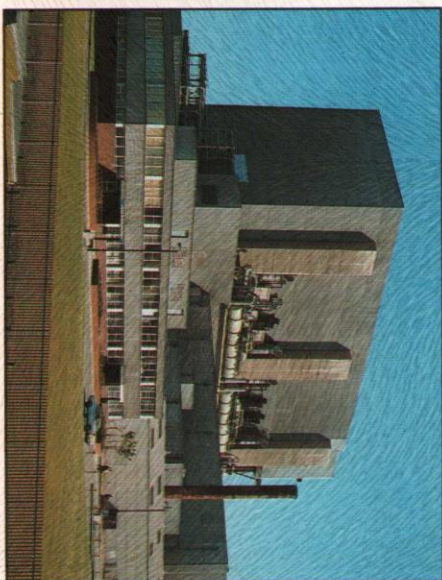
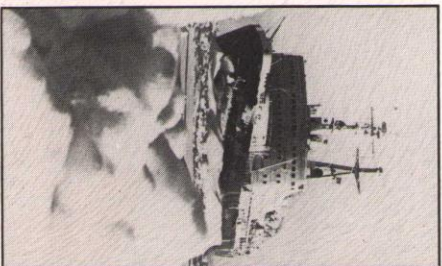
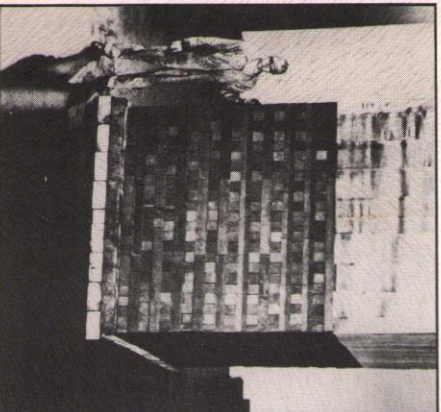


The Development of Atomic Energy 1939-1984

Chronology of Events



Front cover photographs, left to right
Experimental pile built to obtain
data for the design of the world's
first reactor in Chicago

Albert Einstein
Soviet nuclear powered
icebreaker 'Lennin'

The Queen opening the Joint
European Torus in April 1984
Hartlepool advanced gas-cooled
nuclear power station

The Development of Atomic Energy 1939 - 1984

Chronology of Events

Introduction

The past half century has been one of great change in our society. Technological advances – television, computers, man-made fibres, cheap air travel and the proliferation of cars – have revolutionised the way we live. One of these technologies is nuclear energy.

This chronology attempts to list the important dates in nuclear energy since 1938 and in particular to show British developments in this field. To give perspective, contemporary events are noted, but the "general" column is intended only to give a background for nuclear events.

Nuclear energy uses divide broadly into military and civil. In the public mind, the atomic age began in 1945 with the two bombs at Hiroshima and Nagasaki which ended World War II. The years that followed saw not only the growth of nuclear and thermonuclear weapons but much patient negotiation to reach agreements to end weapon testing in the atmosphere and to control the spread of weapons.

After the war nuclear reactors of many types were developed for civil as well as military purposes. Today more than 20 countries use nuclear power stations (with over 300 reactors) to produce electricity. In addition some 600 marine reactors power submarines and specialised ships, like icebreakers, where great endurance is important.

Though the chronology contains few references to radioisotopes, their production and sale has been a post-war success story. They have given rise to a multi-million pound industry, and their uses are diverse – checking the security of the oil rig platforms, tracing chemicals within the human body, measuring the thickness of materials, and dating historical and archaeological relics, to mention only a few.

Preface to the Second Edition

The atomic energy chronology first appeared in 1978. This edition has been produced to coincide with the thirtieth anniversary of the formation of the United Kingdom Atomic Energy Authority.

The first edition grew out of a chronological table in 'Independence and Deterrence: Britain and Atomic Energy 1945-52' by Margaret Gowing (UKAEA official historian and Professor of the History of Science in Oxford University). The table was extended backwards to 1939 and forwards to 1978. Sources used were the official UKAEA¹ and USAEC² histories and other published material – Government White Papers and Parliamentary papers, Hansard, Encyclopaedia Britannica Year Books, Keesings Contemporary Archives,³ 'Chronology of the Modern World' (Neville Williams),³ Atom, UKAEA annual reports, and various journals, particularly Nuclear Engineering International.

The present edition has been updated to April 1984 by the Authority Historian's Office, and now includes a pictorial montage of some of the people and events mentioned in the text and a map showing nuclear establishments in Britain.

Changes in Ministerial responsibility for atomic energy are shown in Appendix I, and Appendix II lists members of the Atomic Energy Authority from 1954 to the present date.

1. Gowing: 'Britain and Atomic Energy 1939-1945' (Macmillan 1964).
Gowing: 'Independence and Deterrence – Britain and Atomic Energy 1945-1952' (Macmillan 1974).
2. Hewlett and Anderson: 'The New World' (1962: Reprinted 1972 by USAEC as WASH 1214).
Hewlett and Duncan: 'Atomic Shield' (1969: Reprinted 1972 by USAEC as WASH 1215).
3. Penguin Books 1975.

Picture credits

All UKAEA except Cover L to R
Argonne National Lab, dpa-Bild,
Novosti Press Agency, JET Joint
Undertaking, NNC, 1, P. A.
Reuter, 3, IAEA-Pfeifer, 4,
Imperial War Museum, 6,
Francis Martin, 8, Argonne
National Laboratory, 9, Daily
Telegraph, 21, Eric
Thorburn/SSEB, 24, Amersham
International, 25, BNF.L.

1938			
Dec		In Berlin, Hahn and Strassman discover nuclear fission by bombarding uranium with neutrons	
1939			
Aug		Einstein and Szilard write to President Roosevelt drawing attention to the possibility of an atomic bomb and the need for research to forestall Germany	
Sep	Germany invades Poland		
	Britain, Australia, New Zealand and France declare war on Germany		
	Russia invades Poland and Finland		
1940			
Feb/ Mar			Peierls/Frisch Memorandum "On the properties of a radioactive super-bomb"
Apr	Germany invades Norway and Denmark		Sub-Committee on Uranium Bomb (later called the "Maud" Committee*) set up under Professor Sir George Thomson's chairmanship (to report to the Committee for the Scientific Survey of Air Warfare)
May	Prime Minister Neville Chamberlain resigns and Winston Churchill forms National Government		Radioactive work (luminising materials) under private ownership begins by Thorium Ltd at Amersham, Bucks.
	Germany invades Holland, Luxembourg and Belgium		
	British Forces evacuated from Dunkirk (29 May-3 June)		
Jun	Italy declares war on France and Britain	The French physicists, Halban and Kowarski, arrive in Britain with the world's stock of heavy water	Maud Committee comes under Ministry of Aircraft Production
	German troops enter Paris		
	France concludes armistice with Germany		
	De Gaulle starts Free French movement		
Jul	Royal Navy sinks French fleet in Oran, North Africa		
	RAF begins night bombing of Germany		

* Maud was a code name

Aug	Battle of Britain (8 Aug-6 Sep)		French physicists start work at the Cavendish Laboratory at Cambridge
Sep	London Blitz (7 Sep-31 Oct)		Scientific mission to Washington led by Sir Henry Tizard: information on atomic research given to USA
Oct	British troops land in Greece		Technical Sub-Committee of Maud Committee formed, with Frisch and Peierls as members
Nov	Franklin Roosevelt re-elected President of USA for third term		
Dec	British Eighth Army opens offensive in North Africa Anthony Eden becomes British Foreign Secretary		
1941			
Mar	US Lend-Lease Bill signed		
May	Stalin becomes premier of USSR		
Jun	Germany invades Russia		
Jul	Anglo-Russian agreement of mutual assistance signed in Moscow		Two Maud Committee reports ("Use of Uranium for a Bomb" and "Use of Uranium as a Source of Power") forwarded to Ministry of Aircraft Production
Aug	Churchill and Roosevelt meet in the Western Atlantic – Atlantic Charter signed		
Sep	Three-Power Conference in Moscow Siege of Leningrad begins (ends Jan 1944)		Scientific Advisory Committee's Report on Maud Reports sent to Sir John Anderson (Lord President of the Council in the War Cabinet)
Oct	Battle for Moscow (5 Oct-6 Dec)	Roosevelt writes to Churchill about US/UK co-operation on the atomic bomb	Directorate of Tube Alloys* set up under DSIR†, to work on the atomic project
Dec	Japanese Bomb Pearl Harbour Britain and US declare war on Japan US declares war on Germany and Italy Churchill visits Washington and Ottawa	Manhattan Project (atomic bomb research and development) begins in USA	Maud Committee formally disbanded

* A code name for atomic energy research and development

† Department of Scientific and Industrial Research

1942		
Feb	Singapore falls to Japanese attack	
May	First 1000-bomber raid on Cologne	
Jun		US Army takes over control of parts of atomic project Roosevelt approves plans for the expansion and continuation of the US atomic bomb programme
Jul	House of Commons debate on direction of war. Vote of censure defeated	
Aug	Churchill, Stalin and Averill Harriman (US) meet in Moscow	Sir John Anderson sends Dr. Bush (USA) proposals for the US/UK co-operation on Tube Alloys work
Sep	Anglo-Russian agreement on exchange of scientific information signed German forces enter Stalingrad	Dr. Bush replies to Sir John Anderson's letter accepting some subsidiary suggestions but not answering the main point (that a British pilot plant should be built in USA)
Oct	Eighth Army under General Montgomery begins battle of El Alamein	
Dec		Enrico Fermi in Chicago initiates a controlled chain-reaction in the world's first nuclear reactor (2 Dec) French team under Dr. Halban moves from Cavendish Laboratory to Montreal
1943		
Jan	Churchill and Roosevelt meet at Casablanca to discuss "grand strategy"	At Casablanca Churchill discusses Tube Alloys with Harry Hopkins (the President's personal aide) but to no immediate effect
May		Churchill and Roosevelt discuss Tube Alloys collaboration in Washington
Jul	Mussolini falls from power	
Aug	Churchill, Roosevelt and Mackenzie King (Canada) confer at Quebec on Allied strategy	Quebec Agreement (on US/UK collaboration on Tube Alloys) signed by Roosevelt and Churchill

Sep	Allied armies invade Italy Italy surrenders unconditionally		
Oct	Italy declares war on Germany	The great Danish physicist, Niels Bohr, escapes from Denmark to Britain — followed by his son Aage	
Nov	Churchill, Roosevelt and Chiang Kai-Shek agree at Cairo to measures for defeating Japan Churchill, Roosevelt and Stalin meet at Teheran to plan the overthrow of Germany		
Dec		Niels and Aage Bohr move to USA The first British scientists arrive in USA to join the Manhattan Project	
<hr/>			
1944			
Apr		John Cockcroft takes up position as Director of the Montreal Laboratory	
May		Niels Bohr has interview with Churchill about the implications of the atomic bomb	
Jun	Fifth Army enters Rome 'D-Day' landings in Normandy First flying-bomb (V1) dropped on London	Combined Development Trust (later Agency) is established by US, UK and Canada to procure uranium supplies	
Jul	Attempt by von Stauffenberg to assassinate Hitler		
Aug	Warsaw rising begins De Gaulle enters Paris in the wake of Allied troops	Niels Bohr's memorandum on the implications of the atomic bomb, possible international control etc. discussed with Roosevelt	
Sep	First V2 rocket lands in Britain Churchill and Roosevelt meet in Quebec US Army crosses German frontier	Agreement between Roosevelt and Churchill on use of atomic bomb and future US/UK collaboration in atomic energy (Hyde Park Agreement)	Technical Committee of Tube Alloys Consultative Committee urges need for British experimental establishment
Oct	Churchill visits Moscow		
Nov	Roosevelt wins US Presidential election for a fourth term		

1945

Jan Russian troops capture Warsaw

Feb Churchill, Roosevelt and Stalin meet at Yalta to plan Germany's unconditional surrender

Churchill tells Roosevelt, at Yalta, that Britain would want her own atomic energy project after the war

Mar Cologne captured

Bohr's second memorandum on the future of atomic energy

Last of 1050 V-rocket's falls on Britain

Apr President Roosevelt dies and is succeeded by Harry S. Truman

Russians reach Berlin

UK Government decision to undertake a broad programme of research and development in atomic energy – including the building of a research establishment

San Francisco Conference of United Nations begins

Mussolini killed by Italian partisans

Adolf Hitler dies in Berlin

May Surrender of German Army on Italian front

Berlin surrenders to Russian forces

General Jodl makes final capitulation of Germany to General Eisenhower near Rheims

VE Day. Von Keitel surrenders to Marshal Zhukov near Berlin

Jun United Nations Charter

Decision to use atomic bomb recorded in a minute of Combined Policy Committee. Initialed by Churchill

Memorandum of the Chicago scientists urging international control of atomic weapons and a technical demonstration only of the bomb

Jul Potsdam Conference with Stalin, Churchill, Truman and Attlee (to 2 August)

At Potsdam, Truman tells Stalin of new weapon of "unusual destructive force"

John Cockcroft offered post as director of new British research establishment

Labour landslide in UK general election: Clement Attlee becomes Prime Minister

First atomic bomb (*Trinity*) test in New Mexico (16 July)

Potsdam Proclamation gives solemn warning of complete and utter destruction if Japan does not surrender unconditionally

Aug USSR declares war on Japan

Atomic bomb dropped on Hiroshima (5 Aug)

White Paper "Statements Relating to the Atomic Bomb" published

Japan surrenders and ends Second World War

Atomic bomb dropped on Nagasaki (9 Aug)

	President Truman orders cessation of lend-lease	US Smyth Report ("Atomic Energy for Military Purposes") published	
	US forces land in Japan		
Sep	Japan signs capitulation	First Canadian research reactor goes critical. Work on NRX reactor begins	
	Allied Foreign Ministers meet in London and begin drafting peace settlement for Germany		
	Gouzenko defects from Soviet Military Attache's office in Ottawa and reveals spy ring		
Oct	Breakdown of negotiations between Chiang Kai-Shek and Mao Tse Tung leads to fighting between Nationalists and Communists in North China	French atomic energy organisation (CEA) announced	Decision on atomic energy research establishment (AERE) announced; also transfer of atomic energy to Ministry of Supply
	United Nations Organisation comes into being with ratification of charter by 29 nations		
Nov	De Gaulle elected President of French Provisional Government	Truman, Atlee and Mackenzie King (Canada) meet in Washington	
		Tripartite Washington Declaration on atomic energy	
Dec	Anglo-American Financial Agreement; USA lends Britain \$3.75 billion	Ministers approve one atomic pile for plutonium production	
	Council of Foreign Ministers in Moscow	Council of Foreign Ministers agree to propose a United Nations Atomic Energy Commission	
1946			
Jan	UN General Assembly's first session opens in London, with Paul Spaak of Belgium as President	UN General Assembly sets up UN Atomic Energy Commission	Chiefs of Staff report on Britain's atomic bomb requirements Decision to set up an atomic energy production organisation under Christopher Hinton announced. Lord Portal to be Controller of Production (Atomic Energy) John Cockcroft's appointment as Director of AERE announced William Penney appointed Chief Superintendent, Armament Research, in the Ministry of Supply
Feb			Atomic Energy Production Division set up at Risley, Lancs. Preliminary production plans drawn up
Mar	Churchill's Fulton speech on Anglo-American fraternal assistance against Soviet expansion		Arrest of atomic spy Alan Nunn May Uranium processing plant at Springfields, near Preston, Lancs, announced

Apr	Council of Foreign Ministers in Paris (25 April-15 May and 15 June-12 July)	US Bill on Atomic Energy presented by Senator McMahon Lilienthal Report (US) on international control of atomic energy Breakdown of Anglo-US-Canadian atomic co-operation at Combined Policy Committee meeting in Washington	Work begins on AERE site at Harwell, Berkshire
May			Atomic Energy Bill introduced
Jun		UN Atomic Energy Commission begins work; Baruch Plan (US) published US atomic weapons trials (<i>Cross Roads</i>) at Bikini Atoll in the Pacific (June/July); British scientists participate	Construction of BEPO (British Experimental Pile O) starts at Harwell
Jul	Canadian Commission reports on Soviet espionage Peace Conference of 21 nations that had opposed the Axis meets in Paris to draft peace treaties (29 July-15 October)		
Aug		US Atomic Energy Act (McMahon Act) becomes law. It virtually ends US/UK collaboration	Air Ministry requisition for atomic bomb sent to Ministry of Supply
Oct			The Radiochemical Centre at Amersham, Bucks, set up under public ownership Preliminary work on gaseous diffusion plant approved
Nov	Republicans win US Congressional elections	US Atomic Energy Commission set up to take over the atomic energy project from the Army	Atomic Energy Act passed
Dec	New York chosen as permanent UN headquarters	F1 experimental reactor in Moscow; first atomic reactor in Europe	
1947			
Jan	British coal mines nationalised General Marshall becomes US Secretary of State		Ministers decide on British atomic bomb
Feb	Peace treaties signed in Paris Fuel crisis in Britain (to April)		Prime Minister's directive on priority for atomic energy
Mar	Anglo-French 50-year alliance (Treaty of Dunkirk) Council of Foreign Ministers in Moscow (10 March-24 April)		

