Oper	78	RFFK
	Roven		URAN	100 te/y	Plan	81	RFGQ
	Langogne		URAN	135 te/y	Oper	77	RFGR
	St. Pierre du Cantal		URAN	100 te/y	Oper	78	RFGU
CATEGORY-MILLS							
	L'Ecarpier		URAN	700 te/y	Oper	77	RFEV
	Bessines-sur-Gartemp		URAN	1500te/y	Oper	77	RFEY
	St. Priest		URAN	500 te/y	Oper	77	RFFB
	Langogne		URAN	135 te/y	Oper	77	RFGS
	Lodeve		URAN	1000te/y	Constr	80	RFGT
CATEGORY-CONVERSION PLANTS							
	Conversion Facility,	Pierrelatte	UF6	8000 te	Oper	77	RFFC
	Malvesi Refining Fac	Malvesi	UF4		Oper		RFFL
CATEGORY-ENRICHMENT PLANTS							
	Enrichment Facility	Pierrelatte	DIFF	500 KSWU	Oper	67	RFAA
	Eurodif 1	Tricastin	DIFF	10800 K	Constr	81	RFBQ
	Eurodif 2 (Coredif)		DIFF	5000 K	Plan	85	RFBR
			CHEM	50-100 K	Plan	85	RFFZ
			LASR		R&D	60	RFGA
CATEGORY-HEAVY WATER PRODUCTION							
	Toulouse		D20	2 te/y	Inactv		RFGW
	Mazingarbe		D20	26 te/y	Inactv		RFGX
CATEGORY-FUEL FABRICATION PLANTS							
	FBFC	Romans	UO	300 te	Constr	78	RFFE
	Pu Workshops ATPu,	St-Paul-les-Durance	UPuO	10 te/yr	Oper		RFFF
	SICN	Veurey	FB		Oper		RFFM
	CERCA	Romans	UM	900 te	Oper		RFGZ
	SICN	Annecy	UM	1200 te	Oper		RFHA
CATEGORY-RESEARCH AND TEST REACTORS							
	Reactor Alecto	Saclay	LHRR	1 Wt	Inactv	64	RFAD
	Reactor Alize	Saclay	TK-L	1 Wt	Inactv	59	RFAE
	Aquilon	Saclay, near Paris	TK-H	Remarks	Inactv	56	RFAH
	Azur	Cadarache	FOOL	(small)	Oper	62	RFAK
	Cabri	Cadarache	FOOL	Remarks	Oper	63	RFAR
	Reactor Cesar	Cadarache	GMRR	10 Kwt	Oper	64	RFBA
	Reactor Zoe	Fontenay-Aux-Roses	TK-H	150 Kwt	Oper	48	RFBK
	Reactor EL-2	Saclay	TK-H	2 MWt	Inactv	52	RFB�
	Reactor EL-3	Saclay	TK-H	20 MWt	Oper	57	RFBM

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NFP INDEX BY COUNTRY

COUNTRY	FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	NFP CODE
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FRANCE (CONT.)

CATEGORY-RESEARCH & TEST REACTORS (CONT.)

Eole Reactor	Cadarache	TK-H	10KW max	Oper	65	RFBK
Harmonie Reactor	Bouches-du-Rhone	FNRR	.002 MWt	Oper	65	RFCQ
Isis Reactor	Saclay	POOL	.08 KWt	Oper	66	RFCR
Reactor Marius	Cadarache	GMRR	(small)	Oper	60	RFCW
MASURCA	Cadarache	FNRR	1 KWt	Oper	66	RFCX
Reactor Melusine	Grenoble, Isere	POOL	8.0 MWt	Oper	58	RFCY
Reactor Minerve	Fontenay-Aux-Roses	POOL	100 MWt	Oper	59	RFCZ
Nereide Reactor	Fontenay-aux-Roses	POOL	.6 MWt	Oper	60	RFDB
Osiris Reactor	Saclay, Seine-et-Ois	TK-L	50 MWt	Oper	66	RFDC
Reactor Pegase	Cadarache	TK-L	30 MWt	Oper	63	RFDH
Peggy	Cadarache	TK-L	1 KWt	Oper	61	RFLJ
Proserpine	Saclay	LHRR	1 Wt	Oper	58	RFDM
Rapsodie Reactor	Bouches-du Rhone	FNRR	41 MWt	Oper	67	RFDR
Reactor Siloe	Grenoble	POOL	Remarks	Oper	63	RFDV
Reactor Siloette	Grenoble	POOL	.1 MWt	Oper	64	RFDW
Strasbourg-Cronenbg.	Strasbourg	ARGO	.1 MWt	Oper	66	RFED
Reactor Triton	Fontenay-Aux-Roses	POOL	100 Wt	Oper	59	RFEM
Ulysse Reactor	Saclay	ARGO	.1 MWt	Oper	61	RFEN
Chaudiere	Cadarache		100 MWt	Oper	75	RFGC
High-Flux Reactor	Grenoble	TK-H	60 MWt	Oper	71	RFGD

CATEGORY-FUEL REPROCESSING FACILITIES

UP-2	Cap de La Hague	UMUO	800 te	Oper	66	RFAC
UP-3	Cap de La Hague	UO	1600 te	Plan	87	RFAC
AT-1	Cap de La Hague	FB	200 kg	Oper	66	RFEF
UP-1	Marcoule	UM	1000 te	Oper	58	RFFJ
SAP	Marcoule	FB	5 te/yr	Oper		RFGB

CATEGORY-WASTE DISPOSAL FACILITIES

Saclay Nucl Res Cen	Seine-et-Oise	PREP		Oper		RFGF
	Cap de La Hague	DISP	1.3 Mbbl	Oper		RFGF
VULCAIN	Marcoule	PREP		Oper		RFGG
PIVER	Marcoule	PREP		Inactv	69	RFGH
GULLIVER	Fontenay-aux-Roses	PREP		Inactv	63	RFGJ
AVM	Marcoule	PREP	30 1/hr	Oper	78	RFGK
AVH	Cap de La Hague	PREP	100 1/hr	Plan	82	RFGI
Center of Nucl Study	Grenoble	PREP		Constr		RFGM
Center of Nucl Study	Grenoble	PREP	30 kg/hr	Oper	61	RFGN
Cadarache Nuclear	St. Paul-les-Durance	PREP		Oper	77	RFGP
Fontenay-aux-Roses	Fontenay-aux-Roses	PREP	50 kg/hr	Oper	67	RFGY
	Strasbourg	PREP	15 kg/hr	Oper	70	RFGB

GABON

CATEGORY-MINES (URANIUM & THORIUM)

Mikouloungou	URAN	Explor		RHBA
Oklo	URAN	Oper	70	RHBB
Mounana	URAN	Inactv		RHBC
Boyindzi	URAN	Explor		RHBE
Okelobondo	URAN	Explor		RHBF

NFP INDEX BY COUNTRY

COUNTRY	FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	NFP CODE
GABON (CONT.)							
	CATEGORY-MILLS						
		Mounana	URAN		Inactv		RHBC
GERMANY (EAST)							
	CATEGORY-MINES (URANIUM & THORIUM)						
		Weringerode	URAN		Oper	50	REGU
	Sorgesettendorf		URAN				REGV
		Thuringia	URAN		Oper		REGW
	CATEGORY-WASTE DISPOSAL FACILITIES						
		Bartensleben	DISP		Plan		REGT
GERMANY (WEST)							
	CATEGORY-MINES (URANIUM & THORIUM)						
		Menzenschwand	URAN		Explor		RGFJ
		Mullenbach	URAN		Explor		RGGT
		Oberpfalzer	URAN		Explor		RGGU
		Saxony	URAN		Inactv		RGGV
	CATEGORY-CONVERSION PLANTS						
	RBU-1	Hanau	UO2	1000 te	Oper	64	RGDF
	CATEGORY-ENRICHMENT PLANTS						
		Julich	CENT		Oper		RGFC
	Karlsruhe Nuclear	Karlsruhe	JET	2 KSWU	Oper	67	RGFE
		Gronau	CENT	1000 K	Plan	85	RGFR
			LASR		R&D	71	RGFS
	CATEGORY-HEAVY WATER PRODUCTION						
		Frankfurt	D2O	6 te/y	Inactv		RGGS
	CATEGORY-FUEL FABRICATION PLANTS						
	RBU-II	Grosswelzheim	UO	150 te	Oper	66	RGDG
	RBU-I	Hanau	UO	600 te	Oper	64	RGDB
		Lingen	UO		Constr	77	RGFB
	Alkem GmbH	Hanau	UPuO	50 te/yr	Oper	66	RGFE
	Hobeg	Hanau	UOUC		Oper	72	RGFK
	CATEGORY-RESEARCH AND TEST REACTORS						
	AVR	KFA, Julich	GMRR	46 MWt	Oper	67	RGAF
	Adibka-1 Reactor	Julich	LHRR	10 Wt	Oper	67	RGAC
	AEG Nullenergie	Grosswelzheim	TK-L	100 Wt	Oper	67	RGAD
	ANEX	Geesthacht		0 MWt	Oper	64	RGAE
	BER	Berlin-Wannsee	LHRR	50 KWt	Oper	58	RGAE
	FMRB	Braunschweig	POOL	1 MWt	Oper	67	RGAV

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COUNTRY	FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	NFP CODE
GERMANY (WEST) (CONT.)							
CATEGORY-RESEARCH & TEST REACTORS (CONT.)							
	FR-2	Karlsruhe	ARGO	12 MWt	Oper	61	RGAW
	Rsch Reactor	Frankfurt/Main	LHRR	50 KWt		58	RGAX
	Rsch Reac Geesthacht	Geesthacht/Elbe	POOL	5 MWt	Oper	58	RGAY
	FRG-2	Geesthacht/Elbe	POOL	15 MWt	Oper	68	RGAZ
	Dido-Julich	Julich	TK-H	10 MWt	Oper	61	RGBB
	Rsch Reactor Muenchen	Garching	POOL	4 MWt	Oper	57	RGBC
	Triga-I-Hannover	Hannover		.25 MWt	Oper	72	RGBF
	React. Merlin-Julich	Julich, W. Germany	POOL	5 MWt	Oper	61	RGCF
	PR-10	Grosswelzheim					RGDD
	SAR-1	Garching	ARGO		Oper	59	RGDQ
	SNEAK	Leopoldshafen	FNRR	1KWt max	Oper	66	RGDR
	Stark	Karlsruhe	ARGO		Oper	64	RGDU
	SUR-Aachen	Aachen	SHRR	.1 Wt	Oper	66	RGDW
	SUR-Berlin	Berlin	SHRR	.1 Wt	Oper	63	RGDX
	SUR-Bremen	Bremen	SHRR	.1 Wt	Oper	67	RGDY
	SUR-Darmstadt	Darmstadt	SHRR	.1 Wt	Oper	63	RGDZ
	SUR-Hamburg	Hamburg	SHRR	.1 Wt	Oper	65	RGEA
	SUR-Karlsruhe	Karlsruhe	SHRR	.1 Wt	Oper	66	RGEB
	SUR-Kiel	Kiel	SHRR	.1 Wt	Oper	66	RGEC
	SUR-Stuttgart	Stuttgart	SHRR	.1 Wt	Oper	64	RGEF
	SUR-Ulm	Ulm	SHRR	.1 Wt	Oper	65	RGEG
	Triga-I-Heidelberg	Heidelberg	SHRR	.25 MWt	Oper	66	RGEM
	German Triga	Mainz, West Germany	SHRR	10 KWt	Oper	65	RGEN
	HDR	Grosswelzheim/Main		100 MWt		68	RGFC
	CFG	Karlsruhe	SHRR	Max 100W	Oper	64	RGFT
	BER-2	Berlin	POOL	5 MWt	Oper	73	RGFX
	Kather	Julich			Oper	73	RGFY
	SUR-100	Furtwangen	SHRR		Oper	73	RGFZ
	AEG-PR-10	Unterfranken	ARGO	10 Wt	Oper	61	RGGA
	SUR-Hannover	Hannover	SHRR		Oper	61	RGGE
	Triga Conversion	Frankfurt	SHRR	1 MWt			RGGF
	WWR-5 (m)	Rosendorf	TANK	6 MWt			RGGG
CATEGORY-FUEL REPROCESSING FACILITIES							
	URG/KEWA		UO	1500 te	Plan	86	RGCC
	JUPITER	Julich	HTGR	2 kg/day	Oper	77	RGCF
	WAK	Karlsruhe	UOFB	40 te/yr	Oper	71	RGEW
	DWK	Gorleben	UO	1400 te	Plan	88	RGFU
CATEGORY-SEPARATE FUEL STORAGE FACILITIES							
		Ahaus	POOL	1500 te	Plan	83	RGGB
		Gorleben	POOL	4000 te	Plan		RGGC
CATEGORY-WASTE DISPOSAL FACILITIES							
	Asse Salt Mine	Remlingen	DISP	4 Mm3	Oper	67	RGGD
	KfK-1	Karlsruhe	PREP	2.5 te/d	Oper	77	RGGH
	KfK-2	Karlsruhe	PREP	15 kg	Oper	75	RGGJ
	FIPS-II	Julich	PREP	1 kg/hr	Oper	77	RGGK
	FIPS-I	Julich	PREP	1 kg/hr	Inactv	72	RGGL

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COUNTRY	FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	NFP CODE
GERMANY (WEST) (CONT.)							
CATEGORY-WASTE DISPOSAL FACILITIES (CONT.)							
	VERA	Karlsruhe	PREP		Inactv	70	RGGM
		Karlsruhe	PREP	30 1/hr	Oper	76	RGGN
GREECE							
CATEGORY-RESEARCH AND TEST REACTORS							
	GRR	Athens	POOL	1 Mwt		59	RHCE
GREENLAND							
CATEGORY-MINES (URANIUM & THORIUM)							
	Kvanefjeld	Ilimaussaq	URAN		Explor		RHLA
HUNGARY							
CATEGORY-MINES -(URANIUM & THORIUM)							
		Pecs	URAN		Oper	55	RHUK
CATEGORY-RESEARCH AND TEST REACTORS							
	Hungarian WWR-C	Csillererc	TANK	2 Mwt	Oper	59	RHUF
INDIA							
CATEGORY-MINES (URANIUM & THORIUM)							
		Bhatin	URAN		Constr		RHEE
		Quilor	THOR	60 te/y	Oper		RHEJ
		Manavalakurichi	THOR	450 te/y	Oper		RHEK
		Narwapahar	URAN		Constr		RHIY
		Jaduguda	URAN		Oper	56	RHNA
CATEGORY-MILLS							
		Narwapahar	URAN		Constr		RHIZ
		Jaduguda	URAN		Oper	56	RHNB
CATEGORY-CONVERSION PLANTS							
	Nucl Fuel Complex	Hyderabad	UO2	124 te	Oper	71	RHIA
CATEGORY-HEAVY WATER PRODUCTION							
	Nangal	Nangal	D2O	14 te/y	Oper	62	RHNK
	Baroda Plant	Baroda	D2O	67.2te/y	Oper	76	RHNL
	Kota Plant	Kota	D2O	100 te/y	Constr	80	RENM
	Tuticorin Plant	Tuticorin	D2O	71.3te/y	Constr	78	RHNN
	Talcher Plant	Talcher	D2O	62.7te/y	Constr	80	RHNP
	Nuclear Fuels	Hyderabad	UO	124 te	Oper	71	RHNQ

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COUNTRY	FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	NFP CODE
INDIA (CONT.)							
CATEGORY-RESEARCH AND TEST REACTORS							
	Kalpakkum PFR	Kalpakkam	FNRR	.03 MWt	Plan		RHEE
	FBTR	Kalpakkam	FNRR	50 MWt	Constr		RHEL
	Reactor Apsara	Trombay	POOL	1 MWt	Oper	56	RHIF
	CIR	Trombay	TK-H	40 MWt	Oper	60	RHIG
	Zerlina	Trombay	TANK	MAX100Wt	Oper	61	RHIW
	Purnima	Trombay			Oper	72	RHNZ
CATEGORY-FUEL REPROCESSING FACILITIES							
		Kalpakkam	DO	50 te/yr	Plan	82	RHEC
	PREFRE	Tarapur	DOUM	100 te	Oper	77	RHIC
		Trombay	UThO (small)		Oper		RHIC
	Plutonium Plant	Trombay	UMUO	60 te/yr	Oper	65	RHIL
CATEGORY-WASTE DISPOSAL FACILITIES							
	Waste Immobilization	Tarapur	PREP	25 l/hr	Constr	79	RHEF
	BARC	Trombay	PREP	45 kg/hr	Oper	66	RHEM
INDONESIA							
CATEGORY-RESEARCH AND TEST REACTORS							
	Triga-Mark II	Bandung	SHRR	.25 MWt	Oper	65	RHOE
IRAN							
CATEGORY-MINES (URANIUM & THORIUM)							
	Anarak		URAN		Explor		RORF
	Yazd		URAN		Explor		RORS
CATEGORY-RESEARCH AND TEST REACTORS							
	U of Teheran Rsch	Teheran	POOL	5 MWt	Oper	67	RORM
	UTRR Conversion	Tehran	SHRR	10 MWt	Constr		RORQ
IRELAND							
CATEGORY-MINES (URANIUM & THORIUM)							
	Leinster	Mt. Leinster	URAN		Explor		RHRF
ISRAEL							
CATEGORY-ENRICHMENT PLANTS							
	Weizmann Institute	Rehovot	LASR		R&D		RTSK

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COUNTRY	FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	NFP CODE
ISRAEL (CONT.)							
CATEGORY-RESEARCH AND TEST REACTORS							
	IRR	Rehovath	POOL	5 MWt	Oper	59	RTSF
	IRR-2	Negev		26 MWt	Oper		RTSG
ITALY							
CATEGORY-MINES (URANIUM & THORIUM)							
	Novazza	Val Rendena	URAN		Explor		RICP
		Valgoglio	URAN	110 te/y	Constr	80	RICQ
		Preit Valley	URAN		Explor		RIDM
		Latium	URAN		Explor		RIDN
		Lazio	URAN		Explor		RIDP
CATEGORY-MILLS							
		Novazza	URAN	200 te/y	Constr	80	RIDG
CATEGORY-CONVERSION PLANTS							
	Fabricazioni Nucl	Bosco Marengo	UO2	360 te	Plan		RICT
CATEGORY-FUEL FABRICATION PLANTS							
	Fabricazioni	Bosco Marengo	UO	200 te	Oper	74	RIBM
		San Donato	UPuO	8 te/yr	Oper		RICR
	Casaccia Center,	Rome	UPuO	8 te/yr	Oper		RICX
	Combustibili	Rotondella	UM	30 te/yr	Oper	69	RICZ
	COREN	Saluggia	UO	60 te/yr	Oper	68	RIDH
CATEGORY-RESEARCH AND TEST REACTORS							
	AGN-201-110	near Palermo	SHRR	.1 Wt	Oper	60	RIAD
	Avogadro RS-1	Saluggia	POOL	7 MWt	Inactv	60	RIAE
	CIRENE	Latina		128.5MWt			RIAG
	ECO	Ispra (Varese)	TK-H	1KWt max	Inactv	65	RIAK
	Essor reactor	Ispra (Varese)	TK-H	36.6 MWt	Oper	67	RIBK
	RTS-1	San Piero a Grado	POOL	5 MWt	Oper	65	RIBN
	Reactor Ispra-1	Ispra, Varese	TK-H	5 MWt	Inactv	59	RIBR
	ISPRA-2 (RANA)	Casaccia	POOL	Remarks	Oper	61	RICA
	RB-1	Montecuccolino	GMRR	10 Wt	Oper	62	RICB
	RB/2	Bologna	ARGO	10 KWt	Oper	63	RICC
	ROSPO	Roma	OMRR (small)		Oper	63	RICE
	Triga-II Pavia	Pavia	SHRR	Remarks	Oper	65	RICK
	Triga Mark II	Rome	SHRR	1 MWt	Oper	59	RIDA
	CESNEF	Milan	LHRR	50 KWt	Oper	60	RIDC
	PEC	Lake Brasimore	FNRR	140 MWt	Constr	78	RIDD
	RB-3	Univ. of Bologna	TK-H		Oper	71	RIDE
	Triga-II	Rome	SHRR		Oper	60	RIDF
	TAPIRO	CSN, Casaccia	FNRR	5 KWt	Oper	71	RIDJ
	RITMO (RC-4)	Rome	POOL	100 Wt	Oper	65	RICD

NFF INDEX BY COUNTRY

COUNTRY	FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	NFP CODE
ITALY (CONT.)							
CATEGORY-FUEL REPROCESSING FACILITIES							
	Eurex-1	Saluggia	UO	500 te	Plan	85	RIAA
	ITREC Pilot Plant	Rotondella	UOUM	10 te/yr	Inactv	69	RIBL
			UThO	15 kg	Oper	75	RIBS
CATEGORY-WASTE DISPOSAL FACILITIES							
	ESTER	Rome	PREP		Oper	78	RIDK
JAPAN							
CATEGORY-MINES (URANIUM & THORIUM)							
		Tono	URAN	10 te/y	Oper		RJFR
		Ningyo Toge	URAN		Oper	64	RJFV
CATEGORY-MILLS							
		Ningyo Toge	URAN		Oper	64	RJFW
CATEGORY-CONVERSION PLANTS							
	Mitsubishi Nucl Fuel	Tokai-Mura	UO2	420 te	Oper	72	RJDL
	Sumitomo Metal	Tokai-Mura	UO2	240 te	Oper	73	RJFF
	Sumitomo Metal	Tokai-Mura	UO2	340 te	Plan	79	RJGC
CATEGORY-ENRICHMENT PLANTS							
	C-1	Tokai-Mura	CENT		Oper	74	RJCE
	C-2	Tokai-Mura	CENT		Oper	76	RJCG
		Tokai-Mura	CENT	50 KSWU	Constr	80	RJGA
			LASR		R&D	75	RJGB
CATEGORY-FUEL FABRICATION PLANTS							
	Japan Nuclear Fuel	Yokosuka	UO	560 te	Oper	72	RJBS
	Kumatori Works	Osaka		40 te/yr	Oper		RJCW
	Mitsubishi Nucl Fuel	Tokai-Mura	UO	420 te	Oper	72	RJDK
	Tokai Works	Tokai-Mura	UPuO		Oper		RJDY
	Tokayama Works	Tokayama		20 te/yr	Oper		RJEW
	Nuclear Fuel	Tokai-Mura	UO	100 te	Constr	78	RJFZ
CATEGORY-RESEARCH AND TEST REACTORS							
	AHCF	Tokai-mura, Naka-gun	LHRR	50 Wt	Oper	63	RJAE
	DCA	Tokai-Mura		(small)	Oper	69	RJAN
	FCA	Tokai-Mura	TK	(small)	Oper	67	RJAQ
	HTR	Kawasaki	ARGO	.1 MWt	Oper	61	RJBN
	HTR	Ozenji, Kawasaki	ARGO	.1 MWt	Oper	62	RJBP
	JMTR	Oarai	TK-L	50 MWt	Oper	68	RJBX
	JMTRC	Oarai-machi	POOL	.01 MWt	Oper	67	RJBZ
	Joyo	Oarai	FNRR	50 MWt	Oper	74	RJCA
	Japan Rsch Reac No 1	Tokai-Mura	LHRR	.05 MWt	Oper	57	RJCC
	JRR-2	Tokai-Mura	TK-B	10 MWt	Oper	62	RJCE

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COUNTRY	FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	NFP CODE
JAPAN (CONT.)							
RESEARCH & TEST REACTORS (CONT.)							
	JRR-3	Tokai-Mura	TK-H	10 MWt	Oper	64	RJCF
	JRR-4	Tokai-Mura	POOL	1 MWt	Oper	65	RJCU
	Kinki University	Fuse-City, Osaka		.1 Wt			RJCU
	Kuca	Kumatori	FNRR (small)		Constr		RJCV
	KUR Kyoto Univ.	Kumatori-cho,	POOL	5 MWt	Oper	64	RJDE
	Kyoto Univ. Reactor	Kumatori-machi	TK-L	1 MWt			RJDC
	NCA NAIG Critical	Kawasaki-shi	POOL	200W max	Oper	63	RJDW
	NSRR	Tokai		.3 MWt	Constr		RJDX
	OCF	Ozenji, Kawasaki	TK-L	100W max	Oper	62	RJDZ
	SHCA	Tokai-Mura	SHRR	10 Wt	Oper	61	RJEL
	TCA	Tokai-Mura	TK-L	200W max	Oper	62	RJEX
	YAYOI	Tokai-Mura	FNRR (small)		Oper	71	RJGD
	St. Paul Univ. Reac.	Yokosuka-City		.1 MWt			RJGE
	Toshiba Reactor	Kawasaki-City	POOL	.1 MWt			RJGF
	Hitachi Reactor	kawasaki-City	POOL	.1 MWt			RJGG
	Goto Ikuei-Kai Reac.	Kawasaki-City		.1 MWt			RJGH
	Triga-II-Musashi	Kawasaki	SHRR	.1 MWt	Oper	63	RJGT
	Triga-II-Rikkyo	Sajima, Yokosuka	SHRR	.1 MWt	Oper	61	RJGU
	TTR	Kawasaki		.1 MWt	Oper	62	RJGW
	TTR-1	Suchirocho and	POOL	.03 MWt	Oper	62	RJGX
	UTR-10-Kinki	Kawakae, Fuse-shi	ARGO	.1 Wt	Oper	61	RJGY
CATEGORY-FUEL REPROCESSING FACILITIES							
	PNC	Tokai-Mura	UO	1500 te	Plan	85	RJAA
	PNC		FB	120 kg/d	Plan	86	RJEE
	PNC	Tokai-Mura	UO	210 te	Oper	78	RJEF
CATEGORY-WASTE DISPOSAL FACILITIES							
	JAERI-Oarai Res Est.	Oarai	PREP	30 kg/hr	Oper	73	RJGJ
	JAERI	Tokai-Mura	PREP	50 kg/hr	Oper	66	RJGK
KOREA (SOUTH)							
CATEGORY-MINES (URANIUM & THORIUM)							
		Taeduck	URAN		Explor		RKOV
CATEGORY-RESEARCH AND TEST REACTORS							
	Triga Mark II	Seoul	SHRR	.25 MWt	Oper	62	RKOR
MADAGASCAR							
CATEGORY-MINES (URANIUM & THORIUM)							
		Fort Dauphin	URAN	450 te/y	Inactv	63	RMDA

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MEXICO							
CATEGORY-MINES (URANIUM & THORIUM)							
	Sierra Pena Blanca	Tamaulipos	URAN		Explor	75	RMEN
		La Coma	URAN		Explor		RMEV
		Buenvista	URAN		Explor		RMEX
		Otros	URAN		Explor		RMEY
		La Domitila	URAN		Explor		RMEZ
		Nopal III	URAN		Explor		RMXA
		Margaritas-PuertoIII	URAN		Explor		RMXB
		El Nopal	URAN		Explor		RMXC
		Los Amoles	URAN		Explor		RMXD
		La Preciosa	URAN		Explor		RMXE
		El Chapote	URAN		Explor		RMXF
CATEGORY-MILLS							
	Sierra Pena Blanca	Tamaulipos	URAN	15 te/y	Oper	75	RMEP
	Villa Aldama		URAN		Oper		RMEU
		La Coma	URAN		Plan		RMEW
CATEGORY-RESEARCH AND TEST REACTORS							
	RCN	Salazar		1 MWt	Oper	68	RMES
	SUR-Mexico	Mexico City	SHRR	(small)	Oper	72	RMET
NAMIBIA							
CATEGORY-MILLS							
	Rossing	Swakopmund	URAN	6500te/y	Oper		RYBE
		Lvderitz	URAN		Explor		RYBC
		Namib Desert	URAN		Explor		RYBD
		Trekopje			Explor		RYBE
		Langer Heinrich	URAN		Explor		RYBF
NETHERLANDS							
CATEGORY-ENRICHMENT PLANTS							
	Pilot Plant SP1	Almelo	CENT	25 KSWU	Oper	72	RNAT
	Pilot Plant SP2	Almelo	CENT	25 KSWU	Oper	72	RNAX
	Production Plant SP3	Almelo	CENT	60 KSWU	Oper	77	RNAY
CATEGORY-RESEARCH AND TEST REACTORS							
	ATHENE	Eindhoven	ARGO	10KW max	Inactv	69	RNAC
	High Flux Reactor	Petten	TK-L	45 MWt	Oper	61	RNAJ
	Hoger Onderwits	Delft	POOL	2 MWt	Oper	63	RNAL
	Kirto Drito Crit	Petten	POOL	Max 100W	Inactv	63	RNAN
	Low Flux Reactor	Petten	ARGO	.01 MWt	Oper	60	RNAP
	Subscript Suspension	N V Kema, Arnhem	LHRR	Remarks	Oper	59	RNAS
	BARN	Wageningen	POOL	.1 MWt	Oper	63	RNAZ
	SIEK	Petten	POOL	(small)		69	RNEA

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NIGER							
CATEGORY-MINES (URANIUM & THORIUM)							
		Djado	URAN		Explor		RMGA
	SOMAIR	Arlit	URAN	1000te/y	Oper	71	RMGB
	SOMAIR	Arlit	URAN	1000te/y	Oper	71	RMGC
	COMINAK	Akouta	URAN	2600te/y	Oper	78	RMGD
		Madaouela	URAN		Explor		RMGG
		Azelik	URAN		Explor		RMGH
		Imouraren	URAN		Explor		RMGJ
		Techili	URAN		Explor		RMGK

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		Arni	URAN		Explor		RMGL
		I-n-Adrar	URAN				RMGM
		West Afasto	URAN		Explor		RMGN
		Tegidda-in-Tessoum			Explor		RMGF
CATEGORY-MILLS							
	COMINAK	Akouta	URAN	2600te/y	Oper	78	RMGE

NORWAY

CATEGORY-HEAVY WATER PRODUCTION							
		Rjukan		20 te/y	Oper	34	RMON
CATEGORY-FUEL FABRICATION PLANTS							
	Fuel Element Pilot	Kjeller			Oper		RMOF
CATEGORY-RESEARCH AND TEST REACTORS							
	Halden	Halden, Norway	TK-H	20 MWt	Oper	59	RMOD
	JEEP	Kjeller	TK-H	450 KWt	Oper	51	RMOF
	JEEP No. 2	Kjeller	TK-H	2 MWt	Oper	65	RMOH
	Nora Reactor	Kjeller	TK-H	100 Wt	Oper	61	RMOJ
CATEGORY-FUEL REPROCESSING FACILITIES							
	IFA	Kjeller	UM	(small)	Inactv	61	RMOM

PAKISTAN

CATEGORY-MINES (URANIUM & THORIUM)							
		Dera Ghazi Khan			Constr		RPAJ
CATEGORY-RESEARCH AND TEST REACTORS							
	PARR	Islamabad	POOL	5 MWt	Oper	65	RPAD
	Pak. Atomic Rsch	Islamabad	POOL	5 MWt	Oper	65	RPAE

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COUNTRY	FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	NFP CODE
PAKISTAN (CONT.)							
CATEGORY-FUEL REPROCESSING FACILITIES							
	Chasma		UO	100 te	Plan		RPAF
PERU							
CATEGORY-MINES (URANIUM & THORIUM)							
	Vilcabamba	Cuzco	URAN	2.5 te/y	Oper	75	RPED
	Restauradora	Huancavelica	URAN		Plan	75	RPEE
	Area Ica	Ica	URAN		Plan		RPEF
	Churin	Lima	URAN		Plan		RPEG
	Jesus Maria	Moquegua	URAN		Plan		RPEH
	Colquijirca	Pasco	URAN	2.5 te/y	Oper	75	RPEJ
	Bayovar	Piura	URAN		Plan		RPEK
PHILIPPINES							
CATEGORY-MINES (URANIUM & THORIUM)							
	Larap	Camarines Norte	URAN		Explor		RPHQ
	Bagacay	Sama-Island	URAN		Explor		RPHR
	Magna Rosa	Caramoan Peninsula	URAN		Explor		RPHS
CATEGORY-RESEARCH AND TEST REACTORS							
	Phil Rsch React. 1	Quezon City, Phil.	POOL	1 MWt	Oper	63	RPHG
POLAND							
CATEGORY-RESEARCH AND TEST REACTORS							
	ZERA	Swierk	GMRR	100 Wt	Oper	63	RPDB
	EWA Reactor	Swierk	TK-L	2 MWt	Oper	58	RPDD
	Maryla Reactor	Inst. of Nuclear	POOL	10 KWt	Oper	67	RPDG
CATEGORY-WASTE DISPOSAL FACILITIES							
	Rad Waste Storage	Rozan	DISP	2870 m3	Oper		RPOK
PORTUGAL							
CATEGORY-MINES (URANIUM & THORIUM)							
	Senhora das Fontes		URAN		Oper		RPOJ
	Urgeirica		URAN		Oper		RPOK
	Cunha Baixa		URAN		Explor		RPOM
Alto Alentejo	Nisa		URAN		Plan		RPON
	Quinta do Bispo		URAN		Explor		RPOQ
	Azere		URAN		Explor		RPOR
	Guarda		URAN		Explor		RPOS

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COUNTRY	FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	NFP CODE
PORTUGAL (CONT.)							
CATEGORY-MILLS							
	Alto Alentejo	Urgeirica Nisa	URAN	150 te/y	Oper		RPOL
			URAN		Plan	85	RPOF
CATEGORY-RESEARCH AND TEST REACTORS							
	JEN	Lisbon	POOL	1 MWt	Oper	58	RPOF
PUERTO RICO							
CATEGORY-RESEARCH AND TEST REACTORS							
	PRR	Mayaguez	LHRR	10 Wt	Oper	59	RPUE
ROMANIA							
CATEGORY-RESEARCH AND TEST REACTORS							
	WWR-C Reactor	Magurele	TK-L	3 MWt	Oper	59	RPNE
SOUTH AFRICA							
CATEGORY-MINES (URANIUM & THORIUM)							
		Palabora	URAN	120 te/y	Oper		RTAK
		Karoo	URAN		Explor		RTAM
	Hartebeestfontein	Hartebeestfontein	URAN	450 te/y	Oper		RTAN
	Buffelsfontein	Far West Rand	URAN	620 te/y	Oper		RTAP
	Vaal Reefs	Orkney	URAN	1200te/y	Oper		RTAQ
	Blyvooruitzicht	Blyvooruitzicht	URAN	287 te/y	Oper		RTAR
	West Rand	West Rand	URAN	295 te/y	Oper		RTAS
	West Driefontein	Carletonville	URAN	286 te/y	Oper		RTAT
	Western Deep Levels	Casletonville	URAN	167 te/y	Oper		RTAU
	Randfontein	Randfontein	URAN	70 te/y	Oper		RTAV
	JMS	Riebeeckstad	URAN	480 te/y	Oper	78	RTAX
	Harmony	Virginia	URAN	525 te/y	Oper		RTAY
	East Rand Gold & U	East Rand	URAN	100 te/y	Oper	78	RTFA
	Afrikander Lease	Klerksdorp	URAN	300 te/y	Plan	81	RTFB
		Parmeitkuil	URAN		Plan	82	RTFC
CATEGORY-MILLS							
	Millsite	Randfontein	URAN		Oper	77	RTAW
CATEGORY-ENRICHMENT PLANTS							
	UCOR	Valindaba	STAT	6 KSWU	Oper	76	RTAA
	UCOR	Valindaba	STAT	5000 K	Plan		RTAZ
CATEGORY-RESEARCH AND TEST REACTORS							
	Pelinduna Zero	Pelinduna, Transvaal	TK-H (small)		Oper	67	RTAG
	Safari-1	Pelindaba	TK-L Remarks		Oper	64	RTAJ

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SOVIET UNION							
CATEGORY-MINES (URANIUM & THORIUM)							
		Norilsk	URAN		Oper		RRFC
		Taboshar	URAN		Oper		RRFD
		Pervomaisk	URAN		Oper		RRFE
		Tuya Muyum	URAN		Inactv		RRFF
		Mailiy Su	URAN		Oper		RRFG
		Uigur Say	URAN		Oper		RRFH
CATEGORY-ENRICHMENT PLANTS							
		Siberia	DIFF LASR	10000 K	Oper		RRAA RRAB
CATEGORY-RESEARCH AND TEST REACTORS							
	IRT	Moscow	POOL	2 MWt	Oper	57	RRAM
	IRT-A	Moscow	POOL	2 MWt	Oper		RRAN
	IRT-B	Tbilishi, Georgia	POOL	2 MWt	Oper	59	RRAP
	IRT-C	Riga	POOL	2 MWt	Oper		RRAC
	IRT-D	Tomsk	POOL	2 MWt	Oper		RRAF
	IRT-E	Sverdlovsk	POOL	2 MWt	Oper		RRAS
	IRT-F	Minsk	POOL	2 MWt	Oper		RRAT
	MR Rsch Reactor	Moscow	POOL	40 MWt	Oper	67	RRBC
	RPT	Moscow	TK-H	20 MWt	Oper	52	RRBN
	BR-1 Soviet Breeder	Obninsk	FNRR	50 Wt	Inactv	55	RRBF
	BR-2	Obninsk	FNRR	.2 MWt	Inactv	57	RRBQ
	BR-5	Obninsk	FNRR	50 MWe	Oper	59	RRBF
	TR	Moscow	TK-H	2.5 MWt	Oper	57	RRBY
	WWR-C Rsch Reactor	Moscow	TK-L	2 MWt	Oper	54	RRCG
	UZBEK WWR-C Reactor	Tashkent	TK-L	2 MWt	Oper	59	RRCH
	WWR-M Research	Kiev, Ukraine	TK-L	10 MWt	Oper	60	RRCJ
	WWR-M Rsch Reactor	Leningrad	TK-L	10 MWt	Oper	59	RRCK
	WWR-2 Research	Alma-atom Kazakh	TK-L	10 MWt	Oper	63	RRCL
	WWR-C Rsch Reactor	Moscow	TK-L	3 MWt	Oper	57	RRCM
	Romashka	Moscow	FNRR	.040 MWt		64	RRES
	AM-1 Reactor	Obninsk	GMRR	30 MWt	Oper		RRET
	APS	Obninsk	GMRR	3 MWt		54	RREC
	MIR	Dimitrovgrad	TK-L	100 MWt	Oper	66	RREV
	SM-2 Test Reactor	Melekess	TK-L	75 MWt	Oper	61	RREW
	ARBUS	Melekess	OMRR	5 MWt	Oper	63	RREY
CATEGORY-FUEL REPROCESSING FACILITIES							
	Fregat-SRIAR	Melekess	FB	(small)	Oper		RREZ
CATEGORY-WASTE DISPOSAL FACILITIES							
	Moscow Plant	Moscow	PREP		Oper	65	RRFA
	NIIAR	Novikovka	DISP		Oper	66	RRFB

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SPAIN							
CATEGORY-MINES (URANIUM & THORIUM)							
		Soria	URAN		Explor		RSCC
		Cuidad Rodrigo	URAN	118te/y	Oper	75	RSCS
	El Pedregal	Don Benito	URAN	60 te/y	Oper		RSCU
		Andvjar	URAN	65 te/y	Oper	59	RSCV
CATEGORY-MILLS							
		Cuidad Rodrigo	URAN	118te/y	Oper	75	RSCT
		Andujar	URAN	65 te/y	Oper	59	RSDC
	Lobo	Badajoz	URAN	25 te/y	Oper		RSDD
CATEGORY-FUEL FABRICATION PLANTS							
	Juan Vigon Nuclear	Madrid			R&D		RSBM
	Fabrication Facility	Juzbada	UO	400 te	Plan	81	RSDA
CATEGORY-RESEARCH AND TEST REACTORS							
	Arbi Reactor	Bilbao	ARGO	.01 MWt	Oper	62	RSAH
	Argos Reactor	Barcelona	ARGO	.01 MWt	Oper	61	RSAX
	Coral-1 Reactor	Madrid	FNRR	10Wt max	Oper	68	RSAX
	Sp Rsch Reac. Jen-1	Madrid	POOL	6 MWt	Oper	59	RSBK
	JEN-2	Madrid	POOL	.01 MWt	Oper	68	RSBL
CATEGORY-FUEL REPROCESSING FACILITIES							
	Juan Vigon Nuclear	Madrid	UM	(small)	Oper		RSBP
CATEGORY-WASTE DISPOSAL FACILITIES							
		Sierra de Albarracin	DISP		Oper		RSDB
SWEDEN							
CATEGORY-MINES (URANIUM & THORIUM)							
	Pleutajokk	Arjeplog-Arvidsjaur	URAN		Explor		RWBP
	Ranstad	Billingen	URAN	140 te/y	Oper		RWBX
	Kvarntorp		URAN		Inactv		RWBY
CATEGORY-CONVERSION PLANTS							
	Vasteras Fuel Fac.	Vasteras	UO2	400 te	Oper	76	RWAD
CATEGORY-ENRICHMENT PLANTS							
	Royal Inst of Tech	Stockholm	LASR		R&D		RWAB
CATEGORY-HEAVY WATER PRODUCTION							
		Domat Ems		2 te/y	Inactv		RZBE
CATEGORY-FUEL FABRICATION PLANTS							
	Vasteras Fuel Fac	Vasteras	UO	400 te	Oper	72	RWAE

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SWEDEN (CONT.)							
CATEGORY-RESEARCH AND TEST REACTORS							
	FR-O	Studsvik	FNRR	10 Wt	Inactv	64	RWAF
	KRITZ	Studsvik		(small)	Oper	69	RWAS
	Swedish Reac. R-O	Studsvik site	TK-H	< 50 Wt	Inactv	59	RWAY
	R-1 Heavy Water Reac	Studsvik	TK-H	600 Kwt	Oper	54	RWAZ
	R-2 Rsch Reactor	Studsvik	TK-L	50 MWt	Oper	60	RWBB
	R2-O	Studsvik	POOL	1 MWt	Oper	64	RWBH
CATEGORY-FUEL REPROCESSING FACILITIES							
			UO	800 te	Plan	90	RWAC
CATEGORY-SEPARATE FUEL STORAGE FACILITIES							
	Stripa Mine	Studsvik	ROCK		Oper	77	RWBW
	Spent Fuel Storage		ROCK	1500 te	Plan	83	RWBZ
CATEGORY-WASTE DISPOSAL FACILITIES							
	AB Atomenergi	Studsvik	PREP		Oper		RWBA
		Vasteras	PREP		Oper		RWCA
SWITZERLAND							
CATEGORY-RESEARCH AND TEST REACTORS							
	AGN-201 P-111	Geneva	SHRR	20 Wt	Oper	58	RZAA
	AGN-211P-100	Basel	SHRR	100 Wt	Oper	59	RZAB
	Crocus	Lausanne	POOL	(small)	Oper	68	RZAC
	Rector Diorit	Wurenlingen	TK-H	20 MWt	Oper	60	RZAJ
	Proteus Reactor	Wurenlingen	GMRR	.001 MWt	Oper	68	RZAW
	Reactor Saphir	Wurenlingen	POOL	1 MWt	Oper	57	RZAZ
CATEGORY-WASTE DISPOSAL FACILITIES							
	EIR	Wurenlingen	DISP		R&D		RZBL
TAIWAN							
CATEGORY-FUEL FABRICATION PLANTS							
	INER	Lungt'an			Oper		RCIC
CATEGORY-RESEARCH AND TEST REACTORS							
	THOR	Hsin-Chu	POOL	1 MWt	Oper	64	RCIT
CATEGORY-FUEL REPROCESSING FACILITIES							
	Lungt'an Institute	Lungt'an	UM	(Small)	Constr		RCID
THAILAND							
CATEGORY-RESEARCH AND TEST REACTORS							
	Thai Rsch Reactor-1	Bangkok	POOL	1 MWt	Oper	62	RTHE

