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Printouts of Unclassified Reports AT OSTI

Order number 940406-165953-13 -001-001
page 1 set 5 with 341 of 341 items

Item 1

150. REPORT NUMBER UCRL--53880-5-1
90. PRIMARY TITLE(A)

110. PRIMARY TITLE(M) Defense Research Review: Volume 5, No. 1 (U)
62. ANALYTIC AUTHOR/AFFIL Moulthrop, P.H. [Lawrence Livermore National Lab., CA (United States)]; Hall, D.K. [Science Applications International Corp., Hanover, NH (United States)]
72. PERSONAL AUTHOR/AFFIL White, R.M.; Wheeler, P.C. [eds.] [Lawrence Livermore National Lab., CA (United States)]; Morgan, G.L.; McFarland, L. [eds.] [Los Alamos National Lab., NM (United States)]; Asay, J. [ed.] [Sandia National Labs., Albuquerque, NM (United States)]
710. CORPORATE SOURCE Lawrence Livermore National Lab., CA (United States); Los Alamos National Lab., NM (United States); Sandia National Labs., Albuquerque, NM (United States)
371. PUB. DATE(YYMMDD) 930100
34. CLASSIF. LEVEL TEXT Secret
36. CLASSIF. CATAGORY TEXTRestricted Data
950. ABSTRACT

801. KEYWORD(S)

Item 2

150. REPORT NUMBER WT--1318
110. PRIMARY TITLE(M) Fallout location and delineation by aerial surveys. Project 2.64 of Operation Redwing
72. PERSONAL AUTHOR/AFFIL Graveson, R.T.; Cassidy, M.E.; LeVine, H.D.
710. CORPORATE SOURCE USAEC New York Operations Office, NY (United States)
371. PUB. DATE(YYMMDD) 601215
34. CLASSIF. LEVEL TEXT Secret
36. CLASSIF. CATAGORY TEXTRestricted Data

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HUGH KINSER: 5-5-94
DATE
Jed Davis 5/5/94

5003198

950. ABSTRACT The objectives were to: (1) survey the gamma radiation from fallout-contaminated ocean areas by means of aerial detectors and (2) from the aerial detectors make air-absorption measurements so that the data might be related to the dose rates at 3 ft above the sea. Radiation detectors were mounted in P2V-5 aircraft that surveyed the ocean areas of expected fallout after Bursts Cherokee, Zuni, Flathead, Navajo, Mohawk, and Tewa. Zuni, a land-surface burst, contaminated 13,400 naut mi{sup 2} of ocean with 48% of its fission-product yield. Navajo, a water-surface burst, contaminated 10, 500 naut mi{sup 2} with 50% of the fission-product yield. After Flathead, another water-surface burst, the outer boundary could not be determined because of contamination of project aircraft on D + 1 day by airborne radioactive material that resulted in a high background. Tewa, a reef burst, contaminated 43,500 naut mi{sup 2} of ocean with 28% of the fission-product yield. Helicopters and P2V-5 aircraft were used to gather data for air-absorption measurements.

801. KEYWORD(S) REDWING;GAMMA DOSIMETRY;FALLOUT;AERIAL MONITORING; GAMMA DETECTION;CHEROKEE BURST;ZUNI BURST;FLATHEAD BURST; NAVAHO BURST;MOHAWK BURST; TEWA BURST;RADIOACTIVE CONTAMINATION

Item 3

150. REPORT NUMBER WT--1314
110. PRIMARY TITLE(M) Neutron-induced soil radioactivity. Project 2.52 of Operation Redwing. Final report
72. PERSONAL AUTHOR/AFFIL Cowan, M. Jr.
710. CORPORATE SOURCE Sandia Corp., Albuquerque, NM (United States)
371. PUB. DATE(YYMMDD) 591210
34. CLASSIF. LEVEL TEXT Secret
36. CLASSIF. CATAGORY TEXTRestricted Data
950. ABSTRACT Soil samples were exposed to neutron radiation from Burst Cherokee to help establish the importance of neutron-induced residual gamma radiation from a large-yield thermonuclear air burst. After exposure and recovery, the samples had no detectable activity because the slant range to the nearest sample was nearly 3.5 miles, due to an error in bomb drop. After this failure, an experiment was designed in the field for Burst Yuma in order that induced-activity data could be obtained for a soil other than Nevada Test Site (NTS) soil. Samples of sodium, manganese, and coral sand from Site Sally were exposed above and below the surface at a slant range of 120 yards. At this same station, gamma dose rates were measured and neutron detectors were exposed by Project 2.51. The full-field gamma radiation

measured was due to a combination of fission-product and neutron-induced activities, the only important induced activity being due to Na{sup 23}(n,{gamma}) Na{sup 24}. At 1.1, 3.4, and 10.9 hours after zero time, neutron-induced gamma radiation accounted for 1.2, 1.1, and 0.8 r/hr of the measured 6.0, 2.2, and 1.2 r/hr.

801. KEYWORD(S) REDWING;CHEROKEE BURST;SOILS;RADIOACTIVATION;YUMA BURST

Item 4

150. REPORT NUMBER ITR--1602
110. PRIMARY TITLE(M) Fallout contamination from a very-low-yield burst. Project 2.14a/34.8 [of] Operation Hardtack--preliminary report
72. PERSONAL AUTHOR/AFFIL Butler, R.E.; Cowan, M. Jr.
710. CORPORATE SOURCE Sandia Corp., Albuquerque, NM (United States)
371. PUB. DATE(YYMMDD) 590120
34. CLASSIF. LEVEL TEXT Secret
36. CLASSIF. CATAGORY TEXT Restricted Data
950. ABSTRACT Fallout measurements were made on Fig Burst to determine the range of militarily significance fallout intensities produced by a 20-ton-plus 10% surface burst on an extended land mass. For the burst environment of Fig Burst, intensities greater than 1 r/hr measured at H + 1 hour will not extend beyond 2600 ft downwind. Levels greater than 100 r/hr at H + 1 hour are estimated to extend less than 1000 ft downwind and 150 feet crosswind. From data obtained a fallout model will be constructed which will be used to estimate extremes in fallout intensity patterns caused by varying wind conditions and cloud dimensions.
801. KEYWORD(S) HARDTACK;FIG BURST;FALLOUT;RADIOACTIVE CONTAMINATION;DISTANCE;SURFACE BURSTS;LOW-YIELD WEAPONS

Item 5

150. REPORT NUMBER ITR--1601
110. PRIMARY TITLE(M) High altitude measurements. Program 32 [of] Operation Hardtack--preliminary report
72. PERSONAL AUTHOR/AFFIL Banister, J.R.
710. CORPORATE SOURCE Sandia Corp., Albuquerque, NM (United States)
371. PUB. DATE(YYMMDD) 580800
34. CLASSIF. LEVEL TEXT Secret
36. CLASSIF. CATAGORY TEXT Restricted Data
950. ABSTRACT Data from Teak and Orange bursts of Operation Hardtack are reported in the following spheres of interest: X-ray, total thermal radiation, gamma-ray dose and dose rate, neutron flux, radiofrequency attenuation, burst-produced pressure at ground level, an attempt to

gather radiochemical samples, optical phenomena as seen from ground level, winds at burst altitude, and other topics pertinent to gathering and interpreting data on the above phenomena. Emphasis in Sandia Corporation's Program 32 is on measurement of these phenomena by rocket-borne instrumentation packages except where noted in the report.

801. KEYWORD(S) TEAK BURST;ORANGE BURST;HARDTACK;HIGH ALTITUDE; X-RAY SPECTRA;THERMAL RADIATION;GAMMA DOSIMETRY;NEUTRON MEASUREMENTS;BLAST MEASUREMENTS; GROUND LEVEL; RADIOCHEMICAL ANALYSIS;WIND;RADIO WAVES;ATTENUATION; DIAGNOSTIC EXPERIMENTS

Item 6

150. REPORT NUMBER WT--1365
110. PRIMARY TITLE(M) Neutron measurements with threshold detectors. Project 12.1 [of] Operation Redwing
72. PERSONAL AUTHOR/AFFIL Biggers, W.A.
710. CORPORATE SOURCE Los Alamos Scientific Lab., NM (United States)
371. PUB. DATE(YYMMDD) 570300
34. CLASSIF. LEVEL TEXT Secret
36. CLASSIF. CATAGORY TEXTRestricted Data
950. ABSTRACT High-energy neutrons were measured on four of the Operation Redwing devices by the use of Zirconium (n, 2n) reaction. These shots were Lacrosse, Erie, Seminole, and Blackfoot. From the results of these measurements, calculations were made of the percentage of DT burned.
801. KEYWORD(S) REDWING;LACROSSE BURST;ERIE BURST;SEMINOLE BURST; BLACKFOOT BURST;NEUTRON MEASUREMENTS;THRESHOLD DETECTORS; ZIRCONIUM;THERMONUCLEAR BURN

Item 7

150. REPORT NUMBER WT--1361
110. PRIMARY TITLE(M) Gamma radiation as a function of distance. Project 13.4 [of] Operation Redwing
72. PERSONAL AUTHOR/AFFIL Storm, E.; Goodwin, L.; Distenfeld, C.
710. CORPORATE SOURCE Los Alamos Scientific Lab., NM (United States)
371. PUB. DATE(YYMMDD) 561000
34. CLASSIF. LEVEL TEXT Secret
36. CLASSIF. CATAGORY TEXTRestricted Data
950. ABSTRACT

801. KEYWORD(S) REDWING;NAVAHO BURST;PROMPT GAMMA RADIATION;GAMMA DETECTION;GAMMA RADIATION;DISTANCE

Item 8

150. REPORT NUMBER WT--904
110. PRIMARY TITLE(M) Ground level pressures from surface bursts. Project 1.2a [of] Operation Castle
72. PERSONAL AUTHOR/AFFIL Broyles, C.D.; Merritt, M.L.
710. CORPORATE SOURCE Sandia Corp., Albuquerque, NM (United States)
371. PUB. DATE(YYMMDD) 571030
34. CLASSIF. LEVEL TEXT Secret
36. CLASSIF. CATAGORY TEXT Restricted Data
950. ABSTRACT The objective of Project 1.2a was to study ground-level pressures from surface bursts. Measurements were made with Wiancko gages mounted flush with the ground. When the hydrodynamic fireball yields are the reference yields peak pressures generally correspond to about 1.6W instead of 2W free air. However, duration and positive pressure impulses correspond to somewhat greater than 2W. Shot 3 was detonated in the rain and showed the effects thereof in low pressures and rounded wave-forms. Nonideal waveforms obtained from most of the shots indicate that water does not constitute a perfectly reflecting surface, as has sometimes been assumed.
801. KEYWORD(S) SURFACE BURSTS;CASTLE;PRESSURE MEASUREMENT;PEAK PRESSURE;GROUND LEVEL

Item 9

150. REPORT NUMBER WT--952
110. PRIMARY TITLE(M) External neutron measurements. Project 14.1 [of] Operation Castle
72. PERSONAL AUTHOR/AFFIL Biggers, W.A.; Brown, L.J.; Kohr, K.C.
710. CORPORATE SOURCE Los Alamos Scientific Lab., NM (United States)
371. PUB. DATE(YYMMDD) 551000
34. CLASSIF. LEVEL TEXT Secret
36. CLASSIF. CATAGORY TEXT Restricted Data
950. ABSTRACT The external neutron threshold measurements made at Operation Castle in the spring of 1954 consisted of the use of zirconium, arsenic, iodine, thallium, and sulfur to measure the higher energy neutron flux, and gold samples to measure the thermal neutron flux. The iodine also measured high-energy gamma ray intensity. Measurements were made on five shots: Shrimp, Runt I, Alarm Clock, Runt II, and Zombie.
801. KEYWORD(S) CASTLE;NEUTRON MEASUREMENTS;NEUTRON DETECTORS; THRESHOLD DETECTORS;ZIRCONIUM;ARSENIC;IODINE;THALLIUM;

SULFUR;GOLD;SHRIMP;RUNT;ALARM CLOCK; ZOMBIE

Item 10

150. REPORT NUMBER WT--106
110. PRIMARY TITLE(M) Long-distance measurement of energy yield of an atomic explosion. Annex 1.12 [of] Scientific Director's report of atomic weapon tests at Eniwetok. Operation Greenhouse
72. PERSONAL AUTHOR/AFFIL Hudgins, A.J.
710. CORPORATE SOURCE California Univ., Berkeley, CA (United States). Lawrence Radiation Lab.
371. PUB. DATE(YYMMDD) 511000
34. CLASSIF. LEVEL TEXT Secret
36. CLASSIF. CATAGORY TEXTRestricted Data
950. ABSTRACT The energy yield of an atomic explosion has been determined at long distance by measuring the time variation of the light from the explosion and applying an empirical formula which relates this to the energy yield. The light was detected by an RCA 5819 photomultiplier tube and was recorded on a magnetic-tape recorder. Measurements at Shot Easy were made from a C-54 airplane flying at 12,500 ft at a distance of 630 miles northwest of Eniwetok. The time to the minimum of light intensity was 23.5 {+-} 0.8 msec. The peak intensity of the flash above the ambient was measured to be 1.7 millicandles/ft{sup 2}. This experiment indicated that energy yield can be measured at a distance greater than 630 miles at night. Possible propagation mechanisms are discussed. Studies of the maximum range in daylight and of improvements in technique are suggested.
801. KEYWORD(S) GREENHOUSE;EASY BURST;YIELD;LONG-RANGE DETECTION; OPTICAL DETECTION;MEASUREMENT

Item 11

150. REPORT NUMBER UWFL--36
110. PRIMARY TITLE(M) Operations outline for program 19, Marine survey unit, of Operation Castle
710. CORPORATE SOURCE Washington Univ., Seattle, WA (United States). Coll. of Fisheries
371. PUB. DATE(YYMMDD) 540215
34. CLASSIF. LEVEL TEXT Secret
36. CLASSIF. CATAGORY TEXTRestricted Data
950. ABSTRACT Plans are outlined for a study of radiological problems before and after Operation Castle. These studies were to be continued for one year. Spot checks were also planned on the amounts and distribution of radioactive materials in the fauna and flora of Bikini Atoll during the year.

801. KEYWORD(S) CASTLE;PLANNING;BIKINI;RADIONUCLIDE KINETICS; RADIOACTIVE CONTAMINATION;PLANTS;ANIMALS;AQUATIC ORGANISMS;MARINE BIOLOGY

Item 12

150. REPORT NUMBER LA-CP--92-371
110. PRIMARY TITLE(M) Defense Science Update: A monthly supplement to Defense Science magazine, September 1992
72. PERSONAL AUTHOR/AFFIL Bowden, J.; McFarland, L. [eds.]
710. CORPORATE SOURCE Los Alamos National Lab., NM (United States)
371. PUB. DATE(YYMMDD) 920900
34. CLASSIF. LEVEL TEXT Secret
36. CLASSIF. CATAGORY TEXTRestricted Data
950. ABSTRACT Topics addressed in this document are: Intelligence Support to Programs; Optical Detonation System's Improvement of Safety of Explosives; and Selecting the Sandstone Gadgets. (FI)
801. KEYWORD(S) INTELLIGENCE/;SANDSTONE/;DETONATORS/design ; INTELLIGENCE;SAFETY;SANDSTONE;ATOMIC WEAPON TESTS; DETONATION;DETONATORS;DESIGN;FIBER OPTICS;LASERS

Item 13

150. REPORT NUMBER HW--33754
110. PRIMARY TITLE(M) Fallout comparisons
72. PERSONAL AUTHOR/AFFIL Parker, H.M.
710. CORPORATE SOURCE General Electric Co., Richland, WA (United States). Hanford Atomic Products Operation
371. PUB. DATE(YYMMDD) 541110
34. CLASSIF. LEVEL TEXT Secret
36. CLASSIF. CATAGORY TEXTRestricted Data
950. ABSTRACT Data on the average total fallout over the United States following the Castle series of tests in the spring of 1954 are compared with data on fallout deposition in and around company facilities at Hanford Works and KAPL.
801. KEYWORD(S) FALLOUT;USA;CASTLE;DEPOSITION;HANFORD RESERVATION

Item 14

150. REPORT NUMBER UWFL--57
110. PRIMARY TITLE(M) The biological and geographical distribution of W{sup 185} in the vicinity of the Eniwetok test site, April--September 1958
72. PERSONAL AUTHOR/AFFIL Lowman, F.G.; Palumbo, R.F.; South, D.J.; Weeks, D.R.
710. CORPORATE SOURCE Washington Univ., Seattle, WA (United States). Lab. of Radiation Biology
371. PUB. DATE(YYMMDD) 590109

34. CLASSIF. LEVEL TEXT Secret
36. CLASSIF. CATAGORY TEXT Restricted Data
950. ABSTRACT Radiochemical separations were made by ion-exchange and precipitation techniques and by gamma spectrum analyses to determine the levels of tungsten-185 on selected biological samples from the Eniwetok and Bikini test site and from the nearby atolls of Rongelap and Ujelang. The isotope was identified by its half life, maximum beta energy and gamma energy. High levels of W{sup 185} were found on plant-leaf and soil samples at Belle and Janet Islands (Eniwetok Atoll), and on plankton collected 155 miles northwest of Eniwetok Atoll during August, 1958. Lower levels were found at Vera, Keith, and Henry Islands (Eniwetok Atoll), Nan Island (Bikini Atoll), on the plankton near Ujelang and Rongelap Atolls, and on samples from the latter atolls. The W{sup 185} appeared to occur as surface contamination with the exception of one fish sample taken at Eniwetok Atoll in which the isotope was found in the liver and spleen.
801. KEYWORD(S) ENVIRONMENTAL STUDIES;TUNGSTEN 185;PACIFIC PROVING GROUNDS;PLANTS;SOILS;RADIONUCLIDE MIGRATION;PLANKTON; RADIOACTIVE CONTAMINATION;FISHES;RADIOCHEMICAL ANALYSIS; LEAVES; ENIWETOK;BIKINI;RONGELAP

Item 15

150. REPORT NUMBER UCRL--50000-91-7/8
90. PRIMARY TITLE(A)

110. PRIMARY TITLE(M) Research Monthly, July--August 1991
62. ANALYTIC AUTHOR/AFFIL Moulthrop, P.H. [Lawrence Livermore National Lab., CA (United States)]; Hall, D.K. [Science Applications International Corp., Hanover, NH (United States)]
72. PERSONAL AUTHOR/AFFIL Sefcik, J.A.; de Vore, L.; Gleason, K.; Sanford, N.M.; Kroopnick, H. [eds.]
710. CORPORATE SOURCE Lawrence Livermore National Lab., CA (United States)
371. PUB. DATE(YYMMDD) 910800
34. CLASSIF. LEVEL TEXT Secret
36. CLASSIF. CATAGORY TEXT Restricted Data
950. ABSTRACT

801. KEYWORD(S)

Item 16

150. REPORT NUMBER UCRL--53880-2-3B
90. PRIMARY TITLE(A)
110. PRIMARY TITLE(M) Defense Research Review: Volume 2, No. 3B
62. ANALYTIC AUTHOR/AFFIL Bandtel, K.C. [Los Alamos National Lab., NM (United States)]; Hall, D.K. [Science Applications International Corp., Hanover, NH (United States)]; Moulthrop, P.H. [Lawrence Livermore National Lab., CA (United States)]
72. PERSONAL AUTHOR/AFFIL White, R.M.; Wheeler, P.C.; Telford, K. [eds.] [Lawrence Livermore National Lab., CA (United States)]; Morgan, G.L.; McFarland, L. [eds.] [Los Alamos National Lab., NM (United States)]; Asay, J. [ed.] [Sandia National Labs., Albuquerque, NM (United States)]
710. CORPORATE SOURCE Lawrence Livermore National Lab., CA (United States); Los Alamos National Lab., NM (United States); Sandia National Labs., Albuquerque, NM (United States)
371. PUB. DATE(YYMMDD) 901000
34. CLASSIF. LEVEL TEXT Secret
36. CLASSIF. CATAGORY TEXTRestricted Data
950. ABSTRACT

