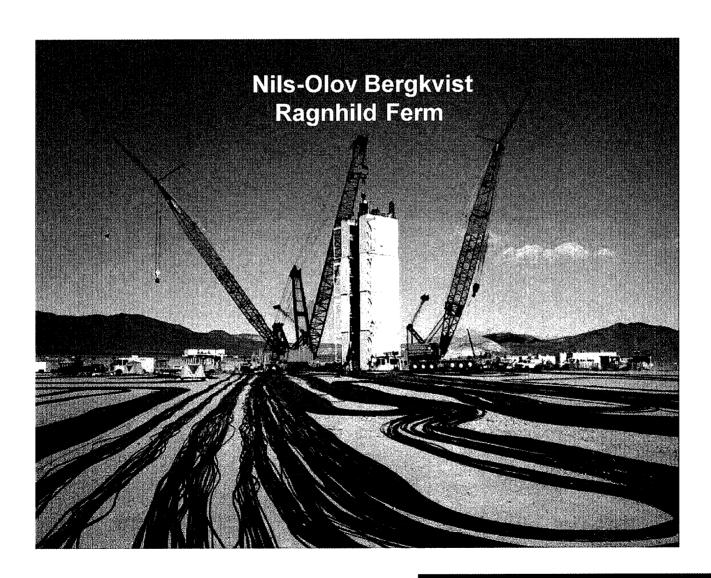


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ISSN 1104-9154



Nuclear Explosions 1945 - 1998



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Nuclear Explosions 1945 - 1998

Nils-Olov Bergkvist Ragnhild Ferm

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Nuclear Explosions 1945 - 1998						
Abstract						
The main part of this report is a list of nuclear extunion, the United Kingdom, France, China, India a nuclear test explosions and is compiled from a varietion from the USA, Russia and France. The details yield, type, etc.) are often compiled from more than complete information. The report includes a short be mation on the Comprehensive Nuclear-Test-Ban T established to verify compliance with the treaty. It The list should be used with some caution because some of the data could be incorrect. This report is the Establishment (FOA) and the Stockholm Internation An electronic version of the list may be obtained from the Comprehensive Nuclear and the Stockholm Internation and the Stockholm	and Pakistan in 1945–98. The ty of sources including office given for each explosion (done source because the indivackground to nuclear testing reaty (CTBT) and the verificalso summarizes nuclear teits compilation from a variee result of cooperation between al Peace Research Institute om FOA on request.	ne list includes all known cially published informa- ate, origin time, location, vidual sources do not give and provides brief infor- ication regime now being sting country by country. ety of sources means that een the Defence Research et (SIPRI).				
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Sammanfattning	
explosioner som genomförts av USA, Sovjetunionen under tiden 1945–98. Listan baseras på ett flertal källoch Frankrike. Eftersom källorna var för sig inte ger varje explosion (datum, källtid, lokalisering, laddnings innehåller också en kortfattad historik över ländernas pamt en sammanställning av antalet kärnexplosioner användas med viss försiktighet, eftersom uppgifterna l	form redovisa en fullständig lista över kärnladdnings, Storbritannien, Frankrike, Kina, Indien och Pakistan or, inklusive officiell information från USA, Ryssland en komplett bild, är den information som redovisas för styrka, typ etc.) ofta hämtad från flera källor. Rapporten provverksamhet och en summering av provstoppsavtalet utförda av de sju staterna. Informationen i listan bör har hämtats in från många olika källor och viss informatoundvikliga. Rapporten är resultatet av ett samarbete molms internationella fredsforskningsinstitut (SIPRI).
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PREFACE

Discussions between the authors of this report about the annual numbers of nuclear tests conducted since 1945 finally led to a joint undertaking to compile a list of nuclear explosions that would satisfy us both. Our aim was also to present as much information as possible concerning the tests. While the list presented here draws on a wide range of sources, the core data are those compiled by FOA, which were first computerized in the early 1980s (when Tom Francke compiled an ASCII file based on various paper sources). During the past few years more and more information on tests has become available as various authoritative sources have published data based on declassified documents and information on nuclear powers' testing programmes. This has enabled us to make our list more accurate.

Brief background information on nuclear explosions and a country-by-country summary of testing activity is also included. The report is intended for a broad audience, and it is hoped that it will stimulate further research and debate on nuclear testing and test ban issues.

The authors would like to thank Eva Norrbrand for managing the production of the report and Billie Bielckus for editorial assistance.

1. BACKGROUND INFORMATION ON NUCLEAR EXPLOSIONS

1.1. INTRODUCTION

More than 2000 nuclear explosions have been conducted since 1945. Nuclear weapons have been used twice in war: by the USA in August 1945, at the end of World War II, on the Japanese cities of Hiroshima and Nagasaki.

Most of the other nuclear explosions have been detonations intended to test the construction of the devices (weapon tests) or their effect.

No atmospheric tests have been conducted by the USA, the Soviet Union/Russia or the UK since 1963, when the Treaty Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space and Under Water (the Partial Test Ban Treaty, PTBT) was signed. France confined its activities to underground testing from 1974, and China from 1980. Before 1963 a few tests were also conducted under water.

The Comprehensive Nuclear-Test-Ban Treaty (CTBT), signed in 1996, has not yet entered into force.

1.2. TYPES OF NUCLEAR EXPLOSION

Nuclear explosions can be divided into two main categories: atmospheric and underground. In the atmospheric tests the device was placed in a tower or on a boat, dropped from an aeroplane or a balloon, fired by a missile or detonated on the ground. All these tests led to the spread of radioactive debris in the upper layers of the atmosphere, which then fell to the ground, often over very wide areas.

Underground tests have been conducted in tunnels or deep shafts. A hole (up to c. 1 km deep for larger devices, a few hundred metres for smaller ones) was drilled into the bedrock, and the nuclear devices and measuring instruments were placed in the bottom. The entire borehole was refilled to prevent radioactive material from leaking out. The explosion was registered by the monitoring instruments on the container microseconds before they were destroyed. The heat of the explosion melted and vaporized the bedrock, and the pressure created a cavity and caused vibrations in the ground. A crater was usually formed, its size depending on the kind of rock and the yield of the explosion.

Sometimes underground tests also led to the discharge of radioactivity. In Sweden during the period 1966–90 the Defence Research Establishment (FOA), which has monitored airborne radioactivity from nuclear detonations since the 1950s, registered the leakage of radiation from six Soviet and two US underground nuclear tests (in violation of the PTBT). The nuclear weapon states presumably have information on more discharges of radioactivity in their registers. The French test site in Polynesia lies too far away to be monitored from Sweden, but radioactive materials from the southern Pacific Ocean have been collected and examined in Sweden.

NUCLEAR DEVICES

There are two main kinds of nuclear device: those based entirely on fission, or the splitting of heavy atomic nucleii (previously known as atomic devices) and those in which the main energy is obtained by means of fusion, or of light atomic nucleii (hydrogen or thermonuclear devices). A fusion explosion must however be initiated with the help of a fission device. The strength of a fusion explosion can be practically unlimited. The explosive power of a nuclear explosion is expressed in kilotons (kt) or megatons (Mt), which correspond to 1000 and 1 million tonnes of conventional explosive (TNT), respectively

So-called peaceful nuclear explosions (PNEs) have also been carried out. They were often conducted outside the usual test sites and it was claimed that they were for civil purposes. There is no major distinction between nuclear devices detonated for civil or for military purposes, and it should be pointed out that even so-called peaceful nuclear explosions could provide valuable experience for weapon development.

1.3. US NUCLEAR EXPLOSIONS

The first nuclear weapon test was conducted in the USA—at Alamogordo, New Mexico, on 16 July 1945—and was a result of the so-called Manhattan Project, which had been underway since 1942. It was a plutonium device that was tested, and the same construction was to be used some weeks later in the bombing of Nagasaki, a port in south-west Japan. Three days earlier, on 6 August, the USA had

dropped the first atomic bomb, a uranium bomb, on Hiroshima, another port in south-west Japan. The Hiroshima bomb had not been tested before it was used in war.

Nuclear weapon development continued in the USA and tests were conducted in 1946–62 at various atolls and islands in the Pacific Ocean. The first hydrogen bomb was tested in 1951, at Enewetak Atoll, then part of a UN Trust territory administered by the USA, now part of the Marshall Islands. Only small groups among those working on the tests knew how harmful the fall-out from the explosions was for people and the environment. Certain atolls used for the US tests in the 1950s are still uninhabitable today because of the radioactivity.

The need for a closer testing ground grew as the US nuclear weapon programme expanded. There was also a desire to reduce the cost of the testing activity. The Nevada test site was first used in 1951, but the tests in the Pacific Ocean continued up to November 1962. At first atmospheric tests were also held in Nevada (with consequences for people and the environment there too), but there was a gradual transition to solely underground testing.

A programme for civil nuclear explosions, the *Plowshare* project, was started in 1957. The first explosion was conducted in 1961, the last in 1973. The idea was to investigate whether the military capacity could be converted to civil purposes ('swords to ploughshares'). For example there were plans to blast a new Panama Canal, with no locks. The *Plowshare* project was abandoned in the mid-1970s. It became apparent that it was impossible to benefit from the peaceful nuclear explosions for a reasonable cost without destroying the environment. The USA also conducted seven so-called Vela Uniform tests, designed to detect, identify and locate nuclear explosions.

The USA last tested a nuclear device in September 1992. To maintain the skills of those working at the test site and to control the reliability of its existing nuclear weapons the USA is carrying out so-called subcritical tests at the Nevada Test Site.¹

NUCLEAR WEAPON STATES

In the Non-Proliferation Treaty a nuclear weapon state is defined as 'a state which has manufactured and exploded a nuclear weapon or other nuclear explosive device prior to 1 January, 1967'. The USA, the Soviet Union/Russia, the UK, France and China meet this criterion. They are often called the 'established' or 'NPT-defined' nuclear weapon states. With their nuclear explosions in May 1998 India and Pakistan demonstrated their ability to develop nuclear weapons and declared themselves nuclear weapon states. This claim has been rejected, however, by the international community.

1968 NON-PROLIFERATION TREATY

Under the Treaty on the Non-Proliferation of Nuclear Weapons (the Non-Proliferation Treaty, NPT), the nuclear weapon states undertake not to transfer nuclear weapons or other nuclear explosive devices or control over them to any recipient whatsoever, and not to assist, encourage or induce any non-nuclear weapon state to manufacture or otherwise acquire nuclear weapons. The parties also pledge to work towards nuclear disarmament.

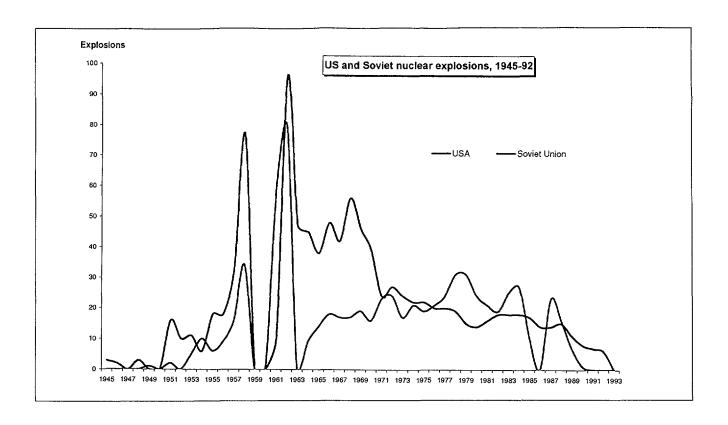
Non-nuclear weapon states undertake not to accept nuclear weapons or other nuclear devices and not to manufacture or otherwise acquire nuclear weapons and not to seek or receive any assistance for their manufacture.

A non-nuclear weapon state party to the treaty shall enter an agreement with the International Atomic Energy Agency (IAEA) on opening up its nuclear energy sector to control. The IAEA shall monitor that no significant amount of fissionable material goes astray. Non-nuclear weapon states parties to the treaty are guaranteed the right to develop research, production and use of nuclear energy for peaceful purposes.

The USA has conducted 1032 nuclear explosions:

- 2 atomic bombs dropped on Hiroshima and Nagasaki
- 106 tests in the Pacific Ocean (101 atmospheric, 5 underwater)
- 3 tests in the southern Atlantic (in the atmosphere)
- 904 tests at the Nevada Test Site (100 in the atmosphere, 804 underground)
- 17 underground explosions at other locations in the USA
- (The USA also cooperated in the 24 tests conducted by the UK at the Nevada Test Site)

¹ Subcritical tests use conventional high explosives to create high pressures on nuclear weapon material without allowing it to become critical (i.e., a self-sustaining nuclear fission chain reaction). Protests have been raised by those who claim that although subcritical tests are not forbidden by the 1996 Comprehensive Nuclear Test-Ban Treaty (CTBT), they violate the spirit and aims of the treaty because they may contribute to the improvement of weapon designs.



1.4. SOVIET NUCLEAR EXPLOSIONS

The Soviet Union carried out its first nuclear explosion on 29 August 1949, and thus the nuclear arms race was initiated. In August 1953 the first Soviet hydrogen bomb test was conducted. The USSR conducted a number of very high yield explosions in the atmosphere in 1961-62. No official details on the size of the tests were published by the Soviet side then, but it was known for example that the test conducted on 30 October 1961, over the Novaya Zemlya archipelago in the Barents Sea, had a yield of about 50 megatons. (The Hiroshima bomb was calculated to have had a yield of 12-15 kilotons.) Most of the Soviet explosions were carried out at the Semipalatinsk test site in eastern Kazakhstan. It has been reported that radioactive materials leaked out from many of the underground explosions there, in c. 40 cases in large amounts. When Kazakhstan became an independent state the test site was closed (1991). In 1993, 1994 and 1998 the International Atomic Energy Agency (IAEA), at the request of Kazakhstan, made investigations at the former test site. Elevated residual radioactivity levels were found in areas where surface tests had been conducted and where underground tests had leaked to the atmosphere. The other Soviet test site, on Novaya Zemlya, is located on Russian territory and

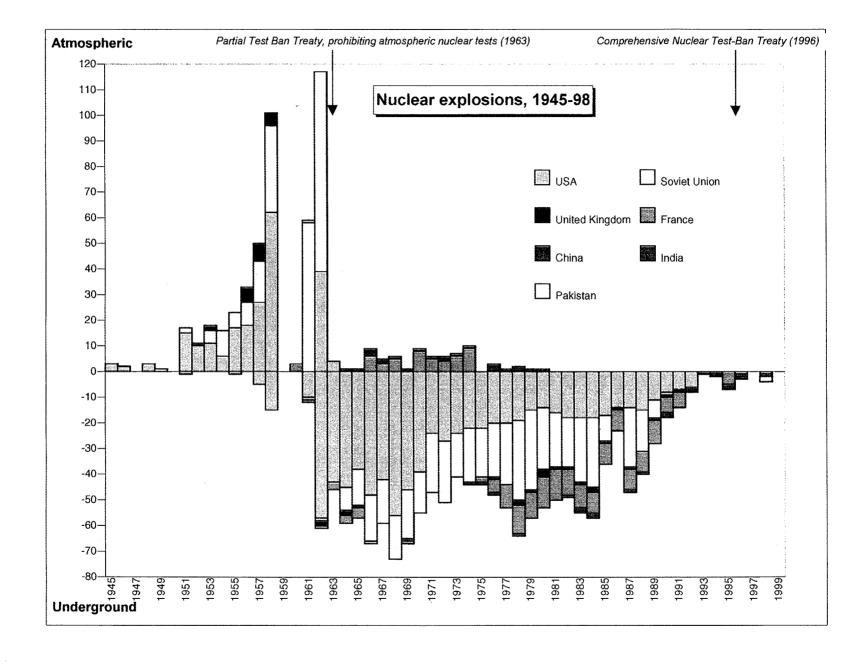
still exists, but since Russia ceased nuclear testing (1990) it has only been used for subcritical tests.

The Soviet Union conducted more than 120 peaceful nuclear explosions (PNEs), the last in September 1988. The explosions were carried out, for example, to obtain seismological information on mineral resources, to create underground rock cavities for gas reservoirs or to excavate channels to combine rivers (this was unsuccessful). The PNEs were very damaging to the environment and human beings because radioactive particles eventually made their way to the surface.

The Soviet Union was dissolved in 1991, and Russia took over the Soviet nuclear weapon programme. Russia has conducted neither nuclear weapon tests nor any peaceful nuclear explosions. Subcritical tests have been carried out since 1995.

The Soviet Union conducted 715 nuclear explosions:

- 456 at the Semipalatinsk test site (116 in the atmosphere and 340 underground)
- 130 on Novaya Zemlya (88 in the atmosphere, 3 underwater and 39 underground)
- 129 at various other places in the USSR—in Russia (e.g., in the Arkhangelsk, Astrakhan, Krasnoyarsk and Murmansk regions), Kazakhstan, Turkmenistan, Ukraine and Uzbekistan—most of them for civil purposes.



1.5. BRITISH NUCLEAR EXPLOSIONS

British scientists took part in the US Manhattan Project, which created the first nuclear explosive devices. Their cooperation with the USA was broken off at the end of World War II, and the UK's nuclear weapon development continued as a British project. Australia was chosen as the location for tests, and the first British nuclear weapon test was carried out in October 1952, at the Monte Bello Islands off the north-west coast of Australia. Further tests were held there, and also on the Australian mainland. It was later evident that people—mainly aborigines—and the environment suffered considerable damage as a result of the fall-out from the tests in Australia. An Australian Commission was established in 1984 to investigate the circumstances surrounding the tests. Testing activities also took place on the British possessions Malden Island and Christmas Island (now Kiribati) in the Pacific Ocean. Several hydrogen bomb tests were conducted there in 1957-58.

Since March 1962 the UK used the US test site in the Nevada Desert for nuclear weapon tests in cooperation with the USA. The UK only conducted underground tests there; the last one was in November 1991. The testing programme was discontinued after 1992 because of the US moratorium.

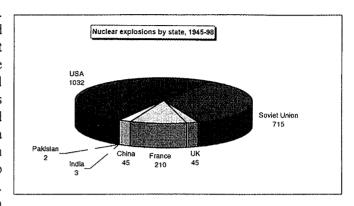
The UK has conducted 45 nuclear explosions:

- 12 atmospheric tests in Australia
- 9 atmospheric tests in the Pacific Ocean (Malden Island and Christmas Island)
- 24 underground tests (in cooperation with the USA) in Nevada

1.6. FRENCH NUCLEAR EXPLOSIONS

In 1958 President de Gaulle decided that France would develop its own nuclear weapons, and nuclear cooperation with other Western powers was cancelled. Algeria, then a French possession, was chosen as the location for the tests, and the first explosion took place there in February 1960. In total France conducted 17 tests in Algeria, the first four in the atmosphere, at Reganne in the Sahara Desert. These tests were conducted during a period when the

other nuclear weapon powers were observing a moratorium, and France was therefore criticized internationally. This was probably one reason why the next 13 tests in Algeria (1961–66) were conducted underground, at In Ecker, some 500 km south-east of Reganne.



Algeria became independent in 1962 and France was forced to end its testing activity there. A new test site was created at the Mururoa Atoll in French Polynesia, and atmospheric explosions were resumed there in 1966. The Fangataufa Atoll, *circa* 40 km south-west of Mururoa, was also used. The first French hydrogen bomb was tested there in August 1968. After 1974 France conducted underground nuclear explosions instead, a concession to international criticism.

In the beginning the underground tests on Mururoa and Fangataufa were conducted in boreholes in the ground, but as the holes became more numerous and it was feared that this would damage the atoll, holes were bored beneath the lagoon of the atoll instead. The bedrock in an atoll is composed of basalt, a more brittle rock than granite, which is the bedrock in the areas where the Soviet Union conducted its underground tests, for example. Over the years France was criticized throughout the world for locating its testing activity in an area far from the mainland, where it was the local population that suffered from the damage to the environment and human life. The possible damages to the marine environment have been discussed, and France commissioned the IAEA to investigate the Mururoa and Fangataufa atolls. The study concluded that the sediments in the lagoons contained several kilograms of residual plutonium, and that elevated levels of caesium-137 remained in small areas of the atolls. However, it was stated that the residual radioactive material was not expected to have any measurable health effects on individuals or groups.

After its last test, in January 1996, France wound down its facility in French Polynesia. The test site was officially closed in 1999. Thus France is the first nuclear weapon state to really shut down its test sites.

France has conducted 210 nuclear explosions:

- 17 in Algeria (4 atmospheric tests at Reganne, and 13 underground tests at In Ecker)
- 193 in French Polynesia (42 atmospheric tests and 138 underground tests at Mururoa and 4 atmospheric and 9 underground tests at Fangataufa)

1.7. CHINESE NUCLEAR EXPLOSIONS

China conducted its first nuclear weapon test in October 1964. The country had then had a nuclear weapon programme for nearly 10 years, initially with Soviet support. When the relationship between the two powers deteriorated at the end of the 1950s China had to rely wholly on its own resources. The development of a nuclear weapon capability was given highest priority, and despite the country's great poverty and lack of scientific expertise the programme was carried through.

All China's nuclear explosions have been carried out in the Lop Nor area, a desert in the Sinkiang province of Western China. Its first hydrogen bomb test was conducted in 1966. China conducted all its tests in the atmosphere until 1980, when it changed to underground testing. That China accounts for some 2 per cent of the world's nuclear explosions has been emphasized by the Chinese Government on a number of occasions.

In July 1996, approximately two months before it signed the Comprehensive Nuclear-Test-Ban Treaty (CTBT), China announced that it would cease testing.

China has conducted 45 nuclear explosions,

- all at the Lop Nor test site:
- 23 atmospheric tests
- 22 underground tests

1.8. INDIAN AND PAKISTANI NUCLEAR EXPLOSIONS

India and Pakistan are not numbered among the five established nuclear weapon states. They have chosen to remain outside the NPT regime and, like Israel, have sites not controlled by the IAEA at which fissionable material for weapon production could be produced. All three have therefore been defined as threshold states. India exploded a nuclear device in 1974, at Pokhran in the Rajasthan desert in eastern India. It was claimed to have had a peaceful purpose.

On 11 and 13 May 1998 India conducted a series of nuclear weapon explosions at the Pokhran test site. At the end of the same month Pakistan responded with a further series of explosions. Pakistan's first test was conducted at the Ras Koh test site, in the Chagai Mountains in Baluchistan, near the Afghan border. The second test took place c. 100 km south-west of Ras Koh, in the Kharan desert. The tests were greeted by international criticism because it was felt that they counteracted the efforts to extend the test ban treaty to all states. India later declared that it would observe a moratorium on testing. Pakistan has promised that it will also do so as long as India does not break its moratorium. Neither country has yet (1 July 2000) signed the CTBT.

1.9. SOUTH AFRICA

South Africa announced in 1993 that the country had had a nuclear weapon programme during the 1970s and 1980s, but that the six devices that had been produced had since been destroyed. In September 1979 a mysterious double flash was observed over the ocean south of South Africa at the same time as a US satellite registered signals that could indicate a nuclear explosion. There was speculation that South Africa and/or Israel could have been behind the possible explosion. No radioactive fall-out was noted. South Africa has stated that the country has never conducted a nuclear explosion. It is now a party to the NPT and has signed and ratified the CTBT.

1.10. MORATORIA

Over the years the individual nuclear weapon states have undertaken voluntary halts (moratoria) in their testing activity. The UK, the USA and the USSR observed such a moratorium from November 1958 to September 1961. President Gorbachev announced a moratorium in July 1985 but, as the USA never took part, both weapon tests and civil nuclear explosions were resumed in February 1987. A new Soviet moratorium began in October 1990. After the dissolution of the Soviet Union it was extended by the Russian Government, which declared that no further nuclear weapon tests would be conducted as long as the political situation did not deteriorate.

In 1992 President Bush declared a 9-month halt to US nuclear testing. President Clinton extended the moratorium to September 1994 or beyond, under the condition that no other state conducted a test explosion. Despite China resuming its test programme, and despite France conducting its series of tests in September 1995—January 1996, the USA chose not to resume testing.

The French moratorium (July 1991–September 1995) was followed by a further six tests. After the last of the series, January 1996, President Chirac declared the French nuclear test programme to be completed. After its test on 29 July 1996 China announced a halt to its testing activity for the first time.

Even though the moratoria did not significantly slow weapon developments they had an influence on public opinion and became a condition for the real test ban negotiations to be finally concluded.

1.11. AN INTERNATIONAL TREATY ON A COMPREHENSIVE BAN ON NUCLEAR TESTING

A ban on nuclear weapon testing was an important disarmament issue for more than 40 years, since tests were a prerequisite for the development of nuclear weapons, and test explosions were seen as a clear expression of the nuclear arms race. Furthermore, the tests spread radioactive materials. India's Prime Minister Nehru put forward a proposal for a ban to the UN in 1954. The treaties and agreements that were later reached, however, only limited the

test activity in various ways, and nuclear weapon development was not slowed down.²

Negotiations on a comprehensive ban on nuclear testing started in January 1994 at the Conference on Disarmament (CD) in Geneva. Because of the generally improved political climate, for the first time the five nuclear weapon states were willing to aim for an all-embracing ban on nuclear weapon tests. The five states reached agreement that the ban should apply to all types of nuclear explosion, even peaceful ones, and even explosions of very low yield.

The Comprehensive Test-Ban-Treaty (CTBT) was signed in September 1996. It consists of 17 articles and a separate protocol on the details of verification.

In Article I the states parties commit themselves not to carry out any nuclear weapon test or any other nuclear explosion and to refrain from participating in the carrying out of any nuclear explosion.

The CTBT Organization was established as an independent body with its seat in Vienna (Article II). The Organization includes a Conference, an Executive Council and a Technical Secretariat.

Article IV deals with the verification of the treaty.

An International Monitoring System (IMS), under the authority of the Technical Secretariat, will comprise facilities based on four different technologies: seismological monitoring, hydroacoustic monitoring (to register pressure waves in the world's oceans), infrasound monitoring and the measurement of radioactive particles in the atmosphere. An International Data Centre (IDC), which is an integral part of the Technical Secretariat, is to be responsible for dealing with and compiling the incoming raw data from the monitoring stations and sending out information to the states parties to the treaty.

An important element of the verification regime of the treaty is the right to conduct on-site inspections. If it is the assessment of a state party that information collected by the IMS indicates that a nuclear explosion might have occurred the national authority of that state has the right to request the Executive Council to initiate an on-site inspection.

The treaty is of unlimited duration (Article IX), but as in many other treaties there is a clause stating

² 1963 Treaty Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space and Under Water (Partial Test Ban Treaty, PTBT); 1974 US-Soviet Treaty on the Limitation of Underground Nuclear Weapon Tests (Threshold Test Ban Treaty, TTBT); and 1976 US-Soviet Treaty on Underground Nuclear Explosions for Peaceful Purposes (Peaceful Nuclear Explosions Treaty, PNET).

that a state party may withdraw if it decides that the treaty jeopardizes its supreme interests.

Article XIV states that the treaty shall enter into force 180 days after the deposit of instruments of ratification by 44 listed CD member states. All countries that according to the IAEA have nuclear reactors are on the list, including India, Israel and Pakistan, the three threshold states.

A test ban does not have the same significance today for the proliferation of nuclear weapons as it would have had if it had been achieved during an earlier stage of nuclear weapon development. With modern technology and economic resources it is now possible for states to produce simple fission devices (however, without being completely certain they will function as intended) without test explosions. Developing hydrogen bombs without testing would be more difficult, however.

A special conference on facilitating the entry into force of the CTBT, in accordance with Article 14.2 of the Treaty, was held in October 1999, but it was not conclusive.

The treaty bans only actual physical explosions, not subcritical tests or computer-simulated tests. This means that even after entry into force of the complete ban, the nuclear powers will be permitted to verify the safety and reliability of their nuclear weapon arsenals. Moreover, in the opinion of experts, the CTBT cannot prevent any state aspiring for nuclear status from constructing, without explosive testing, a small arsenal of fission weapons, and doing so with some degree of certainty that the weapons will perform as envisaged. It is, however, considerably more difficult to develop thermonuclear weapons without test explosions.

It is very unlikely that the CTBT will enter into force in the near future. Of the nuclear weapon states France, Russia and the UK have ratified the treaty. However, the US Senate voted against ratification. in October 1999.

The states that have signed the CTBT, however, have in practice renounced nuclear explosions even

before the treaty has become effective. Given the large number of countries approving the CTBT, it is evident that it enjoys strong support in world public opinion. The international monitoring system is partly in operation, and a Preparatory Commission has been established and meets regularly.

155 countries have signed the treaty, but these do not include India, Israel or Pakistan. North Korea is another significant non-signatory of the CTBT—although it is an NPT state party it has been suspected of having nuclear facilities in violation of the treaty. By 1 July 2000, 59 states had ratified the treaty (including 29 of the required 44).

The 44 states whose ratification of the CTBT is required for entry into force are:

Algeria, Argentina, Australia, Austria, Bangladesh, Belgium, Brazil, Bulgaria, Canada, Chile, China, Colombia, Congo (Democratic Republic of), Egypt, Finland, France, Germany, Hungary, India, Indonesia, Iran, Israel, Italy, Japan, Korea (North), Korea (South), Mexico, Netherlands, Norway, Pakistan, Peru, Poland, Romania, Russia, Slovakia, South Africa, Spain, Sweden, Switzerland, Turkey, UK, Ukraine, USA and Viet Nam.

(States in **bold** text had ratified the treaty as of 1 July 2000.)

Note:

This Introduction draws extensively on SIPRI Faktablad, december 1996: Internationallt förbud mot kärnsprängningar, written by Ragnhild Ferm, and on material published in SIPRI Yearbooks since 1990. It was translated by Billie Bielckus.

2. SUMMARY OF NUCLEAR TESTS, 1945-98

The list includes all nuclear tests (as defined in section 3.1) conducted in nuclear weapon programmes, PNEs and French, Soviet and US (not British) safety experiments, and the two atomic bombs dropped on Japan in 1945.

a = atmospheric (or in a few cases under water); u = underground.

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	US	A^a	US	SR/Rus	sia UK	а	Frai	nce	Chir	na	India	a	Pak	istan	1
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1991	_	7	_	-	_	1	_	6	-	_	_		_		14
1992	_	6	_	_		-	-	-	-	2	_			_	8 g
1993	_		-		_	_	_	-	-	I	_	_	_	-	18
1994	_	-	_		_	_	_	_	_	2	_	-			28
1995	_	_	_	_	_	_		5	_	2		_	-	_	7 g
1996	_	_	_	_	_	_	_	1	-	2	-	_	_	_	3
1997	-	-	_			-	_	-		-	_	_	_	_	0
1998	_	_	_	_	_	_	_			-		2	_	2	4
Subtotal	217	815	219	496	21	24	50	160	23	22	-	3		2 3	2 052
Total	1 0	32	71	15	4	5	2	10	4	15		3		2	2 052

^a All British tests from 1962 were conducted jointly with the USA at the Nevada Test Site, so the number of US tests is actually higher than indicated here. The British Labour Government observed a unilateral moratorium on testing in 1965–74.

Source: Ferm, R., 'Nuclear explosions, 1945–98', SIPRI Yearbook 1999: Armaments, Disarmament and International Security (Oxford University Press: Oxford, 1999), pp. 562–63.

^b One of these tests was carried out under water.

^c Two of these tests were carried out under water.

^d The UK, the USA and the USSR observed a moratorium on testing in the period Nov. 1958–Sep. 1961.

^e On 5 Aug. 1963 the USA, the USSR and the UK signed the Partial Test Ban Treaty (PTBT), prohibiting nuclear explosions in the atmosphere, in outer space and under water.

f The USSR observed a unilateral moratorium on testing in the period Aug. 1985–Feb. 1987.

^g The USSR observed a moratorium on testing from Jan. 1991 and the USA from Oct. 1992; France observed a moratorium in the period Apr. 1992–Sep. 1995.