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TURKEY							
CATEGORY-MINES (URANIUM & THORIUM)							
		Koprubasi	URAN		Oper		RTYD
		Fakili	URAN		Explor		RTYF
		Kucuk Kuyu	URAN		Explor		RTYG
		Sebinkarahisar	URAN		Explor		RTYH
		Kocarli	URAN		Explor		RTYJ
CATEGORY-RESEARCH AND TEST REACTORS							
	TR-1	Lake K. Cekmece,	POOL	1 MWt	Oper	62	RTYA
UNITED KINGDOM							
CATEGORY-MINES (URANIUM & THORIUM)							
		Caithness	URAN		Explor		RUEC
	Stromness	Orkney	URAN		Explor		RUEZ
		Cornwall	URAN		Explor		RUFA
CATEGORY-CONVERSION PLANTS							
	Springfields	Preston	UF6	8000 te	Oper	68	RUEG
CATEGORY-ENRICHMENT PLANTS							
			LASR		R&D	75	RUAB
	Diffusion Enr. Plant	Capenhurst	DIFF	400 KSWU	Oper	75	RUAU
	Production Plant	Capenhurst	CENT	50 KSWU	Oper	77	RUDL
	Pilot Plant	Capenhurst	CENT	15 KSWU	Oper	72	RUEK
CATEGORY-FUEL FABRICATION PLANTS							
	Springfields Fab.	Preston	UM	2500 te	Oper	58	RUEH
	Springfields Fab.	Preston	UO	300 te	Oper	72	RUEJ
	Windscale Mixed-Ox.	Windscale	UPuO	10 te/y	Oper		RUEM
CATEGORY-RESEARCH AND TEST REACTORS							
	Reactor Herald	Aldermaston,	POOL	5 MWt	Oper	59	RBUV
	Brit Exp Pile Oper	Harwell, Berkshire	GMRR	65 MWt	Inactv	48	RUAE
	Consort Reactor	Silwood Park, Ascot	POOL	100 KWt	Oper	65	RUBA
	DAPHNE	Harwell, Berkshire	TK-H	100 Wt	Oper	62	RUBB
	Dido Reactor	Harwell, Berkshire	TK-H	22 MWt	Oper	56	RUBC
	DIMPLE	Winfrith Rsch Estab.	TANK	100 Wt	Oper	62	RUBD
	Dounreay Mat Test	Dounreay, Caithness	TK-H	25 MWt	Inactv	58	RUBE
	Dragon	Winfrith, Dorset	GMRR	20 MWt	Inactv	64	RUBH
	GLEEP	Harwell, Berkshire	GMRR	Remarks	Oper	47	RUBQ
	Hazel	Harwell, Berkshire	LHRR (small)		Oper	58	RUBT
	HECTOR	Winfrith, Dorset	GMRR	100 Wt	Oper	63	RUBU
	HERO	Windscale	GMRR	3KWt max	Inactv	62	RUBW
	Reactor Horace	Aldermaston,	POOL	10 Wt	Oper	58	RUCD
	Jason Reactor	Greenwich, London	ARGO	.01 MWt	Oper	62	RUCK
	Juno Reactor	Winfrith, Dorset	TANK	100 Wt	Oper	64	RUCL

NFP INDEX BY COUNTRY

COUNTRY	FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	NFP CODE
UNITED KINGDOM (CONT.)							
CATEGORY-RESEARCH & TEST REACTORS (CONT.)							
	Lido Reactor	Harwell, Berkshire	POOL	100 Kwt	Oper	56	RUCM
	Reactor Merlin	Aldermaston,	POOL	5 MWt	Inactv	60	RUCN
	NERO	Winfrith, Dorset	GMRR	100 Wt	Inactv	60	RUCF
	NESTOR	Winfrith, Dorset	ARGO	.01 MWt	Oper	61	RUCQ
	Pluto Reactor	Harwell, Berkshire	TK-B	22 MWt	Oper	57	RUCV
	UTR-B	London	ARGO	.1 MWt	Oper	64	RUCW
	SRRC-UTR-100	East Kilbride	ARGO	.1 MWt	Oper	63	RUDC
	URR	Risley, Warrington	ARGO	Remarks		64	RUDM
	VERA	Aldermaston, Berks.	FNRR	100 Wt	Oper	61	RUDP
	VIPER	AWRE, Aldermaston	FNRR	Remarks	Oper	67	RUDQ
	ZEBRA	Winfrith, Dorset	FNRR	.001 MWt	Oper	62	RUDV
	ZENITH	Winfrith, Dorset	GMRR	200 Wt	Oper	59	RUDX
	ZEPHYR	Harwell, Berkshire	FNRR	Remarks	Inactv	54	RUDY
	Zerc Energy Thermal	Harwell, Berkshire	LHRR	(small)	Oper	52	RUDZ
	ZEUS	Harwell, Berkshire	FNRR	Max 100W	Inactv	55	RUEA
	Atazel	Harwell	LHRR	.1 MWt	Oper	64	RUEN
	Queen Mary College	London	ARGO	10 Wt			RUEP
CATEGORY-FUEL REPROCESSING FACILITIES							
	Reprocessing Plant	Windscale	UMUO	2500 te	Oper	64	RUAJ
	THORP	Windscale	UO	1200 te	Plan	87	RUAL
	Dounreay II	Dounreay	FB	10 te/yr	Oper	61	RUBF
CATEGORY-SEPERATE FUEL STORAGE FACILITIES							
		Windscale	POOL		Oper		RUEY
CATEGORY-WASTE DISPOSAL FACILITIES							
	Windscale Works	Windscale	PREP		Oper	73	RUEQ
		Windscale	PREP		Plan	86	RUEF
		Windscale	PREP		Constr	80	RUES
	Glass Examination	Windscale	PREP		Constr	78	RUET
		Dounreay	PREP	30 l/hr	Plan		RUEU
		Harwell	PREP		Oper	62	RUEV
	Bradwell Power Stat.	Bradwell	PREP		Oper	67	RUEW
	Berkeley Nucl Lab	Berkeley	PREP		Oper	65	RUEX
	Hunterston A	Hunterston	PREP		Oper	67	RUFB
VENEZUELA							
CATEGORY-RESEARCH AND TEST REACTORS							
	RV-1	Alt. De Ripe,	POOL	3 MWt	Oper	60	RVEA
VIETNAM (NORTH)							
CATEGORY-RESEARCH AND TEST REACTORS							
	Triga Mark II	Dalat	SHRR	250 Kw	Oper	63	RVNA

NFP INDEX BY COUNTRY

COUNTRY	FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	NFP CODE
YUGOSLAVIA							
	CATEGORY-MINES (URANIUM & THORIUM)						
		Zirovski Vrh	URAN	255 te/y	Constr	82	RYUF
	CATEGORY-RESEARCH AND TEST REACTORS						
	RA	Belgrade	TK-H	6.5 MWt	Oper	59	RYUD
	RB	Vinca	TK-H	Neglig	Oper	58	RYUG
	Triga-II-Ljubljana	Ljubljana	SHRR	.25 MWt	Oper	65	RYUH
	CATEGORY-FUEL REPROCESSING FACILITIES						
	Boris Kidric	Belgrade	UM	(small)	Oper		RYUU
ZAIRE							
	CATEGORY-MINES (URANIUM & THORIUM)						
		Shinkolobwe	URAN	1000te/y	Inactv	60	RCGD
	CATEGORY-RESEARCH AND TEST REACTORS						
	Bel Congo Triga Reac	Kinshasa	SHRR	10 KWt	Oper	59	RCGC
ZAMBIA							
	CATEGORY-MINES (URANIUM & THORIUM)						
		Lake Kariba	URAN		Explor		RYAC

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NFP INDEX BY CATEGORY-MINES (URANIUM & THORIUM)

COUNTRY	FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	NFP CODE
ALGERIA		Tamanrasset	URAN		Explor	82	RAGA
		Timgaouine/Abankor	URAN		Explor		RAGC
ARGENTINA		Los Gigantes	URAN		Explor		RANA
		Comechingones	URAN		Explor		RANB
		Los Chihvidos	URAN		Explor		RANC
		Sierra Cavdrada	URAN		Explor		RAND
		Los Adobes	URAN	50 te/y	Plan		RANE
		Don Otto	URAN	30 te/y	Oper	83	RARQ
		Sierra Pintada	URAN	600 te/y	Constr	83	RARR
		Malargue	URAN	30 te/y	Oper		RARS
		Sierra de Pichinan	URAN		Explor		RART
		Tonco-Amblayo	URAN		Explor		RARW
		Conquin	URAN		Explor		RARX
		Sano Gasta					RARY
		Guandacol	URAN		Explor		RARZ
AUSTRALIA		Maureen	URAN		Explor		RASA
		Ben Lomond	URAN		Explor		RASB
		Ngalia Basin	URAN		Explor		RASC
		Beverley	URAN		Explor		RASD
		Radium Hill	URAN		Inactv	61	RASF
		Flinders Range	URAN		Explor		RASJ
	Lake Way	Wiluna			Explor		RASK
	Olympic Dam		URAN		Explor		RASL
	Honeymoon	Honeymoon	URAN		Explor		RASM
		Yeelirrie	URAN	2300te/y	Plan	84	RAUL
	Jabirv	Ranger	URAN	3000te/y	Plan	81	RAUM
		Alligator Rivers	URAN		Explor		RAUP
		Koongarra		1500te/y	Plan		RAUQ
		Nabarlek	URAN	900 te/y	Plan	81	RAUR
		Jabiluka	URAN	2500te/y	Plan	83	RAUT
		Westmoreland	URAN		Explor		RAUV
	Mary Kathleen	Mt. Isa	URAN	700 te/y	Oper	56	RAUV
		Rum Jungle	URAN	200 te/y	Inactv	71	RAUX
	South Alligator	Northern Territory	URAN		Inactv	62	RAUY
	El Sherana	El Sharana	URAN		Inactv	65	RAUZ
AUSTRIA		Forstau	URAN		Explor		RATP
		Tweng	URAN		Explor		RATQ

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NFP INDEX BY CATEGORY-MINES (URANIUM & THORIUM)

COUNTRY	FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	NFP CODE
BOLIVIA		Cotaje	URAN		Plan	80	RBOC
BRAZIL		Campos Belos	URAN		Explor		RBRT
		Figueira	URAN		Explor		RBZD
		Pocos de Caldas	URAN	500 te/y	Constr	79	RBZG
		Pocos de Caldas	URAN	500 te/y	Constr	79	RBZH
		Olinda	URAN		Explor		RBZJ
		Araxa	URAN		Explor		RBZK
		Amorinopolis	URAN		Explor		RBZL
		Quadilatero	URAN		Explor		RBZM
		Itabapoana	THOR		Oper		RBZN
		Cumuruxatiba	THOR		Oper		RBZP
BULGARIA	Buhovo	Sofia			Oper		RBLL
CANADA	Cluff Lake	Cluff Lake	URAN	1500te/y	Constr	79	RDCG
	Birch Island	Clearwater	URAN	110 te/y	Constr	80	RDCK
	Beaverlodge	Beaverlodge	URAN	460 te/y	Oper	53	RDCL
	Key Lake	La Ronge	URAN	2300te/y	Plan	83	RDCN
	Rabbit Lake	Rabbit Lake		1730te/y	Oper	75	RDCP
	Baker Lake	Baker Lake	URAN		Explor		RDCR
	Preston	Elliot Lake	URAN		Inactv	61	RDCS
	Rio Algon	Elliot Lake	URAN	1900te/y	Oper	68	RDCU
	Agnew Lake	Sudbury	URAN	270 te/y	Oper	77	RDCW
	James Bay	James Bay	URAN		Explor		RDCZ
	Wollaston Lake	Wollaston Lake	URAN		Explor		RDDA
	Madawaska	Bancroft	URAN	320 te/y	Oper	76	RDDC
	Kitts-Michelin	Makkovik	URAN		Explor	83	RDDE
	Johan Beetz	Quebec	URAN		Explor		RDJH
		Port Radium	URAN		Inactv	60	RDJU
	Rayrock	Lake Marion	URAN		Inactv	57	RDJV
		Great Slave Lake	URAN		Explor		RDJW
		St. Armand	URAN		Explor		RDJX
		Otish Mountains	URAN		Explor		RDJY
		Mont Laurier	URAN		Explor		RDJZ
	Charlebois Lake	Charlebois Lake	URAN		Explor		RDKA
		St. Germaine Lake					RDKB
		Tyee Lake					RDKC
		Mazenod Lake					RDKD
		Dudderidge Lake					RDKE
		Thunder Bay					RDKF
		Cape Dorset					RDKG

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NFP INDEX BY CATEGORY-MINES (URANIUM & THORIUM)

COUNTRY	FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	NFP CODE
CANADA (CONT.)							
		Ungara					RDKH
		Jourdan Lake					RDKJ
		Sakami Lake					RDKK
		Uranium City					RDKL
		Lake Athabaska					RDKM
		Blind River					RDKN
		Cobeguid Mountain					RDKP
		Churchill					RDKQ
		Dismal Lake					RDKR
		Fond du Lac					RDKS
	Denison	Elliot Lake	URAN	1900te/y	Oper	57	RDKZ
CENTRAL AFRICAN REPUBLIC							
		Bakouma	URAN	1000te/y	Plan	61	RCAA
CHINA							
		Kuetchou	UTh		Oper		RPCD
		Tsinghai	UTh		Oper		RPCE
		Szechwan	UTh		Oper		RPCF
		Sinkiang	UTh		Oper		RPCG
		Chuannan	URAN		Oper		RPCJ
		Chuchou	URAN		Oper		RPCK
		Chushan	URAN		Oper		RPCL
	Hsia Chuang	Weiyuan	URAN		Oper		RPCM
CZECHOSLOVAKIA							
		Jachymov	URAN				RCKE
	Pribram	Pribram	URAN		Oper	54	RCZN
FINLAND							
		Joensuu	URAN		Inactv	61	REFF
FRANCE							
		Vendee	URAN		Oper		RFEW
		La Crouzille	URAN	200 te/y	Oper	50	RFEZ
		St. Priest	URAN				RFFA
		Lodeve	URAN	500 te/y	Oper	78	RFFK
		Roven	URAN	100 te/y	Plan	81	RFGQ
		Langogne	URAN	135 te/y	Oper	77	RFGR
		St. Pierre du Cantal	URAN	100 te/y	Oper	78	RFGU

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NFP INDEX BY CATEGORY-MINES (URANIUM & THORIUM)

COUNTRY	FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	NFP CODE
GABON		Mikouloungou	URAN		Explor		RHBA
		Oklo	URAN		Oper	70	RHBE
		Mounana	URAN		Inactv		RHBC
		Boyindzi	URAN		Explor		RHBE
		Okelobondo	URAN		Explor		RHBF
GERMANY (EAST)		Weringerode	URAN		Oper	50	REGU
	Sorgesettendorf		URAN				REGV
		Thuringia	URAN		Oper		REGW
GERMANY (WEST)		Menzenschwand	URAN		Explor		RGFJ
		Mullenbach	URAN		Explor		RGGT
		Oberpfalzer	URAN		Explor		RGGU
		Saxony	URAN		Inactv		RGGV
GREENLAND	Kvanefjeld	Ilimaussaq	URAN		Explor		RHLA
HUNGARY		Pecs	URAN		Oper	55	RHUK
INDIA		Bhatin	URAN		Constr		RHEH
		Quilor	THOR	60 te/y	Oper		RHEJ
		Manavalakurichi	THOR	450 te/y	Oper		RHEK
		Narwapahar	URAN		Constr		RHIY
		Jaduguda	URAN		Oper	56	RHNA
IRAN		Anarak	URAN		Explor		RORR
		Yazd	URAN		Explor		RORS
IRELAND	Leinster	Mt. Leinster	URAN		Explor		RHRF
ITALY		Val Rendena	URAN		Explor		RICP
	Novazza	Valgoglio	URAN	110 te/y	Constr	80	RICQ
		Preit Valley	URAN		Explor		RIDM
		Latium	URAN		Explor		RIDN
		Lazio	URAN		Explor		RIDP

NFP INDEX BY CATEGORY-MINES (URANIUM & THORIUM)

COUNTRY	FACILITY NAME	LOCATION	FAC TYPE C/	TECHNICALITY	STATUS	YR	NFP CODE
JAPAN		Tono	URAN	10 te/y	Oper		RJFR
		Ningyo Toge	URAN		Oper	64	RJFV
KOREA (SOUTH)		Taeduck	URAN		Explor		RKOV
MADAGASCAR		Fort Dauphin	URAN	450 te/y	Inactiv	63	RMDA
MEXICO	Sierra Pena Blanca	Tamaulipos	URAN		Explor	75	RMEN
		La Coma	URAN		Explor		RMEV
		Buenvista	URAN		Explor		RMEX
		Otros	URAN		Explor		RMEY
		La Domitila	URAN		Explor		RMEZ
		Nopal III	URAN		Explor		RMXA
		Margaritas-Puerto III	URAN		Explor		RMXB
		El Nopal	URAN		Explor		RMXC
		Los Amoles	URAN		Explor		RMXD
		La Preciosa	URAN		Explor		RMXE
		El Chapote	URAN		Explor		RMXF
NAMIBIA	Rossing	Swakopmund	URAN	6500te/y	Oper		RYBE
		Lvderitz	URAN		Explor		RYBC
		Namib Desert	URAN		Explor		RYBE
		Trekkopje			Explor		RYBE
		Langer Heinrich	URAN		Explor		RYBF
NIGER		Djado	URAN		Explor		RMGA
	SOMAIR	Arlit	URAN	1000te/y	Oper	71	RMGB
	SOMAIR	Arlit	URAN	1000te/y	Oper	71	RMGC
	COMINAK	Akouta	URAN	2600te/y	Oper	78	RMGD
		Madaouela	URAN		Explor		RMGG
		Azelik	URAN		Explor		RMGH
		Imouraren	URAN		Explor		RMGJ
		Techili	URAN		Explor		RMGK
		Arni	URAN		Explor		RMGL
		I-n-Adrar	URAN				RMGM
		West Afasto	URAN		Explor		RMGN
		Tegidda-in-Tessoum			Explor		RMGP

NFP INDEX BY CATEGORY-MINES (URANIUM & THORIUM)

COUNTRY	FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	NFP CODE
PAKISTAN		Dera Ghazi Khan			Constr		RPAJ
PERU	Vilcabamba	Cuzco	URAN	2.5 te/y	Oper	75	RPED
	Restauradora	Huancavelica	URAN		Plan	75	RPEE
	Area Ica	Ica	URAN		Plan		RPEF
	Churin	Lima	URAN		Plan		RPEG
	Jesus Maria	Moguegua	URAN		Plan		RPEH
	Colquijirca	Pasco	URAN	2.5 te/y	Oper	75	RPEJ
	Bayovar	Piura	URAN		Plan		RPEK
PHILIPPINES							
	Larap	Camarines Norte	URAN		Explor		RPHQ
	Bagacay	Sama-Island	URAN		Explor		RPHR
	Magna Rosa	Caramoan Peninsula	URAN		Explor		RPHS
PORTUGAL							
		Senhora das Fontes	URAN		Oper		RPOJ
		Urgeirica	URAN		Oper		RPOK
		Cunha Baixa	URAN		Explor		RPOM
	Alto Alentejo	Nisa	URAN		Plan		RPON
		Quinta do Bispo	URAN		Explor		RPOC
		Azere	URAN		Explor		RPOR
		Guarda	URAN		Explor		RPOS
SOUTH AFRICA							
		Palabora	URAN	120 te/y	Oper		RTAK
		Karoo	URAN		Explor		RTAM
	Hartebeestfontein	Hartebeestfontein	URAN	450 te/y	Oper		RTAN
	Buffelsfontein	Far West Rand	URAN	620 te/y	Oper		RTAP
	Vaal Reefs	Orkney	URAN	1200 te/y	Oper		RTAQ
	Blyvooruitzicht	Blyvooruitzicht	URAN	287 te/y	Oper		RTAR
	West Rand	West Rand	URAN	295 te/y	Oper		RTAS
	West Driefontein	Carletonville	URAN	286 te/y	Oper		RTAT
	Western Deep Levels	Casletonville	URAN	167 te/y	Oper		RTAU
	Randfontein	Randfontein	URAN	70 te/y	Oper		RTAV
	JMS	Riebeeckstad	URAN	480 te/y	Oper	78	RTAX
	Harmony	Virginia	URAN	525 te/y	Oper		RTAY
	East Rand Gold & U	East Rand	URAN	100 te/y	Oper	78	RTFA
	Afrikaner Lease	Klerksdorp	URAN	300 te/y	Plan	81	RTFB
		Parmeitkuil	URAN		Plan	82	RTFC

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NFP INDEX BY CATEGORY-MINES (URANIUM & THORIUM)

COUNTRY	FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	NFP CODE
SOVIET UNION		Norilsk	URAN		Oper		RRFC
		Taboshar	URAN		Oper		RRFD
		Pervomaisk	URAN		Oper		RRFE
		Tuya Muyum	URAN		Inactv		RRFF
		Mailiy Su	URAN		Oper		RRFG
		Uigur Say	URAN		Oper		RRFH
SPAIN		Soria	URAN		Explor		RSCQ
	El Pedregal	Cuidad Rodrigo	URAN	118te/y	Oper	75	RSCS
		Don Benito	URAN	60 te/y	Oper		RSCU
		Andvjar	URAN	65 te/y	Oper	59	RSCV
SWEDEN		Arjeplog-Arvidsjaur	URAN		Explor		RWBP
	Pleutajokk	Billingen	URAN	140 te/y	Oper		RWBX
	Ranstad		URAN		Inactv		RWBY
	Kvarntorp						
TURKEY		Koprubasi	URAN		Oper		RTYD
		Fakili	URAN		Explor		RTYF
		Kucuk Kuyu	URAN		Explor		RTYG
		Sebinkarahisar	URAN		Explor		RTYH
		Kocarli	URAN		Explor		RTYJ
UNITED KINGDOM		Caithness	URAN		Explor		RUEC
	Stromness	Orkney	URAN		Explor		RUEZ
		Cornwall	URAN		Explor		RUFA
YUGOSLAVIA		Zirovski Vrh	URAN	255 te/y	Constr	82	RYUP
ZAIRE		Shinkolobwe	URAN	1000te/y	Inactv	60	RCGD
ZAMBIA		Lake Kariba	URAN		Explor		RYAC

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NFP INDEX BY CATEGORY-MILLS

COUNTRY	FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	NFP CODE
AUSTRALIA	Jabiru	Ranger	URAN	3000te/y	Plan	82	RAUN
		Nabarlek	URAN	900 te/y	Plan	81	RAUS
	Mary Kathleen	Mt. Isa	URAN	700 te/y	Oper	56	RAUW
CANADA	Beaverlodge	Beaverlodge		460 te/y	Oper	53	RDCM
	Rabbit Lake	Rabbit Lake		1730te/y	Oper	75	RDCQ
	Denison	Elliot Lake	URAN	1900te/y	Oper	57	RDCT
	Rio Algon	Elliot Lake	URAN	1900te/y	Oper	68	RDCV
	Agnew Lake	Sudbury	URAN	270 te/y	Oper	77	RDCX
	Madawaska	Bancroft	URAN	320 te/y	Oper	76	RDDD
FRANCE		L'Ecarpier	URAN	700 te/y	Oper	77	RFEV
		Bessines-sur-Gartemp	URAN	1500te/y	Oper	77	RFEY
		St. Priest	URAN	500 te/y	Oper	77	RFFB
		Langogne	URAN	135 te/y	Oper	77	RFGS
		Lodeve	URAN	1000te/y	Constr	80	RFGT
GABON		Mounana	URAN		Inactv		RHBD
INDIA		Narwapahar	URAN		Constr		RHIZ
		Jaduguda	URAN		Oper	56	RHNB
ITALY		Novazza	URAN	200 te/y	Constr	80	RIDG
JAPAN		Ningyo Toge	URAN		Oper	64	RJFW
MEXICO	Sierra Pena Blanca	Tamaulipos	URAN	15 te/y	Oper	75	RMEP
	Villa Aldama		URAN		Oper		RMEU
		La Coma	URAN		Plan		RMEW
NIGER	COMINAK	Akouta	URAN	2600te/y	Oper	78	RMGE

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NFP INDEX BY CATEGORY-MILLS

COUNTRY	FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	NFP CODE
PORTUGAL							
	Alto Alentejo	Urgeirica	URAN	150 te/y	Oper		RPOL
		Nisa	URAN		Plan	85	RPOF
SOUTH AFRICA							
	Millsite	Randfontein	URAN		Oper	77	RTAW
SPAIN							
		Cuidad Rodrigo	URAN	118te/y	Oper	75	RSCT
		Andujar	URAN	65 te/y	Oper	59	RSDC
	Lobo	Badajoz	URAN	25 te/y	Oper		RSDD

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NFP INDEX BY CATEGORY-CONVERSION PLANTS

COUNTRY	FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	NFP CODE
CANADA	Eldorado Nuclear	Port Hope	UF6	4000 te	Oper	70	RDAY
	Eldorado Nuclear	Port Granby	UF6	10000 te	Plan	81	RDDN
FRANCE	Conversion Facility, Pierrelatte		UF6	8000 te	Oper	77	RFFC
	Malvesi Refining Fac	Malvesi	UF4		Oper		RFFL
GERMANY (WEST)							
	RBU-1	Hanau	UO2	1000 te	Oper	64	RGDF
INDIA							
	Nucl Fuel Complex	Hyderabad	UO2	124 te	Oper	71	RHIA
ITALY							
	Fabricazzioni Nucl	Bosco Marengo	UO2	360 te	Plan		RICT
JAPAN							
	Mitsubishi Nucl Fuel	Tokai-Mura	UO2	420 te	Oper	72	RJDL
	Sumitomo Metal	Tokai-Mura	UO2	240 te	Oper	73	RJFF
	Sumitomo Metal	Tokai-Mura	UO2	340 te	Plan	79	RJGC
SWEDEN							
	Vasteras Fuel Fac.	Vasteras	UO2	400 te	Oper	76	RWAD
UNITED KINGDOM							
	Springfields	Preston	UF6	8000 te	Oper	68	RUEG

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NFP INDEX BY CATEGORY-ENRICHMENT PLANTS

COUNTRY	FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	NFP CODE
AUSTRALIA	Lucas Heights	Lucas Heights	CENT LASR		Oper R&D	65	RASE RASE
BRAZIL	Nuclei	Sepetiba Sepetiba	JET JET	180 KSWU 5000 K	Plan Plan	82	RBRA RBZA
CHINA	China 1	Lanchou	DIFF LASR	180 KSWU	Oper R&D	63	RPCB RPCB
FRANCE	Enrichment Facility Eurodif 1 Eurodif 2 (Coredif)	Pierrelatte Tricastin	DIFF DIFF DIFF CHEM LASR	500 KSWU 10800 K 5000 K 50-100 K	Oper Constr Plan Plan R&D	67 81 85 85 60	RFAA RFBC RFBP RFFZ RFGA
GERMANY (WEST)	Karlsruhe Nuclear	Julich Karlsruhe Gronau	CENT JET CENT LASR	2 KSWU 1000 K	Oper Oper Plan R&D	67 85 71	RGFC RGFH RGFF RGFS
ISRAEL	Weizmann Institute	Rehovot	LASR		R&D		RTSK
JAPAN	C-1 C-2	Tokai-Mura Tokai-Mura Tokai-Mura	CENT CENT CENT LASR	50 KSWU	Oper Oper Constr R&D	74 76 80 75	RJCE RJCG RJGA RJGB
NETHERLANDS	Pilot Plant SP1 Pilot Plant SP2 Production Plant SP3	Almelo Almelo Almelo	CENT CENT CENT	25 KSWU 25 KSWU 60 KSWU	Oper Oper Oper	72 72 77	RNAT RNAX RNAY
SOUTH AFRICA	UCOR UCOR	Valindaba Valindaba	STAT STAT	6 KSWU 5000 K	Oper Plan	76	RTAA RTAZ

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NFP INDEX BY CATEGORY-ENRICHMENT PLANTS

COUNTRY	FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	NFP CODE
SOVIET UNION		Siberia	DIFF LASR	10000 K	Oper		RRAA RRAB
SWEDEN	Royal Inst of Tech	Stockholm	LASR		R&D		RWAB
UNITED KINGDOM			LASR		R&D	75	RUAB
	Diffusion Enr. Plant	Capenhurst	DIFF	400 KSWU	Oper	75	RUAU
	Production Plant	Capenhurst	CENT	50 KSWU	Oper	77	RUDL
	Pilot Plant	Capenhurst	CENT	15 KSWU	Oper	72	RUEK

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NFP INDEX BY CATEGORY-HEAVY WATER PRODUCTION

COUNTRY	FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	NFP CODE
ARGENTINA		Buenos Aires			Plan	84	RARF
CANADA	Port Hawkesbury	Port Hawkesbury		400te/y	Oper	70	RDFA
	Glance Bay	Glance Bay		400 te/y	Oper	76	RDJP
	Bruce A	Douglas Point		800 te/y	Oper	73	RDJQ
	Bruce B	Douglas Point		800 te/y	Constr	78	RDJR
	Bruce C	Douglas Point		800 te/y	Plan	80	RDJS
	Bruce D	Douglas Point		800 te/y	Plan	79	RDJT
	La Prade	La Prade		800 te/y	Constr	79	RDKU
	Trail	Trail		6 te/y	Inactv		RDKV
FRANCE		Toulouse	D20	2 te/y	Inactv		RFGW
		Mazingarbe	D20	26 te/y	Inactv		RFGX
GERMANY (WEST)		Frankfurt	D20	6 te/y	Inactv		RGGS
INDIA	Nangal	Nangal	D20	14 te/y	Oper	62	RHNK
	Baroda Plant	Baroda	D20	67.2te/y	Oper	76	RHNL
	Kota Plant	Kota	D20	100 te/y	Constr	80	RHNM
	Tuticorin Plant	Tuticorin	D20	71.3te/y	Constr	78	RHNN
	Talcher Plant	Talcher	D20	62.7te/y	Constr	80	RHNF
NORWAY		Rjukan		20 te/y	Oper	34	RMON
SWEDEN		Domat Ems		2 te/y	Inactv		RZBE

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NFP INDEX BY CATEGORY-FUEL FABRICATION PLANTS

COUNTRY	FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	NFP CODE
ARGENTINA	Constituyentes Pilot	Buenos Aires	UO	50 te/yr	Oper	77	RARA
BELGIUM	Dessel Pu Fuel Prod.	Dessel	UPuO	35 te/yr	Oper	73	RBEH
	FBFC	Dessel	UO	200 te	Oper	59	RBER
	Plutonium Lab.	Mol	UPuO	(small)	Oper	60	RBEZ
BRAZIL	Inst Energie Atomica	Sao Paulo	U308	10 te/yr	Oper		RBRB
		Sepetiba	UO	50 te/yr	Constr	78	RBZE
CANADA	Canadian Gen Electr.	Peterborough	UO		Oper		RDAT
	Canadian Gen Electr.	Toronto	UO		Oper		RDAU
	Westinghouse	Port Hope	UO		Oper		RDCD
	Chalk River Nuclear	Chalk River	UPuO	(small)	Inactv	76	RDDE
	Westinghouse	Varenes	UO		Oper		RDEX
CZECHOSLOVAKIA	Nuclear Fuel Inst.	Prague			Oper		RCKF
DENMARK	Riso Research Est.	Roskilde			Oper		RENK
		Elsinore	UOUM		Oper		RENK
FRANCE	FBFC	Romans	UO	300 te	Constr	78	RFFE
	Pu Workshops ATPu,	St-Paul-les-Durance	UPuO	10 te/yr	Oper		RFFF
	SICN	Veurey	FB		Oper		RFFM
	CERCA	Romans	UM	900 te	Oper		RFGZ
	SICN	Annecy	UM	1200 te	Oper		RFHA
GERMANY (WEST)	RBU-II	Grosswelzheim	UO	150 te	Oper	66	RGDG
	RBU-I	Hanau	UO	600 te	Oper	64	RGDH
		Lingen	UO		Constr	77	RGFB
	Alkem GmbH	Hanau	UPuO	50 te/yr	Oper	66	RGFE
	Hobeg	Hanau	UOUC		Oper	72	RGFK
INDIA	Nuclear Fuels	Hyderabad	UO	124 te	Oper	71	RHNQ

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NFP INDEX BY CATEGORY-FUEL FABRICATION PLANTS

COUNTRY	FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	NFP CODE
ITALY	Fabricazioni	Bosco Marengo	UO	200 te	Oper	74	RIBM
		San Donato	UPuO	8 te/yr	Oper		RICR
	Casaccia Center,	Rome	UPuO	8 te/yr	Oper		RICX
	Combustibili	Rotondella	UM	30 te/yr	Oper	69	RICZ
	COREN	Saluggia	UO	60 te/yr	Oper	68	RIDH
JAPAN	Japan Nuclear Fuel	Yokosuka	UO	560 te	Oper	72	RJBS
	Kumatori Works	Osaka		40 te/yr	Oper		RJCW
	Mitsubishi Nucl Fuel	Tokai-Mura	UO	420 te	Oper	72	RJDK
	Tokai Works	Tokai-Mura	UPuO		Oper		RJDY
	Tokayama Works	Tokayama		20 te/yr	Oper		RJEW
	Nuclear Fuel	Tokai-Mura	UO	100 te	Constr	78	RJFZ
NORWAY	Fuel Element Pilot	Kjeller			Oper		RMOP
SPAIN	Juan Vigon Nuclear	Madrid			R&D		RSBM
	Fabrication Facility	Juzbada	UO	400 te	Plan	81	RSDA
SWEDEN	Vasteras Fuel Fac	Vasteras	UO	400 te	Oper	72	RWAE
TAIWAN	INER	Lungt'an			Oper		RCIC
UNITED KINGDOM	Springfields Fab.	Preston	UM	2500 te	Oper	58	RUEH
	Springfields Fab.	Preston	UO	300 te	Oper	72	RUEJ
	Windscale Mixed-Ox.	Windscale	UPuO	10 te/y	Oper		RUEM

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NFP INDEX BY CATEGORY-RESEARCH AND TEST REACTORS

COUNTRY	FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	NFP CODE
ARGENTINA							
	RA-0	Cordoba			Oper	68	RARJ
	RA-1	Buenos Aires	TANK	.15 MWt	Oper	58	RARK
	RA-2	Buenos Aires			Oper	58	RARI
	RA-3	Buenos Aires	TANK	5 MWt	Oper	67	RARM
	RA-4	Rosario	SHRR		Oper	66	RARN
	RA-5		FNRR		Constr	75	RARV
AUSTRALIA							
	High Flux Australian	Sutherland, New S.W.	TANK	10 MWt	Oper	58	RAUE
	Moata Reactor	Lucas Heights	ARGO	.01 MWt	Oper	61	RAUE
AUSTRIA							
	ASTRA Adapted Swim.	See remarks	POOL	Remarks	Oper	60	RATE
	Sar-Graz	Graz	ARGO	.001 MWt	Oper	65	RATH
	Triga Mark II	Vienna	SHRR	25 MWt	Oper	62	RATK
BELGIUM							
	BR-02	Mol	TK-L	500Wt	Oper	59	RBEE
	BR-1	Mol		4 MWt	Oper	56	RBEF
	Belgian Reactor BR-2	Mol	TK-L	100 MWt	Oper	60	RBEG
	BR-3/VN	Mol	TANK	40.9 MWt		65	RBEJ
	Thetis	Ghent		41 MWt	Oper	67	RBET
	VENUS	Mol	TANK	500Wt	Oper	64	RBEX
	BR-3	Mol	PWR	10.5 MWe	Oper	72	RBGE
BRAZIL							
	IEAR-1	Sao Paulo, Brazil	POOL	5 MWt		58	RBRR
	RIEN-1	Rio de Janeiro	ARGO	.01 MWt	Oper	65	RBRW
	Triga-Brazil	Belo Horizonte	SHRR	30 KWt	Oper	59	RBRY
BULGARIA							
	IRT-Sofia	Sofia	POOL		Oper	61	RBLE
CANADA							
	McMaster Nuclear	Hamilton, Ontario,	POOL	2 MWt	Oper	59	RDBF
	NRU Reactor	Chalk River, Ontario	TK-H	110 MWt	Oper	58	RDBJ
	NRX	Chalk River, Ontario	TK-H	33 MWt	Oper	47	RDBK
	NRX Reactor	Chalk River, Ontario	TK-H	40 MWt	Oper	48	RDBL
	Pool Test Reactor	Chalk River, Ontario	POOL	10 Wt	Oper	57	RDBZ
	Slowpoke-2	Ottawa, Ontario	POOL	.021 MWt	Oper	71	RDCA
	Slowpoke-1	Toronto, Ontario	POOL	.021 MWt	Oper	70	RDCE
	WR-1	Pinawa, Manitoba	TK-H	40 MWt	Oper	65	RDCE
	ZED-2	Chalk River, Ontario	TK-H	200 Wt	Oper	60	RDCH
	ZEEP	Chalk River, Ontario	TK-H	Remarks	Remark	45	RDCJ

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NFP INDEX BY CATEGORY-RESEARCH AND TEST REACTORS

COUNTRY	FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	NFP CODE
COLOMBIA	Instituto De Asuntos	Bogota	POOL	20 Kw	Oper	65	RCEB
CZECHOSLOVAKIA	HWGCR (KS-150)	Bohunice, Slovakia		590 MWt	Oper	65	RCKE
	WWR-C Prague	Rez	TK-L	2 MWt	Oper	57	RCZL
DENMARK	DR-1	Roskilde	LHRR	500Wt		57	RENG
	DR-2	Roskilde	POOL	5 MWt	Oper	58	RENJ
	DR-3	Copenhagen	TK-H	10 MWt	Oper	59	REN1
EGYPT	UAR WWR-C Reactor	Inshas	TK-L	2 MWt	Oper	61	RVAE
FINLAND	FIR-1	Helsinki		250 MWt	Oper	62	REFA
	Fir-1	Otaniemi	SHRR	Remarks	Oper	62	REFE
FRANCE	Reactor Aleto	Saclay	LHRR	1 Wt	Inactv	64	RFAL
	Reactor Alize	Saclay	TK-L	1 Wt	Inactv	59	RFAE
	Aquilon	Sarclay, near Paris	TK-H	Remarks	Inactv	56	RFAE
	Azur	Cadarache	POOL	(small)	Oper	62	RFAK
	Cabri	Cadarache	POOL	Remarks	Oper	63	RFAE
	Reactor Cesar	Cadarache	GMRR	10 Kw	Oper	64	RFBA
	Reactor Zoe	Fontenay-Aux-Roses	TK-H	150 Kw	Oper	48	RFBK
	Reactor EL-2	Saclay	TK-H	2 MWt	Inactv	52	RFBI
	Reactor EL-3	Saclay	TK-H	20 MWt	Oper	57	RFBK
	Eole Reactor	Cadarache	TK-H	10KW max	Oper	65	RFBK
	Harmonie Reactor	Bouches-du-Rhone	FNRR	.002 MWt	Oper	65	RFCC
	Isis Reactor	Saclay	POOL	.08 Kw	Oper	66	RFCE
	Reactor Marius	Cadarache	GMRR	(small)	Oper	60	RFCW
	MASURCA	Cadarache	FNRR	1 Kw	Oper	66	RFCX
	Reactor Melusine	Grenoble, Isere	POOL	8.0 MWt	Oper	58	RFCY
	Reactor Minerve	Fontenay-Aux-Roses	POOL	100 MWt	Oper	59	RFCZ
	Nereide Reactor	Fontenay-aux-Roses	POOL	.6 MWt	Oper	60	RFDB
	Osiris Reactor	Saclay, Seine-et-Ois	TK-L	50 MWt	Oper	66	RFDB
	Reactor Pegase	Cadarache	TK-L	30 MWt	Oper	63	RFDB
	Peggy	Cadarache	TK-L	1 Kw	Oper	61	RFDB
	Proserpine	Saclay	LHRR	1 Wt	Oper	58	RFDB
	Rapsodie Reactor	Bouches-du Rhone	FNRR	41 MWt	Oper	67	RFDR
	Reactor Siloe	Grenoble	POOL	Remarks	Oper	63	RFDB
	Reactor Siloette	Grenoble	POOL	.1 MWt	Oper	64	RFDB
	Strasbourg-Cronenbg.	Strasbourg	ARGO	.1 MWt	Oper	66	RFDB

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NFP INDEX BY CATEGORY-RESEARCH AND TEST REACTORS

COUNTRY	FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	NFP CODE
FRANCE (CONT.)							
	Reactor Triton	Fontenay-Aux-Roses	POOL	100 Wt	Oper	59	RFEM
	Ulysse Reactor	Saclay	ARGO	.1 MWt	Oper	61	RFEN
	Chaudiere	Cadarache		100 MWt	Oper	75	RFGC
	High-Flux Reactor	Grenoble	TK-H	60 MWt	Oper	71	RFGD
GERMANY (WEST)							
	AVR	KFA, Julich	GMRR	46 MWt	Oper	67	RGAF
	Adibka-1 Reactor	Julich	LHRR	10 Wt	Oper	67	RGAC
	AEG Nullenergie	Grosswelzheim	TK-L	100 Wt	Oper	67	RGAD
	ANEX	Geesthacht		0 MWt	Oper	64	RGAE
	BER	Berlin-Wannsee	LHRR	50 KWt	Oper	58	RGAH
	FMRB	Braunschweig	POOL	1 MWt	Oper	67	RGAV
	FR-2	Karlsruhe	ARGO	12 MWt	Oper	61	RGAW
	Rsch Reactor	Frankfurt/Main	LHRR	50 KWt		58	RGAX
	Rsch Reac Geesthacht	Geesthacht/Elbe	POOL	5 MWt	Oper	58	RGAY
	FRG-2	Geesthacht/Elbe	POOL	15 MWt	Oper	68	RGAZ
	Dido-Julich	Julich	TK-H	10 MWt	Oper	61	RGBB
	Rsch Reactor Muenchen	Garching	POOL	4 MWt	Oper	57	RGBC
	Triga-I-Hannover	Hannover		.25 MWt	Oper	72	RGBF
	React. Merlin-Julich	Julich, W. Germany	POOL	5 MWt	Oper	61	RGCP
	PR-10	Grosswelzheim					RGDD
	SAR-1	Garching	ARGO		Oper	59	RGDQ
	SNEAK	Leopoldshafen	FNRR	1KWt max	Oper	66	RGDR
	Stark	Karlsruhe	ARGO		Oper	64	RGDU
	SUR-Aachen	Aachen	SHRR	.1 Wt	Oper	66	RGDW
	SUR-Berlin	Berlin	SHRR	.1 Wt	Oper	63	RGDX
	SUR-Bremen	Bremen	SHRR	.1 Wt	Oper	67	RGDY
	SUR-Darmstadt	Darmstadt	SHRR	.1 Wt	Oper	63	RGDZ
	SUR-Hamburg	Hamburg	SHRR	.1 Wt	Oper	65	RGEA
	SUR-Karlsruhe	Karlsruhe	SHRR	.1 Wt	Oper	66	RGEB
	SUR-Kiel	Kiel	SHRR	.1 Wt	Oper	66	RGEC
	SUR-Stuttgart	Stuttgart	SHRR	.1 Wt	Oper	64	RGEF
	SUR-Ulm	Ulm	SHRR	.1 Wt	Oper	65	RGEG
	Triga-I-Heidelberg	Heidelberg	SHRR	.25 MWt	Oper	66	RGEM
	German Triga	Mainz, West Germany	SHRR	10 KWt	Oper	65	RGEN
	HDR	Grosswelzheim/Main		100 MWt		68	RGFC
	CFG	Karlsruhe	SHRR	Max 100W	Oper	64	RGFT
	BER-2	Berlin	POOL	5 MWt	Oper	73	RGFX
	Kather	Julich			Oper	73	RGFY
	SUR-100	Furtwangen	SHRR		Oper	73	RGFZ
	AEG-PR-10	Unterfranken	ARGO	10 Wt	Oper	61	RGGA
	SUR-Hannover	Hannover	SHRR		Oper	61	RGGE
	Triga Conversion	Frankfurt	SHRR	1 MWt			RGGF
	WWR-5 (m)	Rosendorf	TANK	6 MWt			RGGG
GREECE							
	GRR	Athens	POOL	1 MWt		59	RHCE