Apr			At Risley, long-term atomic energy design and construction programme produced by Hinton First Bill on Radioactive Substances (withdrawn)
May			Ministers approve plan for two air-cooled (instead of water-cooled) piles
Jun	Partition of India and Pakistan announced General Marshall's Harvard speech on the European Recovery Programme – ERP (Marshall Plan)	Negotiations with Portugal for uranium production begins	First meeting of atomic bomb staff under Penney
Jul	USSR rejects Marshall Plan		New atomic energy site at Windscale (Cumbria) announced
Aug	India and Pakistan become Dominions		First experimental pile at Harwell – GLEEP (Graphite Low Energy Experimental Pile) – goes critical
Sep	Marshall Plan accepted by sixteen nations Britain announces withdrawal from Palestine		Work begins on Windscale site First British radioisotopes delivered for hospital use
Oct	Cominform established in Belgrade		
Nov	Council of Foreign Ministers begins in London		
Dec	Council of Foreign Ministers adjourned sine die	Anglo-US-Canadian atomic co-operation – tripartite discussions in Washington	
1948			
Jan	Mahatma Gandhi assassinated	Modus vivendi concluded – tripartite agreement (US/UK/Canada) on atomic energy	First uranium cast at Springfields using Canadian material
Feb	Communist regime established in Czechoslovakia		
Mar	US Congress passes Marshall Aid Act, contributing \$5.3 billion for European recovery		
Apr	British electricity industry nationalised World Health Organisation (WHO) set up Organisation for European Economic Co-operation (OEEC)* set up	US nuclear tests (<i>Sandstone</i>) at Eniwetok in the Pacific – Apr/May	

* Now OECD

May		UN Atomic Energy Commission is wound up	British atomic bomb decision disclosed in the House of Commons Radioactive Substances Bill introduced in the House of Lords
Jun	Soviet blockade of Berlin begins		Radioactive Substances Act passed
Jul	Britain's National Health Service comes into operation US bombers based at British airfields		Second experimental reactor (BEPO) goes critical at Harwell First press visits to Harwell
Oct			First uranium cast at Springfields using metal from Congo ores processed at Springfields
Nov	President Truman re-elected as US President		Filters added to Windscale pile chimneys
Dec		French experimental pile ZOE goes critical	
1949			
Jan	Comecon (Council for Mutual Economic Aid) founded in Moscow		
Feb			Prime Minister's second priority directive on atomic energy Enlarged programme approved, with third pile and low separation gaseous diffusion plant
Apr	NATO (North Atlantic Treaty Organisation) set up		
May	Council of Europe established Berlin blockade is officially lifted Council of Foreign Ministers in Paris (23 May-20 June) German Federal Republic comes into being		
Jun			Completion of Harwell's "hot" laboratory announced
Jul		Agreement reached with Portugal on uranium exports US meeting at Blair House on Anglo-American atomic co-operation	
Aug		First Russian atomic weapon test	

Sep	The £ devalued	Detection of first Russian atomic weapon test announced by Truman	Prime Minister's third priority directive on atomic energy
	Communist regime proclaimed in Peking (People's Republic of China)	Washington talks on Anglo-US-Canadian atomic co-operation begin	
		UK Foreign Secretary Bevin, in speech to UN General Assembly, calls upon USSR to join in an effective system of international control of atomic energy	
		Tripartite scientific conference in Canada on permissible doses of radiation	
Oct	President Truman signs Mutual Defence Assistance Act for military aid to NATO countries		Graphite lattice for first Windscale pile finished
	GDR (People's Republic of Germany) established		
Nov			New atomic site at Capenhurst (Cheshire) announced: purpose — gaseous diffusion plant for uranium enrichment — not stated
			Atomic energy exhibition at Whitehaven, Cumberland
Dec		Tripartite talks in Washington continue	Work on third Windscale pile suspended
			Harwell cyclotron given first full trial
1950			
Jan	Britain recognises Communist China	Washington talks break down	Arrest of the Harwell spy, Klaus Fuchs
		American decision to develop an H-bomb	
Feb	US/UK agreement on guided missiles		
	30-year alliance between USSR and Communist China		
	UK General Election — Labour Government returned to power with much reduced majority		
Mar		Marshall Voroshilov states that USSR possesses the atomic bomb	Klaus Fuchs found guilty of betraying atomic secrets to USSR
Apr	British Chiefs of Staff global strategy review		Aldermaston site taken over for atomic weapons work
			The Radiochemical Centre comes under Harwell control

		Advisory Council for Scientific Policy makes recommendations to Ministers on nuclear power development
May	Announcement of Schuman Plan, for placing French and German coal industry and iron and steel production under a single authority Foreign Ministers of Britain, France and US confer in London on the future of Germany	
Jun	Korean War begins (to end in July 1953)	Windscale pipeline is laid
Jul		Experimental loading of first Windscale pile Graphite lattice for No. 2 pile completed
Aug		Second tripartite conference on permissible doses of radiation (held near Harwell)
Sep	Britain undertakes general rearmament programme	The British Chiefs of Staff ask for US bomb testing facilities Fin-clipping operation completed at Windscale Defection of Harwell scientist Bruno Pontecorvo First British nuclear power conference
Oct		Tripartite talks with Belgium in Washington: further agreement on Congo uranium US McMahon Act amended to permit rather more co-operation US bomb testing facilities for Britain refused
Nov		CDT Agreement with South Africa on uranium supplies
Dec	A-10c flies to Washington to see Truman about the Korean war and the bomb Marshall Aid to Britain ceases First production order placed for "Valiant" bombers	Windscale No. 1 pile operating at low power
1951		
Jan		Series of US nuclear tests (<i>Ranger</i>) in Nevada – Jan/Feb

Feb			British Chiefs of Staff agree on a shipborne atomic bomb trial at Monte Bello, off the north west coast of Australia, in late 1952
Mar	Ernest Bevin resigns as Foreign Secretary (and dies a month later). He is succeeded by Herbert Morrison		Isotope School set up at Harwell
Apr	France, West Germany, Italy, Belgium, the Netherlands and Luxembourg (the "Six") sign Paris Treaty embodying Schuman Plan – European Coal and Steel Community set up	Further US tests (<i>Greenhouse</i>) at Eniwetok – Apr/May	Chemical separation plant at Windscale completed Windscale No. 1 pile operating at normal power
May	British Foreign Office officials, McLean and Burgess, defect to USSR		
Jun			Windscale No. 2 pile goes critical Windscale's highly active storage plant commissioned First inactive run in chemical separation plant at Windscale
Jul		Dutch-Norwegian experimental pile near Oslo goes critical	Ministers approve high separation gaseous diffusion plant at Capenhurst Second inactive run in chemical separation plant
Aug		US proposals about weapon test facilities for Britain not accepted	
Sep	Peace treaty with Japan signed Foreign Ministers of Britain, France and US discuss plans to combat Soviet aggression and to use West German troops in NATO army		
Oct	UK General Election – Conservative Government formed under Winston Churchill	Soviet weapon tests held Series of US tests (<i>Buster-Jangle</i>) in Nevada – Oct/Nov	Windscale's No. 2 pile commissioned Responsibility for atomic energy shared jointly between Lord President of the Council (Lord Cherwell) and Minister of Supply (Duncan Sandys)
Nov	British Government's retrenchment campaign		
Dec		Revised South African agreement on uranium in Idaho, EBR1 is first reactor to generate electricity	First billet of pure metal produced at Harwell from Canadian plutonium

1952

Jan Churchill visits Truman for general discussions

British Chiefs of Staff review global strategy

Chemical separation plant at Windscale takes first irradiated slugs

Feb Statement on Defence 1952 (Cmnd 8475) published

King George VI dies and Queen Elizabeth II succeeds him

NATO conference at Lisbon

First consignment of uranium ore from Portugal

Plutonium separation plant commissioned at Windscale

Announcement of forthcoming atom bomb test *Hurricane*

First ships of *Hurricane* expedition sail

Mar Churchill issues priority directive on defence

Plutonium finishing plant commissioned at Windscale
First billet of metallic plutonium made at Windscale

Apr Britain declares she will sign a mutual defence treaty with the European Defence Community

Agreement with Australia on Radium Hill uranium
Further series of US tests (*Tumbler-Snapper*) in Nevada —
Apr/Jun

Dual purpose pile, for power and production of plutonium, under consideration (PIPPA)

May European Defence Community Treaty signed in Paris with reciprocal NATO-EDC guarantee

Hurricane assemblies completed

Jun London Conference of US, France and Britain on western foreign policy

Truman attends keel-laying of first atomic-powered submarine — USS *Nautilus*

Main *Hurricane* flotilla sails for Australia

Jul European Coal and Steel Community in being

Plutonium for bomb delivered to Aldermaston

Main *Hurricane* party reaches Monte Bello

Sep

Planned shut-down of No. 1 pile at Windscale: overheating from Wigner effect observed

Oct US tests (*Ivy*) at Eniwetok — Oct/Nov
First shot is thermonuclear device

Hurricane — first British atomic weapon test in the Monte Bello Islands, off NW Coast of Australia. One underwater explosion (3 Oct)

Nov US Presidential Election — Republican landslide as General Eisenhower elected

Dec Prime Minister Churchill announces cuts in defence expenditure

Commonwealth-Pacific defence proposals agreed between Prime Ministers of Australia, New Zealand and Great Britain

1953			
Jan	Churchill visits America and meets Eisenhower and Truman President Eisenhower takes office		
Feb	Statement on Defence 1953 (Cmnd 8768) published	Eisenhower announces US test at Eniwetok in November 1952 as the "first full-scale thermonuclear explosion in history"	
Mar	Joseph Stalin dies	US weapon test (<i>Upshot-Knothole</i>) in Nevada — Mar/Jun	
Apr			Low separation gaseous diffusion plant in full operation at Capenhurst Churchill announces to Parliament decision to transfer responsibility for atomic energy to non-departmental organisation, under government control; committee under Lord Waverley to work out details
May	Steel rationing (except for tin-plate) ended		
Jun	Rosenbergs (convicted of atomic espionage) executed in US	Biggest atomic bomb ever tested in US (61 kilotons) is exploded in Nevada	
Jul	Korean armistice agreement signed	Convention signed by 12 European countries provides for setting-up of a European Council for Nuclear Research (CERN) in Geneva (Cmnd 9007)	
Aug	Foreign Ministers of six member states of European Iron and Steel Community agree that a European political community should be set up	USSR declare that US has no monopoly of hydrogen bomb USSR announce their first hydrogen bomb test (a tower explosion)	Construction of Calder Hall
Sep	Kruschev elected as First Secretary of Communist Party of USSR	USSR announce successful trials of new types of atomic bombs	
Oct		NATO — US Army's first atomic cannon is sent to Europe	British atomic weapon test (<i>Totem</i>) at Emu Field, near Woomera, S. Australia (2 shots, on tower)
Nov			Waverley Report (Future Organisation of United Kingdom Atomic Energy Project) presented to Parliament (Cmnd 8986)
Dec	Eisenhower and Churchill at Bermuda Conference: communique emphasises NATO as foundation of western policy	Eisenhower proposes an international atomic energy agency which would receive contributions from national stockpiles of fissionable materials	

1954			
Jan	Four-power Foreign Ministers' Conference opens in Berlin	USA launches "Nautilus" – the world's first nuclear submarine (under nuclear power 1955) US Secretary of State Dulles proclaims US nuclear policy of "massive retaliation."	Control of atomic energy transferred from Ministry of Supply to the Department of Atomic Energy responsible to Lord President of the Council (SI 1673(1953))
Feb	Statement on Defence 1954 published (Cmnd 9075)	Further US test series (<i>Castle</i>) in the Pacific – Feb/May: 5 shots at Bikini, one at Eniwetok. The first shot, <i>Bravo</i> , an experimental thermonuclear device contaminates a Japanese fishing vessel, "Lucky Dragon", and neighbouring islands.	
Mar	USSR offers to join NATO		Philip Noel-Baker MP asks Foreign Secretary to propose suspension of nuclear tests to USA and USSR Announcement in House of Commons of construction of fast reactor at Dounreay Local Committee for Abolition of Nuclear Weapon Tests formed in North London (forerunner of Campaign for Nuclear Disarmament)
Apr	Malenkov elected premier of USSR	Dr. J. Robert Oppenheimer suspended from US Advisory Committee on Atomic Energy	Churchill discloses 1943 Quebec Agreement on atomic energy (Cmnd 9123)
May		USSR announce they will shortly have an inter-continental ballistic missile	
Jun	Churchill and Foreign Secretary Eden have talks in Washington and Ottawa UN Disarmament Conference opens in London	Anglo-French proposals for arms limitation and abolition of nuclear weapons (Cmnd 9204) First power reactor in USSR goes into operation at Obninsk near Moscow	Atomic Energy Authority Bill receives Royal Assent
Jul			Lord President directs that commercial production of power from nuclear energy is to be carried out by the electricity authorities
Aug	Eisenhower tells press that a "preventive" war was "completely unthinkable"		UKAEA comes into being under the provision of Atomic Energy Authority Act, 1954. First Chairman – Sir Edwin Plowden KCB KBE
Sep	Nine-power conference on European defence opens in London	World's first hydrogen bomb victim – a fisherman named Aikichi Kuboyama – dies in Tokyo Soviet weapon test series – Sep/Oct	AERE Reactor School opens

Oct	Nine European powers sign an agreement in Paris following decisions at London conference	First meeting of CERN held in Geneva	
Nov	Democrats gain control of both houses in US Congressional elections	Enrico Fermi dies	
1955			
Feb	Bulgaria becomes Prime Minister of USSR	USA release report on effects of fallout at Bikini New US weapon test series (<i>Teapot</i>) in Nevada – Feb/May. One shot was underground	A White Paper "A Programme of Nuclear Power" is presented to Parliament (Cmnd 9389), proposing 1500–2000 MW White Paper on Defence (Cmnd 9391) includes announcement of Government's decision to develop and produce thermonuclear weapons
Mar			Construction of fast breeder reactor commences at Dounreay
Apr	Sir Anthony Eden succeeds Sir Winston Churchill as Prime Minister Albert Einstein dies	Russia and China sign an Atomic Energy Co-operation Treaty, with Russia giving scientific and technological aid Eisenhower writes to Khrushchev proposing a nuclear test ban	
	Joint western proposals on principles of control of disarmament (Cmnd 9636, p31)		
May	Conservatives return to power at UK general election President Eisenhower announces US space rocket research programme West Germany is admitted as member of NATO	US weapon test (<i>Wigwam</i>) under water – 29°N, 126°W	British Nuclear Energy Conference set up as forum for scientists and engineers to discuss developments in technology of nuclear energy
Jun		US/UK bilateral agreement on co-operation regarding atomic information for mutual defence purposes (Cmnd 9508) US/UK civil bilateral agreement concluded, for co-operation on civil uses of atomic energy (Cmnd 9507) Eisenhower proposes financial and technical aid to all non-Communist countries to develop atomic energy	Decision announced to build six more reactors of Calder Hall type, to meet increased needs for military plutonium (two at Calder Hall and four at Chapelcross in Dumfriesshire)
Jul	Conference of Heads of Government of Britain, France, USA and USSR is held in Geneva Russell-Einstein Manifesto – Pugwash Movement originated	Eisenhower's "open skies" aerial inspection plan announced (Cmnd 9636, p48) Eden plan for a trial inspection of forces in Europe (Cmnd 9636, p53)	

		US Navy's second atomic submarine "Seawolf" is launched at Groton, Connecticut	
		Test ban talks begin	
Aug		First Geneva conference on peaceful uses of atomic energy	Work on Chapelcross site begins
		Recent Soviet weapons test series announced	
Sep		Recent Soviet test announced	
	Report on disappearance of two former Foreign Office officials (Burgess and Maclean) in 1951, published as a White Paper (Cmnd 9577)		
Oct	Soviet naval squadron arrives in Portsmouth on goodwill visit; British naval squadron visits Leningrad		
	Foreign Ministers' Conference in Geneva (UK, France, USA and USSR)		
Nov		Recent series of Soviet tests announced (including explosion in megaton range)	Party of British atomic scientists visits Soviet Union
Dec	Clement Attlee resigns as Leader of Labour Party and accepts peerage. Hugh Gaitskell is elected as his successor		
1956			
Jan	Eden and Macmillan (UK Foreign Secretary) in Washington talks with Eisenhower		
	Bulganin proposes 20-year USSR-US pact of friendship		
Feb	Kruschev launches attack on Stalin's rule at Communist Party congress in Moscow		
	Statement on Defence 1956 (Cmnd 9691)		
Mar	Malenkov arrives to tour British power stations and electrical installations	Soviet test series Mar/Apr	Contract signed with Mary Kathleen Uranium Ltd (Australia) for supply of uranium concentrate
	Revised Anglo-French plan for comprehensive disarmament (Cmnd 9770, p26)		
Apr	Kruschev, Bulganin and Kurchatov arrive for 10-day visit to UK (statement on discussions — Cmnd 9753)	Kurchatov visits Harwell and discusses fusion research	
		Bulganin and Kruschev visit Harwell	

		Economic Committee and Council of Baghdad Pact endorse recommendations to set up Training Centre in Baghdad for radioisotope techniques	
May	Reduction of 1.2 million men in Soviet armed forces announced	US test series (<i>Redwing</i>) at Bikini and Eniwetok – May/Jul. Included first air drop by US of a thermonuclear weapon	Weapon trials (<i>Mosaic</i>) at Monte Bello Islands – two rounds, both on towers – May/Jun
	European Coal and Steel Community adopts resolution on European Common Market and Euratom		Calder Hall first reactor goes critical
	Anglo-French proposals for International Disarmament Control Organisation (Cmnd 9770, p40)		
Jun		US National Academy of Sciences committee report on radiation hazards	Medical Research Council Report on Hazards to Man of Nuclear and Allied Radiations (Cmnd 9780)
Jul	President Nasser of Egypt announces nationalisation of Suez Canal		
	Royal Navy's first guided missile vessel, HMS "Girdleness", commissioned		
Aug	London Conference on Suez boycotted by Nasser	Soviet bomb test series resumed – Aug/Nov	Calder Hall No. 1 reactor begins to generate electricity
Sep	Suez dispute referred to UN Security Council by Britain and France	Agreement between governments of UK, Canada and USA as to Disposition of Rights in Atomic Energy Inventions signed in Washington (Cmnd 20)	Weapon trials (<i>Buffalo</i>) at Maralinga Range in South Australia – two shots on towers, one on ground and one air burst (Sep/Oct)
Oct	Hitler officially declared dead	Statute of International Atomic Energy Agency signed by representatives of 72 countries	The Queen opens Calder Hall atomic power station in Cumberland
	Israeli forces invade Sinai Peninsula of Egypt		
	British bombers attack Egyptian airfields and military targets		
Nov	Soviet forces enter Hungary		Contracts placed for Berkeley and Bradwell Magnox power stations
	British and French forces enter Egypt – the Suez incident		
	Eisenhower re-elected as US President		
	UN call on France and Britain to withdraw from Egypt and on USSR to withdraw from Hungary		
	UN Emergency Force enters Suez Canal Zone		
Dec			
	British and French governments announce withdrawals of troops from Egypt		
	Japan becomes member of United Nations		
	Petrol rationing in Britain		