801. KEYWORD(S)

Item 17

150. REPORT NUMBER UWFL--58
110. PRIMARY TITLE(M) Distribution of radioactivity in sea water and marine organisms following an underwater nuclear

detonation at the Eniwetok Test Site in 1958
72. PERSONAL AUTHOR/AFFIL Palumbo, R.F.; Lowman, F.G.; Welander, A.D.; Weeks, D.R.
710. CORPORATE SOURCE Washington Univ., Seattle, WA (United States). Lab. of Radiation Biology
371. PUB. DATE(YYMMDD) 590206
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT An investigation of the radioactive contamination of the water and marine organisms in and near the Eniwetok Test Site was conducted during May 1958, shortly before and immediately following an underwater nuclear detonation. At the end of three and one-half days the boundaries of the radioactive water mass extended beyond the survey area, 50 miles to the west of Eniwetok Atoll, and to a depth of at least 300 meters. The plankton contained high levels of {sup 239}Np, {sup 99}Mo-{sup 99m}Tc, {sup 132}Te-{sup 132}I, and {sup 237}U. Also present in lower amounts were {sup 141}Ce-{sup 141}Pr, {sup 103}Ru-{sup 103}Rh, {sup 140}Ba-{sup 140}La, {sup 95}Zr-{sup 95}Nb, and {sup 144}Ce-{sup 144}Pr. {sup 106}Ru-{sup 106}Rh and {sup 105}Ru-{sup 105}Rh were detected once in each of two samples. Whole fish samples contained essentially the same radioisotopes as the plankton. Shrimp and squid contained high levels of {sup 239}Np and {sup 132}Te-{sup 132}I but no detectable {sup 99}Mo-{sup 99m}Tc.
801. KEYWORD(S) RADIOACTIVE CONTAMINATION;ENIWETOK PROVING GROUND; UNDERWATER BURSTS;WAHOO BURST;PLANKTON;MOLYBDENUM 99; TECHNETIUM 99; URANIUM 237;CERIUM 141;PRASEODYMIUM 141; RUTHENIUM 103;RHODIUM 103;BARIUM 140;LANTHANUM 140; ZIRCONIUM 95; NIOBIUM 95;CERIUM 144;PRASEODYMIUM 144; RUTHENIUM 106;RHODIUM 106; RHODIUM 105;NEPTUNIUM 239; TELLURIUM 132;IODINE 132;AQUATIC ORGANISMS;RADIONUCLIDE KINETICS;FISHES;UPTAKE;MARINE BIOLOGY

Item 18

150. REPORT NUMBER AD--342180
110. PRIMARY TITLE(M) Operation Hardtack/Newsreel radio attenuation and reflection phenomena. Final report--Part 1
72. PERSONAL AUTHOR/AFFIL Dolphin, L.T.; Dyce, R.B.
710. CORPORATE SOURCE Stanford Research Inst., Menlo Park, CA (United States)
371. PUB. DATE(YYMMDD) 600200
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT The radiofrequency reflection and absorption effects of shots Teak and Orange detonated over Johnston Island in August 1958 were examined. Five radars in the 10- and 1000-Mc range were used in the search for

reflection phenomena. Following shot Teak, echoes were obtained from the rising fission products suggesting that fission fragments may be tracked long after the shot using radars in the hf and vlf band. Echoes on 11, 32, 140, and 370 Mc were obtained from the shot-produced aurora, lasting about one hour after shot Teak and about one-half hour following shot Orange on 140 Mc. The echoes following shot Teak were stronger than those following shot Orange. Within several orders of magnitude, shot-produced auroral echoes appear to be comparable in intensity to a moderate aurora in the arctic. Ionospheric absorption measurements were obtained on 30, 60, and 120 Mc at Johnston Island, French Frigate Shoals (825 km from the burst) and at Wheeler Air Force Base, Oahu (1325 km from the burst), using an instrument which measures integrated absorption over wide angles in the zenith. Absorption was observed at all sites, in some cases lasting several hours. Agreement with theory was adequate. Several secondary experiments were conducted. For example, by monitoring the telemetry from 1958 Epsilon (Explorer IV), shot-produced effects were observable at Johnston Island, Singapore, and Lima for several days after shot Teak.

801. KEYWORD(S) TEAK BURST;ORANGE BURST;RADAR INTERFERENCE; REFLECTION;RADAR SIGNALS;RADAR REFLECTIONS; AURORAE; IONOSPHERIC EFFECTS;ABSORPTION;TIME DEPENDENCE

Item 19

150. REPORT NUMBER RM--3750-PR
110. PRIMARY TITLE(M) Geomagnetic disturbances produced by high-altitude nuclear bursts
72. PERSONAL AUTHOR/AFFIL Field, E.C.
710. CORPORATE SOURCE Rand Corp., Santa Monica, CA (United States)
371. PUB. DATE(YYMMDD) 630700
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT The possibility that neutron-decay beta particles can cause geomagnetic fluctuations in regions remote from high-altitude nuclear bursts is examined. Particular attention is paid to certain rapid-onset, small amplitude, geomagnetic micropulsations which were detected at great distances from the Orange detonation, August 12, 1958. It appears that micropulsations observed in Southern California and the Arctic after Orange were due to this mechanism. The size and time behavior of these signals are shown to be compatible with theoretical estimates based on the neutron-decay model, and correlation with a nearby VLF anomaly is demonstrated. The analysis indicates that winds at an altitude of about 75 km were dominant in causing the

long-range Orange signals. Since relatively large amounts of overhead ionization are required to produce even a small observable geomagnetic fluctuation, it is doubtful that neutron-decay geomagnetic effects will be useful for bomb detection. This is evidenced in the fact that if such disturbances were produced by the 1.4-Mt Starfish burst, they were lost in the background.

801. KEYWORD(S) IONOSPHERIC BURSTS;GEOMAGNETIC FIELD;DISTURBANCES; PULSES;BETA PARTICLES;ORANGE BURST;CALIFORNIA;ARCTIC REGIONS;WIND; NEUTRONS;BETA DECAY;IONOSPHERIC EFFECTS

Item 20

150. REPORT NUMBER ASD-TR--61-230
110. PRIMARY TITLE(M) Thermal and x-radiation measurements in the shot Teak Fireball
72. PERSONAL AUTHOR/AFFIL Cicero, A.B.; Fryklund, G.G.; Taylor, J.R.
710. CORPORATE SOURCE American Science and Engineering, Inc., Cambridge, MA (United States)
371. PUB. DATE(YYMMDD) 610400
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT An analysis was made of the WADC pod, which was exposed at a range of 6.5 km from the Teak detonation of Operation hardtack. The exposed pod structure and instrumentation were analyzed, and the observed phase transformations utilized to calculate the absorbed energy. Calculations were made of the incident x rays on the pod, the weapon temperature, x-ray yield in the pod direction, and thermal radiation pulse absorption time.
801. KEYWORD(S) TEAK BURST;EFFECTS EXPERIMENTS;X RADIATION;THERMAL RADIATION EFFECTS;RADIATION EFFECTS

Item 21

150. REPORT NUMBER UCRL--50000-90-11/12
90. PRIMARY TITLE(A)
110. PRIMARY TITLE(M) Research Monthly, November--December 1990 (U)
62. ANALYTIC AUTHOR/AFFIL Moulthrop, P.H.; Bandtel, K.C. [Los Alamos National Lab., NM (USA)]; Hall, D.K. [Science Applications International Corp., Hanover, NH (USA)]
72. PERSONAL AUTHOR/AFFIL Johnson, K.C.; de Vore, L.; Gleason, K.; Sanford, N.M. [eds.]
710. CORPORATE SOURCE Lawrence Livermore National Lab., CA (USA)
371. PUB. DATE(YYMMDD) 901100
34. CLASSIF. LEVEL TEXT Secret
36. CLASSIF. CATAGORY TEXTRestricted Data
950. ABSTRACT

801. KEYWORD(S)

Item 22

150. REPORT NUMBER UCRL--50000-90-11/12
90. PRIMARY TITLE(A)

110. PRIMARY TITLE(M) Research Monthly, November--December 1990 (U)
62. ANALYTIC AUTHOR/AFFIL Johnson, K.
72. PERSONAL AUTHOR/AFFIL Johnson, K.C.; de Vore, L.; Gleason, K.; Sanford, N.M. [eds.]
710. CORPORATE SOURCE Lawrence Livermore National Lab., CA (USA)
371. PUB. DATE(YYMMDD) 901100
34. CLASSIF. LEVEL TEXT Secret
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950. ABSTRACT

801. KEYWORD(S)

Item 23

150. REPORT NUMBER UCRL--50000-90-11/12
110. PRIMARY TITLE(M) Research Monthly, November--December 1990 (U)
72. PERSONAL AUTHOR/AFFIL Johnson, K.C.; de Vore, L.; Gleason, K.; Sanford, N.M. [eds.]

710. CORPORATE SOURCE Lawrence Livermore National Lab., CA (USA)
371. PUB. DATE(YYMMDD) 901100
34. CLASSIF. LEVEL TEXT Secret
36. CLASSIF. CATAGORY TEXTRestricted Data
950. ABSTRACT Separate articles in this journal are indexed. (LEW)
801. KEYWORD(S)

Item 24

150. REPORT NUMBER LA--11749
110. PRIMARY TITLE(M) A review of the development of Los Alamos Gnats and Tsetses before the 1958 test moratorium (U)
72. PERSONAL AUTHOR/AFFIL Germain, L.S.
710. CORPORATE SOURCE Los Alamos National Lab., NM (USA)
371. PUB. DATE(YYMMDD) 910102
34. CLASSIF. LEVEL TEXT Secret
36. CLASSIF. CATAGORY TEXTRestricted Data
950. ABSTRACT This report, one in a series concerned with the history of nuclear-weapons research and development, outlines the evolution of the Los Alamos Gnat and Tsetse systems before the 1958 test moratorium. (U)
801. KEYWORD(S)

Item 25

150. REPORT NUMBER LA--11404
110. PRIMARY TITLE(M) A brief history of the first efforts of the Livermore Small-Weapons Program (U)
72. PERSONAL AUTHOR/AFFIL Germain, L.S.
710. CORPORATE SOURCE Los Alamos National Lab., NM (USA)
371. PUB. DATE(YYMMDD) 910102
34. CLASSIF. LEVEL TEXT Secret
36. CLASSIF. CATAGORY TEXTRestricted Data
950. ABSTRACT This report, one in a series concerned with the history of nuclear-weapon research and development, describes the evolution of the design of fissile nuclear explosives at the Lawrence Livermore National Laboratory from its inception in 1952 to the nuclear testing moratorium in 1958. Nuclear tests are used as the unifying thread for the description of this evolution. The most important families of nuclear devices are identified, their evolution is outlined, and the stockpile weapons that resulted are indicated. (U)
801. KEYWORD(S)

Item 26

150. REPORT NUMBER EGG--1183-342
110. PRIMARY TITLE(M) Communication studies [for] Cutlass/Roundup. Technical Report No. B-3451
72. PERSONAL AUTHOR/AFFIL Sundstrom, C.F.
710. CORPORATE SOURCE Edgerton, Germeshausen and Grier, Inc., Boston, MA (USA)
371. PUB. DATE(YYMMDD) 661202
34. CLASSIF. LEVEL TEXT Confidential
950. ABSTRACT Results are presented of communication studies on the Cutlass/Roundup mission conducted on 23 November 1965. The possible interference between EG&G and Sandia Communication links tentatively established for Bass Drum was determined to be zero. The Bass Drum communication data link configuration is thus deemed to be acceptable as conceived. As a secondary Cutlass objective, field strength measurements on the assigned Bass Drum frequencies were made and analyzed. Results are given of the analysis of these measurements on the nine orbits flown by the three NC-135 aircraft in the area of the Cutlass Zero-site barge. The Cutlass experiment showed that the radiating lobes of the barge antenna extended fifty to sixty miles and that usable signals can be received at both the barge and the aircraft provided (1) receiver sensitivity is 10 {mu}V or greater, (2) transmitter outpower is 25 W or greater on the barge and 20 W or greater on the aircraft, and (3) aircraft altitude is maintained above 5,000 ft. The most critical requisites for reliable reception, in the order of their importance, are (1) antenna-to-antenna unobstructed signal path, (2) aircraft altitude (as directly related to the lobe pattern), (3) transmitting antenna stability or predictable orientation, and (4) transmitter power output.
801. KEYWORD(S) ROUNDUP;COMMUNICATION SYSTEMS;MIDGET FLY;ANTENNAS; SIGNALS;DATA TRANSMISSION SYSTEMS

Item 27

150. REPORT NUMBER LA--11929-H
110. PRIMARY TITLE(M) CROSSROADS: The setting of a precedent (U)
72. PERSONAL AUTHOR/AFFIL Perkins, B.
710. CORPORATE SOURCE Los Alamos National Lab., NM (USA)
371. PUB. DATE(YYMMDD) 900831
34. CLASSIF. LEVEL TEXT Secret
36. CLASSIF. CATAGORY TEXTRestricted Data
950. ABSTRACT The detonation of two atomic bombs over Japan demonstrated that a new type of weapon capable of

massive destruction had been developed. Soon after Japan's surrender, the military, led by the Navy, began to advocate a series of atomic bomb detonations to test their effect on naval vessels and other military equipment and to determine other results of such a detonation. In the summer of 1946, in an operation known as Crossroads, two atomic bomb tests took place, one an airdrop and one an underwater detonation. The operation was conducted far outside the continental US in Bikini Lagoon in the Marshall Islands. Involved were 42,000 people, over 200 vessels, and more than 150 airplanes. The tests could not have taken place without the participation of staff from the Los Alamos Laboratory. The Laboratory supplied the two nuclear weapons, detonated the underwater bomb, provided radiochemical yield data and other diagnostic data, assisted in other technical operations such as timing, and provided general technical advice. The operational organization of Crossroads set many precedents for conducting future tests. Crossroads was an important step in preparing the Laboratory for the test series that were to follow. (U)

801. KEYWORD(S) CROSSROADS/historical aspects ;CROSSROADS; ATOMIC WEAPON TESTS;TEST OBSERVERS;LOGISTICS;PLANNING;SAFETY; UNDERWATER BURSTS;ATMOSPHERIC BURSTS;DIAGNOSTIC EXPERIMENTS;ABLE BURST;BAKER BURST

Item 28

150.	REPORT NUMBER	NVO--102-2
110.	PRIMARY TITLE(M)	NVOO program and project schedule
710.	CORPORATE SOURCE	USDOE Nevada Operations Office, Las Vegas
371.	PUB. DATE(YYMMDD)	720131
34.	CLASSIF. LEVEL TEXT	Secret
36.	CLASSIF. CATAGORY TEXT	Restricted Data
950.	ABSTRACT	

801. KEYWORD(S) ATOMIC WEAPON TESTS/research programs ;GROMMET; CANNIKIN BURST;BARBIZON;MINUTE GUN;MILD WIND;HUSSAR

SWORD;SANDHAWK;MIGHTY MITE;PLOWSHARE;BREN;NEVADA TEST SITE;BIOLOGICAL RADIATION EFFECTS;AERIAL MONITORING; BIKINI

Item 29

150.	REPORT NUMBER	LA--11476-MS
110.	PRIMARY TITLE(M)	X-ray output calculations for the B53, Part II (U)
70.	PERSONAL AUTHOR(M)	Weaver, R.P.
190.	AUTHOR AFFILIATION	Los Alamos National Lab., NM (USA)
710.	CORPORATE SOURCE	Los Alamos National Lab., NM (USA)
371.	PUB. DATE(YYMMDD)	890100
34.	CLASSIF. LEVEL TEXT	Secret
36.	CLASSIF. CATAGORY TEXT	Restricted Data
950.	ABSTRACT	

801. KEYWORD(S)

Item 30

150.	REPORT NUMBER	LA--10914
110.	PRIMARY TITLE(M)	Calculations and implications of early thermonuclear weapon tests (U)
70.	PERSONAL AUTHOR(M)	Glass, N.W.; Orr, S.R.
710.	CORPORATE SOURCE	Los Alamos National Lab., NM (USA)
750.	PUBL.ANNOUNCEMENT	-034846
371.	PUB. DATE(YYMMDD)	870600
34.	CLASSIF. LEVEL TEXT	Secret
950.	ABSTRACT	

801. KEYWORD(S)

Item 31

150.	REPORT NUMBER	LA--11022
110.	PRIMARY TITLE(M)	An analysis of sea level Teller light (U)
70.	PERSONAL AUTHOR(M)	Zinn, J.; Sutherland, C.D.
710.	CORPORATE SOURCE	Los Alamos National Lab., NM (USA)
750.	PUBL.ANNOUNCEMENT	-034686
371.	PUB. DATE(YYMMDD)	870700
34.	CLASSIF. LEVEL TEXT	Secret
950.	ABSTRACT	

801. KEYWORD(S) TELLER LIGHT/;DAKOTA BURST/teller light ;

NITROGEN/fluorescence ;AIR/fluorescence ; ATMOSPHERE/fluorescence ;ATMOSPHERIC BURSTS/teller light ;OXYGEN/fluorescence ;SEA LEVEL;STREAK PHOTOGRAPHY; FLUORESCENCE;AIR;ATMOSPHERE; COMPUTERIZED SIMULATION; NEUTRONS;GAMMA RADIATION;OXYGEN

Item 32

150. REPORT NUMBER LA--10680-MS-Vol.1
110. PRIMARY TITLE(M) Status of high-altitude fireball simulations and implications for test detection and diagnostics. Volume I. Simulation status (U)
70. PERSONAL AUTHOR(M) Sappenfield, D.S.
710. CORPORATE SOURCE Los Alamos National Lab., NM (USA)
750. PUBL.ANNOUNCEMENT -032719
371. PUB. DATE(YYMMDD) 860300
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT Ability to simulate numerically the early phases of high-altitude nuclear explosions is necessary to provide input to nuclear burst detection systems, to provide algorithms that relate observables-to-explosion parameters, and to provide initial conditions for simulations of long-time-scale nuclear effects that may interfere with performance of military systems. This report surveys the status of our simulation capability for explosions between 10- and 100-km altitude, with emphasis on optical observables and radiated energy loss. Computed optical signals are compared with observations of the Bluegill, Kingfish, Checkmate, Tightrope, Yucca, Orange, and Teak nuclear tests. The comparisons are generally very good. The weakest aspects of the simulations are in the areas of weapon debris contribution to optical emission and substructure of the first optical pulse from Tightrope and Yucca. The low-altitude limit to the time integral of power, weighted for silicon sensor response, is re-examined. From data obtained during Operation Dominic, it is concluded that the most likely value is 0.13 of the total yield, although an argument can be made for a value of 0.15 times the yield. The possibility of non-local-thermodynamic-equilibrium (non-LTE) effects on simulation of the Bluegill event is discussed. Using currently accepted chemical rate constants and energy partitions, one cannot make a convincing case for significant non-LTE effects. Nevertheless, some aspects of the Bluegill simulation are improved by non-LTE treatment of NO density and N/sub 2/ vibration excitation. (U)
801. KEYWORD(S) BALL OF FIRE/computerized simulation ;ATMOSPHERIC BURSTS/ball of fire ;ATMOSPHERIC BURSTS/optical

detection ;BLUE GILL BURST/ball of fire ;BLUE GILL BURST/computerized simulation ;KING FISH BURST/ball of fire ;KING FISH BURST/computerized simulation ;CHECK MATE BURST/ball of fire ;CHECK MATE BURST/computerized simulation ; TIGHT ROPE BURST/ball of fire ; TIGHT ROPE BURST/computerized simulation ;YUCCA BURST/ball of fire ; YUCCA BURST/computerized simulation ;ORANGE BURST/ball of fire ;ORANGE BURST/computerized simulation ;TEAK BURST/ball of fire ;TEAK BURST/computerized simulation ; HIGH ALTITUDE;RADFLO CODE;BRIGHTNESS;VISIBLE RADIATION; THERMAL RADIATION;POWER;X-RAY SPECTRA;SPUTTER CODE; NITROGEN;EXCITATION

Item 33

150.	REPORT NUMBER	EGG--10282-5017
110.	PRIMARY TITLE(M)	Power-time curves for REDWING MOHAWK (U)
70.	PERSONAL AUTHOR(M)	Rauber, L.A.
710.	CORPORATE SOURCE	EG and G, Inc., Los Alamos, NM (USA). Los Alamos Operations
750.	PUBL.ANNOUNCEMENT	-032968;WDA-13:000465
371.	PUB. DATE(YYMMDD)	860300
34.	CLASSIF. LEVEL TEXT	Secret
950.	ABSTRACT	

801. KEYWORD(S) MOHAWK BURST/ball of fire ;BRIGHTNESS;POWER;TIME DEPENDENCE; PHOTOGRAPHY;IMAGES;COLOR;VISIBLE RADIATION

Item 34

150. REPORT NUMBER LA--9941-MS
110. PRIMARY TITLE(M) Measurements of gamma-ray intensity produced by the Castle Romeo and Union nuclear explosions at late times (U)
70. PERSONAL AUTHOR(M) Watt, B.E. (comp.)
710. CORPORATE SOURCE Los Alamos National Lab., NM (USA)
371. PUB. DATE(YYMMDD) 840200
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT During Operation Castle measurements of the {gamma}-ray intensity versus time were made on the Bravo, Romeo, and Union shots. For the Romeo shot, data are reported for the time range 0.1 ms to 30 s at a distance of 1.954 km. For the Union shot, data are reported for the time range 0.03 ms to 2 s at a distance of 2.101 km. (U)
801. KEYWORD(S) ROMEO BURST/gamma spectra ;ROMEO BURST/blast measurements ;UNION BURST/gamma spectra ;UNION BURST/blast measurements ;GAMMA DETECTION; INSTRUMENTATION; RADIATION DOSES;DOSE RATES;TIME DEPENDENCE