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NFP INDEX BY CATEGORY-RESEARCH AND TEST REACTORS

COUNTRY	FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	NFP CODE
HUNGARY	Hungarian WWR-C	Csillererc	TANK	2 MWt	Oper	59	RHUF
INDIA	Kalpakkum PFR	Kalpakkam	FNRR	.03 MWt	Plan		RHEE
	FBTR	Kalpakkam	FNRR	50 MWt	Constr		RHEI
	Reactor Apsara	Trombay	POOL	1 MWt	Oper	56	RHIF
	CIR	Trombay	TK-H	40 MWt	Oper	60	RHIG
	Zerlina	Trombay	TANK	MAX100Wt	Oper	61	RHIW
	Purnima	Trombay			Oper	72	RHN?
INDONESIA	Triga-Mark II	Bandung	SHRR	.25 MWt	Oper	65	RHOE
IRAN	U of Teheran Rsch	Teheran	POOL	5 MWt	Oper	67	RORM
	UTRR Conversion	Tehran	SHRR	10 MWt	Constr		RORC
ISRAEL	IRR	Rehovath	POOL	5 MWt	Oper	59	RTSF
	IRR-2	Negev		26 MWt	Oper		RTSG
ITALY	AGN-201-110	near Palermo	SHRR	.1 Wt	Oper	60	RIAD
	Avogadro RS-1	Saluggia	POOL	7 MWt	Inactv	60	RIAE
	CIRENE	Latina		128.5MWt			RIAG
	ECO	Ispira (Varese)	TK-H	1KWt max	Inactv	65	RIAK
	Essor reactor	Ispira (Varese)	TK-H	36.6 MWt	Oper	67	RIBK
	RTS-1	San Piero a Grado	POOL	5 MWt	Oper	65	RIBN
	Reactor Ispira-1	Ispira, Varese	TK-H	5 MWt	Inactv	59	RIBF
	ISPRA-2 (RANA)	Casaccia	POOL	Remarks	Oper	61	RICA
	RB-1	Montecuccolino	GMRR	10 Wt	Oper	62	RICB
	RB/2	Bologna	ARGO	10 KWt	Oper	63	RICC
	ROSPO	Roma	OMRR	(small)	Oper	63	RICE
	Triga-II Pavia	Pavia	SHRR	Remarks	Oper	65	RICK
	Triga Mark II	Rome	SHRR	1 MWt	Oper	59	RIDA
	CESNEF	Milan	LHRR	50 KWt	Oper	60	RIDC
	PEC	Lake Brasimore	FNRR	140 MWt	Constr	78	RIDD
	RB-3	Univ. of Bologna	TK-H		Oper	71	RIDE
	Triga-II	Rome	SHRR		Oper	60	RIDF
	TAPIRO	CSN, Casaccia	FNRR	5 KWt	Oper	71	RIDJ
	RITMO (RC-4)	Rome	POOL	100 Wt	Oper	65	RICE

NFP INDEX BY CATEGORY-RESEARCH AND TEST REACTORS

COUNTRY	FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	NFP CODE
JAPAN							
	AHCF	Tokai-mura, Naka-gun	LHRR	50 Wt	Oper	63	RJAE
	DCA	Tokai-Mura		(small)	Oper	69	RJAN
	FCA	Tokai-Mura	TK	(small)	Oper	67	RJAC
	HTR	Kawasaki	ARGO	.1 MWt	Oper	61	RJBN
	HTR	Ozenji, Kawasaki	ARGO	.1 MWt	Oper	62	RJBF
	JMTR	Oarai	TK-L	50 MWt	Oper	68	RJBX
	JMTRC	Oarai-machi	POOL	.01 MWt	Oper	67	RJBZ
	Joyo	Oarai	FNRR	50 MWt	Oper	74	RJCA
	Japan Rsch Reac No 1	Tokai-Mura	LHRR	.05 MWt	Oper	57	RJCC
	JRR-2	Tokai-Mura	TK-H	10 MWt	Oper	62	RJCD
	JRR-3	Tokai-Mura	TK-H	10 MWt	Oper	64	RJCF
	JRR-4	Tokai-Mura	POOL	1 MWt	Oper	65	RJCJ
	Kinki University	Fuse-City, Osaka		.1 Wt			RJCU
	Kuca	Kumatori	FNRR	(small)	Constr		RJCV
	KUR Kyoto Univ.	Kumatori-cho,	POOL	5 MWt	Oper	64	RJDE
	Kyoto Univ. Reactor	Kumatori-machi	TK-L	1 MWt			RJDC
	NCA NAIG Critical	Kawasaki-shi	POOL	200W max	Oper	63	RJDW
	NSRR	Tokai		.3 MWt	Constr		RJDX
	OCF	Ozenji, Kawasaki	TK-L	100W max	Oper	62	RJDZ
	SHCA	Tokai-Mura	SHRR	10 Wt	Oper	61	RJEL
	TCA	Tokai-Mura	TK-L	200W max	Oper	62	RJEX
	YAYOI	Tokai-Mura	FNRR	(small)	Oper	71	RJGD
	St. Paul Univ. Reac.	Yokosuka-City		.1 MWt			RJGE
	Toshiba Reactor	Kawasaki-City	POOL	.1 MWt			RJGF
	Hitachi Reactor	Kawasaki-City	POOL	.1 MWt			RJGG
	Goto Ikuei-Kai Reac.	Kawasaki-City		.1 MWt			RJGH
	Triga-II-Musashi	Kawasaki	SHRR	.1 MWt	Oper	63	RJGT
	Triga-II-Rikkyo	Sajima, Yokosuka	SHRR	.1 MWt	Oper	61	RJGU
	TTR	Kawasaki		.1 MWt	Oper	62	RJGW
	TTR-1	Suchirocho and	POOL	.03 MWt	Oper	62	RJGX
	UTR-10-Kinki	Kawakae, Fuse-shi	ARGO	.1 Wt	Oper	61	RJGY
KOREA (SOUTH)							
	Triga Mark II	Seoul	SHRR	.25 MWt	Oper	62	RKOR
MEXICO							
	RCN	Salazar		1 MWt	Oper	68	RMES
	SUR-Mexico	Mexico City	SHRR	(small)	Oper	72	RMET
NETHERLANDS							
	ATHENE	Eindhoven	ARGO	10KW max	Inactv	69	RNAC
	High Flux Reactor	Petten	TK-L	45 MWt	Oper	61	RNAJ
	Hoger Onderwits	Delft	POOL	2 MWt	Oper	63	RNAL
	Kirto Drito Crit	Petten	POOL	Max 100W	Inactv	63	RNAN
	Low Flux Reactor	Petten	ARGO	.01 MWt	Oper	60	RNAP
	Subscript Suspension	N V Kema, Arnhem	LHRR	Remarks	Oper	59	RNAS
	BARN	Wageningen	POOL	.1 MWt	Oper	63	RNAZ
	SIEK	Petten	POOL	(small)		69	RNEA

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NFP INDEX BY CATEGORY-RESEARCH AND TEST REACTORS

COUNTRY	FACILITY NAME	LOCATION	FAC TYPE CAPACITY	STATUS	NFP YR CODE
NORWAY	Halden	Halden, Norway	TK-H 20 MWt	Oper	59 RMOI
	JEEP	Kjeller	TK-H 450 KWt	Oper	51 RMOF
	JEEP No. 2	Kjeller	TK-H 2 MWt	Oper	65 RMOE
	Nora Reactor	Kjeller	TK-H 100 Wt	Oper	61 RMOJ
PAKISTAN	PARR	Islamabad	POOL 5 MWt	Oper	65 RPAD
	Pak. Atomic Rsch	Islamabad	POOL 5 MWt	Oper	65 RPAE
PHILIPPINES	Phil Rsch Reac. 1	Quezon City, Phil.	POOL 1 MWt	Oper	63 RPHG
POLAND	ZERA	Swierk	GMRR 100 Wt	Oper	63 RPDE
	EWA Reactor	Swierk	TK-L 2 MWt	Oper	58 RPDE
	Maryla Reactor	Inst. of Nuclear	POOL 10 KWt	Oper	67 RPDG
PORTUGAL	JEN	Lisbon	POOL 1 MWt	Oper	58 RPOF
PUERTO RICO	PRR	Mayaguez	LHRR 10 Wt	Oper	59 RPUE
ROMANIA	WWR-C Reactor	Magurele	TK-L 3 MWt	Oper	59 RPNE
SOUTH AFRICA	Pelinduna Zero	Pelinduna, Transvaal	TK-H (small)	Oper	67 RTAG
	Safari-1	Pelindaba	TK-L Remarks	Oper	64 RTAJ
SOVIET UNION	IRT	Moscow	POOL 2 MWt	Oper	57 RRAM
	IRT-A	Moscow	POOL 2 MWt	Oper	RRAN
	IRT-B	Tbilishi, Georgia	POOL 2 MWt	Oper	59 RRAF
	IRT-C	Riga	POOL 2 MWt	Oper	RRAC
	IRT-D	Tomsk	POOL 2 MWt	Oper	RRAR
	IRT-E	Sverdlovsk	POOL 2 MWt	Oper	RRAS
	IRT-F	Minsk	POOL 2 MWt	Oper	RRAT
	MR Rsch Reactor	Moscow	POOL 40 MWt	Oper	67 RRBC
	RPT	Moscow	TK-H 20 MWt	Oper	52 RRBN
	BR-1 Soviet Breeder	Obninsk	FNRR 50 Wt	Inactv	55 RRBF
	BR-2	Obninsk	FNRR .2 MWt	Inactv	57 RRBQ

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NFP INDEX BY CATEGORY-RESEARCH AND TEST REACTORS

COUNTRY	FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	NFP CODE
SOVIET UNION (CONT.)							
	BR-5	Obninsk	FNRR	50 MWe	Oper	59	RRBF
	TR	Moscow	TK-H	2.5 MWt	Oper	57	RRBY
	WWR-C Rsch Reactor	Moscow	TK-L	2 MWt	Oper	54	RRCG
	UZBEK WWR-C Reactor	Tashkent	TK-L	2 MWt	Oper	59	RRCH
	WWR-M Research	Kiev, Ukraine	TK-L	10 MWt	Oper	60	RRCJ
	WWR-M Rsch Reactor	Leningrad	TK-L	10 MWt	Oper	59	RRCK
	WWR-2 Research	Alma-atam Kazakh	TK-L	10 MWt	Oper	63	RRCI
	WWR-C Rsch Reactor	Moscow	TK-L	3 MWt	Oper	57	RRCM
	Romashka	Moscow	FNRR	.040 MWt		64	RRES
	AM-1 Reactor	Obninsk	GMRR	30 MWt	Oper		RRET
	APS	Obninsk	GMRR	3 MWt		54	RREU
	MIR	Dimitrovgrad	TK-L	100 MWt	Oper	66	RREV
	SM-2 Test Reactor	Melekess	TK-L	75 MWt	Oper	61	RREW
	ARBUS	Melekess	OMRR	5 MWt	Oper	63	RREY
SPAIN							
	Arbi Reactor	Bilbao	ARGO	.01 MWt	Oper	62	RSAB
	Argos Reactor	Barcelona	ARGO	.01 MWt	Oper	61	RSAB
	Coral-1 Reactor	Madrid	FNRR	10Wt max	Oper	68	RSAX
	Sp Rsch React. Jen-1	Madrid	POOL	6 MWt	Oper	59	RSBK
	JEN-2	Madrid	POOL	.01 MWt	Oper	68	RSBL
SWEDEN							
	FR-O	Studsvik	FNRR	10 Wt	Inactv	64	RWAP
	KRITZ	Studsvik		(small)	Oper	69	RWAS
	Swedish Reac. R-O	Studsvik site	TK-H	< 50 Wt	Inactv	59	RWAY
	R-1 Heavy Water Reac	Studsvik	TK-H	600 Kw	Oper	54	RWAZ
	R-2 Rsch Reactor	Studsvik	TK-L	50 MWt	Oper	60	RWBB
	R2-O	Studsvik	POOL	1 MWt	Oper	64	RWBH
SWITZERLAND							
	AGN-201 P-111	Geneva	SHRR	20 Wt	Oper	58	RZAA
	AGN-211P-100	Basel	SHRR	100 Wt	Oper	59	RZAB
	Crocus	Lausanne	POOL	(small)	Oper	68	RZAG
	Rector Diorit	Wurenlingen	TK-H	20 MWt	Oper	60	RZAJ
	Proteus Reactor	Wurenlingen	GMRR	.001 MWt	Oper	68	RZAW
	Reactor Saphir	Wurenlingen	POOL	1 MWt	Oper	57	RZAZ
TAIWAN							
	THOR	Hsin-Chu	POOL	1 MWt	Oper	64	RCIT
THAILAND							
	Thai Rsch Reactor-1	Bangkok	POOL	1 MWt	Oper	62	RTHE
TURKEY							
	TR-1	Lake K. Cekmece,	POOL	1 MWt	Oper	62	RTYA

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NFP INDEX BY CATEGORY-RESEARCH AND TEST REACTORS

COUNTRY	FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	NFP CODE
UNITED KINGDOM							
	Reactor Herald	Aldermaston,	POOL	5 MWt	Oper	59	RBUV
	Brit Exp Pile Oper	Harwell, Berkshire	GMRR	65 MWt	Inactv	48	RUAE
	Consort Reactor	Silwood Park, Ascot	POOL	100 KwT	Oper	65	RUBA
	DAPHNE	Harwell, Berkshire	TK-H	100 Wt	Oper	62	RUBE
	Dido Reactor	Harwell, Berkshire	TK-H	22 MWt	Oper	56	RUBC
	DIMPLE	Winfrith Rsch Estab.	TANK	100 Wt	Oper	62	RUBD
	Dounreay Mat Test	Dounreay, Caithness	TK-H	25 MWt	Inactv	58	RUBE
	Dragon	Winfrith, Dorset	GMRR	20 MWt	Inactv	64	RUBH
	GLEEP	Harwell, Berkshire	GMRR	Remarks	Oper	47	RUBQ
	Hazel	Harwell, Berkshire	LHRR	(small)	Oper	58	RUBT
	HECTOR	Winfrith, Dorset	GMRR	100 Wt	Oper	63	RUBU
	HERO	Windscale	GMRR	3KwT max	Inactv	62	RUBW
	Reactor Horace	Aldermaston,	POOL	10 Wt	Oper	58	RUCD
	Jason Reactor	Greenwich, London	ARGO	.01 MWt	Oper	62	RUCK
	Juno Reactor	Winfrith, Dorset	TANK	100 Wt	Oper	64	RUCL
	Lido Reactor	Harwell, Berkshire	POOL	100 KwT	Oper	56	RUCM
	Reactor Merlin	Aldermaston,	POOL	5 MWt	Inactv	60	RUCN
	NERO	Winfrith, Dorset	GMRR	100 Wt	Inactv	60	RUCF
	NESTOR	Winfrith, Dorset	ARGO	.01 MWt	Oper	61	RUCQ
	Pluto Reactor	Harwell, Berkshire	TK-H	22 MWt	Oper	57	RUCV
	UTR-B	London	ARGO	.1 MWt	Oper	64	RUCW
	SRRC-UTR-100	East Kilbride	ARGO	.1 MWt	Oper	63	RUDC
	URR	Risley, Warrington	ARGO	Remarks		64	RUDM
	VERA	Aldermaston, Berks.	FNRR	100 Wt	Oper	61	RUDF
	VIPER	AWRE, Aldermaston	FNRR	Remarks	Oper	67	RUDQ
	ZEBRA	Winfrith, Dorset	FNRR	.001 MWt	Oper	62	RUDV
	ZENITH	Winfrith, Dorset	GMRR	200 Wt	Oper	59	RUDX
	ZEPHYR	Harwell, Berkshire	FNRR	Remarks	Inactv	54	RUDY
	Zero Energy Thermal	Harwell, Berkshire	LHRR	(small)	Oper	52	RUDZ
	ZEUS	Harwell, Berkshire	FNRR	Max 100W	Inactv	55	RUEA
	Atazel	Harwell	LHRR	.1 MWt	Oper	64	RUEN
	Queen Mary College	London	ARGO	10 Wt			RUEF
VENEZUELA	RV-1	Alt. De Ripe,	POOL	3 MWt	Oper	60	RVEA
VIETNAM (NORTH)	Triga Mark II	Dalat	SHRR	250 KwT	Oper	63	RVNA
YUGOSLAVIA	RA	Belgrade	TK-H	6.5 MWt	Oper	59	RYUD
	RB	Vinca	TK-H	Neglig	Oper	58	RYUG
	Triga-II-Ljubljana	Ljubljana	SHRR	.25 MWt	Oper	65	RYUH
ZAIRE	Bel Congo Triga Reac	Kinshasa	SHRR	10 KwT	Oper	59	RCGC

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NFP INDEX BY CATEGORY-FUEL REPROCESSING FACILITIES

COUNTRY	FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	NFP CODE
ARGENTINA	Ezeiza Atomic Centre	Ezeiza	UM	(small)	Oper	77	RARG
BELGIUM	Eurochemic	Mol	UMUO	60 te/yr	Inactv	66	RBFC
BRAZIL		Sepetiba	UO	5 kg/day	Plan	86	RBRB
CANADA	Chalk River Nucl Lab	Chalk River	UO	(small)	Inactv		RDAD
FRANCE	UP-2	Cap de La Hague	UMUO	800 te	Oper	66	RFAU
	UP-3	Cap de La Hague	UO	1600 te	Plan	87	RFAV
	AT-1	Cap de La Hague	FB	200 kg	Oper	66	RFER
	UP-1	Marcoule	UM	1000 te	Oper	58	RFFJ
	SAP	Marcoule	FB	5 te/yr	Oper		RFGB
GERMANY (WEST)	URG/KEWA		UO	1500 te	Plan	86	RGCC
	JUPITER	Julich	HTGR	2 kg/day	Oper	77	RGCF
	WAK	Karlsruhe	UOFB	40 te/yr	Oper	71	RGEW
	DWK	Gorleben	UO	1400 te	Plan	88	RGFU
INDIA		Kalpakkam	UO	50 te/yr	Plan	82	RHED
	PREFRE	Tarapur	UCUM	100 te	Oper	77	RHIC
		Trombay	UThO	(small)	Oper		RHID
	Plutonium Plant	Trombay	UMUO	60 te/yr	Oper	65	RHIL
ITALY			UO	500 te	Plan	80	RIAA
	Eurex-1	Saluggia	UCUM	10 te/yr	Inactv	69	RIBL
	ITREC Pilot Plant	Rotondella	UThO	15 kg	Oper	75	RIBS
JAPAN	PNC	Tokai-Mura	UO	1500 te	Plan	85	RJAA
	PNC		FB	120 kg/d	Plan	86	RJEE
	PNC	Tokai-Mura	UO	210 te	Oper	78	RJEF

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NFP INDEX BY CATEGORY-FUEL REPROCESSING FACILITIES

COUNTRY	FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	NFP CODE
NORWAY	IFA	Kjeller	UM	(small)	Inactv	61	RMOM
PAKISTAN		Chasma	UO	100 te	Plan		RPAF
SOVIET UNION	Fregat-SRIAR	Melekess	FB	(small)	Oper		RREZ
SPAIN	Juan Vigon Nuclear	Madrid	UM	(small)	Oper		RSBP
SWEDEN			UO	800 te	Plan	90	RWAC
TAIWAN	Lungt'an Institute	Lungt'an	UM	(Small)	Constr		RCID
UNITED KINGDOM	Reprocessing Plant	Windscale	UMUO	2500 te	Oper	64	RUAJ
	THORP	Windscale	UO	1200 te	Plan	87	RUAL
	Dounreay II	Dounreay	FB	10 te/yr	Oper	61	RUBF
YUGOSLAVIA	Boris Kidric	Belgrade	UM	(small)	Oper		RYUU

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NFP INDEX BY CATEGORY-SEPARATE FUEL STORAGE FACILITIES

COUNTRY	FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	NFP CODE
CANADA							
	Whiteshell	Whiteshell	SURF		Oper		RDJJ
	Chalk River Nuclear	Chalk River	HOLE		Oper		RDJL
	Pickering Nucl Power	Pickering	POOL		Oper		RDJM
	Bruce Nuclear Power	Tiverton	POOL		Oper		RDJN
GERMANY (WEST)							
		Ahaus	POOL	1500 te	Plan	83	RGGB
		Gorleben	POOL	4000 te	Plan		RGGC
SWEDEN							
	Stripa Mine	Studsvik	ROCK		Oper	77	RWBW
	Spent Fuel Storage		ROCK	1500 te	Plan	83	RWBZ
UNITED KINGDOM							
		Windscale	POOL		Oper		RUEY

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NFP INDEX BY CATEGORY-WASTE DISPOSAL FACILITIES

COUNTRY	FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	NFP CODE
BELGIUM	Eurobitum PAMELA II	Mol	PREP	650 m3	Oper	77	RBGF
		Mol	PREP	40 l/hr	Plan	81	RBGG
		Mol	DISP	10000 m3	Plan	79	RBGH
		Mol	PREP	80 l/hr	Oper	64	RBGJ
	EUROSTORAGE	Mol	DISP		Oper		RBGK
		Mol	PREP	150 Kg/h	Oper	75	RBGL
		Atlantic Ocean	DISP	2000 te	Oper		RBGM
	Eurowatt	Mol	PREP	1000 l/d	Constr		RBGN
		Mol	PREP	200 kg/h	Inactv	60	RBGP
		Mol	PREP	10 Kg/hr	Oper	70	RBGR
CANADA		White Lake	ROCK		Oper		RDJK
	Chalk R Nucl Lab	Chalk River	PREP	200 kg/h	Inactv	60	RDKW
	RWVRF	Tiverton	PREP		Oper	77	RDKX
	Chalk R Nucl Lab	Chalk River	PREP		Oper		RDKY
CZECHOSLOVAKIA	NRI-Rez	Prague	PREP	3.6 m3/h	Oper	61	RCKG
FRANCE	Saclay Nucl Res Cen	Seine-et-Oise	PREP		Oper		RFGE
		Cap de La Hague	DISP	1.3 Mbbl	Oper		RFGF
	VULCAIN	Marcoule	PREP		Oper		RFGG
	PIVER	Marcoule	PREP		Inactv	69	RFGH
	GULLIVER	Fontenay-aux-Roses	PREP		Inactv	63	RFGJ
	AVM	Marcoule	PREP	30 l/hr	Oper	78	RFGK
	AVH	Cap de La Hague	PREP	100 l/hr	Plan	82	RFGL
	Center of Nucl Study	Grenoble	PREP		Constr		RFGM
	Center of Nucl Study	Grenoble	PREP	30 kg/hr	Oper	61	RFGN
	Cadarache Nuclear	St. Paul-les-Durance	PREP		Oper	77	RFGP
	Fontenay-aux-Roses	Fontenay-aux-Roses	PREP	50 kg/hr	Oper	67	RFGY
		Strasbourg	PREP	15 kg/hr	Oper	70	RFHB
GERMANY (EAST)		Bartensleben	DISP		Plan		REGT
GERMANY (WEST)	Asse Salt Mine	Remlingen	DISP	4 Mm3	Oper	67	RGGD
	KfK-1	Karlsruhe	PREP	2.5 te/d	Oper	77	RGGH
	KfK-2	Karlsruhe	PREP	15 kg	Oper	75	RGGJ
	FIPS-II	Julich	PREP	1 kg/hr	Oper	77	RGGK
	FIPS-I	Julich	PREP	1 kg/hr	Inactv	72	RGGL
	VERA	Karlsruhe	PREP		Inactv	70	RGGM
		Karlsruhe	PREP	30 l/hr	Oper	76	RGGN

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NFP INDEX BY CATEGORY-WASTE DISPOSAL FACILITIES

COUNTRY	FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	NFP CODE
INDIA	Waste Immobilization BARC	Tarapur Trombay	PREP	25 l/hr	Constr	79	RHEF
			PREP	45 kg/hr	Oper	66	RHEM
ITALY	ESTER	Rome	PREP		Oper	78	RIDK
JAPAN	JAERI-Oarai Res Est.	Oarai	PREP	30 kg/hr	Oper	73	RJGJ
	JAERI	Tokai-Mura	PREP	50 kg/hr	Oper	66	RJGK
POLAND	Rad Waste Storage	Rozan	DISP	2870 m3	Oper		RPKD
SOVIET UNION	Moscow Plant	Moscow	PREP		Oper	65	RRFA
	NIIAR	Novikovka	DISP		Oper	66	RRFB
SPAIN		Sierra de Albarracin	DISP		Oper		RSDB
SWEDEN	AB Atomenergi	Studsvik	PREP		Oper		RWBA
		Vasteras	PREP		Oper		RWCA
SWITZERLAND	EIR	Wurenlingen	DISP		R&D		RZBD
UNITED KINGDOM	Windscale Works	Windscale	PREP		Oper	73	RUEQ
		Windscale	PREP		Plan	86	RUER
		Windscale	PREP		Constr	80	RUES
	Glass Examination	Windscale	PREP		Constr	78	RUET
		Dounreay	PREP	30 l/hr	Plan		RUEU
		Harwell	PREP		Oper	62	RUEV
	Bradwell Power Stat.	Bradwell	PREP		Oper	67	RUEW
	Berkeley Nucl Lab	Berkeley	PREP		Oper	65	RUEX
	Hunterston A	Hunterston	PREP		Oper	67	RUFB

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ACTIVITY--PORTUGAL RESEARCH AND TEST REACTOR NUCLEAR FACILITY PROFILE
CATEGORY-RESEARCH AND TEST REACTORS DMK 30 SEP 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	FAC YR CODE
JEN	Lisbon	POOL	1 MWt	Oper	58 RPOF

LATITUDE- 38 DEG 44 MIN N

LONGITUDE- 9 DEG 08 MIN W

TECHNOLOGY SOURCE-AMF Atomics,
Div of Amer Mach & Foundry Co
SUPPLY SOURCE-

OWNER/OPERATOR-Junta De Energia
Nuclear
SAFEGUARDS-

PRODUCT/USE-Research

FUEL STORAGE CAPACITY-

PROCESS-Heterogeneous, H-20 moderated and cooled, 20% enriched U-235,
pool-type

SCHEDULE-First critical: Oct. 1958

REMARKS-Reactor is essentially the same as other AMF-1 MW pool-type
reactors. Reactor has a gamma facility: 24 in x 24 in Al "window"
Normal fresh fuel loading: 4.2 Kg U-235. Total fuel inventory:
Approx 6 Kg.
Expected average burnup before reprocessing: 10%
Method of refueling: Replaced manually with long handled tools,
stored in racks in pool

REFERENCES-

- 1-Nuclear Reactor Plant Data, Vol II, Amer. Soc. of Mech. Eng.,
p. 283
- 2-Directory of Nuclear Reactors, Vol II, IAEA, 1959, p. 61

ACTIVITY--PORTUGAL RESOURCE RECOVERY
CATEGORY-MINES (URANIUM & THORIUM)

NUCLEAR FACILITY PROFILE
PSM 06 SEP 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	FAC CODE
	Senhora das Fontes	URAN		Oper		RPOJ

LATITUDE-	DEG	MIN	LONGITUDE-	DEG	MIN
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TECHNOLOGY SOURCE-	OWNER/OPERATOR-Junta de Energia Nuclear
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SUPPLY SOURCE-	SAFEGUARDS-
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PRODUCT/USE-Uranium

FUEL STORAGE CAPACITY-

PROCESS-

SCHEDULE-

REMARKS-

REFERENCES-

- 1-Foreign Uranium Supply, EPRI EA-725, 4/78, p. 5-19
- 2-Uranium Resources, Production and Demand, IAEA, Dec 1977,
pp. 93-96

ACTIVITY--PORTUGAL RESOURCE RECOVERY
CATEGORY-MINES (URANIUM & THORIUM)

NUCLEAR FACILITY PROFILE
PSM 07 SEP 78

FACILITY NAME LOCATION
Urgeirica

FAC	TYPE	CAPACITY	STATUS	YR	CODE	FAC
URAN			Oper			RPOK

LATITUDE- 40 DEG 30 MIN N

LONGITUDE- 08 DEG MIN W

TECHNOLOGY SOURCE-

OWNER/OPERATOR-Junta de Energia
Nuclear

SUPPLY SOURCE-

SAFEGUARDS-

PRODUCT/USE-Uranium

FUEL STORAGE CAPACITY-

PROCESS-In situ leaching

SCHEDULE-

REMARKS-Total production of Urgeirica and Guarda is approximately
150 te/y.
Estimated resources: 2430 te

REFERENCES-

- 1-Foreign Uranium Supply, EPRI EA-725, 4/78, pp. 5-19
- 2-Uranium Resources, Production and Demand, IAEA, Dec 1977,
pp. 93-96

ACTIVITY--PORTUGAL RESOURCE RECOVERY
CATEGORY-MILLS

NUCLEAR FACILITY PROFILE
PSM 07 SEP 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	FAC CODE
	Urgeirica	URAN	150 te/y	Oper		RPOL

LATITUDE- 40 DEG 30 MIN N

LONGITUDE- 08 DEG MIN W

TECHNOLOGY SOURCE-

OWNER/OPERATOR-Junta de Energia
Nuclear (JEN)

SUPPLY SOURCE-

SAFEGUARDS-

PRODUCT/USE-Uranium

FUEL STORAGE CAPACITY-

PROCESS-

SCHEDULE-

REMARKS-Portugal's uranium production is limited to the capacity of
this lone mill

REFERENCES-

- 1-Foreign Uranium Supply, EPRI EA-725, 4/78, pp. 5-19
- 2-Uranium Resources, Production and Demand, IAEA, Dec 1977,
pp. 93-96

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ACTIVITY--PORTUGAL RESOURCE RECOVERY
CATEGORY-MINES (URANIUM & THORIUM)

NUCLEAR FACILITY PROFILE
PSM 07 SEP 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	FAC CODE
	Cunha Baixa	URAN		Explor		RPOM

LATITUDE-	DEG	MIN	LONGITUDE-	DEG	MIN
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TECHNOLOGY SOURCE- OWNER/OPERATOR-Junta de Energia
Nuclear (JEN)

SUPPLY SOURCE- SAFEGUARDS-

PRODUCT/USE-Uranium

FUEL STORAGE CAPACITY-

PROCESS-

SCHEDULE-

REMARKS-

REFERENCES-

1-Foreign Uranium Supply, EPRI EA-725, 4/78, pp. 5-19

2-Uranium Resources, Production and Demand, IAEA, Dec 1977,
pp. 93-96

ACTIVITY--PORTUGAL RESOURCE RECOVERY
CATEGORY-MINES (URANIUM & THORIUM)

NUCLEAR FACILITY PROFILE
PSM 07 SEP 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	FAC CODE
Alto Alentejo	Nisa	URAN		Plan		RPON

LATITUDE- 39 DEG 31 MIN N

LONGITUDE- 07 DEG 39 MIN W

TECHNOLOGY SOURCE-

OWNER/OPERATOR-Junta de Energia
Nuclear

SUPPLY SOURCE-

SAFEGUARDS-

PRODUCT/USE-Uranium

FUEL STORAGE CAPACITY-

PROCESS-

SCHEDULE-

REMARKS-Estimated resources: 3250 te

REFERENCES-

- 1-Foreign Uranium Supply, EPRI EA-725, 4/78, pp. 5-19
- 2-Uranium Resources, Production and Demand, IAEA, Dec 1977, pp. 93-96

ACTIVITY--PORTUGAL RESOURCE RECOVERY
CATEGORY-MILLS

NUCLEAR FACILITY PROFILE
PSM 07 SEP 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	CODE
Alto Alentejo	Nisa	URAN		Plan	85	RPOP

LATITUDE- 39 DEG 31 MIN N

LONGITUDE- 07 DEG 39 MIN W

TECHNOLOGY SOURCE-

OWNER/OPERATOR-Junta de Energia
Nuclear

SUPPLY SOURCE-

SAFEGUARDS-

PRODUCT/USE-Uranium

FUEL STORAGE CAPACITY-

PROCESS-

SCHEDULE-

REMARKS-

REFERENCES-

- 1-Foreign Uranium Supply, EPRI EA-725, 4/78, pp. 5-19
- 2-Uranium Resources, Production and Demand, IAEA, Dec 1977,
pp. 93-96

ACTIVITY--PORTUGAL RESOURCE RECOVERY
CATEGORY-MINES (URANIUM & THORIUM)

NUCLEAR FACILITY PROFILE
PSM 07 SEP 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	FAC CODE
	Quinta do Bispo	URAN		Explor		RPOQ

LATITUDE-	DEG	MIN	LONGITUDE-	DEG	MIN
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TECHNOLOGY SOURCE-	OWNER/OPERATOR-Junta de Energia Nuclear
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SUPPLY SOURCE-	SAFEGUARDS-
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PRODUCT/USE-Uranium

FUEL STORAGE CAPACITY-

PROCESS-

SCHEDULE-

REMARKS-

REFERENCES-

- 1-Foreign Uranium Supply, EPRI EA-725, 4/78, pp. 5-19
- 2-Uranium Resources, Production and Demand, IAEA, Dec 1977,
pp. 93-96

ACTIVITY--PORTUGAL RESOURCE RECOVERY
CATEGORY-MINES (URANIUM & THORIUM)

NUCLEAR FACILITY PROFILE
PSM 07 SEP 78

FACILITY NAME LOCATION
Azere

FAC	TYPE	CAPACITY	STATUS	YR	FAC	CODE
URAN			Explor		RPOR	

LATITUDE- 40 DEG 21 MIN N

LONGITUDE- 08 DEG 05 MIN W

TECHNOLOGY SOURCE-

OWNER/OPERATOR-Junta de Energia
Nuclear

SUPPLY SOURCE-

SAFEGUARDS-

PRODUCT/USE-Uranium

FUEL STORAGE CAPACITY-

PROCESS-

SCHEDULE-

REMARKS-

REFERENCES-

- 1-Foreign Uranium Supply, EPRI EA-725, 4/78, pp. 5-19
- 2-Uranium Resources, Production and Demand, IAEA, Dec 1977, pp. 93-96

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ACTIVITY--PORTUGAL RESOURCE RECOVERY
CATEGORY-MINES (URANIUM & THORIUM)

NUCLEAR FACILITY PROFILE
PSM 07 SEP 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	FAC CODE
	Guarda	URAN		Explor		RPOS

LATITUDE- 40 DEG 32 MIN N

LONGITUDE- 07 DEG 17 MIN W

TECHNOLOGY SOURCE-

OWNER/OPERATOR-Junta de Energia
Nuclear

SUPPLY SOURCE-

SAFEGUARDS-

PRODUCT/USE-Uranium

FUEL STORAGE CAPACITY-

PROCESS-

SCHEDULE--

REMARKS-Estimated resources: 1120 te

REFERENCES-

- 1-Foreign Uranium Supply, EPRI EA-725, 4/78, pp. 5-19
- 2-Uranium Resources, Production and Demand, IAEA, Dec 1977, pp. 93-96

RQ 1

ACTIVITY--PUERTO RICO RSCH & TEST REACTOR NUCLEAR FACILITY PROFILE
CATEGORY-RESEARCH AND TEST REACTORS DMK 30 SEP 78

FACILITY NAME	LOCATION	FAC	FAC
PRR	Mayaguez	TYPE CAPACITY	STATUS YR CODE
	PR Nuclear Center	LHRR 10 Wt	Oper 59 RPUE

LATITUDE- 18 DEG 13 MIN N LONGITUDE- 67 DEG 09 MIN W

TECHNOLOGY SOURCE-Atomics Intl	OWNER/OPERATOR-USAEC/University of
Div of N. American Aviation	Puerto Rico
SUPPLY SOURCE-	SAFEGUARDS-

PRODUCT/USE-Teaching the principles of reactor design, physics and
operation
FUEL STORAGE CAPACITY-

PROCESS-Aqueous homogeneous, L-77 type, from 20% to 90% enriched
uranium, light water moderated, lead & diphenyl reflected, uncooled
SCHEDULE-In operation; reactor critical: Aug. 1959

REMARKS-All details exactly as for L-77 Laboratory Reactor

REFERENCES-

- 1-Directory of Nuclear Reactors, Vol II, IAEA, p. 213, 1959
- 2-Programming and Utilization of Research Reactors, Vol II, AP,
p. 375

RO 1

ACTIVITY--ROMANIA RESEARCH AND TEST REACTOR NUCLEAR FACILITY PROFILE
CATEGORY-RESEARCH AND TEST REACTORS DMK 30 SEP 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	CODE
WWR-C Reactor	Magurele	TK-L	3 MWt	Oper	59	RPNE

LATITUDE-	DEG	MIN	LONGITUDE-	DEG	MIN
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TECHNOLOGY SOURCE-Design & fab of reactor components: USSR	OWNER/OPERATOR-Inst of Atomic Phy., Acad of Romanian People's Rep.
SUPPLY SOURCE-	SAFEGUARDS-

PRODUCT/USE-

FUEL STORAGE CAPACITY-

PROCESS-Tank-type, enriched (>10%) uranium, light water moderated and cooled

SCHEDULE-Start of construction: 1956; reactor critical: July 1957;
3 MW operation: 1959

REMARKS-Reactor is identical with the WWR-C Reactor of the Academy of Sciences, Moscow

REFERENCES-

1-Directory of Nuclear Reactors, Vol III, IAEA, 1960, p. 133

SF 1

ACTIVITY--SOUTH AFRICA ENRICHMENT PLANTS
CATEGORY-ENRICHMENT PLANTS

NUCLEAR FACILITY PROFILE
SRM 21 JUL 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	CODE
UCOR	Valindaba (Pretoria)	STAT 6	KSWU	Oper	76	RTAA

LATITUDE- 25 DEG 45 MIN S LONGITUDE- 28 DEG 12 MIN E

TECHNOLOGY SOURCE-South African Atomic Energy Board (AEB)	OWNER/OPERATOR-Uranium Enrichment Corporation of South Africa(UCOR)
SUPPLY SOURCE-	SAFEGUARDS-No safeguards

PRODUCT/USE-U235 enriched uranium (percent enrichment unknown)

FUEL STORAGE CAPACITY-

PROCESS-Stationary Wall Centrifuge

SCHEDULE-Currently in operation as pilot plant

REMARKS-Stationary Wall Centrifuge is a process similar to Becker Jet Nozzle process, but was developed independently in South Africa. Detailed description has not been disclosed. Pilot plant is being converted into small commercial operation.

REFERENCES-

- 1-Levin, S. A. and S. Blumkin; Enrichment Supply and Technology Outside the United States; 1/13/77
- 2-Nucl Eng Intl; Vol XXI, No 250; 11/76
- 3-NAC; Intl Data Collection and Analysis; Task 1, Vol IV; 6/78
- 4-IAEA Bulletin; Vol XIX, No 5; 10/77

SF 2

ACTIVITY--SOUTH AFRICA RSCH & TEST REACTOR NUCLEAR FACILITY PROFILE
CATEGORY-RESEARCH AND TEST REACTORS DMK 30 SEP 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR CODE
Pelinduna Zero	Pelinduna, Transvaal	TK-H (small)		Oper	67 RTAG

LATITUDE-	DEG	MIN	LONGITUDE-	DEG	MIN
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TECHNOLOGY SOURCE-Design & bldr.: OWNER/OPERATOR-South African Atomic
SAAEB Energy Board (SAAEB)

SUPPLY SOURCE- SAFEGUARDS-

PRODUCT/USE-Reactor physics investigations on Pelinduna reactor
concept

FUEL STORAGE CAPACITY-Fuel storage in fuel vaults

PROCESS-Tank-type, slightly enriched (2%) uranium, heavy-water
moderated and cooled

SCHEDULE-In operation; start of construction: Oct. 1966;
Reactor critical: Nov. 1967

REMARKS-Critical Mass: 580 Kg fuel with D-20 level at 2.1 m
Core loading: 593.4 Kg fuel

Fuel loading system: Loading of fuel spheres through hole in top of
element, unloading through hole in bottom

REFERENCES-

1-Directory of Nuclear Reactors, Vol VIII, IAEA, 1970, p. 175

ACTIVITY--SOUTH AFRICA RSCH & TEST REACTORS NUCLEAR FACILITY PROFILE
 CATEGORY-RESEARCH AND TEST REACTORS DMK 30 SEP 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	FAC YR CODE
Safari-1	Pelindaba	TK-L	Remarks	Oper	64 RTAJ

LATITUDE-	DEG	MIN	LONGITUDE-	DEG	MIN
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TECHNOLOGY SOURCE-Reactor: Allis Chalmers Manufacturing Co. OWNER/OPERATOR-South African Atomic Energy Board (See remarks)
 SUPPLY SOURCE- SAFEGUARDS-

PRODUCT/USE-Basic research, engineering tests, isotope production, fuel element development

FUEL STORAGE CAPACITY-Storage room for irradiated fuel elements in critically safe racks in the pools

PROCESS-Tank-type, highly enriched (90%) uranium, light water cooled and moderated, beryllium reflected

SCHEDULE-Start of construction: 1961; reactor critical: 1964

REMARKS-Reactor power: Design 20 MWt, initially 6.67 MW cooling capacity. Designer & builder: Buildings, process equipment, etc.= Atomic Energy Board and South African firms. Reference 2: Owner NNRC ORR-tank.