1957			
Jan	Sir Anthony Eden resigns premiership and seat in Commons. He is succeeded as Prime Minister by Harold Macmillan	Soviet weapon test series begins – Jan/Apl	First course starts at Calder Operations School Public enquiry on Hunterston nuclear power station begins
Feb	Britain states she will reduce forces in Germany Gromyko becomes Foreign Minister of USSR		National Institute for Research in Nuclear Science (NIRNS) is constituted Second reactor at Calder Hall on power
Mar	Bermuda talks between Macmillan and Selwyn Lloyd, and Eisenhower and John Foster Dulles Common Market Treaty signed in Rome	Euratom Treaty signed in Rome Baghdad Pact Nuclear Training Centre opened	Minister of Power announces trebling of nuclear power programme to 5000-6000MW by 1965 Understanding concluded between UKAEA and Rhodesian government on uranium supplies Committee formed to study application of nuclear energy to marine propulsion
Apl	Defence White Paper "Outline of Future Policy" (Cmnd 124) states Britain's massive retaliation policy and plans for Blue Streak	West German nuclear physicists refuse to co-operate in production or testing of atomic weapons Japan protests to USSR over nuclear tests Albert Schweitzer writes to Norwegian Nobel Committee urging mobilisation of world opinion against nuclear tests	Responsibility for atomic energy transferred from Lord President of the Council to Prime Minister (SI No 561-1957) Decision announced that NIRNS will build its first accelerator on a site adjacent to AERE Harwell
May		USSR appeal to US and Britain to cease nuclear tests US test series (<i>Plumbob</i>) in Nevada – May/Oct	UK proposes registration and limitation of nuclear tests (Cmnd 333, p50) Weapon trials (<i>Grapple</i>) in Christmas Island Area in the Pacific – May/Jun. First British megaton explosions – 3 shots Winfrith Health Bill presented to Parliament to extinguish certain commonable rights
Jun	Lord Cherwell dies	International Atomic Energy Agency (IAEA) comes into being	Winfrith Health Act becomes law and work begins on building AEE Winfrith
	UK proposes expert working-groups to study technical and practical aspects of those disarmament measures on which there was agreement in principle (Cmnd 933, p15) In UK, Central Electricity Generating Board set up (replaces Central Electricity Authority)	Joint Western proposals for suspension of nuclear tests (as part of first-stage partial disarmament agreement) (Cmnd 333, p75)	
Aug		USSR announce successful intercontinental ballistic missile (ICBM) flight	

	Joint Western proposals for aerial and ground inspection against surprise attack (Cmnd 933, p79)	Soviet weapon test series resumed — Aug/Dec	
Sep	Sir Christopher Hinton leaves UKAEA to become first Chairman of Central Electricity Generating Board	International conference in Paris on application of radioisotopes to scientific work	Planning of AGR project starts Further weapon tests (<i>Antler</i>) at Maralinga — Sep/Oct. Two on towers, one suspended on balloon
Oct	First earth satellite (Sputnik 1) successfully launched by USSR Macmillan visits Washington for talks with Eisenhower Russia and China sign secret agreement on Russian help in developing military technology	Rapacki Plan for denuclearised zone in Central Europe, presented to UN General Assembly by Polish People's Republic Inaugural meeting of IAEA in Vienna	"The Windscale accident" — fire in core of No. 1 pile releases radioactivity to surrounding countryside No. 2 pile at Windscale shut down Nuclear power programme repurposed for completion by 1966 not 1965
Nov	Pandit Nehru, Prime Minister of India, appeals to US and USSR to bring about effective disarmament		Weapon test (<i>Grapple X</i>) on Christmas Island — one shot (in megaton range) Article by J B Priestley on nuclear disarmament evokes massive support Prime Minister makes House of Commons statement on Windscale accident Abridged report of Sir William Penney's Committee of Inquiry on Windscale Accident published (Cmnd 302) New radiochemical laboratory and new office building opened at RCC Amersham
Dec		Russian ice-breaker ship "Lenin" launched (nuclear components fitted October 1958) USA's first commercial power reactor (a PWR) in operation at Shippingport, Pennsylvania	Fleck Committee Report on Authority organisation following Windscale accident published (Cmnd 338)
1958			
Jan	Treaties establishing European Common Market and Euratom come into force Viscount Waverley (Sir John Anderson) dies		Campaign for Nuclear Disarmament (CND) initiated Fleck Committee Report on Organisation for Control of Health and Safety in UKAEA published (Cmnd 342)
Feb	First US earth satellite (Explorer 1) goes into orbit Report on Defence — Britain's Contribution to Peace and Security (Cmnd 363)	European Nuclear Energy Agency comes into being Soviet nuclear test series begins — Feb/Mar	

Mar	Kruschev succeeds Bulganin as Prime Minister of USSR	US nuclear submarine "Nautilus" passes under ice-cap at North Pole	USAEC announces plans for peaceful nuclear explosions (Project Plowshare)	USSR announce decision to suspend nuclear weapon tests conditionally	First Aldermaston march organised by CND
Apr		Eisenhower proposes mutual inspection as a means of enforcing test ban	US weapon test series (<i>Hard tack</i> Phase I) at Eniwetok, Bikini and Johnston Island – Apr/July		Megaton weapon test (<i>Grapple Y</i>) at Christmas Island – one shot
May	Eisenhower proposes demilitarisation of Antarctica				Appeal by 618 British scientists for Britain to cease nuclear tests
					Third Calder Hall reactor on full power
					About 3000 demonstrators take part in mass lobby organised by CND
					Dounreay Materials Testing Reactor (DMTR) begins operation
					NIRNS granted Royal Charter
Jun	Macmillan has talks with Eisenhower and Dulles in Washington	US-Japanese 10-year agreement on atomic energy signed	Agreement under ENEA concluded for joint operation of Norway's Halden (BWR) reactor by Euratom and other European countries including UK		Second Springfields uranium plant is opened
					Minister of Defence announces that design modifications were being made in the new civil nuclear power reactors so that military plutonium could be produced if needed.
Jul		Nuclear Training Centre in Baghdad closes	US/UK agreement to exchange wide range of nuclear defence information (Cmnd 470)	Conference held in Geneva to study methods of weapon test detection (report published in UK as Cmnd 551)	Final report of Technical Evaluation Committee appointed after Windscale accident (Cmnd 471). UKAEA decides to close and seal both piles
Aug	Britain, France and other NATO countries relax trade with Soviet bloc and Communist China. US maintains embargo on China, North Korea and North Vietnam	US tests nuclear missile warheads (<i>Argus</i> series) in the South Atlantic – Aug/Sep			Weapon tests (<i>Grapple Z</i>) at Christmas Island – Aug/Sep (4 shots)
					Medical Research Council statement on Report on UN Scientific Committee on Effects of Atomic Radiation (Cmnd 508)

Sep	First British ballistic rocket (Black Knight) fired successfully at Woomera	Second Geneva Conference on Peaceful Uses of Atomic Energy	Second General Conference of IAEA
			100 MW(e) power station in Siberia
			USSR resumes tests — Sep/Nov
			US continues tests with <i>Hard tack Phase II</i> in Nevada — Sep/Oct. Eleven shots were underground
Oct		Three-power conference on suspension of nuclear tests opens in Geneva. USA and Britain declare moratorium on tests. USSR joins in. (Moratorium lasts until Sep 1961)	Preliminary work on prototype AGR (advanced gas-cooled reactor) begins at Windscale
Nov	Democratic landslide in US Congressional elections	Ten-power Geneva Conference on measures against surprise attack begins	
Dec	De Gaulle elected President of French Republic		CTR (Controlled Thermonuclear Reaction) Advisory Committee set up
1959			
Feb	Macmillan and Selwyn Lloyd visit USSR	Progress report on the Five-Year Defence Plan published (Cmnd 662)	Agreement for co-operation between UK and Euratom signed
Mar			Agreement signed under ENEA auspices for development of an HTR reactor at AEE Winfrith (Dragon project)
Apr			Nuclear Training Centre (previously situated in Baghdad) reopens in Teheran, under Central Treaty Organisation (CENTO)
May	Foreign Minister's Conference opens in Geneva		US/UK Mutual Defence Agreement amended (Cmnd 733)
Jun			USSR makes proposals for a denuclearised zone in Balkans and Adriatic (rejected by West — 11/13 July)
			Labour Party and TUC advocate a non-nuclear club of all countries except USSR and USA
			Protest march from Aldermaston to London against nuclear weapons ends in meeting of 10,000 in Trafalgar Square
			Government approval for Dungeness A power station
			Labour Party declares it will stop all atomic bomb tests if returned to power
			Fourth Calder Hall reactor on power
			First Scottish nuclear power station (dual purpose) officially opened at Chapelcross in Dumfriesshire

Halden reactor in Norway (jointly operated by members of ENEA) becomes critical
 Radiation Sub-Committee of US Joint Committee on Atomic Energy holds public hearings on effects of a nuclear attack on USA

Kruschev calls for European denuclearised zone
 "Savannah" (first atomic powered liner) launched at Camden, New Jersey

Division of UKAEA's Industrial Group into Development and Engineering Group and Production Group
 Authority Health and Safety Branch, independent of Group control, is formed
 Party of UKAEA scientists visit USSR to see Fast Reactor (then in operation for about a year)
 Report from Select Committee on Estimates on UKAEA Industrial Group is published
 Nuclear Installations (Licensing and Insurance) Act (see Apl 1960)
 Approval is given for Dungeness as site for nuclear power station

Aug Eisenhower visits UK

Second Chapelcross reactor on power

Sep Ten-power disarmament committee set up by UK, France, US and USSR

First European engineers arrive to work on Dragon project at Wnfrith

Soviet rocket Lunik II hits moon
 Kruschev arrives in Washington for 12-day visit — addresses UN General Assembly on disarmament

Oct Conservatives return to power at UK General Election with increased majority

Third General Conference of IAEA in Vienna
 ENEA's Halden reactor, the world's first heavy-water-moderated BWR, officially opened by King Olaf of Norway

Isotope School moves from Harwell to Wantage Radiation Laboratory

Sir Henry Tizard dies

Nov IAEA Conference on Radioactive Waste Disposal

Ministerial responsibility for atomic energy transferred to Minister for Science (SI No 1826-1959)
 Dounreay experimental fast reactor (DFR) commences operation on low power
 White Paper on "The Control of Radioactive Wastes" published (Cmnd 884)

Dec Macmillan, de Gaulle, Eisenhower and Adenauer meet in Paris for talks

Antarctic Treaty, setting up atom-free zone, is signed in Washington

Lord Plowden relinquishes his appointment as Chairman of UKAEA to be succeeded by Sir Roger Makins in Jan 1960
 Third Chapelcross reactor on power

Report that 38 deaths of victims of Hiroshima bomb occurred in 1959
 US decide not to extend their formal suspension of nuclear tests after 31 December

Atomic Energy Authority Act, 1969, increases permitted AEA membership from 11 to 16.

1960

Kruschev proposes new Soviet defence policy relying more heavily on massive nuclear retaliation

Planning permission given for Culham site — work on thermonuclear research to be transferred from Harwell and Aldermaston

2 consortia merge to form The Nuclear Power Group (TNPG)
 Team of Russian scientists visits UK to see DFR, Calder and Harwell

Feb Macmillan's "Wind of Change" speech in Capetown

First of French atomic bomb tests in Sahara — to Feb 1966. The first 4 were atmospheric; 13 were underground.

Report on Defence 1960 (Cmnd 952) states that UK's main contribution to West's strategic nuclear power is the V-bomber force

Igor Kurchatov dies

Report of Committee on the Safety of Nuclear Powered Merchant Ships (Cmnd 958)

Committee on Training in Health and Safety (Yeale Committee) completes its report (published by HMSO Code No 88-2556)

Mar Ten-power disarmament committee meets in Geneva (up to 27 June) when Communists walk out.
 Text of Western proposals — Cmnd 981

Eisenhower and Macmillan issue joint statement in Washington on nuclear test negotiations

Fourth Chapelcross reactor on power

Apr

Dragon inauguration ceremony held at Wirtfrith

Blue Streak missile programme cancelled

Second French bomb test in Sahara

Nuclear Installations (Licensing and Insurance) Act 1959 comes into force. UKAEA exempt from main provisions of Act but required to keep Minister of Power and Secretary of State for Scotland fully informed on safety and safe operation of its own nuclear plant

Aldermaston to London CND march ends with large-scale demonstration in Trafalgar Square

CND Committee of 100 formed

May US U-2 aircraft, flown by Gary Powers, shot down by USSR

Wantage Radiation Laboratory formally opened

European Free Trade Association (EFTA — the "7") comes into force

Radioactive Substances Act passed.

Brezhnev becomes President of USSR

Four-power summit meeting in Paris – fails because of U-2 affair

Jun

Modifications to first nuclear power programme are announced (Cmnd 1083), proposing 5000MW by 1968.
2 consortia merge to form United Power Company (UPC)
Nuclear Safety Advisory Committee (Chairman – Sir Alexander Fleck) formed

Jul Aneurin Bevan dies

Aug East Germany imposes partial blockade of West Berlin (further restrictions on entry made in September)

Sep Kruschev attends 15th annual session of UN General Assembly

Macmillan addresses UN General Assembly

"Enterprise", first nuclear-powered aircraft-carrier, is launched in US

Fourth Annual General Conference of IAEA in Vienna

TUC approve resolution on nuclear disarmament

Oct

The Queen launches first British nuclear-powered submarine HMS "Dreadnought"
Labour Party Conference battle on unilateral disarmament

Nov Macmillan announces establishment of base at Holy Loch for US submarines carrying Polaris missiles

John F Kennedy elected as President of USA

IAEA Symposium on Nuclear Ships held in Sicily

Dec French government bill setting up nuclear striking force is approved by National Assembly

Third French bomb test carried out in Sahara, arousing strong reaction in Asian and African countries

Second report to Medical Research Council on "Hazards to Man of Nuclear and Allied Radiations" published (Cmnd 1225)

1961

Jan First fatal accident at USAEC's Idaho testing station – three men killed

The Canada/India research reactor, Aspara, inaugurated at Trombay

Sir John Cockcroft receives 1961 "Atoms for Peace" Award

Feb

New research programme by UKAEA on detection of underground and underwater explosions announced (in connection with work of Geneva Conference on the control of nuclear tests)

			Bertrand Russell leads "sit-down" demonstration, at Ministry of Defence in London, to protest about basing of Polaris missiles in Scotland
Mar	Macmillan meets Kennedy in Florida	US nuclear submarine "Patrick Henry" armed with Polaris missiles, arrives at Holy Loch	
		Three-power conference on discontinuance of nuclear tests (to 9 Sep)	
Apr	Major Yuri Gagarin orbits the earth in a Russian spaceship	Fourth French bomb test in the Sahara	CND marches from Aldermaston and Wetherfield end in mass demonstration in Trafalgar Square
			UKAEA reorganisation into five groups (Research, Weapons, Production, Reactor & Engineering). Sir William Penney becomes Deputy Chairman, AEE Winton transferred to Reactor Group.
May	Commander Alan Shepard of USA makes a sub-orbital flight lasting 15 minutes	Western European Union agrees that West Germany should be allowed to build destroyers equipped to fire nuclear weapons	
	Lord Radcliffe appointed to review security procedures following 42 years sentence on George Blake	Collaboration agreement signed in London between UKAEA and USSR State Committee of the Council of Ministers for the Utilisation of Atomic Energy	
Jun	Kennedy meets Khrushchev in Vienna		
	Khrushchev proposes German peace conference and also proposes that disarmament discussions should proceed simultaneously with test ban talks (rejected by West 17 July)		
	US and USSR representatives begin disarmament talks in Washington		
Jul	Soviet exhibition in London		
Aug	British government makes formal application for membership of the European Economic Community	Soviet government announces that it will resume nuclear weapons tests (see below)	CEGB reactors at Bradwell and Berkeley achieve criticality
	East German government closes border between East and West Berlin. Concrete barrier erected August 17/18		
Sep	Dag Hammarskjöld, Secretary-General of UN, killed in an aircraft crash	Soviet test series — Sep/Nov	More than 800 people arrested during anti-nuclear demonstrations in Trafalgar Square
		US resumes underground nuclear tests (<i>Nougat</i>) in Nevada	Party of UKAEA scientists visits USSR (up to 10 October)
		Fifth Annual General Conference of IAEA in Vienna	
Oct	Labour Party Conference reverses 1960 vote in favour of unilateral disarmament	Nuclear bomb of at least 50 megatons exploded by USSR at Novaya Zemlya	MFC issue statement on radioactive fallout in the light of renewed atmospheric tests