Item 35

150. REPORT NUMBER UCID--5010
110. PRIMARY TITLE(M) Fireball ablation
70. PERSONAL AUTHOR(M) Wainwright, T.
710. CORPORATE SOURCE Lawrence Livermore National Lab., CA (USA)
371. PUB. DATE(YYMMDD) 630603
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT

801. KEYWORD(S)

Item 36

150. REPORT NUMBER LA--9819(Vol.1)
110. PRIMARY TITLE(M) Optical atmospheric emissions excited by nuclear devices and their diagnostic applications. Volume I. Historical-technical review (U)
70. PERSONAL AUTHOR(M) Hoerlin, H.
710. CORPORATE SOURCE Los Alamos National Lab., NM (USA)
371. PUB. DATE(YYMMDD) 840800
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT None
801. KEYWORD(S) OPTICAL DETECTION/reviews ;TELLER LIGHT/reviews ; ATMOSPHERIC BURSTS/teller light ;TRINITY BURST/teller light ; GEORGE BURST/teller light ;HUSKY PUP BURST/alpha measurements ;TEAK BURST/teller light ;FLATHEAD BURST/teller light ;STARFISH BURST/teller light ;KING FISH BURST/teller light ; BLUE GILL BURST/teller light ; REVIEWS;AIR; FLUORESCENCE

Item 37

150. REPORT NUMBER WASH--406(Rev.)
110. PRIMARY TITLE(M) Radiostrontium fallout: Project Sunshine
70. PERSONAL AUTHOR(M) Libby, W.F.
710. CORPORATE SOURCE USAEC, Washington, DC
371. PUB. DATE(YYMMDD) 560700
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT Analyses of soils, gummed paper fallout samples, rain samples, air filter samples, animal bodies, milk and cheese, and human bodies have been used to deduce a mechanism for the dissemination of Sr{sup 90} over the world's surface and into the biosphere. The average storage time in the stratosphere appears to be about ten years +- 5 years. The total Sr{sup 90} put in the stratosphere to date amounts to some 12 millicuries (mc) of Sr{sup 90}/mi/sup 2/, if spread uniformly over the earth's surface. In the United States, the average total deposit appears to be higher at about 13 mc of Sr{sup 90}/mi/sup 2/, the increase being due to the Nevada tests. The stratospheric fallout seems to be relatively

uniform over the entire surface of the earth, with some tendency to peak at equatorial latitudes, and some tendency to concentrate in regions of high rainfall. After deposition, the Sr{sup 90} enters the soil and is assimilated by the plants. In addition, plants gain a considerable fraction of the precipitated radiostrontium by assimilation from the surface of the leaves. Sr{sup 90} is found largely in the animal skeleton. At the end of 1955, the average soil in the latitudes 0{sup 0} to 50{sup 0}N is expected to show an assay of about 5 Sunshine Units (11 dpm/g Ca), while about 3.5 is expected elsewhere, the average soil being taken to contain 20 g of Ca/ft/sup 2/ in the top 2.5 inches in forms available for plant assimilation. Human bones were generally found to contain somewhat less than 1 Sunshine Unit. The ratio of Sr{sup 90} to Ca in the bones of grazing animals, such as cattle and sheep, ran higher in many instances, rising to 20 or 30 times those in humans. Milk products showed assays of 1 to 5 Sunshine Units. It is to be noted that radiostrontium constitutes comparatively little genetic hazard because it is located largely in the skeletal structure.

801. KEYWORD(S) STRONTIUM 90/environmental studies ;STRONTIUM 90/uptake ;SOILS/radionuclide kinetics ;SUNSHINE/reviews ;SKELETON/radionuclide kinetics ;FOOD/radioactive contamination ;MILK/radioactive contamination ;WATER SUPPLIES/radioactive contamination ;CATTLE/radionuclide kinetics ;SHEEP/radionuclide kinetics ;DOMESTIC ANIMALS/radionuclide kinetics ;MAN/radionuclide kinetics ; ATMOSPHERIC BURSTS/atomic cloud rise ; ATMOSPHERIC BURSTS/fallout ; ANTARCTICA/fallout ;EARTH PLANET/fallout ;USA/fallout ;FALLOUT/environmental studies ;FALLOUT/uptake ;LAKES/radioactive contamination ;RIVERS/radioactive contamination ;CASTLE/fallout ; WASHINGTON DC/fallout ;PLANTS/radionuclide kinetics ; FOOD CHAINS/radionuclide kinetics ;UPTAKE;RADIONUCLIDE MIGRATION;SOILS;ATMOSPHERE;SUNSHINE;SKELETON;FOOD;MILK; CATTLE;SHEEP;MAN;FALLOUT;HEIGHT OF BURST;SNOW;USA;RAIN; LAKES;RIVERS;CASTLE; STRATOSPHERE;RUNT II;ZOMBIE;PLANTS

Item 38

150. REPORT NUMBER WT--1366
110. PRIMARY TITLE(M) Radiological safety. Operation Redwing - Pacific Proving Grounds, May-July 1956
70. PERSONAL AUTHOR(M) Jacks, G.L.
710. CORPORATE SOURCE Los Alamos Scientific Lab., NM (USA)
371. PUB. DATE(YYMMDD) 570500
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT This report contains a description of the mission,

organization, and activities of Task Unit 7, Task Group 7.1, Joint Task Force SEVEN, during Operation Redwing. Task Unit 7 was charged with the responsibility of providing radiological-safety support for the Scientific Task Group, TG 7.1. The various chapters are devoted to a discussion of the activities engaged in by the Task Unit and the organization necessary to provide adequate radiological-safety support for a weapons-test operation of the magnitude of Operation Redwing. Radiological-survey results of the atolls following firing of the various devices are presented. Special problems arising during the operation are discussed.

801. KEYWORD(S) REDWING/radiation monitoring ;REDWING/personnel monitoring ;ENIWETOK PROVING GROUND/radiation monitoring ;ENIWETOK/radiation monitoring ;ENIWETOK/fallout ; BIKINI/radiation monitoring ;BIKINI/fallout ; PLUTONIUM/radiation accidents ;REDWING; SAFETY;PERSONNEL; ENIWETOK;FALLOUT;RADIOACTIVE CONTAMINATION;RADIATION DOSES;BIKINI;PLUTONIUM; RADIATION HAZARDS

Item 39

150. REPORT NUMBER LA--7815-MS
110. PRIMARY TITLE(M) Two-dimensional calculations of KING and KING-like nuclear explosions (U)
70. PERSONAL AUTHOR(M) Horak, H.G.; Jones, E.M.; Kodis, J.W.; Whitaker, R.W.
710. CORPORATE SOURCE Los Alamos Scientific Lab., NM (USA)
371. PUB. DATE(YYMMDD) 790700
34. CLASSIF. LEVEL TEXT Confidential
950. ABSTRACT Five KING-simulation calculations were carried out on digital computers with 2D radiation-hydrodynamic code SN-YAQUI using the KING yield (540 kt) at altitudes 0, 124, 248, 450 (event), and 1000 m. The 1000-m KING fireball interacts only mildly with the ground-reflected shock, and evolves into a normal torus structure by 10s. The 450-m KING has a more intense interaction, which creates an exceptionally prominent skirt. The 124- and 248-m fireballs develop reverse vortices and hug the ground for some time. The 124-m KING also forms a very luminous Mach stem. The surface KING stays on the ground for {approx_equal} 5 s, and then rises; a normal torus is seen by {approx_equal} 15 s. The time of appreciable fireball flattening, and the times of minimum and second maximum are height-of-burst dependent quantities. (U)

801. KEYWORD(S) BALL OF FIRE/two-dimensional calculations ; ATMOSPHERIC BURSTS/two-dimensional calculations ;KING BURST/two-dimensional calculations ;ENIWETOK;SIMULATION; HEIGHT OF BURST;GROUND COUPLING;SHOCK WAVES;REFLECTION

Item 40

150. REPORT NUMBER UCRL--5306
110. PRIMARY TITLE(M)

70. PERSONAL AUTHOR(M) Stone, R.G.
710. CORPORATE SOURCE California Univ., Livermore (USA). Lawrence Radiation Lab.
371. PUB. DATE(YYMMDD) 580800
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT

801. KEYWORD(S)

Item 41

150. REPORT NUMBER UCRL--5027
110. PRIMARY TITLE(M) Correlation of fractionation phenomena in the Tewa event of Operation Redwing; suggestion for the control of fractionation
70. PERSONAL AUTHOR(M) Stevenson, P.C.
710. CORPORATE SOURCE California Univ., Livermore (USA). Lawrence Radiation Lab.
371. PUB. DATE(YYMMDD) 571121
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT The radiochemical samples recovered from the Tewa event of Operation Redwing exhibited extreme fractionation. Fractionation phenomena displayed by the various species have been successfully correlated and a mathematical model describing the behavior of the system is presented. A mechanism is proposed for fractionation of airborne particulate debris and a suggestion for

avoiding the adverse effect of fractionation on radiochemical diagnostics is presented.
801. KEYWORD(S) TEWA BURST/fractionation-wd ;TEWA BURST/diagnostic experiments ;FRACTIONATION-WD/;FRACTIONATION-WD

Item 42

150. REPORT NUMBER UCRL--4145
110. PRIMARY TITLE(M) Monthly progress report No. 10, period to June 30, 1953
710. CORPORATE SOURCE California Univ., Livermore (USA). Lawrence Radiation Lab.
371. PUB. DATE(YYMMDD) 530715
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT Brief statements on diagnostic studies for Castle, Ramrod and Morgenstern, theoretical studies for Ramrod, subcritical assembly tests, cryogenics, basic detection development, Upshot test interpretation, nuclear chemistry, analytical chemistry, health chemistry and physics, and nuclear physics.
801. KEYWORD(S) CASTLE/;MORGENSTERN/;RAMROD/; UPSHOT-KNOTHOLE/; CASTLE;MORGENSTERN;RAMROD;DIAGNOSTIC EXPERIMENTS; CRYOGENICS

Item 43

150. REPORT NUMBER UCRL--4127
110. PRIMARY TITLE(M) Monthly progress report No. 9, period to May 31, 1953
710. CORPORATE SOURCE California Univ., Livermore (USA). Lawrence Radiation Lab.
371. PUB. DATE(YYMMDD) 530612
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT Brief statements on Upshot tests, Exploding Water Boiler, photography, diagnostic studies on Castle and Ramrod Shot and Morgenstern, cryogenics, sub-critical assembly, mechanical engineering problems, electronics, theoretical studies, chemistry, accelerators, and controlled thermonuclear reactions.
801. KEYWORD(S) CASTLE/;EXPLODING WATER BOILER/;MORGENSTERN/; RAMROD/;THERMONUCLEAR REACTIONS/;KEG CODE/;RUM CODE/; CASTLE;MORGENSTERN;RAMROD;DIAGNOSTIC EXPERIMENTS

Item 44

150. REPORT NUMBER UCRL--4106
110. PRIMARY TITLE(M) Monthly progress report No. 8, period to April 30, 1953
710. CORPORATE SOURCE California Univ., Livermore (USA). Lawrence Radiation Lab.

371. PUB. DATE(YYMMDD) 530515
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT Preliminary experimental data are given from Hydride I and Hydride II of the Upshot tests. Included also are brief statements on photography, diagnostic studies on Castle and Ramrod and Morgenstern Shots, design of Ramrod, cryogenics, sub-critical assembly, mechanical engineering problems, electronics, health physics, accelerators, and controlled thermonuclear reactions.
801. KEYWORD(S) UPSHOT-KNOTHOLE/;HYDRIDE I/;HYDRIDE II/;CASTLE/; RUNT/;THERMONUCLEAR REACTIONS/;UPSHOT-KNOTHOLE;CASTLE; RUNT;DIAGNOSTIC EXPERIMENTS

Item 45

150. REPORT NUMBER UCRL--4080
110. PRIMARY TITLE(M) Monthly progress report No. 6, period to February 28, 1953
710. CORPORATE SOURCE California Univ., Livermore (USA). Lawrence Radiation Lab.
371. PUB. DATE(YYMMDD) 530331
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT Brief statements of progress of work on controlled thermonuclear reactions, accelerators, sub-critical assembly, Univac, diagnostic studies with Upshot, Castle, and Ramrod, cryogenics, health physics, electronics, mechanical engineering, and photography.
801. KEYWORD(S) THERMONUCLEAR REACTIONS/;UPSHOT-KNOTHOLE/; MORGENSTERN/;RAMROD/; CASTLE/;BANAL CODE/; UPSHOT-KNOTHOLE;MORGENSTERN;RAMROD;DIAGNOSTIC EXPERIMENTS

Item 46

150. REPORT NUMBER UCID--4262
110. PRIMARY TITLE(M)

70. PERSONAL AUTHOR(M) Wainwright, T.
710. CORPORATE SOURCE California Univ., Livermore (USA). Lawrence Radiation Lab.
371. PUB. DATE(YYMMDD) 580428
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT

801. KEYWORD(S)

Item 47

150. REPORT NUMBER UCID--4233
110. PRIMARY TITLE(M) Preliminary report on the Hardtack Hickory experiment (U)
70. PERSONAL AUTHOR(M) Lindsay, W.F.; Lauzon, A.; McMaster, W.
710. CORPORATE SOURCE California Univ., Livermore (USA). Lawrence Radiation Lab.
371. PUB. DATE(YYMMDD) 580802
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT

801. KEYWORD(S)

Item 48

150. REPORT NUMBER UCID--4232
110. PRIMARY TITLE(M) Preliminary report on Hardtack Nutmeg experiment (U)
70. PERSONAL AUTHOR(M) Lindsay, W.F.
710. CORPORATE SOURCE California Univ., Livermore (USA). Lawrence Radiation Lab.
371. PUB. DATE(YYMMDD) 580701
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT

801. KEYWORD(S)

Item 49

150. REPORT NUMBER UCID--4294
110. PRIMARY TITLE(M) Operation Castle. Composite yields. Radiochemistry ratios and efficiencies. Finalized as of April 1, 1959 (U)
70. PERSONAL AUTHOR(M) Gibbins, W.D.
710. CORPORATE SOURCE California Univ., Livermore (USA). Lawrence Radiation Lab.

371. PUB. DATE(YYMMDD) 590430
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT None
801. KEYWORD(S) CASTLE/yield ;CASTLE/radiochemical analysis ;KOON BURST/yield ;KOON BURST/radiochemical analysis ;CASTLE; YIELD

Item 50

150. REPORT NUMBER UCID--4292
110. PRIMARY TITLE(M) Operation Redwing. Composite yields. Radiochemisry ratios and efficiencies. Finalized as of April 1, 1959 (U)
70. PERSONAL AUTHOR(M) Gibbins, W.D.
710. CORPORATE SOURCE California Univ., Livermore (USA). Lawrence Radiation Lab.
371. PUB. DATE(YYMMDD) 590430
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT None
801. KEYWORD(S) APACHE BURST/yield ;APACHE BURST/radiochemical analysis ;INCA BURST/yield ;INCA BURST/radiochemical analysis ;KICKAPOO BURST/yield ;KICKAPOO BURST/radiochemical analysis ;MOHAWK BURST/yield ;MOHAWK BURST/radiochemical analysis ; REDWING/yield ; REDWING/radiochemical analysis ;TEWA BURST/yield ;TEWA BURST/radiochemical analysis ;YUMA BURST/yield ;YUMA BURST/radiochemical analysis ;ZUNI BURST/yield ;ZUNI BURST/radiochemical analysis ;YIELD

Item 51

150. REPORT NUMBER UCID--4290
110. PRIMARY TITLE(M) Operation hardtack-Phase I. Composite yields. Radiochemistry ratios and efficiencies. Finalized as of April 1, 1959 (U)
70. PERSONAL AUTHOR(M) Gibbins, W.D.
710. CORPORATE SOURCE California Univ., Livermore (USA). Lawrence Radiation Lab.
371. PUB. DATE(YYMMDD) 590430
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT None
801. KEYWORD(S) ASPEN BURST/yield ;ASPEN BURST/radiochemical analysis ;CEDAR BURST/yield ;CEDAR BURST/radiochemical analysis ;DOGWOOD BURST/yield ;DOGWOOD BURST/radiochemical analysis ;FIG BURST/yield ;FIG BURST/radiochemical analysis ;FIR BURST/yield ;FIR BURST/radiochemical analysis ;HARDTACK/yield ; HARDTACK/radiochemical analysis ;HICKORY BURST/yield ; HICKORY BURST/radiochemical analysis ;JUNIPER BURST/yield ;JUNIPER BURST/radiochemical analysis ;MAPLE

BURST/yield ;MAPLE BURST/radiochemical analysis ; NUTMEG BURST/yield ; NUTMEG BURST/radiochemical analysis ;OLIVE BURST/yield ;OLIVE BURST/radiochemical analysis ;PINE BURST/yield ;PINE BURST/radiochemical analysis ;POPLAR BURST/yield ;POPLAR BURST/radiochemical analysis ; QUINCE BURST/yield ; QUINCE BURST/radiochemical analysis ;REDWOOD BURST/yield ;REDWOOD BURST/radiochemical analysis ;SYCAMORE BURST/yield ;SYCAMORE BURST/radiochemical analysis ;YIELD;HARDTACK

Item 52

150. REPORT NUMBER EGG--1517
110. PRIMARY TITLE(M) Redwing-Tewa fireball yield calculations. Project 23.1. Preliminary report
710. CORPORATE SOURCE Edgerton, Germeshausen and Grier, Inc., Boston, MA (USA)
371. PUB. DATE(YYMMDD) 561005
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT Preliminary analysis indicated a yield of 4.6 +- 0.2 mt.
801. KEYWORD(S) TEWA BURST/ball of fire ;TEWA BURST/yield ;YIELD

Item 53

150. REPORT NUMBER EGG--1516
110. PRIMARY TITLE(M) Redwing-Navajo fireball yield calculations. Project 15.1. Preliminary report
710. CORPORATE SOURCE Edgerton, Germeshausen and Grier, Inc., Boston, MA (USA)
371. PUB. DATE(YYMMDD) 561002
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT Preliminary analysis indicated a yield of 4.41 +- 0.22 mt.
801. KEYWORD(S) NAVAHO BURST/ball of fire ;NAVAHO BURST/yield ; YIELD

Item 54

150. REPORT NUMBER EGG--1511
110. PRIMARY TITLE(M) Redwing-Apache fireball yield calculations. Project 23.1. Preliminary report
710. CORPORATE SOURCE Edgerton, Germeshausen and Grier, Inc., Boston, MA (USA)
371. PUB. DATE(YYMMDD) 560919
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT Preliminary yield as determined by fireball analysis was 1.85 +- 0.10 mt.
801. KEYWORD(S) APACHE BURST/ball of fire ;APACHE BURST/yield ; YIELD

Item 55

150. REPORT NUMBER EGG--1508
110. PRIMARY TITLE(M) Redwing-Mohawk fireball yield calculations. Project 23.1. Preliminary report
710. CORPORATE SOURCE Edgerton, Germeshausen and Grier, Inc., Boston, MA (USA)
371. PUB. DATE(YYMMDD) 560907
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT Preliminary fireball analysis indicates a yield of 340 +- 17 kt.
801. KEYWORD(S) MOHAWK BURST/ball of fire ;MOHAWK BURST/yield ; YIELD

Item 56

150. REPORT NUMBER EGG--1504
110. PRIMARY TITLE(M) Redwing-Dakota fireball yield calculations. Project 15.1. Preliminary report
710. CORPORATE SOURCE Edgerton, Germeshausen and Grier, Inc., Boston, MA (USA)
371. PUB. DATE(YYMMDD) 560829
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT Preliminary fireball analysis indicates a yield of 1.09 +- 0.05 mt.
801. KEYWORD(S) DAKOTA BURST/ball of fire ;DAKOTA BURST/yield ; YIELD

Item 57

150. REPORT NUMBER WT--9005
110. PRIMARY TITLE(M) Observation and analysis of sounds refracted from the ozonosphere from operations Redwing, Plumbbob, and Hardtack. General report on weapons tests
70. PERSONAL AUTHOR(M) Reed, J.W.; Church, H.W.
710. CORPORATE SOURCE Sandia Corp., Albuquerque, NM (USA)
371. PUB. DATE(YYMMDD) 591000
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT Blast waves from explosions are ducted and refracted back to ground by a high-temperature stratum near 50-kilometer altitudes. Recordings of sounds from atomic tests have been analyzed to show temperatures and winds near the top of the duct which are necessary to give observed sound patterns. Results show temperatures between 30 and 50 kilometers in Nevada must be 30 to 50 degrees Centigrade higher than observed by rocketry techniques. Temperatures in the Eniwetok area are about 20 degrees Centigrade cooler than in Nevada. Several possible reasons for this discrepancy have been reviewed

but no explanation has been found. Acoustic temperatures are shown to give an atmospheric model which agrees with satellite-density measurements at much higher altitudes. Acoustic upper winds are in fair agreement with winds measured by other means. Blast-pressure amplitudes at ranges to 300 miles are reported and scaling rules are given.