Critical mass: Calculated 1.521 Kg U-235. Core loading at rated power: Calculated, 6.67 MW=3.604 KW/Kg U-235, 20 MW=5950 KW/Kg U-235

Av. specific power in fuel: 6.67 MW=1850 KW/Kg U-235, 20 MW=5950 KW/Kg U-235. Av. power density in core: 6.67 MW=68 KW/litre, 20 MW=204 KW/l. Burnup: Min. 20% of fissionable material

Neutron flux: Thermal av at 6.67 MW=5 x (10 E 13)n/(cm E 2), at 20 MW= 1.8 x (10 E 14)n/(cm E 2)sec.

REFERENCES-

- 1-Directory of Nuclear Reactors, Vol V, IAEA, 1964, p. 95
- 2-Intl Data Collection and Analysis, Vol IV, NAC, June 1978

ACTIVITY--SOUTH AFRICA RESOURCE RECOVERY
CATEGORY-MINES (URANIUM & THORIUM)

NUCLEAR FACILITY PROFILE
PSM 07 AUG 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	FAC CODE
	Palabora	URAN	120 te/y	Oper		RTAK
	Transvaal					

LATITUDE- 23 DEG 58 MIN S

LONGITUDE- 31 DEG 04 MIN E

TECHNOLOGY SOURCE-

OWNER/OPERATOR-Rio-Tinto Zinc (RTZ)

SUPPLY SOURCE-

SAFEGUARDS-

PRODUCT/USE-Uranium

FUEL STORAGE CAPACITY-

PROCESS-Open pit mining

SCHEDULE-

REMARKS-Average grade of ore: 0.005%

Uranium is extracted as a minor byproduct of open-pit copper mining.

REFERENCES-

- 1-Foreign Uranium Supply, EPRI EA-725, pp. 4-1 to 4-56
- 2-Mining Magazine, March 1978, p. 235

SF 5

ACTIVITY--SOUTH AFRICA RESOURCE RECOVERY
CATEGORY-MINES (URANIUM & THORIUM)

NUCLEAR FACILITY PROFILE
PSM 09 AUG 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	CODE
	Karoo	URAN		Explor		RTAM

LATITUDE- 33 DEG MIN S LONGITUDE- 23 DEG MIN E

TECHNOLOGY SOURCE- OWNER/OPERATOR-

SUPPLY SOURCE- SAFEGUARDS-

PRODUCT/USE-Uranium

FUEL STORAGE CAPACITY-

PROCESS-

SCHEDULE-

REMARKS-

REFERENCES-

1-Uranium Resources, Production and Demand, IAEA, Dec. 1977,
pp. 97-100

ACTIVITY--SOUTH AFRICA RESOURCE RECOVERY
CATEGORY-MINES (URANIUM & THORIUM)

NUCLEAR FACILITY PROFILE
PSM 08 AUG 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	CODE
Hartebeestfontein	Hartebeestfontein	URAN	450 te/y	Oper		RTAN

LATITUDE- 26 DEG 45 MIN S

LONGITUDE- 26 DEG 25 MIN E

TECHNOLOGY SOURCE-

OWNER/OPERATOR-Anglovaal Group
Hartebeestfontein Gold Mining Co.
SAFEGUARDS-

SUPPLY SOURCE-

PRODUCT/USE-Uranium

FUEL STORAGE CAPACITY-

PROCESS-Byproduct of underground gold mining

SCHEDULE-368 te mined in 1977

REMARKS-Average ore grade: 0.012%

REFERENCES-

- 1-Mining Journal (supplement) 05 May 1978, p. 16
- 2-Foreign Uranium Supply, EPRI EA-725

SF 7

ACTIVITY--SOUTH AFRICA RESOURCE RECOVERY
CATEGORY-MINES (URANIUM & THORIUM)

NUCLEAR FACILITY PROFILE
PSM 08 AUG 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	FAC CODE
Buffelsfontein	Far West Rand	URAN	620 te/y	Oper		RTAP

LATITUDE- 26 DEG 25 MIN S

LONGITUDE- 27 DEG 30 MIN E

TECHNOLOGY SOURCE-

OWNER/OPERATOR-General Mining Group
Buffelsfontein Gold Mining Co Ltd

SUPPLY SOURCE-

SAFEGUARDS-

PRODUCT/USE-Uranium

FUEL STORAGE CAPACITY-

PROCESS-Byproduct of underground gold mining

SCHEDULE-

REMARKS-Average ore grade: 0.021%

REFERENCES-

- 1-Mining Journal (Supplement), 5 May 1978, p. 10
- 2-Foreign Uranium Supply, EPRI EA-725

ACTIVITY--SOUTH AFRICA RESOURCE RECOVERY
CATEGORY-MINES (URANIUM & THORIUM)

NUCLEAR FACILITY PROFILE
PSM 08 AUG 78

FACILITY NAME LOCATION
Vaal Reefs Orkney
Transvaal

FAC FAC
TYPE CAPACITY STATUS YR CODE
URAN 1200te/y Oper RTAQ

LATITUDE- 26 DEG 58 MIN S

LONGITUDE- 26 DEG 40 MIN E

TECHNOLOGY SOURCE-

OWNER/OPERATOR-Anglo-American Group
Vaal Reefs Exploration & Mining

SUPPLY SOURCE-

SAFEGUARDS-

PRODUCT/USE-Uranium

FUEL STORAGE CAPACITY-

PROCESS-Byproduct of underground gold mining

SCHEDULE-1017 te actually produced in 1977. Planned for 1978: 1400 te
1979: 1700 te, 1980: 2000 te, 1981: 2160 te, 1982: 2160 te

REMARKS-Average ore grade: 0.021%

REFERENCES-

- 1-Mining Journal (supplement) 05 May 1978, p. 21
- 2-Foreign Uranium Supply, EPRI EA-725, pp. 4-1 to 4-56

ACTIVITY--SOUTH AFRICA RESOURCE RECOVERY
CATEGORY-MINES (URANIUM & THORIUM)

NUCLEAR FACILITY PROFILE
PSM 08 AUG 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	FAC CODE
Blyvooruitzicht	Blyvooruitzicht	URAN	287 te/y	Oper		RTAR

LATITUDE- 26 DEG 25 MIN S

LONGITUDE- 27 DEG 23 MIN E

TECHNOLOGY SOURCE-

OWNER/OPERATOR-Rand Mines, Ltd Bly-
voorvitzicht Gold Mining Co Ltd

SUPPLY SOURCE-

SAFEGUARDS-

PRODUCT/USE-Uranium

FUEL STORAGE CAPACITY-

PROCESS-Byproduct of underground gold mining

SCHEDULE-

REMARKS-Average ore grade: 0.019%

REFERENCES-

- 1-Mining Journal, 5 May, 1978 (supplement) p. 6
- 2-Foreign Uranium Supply, EPRI EA-725, pp. 4-1 to 4-56
- 3-Mining Magazine, March 1978, p. 235

SF 10

ACTIVITY--SOUTH AFRICA RESOURCE RECOVERY
CATEGORY-MINES (URANIUM & THORIUM)

NUCLEAR FACILITY PROFILE
PSM 08 AUG 78

FACILITY NAME
West Rand

LOCATION
West Rand

FAC	FAC
TYPE	CAPACITY STATUS YR CODE
URAN	295 te/y Oper RTAS

LATITUDE- 26 DEG 07 MIN S

LONGITUDE- 27 DEG 45 MIN E

TECHNOLOGY SOURCE-

OWNER/OPERATOR-General Mining Group
West Rand Consolidated Mines Ltd.
SAFEGUARDS-

SUPPLY SOURCE-

PRODUCT/USE-Uranium

FUEL STORAGE CAPACITY-

PROCESS-Byproduct of underground gold mining

SCHEDULE-

REMARKS-Average ore grade: 0.031%

REFERENCES-

- 1-Mining Journal (supplement) 05 May 1978, p. 12
- 2-Foreign Uranium Supply, EPRI EA-725

SF 11

ACTIVITY--SOUTH AFRICA RESOURCE RECOVERY
CATEGORY-MINES (URANIUM & THORIUM)

NUCLEAR FACILITY PROFILE
PSM 08 AUG 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	FAC CODE
West Driefontein	Carletonville	URAN	286 te/y	Oper		RTAT

LATITUDE- 26 DEG 24 MIN S

LONGITUDE- 27 DEG 28 MIN E

TECHNOLOGY SOURCE-

OWNER/OPERATOR-Gold Fields Group
West Driefontein Gold Mining Co.

SUPPLY SOURCE-

SAFEGUARDS-

PRODUCT/USE-Uranium

FUEL STORAGE CAPACITY-

PROCESS-Byproduct of underground gold mining

SCHEDULE-

REMARKS-Average ore grade: 0.025%

REFERENCES-

- 1-Mining Journal (supplement) 05 May 1978, p. 13
- 2-Foreign Uranium Supply, EPRI EA-725

SF 12

ACTIVITY--SOUTH AFRICA RESOURCE RECOVERY NUCLEAR FACILITY PROFILE
CATEGORY-MINES (URANIUM & THORIUM) PSM 08 AUG 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	CODE
Western Deep Levels	Casletonville	URAN	167 te/y	Oper		RTAU

LATITUDE- 26 DEG 26 MIN S

LONGITUDE- 27 DEG 28 MIN E

TECHNOLOGY SOURCE-

OWNER/OPERATOR-Anglo-American Group
Western Deep Levels Limited

SUPPLY SOURCE-

SAFEGUARDS-

PRODUCT/USE-Uranium

FUEL STORAGE CAPACITY-

PROCESS-Byproduct of underground gold mining

SCHEDULE-

REMARKS-Average ore grade: 0.022%

REFERENCES-

- 1-Foreign Uranium Supply, EPRI EA-725, pp. 4-1 to 4-56
- 2-Mining Journal (supplement) 05 May 1978, p. 20

SF 13

ACTIVITY--SOUTH AFRICA RESOURCE RECOVERY
CATEGORY-MINES (URANIUM & THORIUM)

NUCLEAR FACILITY PROFILE
PSM 08 AUG 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR CODE
Randfontein	Randfontein	URAN	70 te/y	Oper	RTAV

LATITUDE- 26 DEG 10 MIN S

LONGITUDE- 27 DEG 43 MIN E

TECHNOLOGY SOURCE-

OWNER/OPERATOR-JCI/Randfontein
Estates

SUPPLY SOURCE-

SAFEGUARDS-

PRODUCT/USE-Uranium

FUEL STORAGE CAPACITY-

PROCESS-Extracted from underground gold mining

SCHEDULE-Abnormally heavy rains have halted all progress in the mine
for several months. Expansion to 130 te/y planned for 1978-1979.

REMARKS-Owner/Operator-full names: Johannesburg Consolidated
Investment Group/The Randfontein Estates Gold Mining Company,
Witwatersrand, Limited

REFERENCES-

- 1-Foreign Uranium Supply, EPRI EA-725, pp. 4-1 to 4-56
- 2-Mining Journal (supplement), 05 May 1978, p. 18

ACTIVITY--SOUTH AFRICA RESOURCE RECOVERY
CATEGORY-MILLS

NUCLEAR FACILITY PROFILE
PSM 11 AUG 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	CODE
Millsite	Randfontein	URAN		Oper	77	RTAW

LATITUDE- 26 DEG 10 MIN S

LONGITUDE- 27 DEG 43 MIN E

TECHNOLOGY SOURCE-

OWNER/OPERATOR-JCI/Randfontein
Estates

SUPPLY SOURCE-

SAFEGUARDS-

PRODUCT/USE-Uranium

FUEL STORAGE CAPACITY-

PROCESS-

SCHEDULE-

REMARKS-

REFERENCES-

1-International Data Collection and Analysis, NAC, Task 1, Vol IV,
June 1978, South Africa, p. 15

SF 15

ACTIVITY--SOUTH AFRICA RESOURCE RECOVERY
CATEGORY-MINES (URANIUM & THORIUM)

NUCLEAR FACILITY PROFILE
PSM 08 AUG 78

FACILITY NAME	LOCATION	FAC	TYPE	CAPACITY	STATUS	YR	CODE
JMS	Riebeeckstad		URAN	480 te/y	Oper	78	RTAX
	Orange Free State						
LATITUDE- 28 DEG	MIN S		LONGITUDE- 27 DEG		MIN E		

TECHNOLOGY SOURCE-

OWNER/OPERATOR-Anglo American Group
Joint Metallurgical Scheme

SUPPLY SOURCE-

SAFEGUARDS-

PRODUCT/USE-Uranium

FUEL STORAGE CAPACITY-

PROCESS-Treatment of slime

SCHEDULE-

REMARKS-The Joint Metallurgical Scheme processes the slimes (tailings) from the following mines: President Steyn, Free State Saaiplaas, Welkom, Western Holdings, Free State Geduld, and President Brand.

REFERENCES-

- 1-Mining Journal (supplement) 05 May 1978, p. 27
- 2-Foreign Uranium Supply, EPRI EA-725, pp. 4-1 to 4-56

ACTIVITY--SOUTH AFRICA RESOURCE RECOVERY
CATEGORY-MINES (URANIUM & THORIUM)

NUCLEAR FACILITY PROFILE
PSM 07 AUG 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	FAC CODE
Harmony	Virginia Orange Free State	URAN	525 te/y	Oper		RTAY

LATITUDE- 28 DEG 06 MIN S LONGITUDE- 26 DEG 53 MIN E

TECHNOLOGY SOURCE-

OWNER/OPERATOR-Rand Mines, Limited/
Harmony Gold Mining Company Ltd

SUPPLY SOURCE-

SAFEGUARDS-

PRODUCT/USE-Uranium

FUEL STORAGE CAPACITY-

PROCESS-Byproduct of underground gold mining

Average ore grade: 0.0107%

SCHEDULE-Maximum production of 600 te/y to be reached in 1978

REMARKS-

REFERENCES-

1-Mining Journal (supplement), 5 May 1978, p. 6

2-Foreign Uranium Supply, EPRI EA-725, pp. 4-1 to 4-56

ACTIVITY--SOUTH AFRICA ENRICHMENT PLANTS
CATEGORY-ENRICHMENT PLANTSNUCLEAR FACILITY PROFILE
SRM 21 JUL 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	CODE
UCOR	Valindaba (Pretoria)	STAT	5000 K	Plan		RTAZ

(KSWU)

LATITUDE- 25 DEG 45 MIN S LONGITUDE- 28 DEG 12 MIN E

TECHNOLOGY SOURCE-South Africa OWNER/OPERATOR-Uranium Enrichment
UCOR Corporation of South Africa(UCOR)
SUPPLY SOURCE- SAFEGUARDS-

PRODUCT/USE-U235 enriched uranium/Reactor fuel fabrication

FUEL STORAGE CAPACITY-

PROCESS-Stationary Wall Centrifuge

SCHEDULE-Currently under consideration

REMARKS-Capacity will depend on demand but best estimates are for
5000 KSWU/yr.MARKET STRATEGY- South African uranium will only be sold in enriched
form when commercial plant begins operation, probably after 1986.

REFERENCES-

- 1-Nucl Eng Intl; Vol XXI, No 250; 11/76
- 2-Levin, S.A. and S. Blumkin; Enrichment Supply and Technology
Outside the United States; 1/13/77
- 3-NAC; Intl Data Collection and Analysis; Task 1, Vol IV; 6/78

ACTIVITY--SOUTH AFRICA RESOURCE RECOVERY NUCLEAR FACILITY PROFILE
CATEGORY-MINES (URANIUM & THORIUM) PSM 08 AUG 78

FACILITY NAME	LOCATION	FAC	FAC
		TYPE	CAPACITY STATUS YR CODE
East Rand Gold & U (ERGUA) or (ERGO)	East Rand	URAN	100 te/y Oper 78 RTFA
LATITUDE- 26 DEG	MIN S	LONGITUDE- 28 DEG	MIN E

TECHNOLOGY SOURCE- OWNER/OPERATOR-Anglo-American Group
East Rand Gold & Uranium Co. Ltd.
SUPPLY SOURCE- SAFEGUARDS-

PRODUCT/USE-Uranium

FUEL STORAGE CAPACITY-

PROCESS-Extracted from gold tailing

SCHEDULE-Mine just came into production 25 Feb 1978
Expansion to 200 te/y by 1979

REMARKS-Full name of owner: Anglo American Corporation of South
Africa, Limited

REFERENCES-

- 1-Mining Journal (supplement) 05 May 1978, p. 22
- 2-Foreign Uranium Supply, EPRI EA-725, pp. 4-1 to 4-56

SF 19

ACTIVITY--SOUTH AFRICA RESOURCE RECOVERY
CATEGORY-MINES (URANIUM & THORIUM)

NUCLEAR FACILITY PROFILE
PSM 09 AUG 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	FAC CODE
Afrikander Lease	Klerksdorp	URAN	300 te/y	Plan	81	RTFB
Babrosco	Transvaal					

LATITUDE- 26 DEG 52 MIN S LONGITUDE- 26 DEG 39 MIN E

TECHNOLOGY SOURCE-

OWNER/OPERATOR-Anglo-American Group

SUPPLY SOURCE-

SAFEGUARDS-

PRODUCT/USE-Uranium

FUEL STORAGE CAPACITY-

PROCESS-Underground mining

SCHEDULE-Expand to 750 te/y in 1982; Uranium was produced from this
mine 1954-1961

REMARKS-

REFERENCES-

- 1-Foreign Uranium Supply, EPRI EA-725, pp. 4-1 to 4-56
- 2-Mining Magazine, March 1978, p. 254
- 3-International Data Collection and Analysis, NAC, Task i, Vol IV,
June 1978, South Africa, p. 13

SF 20

ACTIVITY--SOUTH AFRICA RESOURCE RECOVERY NUCLEAR FACILITY PROFILE
CATEGORY-MINES (URANIUM & THORIUM) PSM 21 SEP 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	FAC CODE
	Parmeitkuil	URAN		Plan	82	RTFC

LATITUDE-	DEG	MIN	LONGITUDE-	DEG	MIN
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TECHNOLOGY SOURCE- OWNER/OPERATOR-Beisa Mines

SUPPLY SOURCE- SAFEGUARDS-

PRODUCT/USE-Uranium

FUEL STORAGE CAPACITY-

PROCESS-Underground mining

SCHEDULE-

REMARKS-Beisa Mines is owned by the Union Corporation

REFERENCES-

1-Mining Journal, 21 July 1978, p. 41

UR 1

ACTIVITY--USSR ENRICHMENT PLANTS
CATEGORY--ENRICHMENT PLANTS

NUCLEAR FACILITY PROFILE
SRM 19 JUL 78

FACILITY NAME LOCATION
Siberia

FAC FAC
TYPE CAPACITY STATUS YR CODE
DIFF 10000 K Oper RRAA
(KSWU)

LATITUDE- DEG MIN

LONGITUDE- DEG MIN

TECHNOLOGY SOURCE-USSR

OWNER/OPERATOR-Soviet Government

SUPPLY SOURCE-

SAFEGUARDS-No safeguards

PRODUCT/USE-U235 enriched uranium (percentage unknown)/at least 3200.0
KSWU/yr reactor grade for export
FUEL STORAGE CAPACITY-

PROCESS-Gaseous Diffusion

SCHEDULE-Currently in operation

REMARKS-Location-Soviet plant uses hydroelectric power from a dam near
Lake Baikal. Originally built for military use. Soviet data not
published-all data are estimates from outside sources
PRODUCTION HISTORY-3200.0 KSWU/yr available for sale by 1982. Sold
through Soviet trade organization-Techsnabexport
MARKET STRATEGY-First exports to France in 1971, plans to expand
exports to West Germany, Britain, Belgium, Italy, and Japan

REFERENCES-

- 1-IAEA Bulletin; Vol XIX, No 5; 10/77
- 2-Nonproliferation Issues; Hearings before the Subcommittee on Arms
Control, Committee on Foreign Relations; U.S. Senate; 94th
Congress; Published, 1977
- 3-Wilcox, Wm. J., Jr.; U Enrichment-A Review of the Present World
Status: Capacity, Technology, and Plans; 5/6/77
- 4-INFCE; U Enrichment Present Position; 3/24/78

UR 2

ACTIVITY--USSR ENRICHMENT PLANTS
CATEGORY-ENRICHMENT PLANTS

NUCLEAR FACILITY PROFILE
SRM 19 JUL 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	FAC CODE
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LASR	RRAB
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LATITUDE-	DEG	MIN	LONGITUDE-	DEG	MIN
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TECHNOLOGY SOURCE-USSR

OWNER/OPERATOR-

SUPPLY SOURCE-

SAFEGUARDS-

PRODUCT/USE-

FUEL STORAGE CAPACITY-

PROCESS-Laser Isotope Separation

SCHEDULE-Currently in research and development stage

REMARKS-Soviets known to be working on laser isotope separation of some elements other than uranium. Uranium enrichment is assumed to be included in this research. No known plans for pilot or production facilities available.

REFERENCES-

1-Wilcox, Wm. J., Jr.; U Enrichment-A Review of the Present World Status: Capability, Technology, and Plans; 5/6/77

UR 3

ACTIVITY--USSR RESEARCH AND TEST REACTOR NUCLEAR FACILITY PROFILE
CATEGORY-RESEARCH AND TEST REACTORS DMK 30 SEP 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	CODE
IRT	Moscow	POOL 2	MWt	Oper	57	RRAM

LATITUDE- 55 DEG 45 MIN N LONGITUDE- 37 DEG 42 MIN E

TECHNOLOGY SOURCE-USSR OWNER/OPERATOR-Institute for Atomic
Energy Acad of Sciences of USSR
SUPPLY SOURCE- SAFEGUARDS-

PRODUCT/USE-Research in nuclear physics, radiation chemistry and
biology, isotope production
FUEL STORAGE CAPACITY-

PROCESS-Pool-type, enriched (10%) uranium, light water moderated,
cooled and reflected
SCHEDULE-Reactor critical: Nov 1957
Full power operation: Dec 1957
REMARKS-Manual fuel loading and unloading

REFERENCES-

1-Directory of Nuclear Reactors, Vol III, IAEA, 1960, p. 29

UR 4

ACTIVITY--USSR RESEARCH & TEST REACTOR
CATEGORY-RESEARCH AND TEST REACTORS

NUCLEAR FACILITY PROFILE
DMK 30 SEP 78

FACILITY NAME LOCATION
IRT-A Moscow

FAC FAC
TYPE CAPACITY STATUS YR CODE
POOL 2 MWt Oper RRAN

LATITUDE- 55 DEG 45 MIN N

LONGITUDE- 37 DEG 42 MIN E

TECHNOLOGY SOURCE-USSR

OWNER/OPERATOR-Institute of
Physical Engineering

SUPPLY SOURCE-

SAFEGUARDS-

PRODUCT/USE-Research in nuclear physics, radiation chemistry and
biology, isotope production
FUEL STORAGE CAPACITY-

PROCESS-Pool-type, enriched (10%) uranium, light water moderated,
cooled and reflected
SCHEDULE-

REMARKS-

REFERENCES-

1-Directory of Nuclear Reactors, Vol III, IAEA, 1960, p. 35

ACTIVITY--USSR RESEARCH AND TEST REACTOR NUCLEAR FACILITY PROFILE
 CATEGORY-RESEARCH AND TEST REACTORS DMK 30 SEP 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	CODE
IRT-B	Tbilishi, Georgia	POOL	2 MWt	Oper	59	RRAP
Soviet Rsch Reactor						
LATITUDE- 41 DEG 43 MIN N		LONGITUDE- 44 DEG 48 MIN E				

TECHNOLOGY SOURCE-USSR OWNER/OPERATOR-Inst of Phy Academy
 of Sciences of the Georgian SSR
 SUPPLY SOURCE- SAFEGUARDS-

PRODUCT/USE-Research in nuclear physics, radiation chemistry and
 biology, isotope production
 FUEL STORAGE CAPACITY-

PROCESS-Pool type, enriched (10%) uranium, light water moderated,
 cooled and reflected
 SCHEDULE-Reactor critical: 1959

REMARKS-Reactor is identical to the Soviet Research Reactor IRT

REFERENCES-

1-Directory of Nuclear Reactors, Vol III, IAEA, 1960, p. 37

UR 6

ACTIVITY--USSR RESEARCH & TEST REACTOR
CATEGORY-RESEARCH AND TEST REACTORS

NUCLEAR FACILITY PROFILE
DMK 30 SEP 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	FAC CODE
IRT-C	Riga	POOL 2	MWt	Oper		RRAQ

LATITUDE- 56 DEG 40 MIN N

LONGITUDE-106 DEG 10 MIN E

TECHNOLOGY SOURCE-USSR

OWNER/OPERATOR-Inst. of Physics,
Acad. of Sciences, Latvian, SSR

SUPPLY SOURCE-

SAFEGUARDS-

PRODUCT/USE-Research in nuclear physics, radiation chemistry and
biology, isotope production

FUEL STORAGE CAPACITY-

PROCESS-Pool-type, enriched (10%) uranium, light water moderated,
cooled and reflected

SCHEDULE-

REMARKS-Reactor is identical to the Soviet Research Reactor IRT

REFERENCES-

1-Directory of Nuclear Reactors, Vol III, IAEA, 1960, p. 39

UR 7

ACTIVITY--USSR RESEARCH AND TEST REACTOR NUCLEAR FACILITY PROFILE
CATEGORY-RESEARCH AND TEST REACTORS DMK 30 SEP 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	CODE
IRT-D	Tomsk	POOL	2 MWt	Oper		RRAR

LATITUDE- 56 DEG 30 MIN N LONGITUDE- 85 DEG 05 MIN E

TECHNOLOGY SOURCE-USSR OWNER/OPERATOR-Polytechnical
Institute, Tomsk

SUPPLY SOURCE- SAFEGUARDS-

PRODUCT/USE-Research in nuclear physics, radiation chemistry and
biology, isotope production

FUEL STORAGE CAPACITY-

PROCESS-

SCHEDULE-

REMARKS-Reactor is identical to Soviet Research Reactor IRT

REFERENCES-

1-Directory of Nuclear Reactors, Vol III, p. 41, IAEA, 1960

UR 8

ACTIVITY--USSR RESEARCH & TEST REACTOR
CATEGORY-RESEARCH AND TEST REACTORS

NUCLEAR FACILITY PROFILE
DMK 30 SEP 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	FAC CODE
IRT-E	Sverdlovsk	POOL 2	MWt	Oper		RRAS

LATITUDE- 56 DEG 52 MIN N

LONGITUDE- 60 DEG 35 MIN E

TECHNOLOGY SOURCE-USSR

OWNER/OPERATOR-Urals Polytechnical
Institute

SUPPLY SOURCE-

SAFEGUARDS-

PRODUCT/USE-Research in nuclear physics, radiation chemistry and
biology, isotope production
FUEL STORAGE CAPACITY-

PROCESS-Pool-type, enriched (10%) uranium, light water moderated,
cooled and reflected
SCHEDULE-

REMARKS-Reactor is identical to the Soviet Research Reactor IRT

REFERENCES-

1-Directory of Nuclear Reactors, Vol III, IAEA, 1960, p. 43

ACTIVITY--USSR RESEARCH AND TEST REACTOR NUCLEAR FACILITY PROFILE
 CATEGORY-RESEARCH AND TEST REACTORS DMK 30 SEP 78

FACILITY NAME	LOCATION	FAC	FAC
IRT-F	Minsk	TYPE CAPACITY STATUS YR CODE	RRAT
		POOL 2 MWt Oper	

LATITUDE- 53 DEG 51 MIN N LONGITUDE- 27 DEG 30 MIN E

TECHNOLOGY SOURCE-USSR OWNER/OPERATOR-Energy Inst. Acad.
 of Sciences, Byelorussian, SSR
 SUPPLY SOURCE- SAFEGUARDS-

PRODUCT/USE-Research in nuclear physics, radiation chemistry and
 biology, isotope production
 FUEL STORAGE CAPACITY-

PROCESS-Pool-type, enriched (10%) uranium, light water moderated,
 cooled and reflected
 SCHEDULE-

REMARKS-Reactor is identical to the Soviet Research Reactor IRT

REFERENCES-

1-Directory of Nuclear Reactors, Vol III, IAEA, 1960, p. 45

UR 10

ACTIVITY--USSR RESEARCH AND TEST REACTOR NUCLEAR FACILITY PROFILE
CATEGORY-RESEARCH AND TEST REACTORS DMK 30 SEP 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	CODE
MR Rsch Reactor	Moscow	POOL	40 MWt	Oper	67	RRBC

LATITUDE- 55 DEG 45 MIN N

LONGITUDE- 37 DEG 42 MIN E

TECHNOLOGY SOURCE-Design/Builder: OWNER/OPERATOR-I.V. Kurchatov Inst
I.V.Kurchatov Inst of Atom Energy of Atomic Energy
SUPPLY SOURCE- SAFEGUARDS-

PRODUCT/USE-Testing fuel elements and materials

FUEL STORAGE CAPACITY-Space for 80 fuel assemblies in pool

PROCESS-Pool type, fully enriched (90%) uranium, light-water and
beryllium mod, beryllium, graphite, aluminum & lw reflected, lw cool

SCHEDULE-Reactor critical: Dec 1963

40 MW power operation: March 1967

REMARKS-Capacity: 50 MWt with the capacities of the loop channels
Fuel loading and unloading is done by means of long-handled tools
and crane

REFERENCES-

1-Directory of Nuclear Reactors, Vol III, IAEA, 1960, p. 29

UR 11

ACTIVITY--USSR RESEARCH AND TEST REACTOR NUCLEAR FACILITY PROFILE
CATEGORY-RESEARCH AND TEST REACTORS DMK 30 SEP 78

FACILITY NAME	LOCATION	FAC	TYPE	CAPACITY	STATUS	YR	CODE
RPT	Moscow	TK-H	20 MWt	Oper	52	RRBN	

See remarks

LATITUDE- 55 DEG 45 MIN N

LONGITUDE- 37 DEG 42 MIN E

TECHNOLOGY SOURCE-USSR

OWNER/OPERATOR-Atomic Energy
Inst. Academy of Sciences

SUPPLY SOURCE-Building
organizations of USSR

SAFEGUARDS-

PRODUCT/USE-Fuel element testing, irradiation of various materials

FUEL STORAGE CAPACITY-Under water storage

PROCESS-Tank-type, highly enriched (>90%) uranium, graphite moderated,
light water cooled

SCHEDULE-Start of construction: 1950; Full power operation:
April 1952; Reactor critical: 1958

REMARKS-Moderator: Graphite (76% of core volume) and light water
(11.7% of core volume)

RPT=Reactor for Physical and Technical Research

REFERENCES-

1-Directory of Nuclear Reactors, Vol III, IAEA, 1960, p. 211

UR 12

ACTIVITY--USSR RESEARCH AND TEST REACTOR NUCLEAR FACILITY PROFILE
CATEGORY-RESEARCH AND TEST REACTORS DMK 30 SEP 78

FACILITY NAME	LOCATION	FAC	FAC
		TYPE CAPACITY	STATUS YR CODE
BR-1 Soviet Breeder	Obninsk	FNRR 50 Wt	Inactv 55 RRBp

LATITUDE- 55 DEG 15 MIN N LONGITUDE- 36 DEG 41 MIN E

TECHNOLOGY SOURCE-USSR OWNER/OPERATOR-Inst of Phy, State
Commission for Atomic Energy
SUPPLY SOURCE- SAFEGUARDS-

PRODUCT/USE-Measurements of the neutron spectrum and conversion
factor; Verification of computing method

FUEL STORAGE CAPACITY-No irradiated fuel storage

PROCESS-Fast breeder type, Pu-239 and U-235 fueled, uncooled, depleted
uranium or copper reflected

SCHEDULE-Dismantled; Reactor critical: Early 1955

REMARKS-

REFERENCES-

1-Directory of Nuclear Reactors, Vol III, IAEA, 1960, p. 341

UR 13

ACTIVITY--USSR RESEARCH AND TEST REACTOR NUCLEAR FACILITY PROFILE
CATEGORY-RESEARCH AND TEST REACTORS DMK 30 SEP 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	CODE
BR-2	Obninsk	FNRR	.2 MWt	Inactv	57	RRBQ

Soviet Breeder

LATITUDE- 55 DEG 15 MIN N

LONGITUDE- 36 DEG 41 MIN E

TECHNOLOGY SOURCE-USSR

OWNER/OPERATOR-Inst of Physics,
State Com. for Atomic Energy

SUPPLY SOURCE-

SAFEGUARDS-

PRODUCT/USE-Materials and engineering tests

FUEL STORAGE CAPACITY-Irradiated fuel stored in special uncooled wells

PROCESS-Fast breeder type, plutonium-239 fueled, depleted uranium
reflected mercury cooled

SCHEDULE-Reactor critical: 1956; Dismantled: 1957

REMARKS-CAPACITY: MAX .2 MWt

Fuel loading and unloading: By means of articulated gears

Neutron flux: Fast max $1 \times (10 \text{ E } 14) \text{ n}/(\text{cm E } 2) \text{ sec}$

Critical mass: 12.22 Kg Pu

Core loading at rated power: 12.22 Kg Pu

Av. specific power in fuel: 8 KW/Kg Pu at 10 KW

Av. power density in core: 130 KW/l

Burnup: Approx 2%

REFERENCES-

1-Directory of Nuclear Reactors, Vol III, IAEA, 1960, p. 345

UR 14

ACTIVITY--USSR RESEARCH AND TEST REACTOR NUCLEAR FACILITY PROFILE
CATEGORY-RESEARCH AND TEST REACTORS DMK 30 SEP 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	FAC CODE
BR-5	Obninsk	FNRR	50 MWe	Oper	59	RRBR

See remarks

LATITUDE- 55 DEG 15 MIN N

LONGITUDE- 36 DEG 41 MIN E

TECHNOLOGY SOURCE-USSR

OWNER/OPERATOR-Inst of Phy, State
Commission For Atomic Energy

SUPPLY SOURCE-

SAFEGUARDS-

PRODUCT/USE-Engineering tests, operating experiment, materials
testing

FUEL STORAGE CAPACITY-Irradiated fuel stored in underwater cans

PROCESS-Fast breeder sodium cooled; enriched uranium carbide core

SCHEDULE-In operation: Reactor critical: June 1958

Operational: 1959

REMARKS-Fuel loading and unloading: Remote controlled loading gear,
by means of two extentrically located rotating plugs.

BR-5: Soviet Breeder No. 5

REFERENCES-

- 1-Directory of Nuclear Reactors, Vol III, 1960, p. 349, IAEA
- 2-Highlights of the USSR Nuclear Power Program Reactor, 1970, p. 11
- 3-Reactor Technology. USAEC, p. 85

UR 15

ACTIVITY--USSR RESEARCH AND TEST REACTOR
CATEGORY-RESEARCH AND TEST REACTORS

NUCLEAR FACILITY PROFILE
DMK 30 SEP 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	FAC CODE
TR	Moscow	TK-H	2.5 MWt	Oper	57	RRBY

Heavy Water Rsch

LATITUDE- 55 DEG 45 MIN N

LONGITUDE- 37 DEG 42 MIN E

TECHNOLOGY SOURCE-USSR

OWNER/OPERATOR-Theoretical and Exp.
Physics Inst, Academy of Sciences

SUPPLY SOURCE-

SAFEGUARDS-

PRODUCT/USE-Research in nuclear physics, radiation chemistry, biology,
isotope production

FUEL STORAGE CAPACITY-Water filled storage pool

PROCESS-Tank-type, slightly enriched (>2%) uranium, heavy water
moderated and cooled, graphite reflected

SCHEDULE-Start of construction: 1948; reactor critical: (nat. uranium)
April 1949; reactor critical after reconstruction: July 1957

REMARKS-Av power density in core: 2 KW/l

Burnup: 20%

Fuel loading and unloading: Remote controlled loading gear

Neutron flux: Thermal max $2.5 \times (10 \text{ E } 13) \text{ n}/(\text{cm E } 2) \text{ sec}$

Critical mass: Approx 2.8 Kg U-235

Core loading at rated power: 56 channels loaded 4.8 Kg U-235; 64
channels loaded-5.5 Kg U-235

Av specific power in fuel: Approx 500 KW/Kg U-235

REFERENCES-

1-Directory of Nuclear Reactors, Vol III, IAEA, 1960, p. 255

UR 16

ACTIVITY--USSR RESEARCH AND TEST REACTOR NUCLEAR FACILITY PROFILE
CATEGORY-RESEARCH AND TEST REACTORS DMK 30 SEP 78

FACILITY NAME	LOCATION	FAC	TYPE	CAPACITY	STATUS	YR	CODE
WWR-C Rsch Reactor	Moscow	TK-L	2 MWt	Oper	54	RRCG	

LATITUDE- 55 DEG 45 MIN N LONGITUDE- 37 DEG 42 MIN E

TECHNOLOGY SOURCE-USSR OWNER/OPERATOR-Atomic Energy Inst.,
Academy of Sciences
SUPPLY SOURCE- SAFEGUARDS-

PRODUCT/USE-Research in nuclear physics and biology, isotope
production
FUEL STORAGE CAPACITY-

PROCESS-Tank type, enriched (>10%) uranium, light water moderated and
cooled
SCHEDULE-Reactor critical: 1954

REMARKS-Fuel loading and unloading: Remote controlled loading gear,
lead container 20 cm diameter, fuel chute to spent fuel storage tank

REFERENCES-

1-Directory of Nuclear Reactors, IAEA, Vol III, 1960, p. 127

UR 17

ACTIVITY--USSR RESEARCH AND TEST REACTOR NUCLEAR FACILITY PROFILE
CATEGORY-RESEARCH AND TEST REACTORS DMK 30 SEP 78

FACILITY NAME	LOCATION	FAC	FAC
TYPE	CAPACITY	STATUS	YR CODE
UZBEK WWR-C Reactor	Tashkent	TK-L 2 MWt	Oper 59 RRCH

LATITUDE- 41 DEG 16 MIN N LONGITUDE- 69 DEG 13 MIN E

TECHNOLOGY SOURCE-USSR OWNER/OPERATOR-Nuclear Phy Inst.
Academy of Sciences, Uzber, SSR
SUPPLY SOURCE- SAFEGUARDS-

PRODUCT/USE-

FUEL STORAGE CAPACITY-

PROCESS-Tank type, enriched (>10%) uranium, light water moderated
and cooled

SCHEDULE-In operation; Reactor critical: Sept 1959

REMARKS-Reactor is identical with the WWR-C reactor of the Academy of
Sciences, Moscow

REFERENCES-

1-Directory of Nuclear Reactors, Vol III, IAEA, 190 p. 141

ACTIVITY--USSR RESEARCH AND TEST REACTOR NUCLEAR FACILITY PROFILE
 CATEGORY-RESEARCH AND TEST REACTORS DMK 30 SEP 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	FAC CODE
WWR-M Research Reactor-KIEV	Kiev, Ukraine	TK-L	10 MWt	Oper	60	RRCJ
LATITUDE- 50 DEG 28 MIN N		LONGITUDE- 30 DEG 29 MIN E				

TECHNOLOGY SOURCE-USSR OWNER/OPERATOR-Inst. of Nuclear Phy
 of the Uranium Academy of Science
 SUPPLY SOURCE- SAFEGUARDS-

PRODUCT/USE-Engineering research, materials test, production of
 isotopes and transuranic elements
 FUEL STORAGE CAPACITY-

PROCESS-Tank type, highly enriched (>20%) uranium, light water
 moderated and cooled, beryllium reflected

SCHEDULE-In operation; Reactor critical: Feb. 1960

REMARKS-Reactor is identical with the WWR-M Research Reactor of
 Leningrad

REFERENCES-

1-Directory of Nuclear Reactors, Vol III, IAEA, 1960, p. 171

UR 19

ACTIVITY--USSR RESEARCH AND TEST REACTOR NUCLEAR FACILITY PROFILE
CATEGORY-RESEARCH AND TEST REACTORS DMK 30 SEP 79

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	CODE
WWR-M Rsch Reactor	Leningrad	TK-L	10 MWt	Oper	59	RRCK

LATITUDE- 59 DEG 55 MIN N LONGITUDE- 30 DEG 25 MIN E

TECHNOLOGY SOURCE-USSR OWNER/OPERATOR-Physico-Technical
Inst Academy of Sciences, USSR
SUPPLY SOURCE- SAFEGUARDS-

PRODUCT/USE-Engineering research, materials test, production of
isotopes and transuranic elements
FUEL STORAGE CAPACITY-

PROCESS-Tank type, highly enriched (>20%) uranium, light water
moderated and cooled, beryllium, reflected
SCHEDULE-In operation; Reactor critical: Dec 1959

REMARKS-Fuel loading and unloading: Remote control mechanism

REFERENCES-

1-Directory of Nuclear Reactors, Vol III, IAEA, p. 165

UR 20

ACTIVITY--USSR RESEARCH & TEST REACTOR
CATEGORY-RESEARCH AND TEST REACTORS

NUCLEAR FACILITY PROFILE
DMK 30 SEP 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR CODE
WWR-2 Research Reactor	Alma-atam Kazakh	TK-L	10 MWt	Oper	63 RRCL
LATITUDE-	DEG MIN	LONGITUDE-	DEG MIN		

TECHNOLOGY SOURCE-USSR

OWNER/OPERATOR-Inst of Phy Academy
of Sciences, Kazakh, SSR

SUPPLY SOURCE-

SAFEGUARDS-

PRODUCT/USE-Research and engineering tests in radio-chemistry

FUEL STORAGE CAPACITY-Irradiated fuel stored in water filled tanks

PROCESS-Tank-type, highly enriched (>20%) uranium, light water
moderated, cooled and reflected

SCHEDULE-Reactor criticality: Expected 1963

REMARKS-Capacity: 10 MWt may subsequently be increased to 20 MWt.
Fuel loading and unloading: Remote control mechanism

REFERENCES-

1-Directory of Nuclear Reactors, Vol III, IAEA, 1960, p. 179

UR 21

ACTIVITY--USSR RESEARCH AND TEST REACTOR NUCLEAR FACILITY PROFILE
CATEGORY-RESEARCH AND TEST REACTORS DMK 30 SEP 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	CODE
WWR-C Rsch Reactor	Moscow	TK-L	3 MWt	Oper	57	RRCM

LATITUDE- 55 DEG 45 MIN N LONGITUDE- 37 DEG 42 MIN E

TECHNOLOGY SOURCE-USSR OWNER/OPERATOR-Atomic Energy Inst.,
Academy of Sciences
SUPPLY SOURCE- SAFEGUARDS-

PRODUCT/USE-Research in nuclear physics, biology and radiochemistry,
shielding studies, isotope production

FUEL STORAGE CAPACITY-Irradiated fuel stored in water filled
containers

PROCESS-Tank-type, enriched (>10%) uranium, light water moderated and
cooled

SCHEDULE-Reactor critical after reconstruction: 1957; Currently
in operation

REMARKS-Burnup: Approx 10%

Fuel loading and unloading: Remote controlled overhead crane

Neutron flux: Thermal max $4 \times (10 \text{ E } 13) \text{ n}/(\text{cm E } 2) \text{ sec}$