Nov	UN General Assembly adopts resolution declaring use of nuclear weapons a direct violation of UN charter	Minister of Transport announces that the Government has decided not to proceed at present with the construction of a nuclear-powered ship
Dec	Macmillan meets Kennedy in Bermuda	Members of CND Committee of 100 arrested on charges under the Official Secrets Act
1962		
Jan	Three-power nuclear test-ban conference in Geneva finally breaks down	
Feb	US military council established in South Vietnam Kruschev proposes 18-nation disarmament committee should meet at summit level	Preparation for a further series of nuclear tests announced by UK (and US) governments following break-down of Geneva test-ban conference. Prime Minister announces in House of Commons a forthcoming UK underground test in Nevada Six members of CND Committee of 100 sentenced to imprisonment
Mar	British government applies to join European Coal and Steel Community 17-nation disarmament conference opens in Geneva (France refuses to participate)	Nuclear device (US-UK 7) exploded underground at the USAEC's Nevada test site (joint test) More than 1100 members of Committee of 100 are arrested during a sit-down demonstration against nuclear tests Second reactor critical at Berkeley
Apr	Spacecraft launched by US hits moon	US government resumes atmospheric nuclear tests (in Christmas Island area) against background of international protest. Tests (<i>Dominic</i> series) continue to Nov, in Christmas Island and Johnston Island area
May	A French nuclear device exploded underground in the Sahara desert	
Jun	European Space Research Organisation (ESRO) established in Paris	Interim statement by UK government that supplies of enriched uranium now permit reduction in output of UKAEA diffusion plant at Capenhurst Berkeley Magnox power station commissioned Exchange visits of UK and USSR scientists
Jul	First US communications satellite, Telstar, launched	US nuclear device exploded above Johnston Island in the Pacific — seen 4000 miles away in New Zealand Proposal by NIRNS to establish a second laboratory in the north of England approved

		Agreement signed by UKAEA and Eldorado Mining and Refining Co (Canadian Crown Co) for supply of uranium 1963-70	Bradwell Magnox power station commissioned
Aug	UK government announces cancellation of guided missile Blue Water	USSR begin fresh series of atmospheric nuclear tests — Aug/Dec USS "Savannah" makes her maiden voyage	Windscale AGR begins operating at low power
Sep		Sixth IAEA General Conference in Vienna	
Oct	Kennedy reveals partial blockade of Cuba because of Soviet missile bases. Soviet government agrees to dismantle bases on 28 October (blockade lifted — 20 November)	Last US atmospheric test at Johnston Island in the Pacific	Dounreay Fast Reactor (DFR) begins generating electricity Further reductions announced for Capenhurst with possible reduction in UKAEA Weapons Group work load after early 1964 Chairman of UKAEA begins 10-day visit to USSR
Nov	Anglo-French agreement to develop Concorde supersonic airliner Democrats win control of both houses in US Congressional elections	Niels Bohr dies UN General Assembly demands that nuclear tests cease by Jan 1963 USAEC report to President on civil nuclear power	DFR supplies electricity to the national grid
Dec	US and USSR governments reach agreement on co-operation in certain aspects of peaceful uses of outer space	Western European Union Assembly in Paris calls for single NATO nuclear force At meeting in Nassau Kennedy and Macmillan agree that US will provide UK with Polaris missiles instead of Skybolt Last Soviet atmospheric test	Nuclear device (US/UK 2) (joint test) tested underground at USAEC's Nevada test site
1963			
Jan	Hugh Gaitskell, leader of Labour Party, dies. Harold Wilson elected as his successor on 14 February British negotiations to enter European Economic Community end in failure	Euratom membership suspended because of break-down of Common Market negotiations	Windscale AGR reaches full power
Feb			UK government announces forthcoming discussions with shipping and shipbuilding industries on construction, ownership and operation of nuclear-powered ships; decision on construction of prototype ship expected by end of 1963 Windscale AGR supplying electricity to the national grid

Announcement of government authorisation to proceed with building prototype steam generating, heavy-water reactor (SGHWR) at Winfrith

Mar Planning permission for SGHWR

Apr Britain and US sign Polaris missile agreement
Berkeley and Bradwell, Britain's first two civil nuclear power stations, formally opened by the Duke of Edinburgh

US nuclear-powered submarine "Thresher" fails to resurface after deep-diving trials in North Atlantic

Aldermaston march by CND ends in disorder

French government announces intention to establish nuclear testing ground in French Polynesia. (New Zealand government makes formal protests — 23 May)

May UKAEA signs contract with Euratom to supply British plutonium oxide to France for use in experimental fast reactor being built at Cadarache (UK-Euratom agreement of 1959 guarantees use of plutonium for peaceful purposes only)
Construction of SGHWR begins at Winfrith

Jun US and USSR sign agreement on establishment of "hot-line" between White House and Kremlin

Jul Philby ("third man" in the Burgess and Maclean case) is granted asylum in USSR
Draft nuclear test-ban treaty initiated in Moscow (does not ban underground tests)
Dounreay Fast Reactor (DFR) operates at full design output of 60 MW (th)

Aug Nuclear test-ban treaty signed

Sep Seventh IAEA Conference in Vienna

Oct Macmillan resigns as Prime Minister for health reasons: succeeded by Lord Home (who shortly after renounces his peerage)
Nuclear test-ban treaty comes into force
Britain agrees to join discussions about NATO mixed-manned nuclear fleet
First reactor at Hinkley Point A station on power
First reactor at Trawsfynydd goes critical

Report of Committee of Enquiry into the Organisation of Civil Science (Trend Committee) published (Cmd 2171)
French Information Minister states that French nuclear deterrent force is now "operational"

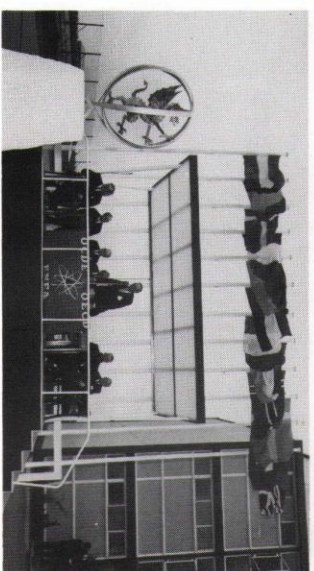
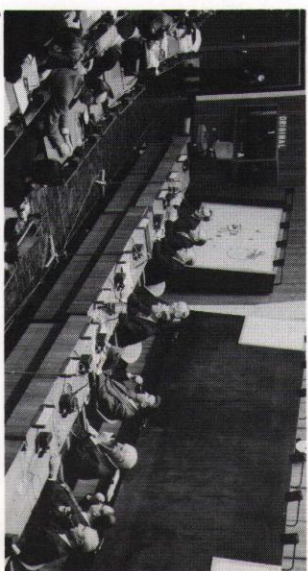
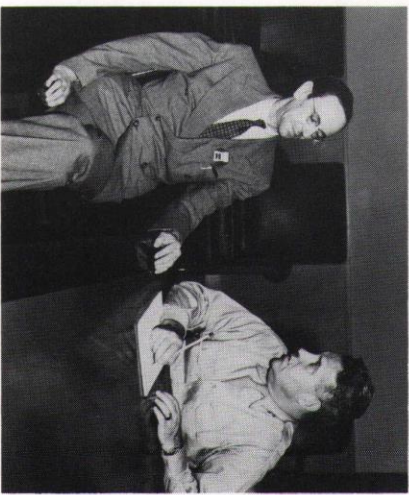
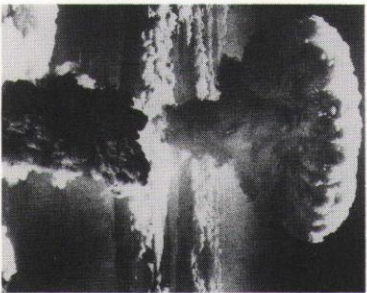
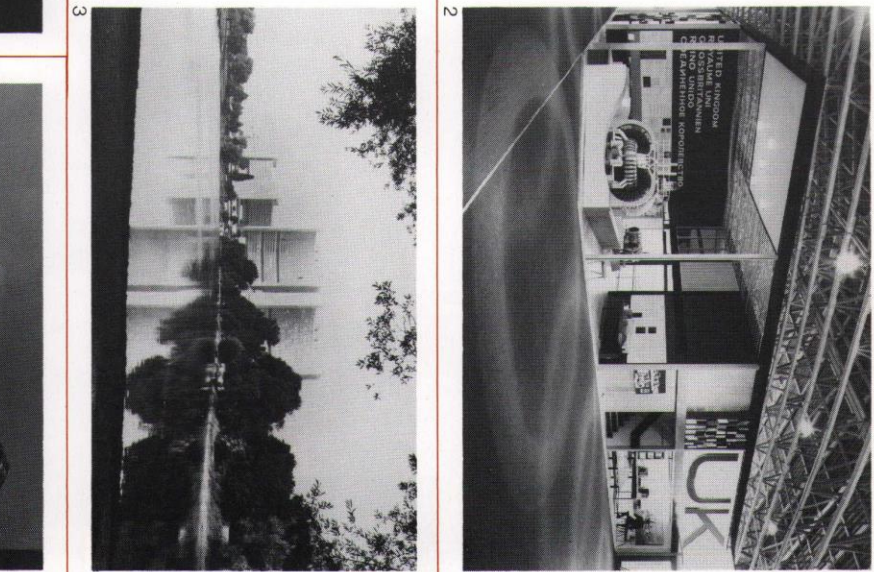
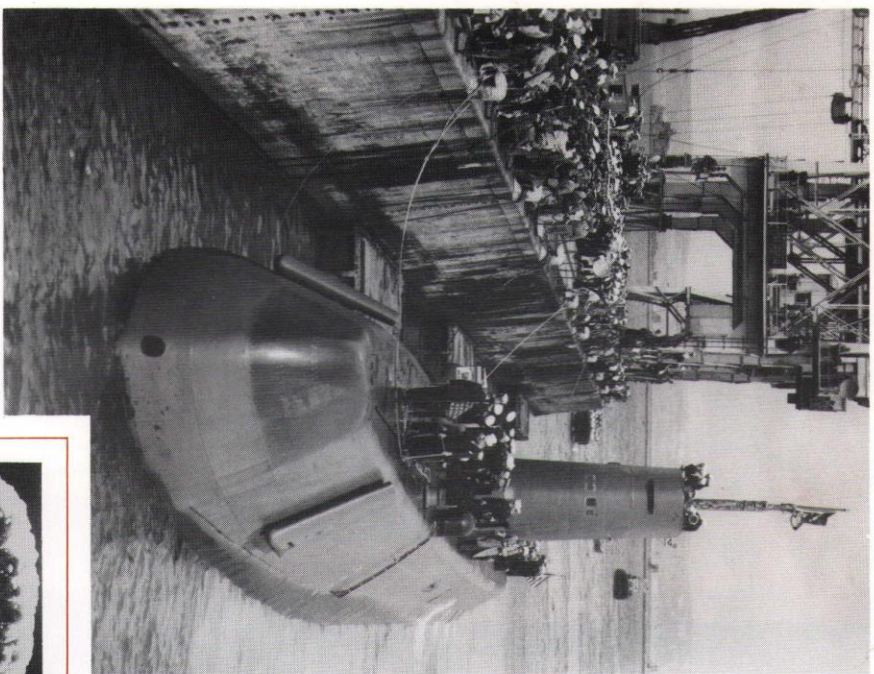
Nov John Kennedy assassinated in Dallas, Texas. Vice-President L B Johnson sworn in as President
Construction begins of Daresbury Nuclear Physics Laboratory for NHRNS (National Institute for Research in Nuclear Science)

Dec Radioactive Substances Act 1960 comes into force

1964

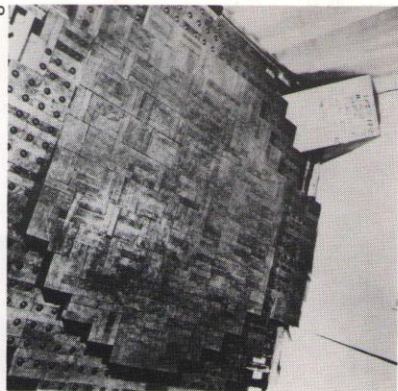
Jan 1964 session of 18-nation Disarmament Commission opens — Johnson proposes nuclear-armed weapons "freeze"

Feb			Reactor A at South of Scotland Electricity Board (SSEB) station at Hunterston generates power
			Powell Committee Report on Nuclear Power Programme submitted to the government
			Sir Roger Makins relinquishes chairmanship of UKAEA to be succeeded by Sir William Penney
			Defence White Paper (Cmnd 2270) states that supplies of fissile material already available or assured are sufficient to maintain Britain's independent deterrent and to meet all foreseeable defence requirements (Production of U-235 for military purposes at Capenhurst ceased in 1963 and military plutonium production was being brought to an end)
Apr	New single structure for Ministry of Defence comes into force	Unilateral pledges made by US, USSR & UK to reduce production of fissionable materials for use in nuclear weapons	Responsibility for atomic energy is transferred to Secretary of State for Education and Science (SI No 490-1964)
			Write Paper on Second Nuclear Power Programme published (Cmnd 2335), proposing 5000 MW for 1970-75
May			Nuclear Power for Ship Propulsion: Report of Working Party on Marine Reactor Research published
Jun		First West German nuclear vessel, "Otto Hahn" (15,000 ton ore freighter) launched at Kiel	Ministry of Defence announces closure of Britain's nuclear testing base at Christmas Island as a result of test-ban treaty
			Britain's Blue Streak rocket makes first test flight from Woomera
Jul	Mikoyan succeeds Brezhnev as chairman of the presidium of the Supreme Soviet	Euratom announces aid for West German nuclear ship, "Otto Hahn", in return for access to all technical knowledge gained in construction and sea-trials	Minister of Transport announces government consideration of possible co-operation with shipbuilders and ship-owners on a nuclear-powered ship
		USS "Savannah" visits Southampton	Nuclear device tested underground at Nevada Test Site (Joint test, <i>Corrormant</i>)
Aug	US destroyer attacked off North Vietnam; US aircraft attack N. Vietnamese bases in reprisal	ENEAs Dragon reactor (HTTR) experiment at Wirtfrith achieves critically	
		IAEA Third International Conference on the Peaceful Uses of Atomic Energy opens in Geneva	
Sep	Kruschev claims that USSR has new weapons that could annihilate life on earth	Eighth General Conference of IAEA held in Vienna	<i>Britain and Atomic Energy 1939-1945</i> , (M M Gowling), published by Macmillan
	Britain becomes first North Sea nation to grant licences for a full-scale search for oil and gas on continental shelf		



1 USS Nautilus: first nuclear powered submarine, launched 1954
 2 'Atoms for Peace' exhibition, Geneva 1958
 3 IAEA Headquarters, Vienna
 4 The atomic bomb on Nagasaki brought World War II to a close
 5 General Groves, head of the Manhattan Project, with Professor James Chadwick, leader of the British mission

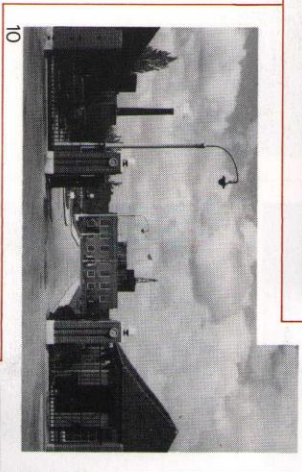
6 Press conference at CERN in 1960 on the new 28GeV accelerator. Included in the picture are Niels Bohr (3rd from right) and Robert Oppenheimer (extreme right)
 7 Inauguration ceremony of the international high temperature reactor 'Dragon' at Wrrifrith (1960)



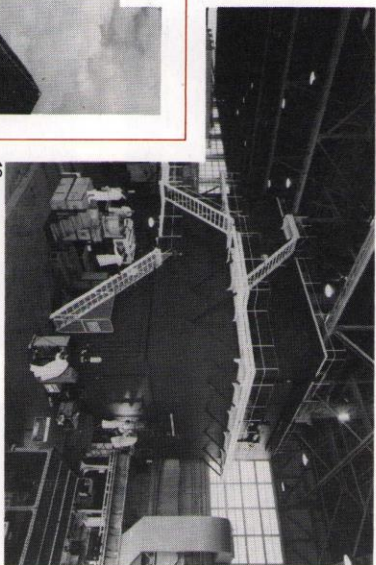
8 CP-1, the first ever reactor, built in Chicago by Enrico Fermi using uranium in graphite layers, went critical on 2 December 1942

9 Four of the Tube Alloys team after receiving American Medal of Freedom L. to R. William Penney, Otto Frisch, Rudolf Peierls and John Cockcroft

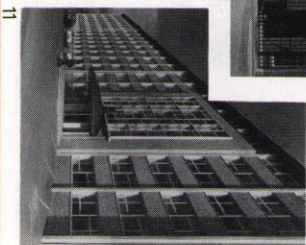
10 Atomic Energy Research Establishment, Harwell, established 1946



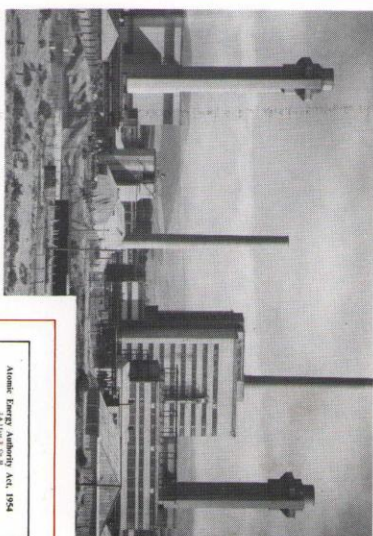
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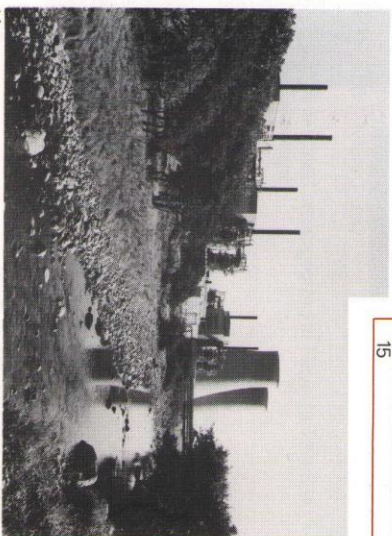
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Atomic Energy Authority Act, 1954
1954 (17 & 18 Geo 6) c. 38

AN ACT TO PROVIDE FOR THE ESTABLISHMENT OF AN ATOMIC ENERGY AUTHORITY AND TO AMEND THE ATOMIC ENERGY ACT, 1946 AND THE ATOMIC ENERGY ACT, 1952 AND TO PROVIDE FOR THE TRANSFER OF CERTAIN FUNCTIONS TO THAT AUTHORITY AND TO PROVIDE FOR THE MERGER OF CERTAIN BODIES AND TO PROVIDE FOR THE TRANSFER OF CERTAIN FUNCTIONS TO THAT AUTHORITY AND TO PROVIDE FOR THE MERGER OF CERTAIN BODIES AND TO PROVIDE FOR THE TRANSFER OF CERTAIN FUNCTIONS TO THAT AUTHORITY AND TO PROVIDE FOR THE MERGER OF CERTAIN BODIES

1. Short title and commencement.
2. Interpretation.
3. Establishment of the Authority.
4. Functions of the Authority.
5. Powers of the Authority.
6. Officers and employees of the Authority.
7. Finance.
8. Accounts and audit.
9. Miscellaneous provisions.
10. Transitional provisions.
11. Short title and commencement.