3. INTRODUCTION TO THE DATA ON NUCLEAR EXPLOSIONS

3.1. DEFINITIONS

The list provides details of all nuclear explosions, including those conducted in nuclear weapon test programmes, explosions carried out for peaceful purposes (PNEs) and the two atomic bombs dropped on Hiroshima and Nagasaki in 1945. Safety experiments, irrespective of whether they caused a nuclear explosion or not, carried out by the USA, the Soviet Union and France (not the UK), are also included.

The yield of the explosions is estimated in kilotons (kt). One kiloton is the explosive yield of a nuclear device equivalent to 1000 tonnes of trinitrotoluene (TNT) high explosive.

Simultaneous underground detonations, sometimes called salvo explosions, were carried out both by the USA (1963–92) and the Soviet Union (1965–90).

In defining an underground nuclear test the definition of the 1990 Protocol to the 1974 US-Soviet Threshold Test Ban Treaty (TTBT, section I, para. 2) is used, which states that a test is 'either a single nuclear explosion conducted at a test site, or two or more nuclear explosions conducted at a test site within an area delineated by a circle having a diameter of two kilometres and conducted within a total period of time of 0.1 second'. (For the Indian detonations on 11 May 1998 the precise data to determine whether they should be counted as one or two tests according to the TTBT definition are not yet available. On the basis of available information one test is listed in the table. The explosions announced by India on 13 May 1998 are also counted as one test, as are Pakistan's five explosions on 28 May 1998.)

For the PNEs, the definition in the 1976 Peaceful Nuclear Explosions Treaty (PNET, Article II.a) is used: a PNE is 'any individual or group underground nuclear explosion for peaceful purposes'. A 'group explosion' is defined as 'two or more individual explosions for which the time interval between successive individual explosions does not exceed five seconds and for which the emplacement points of all explosives can be interconnected by straight line segments, each of which joins two emplacement points and each of which does not exceed 40 kilometres'.

Note: It is not possible to give consistent information on the tests of the respective states as the amount of details given by the sources varies. Thus, the US Department of Energy (DOE) provides more information, for example, on accidental releases of radioactivity, than do the official Russian and French authorities. China has published no information on its testing programme.

3.2. KEY TO DATA

0 or blank = Data not available, nil or negligible figure

The columns

Date is expressed as year, month and day of the month. The date listed is the Greenwich Mean Time (GMT) date for the explosion.

Origin time for the explosion is expressed as GMT: hour, minute, second and tenth of a second.

ID no. Identification number. Each explosion has its own unique identification number. It can be used for searching footnotes.

Country lists the state that carried out the explosion.

Region gives the name of the test site and/or the geographical region where the explosion was conducted.

Abbreviations:

AK Alaska ALG Algeria

ARK Arkhangelsk region

AUSTR Australia CO Colorado

FALLON Naval Air Station, Fallon, Nevada

IS island KAZAKH Kazakhstan

KRASNO Krasnoyarsk territory

MANGY Mangyshlak
MARALI Maralinga
MONTEB Montebello
MS Mississippi

MTR Missile Testing Range (near Kapustin Yar,

Astrakhan region, Russia).

MURM Murmansk

NELLIS Nellis Air Force Range, Nevada

NM New Mexico NTS Nevada Test Site

NV Nevada

NZ Novaya Zemlya (Northern Test Site, in the

Arctic Ocean, Russia)

RUSS Russia

SEMI Semipalatinsk test site (in east Kazakhstan)

STAVRO Stavropol territory (Russia)

TURKMEN Turkmenistan UZBEK Uzbekistan V Valley

Other names are also slightly abbreviated, but since they are easily recognizable they are not listed above. Sou indicates source: One reliable source reporting the explosion is given for each event. However, the information given for most explosions listed in the table is compiled by reports from more than one source. For the sources and their codes, see section 2.3.

Lat and Long indicate latitude and longitude: the geographical coordinates for the place where the explosion was conducted. The location is often approximate. A negative latitude indicates south and a negative longitude indicates west.

mb and Ms indicate the body wave magnitude and the surface wave magnitude of the events as reported by the given source.

Depth estimates show, in kilometres, how deep in the ground the explosions were conducted. Some height estimates are also given to indicate the altitude at which atmospheric tests were conducted. A positive figure indicates depth, a negative figure indicates height.

Yield indicates the range of yield. For most explosions lower (l) and upper (u) yield estimates are given. If an exact yield is available the upper figure and lower figure are the same. Unless otherwise noted in the footnotes, for salvo explosions the yield estimate indicates the yield of each detonation in a test or a peaceful nuclear explosion.

Purpose

COMBAT = The two atomic bombs dropped over Hiroshima and Nagasaki in August 1945.

FMS (used for Soviet tests) = To study the phenomena of a nuclear explosion.

ME = Test conducted in the context of a military exercise with a real nuclear detonation. One such test (Soviet) was conducted, in 1954.

PNE = Peaceful nuclear explosion. The US PNEs were either in the Plowshare Programme (PNE:PLO) or Vela Uniform Tests (PNE:V). The Soviet PNEs include both industrial peaceful explosions and testing of PNE technologies as well as testing of industrial nuclear charges for use in peaceful activities.

SAM (used for Soviet tests) = Tests to study accidental modes and emergencies.

SE (used for French and US tests) = Tests to determine the safety of nuclear weapons in case of accident.

TRANSP = Transportation-storage purposes. (Four US tests conducted at Nellis Air Force Range in 1963.)

WE (used for British, French and US tests) = To evaluate the effects of a nuclear detonation on various targets.

WR = Weapons-related, i.e. related to the weapon development programme. (N.B. If no information on the purpose of a test is available WR is given in the table.)

Name gives the name of the event. Longer names are shortened and in some cases where the abbreviation cannot be readily interpreted the full name is given in a footnote.

Type refers to the method of deployment of the nuclear device:

There are two categories: atmospheric (ATMOSPH) and underground (UG). When no further details are available, only ATMOSPH or UG is given in the table.

When atmospheric explosions were conducted the device was dropped from a balloon (BALLOON) or an aircraft (AIRDROP), launched by a rocket (ROCKET), mounted at the top of a steel or wooden tower (TOWER), placed on a boat (BARGE), on the surface of the sea (WATERSURFACE), on the ground close to the earth's surface (SURFACE) or in a crater (CRATER). A few nuclear tests were conducted under water (UW).

Underground explosions were either conducted at the bottom of drilled or mined vertical holes or shafts (SHAFT) or in horizontal tunnels (TUNNEL or GALLERY) drilled into a mountain or mesa in a way that places the burst point deep within the earth. One Soviet PNE was conducted in a mine (MINE).

French underground tests in Polynesia were either conducted in wells in the ground (SHAFT/G) or in drilled holes in the lagoon of the atoll (SHAFT/LG).

F-column

'F' indicates that a footnote is available. The footnote can be retrieved by the date and the ID number. A figure (sometimes without a preceding 'F') means that the event is a salvo explosion. The figure corresponds to the number of detonations, each having the same yield in the reported yield range.

Note: Unless otherwise noted in the footnotes, all tests at the Nevada Test Site or at the Nellis Air Force Range before 15 September 1961 produced radio-activity detected off-site. (All these tests were atmospheric.) Unless otherwise noted in footnotes, no test at these test sites on or after that date—all underground—released radioactivity that was detected off-site. The other established nuclear weapon states have not published information on releases of radioactivity. (See note in section 3.1 above.)

3.3. SOURCES

- BKY: Berkeley Seismological Laboratory, Berkeley, CA, USA.
- DIS: Dahlman, O. and Israelson, H., National Defense Research Institute (FOA), Stockholm, Monitoring Underground Nuclear Explosions (Elsevier: Amsterdam, 1977).
- DOE: US Department of Energy (DOE), various news bulletins and *United States Nuclear Tests: July 1945 through September 1992*, DOE/NV-209 (Rev. 14) (DOE: Washington, DC, 1994).
- HFS: Hagfors Observatory, Sweden, operated by the *Defence Research Establishment* (FOA). Various reports.
- IDC: Prototype International Data Center, Washington, DC (Arlington, Va.), Nuclear Explosion Data Base.

- ISC: Bulletin of the International Seismological *Centre*, (Thatcham, UK).
- MTM: Ministry of the Russian Federation for Atomic Energy and Ministry of Defense of the Russian Federation, USSR Nuclear Weapons Tests and Peaceful Nuclear Explosions, 1949 through 1990 (Russian Federal Nuclear Center—All-Russian Research Institute of Experimental Physics [VNIIEF]: Sarov, 1996).
- NOA: Norwegian Seismic Array, NORSAR, Kjeller, Norway. Various reports and information.
- NRD: Norris, R. S., Burrows, A. S. and Fieldhouse, R. W., 'British, French and Chinese nuclear weapons', *Nuclear Weapons Databook, Vol. V* (Natural Resources Defense Council [NRDC]: Washington, DC, 1994).
- SPA: Direction des centres d'experimentations nucléaires [DIRCEN] and Commissariat à l'Energie Atomique [CEA], Assessment of French nuclear testing (DIRCEN and CEA: Paris, 1998).
- UGS: US Geological Survey, National Earthquake Information Center, *Preliminary determination of epicenters*.
- WTN: Department of Scientific and Industrial Research, Geology and Geophysics Division, Wellington, New Zealand. Various reports and information..
- ZAR: Zander, I. and Araskog, R., Nuclear explosions 1945-72, FOA 4 Report, A 4505-A1 (FOA: Stockholm, 1973).

4. DATA ON NUCLEAR EXPLOSIONS, 1945–98

Date Origin T ID no Co	untry Region	Sou	Lat	Long	шb	Ms	Depth	Yield 1	Yield u	Purpose	Name	Туре	F
450716 123000.0 45001 US 450805 231500.0 45002 US		DOE DOE	32.540 34.230	-105.570			-0.100 -0.600		21.0		TRINITY	TOWER	
450809 15800.0 45003 US	A NAGASAKI	DOE	32.450	129.520	0.0	0.0	-0.600	21.0	21.0	COMBAT COMBAT	LITTLEBOY FATMAN	AIRDROP AIRDROP	
460630 220100.0 46001 US 460724 213500.0 46002 US		DOE DOE	11.350 11.350				-0.200 0.030	21.0 21.0	21.0 21.0		ABLE BAKER	AIRDROP UW	
480414 181700.0 48001 US 480430 180900.0 48002 US		DOE DOE	11.300 11.300	162.150	0.0	0.0	-0.080 -0.080	37.0 49.0	37.0 49.0	WR	X-RAY YOKE	TOWER TOWER	
480514 180400.0 48003 US	a enewetak	DOE	11.300	162.150	0.0	0.0	-0.080	18.0	18.0	WR	ZEBRA	TOWER	
490829 12000.0 49001 US 510127 134500.0 51001 US	a NTS	DOE		-116.000	0.0	0.0	0.000 -0.350	22.0 1.0	22.0 1.0	WR	ABLE	SURFACE AIRDROP	
510128 135200.0 51002 US 510201 134700.0 51003 US		DOE DOE		-116.000 -116.000			-0.350 -0.350	8.0 1.0	8.0 1.0		BAKER EASY	AIRDROP AIRDROP	
510202 134900.0 51004 US 510206 134700.0 51005 US		DOE	37.000	-116.000 -116.000	0.0	0.0	-0.400 -0.500	8.0 22.0	8.0 22.0	WR	BAKER2 FOX	AIRDROP AIRDROP	
510407 183400.0 51006 US	A ENEWETAK	DOE	11.300	162.150	0.0	0.0	-0.100	81.0	81.0	WR	DOG	TOWER	
510420 182700.0 51007 US 510508 213000.0 51008 US	a enewetak	DOE	11.300 11.300	162.150	0.0	0.0	-0.100 -0.070	47.0 225.0	47.0 225.0	WR	EASY GEORGE	TOWER TOWER	F
510524 181700.0 51009 US 510924 0.0 51010 US	SR SEMI KAZAKH	DOE DOE	11.300 48.000				-0.070 0.000	45.5 38.0	45.5 38.0		ITEM	TOWER SURFACE	
511018 0.0 51011 US 511022 140000.0 51012 US		DOE	48.000	76.000 -116.000			0.000	42.0 0.0	42.0 0.1	WR	ABLE	AIRDROP TOWER	
511028 152000.0 51013 US	A NTS	DOE	37.000	-116.000	0.0	0.0	-0.400	3.5	3.5	WR	BAKER	AIRDROP	
511030 150000.0 51014 US 511101 153000.0 51015 US	A NTS	DOE	37.000	-116.000 -116.000	0.0	0.0	-0.400 -0.500	14.0 21.0	14.0 21.0	WR	CHARLIE DOG	AIRDROP AIRDROP	
511105 163000.0 51016 US 511119 170000.0 51017 US		DOE DOE		-116.000 -116.000			-0.450 -0.001	31.0 1.2	31.0 1.2		EASY SUGAR	AIRDROP SURFACE	
511129 200000.0 51018 US 520401 170000.0 52001 US		DOE DOE		-116.000 -116.000			0.010 -0.250	1.2 1.0	1.2 1.0	WE	UNCLE ABLE	CRATER AIRDROP	
520415 173000.0 52002 US 520422 173000.0 52003 US	A NTS	DOE DOE	37.000	-116.000 -116.000	0.0	0.0	-0.350 -1.150	1.0 31.0	1.0 31.0	WE	BAKER CHARLIE	AIRDROP AIRDROP	
520501 163000.0 52004 US	A NTS	DOE	37.000	-116.000	0.0	0.0	-0.350	19.0	19.0	WR	DOG	AIRDROP	
520507 121500.0 52005 US 520525 120000.0 52006 US	A NTS	DOE	37.000	-116.000 -116.000	0.0	0.0	-0.100 -0.100	12.0 11.0	12.0 11.0	WR	EASY FOX	TOWER TOWER	
520601 115500.0 52007 US 520605 115500.0 52008 US		DOE DOE		-116.000 -116.000	0.0	0.0	-0.100 -0.100	15.0 14.0	15.0 14.0		GEORGE HOW	TOWER TOWER	
521003 80000.0 52009 UK 521031 191500.0 52010 US	MONTEB AUST	R DOE DOE	-20.400	115.570 162.150	0.0	0.0	-0.001	25.0 10400.0	25.0	WE	HURRICANE MIKE	SHIP SURFACE	
521115 0.0 52011 US	A ENEWETAK	DOE	11.300	162.150	0.0	0.0	-0.500	500.0	500.0	WR	KING	AIRDROP	
530317 132000.0 53001 US 530324 131000.0 53002 US	A NTS	DOE	37.000	-116.000 -116.000	0.0	0.0	-0.100 -0.100	16.0 24.0	16.0 24.0	WR	ANNIE NANCY	TOWER TOWER	
530331 130000.0 53003 US 530406 153000.0 53004 US		DOE DOE		-116.000 -116.000			-0.100 -2.000	0.2 11.0	0.2 11.0		RUTH DIXIE	TOWER AIRDROP	
530411 124500.0 53005 US 530418 123500.0 53006 US		DOE		-116.000 -116.000			-0.030 -0.100	0.2 23.0	0.2 23.0		RAY BADGER	TOWER TOWER	
530425 123000.0 53007 US 530508 153000.0 53008 US	A NTS	DOE	37.000	-116.000 -116.000	0.0	0.0	-0.100 -0.800	43.0 27.0	43.0 27.0	WR	SIMON ENCORE	TOWER AIRDROP	
530519 120500.0 53009 US	A NTS	DOE	37.000	-116.000	0.0	0.0	-0.100	32.0	32.0	WR	HARRY	TOWER	
530525 153000.0 53010 US 530604 111500.0 53011 US	A NTS	DOE	37.000	-116.000 -116.000	0.0	0.0	-0.200 -0.400		15.0 61.0	WR	GRABLE CLIMAX	ATMOSPH AIRDROP	
530812 0.0 53012 US 530823 0.0 53013 US			50.000	78.000 78.000			0.000	400.0 28.0	400.0 28.0			SURFACE ATMOSPH	F
530903 0.0 53014 US 530908 0.0 53015 US			50.000	78.000 78.000			0.000	5.8 1.6	5.8 1.6			ATMOSPH ATMOSPH	
530910 0.0 53016 US 531014 223000.0 53017 UF		MTM	50.000 -28.700	78.000	0.0	0.0	0.000	4.9 10.0	4.9 10.0	WR	TOTEM: 1	ATMOSPH TOWER	F
531026 223000.0 53018 UK 540228 184500.0 54001 US	EMU AUSTR		-28.700 11.350	132.350 165.200	0.0	0.0	0.000	8.0 15000.0	8.0	WR	TOTEM: 2	TOWER	•
540326 183000.0 54002 US	A BIKINI	DOE	11.350	165.200	0.0	0.0	-0.001	11000.0	11000.0	WR	BRAVO ROMEO	SURFACE BARGE	
540406 182000.0 54003 US 540425 181000.0 54004 US	A BIKINI	DOE	11.350 11.350	165.200 165.200	0.0	0.0	-0.001 -0.001		110.0 6900.0	WR	KOON UNION	SURFACE BARGE	
540504 181000.0 54005 US 540513 182000.0 54006 US	A ENEWETAK	DOE	11.350 11.300				-0.001	13500.0 1690.0			YANKEE NECTAR	BARGE BARGE	
540914 53600.0 54007 US 540929 0.0 54008 US			52.000 50.000	55.000 78.000			0.000	40.0	40.0 0.2			ATMOSPH ATMOSPH	
541001 0.0 54009 US 541003 0.0 54010 US			50.000	78.000 78.000			0.000	0.03 2.0	0.03 2.0			ATMOSPH ATMOSPH	
541005 0.0 54011 US 541008 0.0 54012 US	SR SEMI KAZAKH	MTM MTM	50.000	78.000 78.000			0.000	4.0	4.0	WR		SURFACE ATMOSPH	
541019 0.0 54013 US 541023 0.0 54014 US	SR SEMI KAZAKH	MTM	50.000	78.000 78.000	0.0	0.0	0.000	0.0 62.0	0.001 62.0	WR		SURFACE ATMOSPH	
541026 0.0 54015 US	SR SEMI KAZAKH	DOE	50.000	78.000	0.0	0.0	0.000	2.8	2.8	WR		ATMOSPH	
541030 0.0 54016 US 550218 200000.0 55001 US	A NTS	DOE		-116.000	0.0	0.0	0.000 -0.250	10.0	10.0 1.0	WE	WASP	SURFACE AIRDROP	
550222 134500.0 55002 US 550301 133000.0 55003 US	A NTS	DOE	37.000	-116.000 -116.000	0.0	0.0	-0.100 -0.100	2.0 7.0	2.0 7.0		MOTH TESLA	TOWER TOWER	
550307 132000.0 55004 US 550312 132000.0 55005 US	A NTS A NTS	DOE	37.000 37.000	-116.000 -116.000	0.0	0.0	-0.200 -0.100	43.0 4.0	43.0 4.0		TURK HORNET	TOWER TOWER	
550322 130500.0 55006 US 550323 203000.0 55007 US	A NTS	DOE	37.000 37.000	-116.000 -116.000	0.0	0.0	-0.200 0.020	8.0 1.0	8.0 1.0		BEE ESS	TOWER CRATER	
550329 125500.0 55008 US 550329 180000.0 55009 US	a nts	DOE	37.000	-116.000 -116.000 -116.000	0.0	0.0	-0.200 -0.250	14.0	14.0	WR	APPLE:1 WASP PRIME	TOWER AIRDROP	
550406 180000.0 55010 US	A NTS	DOE	37.000	-116.000	0.0	0.0	-12.000	3.0	3.0	WE	HA	AIRDROP	
550409 123000.0 55011 US 550415 191500.0 55012 US	A NTS	DOE	37.000	-116.000 -116.000	0.0	0.0	-0.100 -0.100	2.0 22.0	2.0	WE	POST MET	TOWER TOWER	
550505 121000.0 55013 US 550514 0.0 55014 US	A OFFUSWCOAST		29.000	-116.000 -126.000	0.0	0.0	-0.200 0.000	29.0 30.0	29.0 30.0	WE	APPLE:2 WIGWAM	TOWER UW	
550515 120000.0 55015 US 550729 0.0 55016 US	SR SEMI KAZAKH		50.000	-116.000 78.000	0.0	0.0	-0.200 0.000	28.0 1.3	28.0 1.3		ZUCCHINI	TOWER SURFACE	
550802 0.0 55017 US 550805 0.0 55018 US			50.000		0.0	0.0	0.000	12.0 1.2	12.0 1.2			SURFACE SURFACE	
550921 0.0 55019 US 551101 221000.0 55022 US	SR NZ RUSS	DOE	73.000	55.000 -116.000	0.0	0.0	0.000	3.5 0.0	3.5	WE	PROJECT 56:1	UW SURFACE	
551103 211500.0 55023 US 551105 195500.0 55024 US	A NTS	DOE	37.000	-116.000 -116.000	0.0	0.0	0.000	0.0	0.0	SE	PROJECT 56:2 PROJECT 56:3	SURFACE SURFACE	
551106 0.0 55020 US	SR SEMIKAZAKH	DOE	50.000	78.000	0.0	0.0	0.000	250.0	250.0	WR	PROJECT 30:3	ATMOSPH	
551122 0.0 55021 US 560118 213000.0 56001 US	A NTS	DOE	50.000 37.000	-116.000	0.0	0.0	0.000 -0.001	0.0	20.0	SE	PROJECT 56:4	ATMOSPH SURFACE	
560202 0.0 56002 US 560316 0.0 56003 US	SR SEMIKAZAKH		46.000 50.000	78,000	0.0	0.0	0.000	0.3 14.0	0.3 14.0	WR		SURFACE SURFACE	
560325 0.0 56004 US 560504 182500.0 56005 US	a ratestemate	DOD	50.000	160 150	0.0	0.0	0.000	5.5 40.0	5.5 40.0		LACROSSE	SURFACE SURFACE	
560516 35000.0 56006 UF 560520 175000.0 56007 US	MONTEB AUST A BIKINI	R DOE DOE	-20.230 11.350	162.150 115.550 165.200	0.0	0.0	0.000 -1.500	15.0	15.0	WR		TOWER AIRDROP	
560527 175600.0 56008 US 560527 195600.0 56009 US	A BIKINI A ENEWETAN	DOE	11.350	165.200 165.200 162.150	0.0	0.0	-0.001 0.000		3500.0	WR	ZUNI YUMA	SURFACE	
560530 181500.0 56010 US	A ENEWETAK	DOE	11.300	162.150	0.0	0.0	-0.100	14.9	14.9	WR	ERIE	TOWER	
560606 5500.0 56011 US 560611 182600.0 56012 US	A BIKINI	DOE	11.300 11.350 11.300	162.150	0.0	0.0	-0.001 -0.001	365.0	13.7 365.0	WR	SEMINOLE FLATHEAD	SURFACE BARGE	
560611 182600.0 56013 US 560613 232600.0 56014 US	A ENEWETAK	DOE	11.300	162.150	0.0	0.0	-0.100 0.000		8.0 1.49		BLACKFOOT KICKAPOO	TOWER TOWER	
560616 11400.0 56015 US 560619 21400.0 56016 US	A ENEWETAK MONTEB AUST	DOE	11.300	162.150	0.0	0.0	-0.200 0.000	1.7	1.7	WR	OSAGE MOSAIC:G2	AIRDROP TOWER	F
560621 212600.0 56017 US	a enewetak	DOE	11.300	162.150	0.0	0.0	0.000		15.2	WR	INCA DAKOTA	TOWER BARGE	-
560625 180600.0 56018 US 560702 180600.0 56019 US	a ENEWETAK	DOE	11.350	162.150	0.0	0.0	0.000	360.0	360.0	WR	MOHAWK	TOWER	
560708 180600.0 56020 US 560710 175600.0 56021 US	A BIKINI	DOE	11.300	165.200	0.0	0.0	-0.001	1850.0 4500.0	4500.0	WR	APACHE NAVAJO	BARGE BARGE	
560720 174600.0 56022 US	A BIKINI	DOE	11.350	165.200	υ.0	υ.0	-0.001	5000.0	5000.0	WR	TEWA	BARGE	