Critical mass: 2.6 Kg U-235

Core loading at rated power: 4.5 Kg U-235

Av specific power in fuel: 650 KW/Kg U-235

Av power density in core: 20 KW/l

REFERENCES-

1-Directory of Nuclear Reactors, Vol III, IAEA, 1960, p. 99

UR 22

ACTIVITY--USSR RESEARCH & TEST REACTOR
CATEGORY-RESEARCH AND TEST REACTORS

NUCLEAR FACILITY PROFILE
DMK 30 SEP 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR CODE
Romashka	Moscow	FNRR	.040 MWt		64 RRES

Daisy
LATITUDE- 55 DEG 45 MIN N LONGITUDE- 37 DEG 42 MIN E

TECHNOLOGY SOURCE-

OWNER/OPERATOR-

SUPPLY SOURCE-

SAFEGUARDS-

PRODUCT/USE-Demonstration of compact high temperature reactors;
power oscillation experiments
FUEL STORAGE CAPACITY-

PROCESS-Fast neutron reactor; thermoelectric conversion achieved by
silicon-germanium alloy thermocouples connected to a reflector
SCHEDULE-

REMARKS-Associated with the facility is a good hot laboratory for
examination and disassembly of the reactor. Process: Study of
effects of neutron flux on Romashka thermoelectric elements.
The reactor is located at the Kurchatov Atomic Energy Institute.
Capacity: 500 We, .040 MWt

REFERENCES-

1-Report of Reciprocal Exchange Trip to USSR by US Atomic
Scientists, Dec. 11-22, 1964

UR 23

ACTIVITY--USSR RESEARCH AND TEST REACTOR NUCLEAR FACILITY PROFILE
CATEGORY-RESEARCH AND TEST REACTORS DMK 30 SEP 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	FAC CODE
AM-1 Reactor	Obninsk	GMRR	30 MWt	Oper		RRET

LATITUDE- 55 DEG 15 MIN N LONGITUDE- 36 DEG 41 MIN E

TECHNOLOGY SOURCE- OWNER/OPERATOR-

SUPPLY SOURCE- SAFEGUARDS-

PRODUCT/USE-Study of boiling conditions in parallel tubular fuel
elements, research in water chemistry (See remarks)
FUEL STORAGE CAPACITY-

PROCESS-Boiler-superheater loop, graphite moderated, H2O cooled,
(5% U-235 enriched with molybdenum)
SCHEDULE-Currently in operation

REMARKS-Research also includes: Radiolytic decomposition of water
radioactive deposits from superheated steam; behavior of graphite
and stainless steel under operating conditions; study of
superheating conditions in parallel tubular fuel elements
CAPACITY: 5 MWe

REFERENCES-

- 1-Report of Reciprocal Exchange Trip to USSR, By US Atomic
Scientists, Dec. 11-22, 1964

UR 24

ACTIVITY--USSR RESEARCH & TEST REACTOR
CATEGORY-RESEARCH AND TEST REACTORS

NUCLEAR FACILITY PROFILE
DMK 30 SEP 78

FACILITY NAME LOCATION
APS Obninsk

FAC FAC
TYPE CAPACITY STATUS YR CODE
GMRR 3 MWt 54 RREU

LATITUDE- 55 DEG 15 MIN N

LONGITUDE- 37 DEG 41 MIN E

TECHNOLOGY SOURCE-USSR

OWNER/OPERATOR-Central Atomic
Energy Utilization Board

SUPPLY SOURCE-

SAFEGUARDS-

PRODUCT/USE-Power demonstration

FUEL STORAGE CAPACITY-Used channels are stored in tanks of water
encased in steel

PROCESS-Enriched (5%) uranium, graphite moderated, light water
cooled, pressurized reactor

SCHEDULE-Reactor critical: May 1964; full power operation: June 1954

REMARKS-CAPACITY: 5MWe

Partial refueling in periods of approx. 2 months, downtime 3-5 days

REFERENCES-

1-Directory of Nuclear Reactors, Vol IV, IAEA, 1959, p. 3

ACTIVITY--USSR RESEARCH & TEST REACTOR
 CATEGORY-RESEARCH AND TEST REACTORS

NUCLEAR FACILITY PROFILE
 DMK 30 SEP 78

FACILITY NAME	LOCATION	FAC	FAC
MIR	Dimitrovgrad	TYPE	CAPACITY
See remarks	NIIAR	TK-L	100 MWt
LATITUDE-	DEG	MIN	STATUS
			YR
			CODE
			66 RREV

TECHNOLOGY SOURCE-

OWNER/OPERATOR-

SUPPLY SOURCE-

SAFEGUARDS-

PRODUCT/USE-Loop testing of prototype fuel assemblies for nuclear reactors

FUEL STORAGE CAPACITY-Irradiated fuel stored in water filled pond

PROCESS-Tank-type, highly enriched (90%) uranium, light water and beryllium moderated, graphite & beryllium refl., LW cooled

SCHEDULE-In operation; commissioned: 1966

REMARKS-MIR=Materials Testing and Research Reactor

Loading of the fuel and loop channels of the reactor is carried out by loading machines

Neutron flux: Thermal max $5 \times (10 \text{ E } 14) \text{ n}/(\text{cm E } 2) \text{ sec}$; Fast max $(\text{E} > .5 \text{ MeV}) 3 \times (10 \text{ E } 14) \text{ n}/(\text{cm E } 2) \text{ sec}$

Critical mass: 2.1 Kg U-235

Core loading at rated power: Approx 11 Kg U-235

Av. specific power in fuel: Max 2000 KW/Kg

Av power density in core: Max 280 KW/litre

REFERENCES-

1-Directory of Nuclear Reactors, Vol X, IAEA, 1976, p. 351

ACTIVITY--USSR RESEARCH AND TEST REACTOR NUCLEAR FACILITY PROFILE
 CATEGORY-RESEARCH AND TEST REACTORS DMK 30 SEP 78

FACILITY NAME	LOCATION	FAC	FAC
SM-2 Test Reactor	Melekess	TK-L 75 MWt	Oper 61 RREW

LATITUDE- 54 DEG 14 MIN N LONGITUDE- 49 DEG 37 MIN E

TECHNOLOGY SOURCE- OWNER/OPERATOR-NIIAR

SUPPLY SOURCE- SAFEGUARDS-

PRODUCT/USE-Study of irradiation effects on non-fuel reactor materials (See remarks)

FUEL STORAGE CAPACITY-Irradiated fuel assemblies stored in water filled pond

PROCESS-Tank-type, highly enriched (90%) uranium, light water moderated and cooled, beryllium reflected

SCHEDULE-In operation; reactor critical: Oct. 1961

REMARKS-Test reactor is used to produce transplutonium elements for research. Reactor has an exceedingly high neutron flux. May 1965: Reactor operates with new beryllium reflector; new core installed which will allow operation of reactor at 100 MWt

The reactor has an appropriate overloading system for loading and unloading fuel assemblies without pressure drop in the reactor.

Critical mass: 11 Kg U-235

Core loading at rated power: Working loading 19 Kg U-235

Av. power density in core: 1700 KW/litre

Neutron flux: Thermal max (in loop channel) $3.3 \times (10 \text{ E } 15) \text{ n/ (cm E } 2) \text{ sec}$

REFERENCES-

1-Report of Reciprocal Exchange Trip To USSR by US Atomic Scientists, Dec. 11-22, 1964

2-Directory of Nuclear Reactors, Vol X, IAEA, p. 357

ACTIVITY--USSR RESEARCH AND TEST REACTOR NUCLEAR FACILITY PROFILE
 CATEGORY-RESEARCH AND TEST REACTORS DMK 30 SEP 78

FACILITY NAME	LOCATION	FAC	FAC
ARBUS	Melekess	TYPE CAPACITY STATUS	YR CODE
		OMRR 5 MWt	Oper 63 RREY

See remarks

LATITUDE- 54 DEG 14 MIN N LONGITUDE- 49 DEG 37 MIN E

TECHNOLOGY SOURCE-See remarks OWNER/OPERATOR-See remarks

SUPPLY SOURCE- SAFEGUARDS-

PRODUCT/USE-Testing of organic coolants

FUEL STORAGE CAPACITY-Well storage for one core loading

PROCESS-Enriched (36%) uranium, organic moderated and cooled, organic and aluminum reflected

SCHEDULE-Start of construction: Dec. 1962; reactor critical:

June 1963; full power operation: August 1963

REMARKS-Plant specifically designed to be transported. Owned by the Scientific Research Inst. For Atomic Reactors and The State Committee On The Utilization Of Atomic Energy. Operated by the Scientific Research Inst. For Atomic Reactors.

Complete refueling after 2 years. ARBUS=Arctic Modular Reactor Plant

Rated output: Gross heat 5 MW, Gross elect. .75 MW, Net elect

.50 MW. Neutron flux: Thermal average $(10 \text{ E } 13) \text{ n}/(\text{cm E } 2) \text{ sec}$;

Thermal max $3 \times (10 \text{ E } 13) \text{ n}/(\text{cm E } 2) \text{ sec}$; Fast av $.4 \times (10 \text{ E } 14) \text{ n}/$

$(\text{cm E } 2) \text{ sec}$; Fast max $1.2 \times (10 \text{ E } 14) \text{ n}/(\text{cm E } 2) \text{ sec}$

Technology Source: Design Office, State Com. on Utilization of Atomic Energy

REFERENCES-

1-Report Of Reciprocal Exchange Trip to USSR By US Atomic Scientists, Dec. 11-22, 1964

2-Directory of Nuclear Reactors, Vol VII, IAEA, p. 303

ACTIVITY--USSR SPENT FUEL PROCESSING
CATEGORY-FUEL REPROCESSING FACILITIES

NUCLEAR FACILITY PROFILE
SRM 01 AUG 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR CODE	FAC CODE
Fregat-SRIAR	Melekess	FB	(small)	Oper		RREZ

LATITUDE- 54 DEG 14 MIN N

LONGITUDE- 49 DEG 37 MIN E

TECHNOLOGY SOURCE-USSR

OWNER/OPERATOR-V.I. Lenin Scientif.
Research Inst of Atomic Reactors

SUPPLY SOURCE-BOR-60 LMFBR spent
fuel

SAFEGUARDS-

PRODUCT/USE-

FUEL STORAGE CAPACITY-Spent fuel undergoes 3-6 months cooling period
before reprocessing (unknown storage capacity)

PROCESS-Fast breeder fuel reprocessing using flouride-gas technology

SCHEDULE-Pilot plant in operation before 1976

REMARKS-Fregat Pilot Plant equipment is remote-controlled and is used
for experiments on flouride-gas techniques of fuel reprocessing

REFERENCES-

- 1-V.I. Lenin Scientific Research Institute of Atomic Reactors;
Experimental Regeneration of Irradiated Uranium Fuel from the
BOR-60 Reactor by the Flouride Method; IAEA Meeting on LMFBR Fuel
Reprocessing; Leningrad, USSR; 5/17-21/76

ACTIVITY--USSR WASTE MANAGEMENT
CATEGORY-WASTE DISPOSAL FACILITIES

NUCLEAR FACILITY PROFILE
SRM 29 AUG 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	FAC CODE
Moscow Plant	Moscow	PREP		Oper	65	RRFA

LATITUDE- 55 DEG 45 MIN N

LONGITUDE- 37 DEG 42 MIN E

TECHNOLOGY SOURCE-USSR

OWNER/OPERATOR-Soviet Government

SUPPLY SOURCE-

SAFEGUARDS-

PRODUCT/USE-

FUEL STORAGE CAPACITY-

PROCESS-Reception of radioactive wastes for treatment and disposal by
incorporation into concrete

SCHEDULE-Pilot plant currently in operation

REMARKS-Full name is "Moscow Plant for the Treatment and Disposal of
Radioactive Wastes." The experimental concretion installation is
completely sealed off and is remote controlled.

REFERENCES-

- 1-IAEA; Waste Management Techniques and Programmes in
Czechoslovakia, Poland, and the USSR; 1971

ACTIVITY--USSR WASTE MANAGEMENT
CATEGORY-WASTE DISPOSAL FACILITIES

NUCLEAR FACILITY PROFILE
SRM 29 AUG 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	FAC CODE
NIIAR	Novikovka	DISP		Oper	66	RRFB

LATITUDE- 54 DEG 30 MIN N

LONGITUDE- 49 DEG 10 MIN E

TECHNOLOGY SOURCE-USSR

OWNER/OPERATOR-Soviet Government

SUPPLY SOURCE-

SAFEGUARDS-

PRODUCT/USE-

FUEL STORAGE CAPACITY-

PROCESS-Underground disposal of liquid waste into porous, water-bearing rock beds using injection wells

SCHEDULE-Pilot wells currently in operation

REMARKS-Wells are drilled into porous rock; liquid waste is injected through the well into the rock replacing and mixing with the existing water and eventually occupying a definite volume and area of the rock bed.

REFERENCES-

- 1-IAEA; Waste Management Techniques and Programmes in Czechoslovakia, Poland, and the USSR; 1971

UR 31

ACTIVITY--USSR RESOURCE RECOVERY
CATEGORY-MINES (URANIUM & THORIUM)

NUCLEAR FACILITY PROFILE
PSM 20 SEP 78

FACILITY NAME LOCATION
Norilsk

FAC				FAC
TYPE	CAPACITY	STATUS	YR	CODE
URAN		Oper		RRFC

LATITUDE- 69 DEG 21 MIN N

LONGITUDE- 88 DEG 02 MIN E

TECHNOLOGY SOURCE-

OWNER/OPERATOR-Government
controlled

SUPPLY SOURCE-

SAFEGUARDS-

PRODUCT/USE-Uranium

FUEL STORAGE CAPACITY-

PROCESS-

SCHEDULE-Operating in 1955

REMARKS-

REFERENCES-

1-Minerals Yearbook, US Bureau of Mines, 1955, pp. 1228-1242

UR 32

ACTIVITY--USSR RESOURCE RECOVERY
CATEGORY-MINES (URANIUM & THORIUM)

NUCLEAR FACILITY PROFILE
PSM 20 SEP 78

FACILITY NAME LOCATION
Taboshar

FAC	FAC
TYPE	CODE
URAN	RRFD
Oper	

LATITUDE- 40 DEG 35 MIN N

LONGITUDE- 69 DEG 45 MIN E

TECHNOLOGY SOURCE-

OWNER/OPERATOR-Government

SUPPLY SOURCE-

SAFEGUARDS-

PRODUCT/USE-Uranium

FUEL STORAGE CAPACITY-

PROCESS-

SCHEDULE-

REMARKS-

REFERENCES-

- 1-McKinney, Robert, International Atomic Policies and Programs of the United States, Report to the Joint Committee on Atomic Energy, 1960, Vol IV, pp. 1613-1618

ACTIVITY--USSR RESOURCE RECOVERY
 CATEGORY-MINES (URANIUM & THORIUM)

NUCLEAR FACILITY PROFILE
 PSM 20 SEP 78

FACILITY NAME LOCATION
 Pervomaisk
 Krivoy Rog

FAC FAC
 TYPE CAPACITY STATUS YR CODE
 URAN Oper RRFE

LATITUDE- DEG MIN LONGITUDE- DEG MIN

TECHNOLOGY SOURCE-

OWNER/OPERATOR-Government

SUPPLY SOURCE-

SAFEGUARDS-

PRODUCT/USE-Uranium

FUEL STORAGE CAPACITY-

PROCESS-

SCHEDULE-Operational when visited by the Chairman of the US AEC in
 1959.

REMARKS-

REFERENCES-

- 1-McKinney, Robert, International Atomic Policies and Programs of
 the United States, Report to the Joint Committee on Atomic Energy,
 1960, Vol IV, pp. 1613-1618

UR 34

ACTIVITY--USSR RESOURCE RECOVERY
CATEGORY-MINES (URANIUM & THORIUM)

NUCLEAR FACILITY PROFILE
PSM 20 SEP 78

FACILITY NAME LOCATION
Tuya Muyum
Kirgiziya

FAC FAC
TYPE CAPACITY STATUS YR CODE
URAN Inactv RRFF

LATITUDE- 40 DEG 22 MIN N

LONGITUDE- 72 DEG 36 MIN E

TECHNOLOGY SOURCE-

OWNER/OPERATOR-Government

SUPPLY SOURCE-

SAFEGUARDS-

PRODUCT/USE-Uranium

FUEL STORAGE CAPACITY-

PROCESS-

SCHEDULE-

REMARKS-In the Fergana Valley

REFERENCES-

- 1-McKinney, Robert, International Atomic Policies and Programs of the United States, Report to the Joint Committee on Atomic Energy, 1960, Vol IV, pp. 1613-1618

UR 35

ACTIVITY--USSR RESOURCE RECOVERY
CATEGORY-MINES (URANIUM & THORIUM)

NUCLEAR FACILITY PROFILE
PSM 20 SEP 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	FAC CODE
	Mailiy Su Kirgiziya	URAN		Oper		RRFG

LATITUDE- 41 DEG 14 MIN N

LONGITUDE- 72 DEG 22 MIN E

TECHNOLOGY SOURCE-

OWNER/OPERATOR-Government

SUPPLY SOURCE-

SAFEGUARDS-

PRODUCT/USE-Uranium

FUEL STORAGE CAPACITY-

PROCESS-

SCHEDULE-

REMARKS-Located in the Fergana Valley
Also written Mayli-Say

REFERENCES-

- 1-McKinney, Robert, International Atomic Policies and Programs of the United States, Report to the Joint Committee on Atomic Energy, 1960, Vol IV, pp. 1613-1618

UR 36

ACTIVITY--USSR RESOURCE RECOVERY
CATEGORY-MINES (URANIUM & THORIUM)

NUCLEAR FACILITY PROFILE
PSM 20 SEP 78

FACILITY NAME LOCATION
Uigur Say
Kirgiziya

FAC FAC
TYPE CAPACITY STATUS YR CODE
URAN Oper RRFH

LATITUDE- 40 DEG 50 MIN N

LONGITUDE- 71 DEG 05 MIN E

TECHNOLOGY SOURCE-

OWNER/OPERATOR-Government

SUPPLY SOURCE-

SAFEGUARDS-

PRODUCT/USE-Uranium

FUEL STORAGE CAPACITY-

PROCESS-

SCHEDULE-

REMARKS-In the Fergana Valley

REFERENCES-

1-McKinney, Robert, International Atomic Policies and Programs of
the United States, Report to the Joint Committee on Atomic Energy,
1960, Vol IV, pp. 1613-1618

SP 1

ACTIVITY--SPAIN RESEARCH AND TEST REACTOR NUCLEAR FACILITY PROFILE
CATEGORY-RESEARCH AND TEST REACTORS DMK 30 SEP 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	FAC CODE
Arbi Reactor	Bilbao	ARGO	.01 MWt	Oper	62	RSAH

LATITUDE- 43 DEG 15 MIN N LONGITUDE- 2 DEG 56 MIN W

TECHNOLOGY SOURCE-Design & bldr: OWNER/OPERATOR-Escuela Tecnica Sup-
Junta de Energia Nuclear, Spain erior de Ingenieros Ind., Bilbao
SUPPLY SOURCE- SAFEGUARDS-

PRODUCT/USE-Research in activation analysis and short lived isotope
production; Training in nuclear physics and engineering
FUEL STORAGE CAPACITY-

PROCESS-Argonaut-type, enriched (20%) uranium, light water moderated
and cooled, light water and graphite reflected

SCHEDULE-In operation; start of construction: 1961; reactor critical:
June 1962

REMARKS-Neutron flux: Thermal av $1.0 \times (10 \text{ E } 11) \text{ n}/(\text{cm E } 2) \text{ sec}$; Thermal
max $1.7 \times (10 \text{ E } 11) \text{ n}/(\text{cm E } 2) \text{ sec}$; Fast av $1.5 \times (10 \text{ E } 11) \text{ n}/(\text{cm E } 2) \text{ sec}$;
Fast max $1.7 \times (10 \text{ E } 11) \text{ n}/(\text{cm E } 2) \text{ sec}$
Critical mass: 2.090 Kg U-235
Core loading at rated power: 2.142 Kg U-235
Specific power: .934 KW/Kg total
Power density: .192 KW/litre

REFERENCES-

1-Directory of Nuclear Reactors, Vol VIII, IAEA, 1970, p. 97

ACTIVITY--SPAIN RESEARCH AND TEST REACTOR NUCLEAR FACILITY PROFILE
 CATEGORY-RESEARCH AND TEST REACTORS DMK 30 SEP 78

FACILITY NAME	LOCATION	FAC	FAC
Argos Reactor	Barcelona	TYPE CAPACITY STATUS YR CODE	
		ARGO .01 MWt Oper	61 RSAK

LATITUDE- 41 DEG 25 MIN N LONGITUDE- 2 DEG 10 MIN E

TECHNOLOGY SOURCE-Design & bldr: OWNER/OPERATOR-Escuela Tecnica Sup-
 Junta de Energia Nuclear, Spain erior de Ingenieros Ind
 SUPPLY SOURCE- SAFEGUARDS-

PRODUCT/USE-Reactor dynamics, neutron physics, educational purposes

FUEL STORAGE CAPACITY-Irradiated fuel: 16 fuel pits below ground level
 provided with concrete plugs

PROCESS-Argonaut-type, enriched (20%) uranium, light water moderated
 and cooled, light water and graphite reflected

SCHEDULE-In operation; start of construction: Jan. 1960;
 reactor critical: June 1961

REMARKS-Av power density in core: .175 KW/litre (one-slab), .088 KW/
 litre (two slab)
 Neutron flux: Thermal av $1.16 \times (10 \text{ E } 11) \text{ n}/(\text{cm E } 2) \text{ sec}$; Thermal max
 $1.87 \times (10 \text{ E } 11) \text{ n}/(\text{cm E } 2) \text{ sec}$; Fast av $1.2 \times (10 \text{ E } 11) \text{ n}/(\text{cm E } 2) \text{ sec}$;
 Fast max $1.9 \times (10 \text{ E } 11) \text{ n}/(\text{cm E } 2) \text{ sec}$
 Critical mass: One slab loading 2.01 Kg U-235, two slab loading 3.7
 Kg U-235. Core loading at rated power: One slab loading 2.033 Kg
 U-235, two slab loading 3.818 Kg U-235. Av. specific power in fuel:
 .985 KW/Kg total U (one slab), .524 KW/Kg total U (two slab)
 Manual (fuel) loading and unloading

REFERENCES-

1-Directory of Nuclear Reactors, Vol VIII, IAEA, 1970, p. 91

SP 3

ACTIVITY--SPAIN RESEARCH AND TEST REACTOR NUCLEAR FACILITY PROFILE
CATEGORY-RESEARCH AND TEST REACTORS DMK 30 SEP 78

FACILITY NAME	LOCATION	FAC	TYPE	CAPACITY	STATUS	YR	CODE
Coral-1 Reactor	Madrid	FNRR	10Wt max	Oper	68	RSAX	
Juan Vigon Nucl Rsch							
LATITUDE- 40 DEG 25 MIN N		LONGITUDE- 3 DEG 43 MIN W					

TECHNOLOGY SOURCE-Design & bldr.: OWNER/OPERATOR-Junta de Energia
Junta de Energia Nuclear Nuclear
SUPPLY SOURCE- SAFEGUARDS-

PRODUCT/USE-Fast neutron source and fast neutron physics studies

FUEL STORAGE CAPACITY-

PROCESS-Zero energy, fast, enriched (90%) uranium, natural uranium
blanket as reflector, uncooled

SCHEDULE-In operation; reactor critical: Feb. 1968

REMARKS-Critical mass: 22.056 Kg of highly enriched uranium
Neutron flux: At 1 W power, Fast av $4 \times (10^8) \text{ n}/(\text{cm}^2 \text{ sec})$; Fast
max $6 \times (10^8) \text{ n}/(\text{cm}^2 \text{ sec})$

REFERENCES-

1-Directory of Nuclear Reactors, Vol VIII, 1970, p. 205

SP 4

ACTIVITY--SPAIN RESEARCH AND TEST REACTOR NUCLEAR FACILITY PROFILE
CATEGORY-RESEARCH AND TEST REACTORS DMK 30 SEP 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	CODE
Sp Rsch Reac. Jen-1	Madrid	POOL	6 MWt	Oper	59	RSBK

Nucl. Rsch Center
LATITUDE- 40 DEG 25 MIN N LONGITUDE- 3 DEG 43 MIN W

TECHNOLOGY SOURCE-Design & builder:OWNER/OPERATOR-Junta De Energia
Gen Elec Co & Junta De Energia Nuclear
SUPPLY SOURCE- SAFEGUARDS-

PRODUCT/USE-Research, training, isotope production, engineering tests,
shielding studies

FUEL STORAGE CAPACITY-Irradiated fuel stored in racks inside pool

PROCESS-Pool type, highly enriched (20%) uranium, light water
moderated and cooled, graphite reflected

SCHEDULE-Start of construction: April 1957; Reactor critical:
Oct 1958; Full power operation: Feb 1959

REMARKS-Fuel loading and unloading is done manually with long handling
tools

REFERENCES-

- 1-Directory of Nuclear Reactors, Vol II, IAEA, 1959, p. 57
- 2-Intl. Data Collection and Analysis, Vol IV, NAC, June 1978

SP 5

ACTIVITY--SPAIN RESEARCH AND TEST REACTOR NUCLEAR FACILITY PROFILE
CATEGORY-RESEARCH AND TEST REACTORS DMK 30 SEP 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	CODE
JEN-2	Madrid	POOL	.01 MWt	Oper	68	RSBL

Nucl. Rsch Center

LATITUDE- 40 DEG 25 MIN N LONGITUDE- 3 DEG 43 MIN W

TECHNOLOGY SOURCE-Bldg.: JEN-Junta OWNER/OPERATOR-Owner: JEN
de Energia Nucleare

SUPPLY SOURCE- SAFEGUARDS-

PRODUCT/USE-

FUEL STORAGE CAPACITY-

PROCESS-

SCHEDULE-In operation

REMARKS-

REFERENCES-

1-Intl Data Collection and Analysis, Vol IV, NAC, June 1978

SP 6

ACTIVITY--SPAIN FUEL FABRICATION
CATEGORY-FUEL FABRICATION PLANTS

NUCLEAR FACILITY PROFILE
SRM 09 AUG 78

FACILITY NAME LOCATION
Juan Vigon Nuclear Madrid
Research Center

FAC FAC
TYPE CAPACITY STATUS YR CODE
R&D RSBM

LATITUDE- 40 DEG 25 MIN N

LONGITUDE- 3 DEG 43 MIN W

TECHNOLOGY SOURCE-

OWNER/OPERATOR-Junta de Energia
Nucleare (JEN)/Juan Vigon Res Cen
SAFEGUARDS-

SUPPLY SOURCE-

PRODUCT/USE-

FUEL STORAGE CAPACITY-

PROCESS-Unspecified fuel fabrication

SCHEDULE-Research and development program in progress

REMARKS-

REFERENCES-

1-NAC; Intl Data Collection and Analysis; Task 1, Vol IV; 6/78

SP 7

ACTIVITY--SPAIN SPENT FUEL PROCESSING
CATEGORY-FUEL REPROCESSING FACILITIES

NUCLEAR FACILITY PROFILE
SRM 27 JUL 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	FAC CODE
Juan Vigon Nuclear Research Center	Madrid	UM	(small)	Oper		RSBP

LATITUDE- 40 DEG 25 MIN N

LONGITUDE- 3 DEG 43 MIN W

TECHNOLOGY SOURCE-Junta de
Energia Nucleare (JEN)

OWNER/OPERATOR-JEN

SUPPLY SOURCE-

SAFEGUARDS-IAEA Safeguards
Agreement

PRODUCT/USE-

FUEL STORAGE CAPACITY-

PROCESS-U-metal reprocessing of spent test reactor fuel

SCHEDULE-Currently in operation as small pilot plant

REMARKS-JEN is looking for a site for a commercial reprocessing
plant/intermediate fuel storage facility

REFERENCES-

- 1-Nuclear Proliferation Factbook; Congressional Research Service,
Library of Congress; 9/23/77
- 2-NAC, Intl Data Collection and Analysis; Task 1, Vol IV; 6/78
- 3-Chayes, Abram and W. Bennett Lewis; International Arrangements
for Nuclear Fuel Reprocessing; 1977

SP 8

ACTIVITY--SPAIN RESOURCE RECOVERY
CATEGORY-MINES (URANIUM & THORIUM)

NUCLEAR FACILITY PROFILE
PSM 07 SEP 78

FACILITY NAME LOCATION
Soria

FAC	FAC
TYPE	CAPACITY
URAN	STATUS
	YR
	CODE
	RSCQ

LATITUDE- 41 DEG 46 MIN N

LONGITUDE- 02 DEG 28 MIN W

TECHNOLOGY SOURCE-

OWNER/OPERATOR-ENUSA- Empresa
Nacional del Uranio, S.A.

SUPPLY SOURCE-

SAFEGUARDS-

PRODUCT/USE-Uranium

FUEL STORAGE CAPACITY-

PROCESS-

SCHEDULE-

REMARKS-

REFERENCES-

1-Uranium Resources, Production and Demand, IAEA, Dec 1977,
pp. 100-103

ACTIVITY--SPAIN RESOURCE RECOVERY
CATEGORY-MINES (URANIUM & THORIUM)

NUCLEAR FACILITY PROFILE
PSM 07 SEP 78

FACILITY NAME	LOCATION	FAC	FAC
	Cuidad Rodrigo	TYPE CAPACITY STATUS YR CODE	
	Salamanca	URAN 118te/y Oper 75 RSCS	

LATITUDE- 40 DEG 36 MIN N LONGITUDE- 06 DEG 33 MIN W

TECHNOLOGY SOURCE- OWNER/OPERATOR-ENUSA- Empresa
Nacional del Uranio, S.A.

SUPPLY SOURCE- SAFEGUARDS-

PRODUCT/USE-Uranium

FUEL STORAGE CAPACITY-

PROCESS-Open pit mining

SCHEDULE-Expansion to 545 te/y by 1980

REMARKS-

REFERENCES-

- 1-International Data Collection and Analysis, NAC, 6/78, Task 1, Vol IV, Spain, p. 14
- 2-Foreign Uranium Supply, EPRI EA-725, 4/78, pp. 5-16
- 3-Uranium Resources, Production and Demand, IAEA, Dec 1977, pp. 100-103
- 4-Mining Magazine, March 1978, p. 234

SP 10

ACTIVITY--SPAIN RESOURCE RECOVERY
CATEGORY-MILLS

NUCLEAR FACILITY PROFILE
PSM 07 SEP 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	CODE
	Cuidad Rodrigo Salamanca	URAN	118te/y	Oper	75	RSCT

LATITUDE- 40 DEG 36 MIN N

LONGITUDE- 06 DEG 33 MIN W

TECHNOLOGY SOURCE-

OWNER/OPERATOR-ENUSA- Empresa
Nacional del Uranio, S.A.

SUPPLY SOURCE-

SAFEGUARDS-

PRODUCT/USE-Uranium

FUEL STORAGE CAPACITY-

PROCESS-

SCHEDULE-Expansion to 545 te/y planned for 1980

REMARKS-

REFERENCES-

- 1-International Data Collection and Analysis, NAC, 6/78, Task 1, Vol IV, Spain, p. 14
- 2-Foreign Uranium Supply, EPRI EA-725, 4/78, pp. 5-16
- 3-Uranium Resources, Production and Demand, IAEA, Dec 1977, pp. 100-103

SP 11

ACTIVITY--SPAIN RESOURCE RECOVERY
CATEGORY-MINES (URANIUM & THORIUM)

NUCLEAR FACILITY PROFILE
PSM 07 SEP 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	FAC CODE
El Pedregal	Don Benito	URAN	60 te/y	Oper		RSCU

LATITUDE- 38 DEG 57 MIN N

LONGITUDE- 05 DEG 52 MIN W

TECHNOLOGY SOURCE-

OWNER/OPERATOR-ENUSA- Empresa
Nacional del Uranio, S.A.

SUPPLY SOURCE-

SAFEGUARDS-

PRODUCT/USE-Uranium

FUEL STORAGE CAPACITY-

PROCESS-

SCHEDULE-Planned expansion to 85 te/y by 1980

REMARKS-

REFERENCES-

1-Uranium Resources, Production and Demand, IAEA, Dec 1977,
pp. 100-103

SP 12

ACTIVITY--SPAIN RESOURCE RECOVERY
CATEGORY-MINES (URANIUM & THORIUM)

NUCLEAR FACILITY PROFILE
PSM 08 SEP 78

FACILITY NAME LOCATION
Andvjar

FAC FAC
TYPE CAPACITY STATUS YR CODE
URAN 65 te/y Oper 59 RSCV

LATITUDE- 38 DEG 02 MIN N

LONGITUDE- 04 DEG 03 MIN W

TECHNOLOGY SOURCE-

OWNER/OPERATOR-ENUSA- Empresa
Nacional del Uranio, S.A.
SAFEGUARDS-

SUPPLY SOURCE-

PRODUCT/USE-Uranium

FUEL STORAGE CAPACITY-

PROCESS-Open pit mining

SCHEDULE-

REMARKS-

REFERENCES-

- 1-International Data Collection and Analysis, NAC, 6/78, Task 1,
Vol IV, Spain, p. 14
- 2-Foreign Uranium Supply, EPRI EA-725, 4/78, pp. 5-16
- 3-Uranium Resources, Production and Demand, IAEA, Dec 1977,
pp. 100-103

SP 13

ACTIVITY--SPAIN FUEL FABRICATION
CATEGORY-FUEL FABRICATION PLANTS

NUCLEAR FACILITY PROFILE
SRM 09 AUG 78

FACILITY NAME LOCATION
Fabrication Facility Juzbada
(Salamanca)

FAC	FAC
TYPE	CAPACITY STATUS YR CODE
UO	400 te Plan 81 RSDA
	(te/yr)

LATITUDE- 40 DEG 58 MIN N

LONGITUDE- 05 DEG 40 MIN W

TECHNOLOGY SOURCE-

OWNER/OPERATOR-ENUSA (Empresa
Nacional del Uranio S.A.)

SUPPLY SOURCE-

SAFEGUARDS-

PRODUCT/USE-U-oxide (light water reactor) fuel

FUEL STORAGE CAPACITY-

PROCESS-

SCHEDULE-Planned for operation in 1981

REMARKS-Construction permit for Juzbada site is currently being
delayed.

REFERENCES-

1-NAC; Intl Data Collection and Analysis; Task 1, Vol IV; 6/78

SP 14

ACTIVITY--SPAIN WASTE MANAGEMENT NUCLEAR FACILITY PROFILE
CATEGORY-WASTE DISPOSAL FACILITIES SRM 25 AUG 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	FAC CODE
	Sierra de Albarracin (Albarracin)	DISP		Oper		RSDB

LATITUDE- 40 DEG 25 MIN N LONGITUDE- 1 DEG 26 MIN W

TECHNOLOGY SOURCE-Spain, ENUSA OWNER/OPERATOR-ENUSA (Empresa
Nacional del Uranio S.A.)

SUPPLY SOURCE- SAFEGUARDS-

PRODUCT/USE-

FUEL STORAGE CAPACITY-

PROCESS-Disposal of non-high-level waste in abandoned uranium mines

SCHEDULE-Currently in operation

REMARKS-

REFERENCES-

- 1-Proceedings of Intl Symp on Management of Wastes from the LWR Fuel Cycle; Denver, Col; 7/11-16/76

SP 15

ACTIVITY--SPAIN RESOURCE RECOVERY
CATEGORY--MILLS

NUCLEAR FACILITY PROFILE
PSM 08 SEP 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	CODE
	Andujar	URAN	65	te/y Oper	59	RSDC

LATITUDE- 38 DEG 02 MIN N

LONGITUDE- 04 DEG 03 MIN W

TECHNOLOGY SOURCE-

OWNER/OPERATOR-ENUSA- Empresa
Nacional del Uranio, S.A.

SUPPLY SOURCE-

SAFEGUARDS-

PRODUCT/USE-Uranium

FUEL STORAGE CAPACITY-

PROCESS-

SCHEDULE-Cessation of mill anticipated in 2-3 years; Economic
consideration given as cause

REMARKS-

REFERENCES-

- 1-International Data Collection and Analysis, NAC, 6/78, Task 1,
Vol IV, Spain, p. 14
- 2-Foreign Uranium Supply, EPRI EA-725, 4/78, pp. 5-16
- 3-Uranium Resources, Production and Demand, IAEA, Dec 1977,
pp. 100-103

SP 16

ACTIVITY--SPAIN RESOURCE RECOVERY
CATEGORY-MILLS

NUCLEAR FACILITY PROFILE
PSM 08 SEP 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	FAC CODE
Lobo	Badajoz	URAN	25	te/y Oper		RSDD

LATITUDE- 38 DEG 53 MIN N

LONGITUDE- 06 DEG 58 MIN W

TECHNOLOGY SOURCE-

OWNER/OPERATOR-ENUSA- Empresa
Nacional del Uranio, S.A.

SUPPLY SOURCE-

SAFEGUARDS-

PRODUCT/USE-Uranium

FUEL STORAGE CAPACITY-

PROCESS-

SCHEDULE-

REMARKS-

REFERENCES-

1-Uranium Resources, Production and Demand, IAEA, Dec 1977,
pp. 100-103

SW 1

ACTIVITY--SWEDEN ENRICHMENT PLANTS
CATEGORY-ENRICHMENT PLANTS

NUCLEAR FACILITY PROFILE
SRM 24 JUL 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	CODE
Royal Inst of Tech	Stockholm	LASR		R&D		RWAB

LATITUDE- 59 DEG 20 MIN N

LONGITUDE- 18 DEG 95 MIN E

TECHNOLOGY SOURCE-

OWNER/OPERATOR-

SUPPLY SOURCE-

SAFEGUARDS-

PRODUCT/USE-

FUEL STORAGE CAPACITY-

PROCESS-Laser isotope separation

SCHEDULE-Research and development program in progress

REMARKS-

REFERENCES-

- 1-Nonproliferation Issues; Hearings, Subcommittee on Arms Control, Committee on Foreign Affairs; U.S. Senate, 94th Congress; Published 1977
- 2-Pernet, Ann (ed); Nuclear Research Index; 5th Edition; 1/76

SW 2

ACTIVITY--SWEDEN SPENT FUEL PROCESSING
CATEGORY-FUEL REPROCESSING FACILITIES

NUCLEAR FACILITY PROFILE
SRM 28 JUL 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	FAC CODE
		UO	800 te (te/yr)	Plan	90	RWAC

LATITUDE- DEG MIN LONGITUDE- DEG MIN

TECHNOLOGY SOURCE-

OWNER/OPERATOR-

SUPPLY SOURCE-

SAFEGUARDS-NPT Safeguards
Agreement

PRODUCT/USE-

FUEL STORAGE CAPACITY-

PROCESS-U-oxide low-enriched fuel reprocessing

SCHEDULE-Under consideration for operation around 1990

REMARKS-

REFERENCES-

- 1-Chayes, Abram and W. Bennett Lewis; International Arrangements for Nuclear Fuel Reprocessing; 1977
- 2-Nuclear Proliferation Factbook; Congressional Research Service, Library of Congress; 9/23/77

SW 3

ACTIVITY--SWEDEN RESOURCE RECOVERY
CATEGORY-CONVERSION PLANTS

NUCLEAR FACILITY PROFILE
SRM 02 AUG 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	CODE
Vasteras Fuel Fac.	Vasteras	UO2	400 te	Oper	76	RWAD

LATITUDE- 59 DEG 36 MIN N

LONGITUDE- 16 DEG 32 MIN E

TECHNOLOGY SOURCE-

OWNER/OPERATOR-ASEA-Atom

SUPPLY SOURCE-

SAFEGUARDS-NPT Safeguards
Ageement

PRODUCT/USE-UO2 powder/pelletized for fuel rod fabrication

FUEL STORAGE CAPACITY-

PROCESS-Conversion of UF6 to UO2 powder

SCHEDULE-Currently in operation since 1976

REMARKS-Although capacity is 400 te/yr, the conversion plant has
never had to produce more than 300 te in any one year.

MARKET STRATEGY- Limited by competition to domestic market only.

CAPACITY LIMITATIONS- Could be expanded within existing buildings.

REFERENCES-

1-IAEA; The Annual Report for 1976; 7/77

2-NAC; Intl Data Collection and Analysis; Task 1, Vol V; 6/78

SW 4

ACTIVITY--SWEDEN FUEL FABRICATION
CATEGORY-FUEL FABRICATION PLANTS

NUCLEAR FACILITY PROFILE
SRM 04 AUG 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	CODE
Vasteras Fuel Fac	Vasteras	UO	400 te (te/yr)	Oper	72	RWAE

LATITUDE- 59 DEG 36 MIN N LONGITUDE- 16 DEG 32 MIN E

TECHNOLOGY SOURCE-General
Electric Company- US

OWNER/OPERATOR-ASEA-Atom

SUPPLY SOURCE-Vasteras Fuel
Facility Conversion Plant

SAFEGUARDS-NPT Safeguards
Agreement

PRODUCT/USE-U-oxide fuel assemblies/power reactors

FUEL STORAGE CAPACITY-

PROCESS-UO2 powder pelletized and loaded into fuel assemblies

SCHEDULE-Currently in operation since 1972

REMARKS-MARKET STRATEGY- ASEA-Atom is involved almost exclusively in domestic market with reload contracts with Finland being the only export.

CAPACITY LIMITATIONS- Limited by size of existing buildings to 500 te/yr possible. There are no plans to increase capacity at this time.