801. KEYWORD(S) REDWING/blast measurements ;PLUMBBOB/blast measurements ;HARDTACK/blast measurements ;REDWING; PLUMBBOB;HARDTACK;BLAST WAVES;SOUND TRANSMISSION

Item 58

150. REPORT NUMBER WT--9004
110. PRIMARY TITLE(M) External neutron measurements 1946 through 1956 (U)
70. PERSONAL AUTHOR(M) Biggers, W.A.; Waddell, F.
710. CORPORATE SOURCE Los Alamos Scientific Lab., NM (USA)
371. PUB. DATE(YYMMDD) 570300
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT This report summarizes field data on neutron threshold detector measurements taken by LASL Group J-12 from Operation Crossroads through Operation Redwing. (U)
801. KEYWORD(S) UPSHOT-KNOTHOLE/neutron measurements ; TEAPOT/neutron measurements ;TUMBLER-SNAPPER/neutron measurements ;SANDSTONE/neutron measurements ; REDWING/neutron measurements ;RANGER/neutron measurements ;JANGLE/neutron measurements ;IVY/neutron measurements ;GREENHOUSE/neutron measurements ; CROSSROADS/neutron measurements ;CASTLE/neutron measurements ;BUSTER/neutron measurements ; UPSHOT-KNOTHOLE;TEAPOT;TUMBLER-SNAPPER;SANDSTONE;REDWING; RANGER;JANGLE;IVY;GREENHOUSE;CROSSROADS;CASTLE;BUSTER

Item 59

150. REPORT NUMBER UCRL--6650
110. PRIMARY TITLE(M) Monthly progress report to Division of Military Application: No. 87 (U)
710. CORPORATE SOURCE California Univ., Livermore (USA). Lawrence Radiation Lab.
371. PUB. DATE(YYMMDD) 610900
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT

801. KEYWORD(S) WEAPON 56-1/;WEAPON 55/;WEAPON 50-1/;WEAPON 48/; WEAPON 47/;WEAPON 45/;WEAPON 38/;BLUEJAY/;HEDGEHOG/; NOUGAT/;GNOME BURST/; GEORGE BURST/;CHENA BURST/;CHARIOT BURST/; SNEGG CODE/;URANIUM ALLOYS/;ZIRCONIUM ALLOYS/; MOLYBDENUM ALLOYS/;BLUEJAY;HEDGEHOG;PHONEX;NOUGAT;GANEX; ANTLER BURST;RADIATION FLOW;BERYLLIUM;PITS

Item 60

150. REPORT NUMBER UCRL--4800
110. PRIMARY TITLE(M)

70. PERSONAL AUTHOR(M) Myers, W.B.; Stone, R.G.
710. CORPORATE SOURCE California Univ., Livermore (USA). Lawrence Radiation Lab.
371. PUB. DATE(YYMMDD) 570114
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT

801. KEYWORD(S)

Item 61

150. REPORT NUMBER UCRL--4799
110. PRIMARY TITLE(M)

70. PERSONAL AUTHOR(M) Stone, R.G.
710. CORPORATE SOURCE California Univ., Livermore (USA). Lawrence Radiation Lab.
371. PUB. DATE(YYMMDD) 570107
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT

801. KEYWORD(S)

Item 62

150.	REPORT NUMBER	UCRL--4788
110.	PRIMARY TITLE(M)	
70.	PERSONAL AUTHOR(M)	Stone, R.G.
710.	CORPORATE SOURCE	California Univ., Livermore (USA). Lawrence Radiation Lab.
371.	PUB. DATE(YYMMDD)	561211
34.	CLASSIF. LEVEL TEXT	Secret
950.	ABSTRACT	

801. KEYWORD(S)

Item 63

150. REPORT NUMBER UCRL--4774
110. PRIMARY TITLE(M)

70. PERSONAL AUTHOR(M) Stone, R.G.
710. CORPORATE SOURCE California Univ., Livermore (USA). Lawrence Radiation Lab.
371. PUB. DATE(YYMMDD) 561128
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT

801. KEYWORD(S)

Item 64

150. REPORT NUMBER UCRL--4681
110. PRIMARY TITLE(M) Redwing preoperational report. Program 22.1 - reaction history measurements
70. PERSONAL AUTHOR(M) Wouters, L.F.
710. CORPORATE SOURCE California Univ., Livermore (USA). Lawrence Radiation Lab.
371. PUB. DATE(YYMMDD) 560100
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT

801. KEYWORD(S)

Item 65

150. REPORT NUMBER UCRL--4532
110. PRIMARY TITLE(M) Preliminary report on the Bassoon experiment for Redwing
70. PERSONAL AUTHOR(M) May, M.M.
710. CORPORATE SOURCE California Univ., Livermore (USA). Lawrence Radiation Lab.
371. PUB. DATE(YYMMDD) 550630
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT The aims, applications, design features, operational characteristics, and diagnostic plans for the Bassoon device of Operation Redwing, as envisioned at this date, are outlined.
801. KEYWORD(S) BASSOON/design ;BASSOON/testing ; REDWING/diagnostic experiments ;BASSOON;DESIGN;TESTING; REDWING; PLANNING

Item 66

150. REPORT NUMBER WT--111
110. PRIMARY TITLE(M) Part II - evaluation of programs 3 to 6 and 8. Volume II of scientific director's report of atomic weapon tests at Eniwetok, 1951. Operation Greenhouse
710. CORPORATE SOURCE Los Alamos Scientific Lab., NM (USA)
371. PUB. DATE(YYMMDD) 530400
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT This report is an evaluation of the following Greenhouse Programs: Program 3, Blast Damage to Structures; Program 4, Cloud Physics; Program 5, Radiological Instruments Evaluation; Program 6, Physical Tests and Measurements; and Program 8, Aircraft Damage and Radio, Radar, and Photographic Studies.
801. KEYWORD(S) AIRCRAFT/blast damage ;GREENHOUSE/effects experiments ;STRUCTURES/blast damage ;AIRCRAFT; GREENHOUSE; RADIATION DETECTORS;STRUCTURES

Item 67

150.	REPORT NUMBER	WT--73
110.	PRIMARY TITLE(M)	Sandia Corporation proving ground group. Part II. Mechanical assembly. Annex 9.2 [of] scientific director's report of atomic weapon tests at Eniwetok, 1951. Operation Greenhouse
70.	PERSONAL AUTHOR(M)	Knapp, R.A.
710.	CORPORATE SOURCE	Sandia Corp., Albuquerque, NM (USA)
371.	PUB. DATE(YYMMDD)	510800
34.	CLASSIF. LEVEL TEXT	Secret
950.	ABSTRACT	

801. KEYWORD(S)

Item 68

150.	REPORT NUMBER	WT--68
110.	PRIMARY TITLE(M)	Neutron measurements. Part II. Spectrum and air attenuation static measurements. Section 2. Neutron-spectra measurements. Annex 1.5 of scientific director's report of atomic weapon tests at Eniwetok, 1951. Operation Greenhouse
70.	PERSONAL AUTHOR(M)	Allred, J.C.
710.	CORPORATE SOURCE	Los Alamos Scientific Lab., NM (USA)
371.	PUB. DATE(YYMMDD)	520100
34.	CLASSIF. LEVEL TEXT	Secret
950.	ABSTRACT	

801. KEYWORD(S) DOG BURST/neutron measurements ;EASY BURST/neutron measurements ;GREENHOUSE DIAGNOSTIC EXPERIMENTS/;GEORGE BURST/neutron measurements ;ITEM BURST/neutron measurements ;PHONEX/;NEUTRON SPECTRA;PHONEX; PHOTOGRAPHIC EMULSIONS;NEUTRON DETECTORS

Item 69

150. REPORT NUMBER WT--67
110. PRIMARY TITLE(M) Part I, Engineering. Section B. Weapon Towers. Annex 9.2 [of] scientific director's report of atomic weapon tests at Eniwetok, 1951. Operation Greenhouse
70. PERSONAL AUTHOR(M) Schultz, R.H.; Treibel, W.E.
710. CORPORATE SOURCE Sandia Corp., Albuquerque, NM (USA)
371. PUB. DATE(YYMMDD) 510900
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT This report describes the activities of Task Unit 3.1.4 in connection with the zero towers at Eniwetok during Operation Greenhouse. Only the functional aspects of these towers are discussed. In general, the towers as erected were functionally satisfactory, requiring only minor modifications after field inspections by TU 3.1.4. Photographs of the towers are included in the report.
801. KEYWORD(S) GREENHOUSE/weapon towers ;WEAPON TOWERS/; GREENHOUSE

Item 70

150. REPORT NUMBER WT--52
110. PRIMARY TITLE(M) Sandia Corporation Proving Ground group. Part III. Fuzing and firing activities. Annex 9.2 [of] scientific director's report of atomic weapon tests at Eniwetok, 1951. Operation Greenhouse
70. PERSONAL AUTHOR(M) Cotter, D.R.
710. CORPORATE SOURCE Sandia Corp., Albuquerque, NM (USA)

371. PUB. DATE(YYMMDD) 511200
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT

801. KEYWORD(S)

Item 71

150. REPORT NUMBER WT--51
110. PRIMARY TITLE(M) Measurement of x rays. Part III. Engineering aspects. Annex 1.8 [of] scientific director's report of atomic weapon tests at Eniwetok, 1951. Operation Greenhouse
70. PERSONAL AUTHOR(M) Bradner, H.
710. CORPORATE SOURCE California Univ., Berkeley (USA). Lawrence Radiation Lab.
371. PUB. DATE(YYMMDD) 510900
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT The engineering details of the equipment used in the x-ray measurements of George and Easy Bursts are described. The details discussed are: (1) weapon position on the tower, (2) vacuum systems, (3) primary collimators, (4) shadow shields, (5) blockhouse, (6) detector tanks and radiation traps, (7) fluorescer foils, (8) shovels, (9) storage condensers and flexible lines, (10) triggers, (11) recording stations, (12) photography, (13) electronics, and (14) cable shielding. The primary effort of the project was the x-ray measurements of George Burst. The secondary effort involved Easy Burst, and the objective was to make background measurements

that would be applicable to George Burst. For this reason, the emphasis of Chapter 2 is on those details which are different from these described in Chapter 1. Photographs, schematic diagrams, and installation drawings of the various equipment are included in the report.

801. KEYWORD(S) EASY BURST/diagnostic experiments ;GEORGE BURST/diagnostic experiments ;X-RAY EXPERIMENT-GREENHOUSE/;GREENHOUSE DIAGNOSTIC EXPERIMENTS; RADIATION FLOW;X RADIATION

Item 72

150. REPORT NUMBER WT--50
110. PRIMARY TITLE(M) Cryogenics. Annex 1.10 of scientific director's report of atomic weapon tests at Eniwetok, 1951. Operation Greenhouse
70. PERSONAL AUTHOR(M) Potts, J.C.
710. CORPORATE SOURCE Los Alamos Scientific Lab., NM (USA)
371. PUB. DATE(YYMMDD) 511100
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT

801. KEYWORD(S)

Item 73

150. REPORT NUMBER WT--39
110. PRIMARY TITLE(M) Part VI. Task unit 3.1.4 photography. Part VII. Task unit 3.1.4 logistics. Part VIII. Task unit 3.1.4 administration. Annex 9.2 [of] scientific director's report of atomic weapon tests at Eniwetok, 1951. Operation Greenhouse
710. CORPORATE SOURCE Sandia Corp., Albuquerque, NM (USA)
371. PUB. DATE(YYMMDD) 510800
34. CLASSIF. LEVEL TEXT Secret

950. ABSTRACT The photographic, logistic, and administrative operations of Task Unit 3.1.4 are presented.
801. KEYWORD(S) GREENHOUSE/administrative reports ;GREENHOUSE; COMMAND AND CONTROL;LOGISTICS

Item 74

150. REPORT NUMBER WT--21
110. PRIMARY TITLE(M) Part II. Evaluation of program 2. Volume II [of] scientific director's report of atomic weapon tests at Eniwetok, 1951. Operation Greenhouse
710. CORPORATE SOURCE Los Alamos Scientific Lab., NM (USA)
371. PUB. DATE(YYMMDD) 511200
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT An evaluation of the biomedical program of Operation Greenhouse is presented. Section 1 describes the planning and preparations for the field tests. The principal objectives are discussed briefly, and a theoretical basis for the design of the various experiments is presented. Section 2 contains an evaluation of the experimental data obtained at Eniwetok. The evaluation is presented on several levels: the adequacy of the experimentation, the reliability of the data for use in medical disaster planning, and the planning of future investigations. The over-all picture of the experimentation and the broad interpretation of the results are discussed.
801. KEYWORD(S) GREENHOUSE/effects experiments ;GREENHOUSE; MEDICINE;BIOLOGICAL RADIATION EFFECTS

Item 75

150. REPORT NUMBER EGG-B--1836
110. PRIMARY TITLE(M) Alpha calculations. Sequoia-Operation Hardtack. Project 13.1 (U)
710. CORPORATE SOURCE Edgerton, Germeshausen and Grier, Inc., Boston, MA (USA)
371. PUB. DATE(YYMMDD) 580721
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT None
801. KEYWORD(S) SEQUOIA BURST/alpha measurements

Item 76

150. REPORT NUMBER EGG-B--1833
110. PRIMARY TITLE(M) Alpha calculations. Elder-Operation Hardtack. Project 13.1 (U)
710. CORPORATE SOURCE Edgerton, Germeshausen and Grier, Inc., Boston, MA (USA)
371. PUB. DATE(YYMMDD) 580709

34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT None
801. KEYWORD(S) ELDER BURST/alpha measurements

Item 77

150. REPORT NUMBER EGG-B--1832
110. PRIMARY TITLE(M) Hardtack-Dogwood. Project 15.1. Fireball yield calculations
710. CORPORATE SOURCE Edgerton, Germeshausen and Grier, Inc., Boston, MA (USA)
371. PUB. DATE(YYMMDD) 580712
34. CLASSIF. LEVEL TEXT Confidential
950. ABSTRACT The fireball yield was 397 +- 10 kt.
801. KEYWORD(S) DOGWOOD BURST/ball of fire ;DOGWOOD BURST/yield ; YIELD

Item 78

150. REPORT NUMBER EGG-B--1831
110. PRIMARY TITLE(M) Hardtack-Cedar. Project 15.1. Fireball yield calculations
710. CORPORATE SOURCE Edgerton, Germeshausen and Grier, Inc., Boston, MA (USA)
371. PUB. DATE(YYMMDD) 580708
34. CLASSIF. LEVEL TEXT Confidential
950. ABSTRACT The average fireball yield was 220 +- 15 kt.
801. KEYWORD(S) CEDAR BURST/ball of fire ;CEDAR BURST/yield ;YIELD

Item 79

150. REPORT NUMBER EGG-B--1830
110. PRIMARY TITLE(M) Hardtack-Sequoia. Project 15.1. Fireball yield calculations
710. CORPORATE SOURCE Edgerton, Germeshausen and Grier, Inc., Boston, MA (USA)
371. PUB. DATE(YYMMDD) 580707
34. CLASSIF. LEVEL TEXT Confidential
950. ABSTRACT The fireball yield was 5.57 +- 0.35 kt.
801. KEYWORD(S) SEQUOIA BURST/ball of fire ;SEQUOIA BURST/yield ; YIELD

Item 80

150. REPORT NUMBER EGG-B--1829
110. PRIMARY TITLE(M) Hardtack-Hickory. Project 15.1. Fireball yield calculations
710. CORPORATE SOURCE Edgerton, Germeshausen and Grier, Inc., Boston, MA (USA)
371. PUB. DATE(YYMMDD) 580707

34. CLASSIF. LEVEL TEXT Confidential
950. ABSTRACT The fireball yield was 13.4 +- 0.4 kt.
801. KEYWORD(S) HICKORY BURST/ball of fire ;HICKORY BURST/yield ; YIELD

Item 81

150. REPORT NUMBER EGG-B--1827
110. PRIMARY TITLE(M) Alpha calculations. Linden-Operation Hardtack. Project 13.1 (U)
710. CORPORATE SOURCE Edgerton, Germeshausen and Grier, Inc., Boston, MA (USA)
371. PUB. DATE(YYMMDD) 580704
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT None
801. KEYWORD(S) LINDEN BURST/alpha measurements

Item 82

150. REPORT NUMBER EGG-B--1822
110. PRIMARY TITLE(M) Alpha calculations. Rose-Operation Hardtack. Project 13.1 (U)
710. CORPORATE SOURCE Edgerton, Germeshausen and Grier, Inc., Boston, MA (USA)
371. PUB. DATE(YYMMDD) 580620
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT None
801. KEYWORD(S) ROSE BURST/alpha measurements

Item 83

150. REPORT NUMBER EGG-B--1821
110. PRIMARY TITLE(M) Walnut-Hardtack. Project 15.1. Fireball yield calculations
710. CORPORATE SOURCE Edgerton, Germeshausen and Grier, Inc., Boston, MA (USA)
371. PUB. DATE(YYMMDD) 580620
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT The fireball yield was 1.43 +- 0.04 Mt.
801. KEYWORD(S) WALNUT BURST/ball of fire ;WALNUT BURST/yield ; YIELD

Item 84

150. REPORT NUMBER EGG-B--1820
110. PRIMARY TITLE(M) Aspen-Hardtack. Project 15.1. Fireball yield calculations
710. CORPORATE SOURCE Edgerton, Germeshausen and Grier, Inc., Boston, MA (USA)
371. PUB. DATE(YYMMDD) 580619

34. CLASSIF. LEVEL TEXT Confidential
950. ABSTRACT The fireball yield was 319 +- 8 kt.
801. KEYWORD(S) ASPEN BURST/ball of fire ;ASPEN BURST/yield ;YIELD

Item 85

150. REPORT NUMBER EGG-B--1819
110. PRIMARY TITLE(M) Alpha calculations. Tobacco-Operation Hardtack. Project 13.1 (U)
710. CORPORATE SOURCE Edgerton, Germeshausen and Grier, Inc., Boston, MA (USA)
371. PUB. DATE(YYMMDD) 580616
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT None
801. KEYWORD(S) TOBACCO BURST/alpha measurements

Item 86

150. REPORT NUMBER EGG-B--1818
110. PRIMARY TITLE(M) Alpha calculations. Magnolia-Operation Hardtack. Project 13.1 (U)
710. CORPORATE SOURCE Edgerton, Germeshausen and Grier, Inc., Boston, MA (USA)
371. PUB. DATE(YYMMDD) 580614
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT None
801. KEYWORD(S) MAGNOLIA BURST/alpha measurements

Item 87

150. REPORT NUMBER EGG-B--1817
110. PRIMARY TITLE(M) Hardtack-Maple. Project 15.1. Fireball yield calculations
710. CORPORATE SOURCE Edgerton, Germeshausen and Grier, Inc., Boston, MA (USA)
371. PUB. DATE(YYMMDD) 580613
34. CLASSIF. LEVEL TEXT Confidential
950. ABSTRACT The fireball yield was 204 +- 10 kt.
801. KEYWORD(S) MAPLE BURST/ball of fire ;MAPLE BURST/yield ;YIELD

Item 88

150. REPORT NUMBER EGG-B--1816
110. PRIMARY TITLE(M) Alpha calculations. Yellowwood-Operation Hardtack. Project 13.1 (U)
710. CORPORATE SOURCE Edgerton, Germeshausen and Grier, Inc., Boston, MA (USA)
371. PUB. DATE(YYMMDD) 580612
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT None

801. KEYWORD(S) YELLOWWOOD BURST/alpha measurements

Item 89

150. REPORT NUMBER EGG-B--1815
110. PRIMARY TITLE(M) Alpha calculations. Holly-Operation Hardtack. Project 13.1 (U)
710. CORPORATE SOURCE Edgerton, Germeshausen and Grier, Inc., Boston, MA (USA)
371. PUB. DATE(YYMMDD) 580610
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT None
801. KEYWORD(S) HOLLY BURST/alpha measurements