560824 560830 560902 560910	181200.0 560 0.0 560 0.0 560 0.0 560 0.0 560	24 USSR 25 USSR 26 USSR 27 USSR	ENEWETAK SEMI KAZAKH SEMI KAZAKH SEMI KAZAKH SEMI KAZAKH	DOE DOE DOE DOE	11.300 50.000 50.000 50.000 50.000	162.150 0.0 0 78.000 0.0 0 78.000 0.0 0 78.000 0.0 0 78.000 0.0 0	.0 .0 .0	-0.001 0.000 0.000 0.000	250.0 27.0 900.0 51.0 38.0	250.0 27.0 900.0 51.0 38.0	WR WR WR WR	HURON	BARGE SURFACE ATMOSPH ATMOSPH ATMOSPH
560927 561004 561011 561022 561117 561214 570119 570308 570403 570406 570410	0.0 560 0.0 560 0.0 570 0.0 570 0.0 570 0.0 570	29 UK 30 UK 31 UK 32 USSR 33 USSR	MARALI AUSTR MARALI AUSTR MARALI AUSTR SEMI KAZAKH SEMI KAZAKH SEMI KAZAKH SEMI KAZAKH SEMI KAZAKH SEMI KAZAKH SEMI KAZAKH SEMI KAZAKH	DOE DOE DOE MIM DOE DOE DOE DOE	-30.000 50.000 50.000 48.000 50.000 50.000 50.000	131.000 0.0 0 131.000 0.0 0 131.000 0.0 0 131.000 0.0 0 78.000 0.0 0	.0	0.000 -0.001 0.000 0.000 0.000 0.000 0.000 0.000 0.000	15.0 1.5 3.0 10.0 900.0 40.0 10.0 19.0 42.0 57.0 680.0	15.0 1.5 3.0 10.0 900.0 40.0 19.0 42.0 57.0 680.0	WE WR WR WR WR WE WR WR WR WR WR	BUFFALO:R1 BUFFALO:R2 BUFFALO:R3 BUFFALO:R4	TOWER SURFACE AIRDROP TOWER ATMOSPH ATMOSPH ATMOSPH ATMOSPH ATMOSPH ATMOSPH ATMOSPH ATMOSPH
570528 570531 570602	0.0 570 0.0 570 0.0 570 193700.0 570 115500.0 570 115500.0 570 115500.0 570	53 USA 08 UK 09 USA 10 UK 11 USA	SEMI KAZAKH SEMI KAZAKH NELLIS NV MALDEN IS NTS MALDEN IS NTS NTS NTS	DOE DOE DOE DOE DOE DOE DOE	-4.000 37.000 -4.000 37.000	78.000 0.0 0.7 78.000 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	.0 .0 .0 .0	0.000 0.000 0.000 0.000 -0.200 0.000 -0.100 -0.200	22.0 320.0 0.0 300.0 12.0 720.0 0.14 0.0005	22.0 320.0 0.0 300.0 12.0 720.0 0.14 0.0005	WR SE WR WR WR WR	PROJECT 57:1 GRAPPLE:1 BOLTZMANN GRAPPLE:2 FRANKLIN LASSEN	ATMOSPH ATMOSPH SURFACE AIRDROP TOWER AIRDROP TOWER BALLOON
570618 570619 570624 570701 570705 570715	114500.0 570 194000.0 570 133000.0 570 0.0 570 114000.0 570 113000.0 570 14000.0 570	13 USA 14 UK 15 USA 54 USA 16 USA 17 USA	MTS MALDEN IS NTS NTS NTS NTS NTS NTS NTS	DOE DOE DOE DOE DOE DOE	37.000 -4.000 37.000 37.000 37.000 37.000	-116.000 0.0 0. -155.000 0.0 0. -116.000 0.0 0. -116.000 0.0 0. -116.000 0.0 0. -116.000 0.0 0.	.0 .0 .0 .0	-0.200 0.000 -0.200 0.000 -0.500 -0.200 -6.800	10.0 200.0 37.0 0.0 74.0 17.0 2.0	10.0 200.0 37.0 0.0 74.0 17.0 2.0	WR WR WR SE WR WR	WILSON GRAPPLE: 3 PRISCILLA COULOMB-A HOOD DIABLO JOHN	BALLOON AIRDROP BALLOON SURFACE BALLOON TOWER ROCKET
570724 570725 570726 570807 570810	115000.0 570 133000.0 570 80000.0 570 122500.0 570 10000.0 570 120000.0 570	19 USA 20 USA 21 USA 22 USA 55 USA 23 USA	NTS NTS NTS NTS NTS NTS SEMI KAZAKH	DOE DOE DOE DOE DOE DOE	37.000 37.000 37.000 37.000 37.000	-116.000 0.0 0. -116.000 0.0 0. -116.000 0.0 0. -116.000 0.0 0. -116.000 0.0 0. -116.000 0.0 0. -116.000 0.0 0.	.0	-0.200 -0.200 0.000 -0.500 0.000 -0.200 0.000	10.0 9.7 0.0 19.0 0.0 17.0 520.0	10.0 9.7 0.0 19.0 0.0 17.0 520.0	WR WR SE WR SE WR	KEPLER OWENS PASCAL-A STOKES SATURN SHASTA	TOWER BALLOON SHAFT BALLOON TUNNEL TOWER ATMOSPH
570823 570826 570827 570830 570831 570902 570906	123000.0 570: 0.0 570: 223500.0 570: 124000.0 570: 123000.0 570: 124500.0 570: 124500.0 570:	25 USA 26 USSR 27 USA 28 USA 29 USA 30 USA 31 USA	NTS SEMI KAZAKH NTS NTS NTS NTS NTS NTS	DOE MTM DOE DOE DOE DOE	37.000 50.000 37.000 37.000 37.000 37.000 37.000	-116.000 0.0 0.78.000 0.0 0.78.000 0.0 0.0 0.116.000 0.0 0.0 0.116.000 0.0 0.0 0.116.000 0.0 0.0 0.116.000 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	.0	-0.500 0.000 0.000 -0.250 -0.250 -0.200 -0.200	11.0 0.1 0.0 4.7 44.0 11.0 0.2	11.0 0.1 0.0 4.7 44.0 11.0 0.2	WR SE SE WR WR WR WR	DOPPLER PASCAL-B FRANKLIN PRIME SMOKY GALILEO WHEELER	BALLOON ATMOSPH SHAFT BALLOON TOWER TOWER BALLOON
570907 570908 570913 570914 570914 570916	200500.0 570: 0.0 570: 130000.0 570: 0.0 570: 50500.0 570: 164500.0 570: 125000.0 570: 170000.0 570:	34 USSR 33 USA 35 USSR 36 UK 37 USA 38 USA	NTS NZ RUSS NTS SEMI KAZAKH MARALI AUSTR NTS NTS NTS	DOE DOE MIM DOE DOE DOE DOE	73.000 37.000 50.000 -30.000 37.000 37.000	-116.000 0.0 0. 55.000 0.0 0116.000 0.0 0. 78.000 0.0 0. 131.000 0.0 0116.000 0.0 0116.000 4.1 0.	. 0 . 0 . 0 . 0	-0.001 0.000 -0.250 0.000 0.000 -0.200 -0.500 0.300	0.3 32.0 1.0 5.9 1.0 11.0 12.0	0.3 32.0 1.0 5.9 1.0 11.0 12.0	FMS WR WR WR WR WR	COULOMB-B LAPLACE ANTLER:1 FIZEAU NEWTON RAINIER	SURFACE SURFACE BALLOON ATMOSPH TOWER TOWER BALLOON TUNNEL F
570923 570924 570925 570926 570928 571006 571007	123000.0 570- 90000.0 570- 3000.0 570- 50000.0 570- 130000.0 570- 85800.0 570- 130000.0 570-	10 USA 11 USSR 12 UK 13 USSR 14 USA 15 USSR 16 USA	NTS NZ RUSS MARALI AUSTR SEMI KAZAKH NTS NZ RUSS NTS	DOE DOE MTM DOE DOE DOE	37.000 73.000 -30.000 50.000 37.000 73.000 37.000	-116.000 0.0 0. 55.000 0.0 0. 131.000 0.0 018.000 0.0 0116.000 0.0 0116.000 0.0 0.	.0	-0.200 0.000 0.000 0.000 -0.500 0.000 -0.200	19.0 1600.0 6.0 13.0 12.0 2900.0 8.0	19.0 1600.0 6.0 13.0 12.0 2900.0 8.0	WR WR WR WR WR WR WR	WHITNEY ANTLER: 2 CHARLESTON MORGAN	TOWER AIRDROP TOWER ATMOSPH BALLOON ATMOSPH BALLOON
571206	64500.0 570- 65500.0 570- 174700.0 570- 201500.0 570- 200000.0 570- 0.0 570- 0.0 580- 0.0 580-	18 USSR 19 UK 50 USA 51 USA 52 USSR 01 USSR	MARALI AUSTR NZ RUSS CHRISTMAS IS NTS NTS SEMI KAZAKH SEMI KAZAKH SEMI KAZAKH	DOE	37.000	131.000 0.0 0.55.000 0.0 0.0 0.0 0.0 0.0 0.	.0	0.000 0.000 0.000 0.000 0.000 0.000 0.000	25.0 10.0 1800.0 0.0 0.5 12.0 1.3	25.0 10.0 1800.0 0.0 0.5 12.0 1.3 0.5	WE WR SE SE WR WR	ANTLER: 3 GRAPPLE X PASCAL-C COULOMB-C	BALLOON UW AIRDROP SHAFT SURFACE ATMOSPH ATMOSPH ATMOSPH
580222 580223 580227 580227 580313 580314 580314	0.0 5800 0.0 5800 75900.0 5800 102400.0 5800 0.0 5800 0.0 5800	03 USA 04 USSR 05 USSR 06 USSR 07 USSR 08 USSR 09 USSR	NTS NZ RUSS NZ RUSS NZ RUSS SEMI KAZAKH NZ RUSS SEMI KAZAKH	DOE DOE DOE MTM DOE DOE	37.000 73.000 73.000 73.000 50.000 73.000 50.000	-116.000 0.0 0. 55.000 0.0 0. 55.000 0.0 0. 55.000 0.0 0. 58.000 0.0 0. 55.000 0.0 0. 78.000 0.0 0.	.0	0.000 0.000 0.000 0.000 0.000 0.000	0.0 860.0 250.0 1500.0 1.2 40.0 35.0	0.001 860.0 250.0 1500.0 1.2 40.0 35.0	SE WR WR WR WR FMS WR	VENUS	TUNNEL ATMOSPH ATMOSPH ATMOSPH ATMOSPH ATMOSPH ATMOSPH
580315 580318 580320 580321 580322 580428	220000.0 580: 0.0 580: 0.0 580: 0.0 580: 0.0 580: 0.0 580: 24000.0 580: 24000.0 580:	L1 USSR L2 USSR L3 USSR L4 USSR L5 USSR L6 USA	NTS SEMI KAZAKH SEMI KAZAKH SEMI KAZAKH NZ RUSS SEMI KAZAKH PACIFIC CHRISTMAS IS	DOE DOE DOE DOE DOE DOE DOE	50.000 50.000 50.000 73.000 50.000 12.617	-116.000 0.0 0.78.000 0.0 0.78.000 0.0 0.78.000 0.0 0.78.000 0.0 0.78.000 0.0 0.78.000 0.0 0.78.000 0.0 0.78.000 0.0 0.0 0.78.000 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	. 0 . 0 . 0 . 0	0.000 0.000 0.000 0.000 0.000 0.000 -28.000 0.000	0.0 14.0 0.16 12.0 650.0 18.0 1.7 3000.0	0.001 14.0 0.16 12.0 650.0 18.0 1.7 3000.0	WR FMS WR WR WR WE	YUCCA GRAPPLE Y	TUNNEL ATMOSPH ATMOSPH ATMOSPH ATMOSPH ATMOSPH BALLOON AIRDROP F
580511 580511 580512 580516 580520 580521	181500.0 580 175000.0 580 181500.0 580 183000.0 580 13000.0 580 13000.0 580 212000.0 580 20000.0 580	19 USA 20 USA 21 USA 22 USA 23 USA 24 USA	ENEWETAK BIKINI ENEWETAK ENEWETAK ENEWETAK BIKINI ENEWETAK	DOE DOE DOE DOE DOE DOE DOE	11.300 11.350 11.300 11.300 11.300 11.350 11.350	162.150 0.0 0.165.200 0.0 0.162.150 0.0 0.162.150 0.0 0.162.150 0.0 0.162.150 0.0 0.165.200 0.0 0.162.150 0.0 0.	. 0 . 0 . 0 . 0	-0.001 -0.001 -0.001 -0.001 0.200 -0.001 -0.001	18.0 1360.0 81.0 1370.0 9.0 5.9 25.1 330.0	18.0 1360.0 81.0 1370.0 9.0 5.9 25.1 330.0	WR WR WR WR WE WR WR	CACTUS FIR BUTTERNUT KOA WAHOO HOLLY NUTMEG YELLOW WOOD	SURFACE BARGE BARGE SURFACE UW BARGE BARGE BARGE
580526 580530 580531 580602 580608 580610 580614	180000.0 5802 21500.0 5802 30000.0 5802 184500.0 5802 231500.0 5802 173000.0 5802	26 USA 27 USA 28 USA 29 USA 30 USA 31 USA 32 USA	ENEWETAK ENEWETAK BIKINI ENEWETAK ENEWETAK BIKINI BIKINI	DOE DOE DOE DOE DOE DOE	11.300 11.350 11.350 11.300 11.350 11.350	162.150 0.0 0. 162.150 0.0 0. 165.200 0.0 0. 162.150 0.0 0. 162.150 0.0 0. 165.200 0.0 0. 165.200 0.0 0.	.0	-0.001 -0.001 -0.001 -0.001 0.050 -0.001 -0.001	57.0 11.6 92.0 15.0 8.0 213.0 319.0	57.0 11.6 92.0 15.0 8.0 213.0 319.0	WR WR WR WR WE WR WR	MAGNOLIA TOBACCO SYCAMORE ROSE UMBRELLA MAPLE ASPEN	BARGE BARGE BARGE UW BARGE BARGE
580618 580627 580627 580628 580629 580701 580702	183000.0 580; 30000.0 580; 173000.0 580; 183000.0 580; 193000.0 580; 240000.0 580; 183000.0 580;	34 USA 35 USA 36 USA 37 USA 38 USA 39 USA 10 USA	ENEWETAK ENEWETAK BIKINI ENEWETAK ENEWETAK BIKINI ENEWETAK BIKINI	DOE DOE DOE DOE DOE DOE DOE	11.300 11.300 11.350 11.300 11.300 11.350 11.350	162.150 0.0 0.162.150 0.0 0.162.150 0.0 0.162.150 0.0 0.162.150 0.0 0.162.150 0.0 0.162.150 0.0 0.162.150 0.0 0.162.150 0.0 0.165.200 0.0 0.165.200 0.0 0.165.200 0.0 0.0	.0	-0.001 -0.001 -0.001 -0.001 -0.001 -0.001 -0.001	1450.0 11.0 412.0 880.0 8900.0 14.0 5.2 220.0	1450.0 11.0 412.0 880.0 8900.0 14.0 5.2 220.0	WR WR WR WR WR WR WR	WALNUT LINDEN REDWOOD ELDER OAK HICKORY SEQUOIA CEDAR	BARGE BARGE BARGE BARGE BARGE BARGE BARGE BARGE
580712 580714 580717 580722 580722 580726	183000.0 580- 33000.0 580- 40000.0 580- 230000.0 580- 42000.0 580- 203000.0 580- 203000.0 580- 105000.0 580-	12 USA 13 USA 14 USA 15 USA 16 USA 17 USA	ENEWETAK BIKINI ENEWETAK ENEWETAK BIKINI ENEWETAK ENEWETAK JOHNSTON IS	DOE DOE DOE DOE DOE DOE DOE		162.150 0.0 0.165.200 0.0 0.162.150 0.0 0.162.150 0.0 0.165.200 0.0 0.162.150 0.0 0.162.150 0.0 0.162.150 0.0 0.162.150 0.0 0.169.320 0.0 0.	. 0 . 0 . 0 . 0	-0.001 -0.001 -0.001 -0.001 -0.001 -0.001 -0.001	397.0 9300.0 0.0 255.0 65.0 202.0 2000.0 3800.0	397.0 9300.0 0.0 255.0 65.0 202.0 2000.0 3800.0	WR SE WR WR WR WR	DOGWOOD POPLAR SCAEVOLA PISONIA JUNIPER OLIVE PINE TEAK	BARGE BARGE BARGE BARGE BARGE BARGE BARGE ROCKET
580806 580812 580818	21500.0 5804 103000.0 5805 40000.0 5805 180000.0 5805 22800.0 5805 31800.0 5805	19 USA 50 USA 51 USA 52 UK 53 USA	ENEWETAK	DOE DOE DOE DOE	11.300 16.450 11.300	162.150 0.0 0. -169.320 0.0 0. 162.150 0.0 0. -157.000 0.0 0. -11.500 0.0 0. -8.200 0.0 0.	.0 .0 .0	-0.001 -45.000 -0.001 0.000 -160.000	0.0 3800.0 0.02 24.0 1.0	0.0 3800.0 0.02 24.0 2.0 2.0	WR WE WR WR WE	QUINCE ORANGE FIG GRAPPLE Z ARGUS:I ARGUS:II	SURFACE ROCKET SURFACE BALLOON ROCKET ROCKET

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580902 172400.0 58055 UK
580906 221300.0 58056 USA
580911 174900.0 58057 UK
580912 200000.0 58058 USA
580917 193000.0 58059 USA
580917 193000.0 58060 USA
580921 190000.0 58061 USA
580922 1800000.0 58062 UK
580923 220000.0 58063 USA
580923 200000.0 58063 USA
580923 140500.0 58065 USA
580923 91000.0 58066 USA
580929 140500.0 58066 USA
580929 140500.0 58066 USA
580930 95500.0 58068 USSR
581002 80000.0 58069 USSR
581002 80000.0 58070 USSR
581005 141000.0 58071 USSR
581005 141000.0 58071 USSR
581005 141000.0 58073 USA
581006 20000.0 58076 USSR
581007 15000.0 58079 USSR
581008 220000.0 58076 USSR
581001 143000.0 58077 USSR
581010 175100.0 58077 USSR
581011 175100.0 58079 USSR
581011 175100.0 58080 USSR
581015 160000.0 58088 USSR
581015 160000.0 58088 USSR
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1.3 WR
22.0 WR
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EVANS
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                                110000.0 58116 USA NTS
0.0 58111 USSA MTR RUSS
0.0 58112 USSR MTR RUSS
70400.0 60001 FRANCE REGGANE ALG
61700.0 60002 FRANCE REGGANE ALG
60800.0 61001 FRANCE REGGANE ALG
0.0 61002 USSR SEMI KAZAKH
0.0 61004 USSR SEMI KAZAKH
0.0 61005 USSR MTR RUSS
0.0 61006 USSR SEMI KAZAKH
0.0 61007 USSR SEMI KAZAKH
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0.0 61008 USSR NZ RUSS
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61062 USSE
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611217 163500.0 61070
611222 163000.0 61071
620109 163001.3 62001
620118 180000.4 62002
620130 180000.0 62003
620202 75957.8 62004
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620203 163000.0 62005 USA

620215 180000.0 62007 USA

620215 163000.0 62008 USA

620219 163000.0 62008 USA

620221 9175000.0 62001 USA

620223 163000.0 62011 USA

620224 163000.0 62011 USA

6202301 191000.0 62012 USA
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CODSAW
CIMARRON
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191000.0 62012 UK

181500.0 62013 USA

163000.0 62014 USA

180000.0 62015 USA

163000.0 62016 USA

180000.0 62017 USA

180000.0 62019 USA

180000.0 620219 USA

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620331 180000 0 62018 USA
620405 180000 0 62019 USA
620406 180000 0 62019 USA
620411 180000 0 62021 USA
620414 180000 0 62021 USA
620412 184000 0 62022 USA
620421 184000 0 62022 USA
620421 184000 0 62022 USA
620427 180100 0 62024 USA
620427 180000 0 62024 USA
620427 180000 0 62025 USA
620501 95957.1 62027 FRAN
620502 180200 0 62029 USA
620504 190500 0 62029 USA
620504 190500 0 62029 USA
620508 180100 0 62029 USA
620508 180100 0 62030 USA
620501 150000 0 62031 USA
620501 150000 0 62034 USA
620511 153700 0 62034 USA
620512 170200 0 62034 USA
620513 150000 0 62034 USA
620514 152200 0 62034 USA
620515 150000 0 62034 USA
620519 150000 0 62034 USA
620511 153700 0 62035 USA
620511 150000 0 62034 USA
620512 170200 0 62034 USA
620513 150000 0 62034 USA
620514 152200 0 62034 USA
620515 150000 0 62034 USA
620515 150000 0 62034 USA
620517 170000 0 62044 USA
620525 150000 0 62041 USA
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620606 170000 0 62046 USA
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DEAD
ADOBE
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AIRDROP
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SHAFT
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PACIFIC DOE
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AARDVARK
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SHAFT
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97.0
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73.0
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43.0
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73.0 WR
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CHETCO
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NAMBE
RACCOON
PACKRAT
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43
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153700.0 62048
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TRUCKEE
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  620609
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160100.0 62049
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AIRDROP
TUNNEL
AIRDROP
  620610
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DES MOINES
RINCONADA
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  620615
620617
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PETIT
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  620619
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  620621
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160000.0 62056
151900.0 62057
180000.0 62058
170000.0 62069
152100.0 62060
213000.0 62061
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MARSHMALLOW
BLUESTONE
SACRAMENTO
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TUNNEL
AIRDROP
  620630
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  620706
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JOHNSTON IS
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620906 0.0 62094 USA
620908 101757.7 62095 USSI
620914 171000.0 62096 USA
620915 80213.9 62097 USSI
620918 82902.7 62099 USSI
620919 10056.4 62100 USSI
620920 170000.0 62101 USA
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620925 130231.7 62106 USSR
620927 80316.4 62107 USSR
620928 0.0 62108 USSR
620929 170000.0 62108 USSR
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621022 34100.0
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62121 USA
62122 USA
62123 USA
62124 USSF
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62126 USSF
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62146 USSI
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62148 USA
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640312 150000.0 64049 USA
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640313 160200.1 64005 USA
640315 75958.0 64006 USSR
640414 144000.1 64007 USA
640415 143000.2 64008 USA
640417 0.0 64050 USA
640429 204700.0 64010 USA
640514 144000.1 64011 USA
640515 161500.1 64012 USA
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640611 164500.2 64013 USSR
640612 140100.0 64052 USA
640612 134000.0 64016 FRANCE
640618 0.0 64014 USSR
640613 134000.0 64016 FRANCE
640614 131500.2 64019 USA
640716 131500.2 64019 USA
640717 171800.0 64020 UK
640719 55958.9 64021 USSR
640818 0.0 64055 USA
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641002 200300.0 64028 USSR
641002 100000.0 64023 USA
641016 160000.0 64023 USA
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                                                                                                                                        37.000
37.000
72.900
37.000
50.000
37.000
                                                                                     NTS
NZ RUSS
NTS
                                                                                                                           DOE
                                                                                                                                                             -116.000
                                                                                                                                                                                                                       0.000
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                                                                                                                                                                                                                                                                         20 0 WR
                                                                                                                                                                                                                                                                                                              SPOON
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                                                                                                                                                            -116.000
55.200
-116.000
-116.000
-116.000
                                                                                                                                                                                                  0.0
0.0
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0.0
0.0
                                                                                                                           UGS
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                                                                                                                                                                                                                                                                                                                                                             TINNEI.
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0.000
0.000
0.000
                                                                                                                          DOE
                                                                                                                                                                                                                                              0.0
                                                                                                                                                                                                                                                                        0.0 WR
20.0 FMS
                                                                                                                                                                                                                                                                                                              COURSER
                                                                                                                                                                                             0.0
                                                                                     SEMI KAZAKH
                                                                                                                                                                                                                                                                        20.0 WR AUK
38.0 PNE:PLO PAR
                                                                                                                                                                                                                                                 0.0
38.0
                                                                                                                           DOE
                                                                                                                                                                                                                                                                                                                                                            SHAFT
SHAFT
                                                                                                                                                                                                                                                                                                                                                                                      F
                                                                                     NTS
                                                                                                                           DOE
                                                                                                                                                                                                                                             22.0
0.0
5.3
0.0
0.001
                                                                                     LOP NOR
                                                                                                                           DOE
                                                                                                                                         41.500
                                                                                                                                                                   89,000
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20.0 WR
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                                                                                     NTS
HATTIESB MS
NTS
NZ RUSS
                                                                                                                                                                                                                                                                                                              BARBELTURNSTONE SHAFT
                                                                                                                            DOE
                                                                                                                                                             -116.000
                                                                                                                                                                                                                                                                                                                                                                                      2x
                                                                                                                                        37.000
31.000
37.000
73.500
37.000
37.200
49.700
                                                                                                                                                            -116.000
-89.000
-116.000
53.700
-116.000
-116.100
78.000
5.041
                                                                                                                                                                                                                       0.000
0.000
0.000
0.000
0.000
                                                                                                                                                                                                                                                                     20.0 WR BARBELT

5.3 PME:V SALMON

20.0 WR GARDEN

20.0 WR FOREST

12.0 PME:PLO HANDCAR

150.0 PME

20.0 WR TURGUIS
                                                                                                                           DOE
DOE
UGS
DOE
                                                                                                                                                                                             0
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0.0
0.0
0.0
0.0
0.0
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TUNNEL
SHAFT
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12.0
20.0
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                                                                                                                            UGS
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                                                                                      SEMI KAZAKH
                                                                                                                            UGS
                                                                                                                                                                                                                                                                                                                                                            TUNNEL
                                                                                                                                                                                                                                                                                                              TURQUOISE
                                                                                    IN ECKER ALG
                                                                                                                          DOE
                                                                                                                                         24.042
                                                                                                                                                                                                                       0.000
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                                                                                                                                                            5.041 0.
-116.100 0.
-116.100 0.
-116.000 0.
-116.000 0.
-116.300 0.
-116.010 0.
78.960 5.
                                                                                                                                        24.042
37.100
37.100
37.000
37.000
37.000
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0.0
1.3
2.7
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20.0 WR
1.3 WR
2.7 WE
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                                                                                                                                                                                                                                                                                                                                                            SHAFT
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0.0
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MUDPACK
CASSOWARYHOOPOE
SULKY
                                                                                     NTS
                                                                                                                                                                                                                       0.000
                                                                                                                                                                                                                                                                     20.0 WR/SE
0.092 PNE:PLO
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                                                                                     NTS
                                                                                                                          DOE
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                                                                                                                           ISC
                                                                                                                                         37,070
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                                                                                     SEMI KAZAKH
                                                                                                                          TSC
                                                                                                                                         49.880
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                                                                                                                                                            78.960
-116.000
78.000
-116.030
-116.000
-115.940
-116.000
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37.000
50.000
37.070
37.000
36.990
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10.1
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SEMI KAZAKH
NTS
NTS
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20.0 FMS
20.0 WR
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DOE
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                                                                                                                                                                                                                                                                        0.33 WR
10.1 WR
20.0 WE
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                                                                                                                                                                                                                                                                                                              ALPACA
MERLIN
                                                                                     NTS
                                                                                                                           ISC
ISC
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                                                                                                                                         36.720
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                                                                                                                                        37.000
24.160
49.810
37.010
37.000
37.110
                                                                                                                                                             5.030
78.130
-116.080
-116.090
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0.0
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0.0
0.0
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SEMI KAZAKH
NTS
NTS
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ISC
ISC
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20.0 WR
200.0 WR
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SUEDE
CUP
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SHAFT
SHAFT
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20.0
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200.0 WR
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MTM
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                                                                                     SEMI KAZAKH
                                                                                                                                         50.000
                                                                                                                                                                   78.000
56.000
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2.3 PNE
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                                                                                     BASHKIR RUSS
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20.0 WR
4.3 PNE
20.0 WR
20.0 WR
7.0 WE
20.0 WR
20.0 WR
20.0 WR
20.0 WR
0.75 WR
20.0 WR
5.0 WR
5.0 WR
                                                                                                                                        53.000
36.950
37.260
36.970
37.000
36.960
37.140
49.790
37.200
                                                                                                                                                            56.000
-116.080
-116.540
-116.230
-116.000
-115.940
-116.100
78.120
-116.500
                                                                                                                                                                                                                                                                                                                                                            SHAFT
CRATER
TUNNEL
SHAFT
SHAFT
SHAFT
                                                                                                                          ISC
ISC
DOE
ISC
ISC
ISC
ISC
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                                                                                                                                                                                                                                                                                                            PALANQUIN
GUM DROP
CHENILLE
MUSCOVY
                                                                                                                                                                                                                                                                                      PNE: PLO
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                                                                                                                                                                                                                                                                                                             BUTEO
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                                                                                                                                                            -116.500

89.000

-116.050

-116.040

5.000

56.000

-116.050

-116.060
                                                                                                                                        37.200
41.500
37.070
37.000
37.070
24.000
53.000
37.000
                                                                                     LOP NOR
                                                                                                                          DOE
                                                                                                                                                                                                   0.0
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DOE
ISC
DOE
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SHAFT
SHAFT
GALLERY
                                                                                                                                                                                                                       0.000
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                                                                                                                                                                                                                                                                                                              CAMBRIO
TWEED
JADE
BUTAN
                                                                                    NTS
IN ECKER ALG
BASHKIR RUSS
                                                                                                                                                                                                                                                                        5.0 WR
7.6 PNE
1.3 WR
20.0 WR
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1.3
0.0
0.0
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SHAFT
                                                                                     NTS
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                                                                                                                                        37.000
37.000
36.830
49.830
37.000
37.000
37.000
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20.0 WE
20.0 WE
20.0 WR
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-116.060 O.
78.170 5.
-116.000 O.
-116.000 O.
-116.000 O.
-116.030 5.
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.8 0.0
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SEMI KAZAKH
NTS
NTS
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                                                                                                                                                                                                                                                                                                               IZZER
PONGEE
                                                                                     NTS
                                                                                                                           DOE
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SHAFT
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                                                                                     NTS
                                                                                                                                                                                                                       0.000
                                                                                                                                        37.060
50.400
37.020
37.000
37.080
36.980
36.980
49.780
37.060
24.000
                                                                                     SEMI KAZAKH
                                                                                                                          ISC
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-116.110
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DOE
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ISC
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4.2
5.1
5.2
0.0
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CENTAUR
MOA/SCREAMER
CHARCOAL
                                                                                                                                                                     16 000
                                                                                                                                                                                                                       0.000
                                                                                                                                                             -116.000
-116.040
-115.990
-115.990
78.150
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5.000
78.170
78.000
179.220
-116.010
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49,920
50,000
51,610
37,030
49,860
37,000
                                                                                                                                                                                                                                                                        5.0 WR
20.0 WR
1.1 PNE
80.0 PNE:V
20.0 WR
29.0 WR
20.0 WR
                                                                                     SEMI KAZAKH
SEMI KAZAKH
AMCHITKA AK
                                                                                                                          ISC
MTM
ISC
ISC
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SEPIA
                                                                                     NTS
SEMI KAZAKH
                                                                                                                           ISC
DOE
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                                                                                                                                                                                                                                                                                                              KERMET
                                                                                     NTS
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  651201 102958.4 65046 FRANCE
651203 151304.5 65047 USA
651216 153918.1 65048 USA
                                                                                    IN ECKER ALG
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                                                                                                                                         37.080
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                                                                                                                                                                                                                                                                                                               EMERSON
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651216 191502.6 65049 USA
651224 45958.4 65050 USSR
660113 153743.0 66001 USA
660118 183503.3 66002 USA
660121 0.0 66064 USA
660121 182759.3 66003 USA
660122 151700.0 66065 USA
                                                                                                                                    37.020 -116.050 5.3 0.0
49.900 78.100 5.2 0.0
37.170 -116.020 0.0 0.0
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20.0 PN
20.0 WR
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                                                                                   SEMI KAZAKH
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SIENNA
DOVEKIE
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37.000
37.030
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37.070
49.770
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-116.000
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-116.000
-116.100
78.100
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  660203 181737.1
660213 45757.9
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66005
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125.0
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125.0 PNE
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                                                                                   SEMI KAZAKH
                                                              USSE
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 660213 45757.9 66005 660216 110000.0 66006 660224 155510.5 66007 660305 181500.7 66008 660312 184100.5 66009 660312 180413.2 66010 660320 54957.8 66012 660324 145529.0 66013 660401 184001.1 66014 660406 135719.9 66015
                                                              FRAN
                                                                                   IN ECKER ALG
                                                                                                                        ISC
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-116.420
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USA
USA
USA
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REX
REDHOT
FINFOOT/CINNAMO
CLYMER
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37.150 -116.110
36.940 -116.130
37.080 -116.090
36.900 -116.150
49.720 78.070
37.050 -116.160
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 660401 184001.1
660406 135719.9
660407 222733.4
660414 141346.4
660421 35758.1
660422 25804.0
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37.080 -116.130
36.950 -116.010
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49.860 78.200
47.700 47.700
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STUTZ
TOMATO
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660422 25804.0 66063
660423 0.0 66071
660425 183803.3 66019
66029 0.0 66056
660504 133219.0 66020
660505 140003.1 66022
660507 35758.2 66023
660507 35758.2 66023
660513 133002.1 66024
660513 135630.6 66026
660512 200003.0 66027
6606052 153001.8 66026
660527 200003.0 66027
6606052 153001.8 66028
6606053 140002.2 66028
660615 140002.2 66028
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TRAVELER
CYCLAMEN
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37.080 -116.140

37.090 -116.000

37.110 -116.030

37.160 -116.140

37.200 -116.000

37.030 -116.010

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 660615 170000.0 66031
660615 180300.0 66033
660625 171259.6 66033
660629 65758.3 66034
660630 221502.7 66035
660702 153400.0 66036
660719 150500.0 66037
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37.000 -116.000
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49.920 78.060
37.320 -116.280
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TAMOURE
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660719 150500.0 66037
660721 35800.0 66038
660721 120000.0 66072
660728 153332.5 66039
660805 35757.9 66040
660810 131603.0 66041
660812 0.0 66067
660819 35301.4 66042
660907 35158.1 66043
660911 173000.0 66044
660912 152959.8 66045
660924 177000.0 66046
660929 144532.1 66048
660930 55952.8 66049
660930 55952.8 66049
660930 155952.8 66049
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661004 210000.0 66056
661015 0.0 66068
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37.000 -115.890
49.830 78.050
37.300 -116.000
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49.900 77.920
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0.0 SE GANYM
20.0 PNE:PLO SAXON
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20.0 PNE
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USSR
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1000.0 WR
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36.840 -115.920
37.130 -116.020
-22.000 -139.000
37.120 -115.980
38.800 64.500
-22.000 -139.000
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49.770 78.030
41.500 89.000
73.400 54.570
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DAIQUIRI
RIGEL
NEWARK
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BARGE
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UZBEK
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49.770 78.030
41.500 89.000
73.400 54.570
73.000 55.000
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37.170 -115.960
37.100 -116.000
37.000 -116.000
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USSR
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NZ RUSS
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SEMI KAZAKH
661027 0.0 66073 661029 0.0 66074 661105 144501.2 66054 661111 120000.7 66055 661112 0.0 66075 661123 50200.0 66059 661203 121500.0 66058 661213 175000.0 66059 661213 175000.0 66059 661213 45757.9 66060
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661213 210002.7 66059
661213 175000.0 66070
661228 45757.9 66060
661220 153001.9 66061
661228 40000.0 66062
670119 164502.5 67001
670120 174005.5 67002
670120 0.0 67051
670208 151500.4 67003
670223 183000.5 67004
670223 185002.9 67005
670320 0.0 67053
670320 0.0 67053
670321 0.0 67053
670322 55758.9 67006
670301 0.0 67055
670404 0.0 67055
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670406 70400 150002.3 67000
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49.920 77.760
37.320 -116.360
41.500 89.000
37.000 -116.000
37.140 -116.180
37.080 -116.010
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BOURBON
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37.110 -116.100

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37.160 -116.070

49.790 78.140

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SEMI KAZAKH
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37.000 -116.000
37.000 -116.000
36.920 -116.420
49.760 78.230
36.980 -116.080
37.100 -116.100
37.000 -116.020
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67013 USA
67014 USA
67015 USA
67016 USA
67056 USA
67017 USSR
67017 USSR
67018 FRANCE
67019 CHINA
 670427 144502.8
670510 134003.0
670520 150001.7
670523 140002.0
670526 150005.1
670526 0.0
670528 40757.7
670605 190000.0
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                                                                                   SEMI KAZAKH
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                                                                                  MURUROA
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 670615 190000.0
670617 1909.8
670622 131001.7
670626 160002.2
670627 193000.0
670629 25657.8
670629 112503.7
670702 173000.0
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67022 FRANCE
67023 USSR
67024 USA
67025 FRANCE
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ANTARES
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BALLOON
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37.000
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 670702 173000.0 67025