REFERENCES-

- 1-NAC, Intl Data Collection and Analysis; Task 1, Vol V; 6/78
- 2-Nucl Eng Intl; Vol XXI, No 250; 11/76
- 3-IAEA; The Annual Report for 1976; 7/77

ACTIVITY--SWEDEN RESEARCH AND TEST REACTOR NUCLEAR FACILITY PROFILE
 CATEGORY-RESEARCH AND TEST REACTORS DMK 30 SEP 78

FACILITY NAME	LOCATION	FAC	FAC
FR-O	Studsvik	TYPE CAPACITY STATUS YR CODE	
		FNRR 10 Wt	Inactv 64 RWAP

LATITUDE- 58 DEG 45 MIN N LONGITUDE- 17 DEG 17 MIN E

TECHNOLOGY SOURCE-Design & bldr: OWNER/OPERATOR-AEC-Sweden, Nydqvist
 Atomic Energy Commission-Sweden & Holm AB
 SUPPLY SOURCE- SAFEGUARDS-

PRODUCT/USE-Experimental fast reactor physics; control & instrumen-
 tation radiation shielding, safety & containment research, education
 FUEL STORAGE CAPACITY-Concrete vault, irradiated fuel placed in holes
 of triangular lattice, 32 cm pitch
 PROCESS-Zero energy, fast, highly enriched (20%) uranium, metallic
 copper reflected, uncooled
 SCHEDULE-reactor critical: Feb. 1964; shutdown: 1973

REMARKS-Neutron flux: Fast av approx $(10 \text{ E } 9) \text{ n}/(\text{cm E } 2) \text{ sec}$
 Critical mass: 336 Kg 20% enriched uranium
 Core loading at rated power: negligible
 Av. specific power in fuel: negligible
 Fuel loading and unloading: Manual

REFERENCES-

- 1-Directory of Nuclear Reactors, Vol VI, IAEA, 1966, p. 225
- 2-Intl Data Collection and Analysis, Vol V, NAC, June 1978

SW 6

ACTIVITY--SWEDEN RESEARCH & TEST REACTOR
CATEGORY-RESEARCH AND TEST REACTORS

NUCLEAR FACILITY PROFILE
DMK 30 SEP 78

FACILITY NAME LOCATION
KRITZ Studsvik

FAC FAC
TYPE CAPACITY STATUS YR CODE
(small) Oper 69 RWAS

LATITUDE- 58 DEG 45 MIN N

LONGITUDE- 17 DEG 17 MIN E

TECHNOLOGY SOURCE-Bldr.: A. B.
Atomenergi
SUPPLY SOURCE-

OWNER/OPERATOR-Owner: A. B. Atomen-
erg
SAFEGUARDS-

PRODUCT/USE-

FUEL STORAGE CAPACITY-

PROCESS-

SCHEDULE-In operation

REMARKS-

REFERENCES-

1-Intl Data Collection and Analysis, Vol V, NAC, June 1978

SW 7

ACTIVITY--SWEDEN RESEARCH AND TEST REACTOR NUCLEAR FACILITY PROFILE
CATEGORY-RESEARCH AND TEST REACTORS DMK 30 SEP 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	FAC CODE
Swedish Reac. R-O	Studsvik site	TK-H	< 50 Wt	Inactv	59	RWAY

LATITUDE- 58 DEG 45 MIN N LONGITUDE- 17 DEG 17 MIN E

TECHNOLOGY SOURCE-Design & bldr: OWNER/OPERATOR-AB Atomenergi,
AB Atomenergi, Sweden Sweden
SUPPLY SOURCE- SAFEGUARDS-

PRODUCT/USE-Lattice experiments

FUEL STORAGE CAPACITY-

PROCESS-Tank-type, natural uranium, heavy water moderated, graphite
reflected.

SCHEDULE-Reactor critical: May 1959; shutdown: 1973

REMARKS-

REFERENCES-

- 1-Directory of Nuclear Reactors, Vol III, IAEA, 1960, p. 279
- 2-Intl Data Collection and Analysis, Vol V, NAC, June 1978

ACTIVITY--SWEDEN RESEARCH AND TEST REACTOR NUCLEAR FACILITY PROFILE
 CATEGORY-RESEARCH AND TEST REACTORS DMK 30 SEP 78

FACILITY NAME	LOCATION	FAC	FAC
R-1 Heavy Water Reac	Studsvik	TK-H 600 Kw	Oper 54 RWAZ

LATITUDE- 58 DEG 45 MIN N LONGITUDE- 17 DEG 17 MIN E

TECHNOLOGY SOURCE-Designer & OWNER/OPERATOR-AB Atomenergi
 Builder AB Atomenergi
 SUPPLY SOURCE- SAFEGUARDS-

PRODUCT/USE-Research, experiments, isotope production

FUEL STORAGE CAPACITY-Irradiated fuel storage: Dry well in the floor
 of the reactor hall

PROCESS-Tank type, natural uranium, heavy water moderated and cooled

SCHEDULE-Reactor critical: July 1954

REMARKS-Fuel loading and unloading: From the top by crane.

REFERENCES-

- 1-Directory of Nuclear Reactors, Vol II, IAEA, 1959, p. 275
- 2-Intl. Data Collection and Analysis, Vol V, NAC, June 1973

ACTIVITY--SWEDEN WASTE MANAGEMENT
CATEGORY-WASTE DISPOSAL FACILITIES

NUCLEAR FACILITY PROFILE
SRM 24 AUG 78

FACILITY NAME	LOCATION	FAC	FAC
AB Atomenergi	Studsvik	TYPE CAPACITY STATUS YR CODE	RWBA
		PREP	Oper

LATITUDE- 58 DEG 45 MIN N

LONGITUDE- 17 DEG 17 MIN E

TECHNOLOGY SOURCE-Sweden, AB
Atomenergi

OWNER/OPERATOR-AB Atomenergi

SUPPLY SOURCE-

SAFEGUARDS-NPT Safeguards Agreement

PRODUCT/USE-High-level waste compressed in graphite case/disposal

FUEL STORAGE CAPACITY-

PROCESS-Mixture of pulverized high-level waste and matrix material
(pulverized glass) hot pressed in graphite storage case

SCHEDULE-Lab-scale facility in operation

REMARKS-Waste (ash) is poured into concrete and stored on location.

REFERENCES-

- 1-Harmon, K.M.; Intl Source Book: A Compendium of Worldwide Programs
in Nuclear Energy Supply and Radioactive Waste Management Research
and Development; Vol IV; 1/78
- 2-IAEA Bulletin; Vol XIX, No 5; 10/77

SW 10

ACTIVITY--SWEDEN RESEARCH AND TEST REACTOR NUCLEAR FACILITY PROFILE
CATEGORY-RESEARCH AND TEST REACTORS DMK 30 SEP 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	CODE
R-2 Rsch Reactor	Studsvik	TK-L	50 MWt	Oper	60	RWBB

LATITUDE- 58 DEG 45 MIN N LONGITUDE- 17 DEG 17 MIN E

TECHNOLOGY SOURCE-Dsgn & Bldr: Nuc OWNER/OPERATOR-AB Atomenergi
Products-Erco (Div of ACF Ind)
SUPPLY SOURCE- SAFEGUARDS-

PRODUCT/USE-Material tests and research, general research, fuel
development

FUEL STORAGE CAPACITY-Irradiated fuel stored in a water pool

PROCESS-Tank type, highly enriched (20-90%) uranium, light water
moderated and cooled

SCHEDULE-Criticality: 1959

REMARKS-The reactor is located at the A. B. Atomenergi Research
Center, Studsvik. Reference 2: Constructor: Allis-Chalmers.
Manual fuel loading and unloading.

REFERENCES-

- 1-Directory of Nuclear Reactors, Vol II, IAEA, 1959, p. 125
- 2-Intl. Data Collection and Analysis, Vol V, NAC, June 1978

SW 11

ACTIVITY--SWEDEN RESEARCH AND TEST REACTOR NUCLEAR FACILITY PROFILE
CATEGORY-RESEARCH AND TEST REACTORS DMK 30 SEP 78

FACILITY NAME	LOCATION	FAC	TYPE	CAPACITY	STATUS	YR	CODE
R2-O	Studsvik	POOL	1 MWt	Oper	64	RWBH	

R2-O Mock-Up Reac.

LATITUDE- 58 DEG 45 MIN N

LONGITUDE- 17 DEG 17 MIN E

TECHNOLOGY SOURCE-Design: AB Atom- OWNER/OPERATOR-AB Atomenergi
energi; Contractor: ASEA Co.

SUPPLY SOURCE-

SAFEGUARDS-

PRODUCT/USE-Irradiation facility, shield tests, reactor physics and
experiments

FUEL STORAGE CAPACITY-

PROCESS-Pool-type, highly enriched (90%) uranium, light water
moderated, cooled and reflected

SCHEDULE-In operation; 100 KW operation: June 1960; 1 MW operation:
June 1964

REMARKS-The R2-O Reactor is similar to the BSR-1. It was built for
shielding studies and to test R2-type cores. The reactor is located
in the same pool as R2, within the same containment. Neutron flux:
Thermal av $.6 \times (10 \text{ E } 13) \text{ n}/(\text{cm E } 2) \text{ sec}$; Thermal max $1.1 \times (10 \text{ E } 13) \text{ n}/(\text{cm E } 2) \text{ sec}$; Fast max: $1.1 \times (10 \text{ E } 13) \text{ n}/(\text{cm E } 2) \text{ sec}$
Critical mass: 3.45 Kg U-235

REFERENCES-

1-Directory of Nuclear Reactors, Vol VI, IAEA, 1966, p. 65

SW 12

ACTIVITY--SWEDEN RESOURCE RECOVERY
CATEGORY-MINES (URANIUM & THORIUM)

NUCLEAR FACILITY PROFILE
PSM 08 SEP 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	FAC CODE
Pleutajokk	Arjeplog-Arvidsjaur	URAN		Explor		RWBP

LATITUDE- 66 DEG 04 MIN N

LONGITUDE- 18 DEG 00 MIN E

TECHNOLOGY SOURCE-

OWNER/OPERATOR-

SUPPLY SOURCE-

SAFEGUARDS-

PRODUCT/USE-Uranium

FUEL STORAGE CAPACITY-

PROCESS-

SCHEDULE-

REMARKS-

REFERENCES-

- 1-Uranium Resources, Production and Demand, IAEA, Dec. 1977, pp. 105-106
- 2-Foreign Uranium Supply, EPRI EA-725, 4/78, pp. 5-19
- 3-International Data Collection and Analysis, NAC, 6/78, Task 1, Vol V, Sweden, p. 16

SW 13

ACTIVITY--SWEDEN SPENT FUEL PROCESSING NUCLEAR FACILITY PROFILE
CATEGORY--SEPARATE FUEL STORAGE FACILITIES SRM 16 AUG 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR CODE
Stripa Mine	Studsvik	ROCK		Oper	77 RWBW

LATITUDE- 58 DEG 45 MIN N LONGITUDE- 17 DEG 17 MIN E

TECHNOLOGY SOURCE- OWNER/OPERATOR-KBS (Nuclear Fuel
Safety Project)
SUPPLY SOURCE- SAFEGUARDS-NPT Safeguards Agreement

PRODUCT/USE-

FUEL STORAGE CAPACITY-

PROCESS-Hard rock (granite formation) storage in an abandoned iron mine

SCHEDULE-Currently undergoing tests involving blasting and drilling, spent fuel canister preparation, emplacement schemes for canisters

REMARKS-Testing at Stripa is being done by KBS of Sweden and by Lawrence Berkeley Lab and Union Carbide Corp.- Oak Ridge Office of Waste Isolation of the U.S. Deep hole boring has also been done by KBS at Oskarshamn and Forsmark for testing purposes.

REFERENCES-

- 1-Harmon, K.M.; Intl Source Book: A Compendium of Worldwide Programs in Nuclear Energy Supply and Radioactive Waste Management Research and Development; Vol IV; 1/78
- 2-IAEA Bulletin; Vol XIX, No 5; 10/77

SW 14

ACTIVITY--SWEDEN RESOURCE RECOVERY
CATEGORY-MINES (URANIUM & THORIUM)

NUCLEAR FACILITY PROFILE
PSM 08 SEP 78

FACILITY NAME LOCATION
Ranstad Billingen
Vastergotland

FAC FAC
TYPE CAPACITY STATUS YR CODE
URAN 140 te/y Oper RWBX

LATITUDE- 57 DEG 30 MIN N

LONGITUDE- 13 DEG MIN W

TECHNOLOGY SOURCE-

OWNER/OPERATOR-LKAB-Luossavaara-
Kiirunavaara AB

SUPPLY SOURCE-

SAFEGUARDS-

PRODUCT/USE-Uranium

FUEL STORAGE CAPACITY-

PROCESS-Open pit

SCHEDULE-1300 te/y expected by 1981, but important environmental
questions must be dealt with; currently an experimental pilot plant

REMARKS-Resources recoverable: 300000 te

One of the world's largest deposits

Average grade of ore: 0.035%

REFERENCES-

1-Uranium Resources, Production and Demand, IAEA, Dec 1977,
pp. 105-106

2-Foreign Uranium Supply, EPRI EA-725, 4/78, pp. 5-19

3-International Data Collection and Analysis, NAC, 6/78, Task 1,
Vol V, Sweden, p. 16

4-Mining Magazine, March 1978, p. 251

5-Minerals Yearbook, US Bureau of Mines, 1974, Vol III, p. 865

SW 15

ACTIVITY--SWEDEN RESOURCE RECOVERY
CATEGORY-MINES (URANIUM & THORIUM)

NUCLEAR FACILITY PROFILE
PSM 20 SEP 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	FAC CODE
Kvarntorp		URAN		Inactv		RWBY

LATITUDE- DEG MIN LONGITUDE- DEG MIN

TECHNOLOGY SOURCE- OWNER/OPERATOR-

SUPPLY SOURCE- SAFEGUARDS-

PRODUCT/USE-Uranium

FUEL STORAGE CAPACITY-

PROCESS-Mine/mill

SCHEDULE-Successfully operating in 1955

REMARKS-Grade of ore: 0.029%

REFERENCES-

1-Minerals Yearbook, US Bureau of Mines, 1955, pp. 1228-1242

SW 16

ACTIVITY--SWEDEN SPENT FUEL PROCESSING NUCLEAR FACILITY PROFILE
CATEGORY--SEPARATE FUEL STORAGE FACILITIES SRM 16 AUG 78

FACILITY NAME	LOCATION	FAC	TYPE	CAPACITY	STATUS	YR	CODE
Spent Fuel Storage Facility		ROCK	1500 te	Plan	83	RWBZ	
LATITUDE-	DEG	MIN	LONGITUDE-	DEG	MIN		

TECHNOLOGY SOURCE-

OWNER/OPERATOR-SKBF (Swedish
Nuclear Fuel Supply Company)

SUPPLY SOURCE-

SAFEGUARDS-NPT Safeguards Agreement

PRODUCT/USE-

FUEL STORAGE CAPACITY-1500 te is planned, expansion to 3000 te is possible

PROCESS-Spent Light Water Reactor fuel in 6 storage pools blasted out of hard rock formation 75 feet underground

SCHEDULE-Planned for operation in 1983

REMARKS-To be located at site near Oskarshamn, Forsmark, or Studsvik

REFERENCES-

1-NAC; Intl Data Collection and Analysis; Task 1, Vol V; 6/78

2-Harmon, K.M.; Intl Source Book: A Compendium of Worldwide Programs in Nuclear Energy Supply and Radioactive Waste Management Research and Development; Vol IV; 1/78

3-IAEA Bulletin; Vol XIX, No 5; 10/77

SW 17

ACTIVITY--SWEDEN WASTE MANAGEMENT
CATEGORY-WASTE DISPOSAL FACILITIES

NUCLEAR FACILITY PROFILE
SRM 18 AUG 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	FAC CODE
	Vasteras	PREP		Oper		RWCA

LATITUDE- 59 DEG 36 MIN N

LONGITUDE- 16 DEG 32 MIN E

TECHNOLOGY SOURCE-Sweden-
ASEA-Atom AB

OWNER/OPERATOR-ASEA-Atom AB

SUPPLY SOURCE-

SAFEGUARDS-NPT Safeguards Agreement

PRODUCT/USE-Solid waste or spent fuel/disposal

FUEL STORAGE CAPACITY-

PROCESS-Preparation for disposal by Hot Isostatic Pressing process

SCHEDULE-Currently under development

REMARKS-Hot Isostatic Pressing can be used for liquid wastes from
reprocessing and for spent fuel rods. These are sintered under
pressure to form dense capsules for disposal.

REFERENCES-

- 1-Harmon, K.M.; Intl Source Book: A Compendium of Worldwide Programs
in Nuclear Energy Supply and Radioactive Waste Management Research
and Development; Vol IV; 1/78
- 2-IAEA Bulletin; Vol XIX, No 5; 10/77

SW 18

ACTIVITY--SWITZERLAND FUEL FABRICATION
CATEGORY-HEAVY WATER PRODUCTION

NUCLEAR FACILITY PROFILE
PSM 26 SEP 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR CODE
.	Domat Ems		2 te/y	Inactv	RZBE

LATITUDE- 46 DEG 51 MIN N

LONGITUDE- 09 DEG 28 MIN E

TECHNOLOGY SOURCE-

OWNER/OPERATOR-Sulzer, Emser Werke

SUPPLY SOURCE-

SAFEGUARDS-

PRODUCT/USE-Heavy water (99.7%+ pure)

FUEL STORAGE CAPACITY-

PROCESS-Water electrolysis

SCHEDULE-Initial production- 1960

REMARKS-

REFERENCES-

- 1-Nuclear Engineering International, Vol 21, No 248, September 1976, pp. 61-68

SZ 1

ACTIVITY--SWITZERLAND RSCH AND TEST REACTOR NUCLEAR FACILITY PROFILE
CATEGORY-RESEARCH AND TEST REACTORS DMK 30 SEP 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR CODE
AGN-201 P-111	Geneva	SHRR	20 Wt	Oper	58 RZAA

Reactor Aladin

LATITUDE- 46 DEG 13 MIN N LONGITUDE- 6 DEG 09 MIN E

TECHNOLOGY SOURCE-Aerojet-General OWNER/OPERATOR-University of Geneva
Nucleonics

SUPPLY SOURCE- SAFEGUARDS-IAEA safeguards
(Non-NPT)

PRODUCT/USE-Isotope production, training, neutron source

FUEL STORAGE CAPACITY-

PROCESS-Solid homogeneous, enriched (20%) uranium, polyethylene
moderated, graphite reflected, uncooled

SCHEDULE-In operation; reactor critical: Sept. 1958;
full power operation: Dec. 1958

REMARKS-Reactor is identical with the AGN-201-100 reactor at the U.S.
Naval Postgraduate School. It was operated in the commercial
exhibit of the 1958 Intl Conference in Geneva prior to transfer to
University of Geneva

Neutron flux: Thermal max= $(10 \text{ E } 9) \text{ n}/(\text{cm E } 2) \text{ sec}$. The reactor is
located on the bank of a river in the vicinity of Geneva

REFERENCES-

- 1-Directory of Nuclear Reactors, Vol III, IAEA, 1960
- 2-Intl Data Collection and Analysis, Vol V, NAC, June 1978
- 3-Intl Atomic Energy Agency Bulletin, Vol XIX, No 5, Oct. 1977

ACTIVITY--SWITZERLAND RSCH AND TEST REACTOR NUCLEAR FACILITY PROFILE
 CATEGORY-RESEARCH AND TEST REACTORS DMK 30 SEP 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR CODE	FAC
AGN-211P-100	Basel	SHRR	100 Wt	Oper	59	RZAB

LATITUDE- 47 DEG 33 MIN N

LONGITUDE- 7 DEG 36 MIN E

TECHNOLOGY SOURCE-Aerojet-General Nucleonics
 OWNER/OPERATOR-Schweizerische Nationalfonds fur wissen. Forschung
 SUPPLY SOURCE- SAFEGUARDS-IAEA safeguards (Non-NPT)

PRODUCT/USE-Research in neutron and reactor physics, isotope prod., educational purposes

FUEL STORAGE CAPACITY-Irrad. fuel: 2.5 m deep water tank, sunk into ground; covered with baryte concrete blocks (See remarks)

PROCESS-Solid homogeneous, enriched (20%) uranium, polyethylene mod., light water cooled, graphite reflected

SCHEDULE-In operation; reactor critical: April 1959

REMARKS-Reactor is located in the cellar of a lab. bldg.

Reference 2: Owner: University of Basel

Irradiated fuel: 2 compartments in concrete wall for core.

Neutron flux: Thermal max= $3 \times (10^9) \text{ n}/(\text{cm}^2 \text{ sec})$. Critical mass:

Approx 780 g U-235. Core loading at rated power: Approx. 785 g U-235

Av. specific power in fuel: .13 KW/Kg U-235. Fuel loading and unloading: Manual with special tools

REFERENCES-

1-Directory of Nuclear Reactors, Vol III, IAEA, 1960, p. 239

2-Intl Data Collection and Analysis, Vol V, NAC, June 1978

3-Intl Atomic Energy Agency Bulletin, Vol XIX, No 5, Oct. 1977

SZ 3

ACTIVITY--SWITZERLAND RSCH & TEST REACTOR NUCLEAR FACILITY PROFILE
CATEGORY-RESEARCH AND TEST REACTORS DMK 30 SEP 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	CODE
Crocus	Lausanne	POOL (small)		Oper	68	RZAG

LATITUDE- 46 DEG 32 MIN N LONGITUDE- 6 DEG 39 MIN E

TECHNOLOGY SOURCE- OWNER/OPERATOR-Owner: Fed. Inst. of
Technology

SUPPLY SOURCE- SAFEGUARDS-IAEA (non-NPT)

PRODUCT/USE-

FUEL STORAGE CAPACITY-

PROCESS-

SCHEDULE-In operation

REMARKS-

REFERENCES-

1-Intl Data Collection and Analysis, Vol V, NAC, June 1978

2-Intl Atomic Energy Agency Bulletin, Vol XIX, No 5, Oct. 1977

ACTIVITY--SWITZERLAND RSCH & TEST REACTOR NUCLEAR FACILITY PROFILE
 CATEGORY-RESEARCH AND TEST REACTORS DMK 30 SEP 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	FAC YR CODE
Rector Diorit	Wurenlingen	TK-H	20 Mwt	Oper	60 RZAJ

LATITUDE- 47 DEG 32 MIN N LONGITUDE- 8 DEG 16 MIN E

TECHNOLOGY SOURCE-Design & bldr.: OWNER/OPERATOR-Reactor Ltd
 Reactor Ltd. Reference 2: Owner-EIR

SUPPLY SOURCE- SAFEGUARDS-IAEA safeguards
 (Non-NPT)

PRODUCT/USE-Physics and engineering tests

FUEL STORAGE CAPACITY-Irradiated fuel: 2 water filled pools, each 1 m wide and 7 m deep, in separate storage room

PROCESS-Tank-type, natural uranium, heavy water moderated and cooled, graphite reflected

SCHEDULE-In operation; reactor critical: Aug. 1960

REMARKS-Neutron flux: Thermal av $1.7 \times (10 \text{ E } 13) \text{ n}/(\text{cm E } 2) \text{ sec}$; Thermal max $3.5 \times (10 \text{ E } 13) \text{ n}/(\text{cm E } 2) \text{ sec}$; Fast av $1.4 \times (10 \text{ E } 13) \text{ n}/(\text{cm E } 2) \text{ sec}$; Fast max $2.8 \times (10 \text{ E } 13) \text{ n}/(\text{cm E } 2) \text{ sec}$

Core loading at rated power: 5,300 Kg nat uranium. Av specific power in fuel: 3.4 KW/Kg of nat. uranium. Fuel loading and unloading: through top of reactor by the main crane provided with handling mechanism in lead shielded coffin

REFERENCES-

- 1-Directory of Nuclear Reactors, Vol III, IAEA, 1960, p. 287
- 2-Intl Data Collection and Analysis, Vol V, NAC, June 1978
- 3-Intl Atomic Energy Agency Bulletin, Vol XIX, No 5, Oct. 1977

SZ 5

ACTIVITY--SWITZERLAND RSCH & TEST REACTOR NUCLEAR FACILITY PROFILE
CATEGORY-RESEARCH AND TEST REACTORS DMK 30 SEP 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	FAC CODE
Proteus Reactor	Wurenlingen	GMRR	.001 Mwt	Oper	68	RZAW

LATITUDE- 47 DEG 32 MIN N

LONGITUDE- 8 DEG 16 MIN E

TECHNOLOGY SOURCE-EIR with Fairey Eng. Ltd. OWNER/OPERATOR-Eidg. Inst fuer Reaktorforschung (EIR), Wurenlingen

SUPPLY SOURCE-

SAFEGUARDS-IAEA (non-NPT)

PRODUCT/USE-Measurement of reactor lattice parameters and the detailed balance of neutron absorption and production in reactor lattices
FUEL STORAGE CAPACITY-

PROCESS-Slightly enriched (5%) uranium, graphite moderated and reflected in outer zone, variable fuel and moderator in inner zone

SCHEDULE-In operation; start of construction: June 1965;
reactor critical: Jan.1968

REMARKS-Proteus was originally designed for use with D-20 moderated lattices, but can be easily adapted to other moderators or too fast reactor lattices.

REFERENCES-

- 1-Directory of Nuclear Reactors, Vol VIII, IAEA, 1970, p. 187
- 2-Intl Atomic Energy Agency Bulletin, Vol XIX, No 5, Oct. 1977

ACTIVITY--SWITZERLAND RSCH & TEST REACTOR NUCLEAR FACILITY PROFILE
 CATEGORY-RESEARCH AND TEST REACTORS DMK 30 SEP 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	FAC CODE
Reactor Saphir	Wurenlingen	POOL	1 MWt	Oper	57	RZAZ

LATITUDE- 47 DEG 32 MIN N LONGITUDE- 18 DEG 16 MIN E

TECHNOLOGY SOURCE-Design & Bldr: OWNER/OPERATOR-EIR

Oak Ridge Natl Lab & Reactor Ltd

SUPPLY SOURCE- SAFEGUARDS-IAEA safeguards(Non-NPT)

PRODUCT/USE-Neutron & reactor physics, shielding studies, isotope
 production, radiation chemistry, engineering tests, training

FUEL STORAGE CAPACITY-

PROCESS-Pool type, highly enriched (20%) uranium, light water
 moderated, cooled, and reflected

SCHEDULE-Reac. first crit. as "Aquarium Reac" at Geneva Aug 1955;

Dismantled and rebuilt in Washington-critical in April 1957

REMARKS-Saphir is a modification of the first reactor operated by the
 USAEC in Europe, known under the name "Aquarium Reactor." Aq reactor
 went critical a few weeks before start of Geneva conference in
 Aug 1955. Saphir is similar to bulk-shielding reactor which is
 prototype pool-type of ORNL

REFERENCES-

- 1-Directory of Nuclear Reactors, Vol III, IAEA, 1960, p. 5
- 2-Intl Data Collection and Analysis, Vol II, NAC, June 1978
- 3-Intl Atomic Energy Agency Bulletin, Vol XIX, No 5, Oct. 1977

SZ 7

ACTIVITY--SWITZERLAND AND WASTE MANAGEMENT NUCLEAR FACILITY PROFILE
CATEGORY-WASTE DISPOSAL FACILITIES SRM 18 AUG 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	FAC CODE
EIR	Wurenlingen	DISP		R&D		RZBD

LATITUDE- 47 DEG 32 MIN N LONGITUDE- 8 DEG 16 MIN E

TECHNOLOGY SOURCE-Switzerland OWNER/OPERATOR-EIR (Federal
EIR Institute for Reactor Research)
SUPPLY SOURCE- SAFEGUARDS-IAEA Safeguards
Agreement

PRODUCT/USE-

FUEL STORAGE CAPACITY-

PROCESS-Theoretical and practical evaluations of geologic waste
disposal in hard rock formations

SCHEDULE-Research and development in progress

REMARKS-

REFERENCES-

- 1-Harmon, K.M.; Intl Source Book: A Compendium of Worldwide Programs
in Nuclear Energy Supply and Radioactive Waste Management Research
and Development; Vol IV; 1/78
- 2-IAEA Bulletin; Vol XIX, No 5; 10/77

TW 1

ACTIVITY--TAIWAN FUEL FABRICATION
CATEGORY-FUEL FABRICATION PLANTS

NUCLEAR FACILITY PROFILE
SRM 09 AUG 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR CODE
INER	Lungt'an			Oper	RCIC

LATITUDE- 24 DEG 52 MIN N

LONGITUDE-121 DEG 12 MIN E

TECHNOLOGY SOURCE-

OWNER/OPERATOR-INER (Institute of
Nuclear Energy Research)

SUPPLY SOURCE-

SAFEGUARDS-

PRODUCT/USE-

FUEL STORAGE CAPACITY-

PROCESS-Unspecified fuel fabrication

SCHEDULE-Currently in operation

REMARKS-Probably for fabrication of U-metal fuels for use in Taiwan's
research reactors.

REFERENCES-

1-IAEA; The Annual Report for 1976; 7/77

TW 2

ACTIVITY--TAIWAN SPENT FUEL PROCESSING
CATEGORY-FUEL REPROCESSING FACILITIES

NUCLEAR FACILITY PROFILE
SRM 31 JUL 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	FAC CODE
Lungt'an Institute of Nucl Energy Res	Lungt'an	UM	(Small)	Constr		RCID
LATITUDE- 24 DEG 52 MIN N		LONGITUDE-121 DEG 12 MIN E				

TECHNOLOGY SOURCE-

OWNER/OPERATOR-

SUPPLY SOURCE-

SAFEGUARDS-IAEA Safeguards
Agreement

PRODUCT/USE-

FUEL STORAGE CAPACITY-

PROCESS-U-metal fuel reprocessing

SCHEDULE-Lab scale facility under construction

REMARKS-

REFERENCES-

- 1-Chayes, Abram and W. Bennett Lewis; International Arrangements for Nuclear Fuel Reprocessing; 1977
- 2-Nuclear Proliferation Factbook; Congressional Research Service Library of Congress; 9/23/77

ACTIVITY--TAIWAN RESEARCH AND TEST REACTOR NUCLEAR FACILITY PROFILE
 CATEGORY-RESEARCH AND TEST REACTORS DMK 30 SEP 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	FAC YR CODE
THOR	Hsin-Chu	POOL	1 MWt	Oper	64 RCIT

See remarks

LATITUDE- 24 DEG 48 MIN N LONGITUDE-120 DEG 59 MIN E

TECHNOLOGY SOURCE-Design & bldr.: OWNER/OPERATOR-Natl Tsing Hua Univ,
 General Electric Co. Inst. of Nuclear Science

SUPPLY SOURCE- SAFEGUARDS-IAEA (non-NPT)

PRODUCT/USE-Research in neutron physics, reactor engineering,
 isotope production, training, chemistry

FUEL STORAGE CAPACITY-

PROCESS-Pool-type, highly enriched (20%) uranium, light water
 moderated and cooled, light water and graphite reflected

SCHEDULE-In operation; start of construction: June 1958; critical:
 April 1962; 1 MW operation: Oct. 1962; 1.5 MW operation: Sept. 1964

REMARKS-Reactor is similar to the Rsch Reactor State College of
 Washington

THOR = Tsing Hwa Open Pool Reactor

Neutron flux: Thermal av $5.8 \times (10 \text{ E } 12) \text{ n}/(\text{cm E } 2) \text{ sec}$; Thermal max
 $9.9 \times (10 \text{ E } 12) \text{ n}/(\text{cm E } 2) \text{ sec}$; Fast av.: $2.0 \times (10 \text{ E } 13) \text{ n}/(\text{cm E } 2) \text{ sec}$;
 Fast max $3.6 \times (10 \text{ E } 13) \text{ n}/(\text{cm E } 2) \text{ sec}$

Critical mass: 3.0 Kg U-235 Av specific power in fuel: 250 KW U-235

REFERENCES-

- 1-Directory of Nuclear Reactors, Vol VI, IAEA, 1966, p. 23
- 2-Intl Data Collection and Analysis, Vol V, NAC, June 1978
- 3-Intl Atomic Energy Agency Bulletin, Vol XIX, No 5, Oct. 1977

TH 1

ACTIVITY--THAILAND RESEARCH AND TEST REACTOR NUCLEAR FACILITY PROFILE
CATEGORY-RESEARCH AND TEST REACTORS DMK 30 SEP 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	FAC CODE
Thai Rsch Reactor-1	Bangkok	POOL	1 Mwt	Oper	62	RTHE

LATITUDE- 13 DEG 44 MIN N

LONGITUDE-100 DEG 30 MIN E

TECHNOLOGY SOURCE-Design: Curtiss- OWNER/OPERATOR-Thai AEC for Peace
Wright Corp; Bldr: Pramual Const Co
SUPPLY SOURCE- SAFEGUARDS-

PRODUCT/USE-

FUEL STORAGE CAPACITY-

PROCESS-Pool type, fully enriched (90%) uranium, light water moderated
and cooled, light water or graphite reflected

SCHEDULE-Start of construction: June 1960

Reactor critical: Oct 1962

REMARKS-Loading and unloading fuel elements manually with appropriate
handling tools

REFERENCES-

1-Directory of Nuclear Reactors, Vol V, 1964, p. 39

TU 1

ACTIVITY--TURKEY RESEARCH AND TEST REACTOR NUCLEAR FACILITY PROFILE
CATEGORY-RESEARCH AND TEST REACTORS DMK 30 SEP 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	FAC YR CODE
TR-1	Lake K. Cekmece,	POOL 1	MWt	Oper	62 RTYA
Turkish Reactor No 1 Istanbul					
LATITUDE- 41 DEG 01 MIN N		LONGITUDE- 28 DEG 48 MIN E			

TECHNOLOGY SOURCE-Design & Bldr. OWNER/OPERATOR-Turkish AEC/Cekmece
Amer. Machine & Foundary Co. Nuclear Center
SUPPLY SOURCE- SAFEGUARDS-IAEA (Non-NPT)

PRODUCT/USE-

FUEL STORAGE CAPACITY-

PROCESS-Pool type, highly enriched (90%) uranium, light water
moderated, cooled and reflected

SCHEDULE-Start of Construction: May 1959;

Reactor critical: Jan 1962

REMARKS-Reactor is very similar to other AMF 1 MW and 5 MW open pool
type reactors

REFERENCES-

1-Directory of Nuclear Reactors, Vol V, IAEA, 1964, p. 29

TU 2

ACTIVITY--TURKEY RESOURCE RECOVERY
CATEGORY-MINES (URANIUM & THORIUM)

NUCLEAR FACILITY PROFILE
PSM 08 SEP 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	FAC CODE
	Koprubasi	URAN		Oper		RTYD

LATITUDE- 40 DEG 50 MIN N

LONGITUDE- 40 DEG 05 MIN E

TECHNOLOGY SOURCE-

OWNER/OPERATOR-Government
controlled

SUPPLY SOURCE-

SAFEGUARDS-

PRODUCT/USE-Uranium

FUEL STORAGE CAPACITY-

PROCESS-

SCHEDULE-Small scale pilot plant currently operating

REMARKS-Average grade of ore: 0.04%

Estimated resources: 2500 te

REFERENCES-

- 1-Uranium Resources, Production and Demand, IAEA, 12/77, p. 108
- 2-Minerals Yearbook, US Bureau of Mines, 1974, Vol III, p. 914

TU 3

ACTIVITY--TURKEY RESOURCE RECOVERY
CATEGORY-MINES (URANIUM & THORIUM)

NUCLEAR FACILITY PROFILE
PSM 08 SEP 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	FAC CODE
	Fakili	URAN		Explor		RTYF

LATITUDE- 39 DEG 14 MIN N

LONGITUDE- 34 DEG 56 MIN E

TECHNOLOGY SOURCE-

OWNER/OPERATOR-Government

SUPPLY SOURCE-

SAFEGUARDS-

PRODUCT/USE-Uranium

FUEL STORAGE CAPACITY-

PROCESS-

SCHEDULE-

REMARKS-Estimated resources: 500 te
Average grade of ore: 0.05%

REFERENCES-

1-Uranium Resources, Production and Demand, IAEA, Dec 1977,
pp. 108-109

TU 4

ACTIVITY--TURKEY RESOURCE RECOVERY
CATEGORY-MINES (URANIUM & THORIUM)

NUCLEAR FACILITY PROFILE
PSM 08 SEP 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	CODE
	Kucuk Kuyu	URAN		Explor		RTYG

LATITUDE- 39 DEG 32 MIN N

LONGITUDE- 26 DEG 34 MIN E

TECHNOLOGY SOURCE-

OWNER/OPERATOR-Government

SUPPLY SOURCE-

SAFEGUARDS-

PRODUCT/USE-Uranium

FUEL STORAGE CAPACITY-

PROCESS-

SCHEDULE-

REMARKS-Estimated resources: 300 tonnes
Average grade of ore: 0.05%

REFERENCES-

1-Uranium Resources, Production and Demand, IAEA, Dec 1977,
pp. 108-109

TU 5

ACTIVITY--TURKEY RESOURCE RECOVERY
CATEGORY-MINES (URANIUM & THORIUM)

NUCLEAR FACILITY PROFILE
PSM 08 SEP 78

FACILITY NAME LOCATION
Sebinkarahisar

FAC FAC
TYPE CAPACITY STATUS YR CODE
URAN Explor RTYH

LATITUDE- 40 DEG 19 MIN N

LONGITUDE- 38 DEG 25 MIN E

TECHNOLOGY SOURCE-

OWNER/OPERATOR-Government

SUPPLY SOURCE-

SAFEGUARDS-

PRODUCT/USE-Uranium

FUEL STORAGE CAPACITY-

PROCESS-

SCHEDULE-

REMARKS-Estimated resources: 300 te
Average grade of ore: 0.04%

REFERENCES-

1-Uranium Resources, Production and Demand, IAEA, Dec 1977,
pp. 108-109

TU 6

ACTIVITY--TURKEY RESOURCE RECOVERY
CATEGORY-MINES (URANIUM & THORIUM)

NUCLEAR FACILITY PROFILE
PSM 08 SEP 78

FACILITY NAME LOCATION
Kocarli

FAC	FAC
TYPE	CAPACITY STATUS YR CODE
URAN	Explor RTYJ

LATITUDE- 37 DEG 45 MIN N

LONGITUDE- 27 DEG 42 MIN E

TECHNOLOGY SOURCE-

OWNER/OPERATOR-Government

SUPPLY SOURCE-

SAFEGUARDS-

PRODUCT/USE-Uranium

FUEL STORAGE CAPACITY-

PROCESS-

SCHEDULE-

REMARKS-Estimated resources: 500 te
Average grade of ore: 0.05%

REFERENCES-

1-Uranium Resources, Production and Demand, IAEA, Dec 1977,
pp. 108-109

UK 1

ACTIVITY--UK RESEARCH AND TEST REACTOR
CATEGORY-RESEARCH AND TEST REACTORS

NUCLEAR FACILITY PROFILE
DMK 30 SEP 76

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	FAC CODE
Reactor Herald	Aldermaston, Berkshire	POOL	5 MWt	Oper	59	RBUV

LATITUDE- 51 DEG 23 MIN N

LONGITUDE- 1 DEG 09 MIN W

TECHNOLOGY SOURCE-AEI John Thompson
Nuclear Energy Co Ltd., & UKAEA
SUPPLY SOURCE-
OWNER/OPERATOR-UKAEA/Atomic Weapons
RsCh Establishment
SAFEGUARDS-

PRODUCT/USE-Research in neutron physics, radio-chemistry

FUEL STORAGE CAPACITY-

PROCESS-Merlin type, fully enriched uranium, light water moderated and cooled

SCHEDULE-Start of construction: Sept 1956

Reactor critical: Sept 1959

REMARKS-

REFERENCES-

1-Directory of Nuclear Reactors, Vol II, IAEA, 1959, p. 77

UK 2

ACTIVITY--UK ENRICHMENT PLANTS
CATEGORY-ENRICHMENT PLANTS

NUCLEAR FACILITY PROFILE
SRM 24 JUL 78

FACILITY NAME	LOCATION	FAC TYPE LASR	CAPACITY	STATUS R&D	FAC YR CODE 75 RUAB
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LATITUDE-	DEG	MIN	LONGITUDE-	DEG	MIN
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TECHNOLOGY SOURCE-

OWNER/OPERATOR-

SUPPLY SOURCE-

SAFEGUARDS-

PRODUCT/USE-

FUEL STORAGE CAPACITY-

PROCESS-Laser isotope separation

SCHEDULE-Research and development program started in 1975

REMARKS-

REFERENCES-

1-Wilcox, Wm. J. Jr.; Uranium Enrichment-A Review of the Present
World Status: Capacity, Technology, and Plans; 5/6/77

UK 3

ACTIVITY--UK RESEARCH AND TEST REACTOR
CATEGORY-RESEARCH AND TEST REACTORS

NUCLEAR FACILITY PROFILE
DMK 30 SEP 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR CODE
Brit Exp Pile Oper	Harwell, Berkshire	GMRR	65 MWt	Inactv	48 RUAE

LATITUDE- 51 DEG 37 MIN W

LONGITUDE- 1 DEG 18 MIN W

TECHNOLOGY SOURCE-Design: Ministry OWNER/OPERATOR-UKAEA
of Supply. Bldr:Ministry of Works

SUPPLY SOURCE-

SAFEGUARDS-

PRODUCT/USE-Isotopes production, irradiation experiments

FUEL STORAGE CAPACITY-Irradiated fuel: concrete storage block, holding
about 5t of irradiated slugs and other active materials

PROCESS-Natural uranium, graphite moderated and reflected, air cooled

SCHEDULE-Reactor critical: July 1948

Full power operation: Jan 1949; Down: 1968

REMARKS-Fuel loading and unloading by machines carried on 12t
hydraulic hoists extending over width of pile

REFERENCES-

- 1-Directory of Nuclear Reactors, Vol II, IAEA, 1959, p. 323
- 2-Intl Data Collection and Analysis, Vol V, NAC, June 1978

ACTIVITY--UK SPENT FUEL PROCESSING
CATEGORY--FUEL REPROCESSING FACILITIES

NUCLEAR FACILITY PROFILE
SRM 31 JUL 76

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR CODE
Reprocessing Plant	Windscale	UMUO	2500 te	Oper	64 RUAJ
Windscale			(te/yr)		
LATITUDE- 54 DEG 38 MIN N		LONGITUDE-	3 DEG 30 MIN W		

TECHNOLOGY SOURCE-UKAEA British Nuclear Fuels Limited (BNFL)
OWNER/OPERATOR-United Reprocessors GmbH (URG)/BNFL
SUPPLY SOURCE-Domestic Magnox fuel
SAFEGUARDS-No safeguards

PRODUCT/USE-U-Pu mixed-oxide stockpiled for future use

FUEL STORAGE CAPACITY-1500 te capacity currently exists, additional 1500 te by 1979-1980

PROCESS-U-metal fuel reprocessing at present time using Purex process; U-oxide head-end facilities nearing completion (1977-1978)

SCHEDULE-In commercial operation since 1964; Operated from 1952-1964 for military uses

REMARKS-Original plant at this site was built in 1952 and operated for military use. After refurbishing in early 1960's, commercial reprocessing started in 1964. A head-end addition was operated from 1970-1973 to reprocess oxide fuels but was shut down for modification to be ready 1977-1978. This modification will allow reprocessing of 400 te/yr of oxide fuel.

INTERIM STORAGE OF HLLW (High Level Liquid Waste)-11 stainless steel storage tanks, eight at 70 cubic meters and 3 at 150 cubic meters capacity.

MARKET STRATEGY-Will be used primarily to reprocess Magnox fuel from domestic reactors.