Item 90

150. REPORT NUMBER EGG-B--1814
110. PRIMARY TITLE(M) Hardtack-Tobacco. Project 15.1. Fireball yield calculations
710. CORPORATE SOURCE Edgerton, Germeshausen and Grier, Inc., Boston, MA (USA)
371. PUB. DATE(YYMMDD) 580609
34. CLASSIF. LEVEL TEXT Confidential
950. ABSTRACT The fireball yield was 12.8 +- 0.8 kt.
801. KEYWORD(S) TOBACCO BURST/ball of fire ;TOBACCO BURST/yield ; YIELD

Item 91

150. REPORT NUMBER ACFI--10-15-59
110. PRIMARY TITLE(M) HF backscatter studies of nuclear weapons tests, Hardtack Series (U)
70. PERSONAL AUTHOR(M) Whelan, W.T.
710. CORPORATE SOURCE ACF Industries, Inc., Riverdale, MD (USA)
371. PUB. DATE(YYMMDD) 591015
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT This report contains an account of the planning and conduct of a series of HF Backscatter experiments conducted by ACF Industries during the 1958 Hardtack Series and associated Nuclear Weapons tests. Certain activities of the Naval Air Test Center at Patuxent River, Maryland, during the test series are also listed. Contents of this report are restricted to the presentation of the collected data and approximate propagation parameters, together with limited editorial comment. A series of analytic papers, each devoted to a major phase of the test series, will follow shortly. 11 refs., 136 figs., 3 tabs.
801. KEYWORD(S) ORANGE BURST/ionospheric effects ;TEAK BURST/ionospheric effects ;YUCCA BURST/ionospheric

effects ;CACTUS BURST/ionospheric effects ;FIR BURST/ionospheric effects ;BUTTERNUT BURST/ionospheric effects ;KOA BURST/ionospheric effects ;WAHOO BURST/ionospheric effects ;HOLLY BURST/ionospheric effects ;NUTMEG BURST/ionospheric effects ;YELLOWWOOD BURST/ionospheric effects ; MAGNOLIA BURST/ionospheric effects ;TOBACCO BURST/ionospheric effects ;SYCAMORE BURST/ionospheric effects ;HARDTACK;PLANNING; BACKSCATTERING;RADAR REFLECTIONS

Item 92

150.	REPORT NUMBER	LA--9819-Vol.3
110.	PRIMARY TITLE(M)	Optical atmospheric emissions excited by nuclear devices and their diagnostic applications. Volume III. First Light (U)
70.	PERSONAL AUTHOR(M)	Hoerlin, H.
710.	CORPORATE SOURCE	Los Alamos National Lab., NM (USA)
371.	PUB. DATE(YYMMDD)	850800
34.	CLASSIF. LEVEL TEXT	Secret
950.	ABSTRACT	

801. KEYWORD(S) ATMOSPHERE/fluorescence ;ATMOSPHERE;FLUORESCENCE; DAKOTA BURST;TELLER LIGHT;STREAK PHOTOGRAPHY;OWENS BURST; HOOD BURST;BRIGHTNESS;VISIBLE RADIATION;OPTICAL DETECTION;DIAGNOSTIC EXPERIMENTS

Item 93

150. REPORT NUMBER LA--10194-SR
110. PRIMARY TITLE(M) Output calculations and related activities funded by the Defense Nuclear Agency. Status report, October 1, 1978-September 30, 1980 (U)
70. PERSONAL AUTHOR(M) Henderson, M.; Gordon, J.W.; Lilley, J.R.; Streetman, J.R.; Rich, M.; Whalen, P.P.; Hwang, C.F.; Sarracino, J.; Hoffman, N.M.
710. CORPORATE SOURCE Los Alamos National Lab., NM (USA)
371. PUB. DATE(YYMMDD) 850700
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT The status of Defense Nuclear Agency (DNA) projects during this report period is summarized. DOE-funded projects of possible DNA interest are also discussed. Topics reviewed include: energy coupling and cratering; weapon output; weapon output work funded by DOE; transport studies funded by DOE; classification of oscilloscope traces; and the computing environment and data bases.
801. KEYWORD(S) CRATERING BURSTS/x-ray emission ;CRATERING BURSTS/temperature gradients ;ATOMIC WARHEADS/cratering bursts ;X-RAY EMISSION/computer calculations ; WILDCAT/x-ray emission ;UPSHOT-KNOTHOLE SIMON/neutron spectra ;UPSHOT-KNOTHOLE SIMON/gamma spectra ;AZTEC BURST/neutron spectra ;AZTEC BURST/gamma spectra ;WEAPON 50/neutron spectra ;WEAPON 50/gamma spectra ;WEAPON 33/fratricide ;FRATRICIDE/probability ;KING BURST/neutron spectra ;KING BURST/gamma spectra ; MAGNOLIA BURST/neutron spectra ;MAGNOLIA BURST/gamma spectra ;MX MISSILE;CONTACT BURSTS;SURFACE BURSTS; RADIATION HEATING;WILDCAT;FRATRICIDE;PROBABILITY;ENERGY COUPLING

Item 94

150. REPORT NUMBER SAND--85-7204/9
110. PRIMARY TITLE(M) Phenomena associated with high altitude nuclear detonations, Phase I. Appendix D. DASIAC catalog (U)
70. PERSONAL AUTHOR(M) Hoffman, M.M.; Shuster, D.B.
710. CORPORATE SOURCE Los Alamos Technical Associates, Inc., NM (USA)
371. PUB. DATE(YYMMDD) 850800
34. CLASSIF. LEVEL TEXT Confidential
950. ABSTRACT This report describes technical films, photographs

and spectrographs of the high-altitude nuclear weapon tests Bluegill, Checkmate, Kingfish, Orange, Starfish, Teak, Tightrope, and Yucca, which are available for inspection in the DNA Information and Analysis Center as of July 1971. The report is arranged alphabetically by shot and subarranged by the originator's data number. Data for each entry includes camera loading parameters, taken from the weapon test report whenever possible; number of data frames; time interval covered and the film formats currently available at DASIAC. Each entry has been reviewed for content and an abstract has been given.

801. KEYWORD(S) ATMOSPHERIC BURSTS/photography ;BLUE GILL BURST/photography ;CHECK MATE BURST/photography ;KING FISH BURST/photography ;ORANGE BURST/photography ; STARFISH BURST/photography ;TEAK BURST/photography ; TIGHT ROPE BURST/photography ;YUCCA BURST/photography ; PHOTOGRAPHY;HIGH ALTITUDE;CATALOGS

Item 95

150. REPORT NUMBER SAND--85-7204/10
110. PRIMARY TITLE(M) Phenomena associated with high altitude nuclear detonations, Phase I. Appendix E. HANE photos (U)
70. PERSONAL AUTHOR(M) Hoffman, M.M.; Shuster, D.B.
710. CORPORATE SOURCE Federal-State Land Use Planning Commission for Alaska, Anchorage (USA)
371. PUB. DATE(YYMMDD) 850800
34. CLASSIF. LEVEL TEXT Confidential
950. ABSTRACT Representative photos of US high altitude nuclear explosions are shown. (LTW)
801. KEYWORD(S) TEAK BURST/photography ;ORANGE BURST/photography ; STARFISH BURST/photography ;CHECK MATE BURST/photography ;BLUE GILL BURST/photography ;KING FISH BURST/photography ;ATMOSPHERIC BURSTS;HIGH ALTITUDE; IMAGES;PHOTOGRAPHY

Item 96

150. REPORT NUMBER SAND--85-7204/2
110. PRIMARY TITLE(M) Phenomena associated with high altitude nuclear detonation. Phase I. Appendix A. HANE data summary (U)
70. PERSONAL AUTHOR(M) Hoffman, M.M.; Shuster, D.B.
710. CORPORATE SOURCE Los Alamos Technical Associates, Inc., NM (USA)
371. PUB. DATE(YYMMDD) 850800
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT The detailed results of this project are summarized.
801. KEYWORD(S) TEAK BURST/data tabulations ;ORANGE BURST/data tabulations ;STARFISH BURST/data tabulations ;CHECK MATE

BURST/data tabulations ;BLUE GILL BURST/data tabulations ;KING FISH BURST/data tabulations ;TIGHT ROPE BURST/data tabulations ;FLORAL/data tabulations ;FLORAL;DATA BASE MANAGEMENT

Item 97

150. REPORT NUMBER XRD--226
110. PRIMARY TITLE(M) Geiger counter and ionization chamber telemetering
70. PERSONAL AUTHOR(M) Green, G.K.
710. CORPORATE SOURCE Joint Task Force One, Washington, DC (USA)
371. PUB. DATE(YYMMDD) 460730
34. CLASSIF. LEVEL TEXT Confidential
950. ABSTRACT Gamma radiation in the lagoon was telemetered by a 14-channel system using modified SCR-694 Army portable transmitters and Navy JM-4 sonobuoy transmitters, modulated by Geiger counters and ionization chambers. Receivers and recording equipment were on the USS AVERY ISLAND and the USS HAVEN. A number of excellent recordings were obtained showing radiation intensity at different locations in the lagoon as a function of time after the explosion. General information concerning the radiation levels at positions not approachable by monitors was made available to CJTF-1 before and during re-entry. Full analysis of the record and final calibration of some of the equipment will require several weeks.
801. KEYWORD(S) BAKER BURST/gamma dosimetry ;GEIGER-MUELLER COUNTERS;IONIZATION CHAMBERS;SEAWATER; GAMMA DETECTION; TARGET VESSELS;RADIATION MONITORING;RESIDUAL RADIATION; DECAY;PROMPT GAMMA RADIATION

Item 98

150. REPORT NUMBER UCRL--5367
110. PRIMARY TITLE(M) Handbook for United Nations observers, Pinon Test, Eniwetok (U)
710. CORPORATE SOURCE Lawrence Livermore National Lab., CA (USA)
371. PUB. DATE(YYMMDD) 590000
34. CLASSIF. LEVEL TEXT Confidential
950. ABSTRACT This report comprises a handbook which was intended to be used by technical representatives from the United Nations Scientific Committee on the Effects of Atomic Radiation during a demonstration of a low fission to fusion yield explosion at the Eniwetok Proving Grounds. The handbook includes the operational concept and detailed technical descriptions of the methods of measurement which were to be used to determine the total energy release and the fission energy release. The total energy release was to be

measured by rate of fireball growth measurements, and is described in the section entitled Fireball Determination of Total Yield prepared by Dr. Lewis Fussell of Edgerton, Germeshausen and Grier, Inc. The fission yield was to be determined by a radiochemical method and is described in Chapter III prepared by Dr. Roger Batzel of the University of California Radiation Laboratory. This demonstration shot, designated Pinon, was cancelled on July 26, 1958. However, because the techniques described here had not been published previously it was considered desirable to publish the handbook.

801. KEYWORD(S) PINON BURST/effects experiments ;MANUALS;RADIATION EFFECTS;BALL OF FIRE;YIELD;FISSION YIELD;ENIWETOK

Item 99

150. REPORT NUMBER UCRL--5510
110. PRIMARY TITLE(M) External neutron measurements. Operation Hardtack-Phase I (U)
70. PERSONAL AUTHOR(M) Gilbert, F.C.; Freden, S.C.
710. CORPORATE SOURCE California Univ., Livermore (USA). Lawrence Radiation Lab.
371. PUB. DATE(YYMMDD) 590306
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT

801. KEYWORD(S)

Item 100

150. REPORT NUMBER UCRL--5383
110. PRIMARY TITLE(M) Weapon development during October 1958: No. 52
710. CORPORATE SOURCE California Univ., Livermore (USA). Lawrence Radiation Lab.
371. PUB. DATE(YYMMDD) 581114
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT Items of special interest: calculation of equation of state for H and LiH systems based on proposed model for multicomponent ionized systems; preparation of B{sub

2}Cl{sub 4}; electron spin resonance of nitrobenzenes; freezing points, density, and viscosity in the Pu(NO{sub 3}){sub 4}-HNO{sub 3}-H{sub 2}O system; detonation velocity of nitromethanes; initiation of study of bistrinitroethylnitramine (BTNEN) and trinitroacetamide (TNAA); plate-denting of liquid explosives; nitromethane, nitropropane, toluene, xylene; Jonah development; fabrication of DATB; criticality measurements for Wendigo program; preliminary evaluation of Logan, Mars, Mazama, Rushmore, Hamilton, Humboldt, Vesta, Wrangell, Oberon, Sanford, Evans, Ganymede, Blanca, Neptune, and Titania events; neutron emission from Maple and Hickory events; design evaluation of Kinglet, Wren, Canary, Starling, Quail, Robin, Swan, and Seraph; development of TX-41, XW-47, and XW-51; underground sampling.

801. KEYWORD(S) WREN/;WEAPON 51/;WEAPON 47/;WEAPON 41/;SWAN/;KITE/; ROBIN/;QUAIL/;CANARY/;BLANCA BURST/;EVANS BURST/; HAMILTON BURST/;HICKORY BURST/;HUMBOLDT BURST/;LOGAN BURST/;MAPLE BURST/;MAZAMA BURST/;RUSHMORE BURST/; TITANIA TEST/;MARS TEST/;VESTA TEST/;WREN;SWAN;KITE; ROBIN;QUAIL;CANARY;EQUATION OF STATE;SAMPLE COLLECTION

Item 101

150. REPORT NUMBER UCRL--5365
110. PRIMARY TITLE(M) Weapon development during September 1958. No. 51
710. CORPORATE SOURCE California Univ., Livermore (USA). Lawrence Radiation Lab.
371. PUB. DATE(YYMMDD) 581020
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT

801. KEYWORD(S) WEAPON 51/;WEAPON 48/;WEAPON 47/;PICCOLO/;CANARY/; BANJO/; HARDTACK/;URANIUM ALLOYS/;TITANIUM ALLOYS/; MOLYBDENUM ALLOYS/;EGG CODE/;BLANCA BURST/;LOGAN BURST/; PINE BURST/;TAMALPAIS BURST/;MARS TEST/;KITE/;MERCURY TEST/;PICCOLO;CANARY;BANJO;TRANSDUCERS;INITIATORS;KITE

Item 102

150. REPORT NUMBER UCRL--4890
110. PRIMARY TITLE(M) Weapon development during April 1957. No. 34
710. CORPORATE SOURCE California Univ., Livermore (USA). Lawrence Radiation Lab.
371. PUB. DATE(YYMMDD) 570510
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT The work undertaken and its status are reported for the period under the following headings: Physics Research, General Chemical Research, General Weapons Development, Test Planning and Evaluation, and Nuclear Propulsion (Rover). Yield versus weight curves are given for several Class A, B and D warheads, standard and clean. Also given is a schematic diagram of a Whistle primary.
801. KEYWORD(S)

Item 103

150. REPORT NUMBER UCRL--4858
110. PRIMARY TITLE(M) Operation Redwing. February-July 1956. Report by L-division (U)
70. PERSONAL AUTHOR(M) Gibbins, W.D. (comp.)
710. CORPORATE SOURCE California Univ., Livermore (USA). Lawrence Radiation Lab.
371. PUB. DATE(YYMMDD) 560000
34. CLASSIF. LEVEL TEXT Confidential
950. ABSTRACT The support effort L-Division contributed to Operation REDWING is reported. Information in the body of the report is presented by section and divided into Pre-Operational, Operational and Post-Operational phases. Discussion naturally centers around the operational phase, emphasizing what went wrong and suggesting corrective measures. Things that went well are cited also. All conclusions and recommendations are incorporated within each section's presentation, rather than appearing in one combined array. The Appendix has useful items of information not normally found together. (U)
801. KEYWORD(S) REDWING/administrative reports ;ATOMIC WEAPON TESTS/administrative reports ;REDWING;COMMAND AND CONTROL

Item 104

150.	REPORT NUMBER	UCRL--4828
110.	PRIMARY TITLE(M)	Redwing subcritical measurements
70.	PERSONAL AUTHOR(M)	Ralston, H.R.
710.	CORPORATE SOURCE	California Univ., Livermore (USA). Lawrence Radiation Lab.
371.	PUB. DATE(YYMMDD)	570315
34.	CLASSIF. LEVEL TEXT	Secret
950.	ABSTRACT	The measurements undertaken by the Subcritical Assembly Group in support of the Redwing small weapons program are described. These measurements were concerned with: safety checks for the Taxi engineering studies, design studies on two mockups of the Swift device (Mockingbird I and II), and the assembly at NTS of swift in several of its possible forms. The efforts of the Group are reported in chronological order, with summaries of experimental data given as they were obtained. The work done to develop a mock high explosive for use in the subcritical work, and a calculation of the probable yield of a single-point detonation of Swift, are described in appendixes.
801.	KEYWORD(S)	MOCKINGBIRD/;SWIFT/;TAXI/;REDWING/;PLUTONIUM CORES/criticality ;MOCKINGBIRD;SWIFT;TAXI;REDWING; CRITICALITY

Item 105

150.	REPORT NUMBER	UCRL--4772
110.	PRIMARY TITLE(M)	Course in the theory and design of nuclear weapons. Lecture II. History of thermonuclears and description of a typical thermonuclear
70.	PERSONAL AUTHOR(M)	Frank, W.J.
710.	CORPORATE SOURCE	California Univ., Livermore (USA). Lawrence Radiation Lab.
371.	PUB. DATE(YYMMDD)	560925
34.	CLASSIF. LEVEL TEXT	Secret
950.	ABSTRACT	

801. KEYWORD(S)

Item 106

150. REPORT NUMBER UCRL--4771
110. PRIMARY TITLE(M)
70. PERSONAL AUTHOR(M) Foster, J.S. Jr.
710. CORPORATE SOURCE California Univ., Livermore (USA). Lawrence Radiation Lab.
371. PUB. DATE(YYMMDD) 561120
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT

801. KEYWORD(S) REDWING/;SWIFT/;SWAN/;SWALLOW/;ROBIN/; IMPLOSION WEAPONS/;REDWING;SWIFT;SWAN;SWALLOW;WARHEAD UNITS;TEAPOT; ROBIN

Item 107

150. REPORT NUMBER UCRL--4718
110. PRIMARY TITLE(M)
70. PERSONAL AUTHOR(M) Grasberger, W.
710. CORPORATE SOURCE California Univ., Livermore (USA). Lawrence Radiation Lab.
371. PUB. DATE(YYMMDD) 560702
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT

801. KEYWORD(S)

Item 108

150. REPORT NUMBER UCRL--4710
110. PRIMARY TITLE(M) Evaluation of the Livermore Redwing devices. Part II. Large devices
70. PERSONAL AUTHOR(M) Goranson, R.W. (comp.)
710. CORPORATE SOURCE California Univ., Livermore (USA). Lawrence Radiation Lab.
371. PUB. DATE(YYMMDD) 561003
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT (Part I of this report was issued as UCRL-4642). This report contains the findings of a panel which was formed to make an independent evaluation of the Flute, Bassoon, and Zither devices. The chief purpose of the study was to determine the credibility of the parameters used and the calculations which have led to the various designs, and also to ascertain whether anything pertinent had been overlooked. Detailed description of each of the devices considered is given together with a summary of the calculations and the theoretical aspects of each.
801. KEYWORD(S)

Item 109

150. REPORT NUMBER UCRL--4684
110. PRIMARY TITLE(M)

70. PERSONAL AUTHOR(M) Grasberger, W.H.
710. CORPORATE SOURCE California Univ., Livermore (USA). Lawrence Radiation Lab.
371. PUB. DATE(YYMMDD) 550414
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT

801. KEYWORD(S)

Item 110

150. REPORT NUMBER UCRL--4642
110. PRIMARY TITLE(M) Evaluation of the Livermore Redwing devices. Part I: small devices
70. PERSONAL AUTHOR(M) Goranson, R.W. (comp)
710. CORPORATE SOURCE California Univ., Livermore (USA). Lawrence Radiation Lab.
371. PUB. DATE(YYMMDD) 560222
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT (Part II of this report is issued as UCRL-4710.) This report contains the findings of a panel which was formed to make an independent evaluation of the Swift, Swallow, and Swan devices. The chief purpose of the study is to determine the credibility of the parameters used and the calculations which have led to the various designs, and also to ascertain whether anything pertinent had been overlooked. Detailed descriptions of each of the devices considered are given, together with a summary of the calculations and the theoretical aspects of each.
801. KEYWORD(S) SWIFT/specifications ;SWAN/specifications ; SWALLOW/specifications ;REDWING/;SWIFT;SPECIFICATIONS; SWAN;SWALLOW;REDWING