670714 0.0 67057

670715 32657.6 67026

670727 130002.7 67027

670804 65758.0 67028

670804 140001.0 67048

670810 141000.3 67029

670818 021230.4 67030

670824 0.0 67058
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-116.040
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-116.050
-116.040
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SHAFT
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SEMI KAZAKH
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NTS
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                                                              USA
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  670831 163000.4 67031 USA
                                                                                                                                     37.120 -116.120
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670902 0.0 67064 USSR 670907 134503.1 67032 USA	SEMI KAZAKH NTS	ISC	50.000	78.000 -116.070		0.000	0.001 20.0	20.0		YARD	TUNNEL SHAFT	
670915 0.0 67059 USA	NTS	DOE	37.000	-116.000	0.0 0.0	0.000	0.0	20.0	WR	GILROY	SHAFT	
670916 40358.2 67033 USSR 670921 204504.1 67034 USA	SEMI KAZAKH NTS	ISC ISC	50.010	77.800 -116.120	5.3 0.0	0.000	$0.001 \\ 2.2$	20.0	WR PNE: PLO	MADUTET	SHAFT SHAFT	F
670922 50357.8 67035 USSR	SEMI KAZAKH	ISC	50.020		5.2 0.0	0.000	10.0	10.0		MAKVED	SHAFT	r
670927 170002.4 67036 USA	NTS TYUMEN RUSS	ISC DIS	37.100 57.690	-116.000		0.000	20.0 0.3	200.0	WR PNE	ZAZA TAVDA	SHAFT	
671006 70002.0 67049 USSR 671017 50358.0 67037 USSR	SEMI KAZAKH	ISC	49.800	78.030	0.0 0.0 5.6 0.0	0.000	0.001	20.0		IAVDA	TUNNEL	2x
671018 143002.0 67038 USA	NTS	ISC		-116.030	5.7 0.0	0.000	20.0	200.0		ANPHER	SHAFT	
671021 45958.4 67039 USSR 671025 143001.0 67040 USA	NZ RUSS NTS	ISC ISC	73.400	-116.030	5.9 0.0	0.000 0.000	20.0	1500.0 20.0		SAZERAC	TUNNEL SHAFT	F2x
671025 0.0 67060 USA	NTS	DOE	37.000	-116.000	0.0 0.0	0.000	0.0	20.0	WR	COGNAC	SHAFT	
671025 0.0 67061 USA 671030 60357.9 67041 USSR	NTS SEMI KAZAKH	DOE	37.000 49.810	-116.000 78.020	0.0 0.0 5.3 0.0	0.000	0.0 0.001	20.0		WORTH	SHAFT TUNNEL	
671108 150003.1 67042 USA	NTS	ISC		-116.060	5.1 0.0	0.000	0.0	20.0		COBBLER	SHAFT	
671122 40357.5 67043 USSR	SEMI KAZAKH NTS	ISC DOE	49.930	77.400 -116.000	4.8 0.0	0.000	0.001	20.0 20.0		DOLKA	SHAFT	
671206 0.0 67062 USA 671208 60357.4 67044 USSR	SEMI KAZAKH	ISC	49.880		5.4 0.0	0.000	0.001	20.0		POLKA	SHAFT TUNNEL	
671210 193001.3 67045 USA	FARMINGT NM	ISC	36.670	-107.170	4.8 0.0	0.000	29.0			GASBUGGY	SHAFT	F
671215 150003.5 67046 USA 671224 0.0 67047 CHINA	NTS LOP NOR	ISC DOE	41.500	-116.070 89.000	0.0 0.0	0.000	0.0 15.0	20.0 25.0		STILT	SHAFT AIRDROP	
680107 34657.6 68001 USSR	SEMI KAZAKH	ISC	49.740	78.320	5.1 0.0	0.000	0.001	20.0	PNE		TUNNEL	
680118 163005.1 68002 USA 680119 150003.7 68003 USA	NTS NTS	ISC ISC		-116.190 -114.120		0.000	7.4 20.0	7.4		HUPMOBILE STACCATO	SHAFT SHAFT	F
680119 181502.2 68004 USA	C. NÉVADA	DÓE	38.650	-116.200	6.3 0.0	0.000	200.0	1000.0	WR	FAULTLESS	SHAFT	
680124 0.0 68063 USA 680126 160003.8 68005 USA	NTS NTS	DOE		-116.000 -116.450		0.000	0.0 2.3	20.0		BRUSH CABRIOLET	SHAFT CRATER	F
680131 153001.0 68057 USA	NTS	DIS		-116.120		0.000	0.0	20.0		MALLET	SHAFT	r
680221 153001.9 68006 USA	NTS	ISC		-116.020		0.000	20.0	200.0		KNOX	SHAFT	
680221 0.0 68064 USA 680229 170832.6 68007 USA	NTS NTS	DOE		-116.000 -116.200		0.000	0.0	20.0 20.0		TORCH DORSALFIN	SHAFT TUNNEL	
680305 0.0 68065 USA	NTS	DOE	37.000	-116.000	0.0 0.0	0.000	0.0	20.0	WR	RUSSET	SHAFT	
680312 170400.1 68008 USA 680314 151900.0 68009 USA	NTS NTS	ISC DOE		-116.380 -116.000		0.000 0.200	1.1 1.5	1.1 1.5		BUGGY A-E POMMARD	CRATER SHAFT	5 x
680322 150002.1 68010 USA	NTS	ISC	37.300	-116.270	5.6 0.0	0.000	20.0	200.0	WR	STINGER	SHAFT	
680325 184429.8 68015 USA 680404 0.0 68066 USA	NTS NTS	DOE		-115.930 -116.000		0.000 0.000	0.0	20.0 20.0		MILK SHAKE BEVEL	SHAFT SHAFT	
680410 140002.8 68016 USA	NTS	ISC		-116.080		0.000	0.0	200.0		NOOR/THROW	SHAFT	F2x
680418 140503.1 68017 USA	NTS	ISC		-116.070		0.000	20.0	200.0		SHUFFLE	SHAFT	
680423 170131.2 68018 USA 680424 103557.3 68019 USSR	NTS SEMI KAZAKH	ISC ISC	49.840	-116.190 78.070	5.0 0.0	0.000	0.0 0.001	20.0	PNE:V WR	SCROLL	SHAFT TUNNEL	
680426 150001.0 68020 USA	NTS	ISC	37.310	-116.410	6.2 0.0	0.000		1300.0		BOXCAR	SHAFT	
680503 160001.0 68058 USA 680508 0.0 68067 USA	NTS NTS	DIS		-115.990 -116.000		0.000 0.000	0.0 0.0	20.0 20.0		HATCHET CROCK	SHAFT SHAFT	
680517 130003.8 68021 USA	NTS	ISC	37.100	-116.060	4.7 0.0	0.000	20.0	200.0	WR	CLARKSMOBILE	SHAFT	
680521 35900.0 68022 USSR 680523 0.0 68079 USSR	PAMUK UZBEK SEMI KAZAKH	ZAR MTM	0.000		0.0 0.0	0.000	47.0 0.0	47.0 0.001			SHAFT TUNNEL	
680528 0.0 68068 USA	NTS	DOE	37.000	-116.000	0.0 0.0	0.000	0.0	20.0		ADZE	SHAFT	
680605 0.0 68069 USA	NTS	DOE		-116.000		0.000	0.0 0.0	20.0		WEMBLEY	SHAFT	F
680606 213002.6 68023 USA 680611 30557.7 68024 USSR	NTS SEMI KAZAKH	ISC ISC	49.800	-116.070 78.130	5.2 0.0	0.000	0.001	20.0 20.0		TUB A-F	SHAFT TUNNEL	5x
680615 140001.4 68025 USA	NTS	ISC		-116.270		0.000	20.0	200.0		RICKEY	SHAFT	
680619 50557.4 68026 USSR 680625 0.0 68070 USA	SEMI KAZAKH NTS	ISC DOE	49.960 37.000	-116.000	5.4 0.0 0.0 0.0	0.000	0.001 0.0	20.0		FUNNEL	SHAFT SHAFT	
680625 0.0 68071 USA	NTS	DOE	37.000	-116.000	0.0 0.0	0.000	0.0	20.0	WR	SEVILLA	SHAFT	
680628 133301.2 68027 USA 680701 40200.9 68028 USSR	NTS AZGIR KAZAKH	ISC	37.180 47.850	-116.480 47.720	5.3 0.0 5.5 0.0	0.000	20.0 27.0	200.0 27.0		CHATEAUGAY	SHAFT SHAFT	
680707 220000.0 68029 FRANCE	MURUROA	DOE	-22.000	-139.000	0.0 0.0	0.000	0.0	200.0	WR	CAPELLA	BALLOON	
680712 120757.0 68030 USSR 680715 190000.0 68031 FRANCE		ISC DOE	49.770	78.090 -139.000	5.3 0.0	0.000	0.001	20.0		CASTOR	TUNNEL	2x
680717 0.0 68072 USA	NTS	DOE		-116.000		0.000	0.0	20.0		SPUD	BALLOON SHAFT	
680730 130001.0 68032 USA	NTS	ISC		-116.070		0.000	20.0	200.0		TANYA	SHAFT	
680803 210000.0 68033 FRANCE 680809 0.0 68073 USA	MURUROA NTS	DOE DOE		-139.000 -116.000		0.000	0.0 0.0	200.0		POLLUX IMP	BALLOON SHAFT	
680815 0.0 68074 USA	NTS	DOE	37.000	-116.000	0.0 0.0	0.000	0.0	. 20.0	WR	RACK	SHAFT	
680820 40558.3 68034 USSR 680824 182958.9 68035 FRANCE	SEMI KAZAKH FANGATAUFA	ISC UGS	50.000 -22.207	-138.809	4.8 0.0	0.000	0.0 1000.0	20.0	WR/SAM WR	CANOPUS	TUNNEL BALLOON	F2x F
680827 162959.9 68036 USA	NTS	ISC	36.850	-115.900	0.0 0.0	0.000	0.0	20.0	WE	DIANAMOON	SHAFT	-
680829 224500.7 68037 USA 680905 40557.5 68038 USSR	NTS SEMI KAZAKH	ISC ISC	37.280 49.750	-116.290 78.150	0.0 0.0 5.4 0.0	0.000	20.0 0.001	200.0		SLED	SHAFT TUNNEL	
680906 140002.0 68039 USA	NTS	ISC	37.210	-116.080	5.5 0.0	0.000	20.0	200.0		NOGGIN	SHAFT	
680908 185959.4 68040 FRANCE 680912 135959.7 68041 USA	MURUROA NTS			-139.050 -115.910		0.000	0.0	20.0	WR	PROCYON KNIFE A	BALLOON SHAFT	F
680917 140003.6 68042 USA	NTS	ISC	37.050	-116.130	5.1 0.0	0.000	20.0	200.0	PNE: PLO	STODDARD	SHAFT	F
680924 170503.3 68043 USA	NTS SEMI KAZAKH	ISC	37.170 49.820	-116.270 78.180		0.000	0.0 60.0	20.0 60.0		HUDSON SEAL	TUNNEL	
680929 34257.8 68044 USSR 681003 142900.0 68045 USA	NTS	ISC ISC		-115.940		0.000	0.0	20.0		KNIFE C	TUNNEL SHAFT	
681003 0.0 68075 USA	NTS	DOE		-116.000		0.000	0.0	20.0		WELDER	SHAFT	
681010 143004.0 68059 USA 681021 0.0 68080 USSR	NTS SEMI KAZAKH	DIS MTM	50.000	-116.260 78.000		0.000	0.0 0.24	20.0 0.24		WAT TELKEM	SHAFT SHAFT	
681029 0.0 68076 USA	NTS	DOE	37.000	-116.000	0.0 0.0	0.000	0.0	20.0	WR	HULA	SHAFT	
681029 0.0 68081 USSR 681031 183004.0 68060 USA	SEMI KAZAKH NTS	MTM DIS	50.000 36.870	78.000 -116.270		0.000 0.000	0.001	20.0		BIT A-B	TUNNEL SHAFT	2x
681031 0.0 68077 USA	NTS	DOE	37.000	-116.000	0.0 0.0	0.000	0.0	20.0	WR	FILE	SHAFT	
681104 151502.8 68046 USA 681104 0.0 68082 USA	NTS NTS	ISC DOE	37.050	-116.080 -116.000	0.0 0.0	0.000 0.000	20.0 0.0	200.0		CREW CREW 2-3	SHAFT SHAFT	2x
681107 100205.4 68047 USSR	NZ RUSS	ISC	73.390	54.580	6.1 0.0	0.000	0.0	1500.0	WR		TUNNEL	F3x
681109 25357.7 68048 USSR 681112 0.0 68083 USSR		ISC MTM	49.760 37.000		4.9 0.0	0.000	0.001	20.0 0.24		TELKEM-2	TUNNEL SHAFT	3×
681115 154500.8 68049 USA	NTS	ISC	37.020	-115.990	0.0 0.0	0.000	0.0	20.0	WR	KNIFE B	SHAFT	J.A.
681115 153005.0 68061 USA 681120 180003.4 68050 USA	NTS NTS	DIS ISC		-116.310 -116.180		0.000	0.0 0.0	20.0		AUGER MINGVASE	SHAFT TUNNEL	
681122 161900.3 68051 USA	NTS	ISC	37.130	-116.040	0.0 0.0	0.000	0.0	20.0	WR	TINDERBOX	SHAFT	
681208 160005.8 68052 USA 681212 151003.0 68053 USA	NTS NTS	ISC ISC	37.280	-116.370 -116.070	4.8 0.0	0.000	30.0 0.0	30.0 20.0		SCHOONER TYG A-F	CRATER SHAFT	F 6x
681212 152001.0 68062 USA	NTS	DIS	37.010	-116.110	0.0 0.0	0.000	0.0	20.0		SCISSORS	SHAFT	OX.
681212 0.0 68078 USA	NTS SEMI KAZAKH	DOE		-116.000		0.000	0.0 0.001	20.0		BAYLEAF	SHAFT	
681218 50157.0 68054 USSR 681219 163000.0 68055 USA	NTS	ISC	49.700 37.200	-116.500	5.2 0.0 6.3 0.0	0.000		20.0 1150.0		BENHAM	TUNNEL SHAFT	
	LOP NOR	DOE	41.500		0.0 0.0	0.000		3000.0			AIRDROP	
690115 190005.2 69001 USA 690115 193002.1 69002 USA	NTS NTS	ISC ISC		-116.070 -116.220		0.000	10.0 20.0	10.0 200.0		PACKARD WINESKIN	SHAFT SHAFT	
690122 0.0 69047 USA	NTS	DOE	37.000	-116.000	0.0 0.0	0.000	0.0	20.0	WR	SHAVE	SHAFT	
690130 150003.7 69003 USA 690130 0.0 69048 USA	NTS NTS	ISC DOE	37.000	-115.990 -116.000	0.0 0.0	0.000	20.0	200.0		VISE BIGGIN	SHAFT SHAFT	
690204 0.0 69049 USA	NTS	DOE	37.000	-116.000	0.0 0.0	0.000	0.0	20.0	WR	NIPPER	SHAFT	
690204 0.0 69050 USA 690212 161822.0 69004 USA	NTS NTS	DOE ISC		-116.000 -116.140		0.000	0.0	20.0		WINCH CYPRESSE	SHAFT TUNNEL	
690307 82657.6 69005 USSR	SEMI KAZAKH	ISC	49.840	78.150	5.6 0.0	0.000	20.0	150.0	WR		TUNNEL	
	NTS NTS	DOE DOE		-116.000 -116.000		0.000	0.0	20.0		VALISE CHATTY	SHAFT SHAFT	
690320 181203.5 69006 USA	NTS	ISC	36.960	-116.020	4.4 0.0	0.000	0.0	20.0	WR	BARSAC	SHAFT	
690321 143002.9 69007 USA 690404 0.0 69064 USSR	NTS SEMI KAZAKH	ISC MTM	37.110 50.000	-116.080 78.000	4.9 0.0 0.0 0.0	0.000	0.0 0.001	100.0		COFFER	SHAFT TUNNEL	
690413 0.0 69065 USSR	SEMI KAZAKH	MTM	50.000	78.000	0.0 0.0	0.000	0.001	20.0	PNE	_	TUNNEL	
690424 0.0 69053 USA 690430 170002.6 69008 USA	NTS NTS	DOE ISC		-116.000 -116.030		0.000	0.0 20.0	20.0		GOURD A/B BLENTON	SHAFT SHAFT	2x
690430 170002.6 69009 USA	NTS	ISC	37.050	-116.030	5.2 0.0	0.000	20.0	200.0	WIR	THISTLE	SHAFT	
690507 134501.9 69010 USA	NTS	ISC	31.250	-116.460	5.5 0.0	0.000	20.0	200.0	WR	PURSE	SHAFT	

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37.000 -116.000 0.0 0.0
49.780 78.160 5.2 0.0
37.010 -116.030 5.0 0.0
37.000 -116.030 5.0 0.0
50.010 77.810 5.3 0.0
36.950 -116.070 4.5 0.0
37.000 -116.000 0.0 0.0
49.760 78.200 5.2 0.0
37.070 -116.080 0.0 0.0
37.130 -116.070 5.5 0.0
49.880 78.230 5.4 0.0
37.200 -116.100 0.0 0.0
36.910 -116.010 0.0 0.0
57.350 54.770 4.8 0.0
51.310 55.030 4.8 0.0
39.500 -107.880 5.0 0.0
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                                                                  69054 USA
69011 USSR
69012 USA
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690516
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                                                                                                                       SEMI KAZAKH
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2x
                                                                                                                       SEMI KAZAKH
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200.0 WR
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9.880 78.230

37.200 -116.100

36.910 -116.010

57.350 54.770

51.310 55.030

39.500 -107.880

49.770 78.030
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690912 180221.0 69025 USA
690916 143002.2 69026 USA
690920 0.0 69058 USA
690922 161458.9 69027 CHINA
690929 65955.9 69028 USSR
690929 84026.2 69029 CHINA
691001 40257.7 69030 USSR
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0.0 69059 USA

220601.9 69031 USA

143001.7 69032 USA

70006.4 69033 USSS

0.0 69060 USA

193003.9 69034 USA

200002.0 69035 USA
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37.230
73.390
37.000
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.590 179.190
.230 -116.430
.390 54.500
.000 -116.000
.070 -116.040
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PIPKIN
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| 691029 | 193003 | 9 6934 | USA 691029 | 200002.0 | 69035 | USA 691029 | 200002.0 | 69035 | USA 691029 | 220152.0 | 69036 | USA 691029 | 220152.0 | 69036 | USA 691131 | 0.0 | 69067 | USA 691121 | 145203.0 | 69038 | USA 691121 | 0.0 | 69061 | USA 691127 | 0.0 | 69061 | USA 691127 | 0.0 | 69061 | USA 69120 | 170002.6 | 69040 | USA 691201 | 0.0 | 69063 | USA 691206 | 70257.5 | 69041 | USSR 691210 | 0.0 | 69062 | USA 691217 | 150002.5 | 69042 | USA 691217 | 151002.5 | 69042 | USA 691217 | 151503.7 | 69043 | USA 691217 | 151503.7 | 69043 | USA 691218 | 190003.7 | 69044 | USA 691218 | 190003.7 | 69044 | USA 691229 | 34657.8 | 69046 | USSR 700129 | 70257.7 | 70002 | USSR 700123 | 163000.4 | 70010 | USA 700204 | 0.0 | 70053 | USA 700204 | 1700013 | 70003 | USA 700204 | 0.0 | 70053 | USA 700204 | 1700015 | USA 700218 | 0.0 | 70061 | USSR 700225 | 12840.8 | 70009 | USA 700225 | 12840.8 | 70009 | USA 700226 | 153003.4 | 70009 | USA 700306 | 145959.7 | 70011 | USA 700306 | 145959.7 | 70011 | USA 700309 | 140329.9 | 70012 | USA 700339 | 140329.9 | 70012 | USA 700339 | 140329.9 | 70012 | USA 7003339 | 140329.9 | 70012 | USA 700330 | 140
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49.940 78.980
37.130 -116.240
43.790 -54.750
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37.060 -116.000
37.060 -116.070
49.980 77.790
49.700 78.200
37.110 -115.960
49.840 78.270
36.980 -116.070
37.090 -116.070
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GRAPE B
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YANNIGAN R/B/W
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700319 140329.9 70012 USA
700323 230502.1 70013 USA
700326 190002.4 70014 USA
700327 50257.0 70015 USSR
700421 143003.1 70016 USA
700501 14303.3 70017 USA
700501 143999.2 70019 USA
700501 103999.2 70019 USA
700501 153001.8 70020 USA
700512 140000.0 70022 USA
700515 133001.0 70022 USA
700515 130001.0 70022 USA
700515 140003.3 70024 USA
700521 14003.3 70024 USA
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49.770 78.110
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CAN GREEN/RED
BEEBALM
HOD GREEN/RED
HOD C BLUE
MINTLEAF
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 | 100521 141503.5 70025 USA NTS | 700521 141503.5 70026 FRANCE MURUROA | 700526 141600.2 70027 USA NTS | 700526 150001.2 70028 USA NTS | 700527 0.0 70063 USA NTS | 700528 0.0 70053 USA NTS | 700528 0.0 70055 USA NTS | 700530 175958.5 70029 FRANCE FANGATAUFA | 700624 183000.0 70030 FRANCE FANGATAUFA | 700624 145000.1 70031 USA NTS | 700626 130001.7 70032 USA NTS | 700626 130001.7 70032 USA NTS | 700628 15757.7 70032 USA NTS | SEMI KAZAKH | 700703 183000.0 70034 FRANCE MURUROA | 700703 183000.0 70034 FRANCE MURUROA | 700712 1 30257.0 70035 USS SEMI KAZAKH | 700724 35657.6 70036 USSR SEMI KAZAKH | 700727 190000.0 70037 FRANCE MURUROA | 700802 190000.0 70038 FRANCE FANGATAUFA | 700802 1900000.0 70038 FRANCE FANGATAUFA | 700802 190000.0 70038 FRANCE FANGATAUFA | 700802 190000.0 70038 FRANCE FANGATAUFA | 700802 1900000.0 70038 FRANCE FANGATAUFA | 700802 1900000.0 70038 FRANCE FANGATAUFA | 700802 190000.0 70038 FRANCE FANGATAUFA | 700802 1900000.0 70038 FRANCE FANGATAUFA | 700802 1900000.0 70038 FRANCE FANGATAUFA | 700802 190000.0 70038 FRANCE FANGATAUFA | 700802 1900000
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37.110 -116.030
50.000 78.000
37.000 -116.000
37.000 -116.000
-22.200 -138.800
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49.820 78.180
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700802 190000.0 70038 FRANC

700806 190000.0 70039 FRANC

700906 40257.6 70040 USSR

701013 0.0 70056 USSR

701014 55957.3 70041 USSR

701014 72958.9 70042 CHINF

701014 14299.5 70043 USA

701104 60257.4 70044 USSR

701105 150002.7 70045 USA

701119 0.0 70058 USA

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  701212 70057.4 70046 USSI
701212 70057.4 70046 USSI
701216 160001.3 70047 USA
701216 0.0 70060 USA
701217 70057.7 70049 USSI
701217 160501.3 70050 USA
701218 153001.9 70051 USA
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710606 40257.1 71006 USSR SEMI K			0.000	16.0	16.0 WR		SHAFT	
710612 191500.0 71007 FRANCE MURURO 710616 145000.0 71008 USA NTS	UGS 37.0	00 -139.000 0.0 0.0 00 -116.000 4.9 0.0	0.000	0.0	1000.0 WR 20.0 WR	ENCELADE EMBUDO	SHAFT	F
710619 40357.6 71009 USSR SEMI K 710623 153000.0 71010 USA NTS	UGS 37.0	00 -116.000 4.8 0.0	0.000	0.001 20.0	20.0 WR 200.0 WR	LAGUNA	SHAFT SHAFT	
710623 0.0 71041 USA NTS 710624 140000.2 71011 USA NTS		00 -116.000 0.0 0.0 00 -116.100 5.2 0.0	0.000	0.0 20.0	20.0 SE 200.0 WR	DEXTER HAREBELL	SHAFT SHAFT	
710629 0.0 71012 USA NTS 710630 35657.2 71013 USSR SEMI K	DOE 37.0	00 -116.000 0.0 0.0	0.000	0.0	20.0 WE 20.0 WR	CAMPHOR	TUNNEL SHAFT	
710701 140000.0 71014 USA NTS 710702 170000.0 71015 USSR URAL K	DOE 37.0	00 -116.000 0.0 0.0	0.000	0.0	20.0 PNE:V 2.3 PNE	DIAMOND MINE GLOBUS	TUNNEL SHAFT	
710704 213000.0 71016 FRANCE MURURO	A DOE -22.0	00 -139.000 0.0 0.0	0.000	0.0	20.0 WR	JAPET	BALLOON	
710709 0.0 71042 USA NTS	DOE 37.0	00 -116.100 5.5 0.0 00 -116.000 0.0 0.0	0.000	83.0	83.0 PNE:PLO 20.0 WR	BRACKEN	SHAFT	
710710 165959.3 71018 USSR URAL R 710721 0.0 71043 USA NTS	DOE 37.0	00 -116.000 0.0 0.0	0.000	2.3 0.0	2.3 PNE 20.0 WR	GLOBUS APODACA	SHAFT	
710804 0.0 71044 USA NTS 710805 0.0 71045 USA NTS	DOE 37.0	00 -116.000 0.0 0.0 00 -116.000 0.0 0.0	0.000	0.0	20.0 WR 20.0 WR	BARRANCA NAMA A/M	SHAFT SHAFT	2x
710806 0.0 71046 USA NTS 710808 183000.0 71019 FRANCE MURURO		00 -116.000 0.0 0.0 00 -139.000 0.0 0.0	0.000	0.0 0.0	20.0 WR 20.0 WR	BALTIC PHOEBE	SHAFT BALLOON	
710814 185959.2 71020 FRANCE MURURO. 710818 140000.0 71021 USA NTS		00 -139.000 4.7 0.0 00 -116.000 5.4 0.0	0.000	0.0 20.0	1000.0 WR 200.0 WR	RHEA ALGODONES	BALLOON SHAFT	
710919 110006.8 71022 USSR URAL R 710922 140000.0 71038 USA NTS	JSS UGS 57.8	00 41.100 4.5 0.0 70 -115.970 0.0 0.0	0.000	2.3	2.3 PNE 20.0 SE/WR	GLOBUS FRIJOLES	SHAFT SHAFT	4×
710927 55955.2 71023 USSR NZ RUS: 710929 140000.0 71024 USA NTS	5 UGS 73.4		0.000	150.0	1500.0 WR 20.0 WR	PEDERNAL	TUNNEL SHAFT	4x
710929 0.0 71047 USA NTS	DOE 37.0	00 -116.000 0.0 0.0	0.000	0.0	20.0 WR 2.3 PNE	CHANTILLY GLOBUS	SHAFT SHAFT	
711008 143000.1 71026 USA NTS	UGS 37.1	00 -116.000 4.7 0.0	0.000	0.0	20.0 WR	CATHAY	SHAFT	
711009 60257.1 71027 USSR SEMI K 711014 143002.0 71039 USA NTS	DIS 37.3	20 -116.140 0.0 0.0	0.000	12.0	12.0 WR 20.0 WR	LAGOON	SHAFT	
711021 60257.3 71028 USSR SEMI K 711022 50000.4 71029 USSR ORENBG	RUSS UGS 51.6	00 54.500 5.3 0.0	0.000 0.000	23.0 15.0	23.0 WR 15.0 PNE	SAPFIR	SHAFT SHAFT	
711106 220000.1 71030 USA AMCHIT 711118 60000.0 71031 CHINA LOP NO	R DOE 41.5	00 89.000 0.0 0.0	0.000 0.000	0.0 15.0	5000.0 WR 15.0 WR	CANNIKIN	SHAFT TOWER	
711124 201500.0 71032 USA NTS 711129 60257.1 71033 USSR SEMI K		00 -116.000 0.0 0.0 00 78.100 5.5 0.0	0.000 0.000	0.0 0.0	20.0 WE 20.0 WR	DIAGONAL LINE	SHAFT TUNNEL	2x
711130 154501.0 71040 USA NTS 711214 210954.2 71034 USA NTS		50 -116.150 0.0 0.0 00 -116.100 4.7 0.0	0.000	0.0 20.0	20.0 WR 200.0 WR	PARNASSIA CHAENACTIS	SHAFT SHAFT	
711214 0.0 71048 USA NTS 711214 0.0 71049 USA NTS	DOE 37.0	00 -116.000 0.0 0.0 00 -116.000 0.0 0.0	0.000	0.0	20.0 WR 20.0 WR	HOSPAH YERBA	SHAFT SHAFT	
711215 75258.6 71035 USSR SEMI K		77.900 4.9 0.0	0.000	0.001 64.0	20.0 WE 64.0 PNE		TUNNEL SHAFT	
711230 62057.7 71037 USSR SEMI K 711230 0.0 71053 USSR SEMI K	AZAKH UGS 49.8	78.100 5.8 0.0	0.000	20.0 0.001	150.0 WR 20.0 WR		TUNNEL	
720105 0.0 72042 USA NTS	DOE 37.0	00 -116.000 0.0 0.0	0.000	0.0	20.0 WR	MESCALERO	SHAFT	
720107 70000.0 72001 CHINA LOP NOT 720203 214459.0 72036 USA NTS	DIS 36.9	80 -115.810 0.0 0.0	0.000	8.0 0.0	8.0 WR 20.0 WR	COWLES	AIRDROP	
720210 50257.3 72002 USSR SEMI K 720217 0.0 72043 USA NTS	DOE 37.0	00 -116.000 0.0 0.0	0.000	16.0 0.0	16.0 WR 20.0 WR	DIANTHUS	SHAFT SHAFT	_
720310 45657.4 72003 USSR SEMI K 720318 60000.0 72004 CHINA LOP NO	DOE 41.5	00 89.000 0.0 0.0	0.000 0.000	0.001 170.0	20.0 WR 170.0 WR		TUNNEL AIRDROP	2x
720323 0.0 72044 USA NTS 720328 42157.3 72005 USSR SEMI K	DOE 37.0 ZAKH UGS 49.7	78.200 5.2 0.0	0.000 0.000	0.0	20.0 WR 20.0 WR/P/SA	SAPPHO	SHAFT TUNNEL	F3x
720330 210001.0 72037 USA NTS 720411 60000.0 72006 USSR MARY TO	DIS 36.9 JRKMEN DOE 37.4	70 -116.050 0.0 0.0 00 62.000 0.0 0.0	0.000	0.0 15.0	20.0 WR 15.0 PNE	ONAJA/OCATE CRATER	SHAFT SHAFT	2x
720419 163200.0 72007 USA NTS 720419 0.0 72045 USA NTS		22 -116.083 4.6 0.0	0.000	0.0	20.0 WR 20.0 WR	LONGCHAMPS JICARILLA	SHAFT SHAFT	
	ZAKH MTM 50.0		0.000	0.0	0.001 SAM 20.0 WE	MISTY NORTH	TUNNEL,	
720511 140002.0 72038 USA NTS	DIS 37.2	50 -116.110 0.0 0.0 20 -116.088 4.4 0.0	0.000	0.0	20.0 WR 20.0 WR	KARA	SHAFT	
720519 170000.0 72010 USA NTS	UGS 37.0	04 -116.002 4.9 0.0	0.000	0.0	20.0 WR	ZINNIA MONERO	SHAFT	
720607 0.0 72046 USA NTS		00 -116.000 0.0 0.0	0.000	0.001	20.0 WE 20.0 WR	MERIDA	TUNNEL, SHAFT	
720625 0.0 72012 FRANCE MURURO 720628 144100.0 72039 USA NTS	DIS 37.1	00 -139.000 0.0 0.0 20 -116.040 0.0 0.0	0.000	0.0	20.0 WR 20.0 WR	UMBRIEL CAPITAN	BALLOON SHAFT	
720628 163000.0 72047 USA NTS 720628 163000.0 72048 USA NTS	DOE 37.0	00 -116.000 0.0 0.0 00 -116.000 0.0 0.0	0.000	0.0	20.0 WR 20.0 WR	HAPLOPAPPUS TAJIQUE	SHAFT SHAFT	
	ZAKH UGS 49.7	00 -1 39.000 0.0 0.0 00 78.000 4.4 0.0	0.000	0.0 0.001	20.0 WR 20.0 WE	TITANIA	BALLOON TUNNEL	
720709 70000.0 72015 USSR UKRAINI 720720 171600.0 72016 USA NTS	UGS 37.2	L5 -1 16. 1 83 5.0 0.0	0.000	3.8 0.0	3.8 PNE 20.0 WE	FAKEL DIAMOND SCULLS	SHAFT TUNNEL	
720725 133001.0 72040 USA NTS 720727 0.0 72017 FRANCE MURURO		20 -116.030 0.0 0.0 00 -139.000 0.0 0.0	0.000	0.0	20.0 WR 20.0 WR	ATARQUE OBERON	SHAFT BALLOON	
720727 0.0 72054 USSR NZ RUS 720731 0.0 72018 FRANCE MURURO		00 54.000 0.0 0.0 00 -139.000 0.0 0.0	0.000	0.001	20.0 FMS 0.0 SE	ARIEL	SHAFT TOWER	
720809 0.0 72049 USA NTS		00 -116.000 0.0 0.0	0.000	0.0	20.0 WR/SE 8.0 WE	CEB/CUCH/SOL	SHAFT TUNNEL	F3x
720820 25957.9 72020 USSR KAZAKH		00 48.200 5.7 0.0	0.000	6.6 0.001	6.6 PNE 20.0 WR	REGION	SHAFT SHAFT	
720828 55956.5 72022 USSR NZ RUSS	UGS 73.30 ZAKH UGS 50.00	00 55.100 6.3 4.7	0.000	20.0	1500.0 WR 2.0 WR		TUNNEL SHAFT	
720904 70003.6 72024 USSR MURM RT		00 33.400 4.6 0.0	0.000	2.1	2.1 PNE 2.3 PNE	DNEPR-1 REGION	TUNNEL SHAFT	F
720921 153000.2 72026 USA NTS 720926 143000.2 72027 USA NTS	UGS 37.0	32 -116.037 5.7 4.3 22 -116.085 4.4 0.0	0.000	20.0 15.0	200.0 WR 15.0 WR	OSCURO DELPHINIUM	SHAFT SHAFT	
721003 85957.8 72028 USSR KALMYK	RUSS UGS 46.8	00 45.000 5.8 0.0	0.000	6.6	6.6 PNE	REGION	SHAFT	
721109 151504.0 72041 USA NTS		50 -116.320 0.0 0.0	0.000	165.0	165.0 WR 20.0 WR	AKBAR	SHAFT	
721109 0.0 72050 USA NTS 721117 0.0 72051 USA NTS	DOE 37.0	00 -116.000 0.0 0.0 00 -116.000 0.0 0.0	0.000	0.0	20.0 WR 20.0 WR/SE	ARSENATE CANNA U/L	SHAFT SHAFT	F2x
721124 90008.0 72030 USSR ORENBG 721124 95957.8 72031 USSR KAZAKH	UGS 51.8	00 64.200 5.2 0.0	0.000 0.000	2.3 6.6	2.3 PNE 6.6 PNE	REGION REGION	SHAFT SHAFT	
721210 42708.4 72033 USSR SEMI KA	AZAKH UGS 49.8 AZAKH UGS 50.1	78.800 0.0 0.0	0.000 0.000	0.0 140.0	150.0 WR 140.0 PNE		TUNNEL SHAFT	F2x
721212 0.0 72052 USA NTS 721214 0.0 72053 USA NTS		00 -116.000 0.0 0.0 00 -116.000 0.0 0.0	0.000	0.0	20.0 WR 20.0 WR	TULOSO SOLANUM	SHAFT SHAFT	
721221 201500.2 72034 USA NTS 721221 0.0 72056 USA NTS		10 -116.083 5.0 0.0 00 -116.000 0.0 0.0	0.000	0.0	20.0 WR 200.0 WE	FLAX SOURCE FLAX T/B	SHAFT SHAFT	F2x
	ZAKH DOE 51.7		0.000	0.001	20.0 WR 20.0 WR	ALUMROOT	TUNNEL	
	ZAKH UGS 49.8		0.000	20.0 20.0	150.0 WR 200.0 WR	MIERA	TUNNEL SHAFT	
730323 0.0 73036 USA NTS 730405 0.0 73037 USA NTS	DOE 37.0	00 -116.000 0.0 0.0 00 -116.000 0.0 0.0	0.000	0.0	20.0 WR 20.0 WR 20.0 WR	GAZOOK NATOMA	SHAFT SHAFT	
	ZAKH UGS 50.0		0.000	0.001	20.0 WR 20.0 WR 20.0 WR	ANGUS/VELARDE	SHAFT SHAFT	24-
730426 171500.2 73005 USA NTS	UGS 37.1	23 -116.059 5.6 0.0	0.000	90.0	90.0 WR	STARWORT	SHAFT	2x
730426 0.0 73038 USA NTS 730509 0.0 73039 USA NTS	DOE 37.0	00 -116.000 0.0 0.0 00 -116.000 0.0 0.0	0.000	0.0	20.0 WR 20.0 WR	COLMOR MESITA	SHAFT	 ^
730517 160000.0 73006 USA RIFLE (730524 133001.1 73007 USA NTS	DOE 37.1	93 -108.366 5.4 4.1 30 -116.090 0.0 0.0	0.000	33.0	20.0 WR	RIO BLANCO 1-3 CABRESTO	SHAFT	F3x
730524 0.0 73008 USA NTS 730605 170000.2 73009 USA NTS	UGS 37.1	00 -116.000 0.0 0.0 35 -116.215 5.1 0.0	0.000	0.0	20.0 WR 20.0 WE	KASHAN DIDO QUEEN	SHAFT TUNNEL	
730606 130000.1 73010 USA NTS 730621 144459.6 73011 USA NTS	UGS 37.1	15 -116.346 6.1 0.0 00 -116.000 5.3 0.0	0.000	200.0 20.0	1000.0 WR 200.0 WR	ALMENDRO POTRILLO	SHAFT SHAFT	
730627 35951.0 73012 CHINA LOP NOT 730628 191512.4 73013 USA NTS	UGS 37.1	48 -116.086 4.9 0.0	0.000	0.0 20.0	0.0 WR 200.0 WR	PORTULACA	AIRDROP SHAFT	
730628 0.0 73014 USA NTS	DOE 37.0	00 -116.000 0.0 0.0	0.000	0.0	20.0 WR	SILENE	SHAFT	