15



14

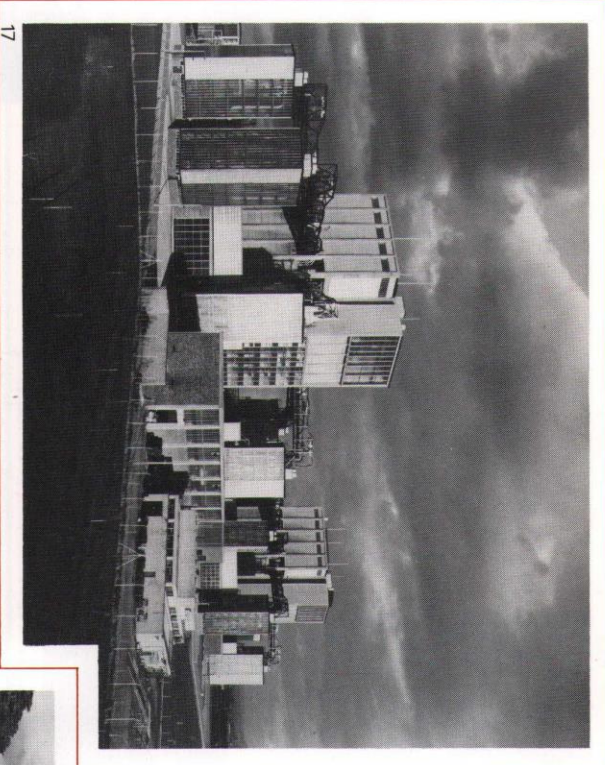
11 Atomic Energy Production Group headquarters (now BNFL) at Risley, set up in 1946.

12 GLEEP, the first reactor in Britain, started up in 1947.


13 Distinctive chimneys of the two piles at Windscale used for plutonium production 1950-1957.

14 First dual purpose station for electricity and plutonium production, Calder Hall, opened in 1956.

15 Act setting up the UKAEA



17



**A PROGRAMME
OF
NUCLEAR POWER**

*Presented to Parliament by the Lord Privy Seal of the Council
and the Minister of Fuel and Power
by Command of Her Majesty
February 1955*

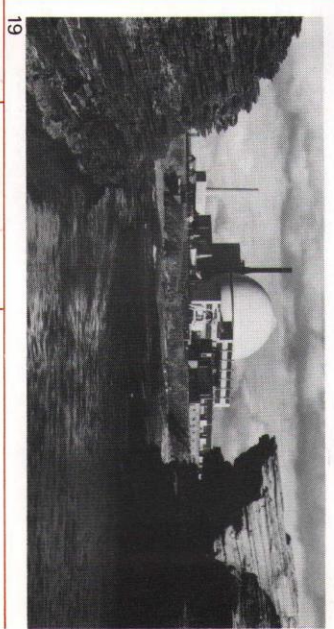
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HER MAJESTY'S STATIONERY OFFICE
PRICE 11s. 6d. NET
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Cmd. 9380

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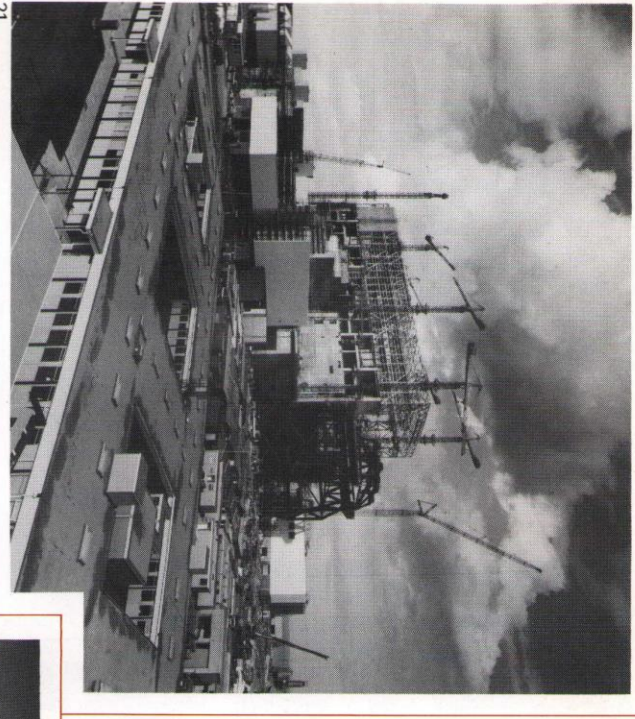


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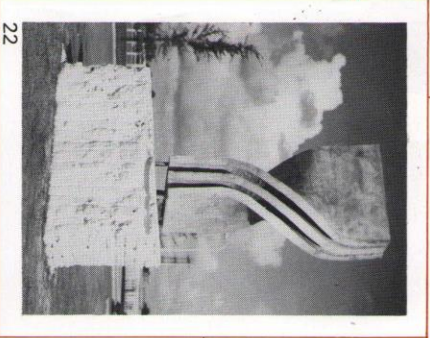


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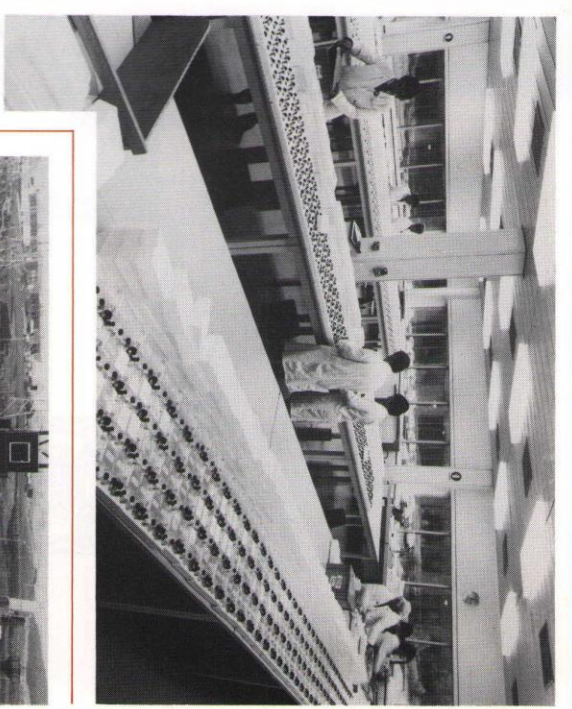
- 16 White Paper detailing the initial Magnox programme.
- 17 First commercial Magnox station, Berkeley 1962.
- 18 33MW prototype of the Advanced Gas-Cooled Reactor, Windscale (1962-1981)
- 19 Dounreay experimental fast reactor (1959-1977).
- 20 Lord Hinton



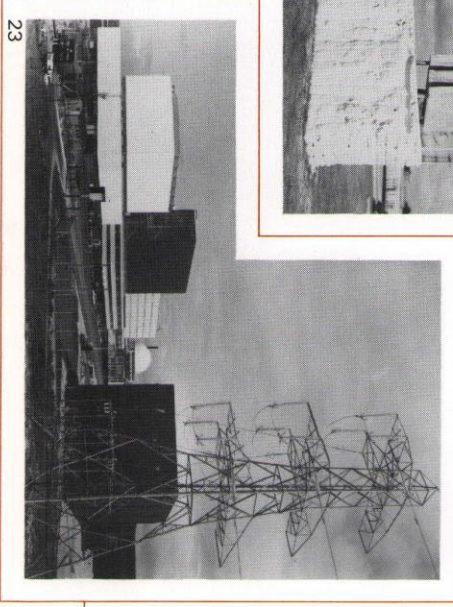
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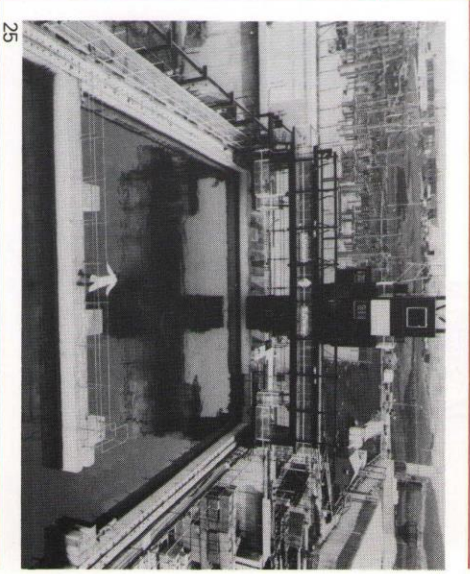
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23



25

- 21 AGR power station under construction at Torness
- 22 At Culham Laboratory, symbolic magnetic field surfaces twist to confine a plasma.
- 23 250 MW Prototype Fast Reactor at Dounreay
- 24 Assembly of clinical assay kits at Amersham International, Cardiff.
- 25 Cooling pond at British Nuclear Fuels's Sellafield works

Oct	Kruschev retires to be succeeded as Soviet Premier by Kosygin and as Party Secretary by Brezhnev Labour Party wins General Election with small majority. Harold Wilson becomes Prime Minister	International Conference of 58 "non-aligned" countries, held in Cairo calls to all countries not to produce or acquire nuclear weapons China's first nuclear device exploded (in the atmosphere) at Lop Nor, Sinkiang, China thus becoming fifth nuclear weapon power. Chinese government proposes summit conference "to discuss complete prohibition and thorough destruction of nuclear weapons" Formal inauguration of Dragon reactor experiment at AEE Winfrith	UKAEA becomes an associate member of British Nuclear Forum First reactor at Dungeness A station on power
Nov	President Johnson wins landslide victory in US Presidential election	UKAEA/Euratom contract for provision of 45 kg of plutonium for French fast reactor Rapsodie at Cadarache	
Dec	Heavy fighting in Vietnam Wilson arrives in Washington for talks with Johnson Lord Hinton retires as Chairman of CEEGB		
1965			
Jan	Churchill dies	Kosygin promises Soviet support for Communist Chinese proposal for world conference of heads of state on prohibition and destruction of nuclear weapons Soviet underground test at Semipalatinsk	Responsibility for atomic energy transferred to the Minister of Technology (SI No 2048-1964) Dr N Levin dies (appointed as Authority Member for Weapons Research and Development on 1 January)
Feb		Chairmen of UKAEA and USAEC exchange letters initiating new ten-year exchange of information on fast reactor technology USAEC announces new cut in production of uranium fuels and explosives for nuclear power plants and weapons	Minister of Technology announces separation of UKAEA commercial operations from other activities, and establishment of trading fund with effect from 1 April
Mar	3500 US Marines land in Vietnam	UKAEA and Euratom agree to full exchange of information in field of fast reactor physics	Diversification — provision under Section 4 of Science and Technology Act 1965 enables UKAEA's technological resources, special techniques and experience to be used in industrial development on wider front than permissible hitherto under Atomic Energy Authority Act 1954
Apr	Early Bird, world's first commercial communications satellite, launched from Cape Kennedy 14-nation UN Disarmament Commission meets for the first time since August 1960	World's first orbiting nuclear reactor launched by US (to see "if the nuclear power plant could withstand launching and could continue to produce power for a year")	UKAEA Trading Fund in operation

May	China reports its second nuclear test (atmospheric) at Lop Nor, Sinkiang	Minister of Power announces acceptance of CEEGB recommendation that an advanced gas-cooled reactor (AGR) system should be adopted at Dungeness B (because of development potential and clear economic advantages over alternative systems)
Jul	17-nation disarmament conference reconvened in Geneva after 10-month recess Edward Heath replaces Sir Alec Douglas Home as Conservative Party leader	President of the Board of Trade announces government decision that economic prospects of nuclear ship were as yet too remote to justify large government expenditure on building a prototype
Aug	At 17-nation disarmament conference in Geneva US government presents draft treaty to prevent spread of nuclear weapons	Nuclear Installations Act 1965 comes into force CEEGB appraisal of tenders for Dungeness B
Sep	Ninth General Conference of IAEA in Tokyo	Nuclear device test carried out by joint US/UK team at USAEC's Nevada test site (<i>Charcoal</i>)
Oct	First find of North Sea gas	White Paper on Fuel Policy (Cmd 2798) promises substantial increase in second nuclear power programme from 5000 to 8000 MW
Nov	"March on Washington for Peace in Vietnam", initiated by Committee for Sane Nuclear Policy: 15-35,000 take part	UKAEA announces agreement with West German company (Alkem) to co-operate in experiment on possible use by nuclear power stations of plutonium as fuel instead of enriched uranium
	US Defence Dept spokesman acknowledges that fighter-bombers of nine NATO nations, including West Germany, are armed with US atomic warheads (which remain under tight US control)	
	Two nuclear-powered US naval ships, aircraft-carrier "Enterprise" and guided missile frigate "Bainbridge" join 7th Fleet in South China Sea	
	US Defense Secretary McNamara declares in Paris that more than 5000 nuclear warheads are being stored in Europe in support of NATO forces	
Dec		Minister of Technology announces in House of Commons government's decision to modernise and reactivate Capenhurst plant, to supply enriched uranium for fuel for second nuclear power programme
1966		
Jan		Homi Bhabha, chairman of Indian Atomic Energy Commission, dies

		US B52 bomber carrying four atomic devices collides with US jet refueller and crashes off Spanish Mediterranean coast. Three devices recovered — one lost (found later 7 April)	
Feb	Soviet spacecraft Luna 9 makes successful "soft" landing on moon, first in history	Explosion of great magnitude, centred on Soviet nuclear testing grounds in Semipalatinsk region, is recorded by seismological stations around the world — estimated to be in 7–8 megaton range	Minister of Technology announces major decision in progress towards commercial fast reactors, informing House of Commons of Government approval for immediate construction of 250 MW (e) prototype fast reactor (PFR) at Dounreay, with fuel production plant at Windscale
Mar	Soviet spacecraft Venus 3 crashes on Venus; first man-made object to touch another planet		
	France formally announces her withdrawal from NATO		
	Labour wins 97-seat majority in General election		
Apr		Defence ministers of Britain, Italy, West Germany, Turkey and US lay groundwork for permanent forum on use of nuclear weapons	
		Dragon reactor achieves design power of 20 MW(th)	
May		Revised recommendations published by International Commission on Radiological Protection (ICRP Publication 9)	
		China's third atomic test (atmospheric) at the Lop Nor site in Sinkiang province	
Jun			Site Opening Ceremony for PFR British Nuclear Export Executive formed (BNX)
Jul		France explodes a "tactical" atomic bomb at Mururoa, south-east of Tahiti — first in series of atmospheric nuclear tests in Pacific	
		US/UK agreement for co-operation on civil uses of atomic energy is renewed for 10 years (Cmd 3077). New 10-year agreement (Cmd 3078) concluded at the same time provides for purchase of up to 8000 kg of enriched uranium from USA for UK civil plant applications	
Sep		De Gaulle witnesses detonation of French-made nuclear device in South Pacific (test series completed 4 October)	
		International Nuclear Industries Fair (NUCLEX 66) held in Basle, Switzerland	
		IAEA Tenth General Conference in Vienna	

Oct	Seven-nation conference on Vietnam opens in Manila with President Johnson in attendance	Canadian government approval announced for contract between Rio Algom Mines Ltd and UKAEA for supplies of uranium oxide for 1971-80	China announces fourth test (of nuclear device carried by guided missile)	Soviet underground test
Nov		China declares that it will never be party to treaty banning spread of nuclear weapons		
Dec		China announces another atomic atmospheric nuclear explosion at Lop Nor, Sinkiang.		
		Soviet underground test		
1967				
Jan	At Cape Kennedy 3 US astronauts die in fire in space craft while on the ground	Representatives of 60 nations including USA and USSR sign UN treaty providing for peaceful uses of outer space and banning nuclear weapons of mass destruction in space		
Feb	18-nation disarmament commission resumes its sessions in Geneva	Treaty to ban nuclear weapons from Latin America is signed in Mexico City		
Mar		"Le Redoutable", France's first nuclear submarine, is launched	Further expansion of Capenhurst diffusion plant authorised	Chairman of UKAEA gives evidence to Select Committee on Science and Technology on nuclear reactor programme and related issues
Apr	Soviet cosmonaut Col. Komarov is killed during re-entry of Soyuz 1 — first man known to have died during spacecraft flight	Soviet Union objects to US nuclear proliferation treaty proposals because they granted virtual self-inspection to European Atomic Energy Community		
May	Great Britain, Ireland and Denmark formally apply for membership in EEC			
	Fighting between Arabs and Israelis			
Jun	Arab/Israeli conflict at its height	China announces successful atmospheric thermonuclear test at Lop Nor.		
		French atmospheric tests at Mururoa — June/July		