Item 111

150. REPORT NUMBER UCRL--4583
110. PRIMARY TITLE(M) Thermonuclear weapon development
70. PERSONAL AUTHOR(M) Goranson, R.W.
710. CORPORATE SOURCE California Univ., Livermore (USA). Lawrence Radiation Lab.
371. PUB. DATE(YYMMDD) 551025
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT This report describes the development of thermonuclear devices from the Greenhouse George shot in 1951, the Ivy Mike in 1952 and the various Castle devices in 1954 at the P.P.G. in conjunction with tests of various kinds at the N.P.G. discussed also are the shots scheduled for the Redwing series in 1956.
801. KEYWORD(S) REDWING/;CASTLE/;MIKE BURST/;GEORGE BURST/; THERMONUCLEAR WEAPONS/testing ;REDWING;CASTLE;TESTING

Item 112

150. REPORT NUMBER UCRL--4358
110. PRIMARY TITLE(M) Monthly progress report No. 22, period to June 30, 1954
710. CORPORATE SOURCE California Univ., Livermore (USA). Lawrence Radiation Lab.
371. PUB. DATE(YYMMDD) 540716
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT Brief statements on the Companion, Hectoton and Castle programs, on theoretical studies, chemistry, electronics, and on the work of the critical assembly research, reactor, mechanical engineering, nuclear physics, and Arc research groups.
801. KEYWORD(S)

Item 113

150. REPORT NUMBER UCRL--4341
110. PRIMARY TITLE(M) Monthly progress report No. 21, period to May 31, 1954
710. CORPORATE SOURCE California Univ., Livermore (USA). Lawrence Radiation Lab.
371. PUB. DATE(YYMMDD) 540614
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT Brief statements on the Companion, Hectoton, and Castle programs, on theoretical studies, experimental hydrodynamics, chemistry, electronics, and on the work of the critical assembly research, nuclear film and mechanical engineering groups.
801. KEYWORD(S)

Item 114

150. REPORT NUMBER UCRL--4336
110. PRIMARY TITLE(M) Monthly progress report No. 20, period to April 30, 1954
710. CORPORATE SOURCE California Univ., Livermore (USA). Lawrence Radiation Lab.
371. PUB. DATE(YYMMDD) 540517
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT Brief statements on the Sirius, Companion, and Castle programs, on theoretical studies, experimental hydrodynamics, chemistry, electronics, accelerator research and on the work of the critical assembly, scientific photography, and mechanical engineering groups.
801. KEYWORD(S) CASTLE/;RAMROD/;MORGENSTERN/;CASTLE;RAMROD; MORGENSTERN;CRITICAL ASSEMBLIES;ACCELERATORS

Item 115

150. REPORT NUMBER UCRL--4320
110. PRIMARY TITLE(M) Monthly progress report No. 19 period to March 31, 1954
710. CORPORATE SOURCE California Univ., Livermore (USA). Lawrence Radiation Lab.
371. PUB. DATE(YYMMDD) 540419
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT Brief statements on the Sirius, the Companion and the Hectoton programs, on the Castle program, theoretical studies, experimental hydrodynamics, chemistry, health physics, electronics, controlled thermonuclear reactions, and the work of the subcritical, nuclear physics, and mechanical engineering groups.
801. KEYWORD(S)

Item 116

150. REPORT NUMBER UCRL--4088
110. PRIMARY TITLE(M) Monthly progress report No. 7 period, to March 27, 1953
710. CORPORATE SOURCE California Univ., Livermore (USA). Lawrence Radiation Lab.
371. PUB. DATE(YYMMDD) 530416
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT Brief statements on controlled thermonuclear reactions, accelerators, Univac problems, diagnostic studies with Castle and Ramrod Shot, cryogenics, health chemistry, electronics, mechanical engineering problems, and test operations.
801. KEYWORD(S) RAMROD/;CASTLE/;THERMONUCLEAR REACTIONS/; WOLFGANG CODE/;RAMROD;CASTLE;DIAGNOSTIC EXPERIMENTS

Item 117

150. REPORT NUMBER UCRL--4036
110. PRIMARY TITLE(M) Monthly progress report No. 3, November 1952
710. CORPORATE SOURCE California Univ., Livermore (USA). Lawrence Radiation Lab.
371. PUB. DATE(YYMMDD) 530106
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT Brief statements on studies of controlled thermonuclear reactions, accelerators, theoretical considerations, diagnostic experiments with Castle and Ramrod Shot, cryogeny, radiochemistry and electronic, and engineering problems.

801. KEYWORD(S)

Item 118

150. REPORT NUMBER UCRL--4034
110. PRIMARY TITLE(M) Ivy electromagnetic detection experiment
70. PERSONAL AUTHOR(M) Wouters, L.
710. CORPORATE SOURCE California Univ., Livermore (USA). Lawrence Radiation Lab.
371. PUB. DATE(YYMMDD) 521128
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT In connection with the Operation Ivy certain interested personnel of the Livermore Site facility of the University of California Radiation Laboratory carried out long-rang electromagnetic detection experiments. Apparatus and measurements are discussed.
801. KEYWORD(S) MIKE BURST/long-range detection ;MIKE BURST/electromagnetic detection ;IVY/long-range detection ;IVY/electromagnetic detection ;IVY

Item 119

150. REPORT NUMBER SCTM--97-60-51
110. PRIMARY TITLE(M) Effects of altitude on nuclear bursts (U)
70. PERSONAL AUTHOR(M) Broyles, C.D.
710. CORPORATE SOURCE Sandia Corp., Albuquerque, NM (USA)
371. PUB. DATE(YYMMDD) 600300
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT As a part of a proposed larger treatment embracing nuclear weapon effect this paper, in discussing the effects of altitude on nuclear bursts, deals with partition of energy versus altitude, fireball asymmetry, and atmospheric venting. 53 references. (U)
801. KEYWORD(S) IONOSPHERIC BURSTS/blast hydrodynamics ; IONOSPHERIC BURSTS/ball of fire ;IONOSPHERIC BURSTS/yield ;IONOSPHERIC BURSTS/energy partition-wd ; BLAST HYDRODYNAMICS/;BALL OF FIRE/;TEAK BURST/;YUCCA BURST/;YIELD;ALTITUDE;HEIGHT OF BURST;ORANGE BURST

Item 120

150. REPORT NUMBER SCTM--59-59
110. PRIMARY TITLE(M) Prompt and fallout nuclear radiation for a surface burst of a very small warhead (U)
70. PERSONAL AUTHOR(M) Cowan, M.
710. CORPORATE SOURCE Sandia Corp., Albuquerque, NM (USA)
371. PUB. DATE(YYMMDD) 590305
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT Estimates of nuclear radiation dosage from surface

bursts of an XW-51 warhead are computed. 1 reference. (U)

801. KEYWORD(S)

Item 121

150. REPORT NUMBER SC--3750(PR)
110. PRIMARY TITLE(M) Monthly report November 1955
710. CORPORATE SOURCE Sandia Corp., Albuquerque, NM (USA)
371. PUB. DATE(YYMMDD) jdate
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT The publication outlines the progress of Sandia Corporation research and development organizations for November 1955 in the atomic weapon program. Among items discussed are: (feasibility of developing tactical or laydown bombs with yields of 10, 40, 100, and 1000 kt; (2) the feasibility of fitting Class B, C, and D warheads in the B-58 (HUSTLER); (3) the feasibility of suspending nuclear test devices from captive balloons during full-scale continental atomic tests; (4) a proposal to fuze the ATLAS warhead using a baroswitch to provide airburst and piezoelectric crystals to achieve ground-burst; (5) a proposal to simplify the fuzes used in the Mk 7 and Mk 12 bombs to attain an interim tactical bomb capability until the TX-28 tactical bomb is available; (6) discussion of two new high-yield weapons, the TX-36 and XW-37; (7) development of new thermal batteries for the XW-31 (NIKE B) and the TX-28.
801. KEYWORD(S) ATOMIC WEAPONS/;LAYDOWN WEAPONS/;REDWING/; ATLAS/fuzing systems-wd ;WEAPON 07/fuzing systems-wd ; WEAPON 12/fuzing systems-wd ;WEAPON 36 TEST DEVICES/; WEAPON 31 TEST DEVICES/;WEAPON 31/;WEAPON 28 TEST DEVICES/;ATOMIC WARHEAD INSTALLATIONS;ATOMIC WARHEADS; REDWING;TELEMETRY;THERMAL BATTERIES;THERMONUCLEAR WEAPONS;AIRPLANE B-58;BALLOONS;ATLAS; BARO SWITCHES; NIKE-HERCULES;ATOMIC WEAPON DELIVERY

Item 122

150. REPORT NUMBER SC--3709(PR)
110. PRIMARY TITLE(M) Monthly report, July 1955
710. CORPORATE SOURCE Sandia Corp., Albuquerque, NM (USA)
371. PUB. DATE(YYMMDD) jdate
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT This publication outlines the progress of Sandia Corporation research and development organizations for July 1955 in the atomic weapons program. Among items discussed are: (1) completion of operational suitability tests of the Mk 5/MATADOR warhead; (2) approval by

AEC-SFO of a scope of work under which Sandia Corporation will continue design and development work on the Mk 5/REGULUS adaption kits for BuAer; (3) drop tests of the Mk 17/24, Mk 21, and TX-21-X1 bombs; (4) first report on the TX-15-X3 modification program; (5) continued investigation of the premature problem in the proximity fuze for the Mk 15 Mod 0 bomb; (6) proposed changes in the external profile of the TX-28 bomb to permit internal carriage in F-105 and B-47 aircraft; (7) projects to be undertaken by Sandia Corporation in Operation Redwing; and (8) reports on the status of nickel-cadmium and thermal batteries.

801. KEYWORD(S)

Item 123

150. REPORT NUMBER UCRL--4893(p.49-50)
110. PRIMARY TITLE(M) VHAI shot. p. 49-50 [of] joint AEC weapons laboratory symposium held at University of California Radiation Laboratory, Livermore, February 6-8, 1957
70. PERSONAL AUTHOR(M) Reed, J.W.
710. CORPORATE SOURCE Sandia Corp., Albuquerque, NM (USA)
371. PUB. DATE(YYMMDD) 570200
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT Attempt to obtain information on temperature distribution in the atmosphere and wind velocities in the atmosphere by means of the VHAI (Very High Altitude Indeed) Shot of Hardtack.
801. KEYWORD(S) ORANGE BURST/;METEOROLOGY/;ATMOSPHERE/temperature distribution ;WIND/velocity ;EARTH PLANET;METEOROLOGY; ATMOSPHERE;WIND;VELOCITY

Item 124

150. REPORT NUMBER LA--1620
110. PRIMARY TITLE(M) Summary of information on gamma radiation from atomic weapons
70. PERSONAL AUTHOR(M) Malik, J.S.
710. CORPORATE SOURCE Los Alamos Scientific Lab., NM (USA)

371. PUB. DATE(YYMMDD) 550728
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT The major portion of the gamma radiation from atomic weapons may be divided into two components: one due to neutron capture in the nitrogen of the air and the other to the decay of the fission products. As the mean capture for neutrons in air is about 70 msec, so after about a quarter of a second, gamma radiation from these captures is negligible when compared to fission-product gamma radiation. The radiation from the fission products is strongly influenced by the shock wave which removes much of the air between the source and the detector, greatly reducing the attenuation, and by the rise of the cloud carrying the fission products. The laboratory measurements of the characteristics of these sources, combined with the attenuation coefficients and buildup factors appropriate to their spectrum, and combined with LA-1620.
801. KEYWORD(S) ATOMIC EXPLOSIONS/gamma radiation ; BUSTER BURST C/gamma radiation ;BUSTER BURST E/gamma radiation ;ITEM BURST/gamma radiation ;ATOMIC CLOUD RISE;DOSE RATES; FISSION PRODUCTS; RADIATION EFFECTS

Item 125

150. REPORT NUMBER LA--1329
110. PRIMARY TITLE(M) Spectroscopy of bomb explosions
70. PERSONAL AUTHOR(M) Dieke, G.H.
710. CORPORATE SOURCE Los Alamos Scientific Lab., NM (USA)
371. PUB. DATE(YYMMDD) 520829
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT This report presents a summary of the results derived so far from the spectroscopic data obtained at the Greenhouse, Buster and Tumbler- Snapper tests. The spectra before the minimum are predominantly due to absorption by the normal and disturbed air. O{sub 2} is present in the normal electronic state with as many as 18 quanta of vibrational energy whereas the rotational energy is normal. Absorption due to NO{sub 2} and HNO{sub 2} is very prominent also. After the minimum, the spectrum is usually dominated by metal lines from bomb construction materials which may appear in absorption or emission. The Spectrum may vary considerably in different parts of the fireball. Bombs of identical construction but different yields show very different spectra. The metal lines are much less prominent at the higher yields. Some suggestions are made as to what information may be obtained from these and future spectra concerning the physical state of the fireball and its surroundings.

801. KEYWORD(S) GREENHOUSE/spectroscopy ;BUSTER/spectroscopy ; TUMBLER-SNAPPER/spectroscopy ;ABSORPTION SPECTRA;AIR; ALUMINUM;ATOMIC EXPLOSIONS;GREENHOUSE;SPECTROSCOPY; BUSTER;TUMBLER-SNAPPER;BARIUM; CALCIUM;CHROMIUM;COBALT; COPPER;IRON;LEAD;MANGANESE;NICKEL;NITROGEN; NITROGEN OXIDES;OZONE;OXYGEN;PLUTONIUM;SODIUM;STRONTIUM

Item 126

150. REPORT NUMBER RM--1714-AEC
110. PRIMARY TITLE(M) Continuous opacities for the Redwing opacity experiments
70. PERSONAL AUTHOR(M) Karzas, W.J.; Latter, R.
710. CORPORATE SOURCE RAND Corp., Santa Monica, CA (USA)
371. PUB. DATE(YYMMDD) 560515
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT The continuous opacities of the mixtures involved in the opacity experiments of the Redwing test have been computed for the temperature range 0.6 to 1.4 kev and for compressions from 0.25 to 2.0 times normal density.
801. KEYWORD(S) OPACITY/;REDWING/;MIXTURES/opacity ;OPACITY; REDWING;MIXTURES

Item 127

150. REPORT NUMBER TID--9050
110. PRIMARY TITLE(M) Abstracts of weapon-test reports. Volume 1, No. 1. Abstracts 1-764 (U)
710. CORPORATE SOURCE USAEC Technical Information Center, Oak Ridge, TN
371. PUB. DATE(YYMMDD) 570131
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT Abstracts of weapon-test reports are presented for Operations Trinity, Crossroads, Sandstone, Ranger, Greenhouse, Buster-Jangle, Tumbler-Snapper, Ivy, Upshot-Knothole, Castle, and British test. Author and numerical indexes for this issue are included. (U)
801. KEYWORD(S) ATOMIC EXPLOSIONS/effects experiments ;DIAGNOSTIC EXPERIMENTS/bibliographies ; EFFECTS EXPERIMENTS/bibliographies ;BIBLIOGRAPHIES;ABSTRACTS; TRINITY BURST;CROSSROADS;SANDSTONE;RANGER;GREENHOUSE; BUSTER-JANGLE;TUMBLER-SNAPPER;IVY;UPSHOT-KNOTHOLE;CASTLE; BRITISH ATOMIC EXPLOSIONS

Item 128

150. REPORT NUMBER SC--4946-WD
110. PRIMARY TITLE(M) Vulnerability of nuclear weapons to nuclear countermeasures (U).
70. PERSONAL AUTHOR(M) Bothell, L.E.; Broyles, C.D.; Holmes, W.T.
710. CORPORATE SOURCE Sandia Corp., Albuquerque, NM (USA)

371. PUB. DATE(YYMMDD) 640600
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT Mr. L.E. Bothell is presently affiliated with Kaman Nuclear, Colorado Springs, Colorado. The work covered by this report was completed in 1957. The objective of this program was to design the non-nuclear portions of a tough weapon capable of withstanding the effects of a nuclear explosion at about the same distance that produces melting of a nuclear material by neutron heating and to prove the design by exposure of the device to such effects. The program was planned primarily as a research and development effort and not as an effort to engineer an actual weapon system. 21 references.
801. KEYWORD(S)

Item 129

150. REPORT NUMBER SC--4197(TR)
110. PRIMARY TITLE(M)
70. PERSONAL AUTHOR(M) Hansen, H.E.; Lung, H.R.; Takahashi, T.H.; Peterson, G.R.; Long, C.E.
710. CORPORATE SOURCE Sandia Corp., Albuquerque, NM (USA)
371. PUB. DATE(YYMMDD) 590500
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT

801. KEYWORD(S)

Item 130

150. REPORT NUMBER SC--4043(PR)
110. PRIMARY TITLE(M) Monthly report, December 1956
710. CORPORATE SOURCE Sandia Corp., Albuquerque, NM (USA)
371. PUB. DATE(YYMMDD) jdate
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT The publication outlines the progress of Sandia

Corporation Research and Development Organizations for December 1956 in the Atomic Weapons Programs. Among the items discussed are: (1) the cancellation of the TX-27 and the substitution of the TX-28 warhead application for the MATADOR (TM-61B); (2) special tests to determine the origin of high energy jets near the XR mounting plates in the XW-27 warhead; (3) the feasibility of using an XW-28Y2 warhead in the XW-39-X1 case for REDSTONE application; (4) progress in the SNARK flight-test program; (5) information on the XW-43 laydown capability development; (6) testing programs on the XW-25, XW-30, and XW-34 fission applications; (7) the stockpile screening activity involving components of the MATADOR applications; (8) a discussion of deformation switches; and (9) standardization of warhead signal requirements.

801. KEYWORD(S) HARDTACK/;PLUMBBOB/;WEAPON 41/; WEAPON 43/laydown weapons ;WEAPON 25 TEST DEVICES/testing ;WEAPON 28 TEST DEVICES/matador ;WEAPON 28 TEST DEVICES/redstone ; WEAPON 39 TEST DEVICES/;WEAPON 30 TEST DEVICES/testing ; MATADOR/; TALOS-W/;WEAPON 27/;REDSTONE/;SNARK/flight testing ; WEAPON 34 TEST DEVICES/testing ;ATOMIC WEAPONS/;WEAPON 30/talos-w ;BARO SWITCHES;EXTERNAL INITIATORS;HARDTACK;PLUMBBOB;SPEED RETARDERS;TEST FACILITIES;TESTING;MATADOR;REDSTONE;SNARK

Item 131

150. REPORT NUMBER SC--3935(PR)
110. PRIMARY TITLE(M) Monthly report, November 1956
710. CORPORATE SOURCE Sandia Corp., Albuquerque, NM (USA)
371. PUB. DATE(YYMMDD) jdate
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT The publication outlines the progress of Sandia Corporation Research and Development Organizations for November 1956 in the Atomic Weapons Program. Among items discussed are: (1) three new weapons programs authorized for Stage 2 (development): TX-41, TX-43, and TX-44; (2) testing programs for the TX-27, TX-39, and TX-39-X1; (3) special aerodynamic flyaround tests on the TX-28; (4) the feasibility of XW-28 for EC use in IRBM programs; (5) flight and environmental tests on XW-7 CORPORAL and XW-34 LULU fission programs; (6) special sled tests on NIKE HERCULES deformation switches; (7) plutonium contamination from one-point detonations; (8) the high-speed digital computer at Coyote Canyon test site.