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730710 12657.6 73015 USSR SEMI KAZAKH UGS 49.800
730721 180000.0 73016 FRANCE MURUROA DCE -22.000
730723 12257.8 73017 USSR SEMI KAZAKH UGS 50.000
730728 230300.0 73018 FRANCE MURUROA DCE -22.000
730815 15957.8 73019 USSR KAZAKH UGS 42.700
730818 0.0 73020 FRANCE MURUROA DCE -22.000
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65954.3 73023 USSR
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25957.2 73024 USSR
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   730913
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   730919
                                                                                          KAZAKH
                                                                                                                                  UGS
                                                                                                                                                45.600
50.000
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SHAFT
SHAFT
                     0.0 73046 USSR
65958.0 73025 USSR
45957.5 73026 USSR
0.0 73040 USA
170000.8 73027 USA
22057.7 73028 USSR
65957.4 73030 USSR
0.0 73047 USSR
153000.5 73031 USA
190007.0 73032 USA
0.0 73042 USA
74657.0 73033 USSR
0.0 73043 USA
   730920
                                                                                          SEMI KAZAKH
                                                                                                                                 MTM
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37.000
37.000
37.200
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-116.000
-116.203
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POLYGONUM
WALLER
HUSCY ACE
                                                                                          ORENBG RUSS
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NTS
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   731026
                                                                                          SEMI KAZAKH
                                                                                                                                  UGS
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55.400
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4.8 0.0
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                                                                                          BASHKIR RUSS UGS
   731026
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6.9 5.5
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SEAFOAM
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731214 74657.0 73033 USSR SEMI KAZ
731219 0.0 73044 USA NTS
731231 0.0 73044 USA NTS
731231 0.0 73044 USA NTS
740110 0.0 74044 USA NTS
740130 45657.6 74001 USSR SEMI KAZ
740130 45657.6 74001 USSR SEMI KAZ
740227 170000.1 74003 USA NTS
740228 0.0 74054 USSR SEMI KAZ
740314 0.0 74045 USA NTS
740412 0.0 74045 USA NTS
740416 55300.0 74005 USSR SEMI KAZ
740413 0.0 74045 USA NTS
740508 0.0 74049 USA NTS
740508 0.0 74049 USA NTS
740516 30257.3 74006 USSR SEMI KAZ
740516 30257.3 74006 USSR SEMI KAZ
740516 30257.3 74007 INDIA POKHRAN
740522 141459.9 74008 USA NTS
740531 32657.4 74010 USSR SEMI KAZ
740616 0.0 74012 FRANCE MURUROA
740617 60000.0 74012 FRANCE MURUROA
740619 155959.9 74014 USA NTS
740625 35657.6 74011 USA NTS
740625 35657.6 74015 USSR SEMI KAZ
740701 0.0 74055 FRANCE MURUROA
740707 0.0 74016 FRANCE MURUROA
740708 60001.7 74017 USSR SEMI KAZ
740710 160000.1 74019 USA NTS
740710 125657.5 74018 USSR SEMI KAZ
740710 160000.1 74019 USA NTS
740711 160000.1 74019 USA NTS
740718 140001.2 74021 USA NTS
740718 140001.2 74021 USA NTS
740718 140001.2 74021 USA NTS
740725 0.0 74028 FRANCE WSW MURUROA
740728 0.0 74023 FRANCE WSW MURUROA
                                                                                          SEMI KAZAKH
   731214
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50.000 78.000

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49.900 78.000

37.104 -116.053

50.000 78.000

37.000 -116.000
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TUNNEL
PINEDROPS S/T/B SHAFT
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0.001 SAM
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20.0 WR
20.0 WR
20.0 WR
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SHAFT
SHAFT
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49.743 78.150
26.900 71.700
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WR
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-116.100
78.844
-116.020
-139.000
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200.0
150.0
20.0
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                                                                                                                                               37.100
49.952
36.960
-22.000
39.500
37.200
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0.0
0.0
4.3
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UGS
ISC
WTN
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200.0
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WR
WR
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5.0
4.7
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                                                                                                                                                                     89.400
-116.200
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                                                                                                                                  UGS
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                                                                                                                                                                                                                                                                                                                                                                          TIMBET.
                                                                                          SEMT KAZAKH
                                                                                                                                 TIGS
                                                                                                                                                49 889
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                                                                                         MURUROA SPA
MURUROA WTN
BASHKIR RUSS UGS
SEMI KAZAKH UGS
                                                                                                                                             49.889
-22.000
-22.000
53.800
49.789
37.068
-22.000
37.090
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10.0
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GEMEAUX
KAMA 1
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BALLOON
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-139.000
55.200
78.139
-116.032
-139.000
-116.050
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200.0 WR
20.0 WR
20.0 WR
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740710 160000.1 74019 USA NTS
740717 0.0 74020 FRANCE MURUROA
740718 140001.2 74021 USA NTS
740725 0.0 74023 FRANCE WSW MURUROA
740728 0.0 74056 FRANCE WSW MURUROA
740729 000000.0 74059 USSR SEMI KAZAKH
740814 145958.3 74025 USSR TYUMEN RUSS
740815 0.0 74026 FRANCE MURUROA
740824 95955.6 74028 USSR NZ RUSS
740829 95955.6 74028 USSR NZ RUSS
740830 150000.2 74030 USA NTS
740914 0.0 74032 FRANCE MURUROA
740925 135959.3 74031 USSR SEMI KAZAKH
740926 0.0 74054 USSR SEMI KAZAKH
740926 0.0 74057 USSR JAKUTS RUSS
741002 0.0 74057 USSR JAKUTS RUSS
741002 0.0 74057 USSR JAKUTS RUSS
741002 0.0 74051 USA NTS
741010 63257.5 74034 USA NTS
741010 63257.5 74035 USSR SEMI KAZAKH
741012 0.0 74051 USA NTS
741028 0.0 74051 USA NTS
741010 63257.5 74036 USA NTS
741102 0.0 74051 USA NTS
741104 64102.4 74041 USSR SEMI KAZAKH
741216 62302.4 74040 USSR SEMI KAZAKH
750206 0.0 75036 USA NTS
750200 0.0 75036 USA NTS
750200 0.0 75036 USA NTS
750200 0.0 75031 USSR SEMI KAZAKH
750202 150000.2 75001 USSR SEMI KAZAKH
750202 53257.6 75001 USSR SEMI KAZAKH
750202 53257.6 75001 USSR SEMI KAZAKH
750203 150000.2 75003 USA NTS
750405 194500.2 75005 USA NTS
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                                                                                                                                 WTN
                                                                                                                                                                                                                                                                                                                           CENTAURE
                                                                                                                                                                                                                                                                                                                                                                          BALLOON
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SHAFT
AIRDROP
TOWER
SHAFT
SHAFT
                                                                                                                                  ISC
                                                                                                                                                                                                                                  0.000
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PERSEE
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-22.000 -139.000

50.000 78.000

37.023 -116.036

68.913 75.899

-22.000 -139.000

-22.000 -139.000
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7.6 PNE
200.0 WR
20.0 WR
1500.0 WR
7.6 PNE
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SCORPION
                                                                                                                                                                                                                                                                                                                                                                          SHAFT
BALLOON
                                                                                                                                 WTN
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                                                                                                                                 WTN
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                                                                                                                                                                                                                                                                                                                                                                          BALLOON
                                                                                                                                               73.366
67.233
37.150
49.820
-22.000
36.990
37.133
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                                                                                                                                                                           55.094
62.119
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                                                                                                                                                                    62.119
-116.083
78.091
-139.000
-115.890
-116.068
-116.000
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BALLOON
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1.7 PN
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37.000
37.000
70.817
37.000
37.000
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20.0 W
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10000.0 WR
20.0 SE
20.0 V
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UGS
DOE
DOE
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-116.000
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54.063
-116.000
-116.000
78.000
77.648
78.064
78.117
-116.320
79.046
-116.000
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HYBLA FAIR
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                                                                                                                                  UGS
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1.7 PNE
20.0 WR
3.8 PNE
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SHAFT
TUNNEL
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49.824
37.110
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4.8 0.
4.3 0.
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UGS
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150.0 WR
20.0 WR
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                                                                                                                                  ISC
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                                                                                                                                                                                                                                                                                                                                                                          TUNNEL
  750311 54257.7
750405 194500.2
750424 141000.2
750425 650003.0
750427 53657.2
750430 150000.0
750514 140000.4
750603 142000.2
                                                75004 USS
75005 USA
75006 USA
75007 USS
75008 USS
75009 USA
75010 USA
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48.100
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STILTON
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 750603 142000.2 75011 USA
750603 144000.1 75012 USA
750605 181500.0 75013 FRAN
750608 32657.6 75014 USS
750611 0.0 75039 USA
750618 0.0 75040 USA
750626 123000.2 75016 USA
750626 123000.2 75016 USA
750630 32657.3 75017 USS
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-116.000
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                     32657.3 75017

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85957.9 75019

170000.1 75020

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85956.5 75023

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SEMI KAZAKH
SEMI KAZAKH
JAKUTS RUSS
NZ RUSS
   750715
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   750823
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   750906
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   750929
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   751005
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NZ RUSS
NZ RUSS
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   751018 85956.5 75023
751018 0.0 75044
751021 115957.7 75024
751024 171126.1 75025
751027 5959.0 75026
751028 143000.2 75027
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USSR
USSR
USA
CHINA
USA
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54.930
-116.180
88.400
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78.910 5.8 0.0
-116.040 4.4 0.0
-116.370 6.0 0.0
-139.000 4.9 0.0
-116.020 5.0 0.0
-78.240 5.1 0.0
-78.860 5.7 4.0
-78.860 5.7 5.2
-116.330 6.2 5.5
-78.250 5.2 0.0
89.000 0.0 0.0
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-22.000
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SHAFT
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37.120 -116.020

49.810 78.240

37.120 -116.060

50.020 78.860

37.300 -116.330

49.800 78.250

41.500 89.000
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                                                                                 SEMI KAZAKH
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                                                                                 LOP NOR
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6.3 5.
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-116.040
-116.488
-116.420
-116.000
-116.360
-116.470
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37.271
37.240
37.000
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CHESHIRE
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37.310
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AZGIR KAZAKH
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SEMI KAZAKH
SEMI KAZAKH
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SEMI KAZAKH
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SEMI KAZAKH
NTS
SEMI KAZAKH
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AZGIR KAZAKH
SEMI KAZAKH
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TUNNEL
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49.900
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49.950
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73.410
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41.640
73.400
49.980
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NZ RUSS
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SEMI KAZAKH
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112.730 5.3 0.0

-116.000 0.0 0.0

89.660 4.6 0.0

79.010 5.8 0.0

-116.080 0.0 0.0

-139.000 0.0 0
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                                                                                MUKUKUA
JAKUTS RUSS
                                                                                                                   ISC
DOE
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ISC
ISC
                                                                                                                                61.520
37.000
                                                                                                                                                                                                          0.000
                                                                                                                                                                                                                                                        15.0
                                                                                                                                                                                                                                                                    PNE
                                                                                                                                                                                                                                                                                           OKA
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                                                                                NTS
LOP NOR
SEMI KAZAKH
                                                                                                                                                                                                                             0.0
2000.0
20.0
                                                                                                                                                                                                                                                                                           SPRIT
                                                                                                                                                                                                          0.000
                                                                                                                                                                                                                                                        20.0
                                                                                                                                                                                                                                                                                                                                       SHAFT
AIRDROP
                                                                                                                                37.000

40.780

49.970

37.130

-22.000

49.870

50.000

37.080

37.120

37.100

49.800
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3000.0
150.0
20.0
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0.317
0.000
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                                                                                                                                                                                                                                                                                           CHEVRE
                                                                                NTS
                                                                                                                                                                                                                                    0.0
                                                                                                                                                                                                                                                                                                                                       SHAFT
                                                                                MURUROA
                                                                                                                   HFS
                                                                                                                                                                                                                                                                                           ASTYANAX
                                                                                                                                                                                                                                                     5.0 WR
150.0 WR
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5.9 0.0

4.9 0.0

0.0 0.0

0.0 0.0

5.5 0.0

5.2 4.2

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                                                                                SEMT KAZAKH
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                                                                                                                                                         78.890
78.000
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20.0 WR
20.0 WR
20.0 WR
150.0 WR
20.0 WR
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                                                                                SEMI KAZAKH
                                                                                                                   MTM
                                                                                                                                                                                                          0.000
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                                                                                                                                                                                                         0.000
0.427
0.331
0.000
0.640
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NTS
NTS
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ISC
DOE
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SHAFT
SHAFT
                                                                                                                                                                                                                                                                                           REDMITT
                                                                                                                                                    -116.000
                                                                                                                                                   -116.000
-116.070
-116.000
-116.040
-78.150
-116.000
-138.720
                                                                                                                                                                                                                                                                                           ASIAGO
SUTTER
RUDDER
                                                                                NTS
                                                                                                                   ISC
ISC
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                                                                                SEMI KAZAKH
                                                                                                                                                                                                                               0.001
                                                                                                                                49.800
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                                                                                                                                                                                                                                                                                                                                                               2x
2x
                                                                                NTS
                                                                                                                   DOE
                                                                                                                                                                                                          0.000
                                                                                                                                                                                                                                    0.0
                                                                                                                                                                                                                                                                                           COVE/OARLOCK
                                                                                                                                                                                                                                                                                                                                       SHAFT
                                                           USA NTS
FRANCE MURUROA
USA NTS
FRANCE MURUROA
USSR SEMI KAZ
USSR SEMI KAZ
                                                                                                                                                                                                                                                                                           ULYSSE B
DOFINO/-LAWTON
NESTOR
                                                                                                                    ISC
                                                                                                                              -22.140
37.000
                                                                                                                                                                                                          0.000
                                                                                                                                                                                                                                                       20.0 WR
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                                                                                                                                                                           5.2 0.

0.0 0.

5.8 0.

5.4 0.