Jul			Statement on future of fusion research at Culham made by Minister of Technology
Aug	British Chancery in Peking sacked and burned by "Red Guards"		
Sep		Eleventh General Conference of IAEA in Vienna	SGHWR becomes critical Sir John Cockcroft dies
Oct	Attlee, former Labour Prime Minister, dies	UN Secretary General releases report, by 12 experts from as many countries, warning that nuclear war could destroy the entire human race	Lord Penney retires as Chairman of UKAEA to be succeeded by Dr J. M. Hill, former Member for Production Select Committee on Science and Technology publishes report on nuclear reactor programme (HQC paper 381-XVII)
Nov	De Gaulle rejects Britain's bid for EEC membership		Ionising Radiations (Unsealed Radioactive Substances) Regulations 1967 published Government White Paper on Fuel Policy (Cmd 3438) recognises that nuclear energy is now a firmly established fuel for electricity generation
Dec		World's first nuclear explosion for industrial purposes takes place in USA with aim of releasing natural gas deposits which could be exploited commercially USAEC detects nuclear test in China, no statement issued by China	Following US undertaking, UK government agrees to submit all peaceful nuclear installations to same international inspection and control procedures as those imposed on non-nuclear states by proposed treaty on non-proliferation of nuclear weapons Oldbury nuclear power station in operation (first Magnox reactors with pre-stressed concrete pressure vessel
1968			
Jan	US Navy intelligence ship USS "Pueblo" seized off North Korean coast	At UN Disarmament Commission in Geneva, USA and USSR submit complete draft of treaty to ban spread of nuclear weapons US B52 bomber carrying 4 unarmed H-bombs crashes in Greenland, scattering bomb fragments	At Winfrith, prototype SGHWR operates at full power of 100 MW(e)
Feb			Statement by Minister of Power on siting policy for nuclear power stations — gas-cooled reactors in pre-stressed concrete pressure vessels could be much nearer to built-up areas. SGHWR formally opened by HRH The Duke of Edinburgh

Mar	UN Disarmament Commission ends discussions in Geneva on proposed treaty to end spread of nuclear weapons	
Apr	Dr. J. B. Adams appointed Director of CERN 300 GeV project in Geneva	
	Draft of nuclear non-proliferation treaty presented to UN General Assembly	
	USAEC explodes experimental H-bomb 3800 ft below Nevada Desert	
May		UKAEA announce intention to close down BEPO and DMTR
Jun	Robert Kennedy is shot and killed in Los Angeles	British decision announced not to participate in CERN project for building world's biggest atomic accelerator
		RCC Amersham forms joint company with G D Searle & Co (Inc) to market Radiochemical Centre products in North and South America
Jul	18-nation disarmament commission reconvened in Geneva	Nuclear non-proliferation treaty signed by 62 nations in Washington
		Minister of Technology makes statement to House of Commons about reorganisation of nuclear industry following report of Select Committee on Science and Technology. Two design and construction organisations to be established in place of the three commercial firms and the design teams working within UKAEA. British Nuclear Design and Construction Ltd (BNDC) and The Nuclear Power Group (NPG) are established following this. A second stage in the reorganisation would be to transfer the Authority's fuel and radioisotope businesses to two publicly-owned companies
		Johnson announces that US and USSR have agreed to begin talks on means of limiting and reducing their arsenals of offensive and defensive nuclear weapons
		France resumes her nuclear test programme in July/Sep
		Otto Hahn dies
Aug		France explodes her first H-bomb becoming world's fifth thermonuclear power; second test follows on 8 September completing 1968 series of nuclear tests
Sep		IAEA Twelfth General Conference in Vienna
Oct	Anti-Vietnam war march in London	Lise Meitner dies
	Johnson announces complete halt to all bombing etc of North Vietnam — peace talks to continue in Paris	
Nov	Richard Nixon elected as 37th President of USA. Democrats retain control of both houses of Congress	Agreement reached on certain principles for close British-German-Dutch co-operation on enrichment of uranium by ultra-centrifuge process
		Chairman of UKAEA and Director of Culham Laboratory give evidence on nuclear fusion programme to Select Committee on Science and Technology. Chairman reaffirms UKAEA's intention to maintain viable fusion and plasma physics programme
		Ionising Radiations (Unsealed Radioactive Substances) Regulations come fully into effect

Dec	"Pueblo" crew released by North Korea Crew of Apollo 8, launched at Cape Kennedy on December 21, become first men to orbit moon	USAEIC announces Chinese atmospheric nuclear weapon test, estimated as 3 megatons	BEPO, second oldest UKAEA reactor, is finally shut down
1969			
Jan		USSR affirms readiness to begin talks with USA on control of nuclear missiles	
Feb		Nixon urges prompt ratification of treaty to halt spread of nuclear weapons UK Minister of Defence, Denis Healey, calls on USA to reaffirm commitment to defend Europe with nuclear weapons	
Mar	Anglo-French supersonic aircraft, Concorde, makes its first test flight at Toulouse Eisenhower dies	US Senate approves the nuclear non-proliferation treaty Dr J.B. Adams (UKAEA Member for Research) relinquishes his appointment to become Director of CERN 300 GeV Project	Engineering Group of UKAEA is disbanded — functions and staff allocated to Reactor and Production Groups
Apr	De Gaulle resigns after defeat in national referendum — to be succeeded by Georges Pompidou (15 June)		
May			Materials Testing Reactor at Dounreay (DMTR) is closed down Paymaster-General, referring to report to Minister of Technology, tells House of Commons that nuclear-powered merchant ships would not become competitive with conventional ships in foreseeable future
Jul	Prince Charles is invested as Prince of Wales at Caernarvon Apollo II lunar module Eagle lands on moon — astronauts Armstrong and Aldrin make 2¼ hour moon walk	Arrival of first consignment of irradiated fuel from Japan for reprocessing at Windscale	Report by Select Committee on Science and Technology on nuclear power (HC paper 401)
Sep	Hanoi radio reports death of North Vietnamese President Ho Chi Minh	IAEA 13th General Conference in Vienna China successfully carries out underground nuclear test followed by atmospheric hydrogen bomb test of 3 megatons	
Oct		Geneva disarmament conference — USA and USSR submit joint draft treaty to ban nuclear weapons from ocean floor International nuclear conference (NUCLEX 69) held in Basle, Switzerland	

Nov	US and USSR begin strategic arms limitation talks (SALT) in Helsinki	Memorandum of Understanding between UKAEA and USAEC signed, providing for co-operation in exchange of information in nuclear science and technology	Decision announced to transfer Culcheth metallurgical Laboratories to Risley
		France reverses 15-year policy of nuclear independence by announcing intention to build atomic plants based on US designs	
		USSR President Podgorny and Nixon ratify nuclear non-proliferation treaty	
1970			
Feb	Bertrand Russell dies		
	Geneva Disarmament Conference reconvened		
Mar		Agreement on Collaboration in the Development and Exploitation of the Gas Centrifuge Process for Producing Enriched Uranium is signed by British, German and Dutch governments (Cmnd 4315) to provide for establishment and operation of joint industrial enterprise to build and operate gas centrifuge plants at Almelo, in Holland, and at Capenhurst	First reading in House of Lords of Bill to provide for hiving off of Production Group and RCC Amersham from UKAEA as British Nuclear Fuels Ltd (BNFL) and The Radiochemical Centre Ltd (TRCL)
		Nuclear Non-Proliferation Treaty ratified by 47 states – including USA and USSR – comes into force, with aim of preventing diversion of nuclear materials from peaceful uses to nuclear weapons or other nuclear explosive devices	
Apr	SALT reopens in Vienna	US Senate passes a resolution calling on Nixon to propose to USSR an immediate mutual suspension of deployment of all nuclear strategic weapons	Queen's Award to Industry made to The Radiochemical Centre, Amersham, for technological innovation in production of carbon-14 and its compounds
	China launches its first earth satellite		
May		Series of eight tests of nuclear devices (including one H-bomb) begins at French Polynesian testing ground against background of international protests (series ends 6 August)	
Jun	Conservative Party wins UK general election – Edward Heath becomes Prime Minister		
Jul		General L R Groves – wartime head of US Manhattan Project – dies	First nuclear-powered heart pacemaker successfully implanted at National Heart Hospital
Aug	SALT talks in Vienna are adjourned, to be resumed in Helsinki on 2 November		
Sep		IAEA 14th General Conference held in Vienna	Hans Kronberger, Authority Member for Reactors, dies

Oct	USA, USSR and China explode nuclear devices within hours of each other	Radiological Protection Act, 1970, comes into force Responsibility for atomic energy transferred to Secretary of State for Trade and Industry
Nov	De Gaulle dies	Wantage Radiation Laboratory closed — work and staff transferred to Harwell
Dec	SALT session in Helsinki recessed until March 1971	
1971		
Jan	Telephone service established between East and West Berlin for first time in 19 years	
Feb	Conference of the Committee on Disarmament reconvened in Geneva	Ceremonies in London, Washington and Moscow mark signing by over 60 nations of treaty banning nuclear weapons from the ocean floor
Mar	Fourth round of SALT meetings resumed in Vienna (concluded 28 May)	Sir Leonard Owen, formerly UKAEA Member for Production and Engineering, dies
Apr	Soviet Foreign Minister Gromyko urges US to take seriously a call to improve world relations Nixon announces 10,000-man reduction in US troops in South Vietnam by December Paris Peace talks (on Vietnam) resume Pompidou and Heath agree to promote UK entry into EEC US Presidential Commission recommends admission of Communist China to UN	Atomic Energy Authority Act 1971 comes into effect, transferring Production Group and Radiochemical Centre to British Nuclear Fuels Ltd (BNFL) and The Radiochemical Centre Ltd (TRCL) respectively National Radiological Protection Board is set up under the Radiological Protection Act 1970. It takes over <i>inter alia</i> the Radiological Protection Division of the Authority Health and Safety Branch. The AHSB Safeguards Division, responsible for reactor and plant safety, remains in the UKAEA as the Safety and Reliability Directorate
May	UK and EEC announce agreement on major issues regarding UK membership	
Jun		USSR formally proposes a five-power nuclear disarmament conference to include China Series of nuclear tests (including an H-bomb) commenced at French Polynesian testing ground (to finish 14 Aug) despite international protests
Jul	Fifth round of SALT meetings begin in Helsinki (to 23 September)	CENTEC established at Bensberg in West Germany under the Tripartite Centrifuge Agreement, to design gas centrifuge plant for the enrichment of uranium

Aug New Zealand and Australia announce withdrawal of their combat forces from Vietnam by about end of year

URENCO set up to operate centrifuge plants and market enriched uranium products

Government announces decision to transfer Weapons Group of UKAEA to Ministry of Defence

Sep UK Government orders permanent expulsion of 105 Soviet representatives in Britain charging them with espionage activity

Fourth Geneva Conference on the Peaceful Uses of Atomic Energy

15th General Conference of IAEA in Vienna

US Secretary of State Rogers and Soviet Foreign Minister Gromyko sign agreements on preventing nuclear accidents and modernising the Moscow-Washington "hot-line"

Oct USSR orders the expulsion of five British subjects, prevents the return to Russia of 13 others and cancels high-level exchange visits including one planned by UK Foreign Secretary

Nov Mariner 9, unmanned US spacecraft, goes into orbit around Mars (first man-made object to orbit another planet)

Chinese delegation take their seats in UN General Assembly

USAEC conducts a controversial H-bomb test (5 megatons) on Amchitka Island, following refusal of US Supreme Court to grant an injunction against it

First nuclear power programme (announced Feb 1955) completed with the commissioning of the last Magnox station, at Wylfa, N. Wales

Announcement in Peking of atmospheric nuclear test conducted in "China's western region"

BNFL with the French CEA and the German KEWA, form United Reprocessors GmbH

CEGB, Electricité de France, and two W. German undertakings form an HTR consortium — Euro HGK

1972

Jan Nixon announces withdrawal of 70,000 more US troops from Vietnam before 1 May

Atmospheric nuclear test carried out by Chinese

Treaty providing for entry of UK, Denmark, Ireland and Norway into European Communities is signed in Brussels

Feb Nixon begins week-long visit to China

British coalminers return to work after 7 weeks' strike

Eurodif — Agreement on study of construction of gaseous diffusion plant for uranium enrichment signed in Paris by public and private organisations of six European countries (including BNFL). See April 1973

UN Conference of Committee on Disarmament begins in 1972 session in Geneva

Mar UK and China establish diplomatic relations at ambassadorial level

Chinese weapon test (atmospheric) at Lop Nor, Sinkiang

Vietnam peace talks in Paris suspended indefinitely by USA

	SALT resumed in Helsinki		
May	Nixon visits Moscow — first official visit by any US President		Fast Reactor Training Centre opens at Dounreay
Jun	UN Disarmament Conference resumes meetings in Geneva after 7-month recess	Series of French nuclear tests at Mururoa Atoll in Pacific are reported to have begun despite protests	
Jul	Paris peace talks on Vietnam resumed		
Aug	White House announces further reduction of 12,000 in US troops in Vietnam by December		Secretary of State for Trade and Industry makes statement on government's nuclear reactor policy and announces intention of encouraging consolidation of UK nuclear industry into single strong unit
Sep	UN Disarmament Conference adjourned	16th General Conference of IAEA held in Mexico City	
Oct	Hanoi radio reports that a 9-point peace plan has been agreed between the West and Vietnam	Nuclex '72 held at Basle, Switzerland	
Nov	Nixon re-elected in US Presidential election		Sir Basil Schonland, formerly Director of Harwell, dies
	SALT II, second round of US-USSR strategic arms limitations talks, opens in Geneva		
Dec	Truman, former President of USA, dies	BNFL and SGN (Saint Gobain Techniques Nouvelles) announce agreement to form an association to combine their nuclear fuel reprocessing technology	
1973			
Jan	Treaty of accession, by which UK, Ireland and Denmark formally become part of EEC, goes into effect	UKAEA's main activities come within the ambit of Euratom Treaty and associated technical information exchange with Euratom	
	Ex-President of USA Johnson dies		
	Vietnam peace agreement signed in Paris		
Feb	Heath ends two days of talks with Nixon in Washington	European Council of Ministers accepts a proposition by Commission that Euratom fusion programme be enlarged to include UK programme, subject to necessary financial allocations. Contract of Association will be concluded with UKAEA under which UKAEA work will be jointly managed and costs shared	
Mar	Second phase of SALT II resumes in Geneva, having been in recess since December 1972	UK government accepts recommendations (by panel set up by UKAEA and chaired by Sir Harrie Massey) that UKAEA fusion research should be increased, and that expanded programme should be carried out in association with European Community programme	Secretary of State for Trade and Industry announces Government's agreement to a higher level of effort on fusion programme

		Secretary of State for Trade and Industry announces discussions regarding establishment of a nuclear design and construction company, with share capital as follows: — GEC, 50%; other interested companies, 35%; government (through UKAEA), 15%. National Nuclear Corporation Ltd (NNC) formed on 28 June 1973
Apr	BNFL withdraws from Eurodif project	Under provisions of Atomic Energy Authority (Weapons Group) Act 1973, UKAEA Weapons Group is transferred to Ministry of Defence
Jun	USSR Communist Party Secretary Brezhnev, during visit to USA, signs declaration of principles in which USSR and USA agreed to speed up SALT negotiations and to complete new arms limitation agreement by end of 1974	National Nuclear Corporation (NNC) formed
	Brezhnev signs US/Soviet agreement aimed at avoiding confrontations that could lead to a nuclear war	
	Australian Prime Minister Whitlam announces that Australia will join New Zealand in a joint naval demonstration protesting against planned French nuclear tests in Pacific	
	China explodes its fifteenth nuclear device in atmosphere	
Jul	France begins round of nuclear tests at Mururoa Atoll, South Pacific, despite international protests	Report of Select Committee on Science and Technology, on nuclear power policy, recommends main R&D effort on HTGRs. (HC paper 350)
Aug	US Defense Secretary Schlesinger announces that USSR has successfully tested multiple independently targeted re-entry vehicles (MIRVs) thus apparently drawing abreast of USA in missile technology	French fast reactor, Phenix, goes critical
	William Rogers resigns as US Secretary of State to be replaced by Henry Kissinger	
Sep	Soviet Foreign Minister Gromyko addressing UN General Assembly repeats an earlier suggestion that all five permanent members of Security Council reduce their military budgets by 10%	French government lifts suspension of navigation around Mururoa Atoll; generally interpreted as signifying completion of 1973 series
	SALT II resumes in Geneva	Nuclear Power Advisory Board set up, with Secretary of State for Trade and Industry in the chair
Oct	US Vice-President Agnew resigns	Contract of Association signed between UKAEA and Euratom to advance collaboration in research into controlled nuclear fusion and plasma physics
	Gerald Ford nominated as US Vice-President (took office 6 December)	CENTEC and URENCO merge
	Nobel Peace Prize awarded to Dr. Kissinger for his part in negotiations leading to end of US involvement in Vietnam	
	Organisation of Arab Petroleum Exporting countries agrees to cut flow of oil. Large oil price rises announced by six Persian Gulf countries	