801. KEYWORD(S) ATOMIC WEAPONS/;HARDTACK/;PLUMBBOB/; PLUTONIUM/radioactive contamination ;WEAPON 28 TEST DEVICES/flight testing ;WEAPON 39 TEST DEVICES/testing ; WEAPON 41 TEST DEVICES/;WEAPON 43 TEST DEVICES/; WEAPON

44 TEST DEVICES/;WEAPON 27 TEST DEVICES/testing ;RASCAL/; IRBM/;WEAPON 07 TEST DEVICES/flight testing ;WEAPON 07 TEST DEVICES/environmental testing ; WEAPON 07 TEST DEVICES/corporal ;CORPORAL/; WEAPON 34/lulu ;WEAPON 34 TEST DEVICES/flight testing ;WEAPON 34 TEST DEVICES/environmental testing ;LULU/;ONE-POINT DETONATION/radioactive contamination ;DIGITAL RECORDING SYSTEMS;HARDTACK;PLUMBBOB;PRINTED CIRCUITS;TESTING; RASCAL;IRBM;CORPORAL;LULU

Item 132

150. REPORT NUMBER SC--3921(PR)
110. PRIMARY TITLE(M) Monthly report, October 1956
710. CORPORATE SOURCE Sandia Corp., Albuquerque, NM (USA)
371. PUB. DATE(YYMMDD) jdate
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT The publication outlines the progress of Sandia Corporation research and development organizations for October 1956 in the atomic weapon program. Among items discussed are: (1) nomenclature revision of the XW-31/37 and TX-36-X2; (2) acceleration of the XW-28 program; (3) evaluation of data from the XW-27/REGULUS I flight test; (4) five drop tests of TX-28 internal-external configurations at SSTB; (5) fit compatibility test of XW-31Y2 (GAM-67 CROSSBOW Application); (6) completion of aircraft drop tests of XW-34 LULU at Key West, Florida; (7) baroswitch developments; (8) expansion plans for Sandia Livermore Branch; (9) XR telemetry at Operation Redwing.
801. KEYWORD(S) ATOMIC WEAPONS/;REDWING/;PLUMBBOB/;WEAPON 31/; WEAPON 36 TEST DEVICES/;WEAPON 28/;WEAPON 27/regulus ; WEAPON 27 TEST DEVICES/flight testing ;REGULUS/;WEAPON 28 TEST DEVICES/drop testing ;WEAPON 34 TEST DEVICES/drop testing ;TIMERS;ATOMIC WARHEAD INSTALLATIONS;ATOMIC WARHEADS; BARO SWITCHES;LAYDOWN WEAPONS;REDWING;PLUMBBOB;TELEMETRY; THERMONUCLEAR WEAPONS;REGULUS; COMPATIBILITY

Item 133

150. REPORT NUMBER SC--3881(PR)
110. PRIMARY TITLE(M) Monthly report August 1956
710. CORPORATE SOURCE Sandia Corp., Albuquerque, NM (USA)
371. PUB. DATE(YYMMDD) jdate
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT The publication outlines the progress of Sandia Corporation research and development organizations for August 1956 in the atomic weapon program. Among items discussed: (1) continued activity in development of

XW-35 and XW-38 warheads for ICBM's and IRBM's; (2) continued development and modification of TX-27 weapon and case development for XW-27 warhead; (3) results of SSTB drop tests on the Mk 21 Mod 0, Mk 36 Mod 1, and TX-28 for firing, fuzing, and parachute performance; (4) fission development continuing on XW-34/ LULU through drop tests, and on XW-37/CROSSBOW compatibility, and XW-7/CORPORAL application tests; (5) Operation Redwing preliminary results and evaluations.

801. KEYWORD(S) CORPORAL/;CROSSBOW/;ATOMIC WEAPONS/;HARDTACK/; REDWING/;ICBM/atomic warheads ;IRBM/atomic warheads ; WEAPON 35/;WEAPON 38/;WEAPON 27 TEST DEVICES/;WEAPON 21 TEST DEVICES/;WEAPON 28 TEST DEVICES/drop testing ; WEAPON 34 TEST DEVICES/drop testing ;LULU/;WEAPON 34/lulu ;WEAPON 31/crossbow ;WEAPON 07/corporal ;WEAPON 36 TEST DEVICES/drop testing ;CORPORAL;CROSSBOW;ATOMIC WARHEAD INSTALLATIONS;EXTERNAL INITIATORS;HARDTACK; PROXIMITY FUZES;REDWING;THERMONUCLEAR WEAPONS;ICBM;IRBM; LULU; COMPATIBILITY

Item 134

150.	REPORT NUMBER	SC--3755(PR)
110.	PRIMARY TITLE(M)	Monthly report December 1955
710.	CORPORATE SOURCE	Sandia Corp., Albuquerque, NM (USA)
371.	PUB. DATE(YYMMDD)	jdate
34.	CLASSIF. LEVEL TEXT	Secret
950.	ABSTRACT	

801. KEYWORD(S) ATOMIC WEAPONS/;LAYDOWN WEAPONS/;WEAPON 15 TEST DEVICES/environmental testing ;WEAPON 15 TEST DEVICES/drop testing ;WEAPON 27 TEST DEVICES/; WEAPON 28 TEST DEVICES/flight testing ;WEAPON 30 TEST DEVICES/; ATOMIC WARHEAD INSTALLATIONS;ATOMIC WARHEADS;REDWING; THERMONUCLEAR WEAPONS

Item 135

150. REPORT NUMBER SC--3743(PR)

110. PRIMARY TITLE(M) Monthly report, October 1955
710. CORPORATE SOURCE Sandia Corp., Albuquerque, NM (USA)
371. PUB. DATE(YYMMDD) jdate
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT The publication outlines the progress of Sandia Corporation research and development organizations for October 1955 in the atomic weapons program. Among items discussed are: (1) three new development programs, the application of the XW-27 warhead to the TM-61B (MATADOR), GAM-63 (RASCAL), the F-101; (2) a request from the military for contact backup for the airburst fuze in the TX-28 weapon; (3) a test program in which Mk 7 HE warhead installations are being subjected to low-temperature environments at Fort Greeley, Alaska; (4) recommendation that the XW-31 warhead be used as the low-yield warhead and the XW-37 as the high-yield warhead for the NIKE B missile; (5) a description of Operation Redwing scheduled to begin in May 1956 in the Pacific; and (6) a discussion of radiological effects of atomic weapons.
801. KEYWORD(S) WEAPON 12/;WEAPON 15/;REDWING/;WEAPON 21/;WEAPON 28/;WEAPON 05/; WEAPON 25/;WEAPON 27/matador ;WEAPON 27/rascal ;WEAPON 27/airplane f-101 ;WEAPON 07 TEST DEVICES/temperature testing ;WEAPON 30/talos ; WEAPON 31/crossbow ; WEAPON 31/nike-hercules ; WEAPON 07/honest john ;ATOMIC WEAPONS/;ATOMIC WEAPON DELIVERY;HANDLING EQUIPMENT; BIOLOGICAL RADIATION EFFECTS;REDWING; THERMONUCLEAR WEAPONS; TRANSPORT;THUNDERBIRD;RASCAL; TALOS;CROSSBOW;NIKE-HERCULES

Item 136

150. REPORT NUMBER SC--3721A(PR)
110. PRIMARY TITLE(M) Monthly report, September 1955
710. CORPORATE SOURCE Sandia Corp., Albuquerque, NM (USA)
371. PUB. DATE(YYMMDD) jdate
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT This publication outlines the progress of Sandia Corporation research and development organizations for September 1955 in the atomic weapon program. Among items discussed are: (1) the beginning of operational suitability tests of the Mk 15 Mod 0 weapon; (2) a proposal that only the externally initiated and gas-boosted TX-15-X3 warhead, rather than both the TX-15-X3 and the XW-15-X1, be used in missile applications; (3) a possible remedy for the proximity fuze prematures which have been a problem in the Mk 21 weapon; and (4) final definition of the size and weight of the XW-27 warhead (OD, 30-1/4 inches; length, 74 inches; weight, 2800 pounds), making it compatible with

all specified carriers.

801. KEYWORD(S) WEAPON 27/specifications ; WEAPON 15 TEST DEVICES/suitability ;WEAPON 17/;WEAPON 21/proximity fuzes ;WEAPON 24/; WEAPON 28/;WEAPON 05/;WEAPON 25/; WEAPON 30/;WEAPON 31/;WEAPON 34/;REDWING/;SPECIFICATIONS; BAROMETRIC FUZES;BLAST LOADING;COMPATIBILITY;IMPACT FUZES;SUITABILITY;WEAPON 07;REDWING;SAFING DEVICES;SPEED RETARDERS;PREMATURE PROBABILITY;DESIGN

Item 137

150. REPORT NUMBER NRL--4590
110. PRIMARY TITLE(M) Operation Castle. Project 18.6. The Chord experiment
70. PERSONAL AUTHOR(M) Fussell, W.B.
710. CORPORATE SOURCE Naval Research Lab., Washington, DC (USA)
371. PUB. DATE(YYMMDD) 550600
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT The variation in the transmission of the atmosphere over an optical path passing 2900 ft from ground zero of Nectar was measured as a function of time by a modified high speed spectrograph located at Engebi. The spectrograph looked with a narrow field of view at two 60-in. carbon-arc searchlights on Ruchi. The spectrograph and searchlights were timed so as to start running before zero time. Sensitometry of the photographic data obtained reveals that, except for some Teller emission either scattered or induced in the atmosphere between the source and the spectrograph, transmission of the atmosphere started to decrease immediately after zero time, but that stable values were not reached until after abut 50 msec had elapsed. These values thereafter remained essentially constant until the fireball intersected the field of view of the spectrograph at about 435 msec past zero time. The transmission declined by approximately 1.2 density units (D.U.) at 4300A. At shorter wavelengths the effect was smaller, being approximately 1.2 D.U. at 4000A and decreasing steadily from that point to a value of about 0.2 D.U. at 3650A. There is no apparent structure in the absorption spectrum, but the resolving power of the instrument was so low that it would have been difficult for it to detect any. At 4000A the amount of absorption present at 50 msec past zero time is that which would be produced by about 3.8 mm of NO{sub 2} under standard conditions. Supporting data agree with this result. There appeared to be no correlation between intensity of Teller emission at a given wavelength and the intensity of the subsequent absorption.
801. KEYWORD(S) NECTAR BURST/chord experiments ;NECTAR

BURST/teller light ;CASTLE;STREAK PHOTOGRAPHY; ATMOSPHERE;ABSORPTION SPECTRA;DIAGNOSTIC EXPERIMENTS

Item 138

150. REPORT NUMBER SC--4199(WD)
110. PRIMARY TITLE(M) High-resolution telemetry project report. Operation Hardtack
70. PERSONAL AUTHOR(M) Dale, H.R.; Ingham, S.A.; Dailey, P.L.
710. CORPORATE SOURCE Sandia Corp., Albuquerque, NM (USA)
371. PUB. DATE(YYMMDD) 591200
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT Operation Hardtack, May through October 1958, involved the testing of 72 nuclear explosive systems at Eniwetok Proving Grounds (EPG), Johnston Island, and Nevada Test Site (NTS). The High-Resolution Telemetry (HRT) Projects (34.1, 32.4, and 83.2) instrumented 65 of these shots for the Los Alamos and Livermore Laboratories, obtaining diagnostic measurements involving (1) transit times, (2) external and internal initiator timings and yields, (3) early reaction multiplication (alpha) factors, (4) primary simultaneity, and (5) HE pin-switch times. The HRT results for 63 of these events are presented in this report; the Teak and Orange HRT operations (Project 32.4) have been omitted, since they will be included in a forthcoming Doorknob Project Report.
801. KEYWORD(S) HARDTACK/telemetry ;HARDTACK/diagnostic experiments ;HARDTACK/alpha measurements ; HARDTACK/simultaneity experiment ;HARDTACK;TELEMETRY; INITIATORS;YIELD; ZIPPER;TESTING;TRANSIT TIME

Item 139

150. REPORT NUMBER SC--4172(TR)
110. PRIMARY TITLE(M) Computation of the sampler performance for shots Teak and Orange of Operatin Hardtack (U)
70. PERSONAL AUTHOR(M) Banister, J.R.
710. CORPORATE SOURCE Sandia Corp., Albuquerque, NM (USA)
371. PUB. DATE(YYMMDD) 581200
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT Proposed radiochemical sampler techniques employing rocket carriers for Teak and Orange shots of Operation Hardtack are discussed. Of particular interest in exploring a sampler design are debris cloud diameter, cloud rise, and particle size. Ambient conditions at varioq altitudes are considered. (U)
801. KEYWORD(S) ORANGE BURST/radiochemical analysis ;ORANGE BURST/sample collection ;TEAK BURST/radiochemical analysis ;TEAK BURST/sample collection ;ATOMIC CLOUD;

PARTICLE SIZE

Item 140

150. REPORT NUMBER LA--550
110. PRIMARY TITLE(M) Crossroads handbook of explosion phenomena (U)
70. PERSONAL AUTHOR(M) Cohen, S.T.
710. CORPORATE SOURCE Los Alamos Scientific Lab., NM (USA)
371. PUB. DATE(YYMMDD) 460409
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT Tentative reports, subject to subsequent revision, are collected on the following topics: air blast, water blast, wave motion, damage to ships and structures, gamma and neutron radiation, cloud formation and motion, meteorological considerations, contamination, safety and health problems and electrical effects. (U)
801. KEYWORD(S) ABLE BURST/radiation doses ;ABLE BURST/blast measurements ; BAKER BURST/radiation doses ; BAKER BURST/blast measurements ; SEAWATER/radioactivation ; UNDERWATER BURSTS/radiation doses ;UNDERWATER BURSTS/blast measurements ;SHIPS/blast damage ;RADIATION EFFECTS;ATOMIC CLOUD;BLAST HYDRODYNAMICS; BLAST WAVES; COLUMN FORMATION;EFFICIENCY-WD;GAMMA RADIATION;PEAK PRESSURE STUDIES;RADIOACTIVITY;THERMAL RADIATION; RADIOACTIVATION;VISIBLE RADIATION;WEATHER FORECASTING; TARGET VESSELS;CROSSROADS;SHIPS

Item 141

150. REPORT NUMBER LA--620
110. PRIMARY TITLE(M) Capture-to-fisson ratio of Pu-239 for bomb neutron spectrum
70. PERSONAL AUTHOR(M) Rubinson, W.
710. CORPORATE SOURCE Los Alamos Scientific Lab., NM (USA)
371. PUB. DATE(YYMMDD) 470203
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT

801. KEYWORD(S) PLUTONIUM 239/capture-to-fission ratio ;BAKER BURST/efficiency-wd ;TRINITY BURST/efficiency-wd ; NEUTRON SPECTRA;FAST NEUTRONS;EFFICIENCY-WD

Item 142

150. REPORT NUMBER LA--1531
110. PRIMARY TITLE(M) An estimate of the neutron capture by fission products
70. PERSONAL AUTHOR(M) Bethe, H.A.
710. CORPORATE SOURCE Los Alamos Scientific Lab., NM (USA)
371. PUB. DATE(YYMMDD) 530313
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT

801. KEYWORD(S) MIKE BURST/neutron measurements ;FISSION PRODUCTS/neutron reactions ;URANIUM 235/fission products ;URANIUM 238/fission products ;CROSS SECTIONS

Item 143

150. REPORT NUMBER LAMS--2337
110. PRIMARY TITLE(M) High altitude explosions and eyeburn problem. A discussion of the early fireball phases of nuclear explosions at altitudes higher than 100 km, with emphasis on the emission of visible light and the resulting caloric dose on the retina of the dark-adapted human eye
70. PERSONAL AUTHOR(M) Hoerlin, H.; Skumanich, A.; Westervelt, D.
710. CORPORATE SOURCE Los Alamos Scientific Lab., NM (USA)
371. PUB. DATE(YYMMDD) 590814
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT The phenomenology of the very early fireball history of a 4 MT explosion at an altitude of 105 km and at altitudes of 300 km and higher is discussed with emphasis on the emission of visible light and the caloric dose incident on the retina of the dark-adapted eye for the duration of the blink reflex.
801. KEYWORD(S)

Item 144

150. REPORT NUMBER LAMS--732
110. PRIMARY TITLE(M) Attempt at remote detection of a nuclear explosion
70. PERSONAL AUTHOR(M) Kalbach, J.F.
710. CORPORATE SOURCE Los Alamos Scientific Lab., NM (USA)
371. PUB. DATE(YYMMDD) 480607

34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT This report supplements LAMS--731. Additional photoelectric recording equipment including means to record changes in intensity of sky illumination simultaneously with standard time signals received directly from radio station WWV was set up in an attempt to detect a nuclear explosion over 5000 miles away. This added equipment did not indicate any change in sky illumination at the time of the explosion. A careful study of the WWV time signals, however, indicated that duplicate timing signals were received in New Mexico from about ten minutes before the nuclear explosion until about four minutes after. The nature of those signals was such that it is suspected that they originated in connection with Sandstone.
801. KEYWORD(S) ZEBRA BURST/long-range detection ;ZEBRA BURST/optical detection ;ZEBRA BURST/electromagnetic detection ;OPTICAL DETECTION/; ELECTROMAGNETIC DETECTION/

Item 145

150. REPORT NUMBER LAMS--731
110. PRIMARY TITLE(M) Photoelectric observations of bomb flashes at a long distance
70. PERSONAL AUTHOR(M) Gittings, H.T.
710. CORPORATE SOURCE Los Alamos Scientific Lab., NM (USA)
371. PUB. DATE(YYMMDD) 480602
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT Test equipment of somewhat hurried design was set up the recommendation of R.F. Taschek to determine whether the light flash of a bomb fired at Eniwetok could be observed with a phototube at Los Alamos, a distance of approximately 6,000 miles. The test results were negative.
801. KEYWORD(S) ZEBRA BURST/optical detection ;ZEBRA BURST/long-range detection ;OPTICAL DETECTION/

Item 146

150. REPORT NUMBER SC--3836(PR)
110. PRIMARY TITLE(M) Monthly report April 1956
710. CORPORATE SOURCE Sandia Corp., Albuquerque, NM (USA)
371. PUB. DATE(YYMMDD) jdate
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT The publication outlines the progress of Sandia Corporation research and development organizations for April 1956 in the atomic weapon programs. Among items discussed are: (1) SC preparations for participation in Operation Redwing; (2) XW-27, TX-28, and TX-29-X1 units

prepared for Redwing; (3) progress of work on XW-27 and TX-27 cases; (4) instrumented fly-around tests on externally carried TX-28; (5) current schedules on ICBM and IRBM programs; (6) plans for XW-39 warhead flight tests in Navaho missile and a fit check for XW-39-X1 in Redstone; (7) test programs of Mk 7, XW-25; (8) plans for fire-safety measures and for new components in the XW-34 Lulu; (9) special studies including underwater blast effects on delivery aircraft, boroswitch sensitivity, baloon-suspension of test devices; and Rawijet observations.

801. KEYWORD(S) ATOMIC WEAPONS/;RAWIJET/;REDWING/;WEAPON 27/ballistic cases ;WEAPON 28 TEST DEVICES/flight testing ;ICBM/;IRBM/;WEAPON 39/navaho ;WEAPON 39/redstone ; WEAPON 39 TEST DEVICES/flight testing ; NAVAHO/;REDSTONE/;WEAPON 07 TEST DEVICES/testing ;WEAPON 34/lulu ;LULU/;ATOMIC WARHEAD INSTALLATIONS;ATOMIC WARHEADS;BALLOONS; EXTERNAL STORES;IMPACT TESTS;RAWIJET; REDWING;TEST FACILITIES; THERMONUCLEAR WEAPONS;ICBM;IRBM; NAVAHO;REDSTONE;TESTING;LULU;UNDERWATER SHOCK WAVES; UNDERWATER BURSTS;BARO SWITCHES;SENSITIVITY;DELIVERY HAZARDS

Item 147

150.	REPORT NUMBER	SC--3820(PR)
110.	PRIMARY TITLE(M)	Monthly report March 1956
710.	CORPORATE SOURCE	Sandia Corp., Albuquerque, NM (USA)
371.	PUB. DATE(YYMMDD)	jdate
34.	CLASSIF. LEVEL TEXT	Secret
950.	ABSTRACT	

801. KEYWORD(S)

Item 148

150. REPORT NUMBER SC--3567(TR)
110. PRIMARY TITLE(M) Proposed ordnance characteristics of the TX-17/24-X1 weapon
710. CORPORATE SOURCE Sandia Corp., Albuquerque, NM (USA)
371. PUB. DATE(YYMMDD) 650315
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT

801. KEYWORD(S) WEAPON 17/impact fuzes ;WEAPON 17/suitability ; WEAPON 24/impact fuzes ;WEAPON 24/suitability ;ARMING CONTROL MONITORS;FIRING SETS;FUZE UNITS-WD; PARACHUTES; POWER SUPPLY UNITS-WD;PRESSURE GAGES;SUITABILITY;CASTLE

Item 149

150. REPORT NUMBER SC--3368(PR)
110. PRIMARY TITLE(M) Monthly report April 1954
710. CORPORATE SOURCE Sandia Corp., Albuquerque, NM (USA)
371. PUB. DATE(YYMMDD) jdate
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT Sandia Corporation's progress in atomic weapon development was marked this month by the delivery to stockpile of the Mk 5/REGULUS, the first WR quality warhead installation of this size and the first atomic weapon with a submarine launch capability. Development of the TX-15 and TX-21 two-stage weapons continued as well as the preliminary studies to investigate a design for a short TX-7 weapon to be compatible with F-105 aircraft. Testing of two-stage weapons continued with the successful firing of two Operation Castle shots, and

in military testing a simulated tactical, maneuver, Operation Flashburn, was begun at Site Charlie.