0.0 0.
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SHAFT/GR
SHAFT
TUNNEL
SHAFT/GR
                                                                                                                   DOE
ISC
ISC
MTM
                                                                                                                                                    -116.000
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150.0 WR
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                                                                                                                              37.000
-21.890
49.790
50.000
-22.000
37.120
                                                                                                                                                   -116.000
-138.960
78.150
78.000
-139.000
-116.062
78.160
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                                                                                SEMI KAZAKH
SEMI KAZAKH
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20.0
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                                                                                MURUROA
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UGS
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150.0 WR
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5.1 0.0
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                                                                                                                            37.120 - 116.030
49.850 78.160
37.100 - 116.030
37.100 - 116.000
49.860 78.840
37.000 - 116.000
-22.000 - 139.000
-22.000 - 139.000
-22.000 - 139.000
-22.000 - 139.000
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150.0 WR
150.0 WR
150.0 WR
20.0 WR
0.0 SE
20.0 WR
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NTS
SEMI KAZAKH
                                                                                                                   ISC
ISC
ISC
DOE
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SHAFT
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5.3
5.8
0.0
0.0
5.3
5.2
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                                                                                NTS
MURUROA
                                                                                                                                                                                                                                                                                                                                       SHAFT
                                                                                                                   SPA
ISC
ISC
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                                                                                                                                                                                                                                                                                                                                       SHAFT/GR
                                                                                                                                                                                                                                                    20.0 WR
20.0 WR
20.0 WR
0.0 SE
15.0 PNE
20.0 WR
150.0 WR
20.0 WR
150.0 WR
150.0 WR
6.5 PNE
150.0 WR
150.0 WR
150.0 WR
                                                                                SEMI KAZAKH
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SHAFT/GR
SHAFT
SHAFT
TUNNEL
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MURUROA
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ISC
DOE
ISC
ISC
ISC
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METEORIT
CARNELIAN
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SEMI KAZAKH
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CHITA RUSS
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                                                                                                                               37.000
49.820
37.110
37.000
64.130
73.370
50.050
57.290
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-116.050
-116.000
99.620
54.410
78.930
106.230
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5.8 0.0
4.8 0.0
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ISC
ISC
ISC
ISC
ISC
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SHAFT
SHAFT
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NTS
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                                                                                                                                                                                                                                                                                           SCUPPER
METEORIT
                                                                                KRASNO RUSS
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0.001
0.001
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SEMI KAZAKH
IRKUTS RUSS
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                                                                                                                                                                                                                                                                                                                                                               F4x
F2x
                                                                                                                                                                                                                                                                                                                                       SHAFT
                                                                                                                                                                                                                                    7.6
                                                                                                                                                                                                                                                                                          METEORIT
                                                                                                                                                                                                                                                                                                                                       SHAFT
                                                                                                                                57.290
37.000
41.500
37.100
47.850
73.470
48.000
37.100
49.780
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LOP NOR
NTS
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20.0 WR
150.0 WR
10.0 PNE
20.0 WR
20.0 WR
20.0 WR/FMS
150.0 WR
0.01 PNE
20.0 WE
5.0 WR
20.0 WE
20.0 WE
5.0 WR
20.0 WR
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.530
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ATMOSPH
SHAFT
SHAFT
TUNNEL
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-116.100
48.130
54.000
47.000
-116.300
78.160
78.870
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10.0
0.001
                                                                                                                                                                                                                                                                                           COULOMMIERS
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. 5
                                                                                AZGIR KAZAKH
                                                                                NZ RUSS ISC
AZGIR KAZAKH MTM
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                                                                                NTS
                                                                                                                                                                                                                                                                                          BOBSTAY
                                                                                                                                                                                                                                                                                                                                       SHAFT
                                                                                SEMT KAZAKH
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                                                                                                                   TSC
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                                                                               SEMI KAZAKH
SEMI KAZAKH
AZGIR KAZAKH
NTS
NTS
MURUROA
                                                                                                                    ISC
                                                                                                                                50.060
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48.000
37.190
37.070
-22.000
50.000
37.020
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47.000
-116.210
-116.050
-139.000
78.000
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ISC
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0.385
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TUNNEL
SHAFT
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SANDREEF
ORESTE
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                                                                                SEMI KAZAKH
                                                                                                                   MTM
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771117 193000.1 77032 USA NTS
7711124 165958.6 77033 FRANCE MURUROA
771127 0.0 77053 USS SEMI KAZ
771130 40657.6 77034 USSR SEMI KAZ
771214 153000.2 77035 USA NTS
771217 220000.0 77045 USA NTS
771217 220000.0 77045 USA NTS
771216 0.0 77045 USA NTS
771216 0.0 77045 USA NTS
771217 220000.0 77036 FRANCE MURUROA
771226 0.0 77054 USSR SEMI KAZ
780213 215259.6 78001 USA NTS
780227 230000.0 78004 USA NTS
780227 230000.0 78004 USA NTS
780316 150000.1 78004 USA NTS
780316 150000.1 78004 USA NTS
780319 34657.3 78005 USSR SEMI KAZ
                                                                                                                                                    -116.020
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                                                                                                                   ISC
ISC
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                                                                                                                                                                                                                                                    20.0 WR
150.0 WR
20.0 WR
150.0 WR
20.0 WR
                                                                                                                              -21.860
                                                                                                                                                   -138.940
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0.0
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                                                                                                                                                   -138.940
78.000
78.890
-116.090
-116.000
-139.000
78.140
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49.930
37.130
37.000
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SEMI KAZAKH
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49.850
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WTN
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-139.000
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SHAFT/GR
ATMOSPH
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PLYPHEME
                                                                                                                                                   -116.100
77.790
-138.700
                                                                                                                   ISC
                                                                                                                                                                                                                                                                                           KARAB
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780323 163000.2 78007 USA
780323 0.0 78056 USA
780325 0.0 78059 FRANCE
780326 35657.7 78008 USSR
780411 174500.1 78010 USA
780422 30657.7 78011 USSR
780425 0.0 78057 USA
780426 0.0 78057 USA
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-116.000 0.0 0.0
-139.000 0.0 0.0
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        780422 30657.7
780425 0.0
780520 0.0
780524 0.0
780529 45657.6
780601 170000.0
780602 0.0
780611 25657.8
780701 0.0
780705 24657.5
780707 135959.3
780712 170000.1
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5.9 4.
5.1 3.
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        780712 170000.1
780719 180000.0
780726 2300000.0
780728 24657.8
780809 175958.1
780810 75957.7
780824 180004.0
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78019
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78023
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125.340
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      780810 75957.7 78022 USSR
780824 180004.0 78023 USSR
780829 23706.4 78025 USSR
780831 140000.2 78026 USA
780912 0.0 78064 USSR
780915 151500.2 78027 USA
780921 15500.2 78027 USA
780921 145957.6 78030 USSR
780921 145957.6 78030 USSR
780921 170000.0 78032 USA
780927 170000.0 78032 USA
780927 0.0 78058 USA
780927 0.0 78058 USA
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780927 17000.0 78033 USA
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780927 17000.0 78033 USA
780927 17000.0 78033 USA
780927 17000.0 78033 USA
780927 0.0 78058 USA
780927 18000.0 78036 USSR
781011 15958.0 78038 USSR
781011 135958.0 78038 USSR
781012 180000.0 78041 FRANC
781104 150557.5 78042 USSR
781104 180000.0 78041 FRANC
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SEMI KAZAKH
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790314 182959.5 79009 USA
790323 0.0 79055 USSR
790324 162758.6 79010 FRANCE
790404 180700.0 79011 FRANCE
790506 31657.6 79012 USSR
790511 155959.8 79013 USSR
790511 155959.8 79013 USSR
790612 0.0 79057 USSR
790612 0.0 79057 USSR
790618 232658.3 79017 FRANCE
790620 150013.5 79018 USSR
790628 144400.2 79020 USSR
790628 12659.8 79021 FRANCE
790707 34657.5 79022 USSR
790718 790720 USSR
790718 31702.6 79024 USSR
790718 31702.6 79024 USSR
790718 15558.7 79022 USSR
790718 790728 15558.7 79022 FRANCE
790778 15558.7 79024 FRANCE
790778 15558.7 79026 FRANCE
790804 35657.3 79026 USSR
790804 35657.3 79022 USSR
                                                                                                                                                                                              -116.020
                                                                                                           NTS
                                                                                                                                                       TSC
                                                                                                                                                                      37.020
50.000
                                                                                                                                                                                                                                                                                                                            20 0 WR
                                                                                                                                                                                                                                                                                                                                                                        MEMORY
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                                                                                                                                                                                                                                                                  0.000
0.000
0.000
0.000
                                                                                                                                                                                                                                                                                                                                                                                                                              TUNNEL
SHAFT/GR
SHAFT/GR
TUNNEL
                                                                                                           SEMT KAZAKH
                                                                                                                                                      MTM
ISC
WTN
MTM
ISC
ISC
ISC
                                                                                                                                                                                                      78.000
                                                                                                                                                                                                                                                                                                                        0.001
                                                                                                                                                                                                                                                                                                                                          SAM
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20.0 WR
20.0 WR
0.001 SAM
20.0 WR
20.0 WR
                                                                                                          MURUROA
MURUROA
SEMI KAZAKH
SEMI KAZAKH
                                                                                                                                                                    -21.880
-22.000
50.000
49.800
                                                                                                                                                                                              -139.040
-139.000
-139.000
78.000
78.120
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0.0
0.0
0.001
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                                                                                                                                                                                             -116.010
78.190
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                                                                                                                                                                       36.960
49.840
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                                                                                                                                                                                                                                                                                             0.0
                                                                                                                                                                                                                                                                                                                                                                                                                              SHAFT
                                                                                                           SEMT KAZAKH
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                                                                                                                                                                                                                                                                 0.000
0.681
0.000
0.000
0.335
0.000
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0.0
20.0
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SEMI KAZAKH
MURUROA
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ISC
ISC
ISC
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-22.060
37.110
49.890
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20.0 WR
20.0 WR
150.0 WR
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TUNNEL
SHAFT/GR
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-138
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CHESS
                                                                                                                                                                                             -116
78
                                                                                                           NTS
SEMI KAZAKH
                                                                                                                                                                                                                                                                                                                                                                                                                              SHAFT
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                                                                                                                                                       ISC
                                                                                                                                                                      37.140
                                                                                                                                                                                              -116.080
-138.980
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150.0 WR
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                                                                                                                                                       ISC
                                                                                                                                                                      -21.810
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                                                                                                                                                                    -21.810
50.050
47.810
49.900
50.000
-21.860
-21.810
37.080
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48.070
77.830
78.000
-139.000
-138.890
-116.070
                                                                                                                                                                                                                                                                                                                       20.0 WR
20.0 PNE
20.0 PNE
20.0 FMS
150.0 WR
5.0 WR
                                                                                                           SEMI KAZAKH
                                                                                                                                                       ISC
                                                                                                                                                                                                                                                                  0.000
                                                                                                                                                                                                                                                                                             0.001
                                                                                                                                                                                                                                                                                                                                                                                                                              SHAFT
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                                                                                USSR SEMI KAZAKH
USSR AZGIR
USSR SEMI KAZAKH
USSR SEMI KAZAKH
FRANCE MURUROA
FRANCE MURUROA
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0.001
0.001
0.00
0.0
20.0
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SHAFT
TUNNEL
SHAFT/GR F
SHAFT/GR
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                                                                                                                                                       ISC
ISC
ISC
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       790803 150730.2 79027 USA
790804 35657.3 79028 USSR
790808 150000.1 79029 USA
790812 175957.5 79030 USSR
790818 25157.3 79031 USSR
790829 150800.2 79032 UK
790906 150000.1 79033 USA
790908 170200.1 79035 USA
790908 170200.1 79035 USA
790913 0.0 79060 CHINA
790916 0.0 79059 USSR
790924 32958.4 79038 USSR
790924 79059 USSR
790927 41257.5 79040 USSR
791004 155958.0 79041 USSR
                                                                                                          NTS
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                                                                                                                                                                                                                                                                                                                                                                        BURZET
                                                                                                                                                                                                                                                                                                                                                                                                                              SHAFT
                                                                                                                                                                                                                            4.5 0.0
6.1 5.5
4.8 0.0
4.9 3.8
6.1 4.3
4.7 0.0
5.8 4.1
4.9 0.0
                                                                                                                                                                      37.080
49.860
37.010
61.860
49.930
37.120
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ISC
ISC
ISC
                                                                                                           SEMT KAZAKH
                                                                                                                                                                                                     78.940
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                                                                                                                                                                                                                                                                                                                         150.0 WR
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                                                                                                                                                                                             78.940
-116.010
122.220
78.980
-116.070
-116.050
                                                                                                                                                                                                                                                                                                                       150.0 WR
150.0 WR
8.5 PNE
150.0 WR
150.0 WR
140.0 WR
8.5 PNE
                                                                                                                                                                                                                                                                                            20.0
8.5
0.001
                                                                                                                                                                                                                                                                                                                                                                        OFFSHORE
                                                                                                                                                                                                                                                                                                                                                                                                                              SHAFT
                                                                                                           JAKUTS RUSS
SEMI KAZAKH
                                                                                                                                                                                                                                                                       .000
.000
.464
.640
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SHAFT
SHAFT
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                                                                                                                                                      ISC
ISC
ISC
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                                                                                                                                                                                                                                                                                            20.0
140.0
8.5
0.0
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                                                                                                                                                                       37.090
64.060
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                                                                                                           KRASNO RUSS
                                                                                                                                                                                                     99.620
                                                                                                                                                                                                                                                                  0.000
                                                                                                                                                                                                                                                                                                                                                                        KIMBERLIT
                                                                                                                                                                                                                                                                                                                                                                                                                              SHAFT
                                                                                                                                                                      37.150
41.500
0.000
73.370
37.230
49.760
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LOP NOR
                                                                                                                                                       TSC
                                                                                                                                                                                              -116.040
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0.0 0.0
0.0 0.0
5.7 4.5
4.5 0.0
5.4 3.8
5.0 0.0
5.2 0.0
5.8 5.2
6.0 4.5
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                                                                                                                                                                                                                                                                                                                                                                                                                              SHAFT
                                                                                                                                                                                               -116.040
89.000
0.000
54.580
-116.360
78.050
71.440
113.120
                                                                                                                                                                                                                                                                                                                                                                                                                             SHAFT
ATMOSPH
MINE
TUNNEL
SHAFT
TUNNEL
                                                                                                                                                      NRD
                                                                                                                                                                                                                                                                  0.000
                                                                                                                                                                                                                                                                                                                       0.3 PNE
150.0 WR
150.0 WR
20.0 WE
22.0 PNE
15.0 PNE
20.0 WR
150.0 WR
150.0 WR
5.0 WR
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.000
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ISC
ISC
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0.001
20.0
0.001
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NZ RUSS
                                                                                                                                                                                                                                                                                                                                                                        KLIVAZH
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                                                                                                           NTS
SEMI KAZAKH
                                                                                                                                                      ISC
ISC
ISC
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TYUMEN RUSS
JAKUTS RUSS
SEMI KAZAKH
NZ RUSS
AZGIR KAZAKH
SEMI KAZAKH
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                                                                                                                                                                                                                                                                                                22.0
15.0
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                              155958.0
205957.1
41657.8
70958.5
55956.7
31657.8
0.0
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49.810
73.340
47.790
49.960
         791008
                                                             79042 USSR
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78.130
54.730
48.110
79.070
-139.000
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ISC
ISC
ISC
         791018
                                                             79043
                                                                                 USSE
                                                                                                                                                                                                                                                                                             0.001
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                                                             79043 USSR
79044 USSR
79045 USSR
79046 USSR
79061 FRANCE
79047 FRANCE
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.8 4.2
.8 5.2
.0 4.5
.0 0.0
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0.00
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SHAFT
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F2x
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         791028
                                                                                                                                                                                                                                                                                                                                                                                                                                                             F2x
                                                                                                                                                                                                                                                                                                                                                                        CHRYSOTEMIS
         791119
                                                                                                          MURUROA
                                                                                                                                                       SPA
                                                                                                                                                                      -22,000
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                               191500.0
         791122
                                                                                                         MURUROA
                                                                                                                                                       WIN
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20.0 WR
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         791122 191500.0
791129 150000.1
791130 45257.8
791202 43657.6
791214 180000.1
791221 44157.2
791223 45657.6
800223 180300.0
                                                            79047 FRANC
79048 USA
79049 USSR
79050 USSR
79051 USA
79052 USSR
79053 USSR
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SHAFT
TUNNEL
SHAFT
SHAFT
TUNNEL
                                                                                                                                                                                                                                  .8 0.0
.5 0.0
.0 4.6
                                                                                                           NTS
                                                                                                                                                       TSC
                                                                                                                                                                       37 000
                                                                                                                                                                                               -116 000
                                                                                                                                                                                                                                                                                                                                                                         BACKGAMMON
                                                                                                                                                                       37.000
49.810
49.880
37.100
49.820
49.930
                                                                                                                                                                                               -116.000
78.210
78.840
-116.100
78.270
78.800
                                                                                                                                                                                                                             3.8 0.0
4.5 0.0
6.0 4.6
0.0 0.0
4.7 0.0
6.2 4.4
0.0 0.0
                                                                                                           SEMI KAZAKH
SEMI KAZAKH
                                                                                                                                                       TSC
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ISC
ISC
ISC
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0.00
0.00
0.001
0.001
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150.0 WR
20.0 WR
20.0 WR
150.0 WR
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                                                                                                                                                                                                                                                                                                                                                                        AZUL
                                                                                                           NTS
SEMI KAZAKH
                                                                                                                                                                                                                                                                  0.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                           F2x
                                                                                                           SEMI KAZAKH
                                                                                                                                                                                                                                                                                                                                                                                                                               SHAFT
                                                                                                                                                                                                                                                                                                                            5.0 WR
20.0 WR
5.0 WR
                                                              80001 FRANCE MURUROA
                                                                                                                                                       WTN
                                                                                                                                                                     -22.000
37.100
                                                                                                                                                                                                -139,000
                                                                                                                                                                                                                                                                  0.000
                                                                                                                                                                                                                                                                                                    0.0
                                                                                                                                                                                                                                                                                                                                                                        THYESTE
                                                                                                                                                                                                                                                                                                                                                                                                                               SHAFT/GR
         800228 150000.1 80002 USA NTS
800303 175600.0 80003 FRANCE MURUROA
                                                                                                                                                        TSC
                                                                                                                                                                                                -116.100
                                                                                                                                                                                                                                          0.0
                                                                                                                                                                                                                                                                  0.369
                                                                                                                                                                                                                                                                                                                                                                         TARKO
                                                                                                                                                                                                                                                                                                                                                                                                                               SHAFT
                                                                                                                                                       WTN -22 000
                                                                                                                                                                                               -139.000 0.0 0.0
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                                                                                                                                                                                                                                                                                                                                                                        ADRASTE
                                                                                                                                                                                                                                                                                                                                                                                                                               SHAFT/GR
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800308 153500.1 80004 USA NTS 800314 0.0 80051 USSR SEMI KAZI	ISC 37.200 -116.100 3.9 0.0 AKH MTM 50.000 78.000 0.0 0.0	0.271 0.0 0.000 0.0	20.0 WR 0.001 SAM	NORBO	SHAFT TUNNEL
800323 193658.4 80005 FRANCE MURUROA	ISC -21.860 -138.970 5.7 0.0	0.000 0.0	150.0 WR	THEESE	SHAFT/GR
800401 193058.9 80006 FRANCE MURUROA 800403 140000.1 80007 USA NTS	ISC -21.770 -138.880 5.1 0.0 ISC 37.100 -116.100 4.7 0.0	0.000 0.0 0.417 20.0	20.0 WR 150.0 WR	BOROS LIPTAUER	SHAFT/GR SHAFT
800403 140000.1 80007 USA NTS 800404 53257.3 80008 USSR SEMI KAZI		0.000 0.001	20.0 WR	DII IAOEK	SHAFT
800404 183257.8 80009 FRANCE MURUROA	ISC -22.100 -138,700 4.5 0.0 AKH ISC 49.822 78,080 5.0 0.0	0.000 0.0	20.0 WR 20.0 WR	PELOPS	SHAFT/GR
800410 40657.9 80010 USSR SEMI KAZI 800416 200000.1 80011 USA NTS	AKH ISC 49.822 78.080 5.0 0.0 ISC 37.100 -116.000 5.3 4.2	0.000 0.001 0.579 20.0	150.0 WR	PYRAMID	TUNNEL 2x SHAFT
800425 35657.4 80012 USSR SEMI KAZI		0.000 0.001	20.0 WR		SHAFT 2x
800426 170000.1 80013 UK NTS 800502 184630.1 80014 USA NTS	ISC 37.200 -116.400 5.4 4.2 ISC 37.100 -116.000 4.4 0.0	0.633 20.0 0.351 0.0	150.0 WR 20.0 WR	COLWICK CANFIELD	SHAFT SHAFT
800522 35657.8 80015 USSR SEMI KAZA	AKH ISC 49.750 78.110 5.5 0.0	0.000 0.001	20.0 WR		TUNNEL 3x
800522 130000.1 80016 USA NTS 800612 32657.7 80017 USSR SEMI KAZA	ISC 37.000 -116.000 0.0 0.0 AKH ISC 49.950 79.050 5.6 0.0	0.335 0.0 0.000 20.0	20.0 WR 150.0 WR	FLORA	SHAFT SHAFT
800612 171500.1 80018 USA NTS	ISC 37.300 -116.500 5.6 0.0	0.645 20.0	150.0 WR	Kash	SHAFT
800616 182658.8 80019 FRANCE MURUROA 800616 0.0 80052 USSR BASHKIR I	ISC -21.830 -139.000 5.4 0.0	0.000 0.0 0.000 3.2	150.0 WR 3.2 PNE	EURYPHYLE BUTAN	SHAFT/GR SHAFT
800621 170100.0 80050 FRANCE MURUROA	WTN -22.000 -139.000 5.0 0.0	0.000 0.0	20.0 WR	ILUS	SHAFT/GR
800624 151000.1 80020 USA NTS 800625 0.0 80053 USSR BASHKI RU	ISC 37.000 -116.000 4.4 0.0 ISS MTM 0.000 0.000 0.0 0.0	0.320 0.0 0.000 3.2	20.0 WE 3.2 PNE	HURONKING BUTAN	SHAFT
800625 0.0 80053 USSR BASHKI RU 800625 0.0 80054 USSR SEMI KAZA		0.000 0.001	20.0 WR	MAIUG	Shaft Tunnel
800629 23257.8 80021 USSR SEMI KAZA		0.000 0.001	150.0 WR	Ormarana.	SHAPT F3x
800706 172659.1 80022 FRANCE MURUROA 800709 0.0 80055 FRANCE MURUROA	ISC -21.750 -139.000 4.6 0.0 SPA -22.000 -116.000 0.0 0.0	0.000 0.0	20.0 WR 0.0 SE	CHRYSES LEDA	SHAFT/GR SHAFT/GR
800719 234658.5 80024 FRANCE MURUROA	ISC -21.860 -139.000 5.8 5.2	0.00 0.0	150.0 WR	ASIOS	SHAFT/GR
800725 190500.1 80025 USA NTS 800731 33258.0 80026 USSR SEMI KAZA	ISC 37.300 -116.500 5.5 4.2 KH ISC 49.810 78.140 5.3 0.0	0.680 20.0 0.000 0.001	150.0 WR 20.0 WR	TAFI	SHAFT TUNNEL 2×
800731 181900.1 80027 USA NTS	ISC 37.000 -116.000 4.3 0.0	0.366 0.0	20.0 WR	VERDELLO	SHAFT
800914 24239.3 80028 USSR SEMI KAZA 800925 62110.5 80030 USSR SEMI KAZA		0.000 20.0 0.000 0.001	150.0 WR 20.0 WE		SHAFT TUNNEL
800925 144500.1 80031 USA NTS	ISC 37.100 -116.000 4.6 0.0	0.381 20.0	150.0 WR	BONARDA	SHAFT
800925 152630.1 80032 USA NTS 801008 55957.3 80035 USSR ASTRAK RU	ISC 37.100 -116.100 0.0 0.0 ISS ISC 46.790 48.290 5.2 3.7	0.424 107.0 0.000 8.5	107.0 WR 8.5 PNE	RIOLA VEGA	Shaft Shaft
801011 70957.2 80036 USSR NZ RUSS	ISC 73.360 54.820 5.7 4.0	0.000 0.001	150.0 WR	VEGA	TUNNEL F7x
801012 33414.3 80037 USSR SEMI KAZZ 801016 43028.9 80038 CHINA LOP NOR	LKH ISC 49.940 79.100 5.9 4.2 ISC 41.040 89.940 4.4 4.4	0.000 20.0 0.000 200.0	150.0 WR 1000.0 WR		SHAFT 2x ATMOSPH F
801023 0.0 80056 USSR SEMI KAZA		0.000 0.001	20.0 WR		TUNNEL
801024 191500.1 80039 UK NTS	ISC 37.100 -116.000 4.4 0.0	0.427 0.0	20.0 WR	DUTCHESS	SHAFT
801031 180000.1 80040 USA NTS 801101 125958.0 80041 USSR KRASNO RU	ISC 37.200 -116.200 4.7 0.0 ISS ISC 60.790 97.570 5.2 0.0	0.390 0.0 0.000 0.001	20.0 WE 20.0 PNE	MINERSIRON BATOLIT	TUNNEL SHAFT
801114 165000.1 80042 USA NTS	ISC 37.100 -116.000 4.1 0.0	0.320 0.0	20.0 WR	DAUPHIN	SHAFT
801125 175300.0 80043 FRANCE MURUROA 801203 173258.3 80044 FRANCE MURUROA	WTN -22.000 -139.000 0.0 0.0 ISC -21.870 -138.960 5.6 0.0	0.000 0.0 0.000 0.0	5.0 WR 150.0 WR	LAERTE DIOMEDE	SHAFT/GR SHAFT/GR
801205 0.0 80057 USSR SEMI KAZA	KH MTM 50.000 78.000 0.0 0.0	0.000 0.001	20.0 WR	DIONEDE	TUNNEL
801205 0.0 80058 USSR SEMI KAZA 801210 65957.7 80045 USSR TYUMEN RU		0.000 0.001 0.000 15.0	20.0 WR 15.0 PNE	ANGARA	TUNNEL 3x SHAFT
801214 34706.5 80046 USSR SEMI KAZA		0.000 0.001	150.0 WR	MOMM	SHAFT F3x
801217 151000.1 80047 UK NTS	ISC 37.300 -116.300 5.1 0.0	0.573 20.0	150.0 WR	SERPA	SHAFT
801226 40707.4 80048 USSR SEMI KAZA 801227 40908.5 80049 USSR SEMI KAZA		0.000 0.001 0.000 0.001	20.0 WR 150.0 WR		TUNNEL SHAFT F2×
810115 202500.1 81001 USA NTS	ISC 37.100 -116.000 5.6 0.0	0.564 20.0	150.0 WR	BASEBALL	SHAFT
810205 180000.1 81002 USA NTS 810225 150000.8 81003 USA NTS	ISC 37.000 -116.000 0.0 0.0 ISC 37.200 -116.100 0.0 0.0	0.354 0.0 0.229 0.0	20.0 WR 20.0 WR	CLAIRETTE SECO	SHAFT SHAFT
810227 232800.0 81004 FRANCE MURUROA	WTN -22.000 -139.000 0.0 0.0	0.000 0.0	5.0 WR	BROTEAS	SHAFT/GR
810306 172700.0 81005 FRANCE MURUROA 810325 0.0 81050 USSR SEMI KAZA	WTN -22.000 -139.000 0.0 0.0 KH MTM 50.000 78.000 0.0 0.0	0.000 0.0 0.000 0.0	5.0 WR 0.001 SAM	TYRO	SHAFT/GR TUNNEL
810328 172259.7 81006 FRANCE MURUROA	ISC -21.670 -138.840 4.7 0.0	0.000 0.0	20.0 WR	IPHICLES	SHAFT/GR
810329 40350.1 81007 USSR SEMI KAZA 810410 175659.0 81008 FRANCE MURUROA	KH ISC 49.980 79.020 5.6 0.0 ISC -21.800 -138.900 4.8 0.0	0.000 0.001 0.000 0.0	20.0 WR/FMS 20.0 WR	CLYMENE	SHAFT F3x
810410 175659.0 81008 FRANCE MURUROA 810422 11711.4 81009 USSR SEMI KAZA		0.000 0.001	20.0 WR 20.0 WR	CLIMENE	SHAFT/LG SHAFT F3x
810430 143500.0 81010 USA NTS	ISC 37.200 -116.000 0.0 0.0	0.323 0.0	20.0 WR	VIDE	SHAFT
810525 45957.6 81011 USSR ARKHAN RU 810527 35812.3 81012 USSR SEMI KAZA		0.000 37.6 0.000 0.001	37.6 PNE 20.0 WR	PIRIT	SHAFT SHAFT
810529 160000.0 81013 USA NTS	UGS 37.102 -116.004 4.2 0.0	0.320 0.0	20.0 WR	ALIGOTE	SHAFT
810604 0.0 81014 USSR SEMI KAZA 810606 180000.0 81015 USA NTS	KH MTM 50.000 78.000 0.0 0.0 ISC 37.300 -116.300 5.5 4.2	0.000 0.0 0.000 20.0	0.001 SAM 150.0 WR	HARZER	TUNNEL SHAFT
810630 15712.8 81016 USSR SEMI KAZA	KH ISC 49.720 78.090 5.2 0.0	0.000 0.001	20.0 WR		TUNNEL 2x
810708 222257.9 81018 FRANCE MURUROA 810710 140000.0 81019 USA NTS	ISC -22.180 -138.730 5.3 0.0 ISC 37.100 -116.000 0.0 0.0	0.000 0.0 0.341 0.0	20.0 WR 20.0 WR	LYNCEE NIZA	SHAFT/GR SHAFT
810710 140000.0 81019 USA NIS 810711 171700.0 81020 FRANCE MURUROA	WTN -22.000 -139.000 0.0 0.0	0.000 0.0	5.0 WR	ERYX	SHAFT/GR
810716 150000.1 81021 USA NTS 810717 23715.7 81022 USSR SEMI KAZA	ISC 37.100 -116.000 0.0 0.0	0.204 0.0 0.000 0.001	20.0 WR	PINEAU	SHAFT
810717 23715.7 81022 USSR SEMI KAZA 810718 174300.0 81023 FRANCE MURUROA	KH ISC 49.790 78.170 5.2 0.0 WTN -22.000 -139.000 0.0 0.0	0.000 0.001 0.000 0.0	20.0 WR 5.0 WR	THERAS	TUNNEL SHAFT/GR
810803 183258.4 81024 FRANCE MURUROA	ISC -21.890 -138.880 5.3 0.0	0.000 0.0	150.0 WR	AGENOR	SHAFT/GR
810805 134100.0 81025 USA NTS 810814 22712.9 81026 USSR SEMI KAZA	ISC 37.200 -116.000 0.0 0.0 KH ISC 49.750 78.070 5.0 0.0	0.200 0.0 0.000 0.001	20.0 WR 20.0 WR	HAVARTI	Shaft Tunnel 3x
810827 143100.0 81027 USA NTS	ISC 37.200 -116.100 0.0 0.0	0.294 0.0	20.0 WR	ISLAY	SHAFT
810902 40004.0 81028 USSR PERM RUSS 810904 150000.1 81029 USA NTS	ISC 60.590 55.700 4.4 0.0 ISC 37.100 -116.000 0.0 0.0	0.000 3.2 0.305 0.0	3.2 PNE 20.0 WR	GELIY TREBBIANO	Shaft Shaft
810913 21718.4 81030 USSR SEMI KAZA	KH ISC 49.890 78.980 6.1 4.9	0.000 20.0	150,0 WR		SHAFT
810924 150000.0 81031 USA NTS 810926 45957.5 81032 USSR ASTRAK RU	ISC 37.000 -116.000 0.0 0.0 SS ISC 46.820 48.280 5.2 0.0	0.213 0.0 0.000 8.5	20.0 WR 8.5 PNE	CERNADA VEGA	SHAFT SHAFT
810926 50357.0 81033 USSR ASTRAK RU	SS ISC 46.790 48.270 5.3 0.0	0.000 8.5	8.5 PNE	VEGA	SHAFT
811001 121456.9 81035 USSR NZ RUSS 811001 190000.1 81036 USA NTS	ISC 73.320 54.550 6.0 3.8 ISC 37.100 -116.000 4.9 0.0	0.000 0.001 0.472 20.0	150.0 WR 150.0 WR	PALIZA	TUNNEL F4x SHAFT
811016 0.0 81051 USSR SEMI KAZA	кн мтм 50.000 78.000 0.0 0.0	0.000 0.0	0.001 SAM		TUNNEL
811018 35702.7 81037 USSR SEMI KAZA 811022 135957.5 81038 USSR KRASNO RU	KH ISC 49.880 78.890 6.1 4.7 SS ISC 63.790 97.540 5.1 0.0	0.000 0.001 0.000 8.5	150.0 WR 8.5 PNE	SHPAT	SHAFT F2× SHAFT
811106 0.0 81052 FRANCE MURUROA	SPA -22.000 -139.000 0.0 0.0	0.000 0.0	5.0 WR	LETO	SHAFT/GR
811111 170658.3 81039 FRANCE MURUROA 811111 200000.0 81040 USA NTS	UGS -21.917 -138.996 4.5 0.0 UGS 37.076 -116.068 4.8 0.0	0.000 0.0 0.445 20.0	20.0 WR 150.0 WR	PROCLES TILCI	SHAFT/GR
811112 150000.1 81041 UK NTS	UGS 37.108 -116.049 5.3 4.4	0.518 20.0	150.0 WR	ROUSANNE	SHAFT SHAFT
811120 45702.5 81042 USSR SEMI KAZA		0.000 0.001 0.000 0.001	20.0 WR		TUNNEL 2x
811129 33508.6 81043 USSR SEMI KAZA 811203 150000.1 81044 USA NTS	KH UGS 49.860 78.857 5.6 4.0 ISC 37.100 -116.100 4.6 0.0	0.000 0.001 0.494 20.0	20.0 WR 150.0 WR	AKAVI	SHAFT 3x SHAFT
811205 165801.0 81045 FRANCE MURUROA	ISC -21.400 -139.400 4.6 0.0	0.000 0.0	20.0 WR	CILIX	SHAFT/GR
811208 164658.3 81046 FRANCE MURUROA 811216 210500.1 81047 USA NTS	ISC -21.910 -138.880 5.2 0.0 ISC 37.100 -116.100 4.4 0.0	0.000 0.0 0.335 0.0	20.0 WR 20.0 WR	CADMOS CABOA	SHAFT/LG SHAFT
811222 43102.6 81048 USSR SEMI KAZA	KH ISC 49.840 78.210 5.1 0.0	0.000 0.001	20.0 WR		TUNNEL 3x
811227 34314.2 81049 USSR SEMI KAZA 820128 160000.1 82001 USA NTS	KH ISC 49.900 78.860 6.2 4.4 ISC 37.100 -116.100 5.9 4.5	0.000 20.0 0.640 139.0	150.0 WR 139.0 WR	JORNADA	SHAFT
820212 145500.1 82002 USA NTS	ISC 37.200 -116.500 5.4 0.0	0.651 20.0	150.0 WR	MOLBO	SHAFT SHAFT
820212 152500.1 82003 USA NTS 820219 35611.1 82004 USSR SEMI KAZA	ISC 37.300 -116.300 5.6 0.0	0.640 20.0 0.000 0.001	150.0 WR 20.0 WR	HOSTA	SHAFT
820220 0.0 82055 FRANCE MURUROA	SPA -22.000 -139.000 0.0 0.0	0.000 0.0	5.0 WR	AEROPE	TUNNEL 2x SHAFT/GR
820224 0.0 82056 FRANCE MURUROA	SPA -22.000 -139.000 0.0 0.0	0.000 0.0	5.0 WR	DEIPHOBE	SHAFT/GR
820320 170258.6 82005 FRANCE MURUROA 820323 0.0 82057 FRANCE MURUROA	ISC -21.860 -139.030 4.9 5.2 SPA -22.000 -139.000 0.0 0.0	0.000 0.0 0.000 0.0	20.0 WR 5.0 WR	RHESOS EVENOS	SHAFT/LG SHAFT/GR
820331 0.0 82058 FRANCE MURUROA	SPA -22.000 -139.000 0.0 0.0	0.000 0.0	0.0 SE	AESON	SHAFT/GR
820417 180000.0 82006 USA NTS 820425 32305.5 82007 USSR SEMI KAZA	ISC 37.000 -116.000 4.5 0.0 KH ISC 49.870 78.920 6.1 4.6	0.357 0.0 0.000 20.0	20.0 WR 150.0 FMS	TENAJA	SHAFT SHAFT 3x
820425 180500.0 82008 UK NTS	ISC 37.300 -116.400 5.4 0.0	0.570 20.0	150.0 WR	GIBNE	SHAFT
820506 200000.0 82009 USA NTS 820507 181700.1 82010 USA NTS	ISC 37.100 -116.100 4.3 0.0 ISC 37.100 -116.000 5.7 4.2	0.335 0.0 0.564 20.0	20.0 WR 150.0 WR	KRYDDOST BOUSCHET	SHAFT SHAFT
820616 140000.8 82012 USA NTS	UGS 37.114 -116.017 0.0 0.0	0.289 0.0	20.0 WR	KESTI	SHAFT
820624 141500.0 82013 USA NTS 820625 20304.2 82014 USSR SEMI KAZA	UGS 37.236 -116.370 5.6 4.5 KH UGS 49.795 78.158 4.9 0.0	0.640 20.0 0.000 0.001	150.0 WR 20.0 WE/WR	NEBBIOLO	SHAFT TUNNEL F2×
820627 170000.0 82059 FRANCE MURUROA	WTN -22.000 -139.000 0.0 0.0	0.00 0.0	5.0 WR	LAODICE	SHAFT/GR F
820701 170158.8 82015 FRANCE MURUROA	UGS -21.766 -139.050 5.2 0.0	0.000 0.0	150.0 WR	ANTILOKOS	SHAFT/GR

	11714.4			SEMI KAZAKH	UGS	49.995	78.856 -139.000	6.1 4.9	0.000	0.001	150.0		DT#83172	SHAFT	F3x
820725	171300.0 180158.1 200500.0	82019	FRANCE				-138.943	5.6 0.0	0.000	0.0 0.0 20.0	5.0 150.0 150.0	WR	PITANE LAIOS MONTEREY	SHAFT/GR SHAFT/LG SHAFT	
820731	210002.2 140000.0	82021	USSR	IRKUTS RUSS	UGS	53.813 37.084	104.132	5.1 3.8	0.000	8.5 138.0		PNE	RIFT ATRISCO	SHAFT SHAFT	
	150000.0 24304.2	82024	USA	NTS SEMI KAZAKH	UGS UGS	37.190 49.747	-116.048		0.216	0.0	20.0	WR	QUESO	SHAFT TUNNEL	2×
	13100.5 140000.0	82029	USA	SEMI KAZAKH NTS	UGS UGS	49.920 37.020	-116.016		0.000 0.229	0.001	20.0 20.0	WR	CERRO	SHAFT SHAFT	2x
820921	175958.4 25700.8	82033	USSR	KRASNO RUSS SEMI KAZAKH	UGS	69.206 49.854	78.216	5.2 3.5 5.2 0.0	0.000	16.0 0.001	16.0 20.0	WR	RIFT	SHAFT TUNNEL	2×
820923	160000.0 160000.0	82035	USA	NTS NTS	UGS	37.212 37.212	-116.207	4.9 0.0	0.000	0.0	20.0	WE	HURON LANDING DIAMOND ACE	TUNNEL	
820925	170000.0 175957.1 133000.1	82037	USSR	NTS KRASNO RUSS	UGS	37.175 64.313 37.091	91.834	5.1 0.0	0.451	20.0 8.5		PNE	FRISCO RIFT	SHAFT	
821005 821010		82060	CHINA	NTS LOP NOR JAKUTS RUSS	UGS NRD UGS	41.632 61.553		0.0 0.0	0.564 0.000 0.000	0.0 3.0 15.0	150.0 15.0 15.0	WR	BORREGO NEVA	SHAFT UG SHAFT	
821011 821016	71458.2 55957.1	82041	USSR	NZ RUSS ASTRAK RUSS	UGS	73.392	54.559	5.6 3.6 5.2 3.0	0.000	0.001	150.0	WR	VEGA	TUNNEL SHAFT	F4×
821016 821016	60457.2 60957.1	82043	USSR	ASTRAK RUSS ASTRAK RUSS	UGS UGS	46.748 46.754	48.215	5.2 3.0 5.2 3.1	0.000	8.5	8.5	PNE PNE	VEGA VEGA	SHAFT SHAFT	
821016 821112	61457.3 191700.1	82045	USSR	ASTRAK RUSS NTS	UGS UGS	46.743 37.024	48.213 -116.032	5.4 3.1 4.4 0.0	0.000 0.336	8.5 0.0		PNE	VEGA SEYVAL	SHAFT SHAFT	
821127 821205	33712.6	82051	USSR	MURUROA SEMI KAZAKH	UGS	-22.000 49.928		6.1 4.4	0.000	0.0 0.001	5.0 150.0	WR	PROCRIS	SHAFT/GR SHAFT	F2x
821225	152000.0 42305.6	82053	USSR	NTS SEMI KAZAKH	UGS	37.030 49.871	78.095	4.8 3.4	0.413	20.0 0.001	20.0	WR	MANTECA	SHAFT TUNNEL	F2x
	33514.1 160000.1	83002	USA	SEMI KAZAKH NTS	UGS	50.066 37.051	-116.045		0.000	0.0	20.0		COALORA	SHAFT	F2x
830311		83055	USSR	NTS SEMI KAZAKH	MTM	37.163 50.000 37.301		0.0 0.0	0.343 0.000 0.542	0.0	0.001	SAM	CHEEDAM	SHAFT	
830330	202000.0 41700.0 34105.2	83006	USSR	NTS SEMI KAZAKH	UGS HFS	49.000 49.815	79.000	5.0 0.0	0.000	20.0 0.001	20.0	WR	CABRA	SHAFT	
	190500.1 185258.4	83008	USA	SEMI KAZAKH NTS	HFS UGS UGS	37.073 -21.847	-116.040	4.9 0.0 5.7 0.0	0.000 0.533 0.000	0.001 0.0 0.0	20.0 150.0 150.0	WR	TURQUOISE EURYTOS	TUNNEL SHAFT SHAFT/LG	
	135300.0	83010	UK	NTS MURUROA	UGS	37.112 -22.000	-116.022	4.0 0.0	0.265	0.0	20.0	WR	ARMADA AUTOMEDON	SHAFT SHAFT/GR	
830504		83056	CHINA	LOP NOR NTS	NRD	41.500 37.012	89.000	0.0 0.0 4.5 0.0	0.000	0.0	20.0	WR	CROWDIE	UG SHAFT	
830525	173058.2 150000.0	83012	FRANCE			-21.895 37.103	-138.918		0.000	0.0	150.0	WR	CINYRAS FAHADA	SHAFT/LG SHAFT	
830526 830530		83054	USA	NTS SEMI KAZAKH	DOE	37.000 49.740	-116.000		0.000	0.0	20.0		MINI JADE	TUNNEL	F2x
	171000.0 23643.5	83015	USA	NTS SEMI KAZAKH	UGS UGS	37.158 49.906	-116.089		0.320	0.0	20.0 150.0	WR	DANABLU	SHAFT SHAFT	F2x
830618 830624		83058	FRANCE	MURUROA SEMI KAZAKH		-22.000 49.810	-139.000		0.000	0.0	5.0 20.0	WR	BURISIS	SHAFT/GR TUNNEL	
	174558.6 35957.1	83018	FRANCE			-21.745 51.308	-138.917		0.000	0.0 15.0	20.0 15.0	WR	OXYLOS LIRA	SHAFT/LG SHAFT	
830710 830710	40457.1 40957.1	83021	USSR	KAZAKH KAZAKH	UGS	51.340 51.344	53.291	5.3 0.0 5.2 0.0	0.000	15.0 15.0	15.0 15.0		LIRA LIRA	SHAFT SHAFT	
830803	203000.0 133000.1	83024	USA	NTS	UGS	-22.000 37.119	-116.084	4.2 0.0	0.000 0.326	0.0	20.0		BATTOS LABAN	SHAFT/GR SHAFT	
830811	171358.2 140000.1	83026	USA	MURUROA NTS	UGS	-21.835 36.998	-116.003		0.000 0.320	0.0	150.0 20.0	WR	CARNABON SABADO	SHAFT/LG SHAFT	
830827	160958.6 135959.9	83028	USA	NZ RUSS NTS	UGS UGS	73.383 37.192	-115.992		0.000	0.001	20.0		JARLSBERG	TUNNEL SHAFT	F5x
830911	140000.0 63310.4	83030	USSR	NTS SEMI KAZAKH	UGS	37.273 49.878		4.8 0.0	0.625 0.000	143.0 0.001	143.0 20.0	WE	CHANCELLOR	SHAFT TUNNEL	
830921		83052	USA	NTS NTS	DOE	37.210 37.000	-116.209 -116.000	0.0 0.0	0.405	0.0	20.0	WR	MIDNIGHT ZEPHYR BRANCO/HERKIM	SHAFT	2×
830924	150000.1 45957.1	83033	USSR	NTS ASTRAK RUSS	UGS	37.106 46.816	48.291	5.1 0.0	0.533	0.0 8.5		PNE	TECHADO VEGA	SHAFT SHAFT	
830924 830924	50457.2 50957.5	83035	USSR	ASTRAK RUSS ASTRAK RUSS	UGS	46.817	48.272	5.0 0.0 4.9 0.0	0.000	8.5 8.5	8.5	PNE	VEGA VEGA	SHAFT	
830924 830924	51457.1 51957.1	83037	USSR	ASTRAK RUSS ASTRAK RUSS	UGS	46.780	48.297	5.2 0.0 5.2 0.0	0.000 0.000 0.000	8.5 8.5	8.5	PNE	VEGA VEGA	SHAFT	
	52457.4 130957.7	83039	USSR	ASTRAK RUSS NZ RUSS	UGS UGS DOE	46.837	54.495	5.2 0.0 5.8 0.0	0.000	8.5 0.001	150.0	PNE WR/WE	VEGA	SHAFT	F4x
830929 831006	14706.5		USSR	NTS SEMI KAZAKH LOP NOR	UGS	37.000 49.932	78.843	6.0 0.0 5.5 0.0	0.000	0.0	20.0	WR	NAVATA	SHAFT	F2x
831026 831102	100002.8		USSR	SEMI KAZAKH SEMI KAZAKH	UGS UGS MTM	41.566 49.921 50.000	78.907	6.1 4.6 0.0 0.0	0.000	20.0 20.0 0.001	100.0 150.0 20.0	WR		UG SHAFT	
831120 831129	32704.4 21906.5	83043	USSR	SEMI KAZAKH SEMI KAZAKH	UGS	50.066	79.036	5.5 0.0 5.4 0.0	0.000	0.001	20.0	WR		TUNNEL SHAFT TUNNEL	2x
831129		83060	USSR	SEMI KAZAKH	MTM	50.000		0.0 0.0	0.000	0.001	20.0	WR	LINOS	TUNNEL SHAFT/GR	2x
831207	172800.0 155959.2	83046	FRANCE		MIM	-22.000		0.0 0.0	0.000	0.0	20.0	WR	GYGES MUGGINS	SHAFT/LG SHAFT	
831216	183000.0 42906.8	83048	USA	NTS SEMI KAZAKH	UGS	37.140 49.838	-116.072		0.515	20.0 0.001	150.0	WR	ROMANO	SHAFT TUNNEL	
840131	153000.0 170000.0	84001	USA	NTS NTS	BKY	37.000	-116.000 -116.000	4.4 0.0	0.000	20.0	150.0 20.0	WR	GORBEA MIDAS MYTH/MILA	SHAFT	
	35703.3 174500.0			SEMI KAZAKH NTS	UGS BKY	49.888	78.788 -116.000	5.9 4.3 5.5 0.0	0.000	20.0 20.0	150.0 150.0	WR	TORTUGAS	SHAFT SHAFT	
840307 840329	23906.3 51908.1			SEMI KAZAKH SEMI KAZAKH	UGS UGS	50.022 49.934		5.6 0.0 5.9 4.3	0.000	20.0 20.0	150.0 150.0	WR		SHAFT SHAFT	
	143000.0 31709.2	84007	USA	NTS SEMI KAZAKH	BKY UGS		-116.000		0.000	0.0 0.001	20.0 150.0	WR	AGRINI	SHAFT TUNNEL	F2x
	10903.5 190500.0	84010	UK	SEMI KAZAKH NTS	UGS BKY		-116.000		0.000	0.001 20.0	150.0 150.0	WR WR	MUNDO	SHAFT SHAFT	F2x
840508	135000.0 172600.0	84012	FRANCE		BKY WTN	0.000		5.3 0.0	0.000	0.0	20.0 5.0	WR	ORKNEY DEMOPHON	SHAFT SHAFT/GR	
840516	173058.3 160000.0	84014	USA	NTS	BKY	-21.852 37.000	-116.000	3.5 0.0	0.000	0.0	150.0 20.0	WR	MIDAS BELLOW	SHAFT/LG SHAFT	
840531	31312.4 130400.0	84016	USA	SEMI KAZAKH NTS	UGS	49.980 37.000	-116.000		0.000	0.001 20.0	150.0 150.0	WR	CAPROCK	Shaft Shaft	F2x
840616	171600.0 174357.9	84018	FRANCE	MURUROA			-138.992		0.000	0.0	20.0 150.0	WR	ARISTEE ECHEMOS	SHAFT/GR SHAFT/LG	
840712	151500.0 140000.0	84021	USA	NTS NTS	BKY	37.000	-116.000 -116.000	3.8 0.0	0.000	0.0	20.0	WR	DUORO NORMANNA	SHAFT	
840714 840721	10910.5 25957.1	84023	USSR	SEMI KAZAKH KAZAKHSTAN	UGS	49.891 51.356	53.249	6.2 4.6 5.4 0.0	0.000	0.001 15.0	150.0	PNE	LIRA	SHAFT	F2x
840721 840721	30457.0 30957.0	84025	USSR	KAZAKHSTAN KAZAKHSTAN	UGS	51.374	53.271	5.3 0.0	0.000	15.0 15.0	15.0 15.0	PNE	LIRA LIRA	SHAFT	
840802	153000.0 150000.0	84027	USA	NTS NTS	BKY	37.000		4.4 0.0	0.000	0.0	150.0 20.0	WR	KAPPELI CORREO	SHAFT	
840825	185957.8 185958.5 33000.0	84029	USSR	KOMI RUSS TYUMEN RUSS NZ RUSS	UGS	65.025 61.889 74.100	72.149	5.3 0.0 5.3 0.0 3.8 0.0	0.000 0.000 0.000	8.5 8.5 0.001		PNE PNE WE	KVARTS KVARTS	SHAFT	
840826 840827 840828	55957.0 25959.0	84057	USSR	MURM RUSS PERM RUSS	NOA UGS NOA	67.774 61.000	33.688	0.0 0.0 4.5 0.0	0.000	0.001 1.7 3.2	1.7	PNE PNE	DNEPR-2	TUNNEL	2×
840828	30459.0 144500.0	84031	USSR	PERM RUSS PERM RUSS NTS	NOA NOA BKY	61.000	58.000	4.5 0.0 4.5 0.0 4.3 0.0	0.000	3.2		PNE	GELIY GELIY DOLCETTO	SHAFT SHAFT	
840830 840909	0.0	84058	USA	NTS	DOE	37.000 49.873	-116.000		0.000	0.0 0.001	20.0	WR	WEXFORD	SHAFT SHAFT TUNNEL	4x
- 10,000					500		. 0 . 200		555		20.0			~ ^-414TTT	***