Nov	UK Home Secretary Robert Carr announces state of emergency because of fuel crisis and labour disputes in coal and electricity industries		
Dec	Health announces imposition of three-day working week to begin 1 January 1974 in response to disruptions in energy supplies	French/Italian/German agreement on fast reactor collaboration	CEGB proposals for a nuclear power programme (based on PWRs) of 18 large stations by 1983
1974			
Jan	Department of Energy established in UK	Lewis Strauss, former chairman of USAEC, dies	Transfer of responsibility for atomic energy to Secretary of State for Energy Report by Select Committee on Science and Technology, on the choice of a reactor system (HC paper 145) did not favour CEGB's PWR proposals
Feb	Coal miners in UK strike causing Prime Minister to dissolve Parliament and call general election on 28 February Communiqué, following three-day energy conference in Washington of 13 major oil-consuming nations, endorses US proposal for co-operation in dealing with energy crisis General election in UK — neither party gains a majority of seats		
Mar	Harold Wilson appointed as British Prime Minister following abortive attempt by Edward Heath to form coalition Three-day week in UK cancelled and state of emergency ended Dr. Kissinger's talks with Soviet leaders in Moscow end. No substantive progress made towards breaking deadlock in SALT II		Loading of fuel into Prototype Fast Reactor (PFR) at Dounreay is completed and reactor starts operating at low power
Apr	UK seeks renegotiations of EEC terms following Labour Party's election promises		Energy Technology Support Unit (ETSU) is set up at Harwell to assess various options open to UK and to formulate relevant programmes of R & D in field of non-nuclear energy
May		India explodes her first nuclear device in underground test in Rajasthan Desert becoming world's sixth nuclear power. Indian government announces it as "a peaceful nuclear explosion experiment" and states that "India has no intention of producing nuclear weapons"	

- Jun** Nixon arrives in Moscow for talks with Brezhnev. They pledge a "strengthening of universal peace" and express hope that USA and USSR can make significant progress in control of nuclear weapons
- Chinese government announces successful (atmospheric) nuclear test — the sixteenth since Oct 1964
- Wilson announces recent British nuclear weapon test underground at US Nevada testing ground
- Report of Select Committee on Science and Technology on nuclear power policy (HC paper 350)
- Jul** Patrick Blackett (Lord Blackett) dies
- Sir James Chadwick dies
- Dr W Marshall, Deputy Chairman, UKAEA, appointed as Chief Scientist in Department of Energy while remaining a member of UKAEA
- Secretary of State for Defence makes detailed statement to House of Commons about weapon tests conducted by USSR, USA, France, China and Britain, since August 1963 when Partial Test Ban Treaty came into force. He says NATO must maintain a range of options which must include nuclear weapons as well as strong conventional forces.
- Secretary of State for Energy announces government decision that electricity boards should adopt SGHWR for their next nuclear power station; and top priority is to be given to success of SGHWR; work on HTRs is to be run down but effort on fast reactors maintained
- Aug** Nixon announces intention to resign because he had lost his "political base in Congress" following "Watergate" affair
- Gerald Ford is sworn in as US President
- Nelson Rockefeller nominated for US Vice-Presidency (sworn in 19 December 1974)
- Sep** USA and East Germany establish diplomatic relations
- Ford grants ex-President Nixon a full pardon for all federal crimes he "committed or may have committed or taken part in"
- Report of Nuclear Power Advisory Board "The Choice of Thermal Reactor Systems" is undecided between PWR and AGR for next nuclear power programme (Cmnd 5731)
- Oct** Second UK general election in one year results in slim overall majority for Labour Party
- Ford and Brezhnev reach tentative agreement to limit their countries' offensive strategic nuclear weapons and delivery vehicles through 1985
- Independence and Deterrence: Britain and Atomic Energy 1945-1952* (M M Gowling) published by Macmillan
- Nov** Democratic gains in US elections for both houses of Congress
- Dec** UK Defence Secretary Roy Mason announces plans to cut defence spending
- International Court of Justice at The Hague decides to discontinue proceedings brought by Australia and New Zealand against French nuclear tests in light of French government's decision to discontinue atmospheric testing
- UK government announces mandatory energy-saving programme aimed at reducing consumption by 10%

1975

Jan	Wilson announces referendum on issue of UK membership of EEC Wilson and Foreign Secretary Callaghan visit Washington for talks with Ford and Secretary of State Kissinger	USAEC is replaced by ERDA (Energy Research and Development Administration) and NRC (Nuclear Regulatory Commission)	
Feb	Mrs M Thatcher succeeds Heath as Conservative Party Leader and Leader of the Opposition Wilson and Callaghan visit Moscow for talks with Brezhnev, Kosygin and Gromyko		Electricity generation stage reached by Prototype Fast Reactor (PFR) at Dounreay Secretary of State for Energy announces that consents had been given for construction of SGHWRs at Sizewell and Torness (capital investment approval 30 September 1975)
Mar			Statement on Defence Estimates 1975 (Cmnd 5976) states that government did not intend to move to new generation of strategic nuclear weapons NNC assumes responsibility for completing civil nuclear power stations still under construction
Apr		European Nuclear Society established First European Nuclear Energy Conference held in Paris	Nuclear Power Company Ltd (NPC) is established as operating arm of National Nuclear Corporation (NNC) and takes over TNPg and BNDC (see above — March 1972) Dounreay's Prototype Fast Reactor (PFR) begins supplying electricity to the grid
May		Nuclear Non-Proliferation Conference held in Geneva to review treaty of 1968	
Jun	Suez Canal re-opened to international traffic eight years after its closure Substantial "Yes" vote in referendum on continued UK membership of EEC Britain's first off-shore oil delivered	President Park of South Korea says in an interview "If the United States withdraw their nuclear umbrella we shall have to develop our own nuclear capacity to defend ourselves." It is announced that 16 uranium producers including Britain have set up a Uranium Institute in London to (a) promote development in use of uranium to safeguard energy supplies; (b) carry out research and investigation on world demand for uranium, uranium resources and production capacity; (c) exchange information on uranium; and (d) consult with governments etc on behalf of the uranium industry	
Jul	Link-up in space of US and Soviet spacecraft		
Aug	White Paper (Cmnd 6198) published containing the "Final Act" of the European Security Conference following its last session in Helsinki		Decision announced to close Dounreay Fast Reactor (DFR) in October 1976

1972 London Convention (on prevention of marine pollution by sea dumping) comes into force

Sep 19th Annual Conference of IAEA in Vienna

USSR proposes total test ban to UN

Oct Nuclex '75 held in Bastle

Rasmussen report on reactor safety (WASH 1400)

Nov Conference of Heads of Government of six major non-communist economic powers held near Paris to discuss international economic and monetary situation

General Franco dies

National Enterprise Board set up under Industry Act

Dec Agreement signed between IAEA and EEC providing for exchange of information and close co-operation

1976

Jan Death of Chou En-Lai

Seven nation agreement on Harmonisation of Export of Nuclear Material and Technology confirmed by exchange of letters

Feb Reactor No 1 at Hunterston B generates the first electricity produced by a commercial AGR

Mar Dragon project at Wntrith terminated

Apr Wilson resigns to be succeeded as Prime Minister by James Callaghan

May Treaty controlling underground nuclear explosions for non-military purposes signed by USA and USSR

Jun Construction begins on TRC second site near Cardiff

Jul US Viking spacecraft lands on Mars

UKAEA advises government that SGHWR power programme should be replaced by PWR or AGR

Aug AEA Reactor Policy Review published by Department of Energy

Sep Death of Mao Tse-Tung

Agreement signed between UK, IAEA and Euratom providing for submission of British non-military nuclear installations to international safeguards under IAEA supervision

Publication of Report by Royal Commission on Environmental Pollution – "Nuclear Power and the Environment" – generally known as the Flowers Report (Cmnd 6618)

Oct Marshall Report published on the assessment of the integrity of PWR pressure vessels

Nov The Democratic candidate, Jimmy Carter, wins American presidential election

Dec Statement by Secretary of State for the Environment on BNFL's planning application for further development at Windscale
 Report of Select Committee on Science and Technology, "The SGHWR Programme" (HC paper 89)

1977

Jan Carter inaugurated as 39th President of the USA
 Death of Lord Avon (formerly Sir Anthony Eden)

Mar "Lib-Lab" co-operation agreement announced
 PFR achieves full thermal power
 DFR shut-down by Lord Hinton of Bankside after 17 years' operation

Apr Carter announces measures proposed to reduce energy consumption and preserve world energy resources

May London economic summit meeting: recognises need for increased reliance on nuclear power
 Sunningdale seminar on nuclear energy policy (summary of discussions published July 1977)
 Government response to Flowers Report (Cmnd 6820)

Jun Public Inquiry opens on BNFL's plan to build a thermal oxide reprocessing plant (THORP) at Windscale (closes 4 November)

Jul NNC survey of thermal reactor systems compares AGR, PWR and SGHWR. NII reports on generic safety issues of PWRs

Aug Government announce that any decision to build the first commercial demonstration fast reactor would be subject to a wide-ranging inquiry

Sep Formal opening of URENCO's first full-scale centrifuge enrichment plant at Capenhurst
 AEA (Special Constables) Act

Oct	Energy Commission set up under Chairmanship of Secretary of State for Energy	Decision taken by European Council of Ministers to site the Joint European Torus (JET) at the UKAEA site at Culham	
		International Nuclear Fuel Cycle Evaluation (INFCE) inaugurated in Washington as a forum for discussion of the dangers of nuclear proliferation	
		US-ERDA (see Jan 1975) wound up and absorbed in Department of Energy	
		Foreign Secretary Owen visits Moscow to meet Kosygin and Gromyko, signing <i>Inter alia</i> an agreement on prevention of any accidental outbreak of nuclear war	
Nov	President Sadat of Egypt visits Israel – beginning the diplomatic moves towards a peace treaty		
Dec	Prime Minister Begin of Israel visits Egypt		
1978			
Jan			Announcement by the Secretary of State for Energy that construction of two further AGR stations would be approved and that the option of adopting the PWR system in the early 80s should be developed; work on SGHWR to end
Mar			Report of Windscale Inquiry published
May	"Lib-Lab" co-operation agreement ends Special session of UN General Assembly on disarmament (to 1st July)		Secretary of State for the Environment announces acceptance of recommendations of Report of Windscale Inquiry on the thermal oxide reprocessing plant (THORP) Radioactive Waste Management Advisory Committee set up Secretary of State for Scotland gives consent for AGR power station at Torness, East Lothian
Jun		JET project begins at Culham	
Jul	Fourth "economic summit" of heads of state of seven major non-communist countries in Bonn		
Aug			Pochin enquiry set up after radioactive contamination of staff at Aldermaston
Sep	Marital law in Iran		

In USA, Camp David meeting (Carter/Begin/Sadat) ends successfully

Oct

Nuclex 78 in Basle, Switzerland

UKAEA and BNFL extend studies of employee mortality to include former employees as far as practicable

Nov

Soviet cosmonauts in Soyuz spacecraft set new endurance record of 139 days 14 hrs

Pochin report on radiological health and safety at Aldermaston submitted

Dec

OPEC increases oil prices with effect from 1 Jan 1979
Crisis in Iran becomes acute after 2 months of turmoil
China and USA establish full diplomatic relations

1979

Jan

Shah of Iran goes into exile

Feb

Ayatollah Khomeini returns to Iran

Anglo-Dutch-German consortium URENCO to expand uranium enrichment capacity at Capenhurst and Almelo; new German firm to be set up.

Mar

EEC inaugurates new monetary system; UK remains outside.
Egypt and Israel sign peace treaty
OPEC again raises oil prices

Accident at Three Mile Island (TMI), nuclear power station at Harrisburg, Pennsylvania (28 Mar)

In UK, Labour government loses vote of confidence by 310 votes to 311

US satellite Voyager I relays data on Jupiter

Apr

In Rhodesia, first universal suffrage elections since UDI (1965) won by Bishop Muzorewa

President Carter sets up Kemeny Commission to report on TMI accident

May

In UK general election (3 May), Conservatives win overall majority. Mrs Thatcher forms government

USA and USSR complete draft treaty on strategic arms limitation (SALT II), to replace SALT I (signed 1972, expired 1977)

NATO endorses SALT II and warns that rejection by US Senate would be disastrous

Greece admitted to EEC with effect from Jan 1981

Jun First direct elections to European Parliament

SALT II signed by Carter and Brezhnev in Vienna

Fifth economic summit in Tokyo agrees to limit oil imports, and endorses worldwide commitment to nuclear power

Jul Carter outlines new US energy programme

Health and Safety Executive (HSE) to carry out comprehensive safety review of Windscale

Marshall report on combined heat and power generation in the UK

Investment approval for Heysham B station (AGR)

Aug Geneva Disarmament Conference (set up in 1962 as a conference of the 18-nation Committee on Disarmament) ends without any new resolutions

British Civil Uranium Procurement Directorate set up (with Uranium Procurement Organisation located in CEGB)

Lord Mountbatten murdered in Ireland

Sep US unmanned satellite Pioneer II transmits data on Saturn

New processing plant for PFR starts up at Dounreay.

Parley on Rhodesia begins in London

Expert Group reports to the Radioactive Waste Management Advisory Committee after reviewing Cmnd 884 (Nov 1959) on Control of Radioactive Wastes

Oct USSR to buy record quantities of US grain because of poor harvest

Kemeny Commission presents report to President Carter

Work begins on SSEB's AGR power station at Torness, East Lothian

NATO issues statement reaffirming intention to deploy Cruise and Pershing missiles in Europe, falling satisfactory agreement with USSR

Nov Iranians seize US embassy in Teheran and take 90 hostages

USA and UK agreement on collaboration on fast reactor safety research signed

Mrs Thatcher reveals Sir Anthony Blunt as former member of Philby/Burgess/Maclean spy ring

At Dublin meeting of European Council, EEC rejects UK demands for reduced contribution

Dec Hostages in Iran — UN and International Court of Justice condemn Iran

Anglo-German agreement on reactor safety signed

Mrs Thatcher visits USA

Otto Frisch dies

London talks on Zimbabwe end successfully after 4 months and peace agreement is signed

Statement by Secretary of State for Energy on the nuclear power programme reaffirms the AGR stations at Heysham and Torness: the next power station to be a PWR (subject to the necessary approvals); one nuclear power station a year to be ordered from 1982 on, or 15000 MW over ten years. NNC and NPC to be reorganised in a single-tier structure

USSR invades Afghanistan

Health and Safety Executive (HSE) issues report on the generic safety issues of PWRs
UKAEA proposals for fast reactor development submitted to the Secretary of State

1980

Jan USA limits grain for USSR as protest against invasion of Afghanistan

UN condemns invasion and demands withdrawal of troops
Andrey Sakharov is exiled to Gorky

Feb UN Commission selected to visit Iran
Fighting continues in Lebanon
INFC (see Oct 1977) holds final plenary session in Vienna; issues communiqué emphasising that proliferation is primarily a political problem requiring political solutions

HSE reports on leak from silo at Windscale

Mar Robert Mugabe wins election in Zimbabwe (Rhodesia)
UN Commission rebuffed in Teheran

HSE reports on sea transport of plutonium nitrate from Dounreay to Windscale

Apr Zimbabwe becomes independent
US mission to rescue hostages from Iran fails with loss of 8 lives
UK steel strike ends after 13 weeks

World's largest fast reactor in operation in USSR

CEGB announces letter of intent for a PWR station to NINC (for design and manufacture)

May President Tito of Yugoslavia dies

Jun Economic summit meeting in Venice
In UK, Secretary of State for Energy announces long-term strategy to reduce dependence on oil

President announces France has developed neutron bomb

CEGB sends letter of intent to BNFL for PWR fuel
Site licence for Torness power station (AGR) is issued to SSEB

Jul UK announces decision to buy Trident system
Deposed Shah of Iran dies in Cairo

HSE report on 1979 leakage of radioactive liquid at Windscale concludes there was no hazard but is critical of BNFL.