REFERENCES-

- 1-Chayes, Abram and W. Bennett Lewis; Intl Arrangements for Nuclear Fuel Reprocessing; 1977
- 2-Harmon, K. M.; Intl Source Book: A Compendium of Worldwide Programs in Nuclear Energy Supply and Radioactive Waste Management Research and Development; Vol IV; 1/78
- 3-Nucl Eng Intl; Vol XXI, No 239; 2/76
- 4-NAC; Intl Data Collection and Analysis; Task 1, Vol V; 6/78

UK 5

ACTIVITY--UK SPENT FUEL PROCESSING
CATEGORY-FUEL REPROCESSING FACILITIES

NUCLEAR FACILITY PROFILE
SRM 31 JUL 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	CODE
THORP	Windscale	UO	1200 te	Plan	87	RUAL

(te/yr)

LATITUDE- 54 DEG 38 MIN N

LONGITUDE- 3 DEG 30 MIN W

TECHNOLOGY SOURCE-UKAEA, British
Nuclear Fuels Limited (BNFL)

OWNER/OPERATOR-BNFL-United
Reprocessors GmbH representative

SUPPLY SOURCE-Foreign and
domestic LWR spent fuel

SAFEGUARDS-

PRODUCT/USE-

FUEL STORAGE CAPACITY-1500 te capacity currently exists at Windscale,
additional 1500 te by 1979-1980

PROCESS-U-oxide fuel reprocessing

SCHEDULE-Under consideration for operation in 1987; decision to be
made in 1978

REMARKS-THORP (Thermal Oxide Reprocessing Plant)

MARKET STRATEGY-To be used for foreign spent fuel processing and
small amount of domestic reprocessing. BNFL has a contract with
Japan to reprocess 1600 te of spent fuel and is negotiating with
West Germany, Sweden, and other European nations

REFERENCES-

1-The Windscale Inquiry; Report by the Hon. Mr. Justice Parker;
Vol I; 1/26/78

2-Harmon, K. M.; Intl Source Book: A Compendium of Worldwide
Programs in Nuclear Energy Supply and Radioactive Waste
Management Research and development; Vol IV; 1/78

3-NAC; Intl Data Collection and Analysis; Task 1, Vol V; 6/78

ACTIVITY--UK ENRICHMENT PLANTS
 CATEGORY-ENRICHMENT PLANTS

NUCLEAR FACILITY PROFILE
 SRM 19 JUL 78

FACILITY NAME	LOCATION	FAC	FAC
Diffusion Enr. Plant	Capenhurst	TYPE CAPACITY STATUS	YR CODE
		DIFF 400 KSWU Oper	75 RUAU

LATITUDE- 53 DEG 16 MIN N

LONGITUDE- 2 DEG 58 MIN W

TECHNOLOGY SOURCE-UK Atomic Energy Administration (UKAEA)
 OWNER/OPERATOR-UKAEA/British Nuclear Fuels Limited (BNFL)
 SUPPLY SOURCE- SAFEGUARDS-No safeguards

PRODUCT/USE-U235 enriched uranium/Reactor fuel fabrication

FUEL STORAGE CAPACITY-

PROCESS-Gaseous Diffusion

SCHEDULE-Currently in operation

REMARKS-

PRODUCTION HISTORY-Plant built in 1953 for military uses. Modified for commercial fuel enrichment 1970-1975
 MARKET STRATEGY-100.0% of UK market until 1980, decreasing to approx. 20.0% until 1985, to approx 1.0% after 1985
 CAPACITY LIMITATIONS-Not known
 NEW FACILITY PLANS-None

REFERENCES-

- 1-Nucl Eng Intl; Vol XXI, No 250; 11/76
- 2-Nonproliferation Issues; Hearings before the Subcommittee on Arms Control, Committee on Foreign Relations; U.S. Senate; 94th Congress; Published 1977
- 3-NAC; Intl Data Collection and Analysis; Task 1, Vol V; 6/78
- 4-IAEA Bulletin; Vol XIX, No 5; 10/77

UK 7

ACTIVITY--UK RESEARCH AND TEST REACTOR
CATEGORY-RESEARCH AND TEST REACTORS

NUCLEAR FACILITY PROFILE
DMK 30 SEP 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	FAC CODE
Consort Reactor	Silwood Park, Ascot	POOL	100 Kwt	Oper	65	RUBA

LATITUDE-	DEG	MIN	LONGITUDE-	DEG	MIN
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TECHNOLOGY SOURCE-Imperial College and Gen Elec Co. (Engin)
OWNER/OPERATOR-Imperial College of Science & Tech for London Univ
SUPPLY SOURCE- SAFEGUARDS-

PRODUCT/USE-Short-lived isotopes, study of effects of radiation on electrical equipmt research in neutron physics, training
FUEL STORAGE CAPACITY-Irradiated fuel: Shielded compartments located in the base of the reactor tank
PROCESS-Pool-type, highly enriched (80%) uranium, light water moderated and cooled
SCHEDULE-In operation; Start of construction: Feb 1963;
Reactor critical: April 1965
REMARKS-Neutron flux: Thermal av $2 \times (10 \text{ E } 12) \text{ n}/(\text{cm E } 2) \text{ sec}$;
Fast av $4 \times (10 \text{ E } 12) \text{ n}/(\text{cm E } 2) \text{ sec}$
Core loading at rated power: 2.76 kg U-235
Av specific power in fuel: 36.23 kW/kg U-235
Fuel loading and unloading: Manual with special handling tools

REFERENCES-

1-Directory of Nuclear Reactors, Vol VI, IAEA, 1966, p. 71

UK 8

ACTIVITY--UK RESEARCH AND TEST REACTOR
CATEGORY-RESEARCH AND TEST REACTORS

NUCLEAR FACILITY PROFILE
DMK 30 SEP 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	FAC YR CODE
DAPHNE	Harwell, Berkshire	TK-H	100 Wt	Oper	62 RUBB
See remarks	England				

LATITUDE- 51 DEG 37 MIN N LONGITUDE- 1 DEG 18 MIN W

TECHNOLOGY SOURCE-Design & bldr.: OWNER/OPERATOR-United Kingdom
UKAEA Atomic Energy Authority (UKAEA)
SUPPLY SOURCE- SAFEGUARDS-

PRODUCT/USE-To simulate Dido and Pluto, thus providing basic physics
information in support of these reactors
FUEL STORAGE CAPACITY-

PROCESS-Zero energy, highly enriched (80%) uranium, heavy water
moderated and cooled, graphite and heavy water reflected
SCHEDULE-In operation; Reactor critical: Feb. 1962

REMARKS-DAPHNE=Dido And Pluto's Handmaiden For Nuclear Experiments
Neutron flux: Thermal av $.6 \times (10^9) \text{n}/(\text{cm}^2 \text{sec})$; Thermal max
 $1.3 \times (10^9) \text{n}/(\text{cm}^2 \text{sec})$; Fast max $3.5 \times (10^8) \text{n}/(\text{cm}^2 \text{sec})$
Core loading: 3.75 Kg U-235 for Dido simulation (25 fuel elements),
3.9 Kg U-235 for Pluto simulation (26 fuel elements)

REFERENCES-

- 1-Directory of Nuclear Reactors, Vol V, IAEA, 1964, p. 227
- 2-Intl Data Collection and Analysis, Vol V, NAC, June 1978

ACTIVITY--UK RESEARCH AND TEST REACTOR NUCLEAR FACILITY PROFILE
CATEGORY-RESEARCH AND TEST REACTORS DMK 30 SEP 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	FAC CODE
Dido Reactor	Harwell, Berkshire	TK-H	22 MWt	Oper	56	RUBC

LATITUDE- 51 DEG 37 MIN N LONGITUDE- 1 DEG 18 MIN W

TECHNOLOGY SOURCE-Design: UKAEA OWNER/OPERATOR-UKAEA

Bldr: Head Wrightson Processes Ltd.

SUPPLY SOURCE- SAFEGUARDS-

PRODUCT/USE-Isotope production, neutron physics and materials
irradiation

FUEL STORAGE CAPACITY-Irradiated fuel: 50 holes with air cooling in
concrete & steel cylinder. Emergency water cooling

PROCESS-Tank type, highly enriched (93%) uranium, heavy water
moderated and cooled, graphite and heavy water reflected

SCHEDULE-In operation at 10- MWt

Reactor critical: Nov. 1956

REMARKS-Fuel loading and unloading via flask with 1 ft lead shielding,
2 barrel rotary magazine, grab and bottom door, barrel 1 ft id.
length approx 9 ft. Cooling facilities provided

REFERENCES-

1-Directory of Nuclear Reactors, Vol II, IAEA, 1959, p. 281

UK 10

ACTIVITY--UK RESEARCH AND TEST REACTOR NUCLEAR FACILITY PROFILE
CATEGORY--RESEARCH AND TEST REACTORS DMK 30 SEP 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	CODE
DIMPLE	Winfrith Rsch Estab.	TANK	100 Wt	Oper	62	RUBD
See remarks	Dorset					
LATITUDE-	DEG	MIN	LONGITUDE-	DEG	MIN	

TECHNOLOGY SOURCE-Ministry of Supply OWNER/OPERATOR-UKAEA
SUPPLY SOURCE- SAFEGUARDS-

PRODUCT/USE-Testing lattice arrangements of heavy water reactors,
oscillator experiments
FUEL STORAGE CAPACITY-

PROCESS-Zero energy, variable fuel, heavy water or light water
moderated, graphite reflected, uncooled
SCHEDULE-In operation; reactor critical: July 1954

REMARKS-Provision for insertion of search tubes in lattice plates,
for physics experiments. The oscillator can be placed in the core
center.
Neutron flux: Thermal max.= $(3 \times 10^8) \text{ n/(cm}^2 \text{ sec)}$
DIMPLE: Deuterium Mod. Pile Low Energy

REFERENCES-

- 1-Directory of Nuclear Reactors, Vol III, IAEA, 1960, p. 261
- 2-Intl Data Collection and Analysis, Vol V, NAC; June 1978

UK 11

ACTIVITY--UK RESEARCH AND TEST REACTOR
CATEGORY-RESEARCH AND TEST REACTORS

NUCLEAR FACILITY PROFILE
DMK 30 SEP 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	FAC CODE
Dounreay Mat Test Reactor	Dounreay, Caithness	TK-H	25 MWt	Inactv	58	RUBE
LATITUDE- 58 DEG 30 MIN N		LONGITUDE- 4 DEG 15 MIN W				

TECHNOLOGY SOURCE-Design: UKAEA OWNER/OPERATOR-UKAEA
Bldg:Head Wrightson Processes Ltd

SUPPLY SOURCE- SAFEGUARDS-

PRODUCT/USE-Materials testing and isotope production in large loops

FUEL STORAGE CAPACITY-

PROCESS-Tank-type, fully enriched (93%) uranium, heavy water
moderated and cooled, graphite reflected

SCHEDULE-Reactor critical: May 1958; Shutdown: 1969

REMARKS-Reactor is of the Dido type, except in some details, e.g. the
use of a reactor prism form for the main concrete shield in place
of the 10-sided prism used for Dido, and the fewer and larger
experimental facilities

REFERENCES-

- 1-Directory of Nuclear Reactors, Vol II, IAEA, pg. 291
- 2-Intl Data Collection and Analysis, Vol V, NAC, June 1978

UK 12

ACTIVITY--UK SPENT FUEL PROCESSING
CATEGORY--FUEL REPROCESSING FACILITIES

NUCLEAR FACILITY PROFILE
SRM 31 JUL 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR CODE
Dounreay II	Dounreay (Reay)	FB	10 te/yr	Oper	61 RUBF

LATITUDE- 58 DEG 33 MIN N LONGITUDE- 3 DEG 47 MIN W

TECHNOLOGY SOURCE-UKAEA (UK Atomic Energy Adm), BNFL OWNER/OPERATOR-BNFL (British Nuclear Fuels Limited)

SUPPLY SOURCE-250 MWe Prototype Fast Reactor (PFR) SAFEGUARDS-No safeguards

PRODUCT/USE-Pu to be shipped to mixed-oxide fabrication plant at Windscale

FUEL STORAGE CAPACITY-

PROCESS-Fast Breeder reactor fuel reprocessing

SCHEDULE-Pilot plant operation from 1961-1972 to reprocess DFR fuel; has been rebuilt since to reprocess PFR fuel; startup-1978.

REMARKS-Interim storage of 560 cubic meters of high level liquid waste. DFR (Dounreay Fast Reactor) used highly-enriched uranium metal fuel from 1961-1972. PFR uses U-Pu mixed-oxide fuel.

REFERENCES-

- 1-Chayes, Abram and W. Bennett Lewis; Intl Arrangements for Nuclear Fuel Reprocessing; 1977
- 2-Harmon, K. M.; Intl Source Book; A Compendium of Worldwide Programs in Nuclear Energy Supply and Radioactive Waste Management Research and Development; Vol IV; 1/78
- 3-Nuclear News; Vol XX, No 7; 5/77
- 4-NAC; Intl Data Collection and Analysis; Task 1, Vol V; 6/78

ACTIVITY--UK RESEARCH AND TEST REACTOR
CATEGORY--RESEARCH AND TEST REACTORS

NUCLEAR FACILITY PROFILE
DMK 30 SEP 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR CODE
Dragon	Winfrith, Dorset	GMRR	20 MWt	Inactv	64 RUBH
See remarks					
LATITUDE-	DEG	MIN	LONGITUDE-	DEG	MIN

TECHNOLOGY SOURCE--OECD High Temp. OWNER/OPERATOR--UKAEA, OECD, Euratom
Reac Project & various contractor UKAEA, OECD, Euratom
SUPPLY SOURCE-- SAFEGUARDS--

PRODUCT/USE--Demonstration of principles of HTGCR, testing of graphite clad fuel elements (See remarks)

FUEL STORAGE CAPACITY--Irradiated fuel: Cylindrical Containment below ground level, water cooled; fuel elements stored for 100 days

PROCESS--Highly enriched (93%) uranium and thorium, graphite moderated and reflected, helium cooled

SCHEDULE--Shutdown: 1976; start of construction: April 1960;
reactor critical: 1964

REMARKS--Reactor name: High Temperature Reactor Dragon

Purpose: Study of the feasibility of using a slightly active primary cooling circuit.

Core loading at rated power: 14 Kg U-235

Av. specific power in fuel: 1428 KW/Kg U-235

Av. power density in core: 14 KW/litre. Burnup: Av 30 te 50%

Neutron flux: Thermal max radial $1.64 \times (10 \text{ E } 14) \text{ n}/(\text{cm E } 2) \text{ sec}$;

thermal max axial $1.14 \times (10 \text{ E } 14) \text{ n}/(\text{cm E } 2) \text{ sec}$; thermal core

average $.98 \times (10 \text{ E } 14) \text{ n}/(\text{cm E } 2) \text{ sec}$; fast max radial $2.5 \times (10 \text{ E } 14)$

$\text{n}/(\text{cm E } 2) \text{ sec}$; fast max axial $2.49 \times (10 \text{ E } 14) \text{ n}/(\text{cm E } 2) \text{ sec}$; fast

core average $1.55 \times (10 \text{ E } 14) \text{ n}/(\text{cm E } 2) \text{ sec}$

REFERENCES--

1-Directory of Nuclear Reactors, Vol V, IAEA, 1964, p. 277

2-Intl Data Collection and Analysis, Vol V, NAC, June 1978

ACTIVITY--UK RESEARCH AND TEST REACTOR
 CATEGORY-RESEARCH AND TEST REACTORS

NUCLEAR FACILITY PROFILE
 DMK 30 SEP 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR CODE
GLEEP	Harwell, Berkshire	GMRR	Remarks	Oper	47 RUBQ
See remarks	England				
LATITUDE-	DEG MIN	LONGITUDE-	DEG MIN		

TECHNOLOGY SOURCE-Built by the
 Ministry of Works
 SUPPLY SOURCE-

OWNER/OPERATOR-United Kingdom
 Atomic Energy Authority
 SAFEGUARDS-

PRODUCT/USE-Measurement of neutron cross-sections, materials testing,
 biological studies, training
 FUEL STORAGE CAPACITY-

PROCESS-Natural uranium, graphite moderated and reflected, air cooled

SCHEDULE-In operation; Reactor critical: Aug. 1947

REMARKS-GLEEP=Graphite Low-Energy Experimental Pile

Reactor designed by the Ministry of Supply. Av. power density in
 core: .02 W/litre. Neutron flux: Thermal max $1.5 \times (10^9) \text{ n}/(\text{cm}^2 \text{ sec})$
 Thermal min $(10^6) \text{ n}/(\text{cm}^2 \text{ sec})$

Nominal reactor power: 4.5 KWt max, 100 KWt originally. Gleep was
 operated at high power for the production of isotopes until Bepo was
 put into operation. Then it was converted to a low power facility
 for the measurement of cross sections of nuclear materials. In 1960
 a complete refueling and re-instrumentation was carried out. The
 original fuel consisted of 36000 Kg of nat. U metal and UO-2. Core
 loading at rated power: Approx 32500 Kg nat. U

REFERENCES-

1-Directory of Nuclear Reactors, Vol V, IAEA, 1964, p. 255

UK 15

ACTIVITY--UK RESEARCH AND TEST REACTOR
CATEGORY--RESEARCH AND TEST REACTORS

NUCLEAR FACILITY PROFILE
DMK 30 SEP 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	CODE
Hazel	Harwell, Berkshire	LHRR (small)		Oper	58	RUBT

LATITUDE- 51 DEG 37 MIN N

LONGITUDE- 1 DEG 18 MIN W

TECHNOLOGY SOURCE-Design & Bldr: OWNER/OPERATOR-United Kingdom
UKAEA Atomic Energy Authority
SUPPLY SOURCE- SAFEGUAPDS-

PRODUCT/USE-Determination of the critical size of heavy water
solutions of U-235
FUEL STORAGE CAPACITY-

PROCESS-Zero energy, homogeneous, highly enriched (45.5%) uranium,
heavy water moderated, graphite reflected
SCHEDULE-Dismantled; Reactor critical: Feb 1958; Reactor dismantled:
July 1958
REMARKS-

REFERENCES-

- 1-Directory of Nuclear Reactors, Vol III, IAEA, 1960, p. 189
- 2-Intl Data Collection and Analysis, Vol V, NAC, June 1978

ACTIVITY--UK RESEARCH AND TEST REACTOR
 CATEGORY-RESEARCH AND TEST REACTORS

NUCLEAR FACILITY PROFILE
 DMK 30 SEP 78

FACILITY NAME	LOCATION	FAC	FAC
HECTOR	Winfrith, Dorset	TYPE CAPACITY	STATUS YR CODE
See remarks	England	GMRR 100 Wt	Oper 63 RUBU
LATITUDE-	DEG MIN	LONGITUDE-	DEG MIN

TECHNOLOGY SOURCE-Design & bldr.: OWNER/OPERATOR-United Kingdom
 UKAEA and Fairly Engineering Ltd. Atomic Energy Authority (UKAEA)
 SUPPLY SOURCE- SAFEGUARDS-

PRODUCT/USE-Testing of nuclear materials

FUEL STORAGE CAPACITY-

PROCESS-Highly enriched (80%) uranium, graphite moderated and reflected, central region heated by CO-2, outer region cooled by CO-2

SCHEDULE-In operation; start of construction: May 1961;
 reactor critical: March 1963

REMARKS-HECTOR=Hot Enriched Carbon Moderated Thermal Oscillator
 Reactor. This reac. is a tool for the experimental investigation of reactivity changes using static or oscillator techniques, with fuel samples or other materials for the design of power reactors.
 Neutron flux: Thermal max $3 \times (10 \text{ E } 8) \text{ n}/(\text{cm E } 2) \text{ sec}$
 Critical mass: Approx 10 Kg U-235

REFERENCES-

1-Directory of Nuclear Reactors, Vol V, IAEA, 1964, p. 275

UK 17

ACTIVITY--UK RESEARCH AND TEST REACTOR
CATEGORY--RESEARCH AND TEST REACTORS

NUCLEAR FACILITY PROFILE
DMK 30 SEP 78

FACILITY NAME
HERO

LOCATION
Windscale
Cumberland

FAC
TYPE CAPACITY STATUS YR CODE
GMRR 3KWt max Inactv 62 RUBW

See remarks

LATITUDE- 54 DEG 38 MIN N

LONGITUDE- 3 DEG 30 MIN W

TECHNOLOGY SOURCE-Constructor:
UKAEA
SUPPLY SOURCE-

OWNER/OPERATOR-United Kingdom
Atomic Energy Authority
SAFEGUARDS-

PRODUCT/USE-Lattice tests to provide physics data for the advanced
gas-cooled reactor system
FUEL STORAGE CAPACITY-

PROCESS-Zero energy, slightly enriched (1.8%) uranium, graphite
moderated and reflected, CO-2 heated
SCHEDULE-reactor critical: Feb. 1962; Shutdown: 1969

REMARKS-Neutron flux: Max $1 \times (10 \text{ E } 9) \text{ n}/(\text{cm E } 2) \text{ sec}$

REFERENCES-

- 1-Directory of Nuclear Reactors, Vol VI, IAEA, 1966, p. 219
- 2-Intl Data Collection and Analysis, Vol V, NAC, June 1978

UK 18

ACTIVITY--UK RESEARCH AND TEST REACTOR
CATEGORY--RESEARCH AND TEST REACTORS

NUCLEAR FACILITY PROFILE
DMK 30 SEP 78

FACILITY NAME	LOCATION	FAC	TYPE	CAPACITY	STATUS	YR	CODE
Reactor Horace	Aldermaston, Atom Weapon Rsch Est	FAC	POOL 10 Wt		Oper	58	RUCD
LATITUDE- 51 DEG 23 MIN N		LONGITUDE- 1 DEG 09 MIN W					

TECHNOLOGY SOURCE-Dsgn & Bldr: OWNER/OPERATOR-UKAEA/Atomic
Atomic Weapons Rsch Establishment Weapons Rsch Establishment
SUPPLY SOURCE- SAFEGUARDS-

PRODUCT/USE-Critical experiments on core arrangements for Herald
Research Reactor
FUEL STORAGE CAPACITY-

PROCESS-Zero energy, fully enriched uranium, light water moderated and
cooled

SCHEDULE-Start of construction: June 1957
Reactor critical: May 1958

REMARKS-This reactor is temporarily housed in the spent fuel storage
tank and is identical with the Herald Reactor in its main parts
(date of info: July 1959)

REFERENCES-

- 1-Directory of Nuclear Reactors, Vol II, IAEA, 1959, p. 75
- 2-Intl Data Collection and Analysis, Vol V, NAC, June 1978

ACTIVITY--UK RESEARCH AND TEST REACTOR
CATEGORY-RESEARCH AND TEST REACTORS

NUCLEAR FACILITY PROFILE
DMK 30 SEP 78

FACILITY NAME	LOCATION	FAC	FAC
Jason Reactor	Greenwich, London	TYPE CAPACITY STATUS YR CODE	
	Royal Naval College	ARGO .01 MWt Oper 62 RUCK	
LATITUDE- 51 DEG 28 MIN N		LONGITUDE- 0 DEG 00 MIN E	

TECHNOLOGY SOURCE-Design & bldr.: OWNER/OPERATOR-Board of the Admir-
Hawker Siddeley Nucl Power Co Ltd alty/Royal Naval College
SUPPLY SOURCE- SAFEGUARDS-

PRODUCT/USE-Research in reactor kinetics, neutron spectra measurements
activation analysis, educational purposes
FUEL STORAGE CAPACITY-

PROCESS-Argonaut-type, highly enriched (80%) uranium, light water
moderated and cooled, graphite reflected

SCHEDULE-In operation; reactor critical at Langley: Nov. 1959; Start
of reconstruction at Greenwich: March 1962; critical (GW): Nov. 1962

REMARKS-Reactor rebuilt by Associated Electrical Industries Ltd. The
reactor was previously owned and operated by Hawker Siddeley Nucl.
Power Co. at Langley, Buckinghamshire.

Neutron flux: Thermal av $2 \times (10 \text{ E } 11) \text{ n}/(\text{cm E } 2) \text{ sec}$; thermal max
 $5 \times (10 \text{ E } 11) \text{ n}/(\text{cm E } 2) \text{ sec}$; fast av $4 \times (10 \text{ E } 11) \text{ n}/(\text{cm E } 2) \text{ sec}$; fast
max $5 \times (10 \text{ E } 11) \text{ n}/(\text{cm E } 2) \text{ sec}$

Core loading at rated power: One slab core = 1.98 Kg U-235 (10
standard & 1 partial subassembly), two slab core = 3.8 Kg U-235,
annular loading = 4.2 Kg U-235

REFERENCES-

1-Directory of Nuclear Reactors, Vol V, IAEA, 1964, p. 125

UK 20

ACTIVITY--UK RESEARCH AND TEST REACTOR
CATEGORY-RESEARCH AND TEST REACTORS

NUCLEAR FACILITY PROFILE
DMK 30 SEP 78

FACILITY NAME	LOCATION	FAC	TYPE	CAPACITY	STATUS	YR	CODE
Juno Reactor	Winfrith, Dorset	TANK	100 Wt	Oper	64	RUCL	
	Atomic Energy Establ						
LATITUDE-	DEG	MIN	LONGITUDE-	DEG	MIN		

TECHNOLOGY SOURCE-UKAEA

OWNER/OPERATOR-UKAEA

SUPPLY SOURCE-

SAFEGUARDS-

PRODUCT/USE-Testing lattice arrangements for liquid moderated reactors

FUEL STORAGE CAPACITY-

PROCESS-Zero energy, tank-type, liquid moderated (D-20 or H-20),
graphite reflector can be installed; uncooled

SCHEDULE-In operation; start of construction: Jan. 1964;
reactor critical: April 1964

REMARKS-Juno has replaced the reactor Nero, using much of its
instrumentation and control circuitry, and its biological shield
Neutron flux: Thermal max $5 \times (10 \text{ E } 8) \text{ n}/(\text{cm E } 2) \text{ sec}$

REFERENCES-

1-Directory of Nuclear Reactors, Vol VIII, IAEA, 1970, p. 73

UK 21

ACTIVITY--UK RESEARCH AND TEST REACTORS NUCLEAR FACILITY PROFILE
CATEGORY-RESEARCH AND TEST REACTORS DMK 30 SEP 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	CODE
Lido Reactor	Harwell, Berkshire	POOL	100 Kwt	Oper	56	RUCM

LATITUDE- 51 DEG 37 MIN N LONGITUDE- 1 DEG 18 MIN W

TECHNOLOGY SOURCE-UKAEA & Vickers OWNER/OPERATOR-United Kingdom
Armstrong Ltd. Atomic Energy Authority
SUPPLY SOURCE- SAFEGUARDS-

PRODUCT/USE-Reactor and Shielding Studies

FUEL STORAGE CAPACITY-Irradiated fuel: provisions for 36 elements to
be stored in shielded pits in the base of the pool

PROCESS-Pool type, highly enriched (46%) uranium, light water
moderated and cooled

SCHEDULE-Start of construction: mid 1954

Reactor critical: Sept 1956

REMARKS-Fuel loading and unloading: Transfer by long handled tools to
storage pits in pool. Lead flask for removal from reactor

REFERENCES-

1-Directory of Nuclear Reactors Vol III, IAEA, 1960, p. 13

UK 22

ACTIVITY--UK RESEARCH AND TEST REACTOR NUCLEAR FACILITY PROFILE
CATEGORY-RESEARCH AND TEST REACTORS DMK 30 SEP 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	FAC CODE
Reactor Merlin	Aldermaston, Berkshire	POOL	5 MWt	Inactv	60	RUCN

LATITUDE- 51 DEG 23 MIN N LONGITUDE- 1 DEG 09 MIN W

TECHNOLOGY SOURCE-Dsgn & bldr:A.E. OWNER/OPERATOR-Associated
I-John Thompson Nucl Energy Co Electrical Industries, Ltd.
SUPPLY SOURCE- SAFEGUARDS-

PRODUCT/USE-Research, testing, education and training

FUEL STORAGE CAPACITY-Irradiated fuel: 10 dys in reactor tank.Disposal
area for 66 fuel or reflec elem.Space for 250curies of exp apparatus
PROCESS-Pool type, fully enriched (93%) uranium, light water moderated
and cooled, four vertical core positions

SCHEDULE-Reactor critical: July 1959

Full power operation: 1960; shutdown: 1962

REMARKS-Nominal reactor power: max 5 MWt, normal 1 MWt

Fuel loading and unloading: Raising core to fuel loading position and
changing fuel with handling tools, fuel storage bay at the same
elevation

REFERENCES-

1-Directory of Nuclear Reactors, Vol II, IAEA 1959, p. 69

UK 23

ACTIVITY--UK RESEARCH AND TEST REACTOR
CATEGORY--RESEARCH AND TEST REACTORS

NUCLEAR FACILITY PROFILE
DMK 30 SEP 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR CODE
NERO	Winfrith, Dorset	GMRR	100 Wt	Inactv	60 RUCP
New Exp Reactor 0 Atomic Energy Etab.					
LATITUDE-	DEG MIN	LONGITUDE-	DEG	MIN	

TECHNOLOGY SOURCE--UKAEA

OWNER/OPERATOR--United Kingdom
Atomic Energy Authority (UKAEA)

SUPPLY SOURCE--

SAFEGUARDS--

PRODUCT/USE--Investigations for graphite moderated reactors and pile
oscillator studies
FUEL STORAGE CAPACITY--

PROCESS--Zero energy, enriched uranium, graphite moderated and
reflected, uncooled

SCHEDULE--Shutdown: 1964; Start of construction: Nov. 1956; critical
(Harwell) 1957; Transferred to Winfrith: 1959; Critical 1960

REMARKS--Neutron flux: Peak thermal: $3 \times (10^8) \text{ n}/(\text{cm}^2 \text{ sec})$

REFERENCES--

- 1-Directory of Nuclear Reactors, Vol VI, IAEA, 1966, p. 217
- 2-Intl Data Collection and Analysis, Vol V, NAC, June 1978

ACTIVITY--UK RESEARCH AND TEST RACTOR
CATEGORY-RESEARCH AND TEST REACTORS

NUCLEAR FACILITY PROFILE
DMK 30 SEP 78

FACILITY NAME	LOCATION	FAC	FAC
NESTOR	Winfrith, Dorset	TYPE CAPACITY	STATUS YR CODE
See remarks	Atomic Energy Establ	ARGO .01 Mwt	Oper 61 RUCQ
LATITUDE-	DEG MIN	LONGITUDE-	DEG MIN

TECHNOLOGY SOURCE-Hawker Siddeley OWNER/OPERATOR-United Kingdom
Nucl Power Co. Ltd & UKAEA Atomic Energy Authority (UKAEA)
SUPPLY SOURCE- SAFEGUARDS-

PRODUCT/USE-Neutron source for subcritical assemblies to measure fast
fission factors, conversion ratios & other reac. physics constants
FUEL STORAGE CAPACITY-

PROCESS-Argonaut (Jason) type, highly enriched (80%) uranium, light
water moderated and cooled, graphite reflected

SCHEDULE-In operation; Start of construction: 1959;
reactor critical: March 1961

REMARKS-NESTOR=Neutron Source Thermal Reactor. Jason is the trademark
of the ARGONAUT-type reactor produced by Hawker Siddeley Nucl. Power
Co Ltd. NESTOR is similar to the original Argonaut reactor at
Argonne Natl Lab.
Core loading at rated power: Annular loading with 24 subassemblies
in inner and 2 subassemblies in outer ring-Approx 4.6 Kg U-235

REFERENCES-

1-Directory of Nuclear Reactors, Vol V, IAEA, 1964, p. 129

UK 25

ACTIVITY--UK RESEARCH AND TEST REACTOR
CATEGORY-RESEARCH AND TEST REACTORS

NUCLEAR FACILITY PROFILE
DMK 30 SEP 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	CODE
Pluto Reactor	Harwell, Berkshire	TK-H	22 MWt	Cper	57	RUCV

LATITUDE- 51 DEG 37 MIN N

LONGITUDE- 1 DEG 18 MIN W

TECHNOLOGY SOURCE-Design: UKAEA OWNER/OPERATOR-UKAEA

Bldg:Head Wrightson Processes Ltd

SUPPLY SOURCE-

SAFEGUARDS-

PRODUCT/USE-Materials testing and isotope production in large loops

FUEL STORAGE CAPACITY-

PROCESS-Tank type, fully enriched (93%) uranium, heavy water moderated
and cooled, graphite and heavy water reflected

SCHEDULE-In operation at 10 MW

Reactor critical: Oct 1957

REMARKS-This reactor is of the Dido type, except in some details as
e.g. the use of a rect prism form for main concrete shield in place
10-sided prism used for Dido, and the fewer and larger experimental
facilities

REFERENCES-

- 1-Directory of Nuclear Reactors, Vol II, IAEA, 1959, p. 289
- 2-Intl Data Collection and Analysis, Vol V, NAC, June 1978

UK 26

ACTIVITY--UK RESEARCH & TEST REACTOR
CATEGORY-RESEARCH AND TEST REACTORS

NUCLEAR FACILITY PROFILE
DMK 30 SEP 78

FACILITY NAME LOCATION
UTR-B London

FAC FAC
TYPE CAPACITY STATUS YR CODE
ARGO .1 MWt Oper 64 RUCW

LATITUDE- 51 DEG 30 MIN N

LONGITUDE- 10 DEG W MIN

TECHNOLOGY SOURCE-Bldr.: Advanced Tech. Labs
SUPPLY SOURCE- OWNER/OPERATOR-Owner: Queen Mary College
SAFEGUARDS-

PRODUCT/USE-

FUEL STORAGE CAPACITY-

PROCESS-Argonaut-type, 90% U-Al, graphite moderated, light water cooled
SCHEDULE-In operation

REMARKS-

REFERENCES-

1-Intl Data Collection and Analysis, Vol V, NAC, June 1978

ACTIVITY--UK RESEARCH AND TEST REACTOR
CATEGORY-RESEARCH AND TEST REACTORS

NUCLEAR FACILITY PROFILE
DMK 30 SEP 78

FACILITY NAME	LOCATION	FAC	FAC
SRRC-UTR-100	East Kilbride	TYPE CAPACITY STATUS YR CODE	
See remarks	Lanarkshire	ARGO .1 Mwt Oper 63	RUDC
LATITUDE- 55 DEG 46 MIN N		LONGITUDE- 4 DEG 10 MIN W	

TECHNOLOGY SOURCE-See remarks

OWNER/OPERATOR-See remarks

SUPPLY SOURCE-

SAFEGUARDS-

PRODUCT/USE-Neutron and reactor physics, radiochemistry, metallurgy, engineering, medical and biological research, training
FUEL STORAGE CAPACITY-

PROCESS-Argonaut (UTR-100) type, enriched (90%) uranium, light water moderated and cooled, graphite reflected

SCHEDULE-In operation; start of construction: mid 1962;
reactor critical: June 1963

REMARKS-SRRC-UTR-100=Scottish Research Reactor Centre UTR-100 Reactor
Owner/Operator: Scottish Rsch Reac. Centre, on behalf of Scottish Universities and Queen's University, Belfast. Design & bldr.: Adv. Technology Lab. Div. of Amer. Radiation and Standard Sanitary Corp.
Neutron flux: Thermal max $1.2 \times (10 \text{ E } 12) \text{ n}/(\text{cm E } 2) \text{ sec}$; Thermal av $1.1 \times (10 \text{ E } 12) \text{ n}/(\text{cm E } 2) \text{ sec}$

REFERENCES-

1-Directory of Nuclear Reactors, Vol V, IAEA, 1964, p. 153

ACTIVITY--UK ENRICHMENT PLANTS
 CATEGORY-ENRICHMENT PLANTS

NUCLEAR FACILITY PROFILE
 SRM 19 JUL 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	FAC CODE
Production Plant	Capenhurst	CENT	50 KSWU	Oper	77	RUDL

LATITUDE- 53 DEG 16 MIN N LONGITUDE- 2 DEG 58 MIN W

TECHNOLOGY SOURCE-Centec GmbH OWNER/OPERATOR-Urenco Limited/
 British Nucl Fuels Limited (BNFL)
 SUPPLY SOURCE- SAFEGUARDS-NPT Safeguards Agreement

PRODUCT/USE-U235 enriched uranium (2.8%)/Reactor fuel fabrication

FUEL STORAGE CAPACITY-

PROCESS-Gaseous Centrifuge

SCHEDULE-Currently in operation (10/77). Increase in capacity to
 200.0 KSWU/yr expected in 1978

REMARKS-Urenco Limited-British Nuclear Fuels Limited (BNFL), Ultra
 Centrifuge Nederland NV(UCN), Uranit (Hoechst AG, Gelsenberg AG,
 NUKEM GmbH) are equal shareholders. Centec GmbH-BNFL, UCN, GNV
 (Interatom GmbH, MAN AG) are equal shareholders

MARKET STRATEGY-Urenco (combined operations) has orders for over
 2000.0 KSWU for delivery by 1992; German (FRG) orders total 50%

CAPACITY LIMITATIONS-No near-term space limitations

NEW FACILITY PLANS-Expansion to 700.0 KSWU/yr planned for completion
 by 1984 in 200 KSWU increments. Total Urenco expansion plans call
 for capacity of 10000.0 KSWU/yr by 1988 or to coincide with demand

REFERENCES-

- 1-Nucl Eng Intl; Vol XXII, No 265; 12/77
- 2-IAEA Bulletin; Vol XIX, No 5; 10/77
- 3-Levin, S. A. and S. Blumkin; Enrichment Supply and Technology
 Outside the United States; 1/13/77
- 4-NAC; Intl Data Collection and Analysis; Task 1, Vol IV, No 5; 6/78

UK 29

ACTIVITY--UK RESEARCH AND TEST REACTOR
CATEGORY-RESEARCH AND TEST REACTORS

NUCLEAR FACILITY PROFILE
DMK 30 SEP 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR CODE
URR	Risley, Warrington	ARGO	Remarks		64 RUDM
See remarks		Lancashire, England			
LATITUDE- 53 DEG 26 MIN N		LONGITUDE- 2 DEG 32 MIN W			

TECHNOLOGY SOURCE-Bldr.: Pye Ltd., OWNER/OPERATOR-Manchester and
Cambridge. Design: UKAEA Liverpool Universities.
SUPPLY SOURCE- SAFEGUARDS-

PRODUCT/USE-Research in reactor physics engineering tests,
radiochemistry & radiation chemistry, and training
FUEL STORAGE CAPACITY-

PROCESS-Argonaut (UTR-10) type, highly enriched (90%) uranium, light
water moderated and cooled, graphite reflected
SCHEDULE-

REMARKS-URR=Manchester and Liverpool Universities' Research Reactor
Nominal reactor power: 10 Kwt av, 100 Kwt max
This reactor is similar to the University of Florida Training React.

REFERENCES-

- 1-Directory of Nuclear Reactors, Vol V, IAEA, 1964, p. 139
- 2-Intl Data Collection and Analysis, Vol V, NAC, June 1978

ACTIVITY--UK RESEARCH & TEST REACTOR
CATEGORY-RESEARCH AND TEST REACTORS

NUCLEAR FACILITY PROFILE
DMK 30 SEP 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	FAC CODE
VERA	Aldermaston, Berks.	FNRR	100 Wt	Oper	61	RUDP
See remarks	England					
LATITUDE-	DEG MIN	LONGITUDE-	DEG	MIN		

TECHNOLOGY SOURCE-Design & bldr.: OWNER/OPERATOR-United Kingdom
UKAEA Atomic Energy Authority
SUPPLY SOURCE- SAFEGUARDS-

PRODUCT/USE-Fast reactor physics research

FUEL STORAGE CAPACITY-

PROCESS-Zero energy, fast, highly enriched uranium or plutonium,
uncooled, natural uranium reflected

SCHEDULE-In operation; reactor critical: Feb. 1961

REMARKS-VERA=Versatile Experimental Reactor Assembly
Critical mass: 70 to 100 Kg U-235, 20 to 40 Kg Pu
Fuel loading and unloading: Loading & core modifications are carried
out manually when the two reactor halves are 1.5 m apart

REFERENCES-

1-Directory of Nuclear Reactors, Vol V, IAEA, 1964, p. 315

ACTIVITY--UK RESEARCH AND TEST REACTOR NUCLEAR FACILITY PROFILE
 CATEGORY-RESEARCH AND TEST REACTORS DMK 30 SEP 78

FACILITY NAME	LOCATION	FAC	FAC
VIPER	AWRE, Aldermaston	TYPE CAPACITY STATUS YR CODE	
		FNRR Remarks Oper	67 RUDQ

See remarks

LATITUDE- 51 DEG 23 MIN N LONGITUDE- 1 DEG 09 MIN W

TECHNOLOGY SOURCE-Nucl Rsch Div & OWNER/OPERATOR-UKAEA/AWRE,
 Eng Design Staff UKAEA, AWRE Ald. Aldermaston
 SUPPLY SOURCE- SAFEGUARDS-

PRODUCT/USE-Transient neutron radiation effects on materials, solid
 state physics, rapid heating of fissile components, reactor kinetics
 FUEL STORAGE CAPACITY-

PROCESS-Fast, pulsed, enriched (37.5%) uranium, epoxy resin moderated,
 copper reflected, uncooled

SCHEDULE-In operation; start of construction: Nov. 1966; reactor crit-
 ical: May 1967; first full-size pulse: 1967; routine operation: 1968

REMARKS-VIPER=Versatile Intermediate Pulsed Experimental Reactor

Nominal Reactor power: Steady-state operation: Max 2 KW; Peak power:
 20,000 MW; Total power generated per pulse: 12 MWS.

Neutron flux: Peak integrated flux for one pulse in small
 irradiation cavity ($10 \text{ E } 15$)n/(cm E 2)sec

Critical mass: 82 Kg U-235

Core loading at rated power: 230 Kg U-Mo alloy, containing 84 Kg
 U-235. Av. specific power in fuel: 50 KWs/Kg integrated power in a
 full size pulse. Av. power density in core: 400 KWs/litre integrated
 power in a full size pulse.