840913 140000.0 84034 USA NTS 840917 205957.4 84036 USSR KEMERO RUSS 841002 181400.0 84054 USA NTS	BKY 0.000 0.000 4.3 0.0	0.000 20.0 0.000 10.0 0.000 0.0 0.000 15.0	150.0 WR 10.0 PNE 20.0 WR	BRETON KVARTS VERMEJO	SHAFT SHAFT SHAFT UG
841003 55957.7 84037 CHINA LOP NOR 841018 45700.0 84038 USSR SEMI KAZAKH 841025 62957.6 84039 USSR NZ RUSS 841027 15010.6 84040 USSR SEMI KAZAKH	NOA 50.000 80.000 4.5 0.0 UGS 73.365 54.979 5.8 5.3 UGS 49.950 78.842 6.2 4.4	0.000 0.001 0.000 0.001 0.000 20.0	70.0 WR 20.0 WE 150.0 WR 150.0 WR		TUNNEL TUNNEL F4x SHAFT
841027 55958.6 84041 USSR ASTRAK RUSS 841027 60457.1 84042 USSR ASTRAK RUSS 841027 171600.0 84043 FRANCE MURUROA 84102 204500.0 84044 FRANCE MURUROA		0.000 3.2 0.000 3.2 0.000 Q.0 0.000 0.0	3.2 PNE 3.2 PNE 20.0 WR 150.0 WR	VEGA VEGA MACHAON ACASTE	SHAFT SHAFT SHAFT/GR SHAFT/LG
841110 164000.0 84045 USA NTS 841123 35500.0 84046 USSR SEMI KAZAKH 841201 165100.0 84056 FRANCE MURUROA	BKY 0.000 0.000 4.4 0.0 NOA 49.000 78.000 4.3 0.0 WTN -22.000 -139.000 4.2 0.0	0.000 0.0 0.000 0.001 0.000 0.0	20.0 WR 20.0 WR 5.0 WR	VILLITA MILLETOS	SHAFT TUNNEL 3x SHAFT/GR
841202 31900.0 84047 USSR SEMI KAZAKH 841206 172900.0 84048 FRANCE MURUROA 841209 194000.0 84049 UK NTS 841215 144459.0 84050 USA NTS	NOA 50.000 81.000 6.1 0.0 BKY 0.000 0.000 0.0 0.0 NOA 36.000 -112.000 5.1 0.0 NOA 37.000 -116.000 5.0 0.0	0.000 0.001 0.000 0.0 0.000 20.0 0.000 20.0	150.0 WR/FMS 150.0 WR 150.0 WR 150.0 WR	MENNON EGMONT TIERRA	SHAFT F2x SHAFT/LG SHAFT SHAFT
841216 35500.0 84051 USSR SEMI KAZAKH 841219 60000.0 84052 CHINA LOP NOR 841220 162000.0 84055 USA NTS	NOA 48.000 77.000 6.6 0.0 HFS 41.500 89.000 4.7 0.0 BKY 0.000 0.000 4.2 0.0	0.000 0.001 0.000 5.0 0.000 0.0	150.0 WR 50.0 WR 20.0 WR	MINERO	SHAFT F2x UG SHAFT
841228 35003.0 84053 USSR SEMI KAZAKH 850210 32707.5 85001 USSR SEMI KAZAKH 850315 163100.1 85002 USA NTS 850323 183000.0 85003 USA NTS		0.000 0.001 0.000 0.001 0.427 20.0 0.000 20.0	150.0 WR/PNE 150.0 WR 150.0 WR 150.0 WR	VAUGHN COTTAGE	SHAFT F3x SHAFT F3x SHAFT
850402 200000.0 85004 USA NTS 850406 231500.0 85005 USA NTS 850425 5706.5 85006 USSR SEMI KAZAKH	UGS 37.095 -116.032 5.7 4.7 UGS 37.201 -116.207 4.8 0.0	0.640 20.0 0.000 0.0 0.000 20.0	150.0 WR 150.0 WE 150.0 WR	HERMOSA MISTY RAIN	SHAFT TUNNEL F SHAFT 2x
850430 172900.0 85007 FRANCE MURUROA 850502 152000.0 85008 USA NTS 850508 202800.0 85009 FRANCE MURUROA 850603 173000.0 85010 FRANCE MURUROA	WTN 0.000 0.000 0.0 0.0 UGS 37.253 -116.325 5.7 4.7 WTN 0.000 0.000 0.0 0.0 WTN 0.000 0.000 0.0 0.0	0.000 0.0 0.661 20.0 0.000 0.0 0.000 0.0	20.0 WR 150.0 WR 150.0 WR 20.0 WR	CERCYON TOWANDA NISOS TALAOS	SHAFT/GR SHAFT SHAFT/LG SHAFT/GR
850607 174000.0 85011 FRANCE MURUROA 850612 151500.1 85012 USA NTS 850612 173000.0 85013 USA NTS	WTN 0.000 0.000 0.0 0.0 UGS 37.248 -116.489 5.5 0.0 UGS 37.008 -116.084 4.5 0.0	0.000 0.0 0.608 20.0 0.293 0.0	20.0 WR 150.0 WR 20.0 WR	ERGINOS SALUT VILLE	SHAFT/LG SHAFT SHAFT
850615 5700.0 85014 USSR SEMI KAZAKH 850618 0.0 85034 USSR TUYMEN RUSS 850626 180300.0 85015 USA NTS 850630 23900.0 85016 USSR SEMI KAZAKH	MTM 0.000 0.000 0.0 0.0 UGS 37.124 -116.122 4.3 0.0	0.000 0.001 0.000 2.5 0.381 0.0 0.000 0.001	150.0 WR 2.5 PNE 20.0 WR 150.0 WR	BENZOL MARIBO	SHAFT F3x SHAFT SHAFT F2x
850711 0.0 85035 USSR SEMI KAZAKH 850718 211457.5 85017 USSR ARKHAN RUSS 850719 0.0 85036 USSR SEMI KAZAKH	MTM 50.000 78.000 0.0 0.0 UGS 65.965 40.754 5.0 0.0 MTM 50.000 78.000 0.0 0.0	0.000 0.001 0.000 8.5 0.000 0.001	20.0 WR 8.5 PNE 20.0 WR	AGAT	TUNNEL SHAFT TUNNEL
850720 5300.0 85018 USSR SEMI KAZAKH 850725 31100.0 85019 USSR SEMI KAZAKH 850725 140000.0 85020 USA NTS 850814 0.0 85031 USA NTS		0.000 20.0 0.000 0.001 0.000 20.0 0.000 0.0	150.0 WR 20.0 WR/SAM 150.0 WR 20.0 WR	SERENA CEBRERO	SHAFT TUNNEL F4× SHAFT SHAFT
850817 162500.0 85021 USA NTS 850927 141500.0 85022 USA NTS 851009 231959.1 85023 USA NTS	UGS 37.002 -116.043 4.5 0.0 UGS 37.090 -116.002 4.8 0.0 UGS 37.209 -116.152 4.6 0.0	0.332 0.0 0.366 0.0 0.000 0.0	20.0 WR 20.0 WR 20.0 WE	CHAMITA PONIL DIAMOND BEECH	SHAFT SHAFT TUNNEL
851009 0.0 85032 USA NTS 851016 213500.0 85024 USA NTS 851024 175000.0 85025 FRANCE MURUROA 851026 163500.0 85026 FRANCE MURUROA	DOE 37.000 -116.000 0.0 0.0 UGS 37.110 -116.121 4.8 0.0 WIN -22.000 -139.000 4.8 0.0 WIN -22.000 -139.000 0.0 0.0	0.000 0.0 0.415 20.0 0.000 0.0 0.000 0.0	20.0 WE 150.0 WR 5.0 WR 150.0 WR	MILL YARD ROQUEFORT HERO CODROS	TUNNEL SHAFT SHAFT/GR SHAFT/LG
851030 0.0 85033 USA NTS 851124 163000.0 85027 FRANCE MURUROA 851126 174200.0 85028 FRANCE MURUROA	DOE 37.000 -116.000 0.0 0.0 WTN -22.000 -139.000 4.9 0.0 WTN -22.000 -139.000 5.6 0.0	0.000 0.0 0.000 0.0 0.000 0.0	20.0 WR 20.0 WR 150.0 WR	ABO ZETES MEGAREE	SHAFT SHAFT/GR SHAFT/LG
851205 150000.0 85029 UK NTS 851228 190100.0 85030 USA NTS 860322 161500.0 86001 USA NTS 860410 140829.4 86002 USA NTS	UGS 37.053 -116.045 5.7 0.0 UGS 37.238 -116.473 5.3 0.0 UGS 37.083 -116.066 5.3 0.0 UGS 37.157 -116.204 5.1 0.0	0.000 20.0 0.000 20.0 0.000 29.0 0.000 0.0	150.0 WR 150.0 WR 29.0 WR 20.0 WE	KINIBITO GOLDSTONE GLENCOE MIGHTY OAK	SHAFT SHAFT SHAFT F TUNNEL
860420 0.0 86022 USA NTS 860422 143000.0 86003 USA NTS 860426 170156.6 86004 FRANCE MURUROA	DOE 37.000 -116.000 0.0 0.0 UGS 37.264 -116.440 5.3 0.0 WTN -22.150 -139.120 4.8 0.0	0.000 0.0 0.000 0.0 0.000 0.0	20.0 WR 20.0 WR 20.0 WR	MOGOLLON JEFFERSON HYLLOS	SHAFT SHAFT/GR
860506 165800.0 86005 FRANCE MURUROA 860521 135900.0 86006 USA NTS 860527 171500.0 86007 FRANCE MURUROA 860530 172458.2 86008 FRANCE MURUROA	WIN -22.000 -139.000 0.0 0.0 UGS 37.125 -116.061 4.8 0.0 WIN -22.000 -139.000 0.0 0.0 WIN -21.913 -139.100 5.6 0.0	0.000 0.0 0.000 0.0 0.000 0.0 0.000 0.0	5.0 WR 20.0 WR 20.0 WR 150.0 WR	CETO PANAMINT STHELENOSS GALATEE	SHAFT/GR SHAFT SHAFT/GR SHAFT/LG
860605 150400.0 86009 USA NTS 860625 202745.1 86010 UK NTS 860717 210000.0 86011 USA NTS	UGS 37.098 -116.016 5.2 0.0 UGS 37.265 -116.499 5.5 0.0 UGS 37.279 -116.356 5.7 0.0	0.000 20.0 0.000 20.0 0.000 119.0	150.0 WR 150.0 WR 119.0 WR	TAJO DARWIN CYBAR	SHAFT SHAFT SHAFT
860724 150500.0 86012 USA NTS 860904 0.0 86023 USA NTS 860911 145700.0 86013 USA NTS 860930 223000.1 86014 USA NTS	UGS 37.143 -116.071 4.5 0.0 DOE 37.000 -116.000 0.0 0.0 UGS 37.069 -116.050 0.0 0.0 UGS 37.300 -116.307 5.5 0.0	0.000 0.0 0.000 0.0 0.000 0.0 0.000 20.0	20.0 WR 20.0 WR 20.0 WR 150.0 WR	CORNUCOPIA GALVESTON ALEMAN LAEQUARK	SHAFT SHAFT SHAFT SHAFT
861016 192500.0 86015 USA NTS 861110 165800.0 86016 FRANCE MURUROA 861112 170158.5 86017 FRANCE MURUROA	UGS 37.220 -116.462 0.0 0.0 WTN -22.000 -139.000 0.0 0.0 UGS -21.894 -139.068 0.0 0.0 UGS 37.100 -116.048 5.7 0.0	0.000 20.0 0.000 0.0 0.000 0.0	150.0 WR 5.0 WR 20.0 WR	BELMONT HESIONE NAUPLIOS	SHAFT/GR SHAFT/LG
861114 160000.0 86018 USA NTS 861206 171000.0 86019 FRANCE MURUROA 861210 171458.6 86020 FRANCE MURUROA 861213 175005.0 86021 USA NTS	UGS 37.100 -116.048 5.7 0.0 WTN -22.000 -139.000 0.0 0.0 UGS -21.877 -138.986 5.3 0.0 UGS 37.263 -116.412 5.5 0.0	0.000 20.0 0.000 0.0 0.000 0.0 0.000 20.0	150.0 WR 5.0 WR 150.0 WR 150.0 WR	GASCON PENELEOS CIRCE BODIE	SHAFT SHAFT/GR SHAFT/LG SHAFT
870203 152000.0 87001 USA NTS 870211 164500.0 87002 USA NTS 870226 45824.0 87003 USSR SEMI KAZAKH 870312 15718.0 87004 USSR SEMI KAZAKH	UGS 37.225 -116.080 0.0 0.0 UGS 37.011 -116.045 4.5 0.0 HFS 50.000 78.000 5.4 0.0 HFS 50.000 79.000 6.6 0.0	0.000 0.0 0.000 0.0 0.000 0.001 0.000 0.001	20.0 WR/SE 20.0 WR 20.0 FMS 20.0 WR	HAZEBROOK TORNERO	SHAFT 3x SHAFT TUNNEL
870318 182800.0 87005 USA NTS 870403 11709.0 87006 USSR SEMI KAZAKH 870403 0.0 87048 USSR SEMI KAZAKH	HFS 37.000 -116.000 4.5 4.0 HFS 50.000 79.000 7.3 4.7 MTM 50.000 78.000 0.0 0.0	0.000 0.0 0.000 20.0 0.000 0.001	20.0 WE 150.0 WR 20.0 WR	MIDDLE NOTE	SHAFT 2x TUNNEL SHAFT TUNNEL 3x
870417 10304.7 87007 USSR SEMI KAZAKH 870418 134000.6 87008 USS NTS 870419 40001.8 87009 USSR PERM RUSS 870419 40501.2 87010 USSR PERM RUSS	HFS 49.851 78.690 7.2 4.3 HFS 37.248 -116.509 5.5 0.0 HFS 60.781 56.220 4.5 0.0 HFS 60.674 56.295 4.5 0.0	0.000 0.001 0.000 20.0 0.000 3.2 0.000 3.2	150.0 WR 150.0 WR 3.2 PNE 3.2 PNE	DELAMAR GELIY GELIY	SHAFT F3x SHAFT SHAFT SHAFT
870422 220000.0 87011 USA NTS 870430 133000.0 87012 USA NTS 870505 165800.0 87013 FRANCE MURUROA	HFS 36.983 -116.005 0.0 0.0 HFS 37.233 -116.423 5.7 4.3 WTN -22.000 -139.000 0.0 0.0	0.000 0.0 0.000 30.0 0.000 0.0	20.0 WR 150.0 WR 20.0 WR	PRECIDIO HARDIN JOCASTE	SHAFT SHAFT/LG
870506 40205.6 87014 USSR SEMI KAZAKH 870520 170500.0 87015 FRANCE MURUROA 870605 50004.0 87016 CHINA LOP NOR 870606 23706.9 87017 USSR SEMI KAZAKH	WTN -22.000 -139.000 0.0 0.0 HFS 41.600 88.900 6.8 4.4	0.000 0.001 0.000 0.0 0.000 50.0 0.000 0.001	20.0 FMS 150.0 WR 200.0 WR 20.0 FMS	LYCOMEDE	TUNNEL SHAFT/LG UG TUNNEL
870606 180000.0 87018 FRANCE MURUROA 870618 152000.0 87019 USA NTS 870620 5304.8 87020 USSR SEMI KAZAKH	WTN -22.000 -139.000 0.0 0.0 DOE 37.194 -116.035 0.0 0.0 HFS 49.901 78.726 0.0 0.0	0.000 0.0 0.000 0.0 0.000 0.001	20.0 WR 20.0 WR 150.0 WR	DIRCE BRIE	SHAFT/LG SHAFT F2x
870620 160000.1 87021 USA NTS 870621 175458.4 87022 FRANCE MURUUROA 870630 160500.0 87023 USA NTS 870707 0.2 87024 USSR JAKUTS RUSS	WTN -21.984 -138.844 0.0 0.0 DOE 37.000 -116.000 0.0 0.0	0.000 0.0 0.000 0.0 0.000 0.0 0.000 15.0	20.0 WE 150.0 WR 20.0 WR 15.0 PNE	MISSION GHOST IPHITOS PANCHUELA NEVA	TUNNEL SHAFT/LG SHAFT SHAFT
870716 190000.0 87025 UK NTS 870717 11713.0 87026 USSR SEMI KAZAKH 870724 20009.0 87027 USSR JAKUTS RUSS 870802 5806.7 87028 USSR SEMI KAZAKH	HFS 37.104 -116.023 5.0 0.0 HFS 49.797 78.235 6.4 4.2 HFS 62.700 112.700 5.3 0.0 HFS 49.828 78.898 6.1 0.0	0.000 20.0 0.000 20.0 0.000 15.0	150.0 WR 150.0 FMS 15.0 PNE	MIDLAND NEVA	SHAFT TUNNEL SHAPT
870802 15959.5 87029 USSR NZ RUSS 870812 12956.8 87030 USSR JAKUTS RUSS 870813 140000.0 87031 USA NTS	HFS 73.289 54.713 5.6 0.0 HFS 61.426 112.708 5.5 0.0 HFS 37.061 -116.045 6.1 4.2	0.000 0.001 0.000 0.001 0.000 3.2 0.000 20.0	150.0 WR 150.0 WR/F/S 3.2 PNE 150.0 WR	NEVA TAHOKA	SHAFT F3x TUNNEL F5x SHAFT SHAFT
870918 23157.0 87033 USSR SEMI KAZAKH 870924 150000.0 87034 USA NTS 871003 151457.5 87035 USSR W KAZAKH 871016 60600.0 87036 USSR SEMI KAZAKH	HFS 49.000 78.000 3.9 0.0 HFS 37.228 -116.375 5.9 4.2 HFS 47.633 56.218 5.0 3.2 HFS 49.000 78.000 4.4 0.0	0.000 0.001 0.000 20.0 0.000 8.5 0.000 0.001	20.0 WE/SAM 150.0 WR 8.5 PNE 20.0 WE	LOCKNEY BATOLIT	TUNNEL F2x SHAFT SHAFT TUNNEL
871023 160000.0 87037 USA NTS 871023 165000.0 87038 FRANCE MURUROA 871105 172955.5 87039 FRANCE MURUROA	HFS 37.142 -116.079 5.2 0.0 WTN -22.000 -139.000 0.0 0.0 WTN -22.340 -138.970 0.0 0.0	0.000 0.001 0.000 20.0 0.000 0.0 0.000 0.0	150.0 WR 150.0 WR 20.0 WR	BORATE HELENOS . PASIPHAE	SHAPT SHAPT/LG SHAPT/LG