Aug In Poland, labour unrest reaches crisis proportions: 17,000 workers seize shipyard in Gdansk

Construction work on Heysham II and Torness begins

Sep Polish unions form national body, Solidarity
Iran-Iraq conflicts escalate into full scale war

Hunterston B (AGR station) formally inaugurated

Oct	Greece rejoins NATO having withdrawn in 1974 Solidarity achieves legal status in Poland	China conducts atmospheric nuclear weapon test	CEGB announces Sizewell as site for PWR power station
Nov	Reagan elected as President of USA		BNFL announces intention of adopting French process (AVM) for first Windscale vitrification plant (WVP) for solidifying highly active liquid wastes. AVM considered more flexible than the British HARVEST process.
Dec	USA, NATO and EEC warn USSR against invading Poland Brezhnev proposals for Persian Gulf peace plan rejected by USA		Government introduces proposals for sale of up to 100% of the shares in TRCL
1981			
Jan	Greece joins EEC Iran releases US hostages after 444 days' captivity		
Feb	Gen. Jaruzelski becomes Prime Minister of Poland Right wing coup in Spain fails Brezhnev calls for East-West summit to restore normal relations		CEGB applies to the Secretary of State for Energy for consent to build a PWR station at Sizewell (Sizewell B) Report of Select Committee on Energy "The Government's Statement on the New Nuclear Power Programme" (HC paper 114-1) Dr Walter Marshall succeeds Sir John Hill as chairman of UKAEA. Sir John Hill continues as part-time chairman of BNFL and TRCL Plan for epidemiological study of radiation workers published by National Radiological Protection Board (NRPB-R116)
Mar	New political party (the Social Democratic Party) formed in UK Reagan shot in assassination attempt in Washington DC		
Apr			Windscale prototype AGR (WAGR) ceases operation after 18 years. HSE report on management of safety at Windscale
May	Mitterand elected President of France Masonic scandal in Italy – government falls		The Radiochemical Centre Ltd (TRCL) is renamed Amersham International Ltd; new site at Cardiff officially opened

Pope shot in assassination attempt in Rome
 OPEC freezes oil prices and cuts production

Jun

Israeli bombers destroy Iraq's Osirak reactor near Baghdad

Jul

Riots in some British inner cities
 Israeli aircraft bomb Beirut
 Economic summit meeting in Ottawa

Secretary of State for Energy announces setting up of PWR task force under Marshall to expedite development of design for Britain's first PWR

Government White Paper, 'Nuclear Power: the Government's response to the Select Committee on Energy's report on the Nuclear Power Programme' (Cmd 8317) reaffirms the Dec 1979 programme

Atomic Energy (Miscellaneous Provisions) Act becomes law, empowering government to sell up to 100% of its shares in Amersham International

Aug

US Administration announces USA is producing neutron weapons

Oct

President Anwar Sadat of Egypt assassinated in Cairo.
 NATO confirms intention to deploy nuclear missiles in Europe, but will cancel if USSR will remove weapons targeted on W. Europe
 USA reports that US/USSR trade is up 50% since 1980
 At Cancun in Mexico, leaders of 22 nations discuss co-operation between rich and poor countries but reach no specific agreements

NNC and CEEGB sign agreement on construction of second AGR at Heysham (Heysham II)

Nov

US space shuttle Columbia makes second flight (first re-use of a manned space vehicle)
 Reagan announces he has written to Brezhnev offering non-deployment of Cruise and Pershing missiles in Europe in exchange for removal of Soviet SS20s targeted on W. Europe
 W Germany and USSR agree to construct Siberian gas pipeline to W Europe: USA opposes the deal
 Brezhnev visits Bonn for discussions with Helmut Schmidt
 US/USSR arms talks (on reduction of medium range nuclear weapons in Europe) begin in Geneva

Dec	3-man military junta takes power in Argentina Martial law in Poland Israel annexes Golan Heights USA suspends pact with Israel Reagan announces sanctions against USSR because of repression in Poland	Government decides underground method of high level waste disposal is established, and discontinues programme of geological test drilling: serious consideration to be given to storing highly active wastes above ground, in solid form, for at least 50 years
1982		
Jan	Hundreds of arrests during clashes in Poland	Secretary of State for Energy announces Sizewell B inquiry will open in Jan 1983 under Sir Frank Layfield, QC CEEGB publishes "The Safety of the AGR" BNFL publishes report on implementation of Windscale Safety review (see Apr 1981)
Feb	US rejects idea of comprehensive test ban treaty	House of Commons debate on the nuclear power programme (1 Feb) Amersham International shares go on sale
Mar	OPEC agrees to cut oil production further to shore up prices US Congressional move for a "nuclear freeze" — much support in the country	
Apr	Argentina seizes the Falkland Islands (2 Apr)	Second report of Marshall study group on the assessment of the integrity of PWR pressure vessels: (1st report 1976)
May	British submarine sinks Argentine warship 'Belgrano' (2 May) British troops land on the Falklands (21 May)	
Jun	Spain joins NATO Economic summit meeting at Versailles Argentine troops on the Falklands surrender (15 Jun) Israel invades Lebanon Argentine junta falls	1977 US/UK agreement on nuclear safety renewed for 5 years by Nuclear Regulatory Commission (NRC) and UKAEA (SRD) BNFL seeks planning approval for vitrification plant at Windscale

	EastWest talks begin in Geneva on strategic arms reduction (START)	
Jul	UN second special conference (7-10 July), on disarmament is unable to reach agreement on comprehensive programme of disarmament Iranian troops advance into Iraq "The walk in the woods" — US and Soviet representatives in Geneva reach tentative agreement on reduction of missiles	Sir Walter Marshall becomes chairman of CEEGB White Paper on 'Radioactive waste management' (Cmd 8607) reports on action taken in response to Flowers Report (see Sep 1976) and announces setting up of Nuclear Industry Radioactive Waste Executive (NIREX) "Sizewell B: a review by HM Nuclear Installations Inspectorate of the Pre-construction Safety Report" says no fundamental reason to regard safety as obstacle to selection of PWR
Aug	Israelis continue offensive in Lebanon EEC rejects Reagan's embargo on Siberian gas pipe-line International peace-keeping force deployed in Lebanon	First successful on-load refuelling of an AGR (at Hunterston B)
Sep	Massacres in refugee camps in Lebanon (at Sabra and Shatila) Mrs. Thatcher visits Japan and China	International Nuclear Waste Management Conference at Winnipeg, Canada
Oct	Helmut Kohl replaces Helmut Schmidt as W. German Chancellor Polish Parliament bans Solidarity	Sir Peter Hirsch appointed Chairman of UKAEA
Nov	British spy Geoffrey Prime sentenced to 35 years Brezhnev dies and is succeeded by Andropov Reagan lifts embargo on US technology for Siberian gas pipe-line Lech Walesa, leader of Polish Solidarity, released after 11 months' detention US sanctions against USSR lifted	Health and Safety Commission (HSC) issues consultative document on protection against ionising radiation, with new draft regulations and code of practice BNFL scheme announced for compensation in cases of cancer which it is considered may be linked to radiation exposure Secretary of State for Energy announces fast reactor policy (29 Nov) — a substantial development based on Dounreay, with a view to series ordering early in the next century; international collaboration to be considered Report by Peat Marwick Mitchell on efficiency and economy in UKAEA — some improvements suggested but no overall cause for concern

Dec	NATO Foreign Ministers again confirm intention to deploy Cruise and Pershing missiles falling satisfactory agreement with Warsaw Pact Andropov makes proposals for reduction of missile strengths in Europe	Nuclear share of electricity generated in UK reaches 16.5% "Some Aspects of Safety in PWRs" (report by Advisory Committee on the Safety of Nuclear Installations) published by Health and Safety Commission
1983		
Jan	Warsaw Pact makes new proposals for disarmament and non-aggression pact with NATO Franks report on the background to the Falkland crisis US/USSR talks on intermediate range nuclear forces in Europe (INF) resume in Geneva. In Vienna, NATO/Warsaw Pact talks on mutual and balanced force reductions (MBFR) also resume	Sizewell B enquiry opens at Aldeburgh Statistical study announced of mortality and cancer incidence among participants in British atmospheric weapon tests – NRPB to carry out
Feb	START talks resumed in Geneva Iran launches major offensive against Iraq Madrid Conference (2nd Conference on Security and Co-operation in Europe) Attacks on peace-keeping forces in Lebanon (Feb/Mar)	London Convention adopts resolution calling for suspension of sea-dumping, pending scientific findings due Nov 1985
Mar	Reagan announces plans for anti-missile system by end of century	
Apr	Large demonstrations against Cruise and Pershing missiles, in UK, W. Germany and elsewhere in Europe "The Hitler Diaries" – 60 volumes alleged found	
May	Israel and Lebanon end the state of war between them	Secretary of State for Energy defines UKAEA objectives and asks for proposals regarding its main programmes, especially on fast reactors
Jun	UK general election returns Conservative government under Mrs Thatcher in landslide victory Elections for first directly-elected European Parliament	Lord Hinton of Bankside dies JET operates at Culham

Jul	Chancellor Kohl visits Moscow UK cuts in public expenditure and sale of publicly-owned assets announced Talks begin in Peking on future of Hong Kong Marital law lifted in Poland	Agreement signed between UK and France that French government will inform the British Government of any incidents which could have radiological consequences in the UK	
Sep	S. Korean airliner shot down in Soviet airspace (1 Sep) Reagan puts forward new proposals for intermediate range nuclear force reductions, to include bombers and missiles		Secretary of State for Energy announces decision to open formal negotiations on joint development of fast reactors with France, Germany, Italy, Belgium and Netherlands
Oct	Reagan's "build-down" disarmament proposals — for every new land-based nuclear missile, one old one to be destroyed US forces land in Grenada, following a coup on the island Large demonstrations in London, Rome, Bonn and Brussels against Cruise and Pershing missiles	China becomes 112th member of IAEA	Billingham and Elstow named as possible sites for nuclear waste depositories
Nov	First Cruise missiles arrive in UK and Italy; first Pershing missiles reach Germany Soviet delegation withdraws from INF talks in Geneva in protest against missile deployment		Secretary of State for the Environment announces enquiry into Sellafield (formerly Windscale) and the public health aspects of its operations. Enquiry under Sir Douglas Black set up by Secretary of State for Social Services to examine cancer and leukaemia incidence (reported in July 1984) Other enquiries by NRPB, Oxford University and the Medical Research Council Abnormal waste discharges from Sellafield contaminate local beaches, which are closed to the public Investigations initiated by NII, MAFF, NRPB, and Radiochemical Inspectorate (Department of Environment)
Dec	Violence continues in Beirut; multinational peace-keeping force under attack US combat troops leave Grenada START talks in Geneva and MBFR talks in Vienna adjourned <i>sine die</i> EEC heads of government meet in Athens — no solution of major issues	UK/Australia agreement on collaboration in research into methods of solidification of highly active liquid waste (in particular the Australian Synroc method)	Secretary of State for the Environment makes statement (21 December) on the Sellafield discharges and the various investigations. Reports by NRPB and MAFF published 21 Dec

Bombing campaign in London by IRA

1984

Jan Chinese Prime Minister visits US and Canada
Stockholm Conference on confidence and security building
measures and disarmament in Europe

UK, France, W Germany, Italy and Belgium sign memorandum
of understanding on fast reactor collaboration

New project management board (PMB) formed for
Sizewell B

Feb Mrs Thatcher visits Hungary
Multinational peace-keeping force contingents withdraw
from Lebanon (Feb/Mar)

Report on health statistics of 11,000 Sellafield (Windscale)
employees (past and present) shows no excess of cancer
deaths

President Andropov dies (9 Feb) and is succeeded (as
General Secretary of the Communist Party of USSR) by
Konstantin Chernenko

Secretary of State for the Environment makes further
statement on Sellafield abnormal discharges in Nov 1983

Iran launches major offensive against Iraq

Mar

Lebanon — national reconciliation talks in Lausanne

MBFR talks resumed in Vienna (broken off Dec 1983)

EEC heads of government meet in Brussels — no agreement
on budget issues

Miners in UK begin prolonged strike against pit closure plan

Apr US presents draft treaty outlawing chemical weapons to UN
Conference on Disarmament in Geneva

JET officially opened at Culham by HM The Queen

Report of UK parliamentary enquiry into the Grenada crisis

Siege of the Libyan People's Bureau in London

Reagan visits China

Appendix I: MINISTERIAL RESPONSIBILITY

Minister of Supply

John Wilmot
George Strauss
Duncan Sandys

October 1945 – October 1947
October 1947 – October 1951
October 1951 – December 1953*
*from April 1952 – December 1953 a Prime Ministerial Directive made the Paymaster General, Lord Cherwell, jointly responsible

Lord President of the Council

Lord Salisbury

January 1954 – April 1957

Prime Minister

Harold Macmillan

April 1957 – November 1959

Lord Privy Seal and Minister for Science

Lord Hallsham (Quintin Hogg)

November 1959 – March 1964

Secretary of State for Education and Science

Quintin Hogg
Michael Stewart

April 1964 – October 1964
October 1964 – December 1964

Minister of Technology

Frank Cousins
Tony Benn
Geoffrey Rippon

January 1965 – July 1966
July 1966 – June 1970
June 1970 – October 1970

Secretary of State for Trade and Industry

John Davies
Peter Walker

October 1970 – November 1972
November 1972 – January 1974

Secretary of State for Energy

Lord Carrington
Eric Varley
Tony Benn
David Howell
Nigel Lawson
Peter Walker

January 1974 – March 1974
March 1974 – June 1975
June 1975 – May 1979
May 1979 – September 1981
September 1981 – June 1983
June 1983 to date

APPENDIX II: AUTHORITY CHAIRMEN AND FULL-TIME MEMBERS (in alphabetical order – chairmen in bold type) *Founder Members

Dr J B (later Sir John) Adams

Member for Research

October 1966 – March 1969

Mr A M Allen

Member for Administration
Member for Finance and Administration
Deputy Chairman and Member for Finance and Administration
Deputy Chairman and Chief Executive
Chairman

July 1971 – December 1975
January 1976 – May 1981
May 1981 – October 1981
October 1981 – September 1984
from October 1984

Air Chief Marshal Sir Denis Barnett

Member for Weapons Research and Development

May 1965 – April 1972

***Sir John Cockcroft**

Member for Scientific Research

August 1954 – June 1959

Sir William Cook

Member for Engineering and Production
Member for Development and Engineering
Member for Reactors

February 1958 – June 1959
July 1959 – March 1961
April 1961 – August 1964

Sir Charles Cunningham	Member Deputy Chairman	July 1966 – October 1966 November 1966 – June 1971
Mr F J Doggett	Deputy Chairman	July 1971 – December 1975
Dr N L Franklin	Member for Production	January 1969 – March 1971
Dr J M (now Sir John) Hill	Member for Production Chairman	August 1964 – October 1967 October 1967 – February 1981
*Sir Christopher (later Lord) Hinton	Member for Engineering and Production	August 1954 – August 1957
Sir Peter Hirsch	Chairman	October 1982 – September 1984
Sir Alan Hitchman	Member for External Relations and Commercial Policy Member for Finance and Administration Deputy Chairman	April 1959 – July 1960 August 1960 – February 1964 February 1964 – October 1966
Dr H Kronberger	Member for Reactor Development	January 1969 – September 1970
Dr N Levin	Member for Weapons Research and Development	1-25 January 1965
Sir Roger Makins (now Lord Sheffield)	Chairman	January 1960 – February 1964
Dr W (now Sir Walter) Marshall	Member Deputy Chairman Chairman	May 1972 – December 1975 December 1975 – February 1981 February 1981 – June 1982
Dr T N Marsham	Member	August 1979 to date
Mr R V Moore	Member	March 1971 – September 1976
Sir Leonard Owen	Member for Production (designate) Member for Production Member for Production and Engineering	July – December 1959 January 1969 – March 1961 April 1961 – June 1962
Air Chief Marshal Sir Claude Pelly	Member for Weapons Research and Development	January 1960 – December 1964
*Sir William (now Lord) Penney	Member for Weapons Research and Development Member for Scientific Research Deputy Chairman Chairman	August 1954 – June 1959 July 1959 – March 1961 April 1961 – February 1964 February 1964 – October 1967
*Sir Donald Perrott	Member for Finance and Administration	August 1954 – July 1960

*Sir Edwin (now Lord) Plowden	Chairman	August 1954 – December 1959
Dr Lewis Roberts	Member	August 1979 to date
Mr J C C Stewart	Member for Production Member for Reactors	September 1963 – August 1964 August 1964 – December 1968
Mr W (later Sir William) Strath	Member for External Relations and Commercial Policy	October 1955 – March 1959
Dr F A (now Sir Arthur) Vick	Member for Research	February 1964 – September 1966

APPENDIX III

PART-TIME MEMBERS (in alphabetical order)

Mr C Allday	March 1976 to date
Mr F E Bonner	July 1977 to date
Mr E S Booth	October 1965 – June 1972
Sir John Boyd	August 1980 to date
Mr J Bullock	November 1981 to date
Lord Carron	April 1967 – December 1969
Sir James Chadwick	August 1957 – August 1962
Lord Cherwell	August 1954 – July 1957
Lord Citrine	January 1958 – December 1962
Sir John Cockcroft	July 1959 – September 1967
Sir Alan Cottrell	September 1962 – June 1965. September 1983 to date
Mr J C Duckworth	February 1965 – February 1971
Sir Luke Fawcett	August 1954 – December 1957
Lord Flowers	March 1971 – February 1981
Dr N L Franklin	April 1971 to date
Lord Geddes	January 1963 – December 1965
Mr R M Geddes	November 1960 – November 1965
Sir Peter Hirsch	April 1982 to date (Chairman October 1982 – September 1984)

Lord Kearton	October 1955 – May 1981
Mr I T Manley	June 1981 to date
Sir Leonard Owen	July 1962 – June 1964
Mr S J Pears	May 1960 – April 1972
Mr R A Peddie	July 1972 – June 1977
Mr Roy E J Roberts	September 1981 to date
Sir Rowland Smith	October 1955 – October 1960
Sir Ivan Stedeford	August 1954 – July 1959
Mr B G Tucker	March 1976 – March 1981
Mr W B S Walker	September 1972 – August 1981
Sir Leslie Williams	July 1970 – July 1980

APPENDIX IV

SECRETARIES

Sir Donald Perrot	August 1954 – January 1955
Mr D E H Peirson	January 1955 – December 1970
Mr A M Allen	January 1971 – March 1976
Mr P J Searby	April 1976 to date

Nuclear Power Stations in UK

MAGNOX stations	Date of commissioning	Net capacity
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Calder Hall	1956	200
Chapelcross	1958	200
Berkeley	1962	276
Bradwell	1962	250
Dungeness 'A'	1965	410
Hinkley Point 'A'	1965	430
Hunterston 'A'	1964	300
Oldbury on Severn	1967	416
Sizewell 'A'	1966	420
Trawsfynydd	1965	390
Wyifa	1971	840

AGR stations	Date of commissioning	Nominal capacity
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Hinkley Point 'B'	1976	1320
Hunterston 'B'	1976	1320
Dungeness 'B'	1984	1200
Hartlepool	1984	1320
Heysham I	1984	1320
Heysham II	Late 1980s	1320
Torness	Late 1980s	1320

OTHER stations	Date of commissioning	Nominal capacity
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Wintrith (SGHWR)	1968	100
Dounreay (PFR)	1975	250

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- Nuclear Power Stations
- Nuclear Fuel Sites
- ▲ R and D Engineering Establishments