Fuel loading and unloading: Manual

REFERENCES-

1-Directory of Nuclear Reactors, Vol VIII, IAEA, 1970, p. 197

ACTIVITY--UK RESEARCH & TEST REACTOR
CATEGORY--RESEARCH AND TEST REACTORS

NUCLEAR FACILITY PROFILE
DMK 30 SEP 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	FAC CODE
ZEBRA	Winfrieth, Dorset	FNRR	.001 MWt	Oper	62	RUDV
See remarks	England					
LATITUDE-	DEG MIN	LONGITUDE-	DEG MIN			

TECHNOLOGY SOURCE-Design & bldr.: OWNER/OPERATOR-United Kingdom
UKAEA Atomic Energy Authority (UKAEA)
SUPPLY SOURCE- SAFEGUARDS-

PRODUCT/USE-Investigation of the neutron physics of large fast
breeder reactors
FUEL STORAGE CAPACITY-

PROCESS-Zero energy, fast, highly enriched uranium and/or plutonium,
natural uranium reflected, uncooled
SCHEDULE-In operation; reactor critical: Dec 1962

REMARKS-This reactor supercedes the reactors ZEPHYR and ZEUS, both of
which were somewhat inflexible in their design and allowed only a
limited variation in core size ZEBRA was designed to fulfill a much
wider range of functions.
Neutron flux: Fast, at core center $5 \times (10 \text{ E } 9) \text{ n}/(\text{cm E } 2) \text{ sec}$

REFERENCES-

- 1-Directory of Nuclear Reactors, Vol V, IAEA, 1964, p. 323
- 2-Intl Data Collection and Analysis, Vol V, NAC, June 1978

ACTIVITY--UK RESEARCH AND TEST REACTOR
 CATEGORY-RESEARCH AND TEST REACTORS

NUCLEAR FACILITY PROFILE
 DMK 30 SEP 78

FACILITY NAME	LOCATION	FAC	FAC
ZENITH	Winfrith, Dorset	TYPE CAPACITY	STATUS YR CODE
See remarks	England	GMRR 200 Wt	Oper 59 RUDX
LATITUDE-	DEG MIN	LONGITUDE-	DEG MIN

TECHNOLOGY SOURCE-Design: UKAEA & OWNER/OPERATOR-United Kingdom
 Gen Elec Co., built by Gen Elec Atomic Energy Authority (UKAEA)
 SUPPLY SOURCE- SAFEGUARDS-

PRODUCT/USE-Reactor physics research on near-homogeneous high temp.
 gas-cooled system with uranium or plutonium fuels (See remarks)
 FUEL STORAGE CAPACITY-Irradiated fuel storage: None

PROCESS-Highly enriched (93%) uranium or plutonium (97.5%), graphite
 moderated and reflected, nitrogen heated

SCHEDULE-In operation; start of construction: Sept. 1955;
 reactor critical: Dec. 1959

REMARKS-ZENITH=Zero Energy Nitrogen Heated Thermal Reactor
 Purpose: Measurements of the variation of reactivity and neutron
 spectra with temperature
 Neutron flux: Thermal max $2 \times (10^8) \text{ n}/(\text{cm}^2 \text{ sec})$
 Fuel loading and unloading: Nitrogen is recompressed into cylinders,
 top shielding and central part of vessel head are removed, spent
 fuel elements are raised into shielded flask

REFERENCES-

1-Directory of Nuclear Reactors, Vol V, IAEA, 1964, p. 261

ACTIVITY--UK RESEARCH AND TEST REACTOR NUCLEAR FACILITY PROFILE
 CATEGORY--RESEARCH AND TEST REACTORS DMK 30 SEP 78

FACILITY NAME	LOCATION	FAC	FAC
ZEPHYR	Harwell, Berkshire	TYPE CAPACITY STATUS YR CODE	FNRR Remarks Inactv 54 RUDY

LATITUDE- 51 DEG 37 MIN N LONGITUDE- 1 DEG 18 MIN W

TECHNOLOGY SOURCE-Design & bldr.: OWNER/OPERATOR-United Kingdom
 UKAEA Atomic Energy Authority
 SUPPLY SOURCE- SAFEGUARDS-

PRODUCT/USE-Measurement of nuclear data for materials which may be
 used in the construction of future fast reactors
 FUEL STORAGE CAPACITY-

PROCESS-Zero energy, fast, plutonium and nat. uranium, nat. uranium
 reflected, later replaced partly by thorium or graphite, uncooled
 SCHEDULE-Dismantled; reactor critical: Feb. 1954; reactor dismantled:
 Feb. 1958
 REMARKS-Nominal reactor power: 1-2 W by fission, 25-30 W by alpha-
 heating Pu; reference 2: .01 MWt
 ZEPHYR=Zero Energy Fast Reactor

REFERENCES-

- 1-Directory of Nuclear Reactors, Vol III, IAEA, 1960, p. 337
- 2-Intl Data Collection and Analysis, Vol V, NAC; June 1978

ACTIVITY--UK RESEARCH AND TEST REACTOR
CATEGORY--RESEARCH AND TEST REACTORS

NUCLEAR FACILITY PROFILE
DMK 30 SEP 78

FACILITY NAME	LOCATION	FAC	FAC
Zero Energy Thermal	Harwell, Berkshire	TYPE CAPACITY STATUS YR CODE	
ZETR		LHRR (small) Oper	52 RUDZ
LATITUDE- 51 DEG 37 MIN N	LONGITUDE- 1 DEG 18 MIN W		

TECHNOLOGY SOURCE-Design & bldr:	OWNER/OPERATOR-United Kingdom
Ministry Of Supply and UKAEA	Atomic Energy Authority
SUPPLY SOURCE-	SAFEGUARDS-

PRODUCT/USE-Determination of the critical size of light water
solutions of fissile materials

FUEL STORAGE CAPACITY-

PROCESS-Zero energy, aqueous homogeneous plutonium(97%) or highly enriched (44.6%) U-236 or fully enriched(99.6%) U-233, LW moderated & reflected

SCHEDULE-Dismantled; Reactor critical with Pu: Oct 1952; Critical with U-235: Dec 1955; Critical with U-233: March 1956

REMARKS-The reactor was dismantled and reconstructed at the Dounreay Experimental Reactor Establishment. The reactor HAZEL (ZETR-2) was built in its place at Harwell. Nominal reactor power: negligible.

REFERENCES-

- 1-Directory of Nuclear Reactors, IAEA, Vol III, 1960, p. 187
- 2-Intl. Data Collection and Analysis, Vol II NAC, June 1978

UK 36

ACTIVITY--UK RESEARCH AND TEST REACTOR
CATEGORY-RESEARCH AND TEST REACTORS

NUCLEAR FACILITY PROFILE
DMK 30 SEP 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	CODE
ZEUS	Harwell, Berkshire	FNRR	Max 100W	Inactv	55	RUEA

See remarks

LATITUDE- 51 DEG 37 MIN N LONGITUDE- 1 DEG 18 MIN W

TECHNOLOGY SOURCE-Design & bldr.: OWNER/OPERATOR-United Kingdom
UKAEA Atomic Energy Authority

SUPPLY SOURCE- SAFEGUARDS-

PRODUCT/USE-Evaluation of data for the design of Dounreay Fast Reactor

FUEL STORAGE CAPACITY-

PROCESS-Zero energy, fast, enriched (45%) and nat. uranium, nat.
uranium reflec., uncooled, but coolant simulated by Mg and Al bars
SCHEDULE-Dismantled; reactor critical: Dec. 1955; reactor dismantled:
Sept. 1957

REMARKS-Neutron flux: At 20W, core center $E 9 \text{ n}/(\text{cm}^2 \text{ sec})$
ZEUS=Zero Energy Uranium System

REFERENCES-

- 1-Directory of Nuclear Reactors, Vol III, IAEA, 1960, p. 339
- 2-Intl Data Collection and Analysis, Vol V, NAC, June 1978

UK 37

ACTIVITY--UK RESOURCE RECOVERY
CATEGORY-MINES (URANIUM & THORIUM)

NUCLEAR FACILITY PROFILE
PSM 08 SEP 78

FACILITY NAME LOCATION
Caithness

FAC	FAC
TYPE	CAPACITY
URAN	STATUS
	YR
	CODE
	RUEC

LATITUDE- 58 DEG 10 MIN N

LONGITUDE- 03 DEG 30 MIN W

TECHNOLOGY SOURCE-

OWNER/OPERATOR-

SUPPLY SOURCE-

SAFEGUARDS-

PRODUCT/USE-Uranium

FUEL STORAGE CAPACITY-

PROCESS-

SCHEDULE-

REMARKS-

REFERENCES-

1-Uranium Resources, Production and Demand, IAEA, 12/77, p. 111

ACTIVITY--UK RESOURCE RECOVERY
CATEGORY--CONVERSION PLANTS

NUCLEAR FACILITY PROFILE
SRM 02 AUG 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR CODE
Springfields	Preston	UF6	8000 te	Oper	68 RUEG
Conversion Plant	(Lancashire)		(te/yr)		
LATITUDE- 53 DEG 46 MIN N		LONGITUDE-	2 DEG 42 MIN W		

TECHNOLOGY SOURCE- OWNER/OPERATOR-British Nuclear
Fuels Limited (BNFL)
SUPPLY SOURCE-Imported uranium ore SAFEGUARDS-NET Safeguards
Argeement
PRODUCT/USE-UF4/reduction to U-metal for use in Magnox fuel element
fabrication; UF6/feed for enrichment plant
FUEL STORAGE CAPACITY-

PROCESS-U3O8 to UO2 to UF4 to UF6 by solvent extraction
process

SCHEDULE-Operated since 1960 at 7000 te UF4/yr. Current UF4 capacity
is 12000 te/yr. Addition for UF6 conversion added on in 1968.

REMARKS-MARKET STRATEGY- BNFL controls 100% of domestic market for UF4
and UF6 production. UF4 is also supplied to Italy and Japan. Not
including U.S. market, BNFL UF6 production will control about
20% of the market at least into the 1980's.

NEW FACILITY PLANS- Expansion of UF6 production to 10,000 te/yr is
planned for 1980.

REFERENCES-

- 1-NAC; Intl Data collection and Analysis; Task 1, Vol V; 6/78
- 2-IAEA Bulletin; Vol XIX, No 5; 10/77

ACTIVITY--UK FUEL FABRICATION
CATEGORY--FUEL FABRICATION PLANTS

NUCLEAR FACILITY PROFILE
SRM 04 AUG 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	CODE
Springfields Fab. Plant	Preston	UM	2500 te (te/yr)	Oper	58	RUEH
LATITUDE- 53 DEG 46 MIN N		LONGITUDE- 02 DEG 42 MIN W				

TECHNOLOGY SOURCE-UKAEA (UK Atomic Energy Administration)	OWNER/OPERATOR-BNFL (British Nuclear Fuels Limited)
SUPPLY SOURCE-Springfields Conversion Plant	SAFEGUARDS-
PRODUCT/USE-U-metal (Magnox) fuel assemblies/power reactors	

FUEL STORAGE CAPACITY-

PROCESS-UF4 reduced with magnesium and formed into billets, cast into rods, then loaded into magnesium alloy (Magnox) cans

SCHEDULE-Currently in operation since 1958

REMARKS-PRODUCTION HISTORY- Before 1977, an estimated 16000 te of metal fuel was produced

MARKET STRATEGY- BNFL controls 100% of domestic metal fuel fabrication market and will continue to do so in the future. Only exports are to reactors at Latina (Italy) and Tokai-Mura (Japan)

REFERENCES-

1-NAC; Intl Data Collection and Analysis; Task 1, Vol V; 6/78

ACTIVITY--UK FUEL FABRICATION
 CATEGORY-FUEL FABRICATION PLANTS

NUCLEAR FACILITY PROFILE
 SRM 04 AUG 78

FACILITY NAME	LOCATION	FAC	FAC
Springfields Fab.	Preston	TYPE	CAPACITY STATUS YR CODE
Plant		UO	300 te Oper 72 RUEJ
			(te/yr)
LATITUDE-	53 DEG 46 MIN N	LONGITUDE-	2 DEG 42 MIN W

TECHNOLOGY SOURCE-UKAEA (UK)	OWNER/OPERATOR-BNFL (British
Atomic Energy Administration)	Nuclear Fuel Limited)
SUPPLY SOURCE-Springfields	SAFEGUARDS-
Conversion Plant	
PRODUCT/USE-U-oxide fuel assemblies/power reactors	

FUEL STORAGE CAPACITY-

PROCESS-Enriched UF6 converted to UO2 powder, pressed into pellets,
 and loaded into stainless steel or zirconium alloy cans
 SCHEDULE-Currently in operation since 1972

REMARKS-Capacity listed is for pellet production and is expandable to
 500 te/yr. Capacity of zircaloy clad fuel production is 100 te/yr.
 PRODUCTION HISTORY- Before 1977, an estimated 1300 te of oxide fuel
 was produced
 MARKET STRATEGY- BNFL controls 100% of domestic oxide fuel
 fabrication market and will continue to do so in the future. Only
 export is to reactor at Dodewaard (Netherlands).

REFERENCES-

1-NAC; Intl Data Collection and Analysis; Task 1, Vol V; 6/78

ACTIVITY--UK ENRICHMENT PLANTS
 CATEGORY--ENRICHMENT PLANTS

NUCLEAR FACILITY PROFILE
 SRM 19 JUL 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	FAC CODE
Pilot Plant	Capenhurst	CENT	15 KSWU	Oper	72	RUEK

LATITUDE- 53 DEG 16 MIN N LONGITUDE- 2 DEG 58 MIN W

TECHNOLOGY SOURCE-UK-British Nuclear Fuels Limited (BNFL) OWNER/OPERATOR-Urenco Limited/BNFL

SUPPLY SOURCE- SAFEGUARDS-NPT Safeguards Agreement

PRODUCT/USE-U235 enriched uranium/Reactor fuel fabrication

FUEL STORAGE CAPACITY-

PROCESS-Gaseous Centrifuge

SCHEDULE-Currently in operation as pilot facility-used for testing improving technologies

REMARKS-Urenco Limited-BNFL, Ultra Centrifuge Nederland NV(UCN), Uranit (Hoechst AG, Gelsenberg AG, NUKEM GmbH) are equal shareholders

PRODUCTION HISTORY-Urenco (comb. pilot plants) started delivery to member nations in September, 1975. Exact production unknown-estimate 50.0-100.0 KSWU produced by pilot plants up to 1978

CAPACITY LIMITATIONS-Limited to present size

NEW FACILITY PLANS-None

REFERENCES-

1-Nucl Eng Intl; Vol XXII, No 265; 12/77

2-Nucl Eng Intl; Vol XXI, No 250; 11/76

3-IAEA Bulletin; Vol XIX, No 5; 10/77

4-NAC; Intl Data Collection and Analysis; Task 1, Vol V; 6/78

5-Levin, S. A. and S. Blumkin; Enrichment Supply and Technology Outside the United States; 1/13/77

6-Benedict, M.; Enrichment: A Critical Status Report; American Nuclear Society Transactions; Vol XXV; 1977

ACTIVITY--UK FUEL FABRICATION
CATEGORY-FUEL FABRICATION PLANTS

NUCLEAR FACILITY PROFILE
SRM 04 AUG 78

FACILITY NAME	LOCATION	FAC	FAC
Windscale Mixed-Ox. Fuel Fab. Plant	Windscale	TYPE CAPACITY STATUS	YR CODE
		UPuO 10 te/y Oper	RUEM
LATITUDE- 54 DEG 38 MIN N		LONGITUDE- 3 DEG 30 MIN W	

TECHNOLOGY SOURCE-UKAEA (UK Atomic Energy Administration)
OWNER/OPERATOR-BNFL (British Nuclear Fuels Limited)
SUPPLY SOURCE-PuO2 powder from Windscale Reprocessing Plant
SAFEGUARDS-
PRODUCT/USE-U-Pu mixed-oxide fuel/thermal and fast-breeder reactors

FUEL STORAGE CAPACITY-

PROCESS-PuO2 and UO2 powders blended, pelletized, and loaded into rods to complete fuel assembly

SCHEDULE-Currently in operation since early 1960's

REMARKS-PRODUCTION HISTORY- Has produced 8-9 te of fuel through 1976
MARKET STRATEGY- BNFL controls 100% of domestic market- no exports

REFERENCES-

- 1-NAC; Intl Data Collection and Analysis; Task 1, Vol V; 6/78
- 2-Nucl Eng Intl; Vol XXI, No 250; 11/76

UK 43

ACTIVITY--UK RESEARCH & TEST REACTOR
CATEGORY-RESEARCH AND TEST REACTORS

NUCLEAR FACILITY PROFILE
DMK 05 SEP 78

FACILITY NAME LOCATION
Atazel Harwell

FAC FAC
TYPE CAPACITY STATUS YR CODE
LHRR .1 MWt Oper 64 RUEN

LATITUDE- 51 DEG 37 MIN N

LONGITUDE- 1 DEG 18 MIN W

TECHNOLOGY SOURCE-Bldr.: UKAEA

OWNER/OPERATOR-Owner: UKAEA

SUPPLY SOURCE-

SAFEGUARDS-

PRODUCT/USE-

FUEL STORAGE CAPACITY-

PROCESS-

SCHEDULE-In operation

REMARKS-

REFERENCES-

1-Intl Data Collection and Analysis, Vol V, NAC, June 1978

ACTIVITY--UK RESEARCH AND TEST REACTOR
 CATEGORY-RESEARCH AND TEST REACTORS

NUCLEAR FACILITY PROFILE
 DMK 05 SEP 78

FACILITY NAME	LOCATION	FAC	FAC
Queen Mary College	London	ARGO 10 Wt	RUEP
(Critical Assembly)	Queen Mary College		
LATITUDE- DEG MIN	LONGITUDE- DEG MIN		

TECHNOLOGY SOURCE-See remarks OWNER/OPERATOR-Queen Mary College

SUPPLY SOURCE- SAFEGUARDS-

PRODUCT/USE-Neutron physics, training

FUEL STORAGE CAPACITY-

PROCESS-Argonaut (UTR) type, highly enriched (90%) uranium, light
 water moderated and cooled, graphite reflected
 SCHEDULE-

REMARKS-Designer & builder: Advanced Technology Lab., Div. of American
 Radiator and Standard Sanitary Corp. and Queen Mary College.
 This reactor is similar to the Virginia Polytechnic Institute
 UTR-10 Reactor.
 Neutron flux: Thermal max $(10 \text{ E } 8) \text{ n}/(\text{cm E } 2) \text{ sec}$; Fast max $3.5 \times$
 $(10 \text{ E } 8) \text{ n}/(\text{cm E } 2) \text{ sec}$

REFERENCES-

1-Directory of Nuclear Reactors, Vol V, IAEA, 1964, p. 155

ACTIVITY--UK WASTE MANAGEMENT NUCLEAR FACILITY PROFILE
 CATEGORY-WASTE DISPOSAL FACILITIES SRM 18 APR 79

FACILITY NAME	LOCATION	FAC	FAC
Windscale Works	Windscale	TYPE CAPACITY STATUS YR CODE	PREP Oper 73 RUEQ

LATITUDE- 54 DEG 38 MIN N LONGITUDE- 3 DEG 30 MIN W

TECHNOLOGY SOURCE-UKAEA, BNFL OWNER/OPERATOR-BNFL (British Nuclear Fuels Limited)

SUPPLY SOURCE-Windscale SAFEGUARDS-

Reprocessing Plant
 PRODUCT/USE-Treated waste/disposal

FUEL STORAGE CAPACITY-

PROCESS-Incineration of solid waste; vitrification of high-level liquid waste

SCHEDULE-Incineration at 5 kg/hr since 1973; vitrification under construction for startup in 1979 at 1 l/hr

REMARKS-

Incineration process- 1000 degrees C, electrically heated
 Vitrification process - rising level glass vitrification using Harvest process; hot pilot plant will test process variations and varying waste compositions

REFERENCES-

- 1-Harmon, K.M.; Intl Source Book: A Compendium of Worldwide Programs in Nuclear Energy Supply and Radioactive Waste Management Research and Development; Vol IV; 1/78
- 2-ERDA; Alternatives for Managing Wastes from Reactors and Post-Fission Operations of the LWR Fuel Cycle; Vol II; 5/76

ACTIVITY--UK WASTE MANAGEMENT
CATEGORY-WASTE DISPOSAL FACILITIES

NUCLEAR FACILITY PROFILE
SRM 21 AUG 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	FAC CODE
	Windscale	PREP		Plan	86	RUER

LATITUDE- 54 DEG 38 MIN N

LONGITUDE- 3 DEG 30 MIN W

TECHNOLOGY SOURCE-UKAEA, BNFL

OWNER/OPERATOR-BNFL (British
Nuclear Fuels Limited)

SUPPLY SOURCE-Windscale

SAFEGUARDS-

Reprocessing Plant

PRODUCT/USE-Vitrified high-level liquid metal/disposal

FUEL STORAGE CAPACITY-

PROCESS-Rising level glass vitrification

SCHEDULE-Planned for operation in 1986; construction to start in 1982

REMARKS-Demonstration plant to be used for active glass production
and as a basis for design and construction of industrial-scale
plants in the future

REFERENCES-

- 1-Harmon, K.M.; Intl Source Book: A Compendium of Worldwide Programs
in Nuclear Energy Supply and Radioactive Waste Management Research
and Development; Vol IV; 1/78

UK 47

ACTIVITY--UK WASTE MANAGEMENT
CATEGORY--WASTE DISPOSAL FACILITIES

NUCLEAR FACILITY PROFILE
SRM 21 AUG 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	CODE
	Windscale	PREP		Constr	80	RUES

LATITUDE- 54 DEG 38 MIN N

LONGITUDE- 3 DEG 30 MIN W

TECHNOLOGY SOURCE--UKAEA, BNFL

OWNER/OPERATOR--BNFL (British
Nuclear Fuels Limited)

SUPPLY SOURCE-

SAFEGUARDS-

PRODUCT/USE--Non-radioactive vitrified liquid

FUEL STORAGE CAPACITY-

PROCESS--Development of mechanical handling techniques and equipment
under plant-like conditions

SCHEDULE--Non-radioactive prototype plant to be in operation in 1980.
Construction started in 1977

REMARKS-

REFERENCES-

- 1-Harmon, K.M.; Intl Source Book: A Compendium of Worldwide Programs
in Nuclear Energy Supply and Radioactive Waste Management Research
and Development; Vol IV; 1/78

UK 48

ACTIVITY--UK WASTE MANAGEMENT
CATEGORY--WASTE DISPOSAL FACILITIES

NUCLEAR FACILITY PROFILE
SRM 21 AUG 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR CODE
Glass Examination Facility	Windscale	PREP		Constr 78	RUET
LATITUDE- 54 DEG 38 MIN N		LONGITUDE- 3 DEG 30 MIN W			

TECHNOLOGY SOURCE--UKAEA, BNFL

OWNER/OPERATOR--BNFL (British
Nuclear Fuels Limited)

SUPPLY SOURCE--HARVEST hot
pilot plant

SAFEGUARDS-

PRODUCT/USE-

FUEL STORAGE CAPACITY-

PROCESS--Evaluation of vitrified waste produced at Windscale HARVEST
hot pilot plant

SCHEDULE--Currently under construction for operation in 1978

REMARKS--Hot cells for examination of vitrified waste to determine
parameters pertinent to storage and ultimate disposal

REFERENCES-

- 1-Harmon, K.M.; Intl Source Book: A Compendium of Worldwide Programs
in Nuclear Energy Supply and Radioactive Waste Management Research
and Development; Vol IV; 1/78

ACTIVITY--UK WASTE MANAGEMENT
 CATEGORY-WASTE DISPOSAL FACILITIES

NUCLEAR FACILITY PROFILE
 SRM 18 AUG 78

FACILITY NAME	LOCATION	FAC	FAC
	Dounreay	TYPE CAPACITY STATUS YR CODE	
	(Reay)	PREP 30 1/hr Plan	RUEU

LATITUDE- 58 DEG 33 MIN N

LONGITUDE- 3 DEG 47 MIN W

TECHNOLOGY SOURCE-UKAEA

OWNER/OPERATOR-DERE (Dounreay Exp.
 Reactor Est.)

SUPPLY SOURCE-Dounreay II
 Reprocessing Plant
 PRODUCT/USE-

SAFEGUARDS-

FUEL STORAGE CAPACITY-

PROCESS-Survey is currently being made to determine optimum
 solidification process

SCHEDULE-Planned for operation in late 1980's

REMARKS-Used to prepare reprocessed Dounreay fast reactor fuel for
 disposal.

REFERENCES-

- 1-Harmon, K.M.; Intl Source Book: A Compendium of Worldwide Programs
 in Nuclear Energy Supply and Radioactive Waste Management Research
 and Development; Vol IV; 1/78

ACTIVITY--UK WASTE MANAGEMENT
CATEGORY-WASTE DISPOSAL FACILITIES

NUCLEAR FACILITY PROFILE
SRM 18 APR 79

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	FAC CODE
	Harwell	PREP		Oper	62	RUEV

LATITUDE- 51 DEG 37 MIN N

LONGITUDE- 1 DEG 18 MIN W

TECHNOLOGY SOURCE-UKAEA, AERE-
Harwell

OWNER/OPERATOR-AERE (Atomic Energy
Research Establishment, Harwell)

SUPPLY SOURCE-Windscale
Reprocessing Plant

SAFEGUARDS-

PRODUCT/USE-Treated waste/disposal

FUEL STORAGE CAPACITY-

PROCESS-Vitrification of non-radioactive liquid and high-level liquid
waste, bitumenization and incineration of non-high-level waste

SCHEDULE-Incineration at 27 kg/hr since 1962; bitumenization inactive;

FINGAL vitrification inactive; HARVEST vitrification since 1975

REMARKS-

Incineration process- dual chamber, 800 degrees C

Bitumenization process- stirred-evaporator batch process, initial
operation in 1968

FINGAL vitrification process- rising level glass vitrification, shut
down in 1966 after completing 72 runs of which 8 involved fully
active waste, used as pilot for development of HARVEST process

HARVEST vitrification process- rising level glass vitrification,
non-radioactive pilot can produce up to 240 kg of glass per run,
used for testing several methods of vitrification and different
glass compositions

REFERENCES-

1-ERDA; Alternatives for Managing Wastes from Reactors and Post-
Fission Operations of the LWR Fuel Cycle; Vol II; 5/76

2-Harmon, K.M.; Intl Source Book: A Compendium of Worldwide Programs
in Nuclear Energy Supply and Radioactive Waste Management Research
and Development; Vol IV; 1/78

UK 51

ACTIVITY--UK WASTE MANAGEMENT
CATEGORY-WASTE DISPOSAL FACILITIES

NUCLEAR FACILITY PROFILE
SRM 22 AUG 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	FAC CODE
Bradwell Power Stat.	Bradwell	PREP		Oper	67	RUEW

LATITUDE- 51 DEG 44 MIN N

LONGITUDE- 0 DEG 54 MIN E

TECHNOLOGY SOURCE-

OWNER/OPERATOR-

SUPPLY SOURCE-

SAFEGUARDS-

PRODUCT/USE-

FUEL STORAGE CAPACITY-

PROCESS-Incineration of low-level wastes; rocking grate, afterburner

SCHEDULE-Currently in operation since 1967

REMARKS-

REFERENCES-

- 1-ERDA; Alternatives for Managing Wastes from Reactors and Post-Fission Operations of the LWR Fuel Cycle; Vol II; 5/76

UK 52

ACTIVITY--UK WASTE MANAGEMENT
CATEGORY--WASTE DISPOSAL FACILITIES

NUCLEAR FACILITY PROFILE
SRM 22 AUG 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	FAC CODE
Berkeley Nucl Lab	Berkeley	PREP		Oper	65	RUEX

LATITUDE- 51 DEG 42 MIN N

LONGITUDE- 2 DEG 27 MIN W

TECHNOLOGY SOURCE-

OWNER/OPERATOR-

SUPPLY SOURCE-

SAFEGUARDS-

PRODUCT/USE-

FUEL STORAGE CAPACITY-

PROCESS-Incineration of low-level wastes

SCHEDULE-Currently in operation since 1965

REMARKS-

REFERENCES-

- 1-ERDA; Alternatives for Managing Wastes from Reactors and Post-Fission Operations of the LWR Fuel Cycle; Vol II; 5/76

UK 53

ACTIVITY--UK SPENT FUEL PROCESSING NUCLEAR FACILITY PROFILE
CATEGORY--SEPERATE FUEL STORAGE FACILITIES SRM 21 AUG 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	CODE
	Windscale	POOL		Oper		RUEY

LATITUDE- 54 DEG 38 MIN N LONGITUDE- 3 DEG 30 MIN W

TECHNOLOGY SOURCE--UKAEA, BNFL OWNER/OPERATOR--BNFL (British
Nuclear Fuels Limited)

SUPPLY SOURCE-- SAFEGUARDS--

PRODUCT/USE--

FUEL STORAGE CAPACITY--

PROCESS--Pool-type storage of Magnox and Zircaloy cladding encased in
concrete silos

SCHEDULE--Currently in operation

REMARKS--Stored cladding will eventually require treatment

REFERENCES--

- 1-Harmon, K.M.; Intl Source Book: A Compendium of Worldwide Programs
in Nuclear Energy Supply and Radioactive Waste Management Research
and Development; Vol IV; 1/78

UK 54

ACTIVITY--UK RESOURCE RECOVERY
CATEGORY-MINES (URANIUM & THORIUM)

NUCLEAR FACILITY PROFILE
PSM 08 SEP 78

FACILITY NAME LOCATION
Stromness Orkney

FAC	FAC
TYPE	CAPACITY
URAN	STATUS
	YR
	CODE
	RUEZ

LATITUDE- 59 DEG MIN N

LONGITUDE- 03 DEG MIN W

TECHNOLOGY SOURCE-

OWNER/OPERATOR-

SUPPLY SOURCE-

SAFEGUARDS-

PRODUCT/USE-Uranium

FUEL STORAGE CAPACITY-

PROCESS-

SCHEDULE-

REMARKS-

REFERENCES-

1-Uranium Resources, Production and Demand, IAEA, 12/77, p. 111

UK 55

ACTIVITY--UK RESOURCE RECOVERY
CATEGORY-MINES (URANIUM & THORIUM)

NUCLEAR FACILITY PROFILE
PSM 08 SEP 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	FAC CODE
	Cornwall	URAN		Explor		RUFA

LATITUDE- 50 DEG 07 MIN N

LONGITUDE- 05 DEG 44 MIN W

TECHNOLOGY SOURCE-

OWNER/OPERATOR-

SUPPLY SOURCE-

SAFEGUARDS-

PRODUCT/USE-Uranium

FUEL STORAGE CAPACITY-

PROCESS-

SCHEDULE-

REMARKS-

REFERENCES-

1-Uranium Resources, Production and Demand, IAEA, 12/77, p. 111

UK 56

ACTIVITY--UK WASTE MANAGEMENT
CATEGORY--WASTE DISPOSAL FACILITIES

NUCLEAR FACILITY PROFILE
SRM 22 AUG 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	FAC CODE
Hunterston A Power Station	Hunterston	PREP		Oper	67	RUFB
LATITUDE-	DEG MIN	LONGITUDE-	DEG MIN			

TECHNOLOGY SOURCE-

OWNER/OPERATOR-

SUPPLY SOURCE-

SAFEGUARDS-

PRODUCT/USE-

FUEL STORAGE CAPACITY-

PROCESS-Incineration of low-level wastes

SCHEDULE-Currently in operation since 1967

REMARKS-

REFERENCES-

- 1-ERDA; Alternatives for Managing Wastes from Reactors and Post-Fission Operations of the LWR Fuel Cycle; Vol II; 5/76

VE 1

ACTIVITY--VENEZUELA RESEARCH AND TEST REACTOR NUCLEAR FACILITY PROFILE
CATEGORY-RESEARCH AND TEST REACTORS DMK 30 SEP 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR CODE
RV-1	Alt. De Ripe,	POOL 3 MWt		Oper	60 RVEA
Reactor Venezuela-1	Caracas				

LATITUDE- 10 DEG 35 MIN N LONGITUDE- 66 DEG 56 MIN W

TECHNOLOGY SOURCE-Design: GE Co & OWNER/OPERATOR-Instituto Venezolano
Gen. Nuclear; Builder:See remarks de Investigaciones Cientificas
SUPPLY SOURCE- SAFEGUARDS-IAEA (Non-NPT)

PRODUCT/USE-Training, isotope production, medical and biological
research
FUEL STORAGE CAPACITY-

PROCESS-Pool-type, highly enriched (20%) uranium, light water
moderated and cooled, graphite reflected
SCHEDULE-Reactor critical: Dec 1959; Full power: April 1960

REMARKS-Construction: Shaw Metz & Dolio (management); Gen. Elec. Co:
Reactor Comp. & fuel elements; Wannoni & Lacayo (bldg. &
installations)
Normal fresh fuel loading: 3.7 kg U-235. Total fuel inventory:
4.8 kg U-235. Expected avg. burnup before reprocessing: 1%. Method
of refueling: Two operators, one with an element grapple, the other
with a hook grapple, will carry the element to the storage rack in
the storage pool through the transfer channel.

REFERENCES-

- 1-Directory of Nuclear Reactors, Vol II, IAEA, p. 61, 1959
- 2-Nuclear Reactor Plant Data, Vol II, The Amer. Soc. of Mech.
Engineers, p. 295, 1959
- 3-Intl. Atomic Energy Agency Bulletin, Vol XIX, No 5, Oct. 1977

VN 1

ACTIVITY--VIETNAM RESEARCH AND TEST REACTOR NUCLEAR FACILITY PROFILE
CATEGORY-RESEARCH AND TEST REACTORS DMK 30 SEP 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	FAC YR CODE
Triga Mark II Reactor	Dalat	SHRR	250 Kwt	Oper	63 RVNA

LATITUDE- 11 DEG 56 MIN N LONGITUDE-108 DEG 25 MIN E

TECHNOLOGY SOURCE-Dsgn & Bldr: OWNER/OPERATOR-AEC/Dalat Nuclear
Gen Atomic Div of Gen Dynamics Research Center

SUPPLY SOURCE-USSR (fuel supply) SAFEGUARDS-
India (technical assistance)

PRODUCT/USE-Research in neutron physics, isotope production

FUEL STORAGE CAPACITY-

PROCESS-Solid homogeneous, highly enriched (20%) uranium, zirconium
hydride&light water moderated,light water cooled,graphite reflected
SCHEDULE-Reactor critical: Feb 1963. Now shutdown; to be reactivated
1978

REMARKS-Nucleonics Week claims capacity is 100 Kwt

Reactor name: Viet-nameese Triga Mark II Reactor

Core loading: 2.404 Kg U-235

REFERENCES-

1-Directory of Nuclear Reactors, Vol VI, IAEA, 1966, p. 141

2-Nucleonics Week, June 1, 1978, p. 5

YO 1

ACTIVITY--YUGOSLAVIA RSCH & TEST REACTOR
CATEGORY-RESEARCH AND TEST REACTORS

NUCLEAR FACILITY PROFILE
DMK 30 SEP 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR CODE
RA	Belgrade	TK-H	6.5 MWt	Oper	59 RYUD
See remarks Boris Kidric Inst.					
LATITUDE- 44 DEG 50 MIN N		LONGITUDE- 20 DEG 30 MIN E			

TECHNOLOGY SOURCE-Design & fab of main components by USSR
OWNER/OPERATOR-Boris Kidric Inst of Nuclear Science, Vinca
SUPPLY SOURCE- SAFEGUARDS-

PRODUCT/USE-Research in nuclear physics, reactor and solid state physics, radiation chemistry, biology, isotope production
FUEL STORAGE CAPACITY-Irradiated fuel stored in water filled pool

PROCESS-Tank-type, enriched (2%) uranium, heavy water moderated and cooled, graphite reflected

SCHEDULE-In operation; start of construction: 1956; reactor critical: Oct. 1959

REMARKS-Reactor name: Heavy Water Research Reactor RA

Constructor: Yugoslav enterprises

Burnup: Av. 3600 MWd/t

Fuel loading & unloading: Remote controlled loading gear.

Neutron flux: Thermal av $3 \times (10 \text{ E } 13) \text{ n}/(\text{cm E } 2) \text{ sec}$; Thermal max $6 \times (10 \text{ E } 13) \text{ n}/(\text{cm E } 2) \text{ sec}$; Fast max $2 \times (10 \text{ E } 12) \text{ n}/(\text{cm e } 2) \text{ sec}$ in moderator exp. holes, $1.6 \times (10 \text{ E } 13) \text{ n}/(\text{cm E } 2) \text{ sec}$ in fuel exp. holes.

Critical mass: 2.68 Kg U-235. Core loading at rated power: 340 Kg of 2% enriched uranium. Av. specific power in fuel: 19.1 KW/Kg of 2% enriched uranium. Av. power density in core: 3.7 KW/litre

REFERENCES-

1-Directory of Nuclear Reactors, Vol V, IAEA, 1964, p. 217

2-Intl Data Collection and Analysis, Vol V, NAC, June 1978

YO 2

ACTIVITY--YUGOSLAVIA RSCH & TEST REACTOR NUCLEAR FACILITY PROFILE
CATEGORY-RESEARCH AND TEST REACTORS DMK 30 SEP 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR CODE
RB	Vinca	TK-H	Neglig	Oper	58 RYUG
See remarks near Belgrade					
LATITUDE-	DEG	MIN	LONGITUDE-	DEG	MIN

TECHNOLOGY SOURCE-Design & bldr.: OWNER/OPERATOR-Institute of Nuclear
Dr. D. Popovic Sciences, Belgrade
SUPPLY SOURCE- SAFEGUARDS-

PRODUCT/USE-Reactor physics, critical experiments, lattice experiments
training.

FUEL STORAGE CAPACITY-

PROCESS-Tank-type, natural uranium, heavy water moderated, bare, not
cooled

SCHEDULE-In operation; reactor critical: April 1958

REMARKS-RB= Bare Critical Assembly
Critical mass: 3420 Kg natural uranium

REFERENCES-

1-Directory of Nuclear Reactors, Vol VIII, IAEA, 1970, p. 171

ACTIVITY--YUGOSLAVIA RSCH & TEST REACTOR NUCLEAR FACILITY PROFILE
 CATEGORY-RESEARCH AND TEST REACTORS DMK 30 SEP 78

FACILITY NAME	LOCATION	FAC	FAC
Triga-II-Ljubljana	Ljubljana	TYPE CAPACITY STATUS	YR CODE
(Triga Mark II)		SHRR .25 MWt Oper	65 RYUH
LATITUDE- 46 DEG 04 MIN N	LONGITUDE- 14 DEG 30 MIN E		

TECHNOLOGY SOURCE-Gen. Atomics OWNER/OPERATOR-Nuclear Institute
 Div of Gen Dynamics Corp. "Josef Stefan"
 SUPPLY SOURCE- SAFEGUARDS-

PRODUCT/USE-Neutron physics, solid state physics, reactor physics,
 chemistry, isotope production, educational purposes
 FUEL STORAGE CAPACITY-

PROCESS-Solid homogeneous, enriched (20%) uranium, zirconium hydride
 and light water moderated, graphite reflected
 SCHEDULE-In operation; reactor critical: Early 1965

REMARKS-This reactor is of the Triga Mark II type and is identical in
 its main parts with the Triga Research Reactor at John Jay Hopkins
 Lab., San Diego, Cal.
 Core loading: Approx. 2.3 Kg U-235

REFERENCES-

- 1-Directory of Nuclear Reactors, Vol V, IAEA, 1964, p. 179
- 2-Intl Data Collection and Analysis, Vol V, NAC, June 1978

YO 4

ACTIVITY--YUGOSLAVIA RESOURCE RECOVERY
CATEGORY-MINES (URANIUM & THORIUM)

NUCLEAR FACILITY PROFILE
PSM 08 SEP 78

FACILITY NAME LOCATION
Zirovski Vrh
Slovenia

FAC FAC
TYPE CAPACITY STATUS YR CODE
URAN 255 te/y Constr 82 RYUP

LATITUDE- 45 DEG MIN N LONGITUDE- 15 DEG MIN E

TECHNOLOGY SOURCE-

OWNER/OPERATOR-Government

SUPPLY SOURCE-

SAFEGUARDS-

PRODUCT/USE-Uranium

FUEL STORAGE CAPACITY-

PROCESS-

SCHEDULE-

REMARKS-

REFERENCES-

- 1-Uranium Resources, Production and Demand, IAEA, 12/77, p. 122
- 2-Foreign Uranium Supply, EPRI EA-725, 4/78, pp. 5-20
- 3-Minerals Yearbook, US Bureau of Mines, 1974, Vol III, p. 1036
- 4-International Data Collection and Analysis, NAC, 6/78, Task 1,
Vol V, Yugoslavia, p. 12

YO 5

ACTIVITY--YUGOSLAVIA SPENT FUEL PROCESSING NUCLEAR FACILITY PROFILE
CATEGORY--FUEL REPROCESSING FACILITIES SRM 26 JUL 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	FAC CODE
Boris Kidric Metal Institute	Belgrade	UM	(small)	Oper		RYUU
LATITUDE- 44 DEG 50 MIN N		LONGITUDE- 20 DEG 30 MIN E				

TECHNOLOGY SOURCE-

OWNER/OPERATOR-

SUPPLY SOURCE-

SAFEGUARDS-IAEA Safeguards
Agreement

PRODUCT/USE-

FUEL STORAGE CAPACITY-

PROCESS-U-metal reprocessing

SCHEDULE-Small lab scale operation

REMARKS-

REFERENCES-

- 1-Chayes, Abram and W. Bennett Lewis; International Arrangements for Nuclear Fuel Reprocessing; 1977
- 2-Nonproliferation Issues; Hearings, Subcommittee on Arms Control, Subcommittee on Foreign Affairs; U.S. Senate, 94th Congress; Published 1977

ACTIVITY--ZAIRE RESEARCH AND TEST REACTOR NUCLEAR FACILITY PROFILE
 CATEGORY-RESEARCH AND TEST REACTORS DMK 30 SEP 78

FACILITY NAME	LOCATION	FAC	FAC
Bel Congo Triga Reac	Kinshasa	SHRR 10 Kw	Oper 59 RCGC

LATITUDE-	DEG	MIN	LONGITUDE-	DEG	MIN
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TECHNOLOGY SOURCE-Design/Bldr: Gen OWNER/OPERATOR-Govt Gen Du Congo
 Atomic Div of Gen Dynamics Corp Belge & Du Ruanda Urundi
 SUPPLY SOURCE- SAFEGUARDS-

PRODUCT/USE-Neutron & solid state phy., engineering tests, medicine,
 chem., isotope production, educational purposes
 FUEL STORAGE CAPACITY-

PROCESS-Solid homogeneous, highly enriched (20%) uranium, zirconium hy-
 dride & light water moderated, light water cooled, graphite reflected
 SCHEDULE-Start of construction: June 1958; Reactor critical at Geneva:
 Aug. 1958; Reactor critical at Leopoldville: June 1959

REMARKS-Operated by University of Lovanium. This reactor is identical
 with the Triga Rsch Reactor, John Jay Hopkins Lab., California
 (prototype). It was first installed and operated for 2nd U.N. Intl
 Conf on Peaceful Uses of Atomic Energy, Geneva; Later dismantled
 and installed at U. of Lovanium

REFERENCES-

1-Directory of Nuclear Reactors, Vol II, IAEA, 1959, p. 231

CG 2

ACTIVITY--ZAIRE RESOURCE RECOVERY
CATEGORY-MINES (URANIUM & THORIUM)

NUCLEAR FACILITY PROFILE
PSM 31 JUL 78

FACILITY NAME LOCATION
Shinkolobwe

FAC FAC
TYPE CAPACITY STATUS YR CODE
URAN 1000te/y Inactv 60 RCGD

LATITUDE- 11 DEG 10 MIN S

LONGITUDE- 26 DEG 40 MIN E

TECHNOLOGY SOURCE-

OWNER/OPERATOR-Union Miniere du
Huat Katanga

SUPPLY SOURCE-

SAFEGUARDS-

PRODUCT/USE-Uranium

FUEL STORAGE CAPACITY--

PROCESS-

SCHEDULE-Ore exhausted and mine closed in early 1960

REMARKS-

REFERENCES-

- 1-Minerals Yearbook, 1950, US Dept. of Interior, Bureau of Mines,
p. 1270
- 2-Minerals Yearbook, US Bureau of Mines, 1960, p. 1173

ZA 1

ACTIVITY--ZAMBIA RESOURCE RECOVERY
CATEGORY-MINES (URANIUM & THORIUM)

NUCLEAR FACILITY PROFILE
PSM 28 JUL 78

FACILITY NAME	LOCATION	FAC TYPE	CAPACITY	STATUS	YR	FAC CODE
	Lake Kariba	URAN		Explor		RYAC

LATITUDE- 17 DEG MIN S LONGITUDE- 29 DEG MIN E

TECHNOLOGY SOURCE-

OWNER/OPERATOR-

SUPPLY SOURCE-

SAFEGUARDS-

PRODUCT/USE-Uranium

FUEL STORAGE CAPACITY-

PROCESS-

SCHEDULE-

REMARKS-Deposit is in Siavonga area.

REFERENCES-

1-Mining Magazine, July 1977, p. 67