871115 33106.7 87040 USSR SEMI KAZA	AKH HFS 49.872 78.795 7.1 4.4	0.000 0.001	150.0 WR		OVER THE TOTAL
871119 163058.5 87041 FRANCE MURUROA	WTN -21.878 -139.037 0.0 0.0	0.000 0.0	150.0 WR	PELEE	SHAFT F2x SHAFT/LG
871129 175900.0 87042 FRANCE MURUROA 871201 163000.0 87047 USA NTS	WTN -22.000 -139.000 0.0 0.0 DOE 36.996 -116.004 0.0 0.0	0.000 0.0 0.000 0.0	20.0 WR 20.0 WR	DANAE WACO	Shaft/LG Shaft
871202 163000.0 87043 USA NTS 871213 32104.7 87044 USSR SEMI KAZA	DOE 37.235 -116.163 0.0 0.0 AKH HFS 49.955 78.852 7.1 4.4	0.000 0.0 0.000 0.001	20.0 WE 150.0 WR	MISSION CYBER	TUNNEL
871220 25506.3 87045 USSR SEMI KAZZ	AKH HFS 49.753 78.024 5.2 0.0	0.000 0.001	20.0 FMS		SHAFT F2x TUNNEL
871227 30504.7 87046 USSR SEMI KAZZ 880206 41911.1 88001 USSR SEMI KAZZ		0.000 0.001 0.000 0.0	150.0 WR 20.0 WR/SAM		SHAFT F2x TUNNEL F3x
880213 30505.8 88002 USSR SEMI KAZZ 880215 181000.0 88003 USA NTS		0.000 0.001 0.000 20.0	150.0 WR	VPDNIZTI I P	SHAFT F2x
880403 13305.7 88004 USSR SEMI KAZA	AKH HFS 49.884 78.965 7.1 4.4	0.000 20.0	150.0 WR 150.0 WR	KERNVILLE	SHAFT SHAFT
880407 171500.0 88005 USA NTS 880422 93006.9 88006 USSR SEMI KAZA	DOE 37.013 -116.044 0.0 0.0 AKH HFS 49.822 78.119 5.0 0.0	0.000 0.0 0.000 0.001	20.0 WR 20.0 WE	ABILENE	SHAFT TUNNEL
880504 5706.8 88007 USSR SEMI KAZA	AKH HFS 49.928 78.769 7.2 4.4	0.000 20.0	150.0 FMS		SHAPT
880507 224958.1 88008 USSR NZ RUSS 880511 165958.3 88009 FRANCE MURUROA	WTN -21.867 -139.072 0.0 0.0	0.000 0.001 0.000 0.0	20.0 WE 150.0 WR	NELEE	TUNNEL F3x SHAFT/LG
880513 153500.1 88010 USA NTS 880521 223000.1 88011 USA NTS	HFS 37.124 -116.072 4.9 0.0 DOE 37.032 -115.987 0.0 0.0	0.000 0.0 0.000 0.0	150.0 WR 150.0 WR	SCHELLBOURNE LAREDO	Shaft Shaft
880525 170058.4 88012 FRANCE MURUROA	WTN -21.903 -139.009 0.0 0.0	0.000 0.0	150.0 WR	NIOBE	SHAFT/LG
880602 130000.0 88013 USA NTS 880614 22706.4 88014 USSR SEMI KAZA	HFS 37.260 -116.441 5.5 0.0 AKH HFS 50.045 79.005 5.7 0.0	0.000 0.0 0.000 0.001	150.0 WR 20.0 WR	COMSTOCK	SHAFT SHAFT
880616 171457.0 88015 FRANCE MURUROA 880622 140000.0 88016 USA NTS	WTN -21.000 -139.000 0.0 0.0 DOE 37.166 -116.072 0.0 0.0	0.000 0.0 0.000 0.0	5.0 WR 150.0 WR	ANTIGONE RHYOLITE	SHAFT/LG SHAFT F
880622 0.0 88042 USA NTS	DOE 37.000 -116.000 0.0 0.0	0.00 0.0	150.0 SE	NIGHTINGALE	SHAFT F
880623 173058.6 88017 FRANCE MURUROA 880707 150530.0 88018 USA NTS	WTN -21.906 -139.016 0.0 0.0 HFS 37.252 -116.377 5.9 4.3	0.000 0.0 0.000 0.0	20.0 WR 150.0 WR	DEJANIRE ALAMO	SHAFT/LG SHAFT
880817 170000.0 88019 USA NTS 880822 161958.2 88020 USSR TYUMEN RU	HFS 37.297 -116.307 5.6 4.1 JSS HFS 66.316 78.548 5.4 3.4	0.000 0.0 0.000 15.0	150.0 WR 15.0 PNE	KEARSARGE RUBIN	Shaft f Shaft
880823 182959.3 88039 USA NTS	DOE 37.001 -116.005 0.0 0.0	0.000 0.0	20.0 WR	HARLINGEN A/B	SHAFT 2x
880830 180000.0 88021 USA NTS 880906 161958.6 88022 USSR ARKHAN RU	HFS 37.086 -116.069 5.3 0.0 USS HFS 61.331 47.955 5.0 3.0	0.000 0.0 0.000 8.5	150.0 WR 8.5 PNE	BULLFROG RUBIN	SHAFT SHAFT
880914 35957.4 88023 USSR SEMI KAZZ 880929 70003.1 88025 CHINA LOP NOR	AKH HFS 49.833 78.808 7.1 4.5 HFS 41.750 88.474 4.9 0.0	0.000 20.0 0.000 1.0	150.0 FMS 20.0 WR		SHAFT F UG
881013 140000.0 88026 USA NTS	HFS 37.089 -116.049 6.1 4.2	0.000 0.0	150.0 WR	DALHART	SHAFT
881018 34006.6 88027 USSR SEMI KAZA 881025 170000.0 88028 FRANCE MURUROA	AKH HFS 49.866 78.081 5.2 0.0 WTN -22.000 -139.000 0.0 0.0	0.000 0.001 0.000 0.0	20.0 WE 5.0 WR	ACRISIOS	TUNNEL SHAFT/LG
881105 162958.4 88029 FRANCE MURUROA 881109 0.0 88040 USA NTS	WTN -21.883 -139.046 0.0 0.0 DOE 37.000 -116.000 0.0 0.0	0.000 0.0 0.000 0.0	150.0 WR 20.0 WR	THRASYMEDES MONAHANS A/B	SHAFT/LG
881112 33003.7 88030 USSR SEMI KAZA	AKH HFS 50.078 78.988 6.3 0.0	0.000 0.001	20.0 WR	MONAHANS A/B	SHAFT 2x SHAFT
881123 35706.7 88031 USSR SEMI KAZA 881123 170058.0 88032 FRANCE MURUROA	AKH HFS 49.818 78.071 5.6 0.0 WTN -21.991 -138.907 0.0 0.0	0.000 0.0 0.000 0.0	20.0 WR/F/SA 150.0 WR	PHERES	TUNNEL F3x SHAFT/LG
881130 175457.9 88033 FRANCE FANGATAUE	FA WTN -22.244 -138.836 0.0 0.0	0.000 0.0	150.0 WR	CYCNOS	SHAFT/LG
881204 51953.0 88034 USSR NZ RUSS 881209 0.0 88041 USA NTS	HFS 73.387 54.998 6.7 4.0 DOE 37.000 -116.000 0.0 0.0	0.000 0.0 0.000 0.0	150.0 WR/WE/S 20.0 SE	KAWICH A-W/A-B	TUNNEL F5x SHAFT 2x
881210 203000.0 88035 USA NTS 881217 41806.9 88036 USSR SEMI KAZA	HFS 37.199 -116.209 5.1 0.0 AKH HFS 49.886 78.926 0.0 4.4	0.000 0.0 0.000 0.001	150.0 WE 150.0 WR	MISTY ECHO	TUNNEL SHAFT F2x
881228 52809.0 88037 USSR SEMI KAZA	AKH HFS 50.000 78.000 3.9 0.0	0.000 0.001	20.0 WR		TUNNEL 2x
890122 35706.6 89001 USSR SEMI KAZA 890210 200600.0 89002 USA NTS	HFS 37.077 -116.001 5.4 0.0	0.000 0.001 0.000 20.0	150.0 WR 150.0 WR	TEXARKANA	SHAFT F2x SHAFT
890212 41506.8 89003 USSR SEMI KAZA 890217 40106.9 89004 USSR SEMI KAZA		0.000 20.0 0.000 0.001	150.0 WR 20.0 WR		SHAFT TUNNEL
890224 161500.0 89005 USA NTS	DOE 37.128 -116.122 0.0 0.0	0.00 0.0	20.0 WR/SE	KAWICH R/B	SHAFT 2x
890309 140500.0 89006 USA NTS 890511 164458.1 89007 FRANCE MURUROA	HFS 37.143 -116.067 5.1 0.0 WTN -21.881 -138.978 0.0 0.0	0.000 20.0 0.000 0.0	150.0 WR 20.0 WR	INGOT EPEIOS	SHAFT SHAFT/LG
890515 131000.0 89008 USA NTS 890520 175900.0 89009 FRANCE MURUROA	HFS 37.108 -116.121 4.6 0.0 WTN -21.000 -139.000 0.0 0.0	0.000 0.0 0.000 0.0	20.0 WR/SE 5.0 WR	PALISADE 1-3 TECMESSA	SHAFT 3x SHAFT/LG
890526 180700.0 89010 USA NTS	DOE 37.086 -116.055 0.0 0.0	0.000 0.0	20.0 WR	TULIA	SHAFT
890603 172958.4 89011 FRANCE MURUROA 890610 172958.1 89012 FRANCE FANGATAU	WTN -21.832 -139.010 0.0 0.0 FA WTN -22.252 -138.740 0.0 0.0	0.000 0.0 0.000 0.0	150.0 WR 150.0 WR	NYCTEE CYZICOS	SHAFT/LG SHAFT/LG
890622 211500.8 89013 USA NTS 890627 153000.0 89014 USA NTS	HFS 37.283 -116.412 0.0 0.0 HFS 37.275 -116.354 5.3 0.0	0.000 20.0 0.000 20.0	150.0 WR 150.0 WR	CONTACT AMARILLO	Shaft Shaft
890708 34657.6 89015 USSR SEMI KAZA	AKH HFS 49.873 78.815 6.8 0.0	0.000 20.0	150.0 WR	AMARIELO	SHAFT
890902 41657.3 89016 USSR SEMI KAZZ 890914 150000.1 89017 USA NTS	AKH HFS 50.039 79.019 5.8 3.4 DOE 37.376 -116.163 0.0 0.0	0.000 0.001 0.000 0.0	20.0 WR 20.0 WE	DISKO ELM	SHAFT 2x TUNNEL
891004 112957.6 89018 USSR SEMI KAZA 891019 94957.1 89019 USSR SEMI KAZA		0.000 0.001 0.000 0.001	20.0 WE 150.0 WR		TUNNEL SHAFT F3x
891024 162958.0 89020 FRANCE MURUROA	WTN -21.902 -138.986 0.0 0.0	0.000 0.0	150.0 WR	HYPSIPYLE	SHAFT/LG
891031 153000.0 89021 USA NTS 891031 165658.4 89022 FRANCE MURUROA	HFS 37.263 -116.491 5.6 0.0 WTN -21.766 -138.970 0.0 0.0	0.000 20.0 0.000 0.0	150.0 WR 20.0 WR	HORNITOS ERIGONE	SHAFT SHAFT/LG
891115 202000.1 89023 USA NTS 891120 172857.9 89024 FRANCE MURUROA	DOE 37.107 -116.013 0.0 0.0 WTN -21.917 -138.965 0.0 0.0	0.000 0.0 0.000 0.0	20.0 WR 20.0 WR	MULESHOE TROS	SHAFT/LG
891125 0.0 89028 FRANCE MURUROA	SPA -22.000 -139.000 0.0 0.0	0.000 0.0	0.0 SE	DAUNUS	SHAFT/GR
891127 165957.9 89025 FRANCE FANGATAUR 891208 150000.0 89026 UK NTS	HFS 37.231 -116.409 5.7 0.0	0.000 0.0 0.000 20.0	150.0 WR 150.0 WR	LYCOS BARNWELL	Shaft/LG Shaft
891220 210000.0 89027 USA NTS 900310 160000.0 90001 USA NTS	DOE 37.000 -116.000 0.0 0.0 HFS 37.113 -116.055 5.4 4.1	0.000 0.0 0.000 20.0	20.0 SE 150.0 WR	WHITEFACE A/B METROPOLIS	SHAFT 2x SHAFT
900406 170000.0 90018 USA NTS	DOE 37.000 -116.000 0.0 0.0	0.00 0.0	20.0 WR	BOWIE	SHAFT
900526 75958.3 90002 CHINA LOP NOR 900602 172958.7 90003 FRANCE MURUROA	HFS 41.654 88.736 5.8 0.0 WTN -21.819 -138.940 0.0 0.0	0.000 15.0 0.000 0.0	65.0 WR 20.0 WR	TELEPHE	ug Shaft/lg
900607 173000.0 90004 FRANCE MURUROA 900613 160000.0 90005 USA NTS	WTN -21.000 -138.000 0.0 0.0 HFS 37.262 -116.420 5.8 4.3	0.000 0.0 0.000 20.0	20.0 WR 150.0 WR	MEGAPENTHES BULLION	SHAFT/LG SHAFT
900621 181500.0 90006 USA NTS	DOE 36.993 -116.004 0.0 0.0	0.000 0.0	20.0 WR 150.0 WR	AUSTIN	SHAFT
900626 175958.2 90007 FRANCE FANGATAUR 900704 175958.4 90008 FRANCE MURUROA	WTN -21.866 -139.046 0.0 0.0	0.000 0.0 0.000 0.0	20.0 WR	CYPSELOS ANTICLEE	SHAFT/LG SHAFT/LG
900725 150000.0 90009 USA NTS 900816 45957.7 90010 CHINA LOP NOR	HFS 37.207 -116.214 4.8 0.0 HFS 41.586 88.799 6.7 4.2	0.000 0.0 0.000 50.0	20.0 WE/WR 200.0 WR	MINERAL Q/RBG	TUNNEL 2x UG
900920 161500.0 90011 USA NTS	DOE 37.000 -116.000 0.0 0.0	0.000 0.0	20.0 SE	SUNDOWN A/B	SHAFT 2x
900927 180200.0 90017 USA NTS 901012 173000.0 90012 USA NTS	DOE 37.000 -116.000 0.0 0.0 HFS 37.248 -116.494 5.6 4.2	0.000 0.0 0.000 20.0	20.0 WR 150.0 WR	LEDOUX TENABOO	Shaft Shaft
901024 145758.0 90013 USSR NZ RUSS 901114 181200.0 90014 FRANCE FANGATAU	HFS 73.364 54.827 6.3 3.7 FA WTN -22.147 -138.852 0.0 0.0	0.000 0.0 0.000 0.0	150.0 WR/SAM 150.0 WR	HYRTACOS	TUNNEL F8x SHAFT/LG
901114 191700.7 90015 UK NTS	HFS 37.227 -116.371 5.7 0.0	0.000 20.0	150.0 WR	HOUSTON	SHAFT
901121 165958.0 90016 FRANCE MURUROA 910308 210245.0 91001 USA NTS	WTN -21.906 -138.960 0.0 0.0 HFS 37.104 -116.074 4.7 0.0	0.000 0.0	150.0 WR 20.0 WR/SE	THOAS COSO B/G/S	SHAFT/LG SHAFT 3x
910404 190000.0 91002 USA NTS 910416 153000.0 91003 USA NTS	HFS 37.296 -116.313 5.6 4.2 HFS 37.245 -116.442 5.5 0.0	0.000 20.0 0.000 20.0	150.0 WR 150.0 WR	BEXAR MONTELLO	SHAFT SHAFT
910507 170000.0 91004 FRANCE MURUROA	WTN -21.000 -138.000 0.0 0.0	0.000 0.0 0.000 0.0	5.0 WR 150.0 WR	MELANIPPE	SHAFT/LG
910518 171458.5 91005 FRANCE MURUROA 910529 185958.1 91006 FRANCE FANGATAU	FA WTN -22.267 -138.766 0.0 0.0	0.000 0.0	150.0 WR	ALCINOOS PERICLYMENOS	SHAFT/LG SHAFT/LG
910614 175958.2 91007 FRANCE MURUROA 910705 180000.0 91008 FRANCE MURUROA	WTN -21.865 -139.065 0.0 0.0 WTN -21.000 -138.000 0.0 0.0	0.000 0.0 0.000 0.0	150.0 WR 5.0 WR	PITTHEE CORONIS	SHAFT/LG SHAFT/LG
910715 180958.5 91009 FRANCE MURUROA 910815 160000.0 91010 USA NTS	WTN -21.833 -138.995 0.0 0.0 DOE 37.087 -116.002 0.0 0.0	0.000 0.0 0.000 0.0	150.0 WR 20.0 WR	LYCURGUE	SHAFT/LG
910914 190000.0 91011 USA NTS	HFS 37.226 -116.428 0.0 0.0	0.000 20.0	150.0 WR	FLOYDADA HOYA	SHAFT F
910919 163000.0 91012 USA NTS 911018 191200.0 91013 USA NTS	DOE 37.236 -116.166 0.0 0.0 HFS 37.063 -116.045 5.4 0.0	0.000 0.0 0.000 20.0	20.0 WE 150.0 WR	DISTANT ZENITH LUBBOCK	TUNNEL SHAFT
911126 183500.0 91014 UK NTS	HFS 37.096 -116.070 4.6 0.0 HFS 37.272 -116.360 5.6 0.0	0.000 0.0 0.000 20.0	20.0 WR 150.0 WR	BRISTOL	SHAFT
920430 173000.0 92002 USA NTS	DOE 37.000 -116.000 0.0 0.0	0.000 0.0	20.0 WE	JUNCTION DIMOND FORTUNE	SHAFT TUNNEL
920521 45957.5 92003 CHINA LOP NOR 920619 164500.0 92004 USA NTS	HFS 41.604 88.813 7.1 5.0 DOE 37.005 -116.010 0.0 0.0	0.000 660.0 0.000 0.0	660.0 WR 20.0 WR	VICTORIA	UG SHAFT
920623 150000.0 92005 USA NTS 920918 170000.0 92006 USA NTS	DOE 37.124 -116.031 0.0 0.0 HFS 37.207 -116.210 4.4 0.0	0.000 0.0 0.000 0.0	20.0 WR/SE 20.0 WE	GALENA Y/O/G HUNTERS TROPHY	SHAFT 3x TUNNEL
920923 150400.0 92007 USA NTS	DOE 37.021 -115.988 0.0 0.0	0.000 0.0	20.0 WR	DIVIDER	SHAFT
920925 75959.9 92008 CHINA LOP NOR 931005 15956.6 93001 CHINA LOP NOR	HFS 41.763 88.387 5.4 0.0 HFS 41.667 88.695 6.4 4.1	0.000 1.0 0.000 40.0	20.0 WR 80.0 WR		UG UG
940610 62557.8 94001 CHINA LOP NOR 941007 32558.1 94002 CHINA LOP NOR	HFS 41.527 88.710 6.3 3.6 HFS 41.662 88.753 6.3 0.0	0.000 30.0 0.000 30.0	120.0 WR 120.0 WR		UG UG
950515 40557.8 95001 CHINA LOP NOR	HFS 41.603 88.820 6.5 0.0	0.000 50.0	200.0 WR		UG
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950817 5957.7 95002 CHINA LOP NOR	HFS 41.559	88.800 6.4 0.0	0.000 40.0	160.0 WR		UG	
950905 212958.4 95003 FRANCE MURUROA 951001 232957.9 95004 FRANCE FANGATAUFA 951027 215958.1 95005 FRANCE MURUROA 951121 212958.0 95006 FRANCE MURUROA 951227 212958.0 95006 FRANCE MURUROA 960127 212957.7 96001 FRANCE FANGATAUFA 960608 25559.4 96002 CHINA LOP NOR 960729 14859.1 96003 CHINA LOP NOR 980511 101344.0 98001 INDIA POKHRAN 980513 65100.0 98003 INDIA POKHRAN 980513 101617.6 98004 PAKIST CHAGAI	WTN -22.250 WTN -21.891 WTN -21.899 WTN -21.899 WTN -21.881 WTN -22.236 HFS 41.690 HFS 27.070 NRD 27.070 HFS 28.900	88.350 5.3 0.0 71.700 5.3 0.0 71.700 0.0 0.0 64.890 0.0 0.0	0.000 0.0 0.000 0.0 0.000 0.0 0.000 0.0 0.000 0.0 0.000 0.0 0.000 3.0 0.000 6:0 0.000 6:0 0.000 0.0	20.0 WR 110.0 WR 60.0 WR 40.0 WR 120.0 WR 120.0 WR 120.0 WR 20.0 WR 20.0 WR 1.0 WR	TETHYS PLOUTOS AEPYTOS PHEGEE THEMISTO XOUTHOS SHAKTI 1-3	UG UG UG UG UG UG UG UG UG UG UG	F3× F2× F5×
980530 65457.1 98005 PAKIST KHARAN	HFS 28.490	63.780 5.0 0.0	0.000 0.0	18.0 WR		UG	F

Appendix 1. Footnotes—USA

For the salvo explosions: unless otherwise noted in the footnotes the yield estimate indicates the yield of each explosion.

Unless otherwise noted, all tests at the NTS or the Nellis Air Force Range before 15 September 1961 produced radioactivity detected off-site. Unless otherwise noted, no test on or after that date had a release of radioactivity that was detected off-site.

Date	ID no.	Text
510508	51008	First thermonuclear explosion.
570919	57039	First detonation contained underground.
611210	61068	First peaceful nuclear explosion (PNE), Plowshare Program. Multiple-purpose experiment in salt. Accidental release of radioactivity detected off-site.
610915	61017	Accidental release of radioactivity detected off-site.
611210	61068	Accidental release of radioactivity detected off-site.
611222	61071	Accidental release of radioactivity detected off-site.
620301	62012	Joint US-British test. Accidental release of radioactivity detected off-site.
620305	62913	Accidental release of radioactivity detected off-site.
620421	62023	Accidental release of radioactivity detected off-site.
620519	62040	Accidental release of radioactivity detected off-site.
620613	62051	Accidental release of radioactivity detected off-site.
620706	62062	Excavation experiment. Thermonuclear device. Release of radioactivity detected off-site.
620711	62067	Release of radioactivity detected off-site.
620714	62069	Release of radioactivity detected off-site.
620717	62070	Release of radioactivity detected off-site.
621019	62123	Accidental release of radioactivity detected off-site.
630515	63043	Release of radioactivity detected off-site.
630525	63044	Release of radioactivity detected off-site.
630605	63023	Operational release of radioactivity detected off-site.
630609	63046	Last US atmospheric test. Radioactivity detected off-site.
631212	63042	Accidental release of radioactivity detected off-site.
640123	64002	Operational release of radioactivity detected off-site.
640313	64005	Accidental release of radioactivity detected off-site.
641009	64030	Isotope production and explosive development.
641105	64036	Effects of contained explosion in carbonate rock.
641205	64040	Drill (Source-Lower): 3.4 kt; Drill (Target-Upper): < 20kt. Accidental release of radioactivity detected off-site.
641216	64041	Accidental release of radioactivity detected off-site.
641218	64043	Excavation test of explosive buried at greater depth in relation to yield. Release of radioactivity detected off-site.
650212	65005	Accidental release of radioactivity detected off-site.
650414	65016	Release of radioactivity detected off-site.
650507	65019	Accidental release of radioactivity detected off-site.
650616	65029	Accidental release of radioactivity detected off-site.
660305	66008	Accidental release of radioactivity detected off-site.
660324	66013	Excavation device experiment.
660425	66019	Accidental release of radioactivity detected off-site.
660615	66032	Accidental release of radioactivity detected off-site.
660728	66039	Excavation device experiment.
660912	66045	Accidental release of radioactivity detected off-site.
661105	66054	Excavation device experiment.
670119	67001	Accidental release of radioactivity detected off-site.
670622	67020	Excavation device experiment.

670626	67021	Controlled release of radioactivity detected off-site.
670629	67024	Accidental release of radioactivity detected off-site.
670831	67031	
670921	67034	Accidental release of radioactivity detected off-site. Emplacement technique experiment.
671210	67045	Joint government/industry gas stimulation experiment.
680118	68002	Accidental release of radioactivity detected off-site.
680126	68005	Release of radioactivity detected off-site.
680410	68016	Noor: 20–200 kt, Throw: <20 kt.
680917	68042	Excavation device experiment.
681208	68052	Release of radioactivity detected off-site.
690910	69023	Joint Government/industry gas stimulation experiment. Operational release of radioactivity detected off-site.
691029	69035	The yield figure given in the table is the total yield of all four explosions. Accidental release of radioactivity
071029	09033	detected off-site.
700306	70011	Arabis-Red and Arabis-Green were weapons-related (WR) explosions, Arabis-Blue was a safety experiment (SE).
700505	70020	Controlled release of radioactivity detected off-site.
700526	70028	Flask-Yellow: 105 kt; Flask-Yellow and Flask-Red: 20 kt each.
701013	70056	Scree-Acajou and Scree-Alhambra were Weapons Related (WR), Scree-Chamois was a Safety Experiment (SE).
701028	70057	Truchas-Chacon and Truchas-Chamisal were Safety Experiments (SE), Truchas-Rodarte was a weapons related (WR) test.
701218	70051	Accidental release of radioactivity detected off-site.
720809	72049	Cebolia and Cuchillo were weapons related (WR) explosions, Solano was a safety experiment (SE).
721221	72056	Flax-Test: 20–200 kt, Flax-Backup: <20 kt.
730517	73006	Joint government/industry gas stimulation experiment. Last US peaceful nuclear explosion (PNE), Plowshare Program.
750206	75036	Portola and Portala-Larkin.
770816	77043	Gruyère and Gruyère-Gradino.
780510	78060	The Transom device was destroyed by the 5 Sep. 1979 detonation (Hearts).
790906	79033	The detonation destroyed the 10 May 1978 device (Transom) which had not detonated.
850406	85005	Controlled release of radioactivity detected off-site.
860322	86001	Operational release of radioactivity detected off-site.
880622	88016	The test was conducted simultaneously with the Nightingale safety experiment (SE).
880622	88042	The experiment was conducted simultaneously with the Rhyolite weapons related (WR) test.
880817	88019	The test was conducted in the presence of a team of Soviet scientists in accordance with the US-Soviet May/June 1988 Joint Verification Experiment (JVE) Agreement.
910914	91011	Verification test under the provisions of the 1990 Protocol to the 1974 Threshold Test Ban Treaty (TTBT).

Appendix 2. Footnotes—USSR

Date	ID no.	Text
530812	53012	First Soviet thermonuclear explosion.
611011	61039	First Soviet underground test.
621225	62177	Last Soviet atmospheric test.
650115	65002	First peaceful nuclear explosion (PNE); excavation explosion.
660422	66063	First use of nuclear explosion to form rock salt cavities.
660930	66049	First use of nuclear explosion to close gas plume boreholes.
671021	67039	One explosion of 20-150 kt, one of 150-1500 kt.
680820	68047	One SE of <0.001 kt, one WR explosion of 0.001–20 kt.
681107	68047	One explosion of <0.001 kt, two of 150–1500 kt each.
691014	69033	One explosion of 20–150 kt, two of 150–1500 kt each.

700625	70031	First use of nuclear explosion to create reservoirs for gas storage.
720328	72005	One SAM explosion of <0.001 kt, one WR explosion of 0.001-20 kt, one PNE of 0.001-20 kt.
720828	72005	One explosion of 20–150 kt, three of 150–1500 each.
720904	72024	First use of nuclear explosion for testing of ore-crushing technology.
721210	72032	One explosion of 0.001–20 kt, one of 20–150 kt.
730710	70015	Two WR explosions of 0.001-20 kt each, one SAM explosion of <0.001 kt.
730710	73015	Two WR explosions of 0.001-20 kt each, one SAM explosion of <0.001 kt.
730912	73023	Three explosions of 150-1500 kt each, one of 1500-10 000 kt.
731026	73029	First use of nuclear explosion for burial of petro-chemical industrial waste.
740829	74028	One explosion of 0.001-20 kt, one of 20-150 kt, three of 150-1500 kt each.
750823	75019	Four WE explosions: two of 0.001–20 kt each, two of 150–1500 kt each; four WR explosions: two of 20–150 kt each, two of 150–1500 kt each.
751021	75024	One explosion of 20–150 kt, four of 150–1500 kt each.
761020	76030	One SAM explosion of <0.001 kt, two WR explosions of 0.001-20 kt each, one FMS explosion of 0.001-20 kt.
761207	76036	One explosion of 0.001–20 kt, one of 20–150 kt.
770329	77046	One SAM explosion of <0.001 kt, two WR explosions of 0.001–20 kt each.
770901	77018	Three explosions of 0.001-20 kt each, one of 20-150 kt.
770905	77019	One FMS explosion of 0.001–20 kt, one WR explosion of 20–150 kt.
771130	77034	One explosion of 0.001–20 kt, one of 20–150 kt.
771226	77054	One explosion of <0.001 kt, three of 0.001–20 kt each.
780728	78020	Four explosions of 0.001–20 kt each, one of 20–150 kt.
780810	78022	One FMS explosion of 0.001-20 kt; four WR explosions of 0.001-20 kt each, one of 20-150 kt.
780829	78024	One SAM explosion of <0.001 kt, two WR explosions of 0.001–20 kt each.
780927	78031	One SE of <0.001 kt; five WR explosions of 0.001-20 kt each, one of 20-150 kt.
781017	78037	One explosion of 0.001–20 kt, one of 20–150 kt.
781104	78042	One explosion of 0.001–20 kt, one of 20–150 kt.
781129	78044	One explosion of 0.001–20 kt, one of 20–150 kt.
790117	79002	One explosion of 0.001-20 kt, one of 20-150 kt. Total energy release: 65 kt.
790707	79022	One explosion of 0.001–20 kt, one of 20–150 kt.
790714	79023	Total energy release: 21 kt.
790804	79028	One explosion of 0.001–20 kt, one of 20–150 kt.
790818	79031	One explosion of 0.001–20 kt, one of 20–150 kt.
790924	79038	Two explosions of 0.001-20 kt each, one of 20-150 kt.
791018	79044	Two explosions of 0.001-20 kt each, two of 20-150 kt each.
791024	79045	One explosion of 0.001-20 kt, one of of 20-150 kt. Total energy release: 33 kt.
791028	79046	One explosion of 0.001–20 kt, one of of 20–150 kt.
791202	79050	One WR explosion of 0.001–20 kt, one FMS explosion of 20–150 kt.
791223	79053	One explosion of 0.001–20 kt, one of 20–150 kt.
800629	80021	Two explosions of 0.001–20 kt each, one of 20–150 kt.
801011	80036	Five explosions of 0.001–20 kt each, two of 20–150 kt each.
801214	80046	Two explosions of 0.001–20 kt each, one of 20–150 kt.
801227	80049	One explosion of 0.001–20 kt, one of 20–150 kt.
810329	81007	One WR explosion, two FMS explosions.
810422	81009	Two explosions of 0.001-20 each, one of 20-150 kt.
811001	81035	Three explosions of 0.001–20 kt each, one of 20–150 kt.
811018	81037	One WR explosion of 0.001–20 kt, one of 20–150 kt.
820625	82014	One WE explosion of 0.001–20 kt, one WR explosion of 0.001–20 kt.
820704	82016	Two explosions of 0.001–20 kt, one of 20–150 kt.

821011	82041	Three explosions of 0.001–20 kt each, one of 20–150 kt.
821205	82051	One explosion of 0.001–20 kt, one of 0.001–20 kt.
821226	82054	One FMS explosion of 20–150 kt, one WR explosion of 20–150 kt.
830530	83014	One FMS explosion of 0.001–20 kt, one WR explosion of 0.001–20 kt.
830612	83016	One explosion of 0.001–20 kt, one of 20–150 kt.
830818	83027	Three WR explosions: two of 0.001–20 kt each, one of 20–150 kt; one PNE of 0.001–20 kt; one SAM explosion of 0.001–20 kt.
830925	83039	Three WR explosions: two of 0.001-20 kt each, one of 20-150 kt; one WR explosion of 0.001-20 kt.
831006	83040	One explosion of 0.001–20 kt, one of 20–150 kt.
840415	84008	One explosion of 0.001–20 kt, one of 20–150 kt.
840425	84009	One explosion of 0.001–20 kt, one of 20–150 kt.
840526	84015	One explosion of 0.001–20 kt, one of 20–150 kt.
840714	84022	One explosion of 0.001–20 kt, one of 20–150 kt.
841025	84039	Three explosions of 0.001-20 kt each, one of 20-150 kt.
841123	84046	Three explosions of 0.001–20 kt each.
841202	84047	One FMS of 0.001-20 kt, one WR explosion of 20-150 kt,
841216	84051	One explosion of 0.001–20 kt, one of 20–150 kt.
841228	84053	One PNE of 0.001-20 kt, one WR explosion of 20-150 kt.
850210	85001	Two explosions of 0.001-20 kt each, one of 20-150 kt.
850615	85014	One explosion of 20–150 kt, two of 0.001–20 kt.
850630	85016	One explosion of 0.001–20 kt, one of 20–150 kt.
850725	85019	Two WR explosions of 0.001-20 kt each, two SAM explosions of 0.001-20 kt each.
870312	87004	Two explosions of 0.001-20 kt each.
870403	87048	Three explosions of 0.001–20 kt each.
870417	87007	Two explosions of 0.001-20 kt each, one of 20-150 kt.
870620	87020	One explosion of 0.001–20 kt, one of 20–150 kt.
870802	87028	One explosion of 0.001-20 kt, two of 20-150 kt each.
870802	87029	Three WR explosions: two of $0.001-20$ kt each, one of $20-150$ kt; one FMS explosion of $0.001-20$ kt; one SAM explosion of $0.001-20$ kt.
870918	87033	One WE explosion of 0.001–20 kt, one SAM explosion of 0.001–20 kt.
871115	87040	One explosion of 0.001–20 kt, one of 20–150 kt.
871213	87044	One explosion of 0.001–20 kt, one of 20–150 kt.
871227	87046	One explosion of 0.001–20 kt, one of 20–150 kt.
880206	88001	Two SAM explosions of <0.001 kt each, one WR explosion of 0.001-20 kt.
880213	88002	One explosion of 0.001–20 kt, one of 20–150 kt.
880507	88008	Two explosions of 0.001-20 kt each, one of 20-150 kt.
880914	88023	The test was conducted in the presence of a team of Soviet scientists in accordance with the US-Soviet May/June 1988 Joint Verification Experiment (JVE) Agreement.
881123	88031	One SAM explosion of <0.001 kt, one FMS explosion of 0.001–20 kt, one WR explosion of 0.001–20 kt.
881204	88034	One SAM explosion of <0.001 kt; one WE explosion of 0.001–20 kt; three WR explosions: two of 0.001–20 kt each, one of 20–150 kt.
881217	88036	One explosion of 0.001-20 kt, one of 20-150 kt
890122	89001	One explosion of 0.001–20 kt, one of 20–150 kt.
891019	89019	Two explosions of 0.001-20 kt each, one of 20-150 kt.
901024	90013	Seven WR explosions: two of <0.001 kt each, four of 0.001 – 20 kt each, one of 20 – 150 kt; one SAM explosion of <0.001 kt.

Appendix 3. Footnotes—UK

Date	ID no.	Text
531014	53017	Widespread contamination especially over aboriginal community.
560619	56016	Radioactive dust spread over parts of northern Australia.
580428	58017	First British two-stage thermonuclear test.
580923	58062	Last British atmospheric test.
620301	62012	First British underground test, first joint British-US test at the Nevada Test Site. Accidental release of radioactivity detected off site.

Appendix 4. Footnotes—France

Date	ID no.	Text
611107	61066	First French underground test.
620501	62027	Accidental release of radioactive gases resulted in the contamination of 12 soldiers.
680824	68035	First French thermonuclear explosion. The yield was >1000 kt.
680908	68040	The yield of the explosion was >1000 kt.
710612	71007	Fallout spread over the Tureia atoll.
740707	74016	Last French atmospheric test.
750605	75013	France's first underground test at its test centre in French Polynesia (Centre d'Experimentation du Pacifique, CEP).
790725	79025	The detonation caused a massive layer of limestone and coral to break off the edge of the atoll. The material fell into the lagoon and produced a large wave which washed over the atoll.
820627	82059	The test was observed by a scientific mission led by vulcanologist Haroun Tazieff. The team took air and water samples during the test to verify safety arrangements.

Appendix 5. Footnotes—China

Date	ID no.	Text
661228	66062	Two-stage hydrogene bomb principles test. Reduced amounts of fission materials and thermonuclear materials were used.
670617	67019	First Chinese full-yield, two-stage thermonuclear test.
690922	69027	China's first underground test.
761117	76033	Largest Chinese test. Fallout resulted on the USA.
801016	80038	Last atmospheric test conducted by any nuclear state.

Appendix 6. Footnotes—India

Date	ID no.	Text
980511	98001	India announced one 43 kt device, one 12 kt device and one 0.2 kt device. International seismological experts suggested a combined yield of not more than 25 kt. Precise data to determine whether the detonations should be counted as one or two tests, according to the TTBT definition (see 2. Introduction to the list of nuclear explosions, 2.1. Definitions), are not available. On the basis of available information one test is listed.
980513	98002	Two explosions were announced, with yields of 0.2 and 0.6 kt, respectively. No signals were recorded by seismological stations outside India. The explosions are listed as one test.

Appendix 7. Footnotes—Pakistan

Date	ID no.	Text
980528	98004	Five explosions were announced. According to Pakistani scientists the yield of the largest explosion was 30–35 kt. The other four explosions were of low yield and their aggregate yield was 40-45 kt. Stations in the region, but outside Pakistan, suggested 10 kt. The explosions are listed as one test.
980530	98005	The yield of the explosion was announced to be 15–18 kt, but averaging the reports from more than 50 non-Pakistani seismological stations indicated a body wave magnitude of 4.3 kt, corresponding to a yield of 2–8 kt.