801. KEYWORD(S)

Item 150

150.	REPORT NUMBER	SC--3301(PR)
110.	PRIMARY TITLE(M)	Monthly report, February 1954
710.	CORPORATE SOURCE	Sandia Corp., Albuquerque, NM (USA)
371.	PUB. DATE(YYMMDD)	jdate
34.	CLASSIF. LEVEL TEXT	Secret
950.	ABSTRACT	Progress was marked by entrance of the Mk 6 Mod 6 Bomb program into the final stages of development and the establishment of the TX-21 program. Bench models are to be developed of the most complex and the least complex systems proposed in the report Joint LASL and SC Feasibility Study on Safing of Weapons Containing High Yield Nuclear Systems, which was approved by the Special Weapons Development Board this month. Shot one of Operation Castle started a new series of atomic tests, while tests of existing weapons continued with three drop tests of TX-12-X1, two of which tested new tactical bombing techniques. Operational Suitability Tests of the Mk 7 Mod 3 Bomb the Mk 7 Mod 0 Fuze, as well as the Mk 7/ Corporal warhead installation are in process while Mk 7/Honest John warhead installation units with telemetry installed were successfully fired.
801.	KEYWORD(S)	ATOMIC WEAPONS/safing devices ; WEAPON 05/;WEAPON 06/;WEAPON 07/suitability ;WEAPON 07/corporal ;WEAPON 07/honest john ;WEAPON 12/;WEAPON 21/;SAFING DEVICES/; CASTLE/;CORPORAL/atomic warhead installations ;HONEST JOHN/atomic warhead installations ;WEAPON 12 TEST DEVICES/drop testing ;FUZE UNITS-WD;SUITABILITY;CORPORAL; POWER SUPPLY UNITS-WD;TIMERS;CASTLE; TACTICAL BOMBING; TELEMETRY

Item 151

150.	REPORT NUMBER	SC--2649(PR)
110.	PRIMARY TITLE(M)	Monthly report December 1952
710.	CORPORATE SOURCE	Sandia Corp., Albuquerque, NM (USA)
371.	PUB. DATE(YYMMDD)	jdate
34.	CLASSIF. LEVEL TEXT	Secret
950.	ABSTRACT	This report is a summary of the Corporation's

progress during December and of the status of its programs. In addition to the usual resume of administrative and purchasing activities, there are described a number of important items in the development programs. These include elimination of the requirement for radar capability in the TX-5-X1 fuzing system. Also of particular interest is the fact that System C Prime Kits for early capability of the TX-6-X3 are being delivered on scheduled and the fact that the first XW-5/Matador systems test flight was flown in December. A resume of production items indicates that deliveries are generally on schedule. Included also are comments on some results of Operation Ivy, on the development of components, and on the installation of two major environmental test facilities.

801. KEYWORD(S) ATOMIC DEMOLITION MUNITIONS/;IVY/;WEAPON 05/fuzing systems-wd ;WEAPON 05/matador ;WEAPON 05/flight testing ; WEAPON 06/;WEAPON 07/;WEAPON 08/;WEAPON 09/;WEAPON 11/; WEAPON 12/; WEAPON 13/;MATADOR/flight testing ;FORWARD MAJOR MECHANICAL ASSEMBLY; EXTERNAL INITIATORS;IVY; MATADOR;RADAR TEST SETS

Item 152

150. REPORT NUMBER LAMS--2453
110. PRIMARY TITLE(M) Teak fireball formation, radiative growth and brightness history (U)
70. PERSONAL AUTHOR(M) Skumanich, A.
710. CORPORATE SOURCE Los Alamos Scientific Lab., NM (USA)
371. PUB. DATE(YYMMDD) 600812
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT

801. KEYWORD(S)

Item 153

150. REPORT NUMBER LAMS--2417
110. PRIMARY TITLE(M) Teak phenomenology. A summary report of studies of the Teak high altitude explosion with emphasis on the physics of the major phases of fireball development (U)
70. PERSONAL AUTHOR(M) Bennett, E.; Hansen, D.F.; Hoerlin, H.; Jahoda, F.; Skumanich, A.; Stone, S.; Westervelt, D.
710. CORPORATE SOURCE Los Alamos Scientific Lab., NM (USA)
371. PUB. DATE(YYMMDD) 600219
34. CLASSIF. LEVEL TEXT Secret

950. ABSTRACT Results of theoretical studies and of experimental observations of the Teak explosion are presented. The major phases of the red upper atmospheric shock are understood and explained; the auroral phenomena are analyzed and an attempt is made to comprehend their brightness and shape. Diagnostic data are presented. (U)
801. KEYWORD(S) TEAK BURST/ball of fire ;AURORAE

Item 154

150. REPORT NUMBER LAMS--2374
110. PRIMARY TITLE(M) Dose rate vs. time for Walnut and Yellowwood
70. PERSONAL AUTHOR(M) Malik, J.S.; Singer, S.; Henshall, J.
710. CORPORATE SOURCE Los Alamos Scientific Lab., NM (USA)
371. PUB. DATE(YYMMDD) 591109
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT Measurements of gamma radiation from a few nuclear explosions on Operation Hardtack were made in connection with some diagnostic measurements extending to times near 100 {mu}sec for two of the more interesting devices (Walnut and Yellowwood). The data presented are composites which have been partially corrected for source geometries and represent the dose rate versus time at 6000 ft from the device with detectors measuring in essentially good geometry.
801. KEYWORD(S) YELLOWWOOD BURST/gamma dosimetry ;WALNUT BURST/gamma dosimetry ;GAMMA RADIATION;RADIATION DOSES; RADIATION MONITORING;DOSE RATES

Item 155

150. REPORT NUMBER LAMS--2340
110. PRIMARY TITLE(M)
70. PERSONAL AUTHOR(M) Chrisman, R.H.; Court, D.B.; Edeskuty, F.J.; Hammel, E.F.; Harlow, J.E.; Sherman, R.H.; Taylor, R.D.
710. CORPORATE SOURCE Los Alamos Scientific Lab., NM (USA)
371. PUB. DATE(YYMMDD) 591022
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT

801. KEYWORD(S)

Item 156

150.	REPORT NUMBER	LAMS--2338
110.	PRIMARY TITLE(M)	Time interval measurements on Teak and Orange
70.	PERSONAL AUTHOR(M)	Bennett, E.W.
710.	CORPORATE SOURCE	Los Alamos Scientific Lab., NM (USA)
371.	PUB. DATE(YYMMDD)	590807
34.	CLASSIF. LEVEL TEXT	Secret
950.	ABSTRACT	

801. KEYWORD(S) TEAK BURST/time interval-tn ;TEAK BURST/teller light ;ORANGE BURST/time interval-tn ;ORANGE BURST/teller light ;TIME INTERVAL-TN/

Item 157

150.	REPORT NUMBER	LAMS--1087
110.	PRIMARY TITLE(M)	
70.	PERSONAL AUTHOR(M)	Moszkowski, S.A.
710.	CORPORATE SOURCE	Los Alamos Scientific Lab., NM (USA)
371.	PUB. DATE(YYMMDD)	500330
34.	CLASSIF. LEVEL TEXT	Secret

950. ABSTRACT

801. KEYWORD(S)

Item 158

150.	REPORT NUMBER	LAMS--1071
110.	PRIMARY TITLE(M)	Technique for the measurement of x rays from a nuclear explosion
70.	PERSONAL AUTHOR(M)	Mayer, H.L.; Reines, F.; Suydam, B.R.
710.	CORPORATE SOURCE	Los Alamos Scientific Lab., NM (USA)
371.	PUB. DATE(YYMMDD)	500215
34.	CLASSIF. LEVEL TEXT	Secret
950.	ABSTRACT	This report describes a technique for measuring x rays, with high time resolution and in the presence of large backgrounds of penetrating radiation.
801.	KEYWORD(S)	ATOMIC EXPLOSIONS/x-ray experiment-greenhouse ; X-RAY EXPERIMENT-GREENHOUSE/;X RADIATION

Item 159

150.	REPORT NUMBER	LAMS--809
110.	PRIMARY TITLE(M)	Communications for Sandstone (U)
70.	PERSONAL AUTHOR(M)	Hopkins, L.A. Jr.; Scroggs, J.P.
710.	CORPORATE SOURCE	Los Alamos Scientific Lab., NM (USA)
371.	PUB. DATE(YYMMDD)	480525
34.	CLASSIF. LEVEL TEXT	Secret
950.	ABSTRACT	This report covers the planning and operation of the communication system provided for the Atomic Energy Commission by Joint Task Force Seven during Operation Sandstone. The communications network encompassed Kwajalein, Hawaii, and many points in the United States as well as the Eniwetok Atoll area. (U)
801.	KEYWORD(S)	SANDSTONE/communication systems ;COMMUNICATION SYSTEMS/;ATOMIC WEAPON TESTS/communication systems ; SANDSTONE

Item 160

150.	REPORT NUMBER	LA--1633
110.	PRIMARY TITLE(M)	Weapons activities of Los Alamos Scientific Laboratory. Part II
70.	PERSONAL AUTHOR(M)	Glasstone, S.
710.	CORPORATE SOURCE	Los Alamos Scientific Lab., NM (USA)

371. PUB. DATE(YYMMDD) 540100
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT This report is Chapter 8 of LA-1632 and is issued separately because of its sensitivity. It includes a summary of the activities of the Laboratory in the thermonuclear weapons field. Included are the theory of thermonuclear reactions, descriptions of the thermonuclear weapons, themselves, a summary of thermonuclear tests and some of the outstanding problems in this field.
801. KEYWORD(S) ATOMIC WEAPONS/reviews ;ALARM CLOCK/;COBRA/; DEUTERIUM/thermonuclear reactions ;EQUILIBRIUM SUPER/; WEAPON 17/;MIKE BURST/;NEVADA ZOMBIE/;PANDA SAUSAGE/; WEAPON 14/;WEAPON 16/;RUNAWAY SUPER/;SIMULTANEITY DEVICE/;LANL;REVIEWS;COBRA;DEUTERIUM;OPACITY;PRIMARY BOMBS;RADIATION FLOW;SECONDARY COMPONENTS;SECONDARY IMPLOSION;TAYLOR INSTABILITY

Item 161

150. REPORT NUMBER SC--4103(M)
110. PRIMARY TITLE(M) Design and planning status of program Doorknob to June 15, 1957
710. CORPORATE SOURCE Sandia Corp., Albuquerque, NM (USA)
371. PUB. DATE(YYMMDD) 570800
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT The report is a planning document summarizing design progress to June 15, 1957, and future planning for Program Doorknob, the name for Sandia Corporation participation in two very high-altitude thermonuclear detonations to be made during Operation Hardtack.
801. KEYWORD(S) DOORKNOB/planning ;DOORKNOB;PLANNING;HARDTACK; IONOSPHERIC BURSTS

Item 162

150. REPORT NUMBER SC--3592(TR)
110. PRIMARY TITLE(M) Electromagnetic signals from Operation Castle recorded in Albuquerque
70. PERSONAL AUTHOR(M) Eklund, M.H.; Sander, H.H.
710. CORPORATE SOURCE Sandia Corp., Albuquerque, NM (USA)
371. PUB. DATE(YYMMDD) 541207
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT Electromagnetic signals generated by the atomic detonations during CASTLE tests at Bikini and Eniwetok were monitored in Albuquerque, New Mexico, a distance of 5740 miles from the test site. The signal from each of the detonations was received. Waveforms of these signals were surprisingly similar, and amplitudes were greater than had been expected. Aspects of signal strength,

noise discrimination, signal-to-noise ratio, and the definite wave shape of the real signal are discussed.

801. KEYWORD(S) CASTLE/electromagnetic detection ;ELECTROMAGNETIC DETECTION/;CASTLE;ELECTROMAGNETIC RADIATION; LONG-RANGE DETECTION;NOISE;ELECTROMAGNETIC PULSE;WAVE FORMS;SIGNALS

Item 163

150. REPORT NUMBER SC--3170(TR)
110. PRIMARY TITLE(M) Negative-phase duration as a measure of blast yield
70. PERSONAL AUTHOR(M) Cowan, M.
710. CORPORATE SOURCE Sandia Corp., Albuquerque, NM (USA)
371. PUB. DATE(YYMMDD) 530901
34. CLASSIF. LEVEL TEXT Confidential
950. ABSTRACT A new and convenient method of determining the yield of an atomic explosion is presented. It has been observed experimentally that the time duration, {theta}, of the negative or suction phase of a blast wave remains constant over considerable distances and is directly related to the yield, W, by the simple formula W = 0.52/ theta/{sup 3}, where W is expressed in kilotons and {theta} in seconds. This estimation of yield is accurate to twenty percent at distances of about twenty-five miles. At long distances the blast wave is not always sharply defined. However, there are indications that the time, {theta}, can be inferred at great distances from the time per half cycle of the acoustic signal. In one instance such a correlation was observed over a distance of 6000 miles for a nuclear explosion.
801. KEYWORD(S) BLAST MEASUREMENTS/;KING BURST/blast measurements ; KING BURST/yield ; UPSHOT-KNOTHOLE/blast measurements ; UPSHOT-KNOTHOLE/yield ;MIKE BURST/blast measurements ; MIKE BURST/yield ;YIELD/measurement ;BLAST WAVES;YIELD; MEASUREMENT

Item 164

150. REPORT NUMBER LA--1618
110. PRIMARY TITLE(M) Teller and scintillation alpha. Preoperational report for Castle
70. PERSONAL AUTHOR(M) Smith, N.H.
710. CORPORATE SOURCE Los Alamos Scientific Lab., NM (USA)
371. PUB. DATE(YYMMDD) 531200
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT This report deals with the plans of LASL group J-13 to measure the neutron multiplication rates of the primary fission bombs for the LASL-designed Castle weapons by remotely observing gamma induced fluorescence of material near the devices. The gamma intensity as a

function of time, is, as usual, assumed to increase at the same rate as that of the neutrons. Theory of the equipment to be used is discussed.

801. KEYWORD(S) CASTLE/diagnostic experiments ; CASTLE/scintillation alpha ;CASTLE/teller light ;CASTLE; ALPHA MEASUREMENTS;MULTIPLICATION FACTORS;FLUORESCENCE; GAMMA RADIATION;COBRA;RACER

Item 165

150. REPORT NUMBER LA--1406
110. PRIMARY TITLE(M) Height of burst for atomic bombs
70. PERSONAL AUTHOR(M) Porzel, F.B.
710. CORPORATE SOURCE Los Alamos Scientific Lab., NM (USA)
371. PUB. DATE(YYMMDD) 520300
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT A theory for the reduction in peak pressure by the interaction of the ground surface with the shock wave is developed. It is suggested that thermal radiation from the bomb itself forms a thermal layer in hot dustor smoke-laden air near the surface which seriously reduces the peak pressure near the shock front. Mechanical effects such as viscosity and dust loading, turbulence and production of ground shock are shown to have similar but smaller effects. On the basis of this theory, and from previous nuclear explosions, height-of-burst-curves can be drawn, which specify the limits of distance at which given pressures may be expected. A short summary prepared by the author for the Armed Forces includes these curves and is given in Appendix A. Implications of the surface effects are discussed; despite the apparently serious reduction in peak pressures, no marked reduction in height of burst is indicated except for single targets requiring high over-pressures where damage expectation is not based on Japanese experience. The factors affecting selection of height of burst are summarized, and their complexity, together with the insensitivity of damage to height of burst, makes questionable the advisability of attempting accurate predictions. Some suggestions are made for improvement of height-of-burst information in the fields of theoretical work and small charge and full-scale tests.

801. KEYWORD(S) HEIGHT OF BURST/;ABLE BURST/height of burst ;ABLE BURST/PEAK PRESSURE STUDIES ;ABLE BURST/shock hydrodynamics ;ABLE BURST/blast hydrodynamics ;ATOMIC EXPLOSIONS;BLAST WAVES;BUSTER BURST C; THERMAL RADIATION; UNDERGROUND SHOCK WAVES; VISCOSITY;DUSTS;BLAST MEASUREMENTS

Item 166

150. REPORT NUMBER LA--1367
110. PRIMARY TITLE(M) Note concerning free air blast information from the "M" problem (U)
70. PERSONAL AUTHOR(M) Galentine, P.G.
710. CORPORATE SOURCE Los Alamos Scientific Lab., NM (USA)
371. PUB. DATE(YYMMDD) 520200
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT The problem of extrapolating atomic weapon free air overpressure versus distance curves to great distances has long been a perplexing one. A number of solutions have been proposed, but lack of experimental corroboration leaves each of these without convincing proof. This paper presents an alternate method of performing such an extrapolation based upon the use of "Problem M". (U)
801. KEYWORD(S) DOG BURST/pressure-distance studies ;EASY BURST/pressure-distance studies ;GEORGE BURST/pressure-distance studies ;IBM PROBLEM M CODE/; PRESSURE-DISTANCE STUDIES/computer calculations ; PRESSURE;AIR;BLAST MEASUREMENTS

Item 167

150. REPORT NUMBER LA--1352
110. PRIMARY TITLE(M) Auger effect in determination of opacity and high temperature fluorescent efficiency
70. PERSONAL AUTHOR(M) Kivel, B.
710. CORPORATE SOURCE Los Alamos Scientific Lab., NM (USA)
371. PUB. DATE(YYMMDD) 520114
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT

801. KEYWORD(S) AUGER EFFECT/;OPACITY/auger effect ;X-RAY EXPERIMENT-GREENHOUSE/auger effect ;OPACITY

Item 168

150. REPORT NUMBER LA--1298
110. PRIMARY TITLE(M) Measurement of some neutron activated elements in bomb debris
70. PERSONAL AUTHOR(M) Cowan, G.A.; Prestwood, R.J.
710. CORPORATE SOURCE Los Alamos Scientific Lab., NM (USA)
371. PUB. DATE(YYMMDD) 510901
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT This report presents the results of some measurements of neutron activations of gold, indium, thallium, and tungsten placed within a few feet of atomic bombs exploded at Operation Greenhouse. With the help of this data, an evaluation is made of various alternatives to the present method of determining the fraction of the bomb contaned in a collected sample of bomb debris.
801. KEYWORD(S) DOG BURST/bomb debris ;DOG BURST/fraction-of-bomb ; GOLD/radioactivation ;INDIUM/radioactivation ; THALLIUM/radioactivation ;TUNGSTEN/radioactivation ;EASY BURST/bomb debris ;EASY BURST/fraction-of-bomb ; GEORGE BURST/bomb debris ; GEORGE BURST/fraction-of-bomb ; FRACTION-OF-BOMB/measurement ;ITEM BURST/bomb debris ; ITEM BURST/fraction-of-bomb ;FRACTION-OF-BOMB;NEUTRON REACTIONS;GOLD;RADIOACTIVATION;INDIUM;THALLIUM;TUNGSTEN

Item 169

150. REPORT NUMBER LA--1183
110. PRIMARY TITLE(M) Atomic weapons development techniques
70. PERSONAL AUTHOR(M) Schreiber, R.E.
710. CORPORATE SOURCE Los Alamos Scientific Lab., NM (USA)
371. PUB. DATE(YYMMDD) 510101
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT The functions and methods of operation are given for the technical Divisions and Groups of the LASL, with particular emphasis on the organizations directly concerned with atomic-bomb development and production. Illustrations are given for the type of work done by the various groups. The federal principles of atomic-bomb design are described, with a discusson of factors which affect the efficiency and yield of bombs. Specific designs are discussed for purposes of illustration although there has been no attempt to make this document a compilation of detailed design or performance information. Rather, it is intended to provide basic information about LASL and its weapons development work.
801. KEYWORD(S)

Item 170

150. REPORT NUMBER LA--1153
110. PRIMARY TITLE(M) Some integral characteristics of thermonuclear shots by radiochemical methods
70. PERSONAL AUTHOR(M) Garwin, R.L.
710. CORPORATE SOURCE Los Alamos Scientific Lab., NM (USA)
371. PUB. DATE(YYMMDD) 500915
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT Included in this report are some necessary characteristics of thermonuclear shots by radiochemical methods. The information concerns placement of detectors, desired and interfering activations and calibration.
801. KEYWORD(S)

Item 171

150. REPORT NUMBER LA--754
110. PRIMARY TITLE(M) Investigation of ball and tamper compressions; IBM problems SS and S
70. PERSONAL AUTHOR(M) Anderson, R.C.
710. CORPORATE SOURCE Los Alamos Scientific Lab., NM (USA)
371. PUB. DATE(YYMMDD) 491006
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT As a basis for further studies involving efficiencies and yields, the ball and tamper compressions for IBM Problems SS and S have been computed and plotted for various ball masses and at various times. Problem SS is the basis of Sandstone Test Zebra, and Problem S of Sandstone Test X-Ray. The two problems are identical except for the composition of the core. In both problems the rarefaction is progressing inward from the pamperpusher interface prior to initiation time.
801. KEYWORD(S)

Item 172

150. REPORT NUMBER LA--743R

110. PRIMARY TITLE(M) Height of burst for atomic bombs
70. PERSONAL AUTHOR(M) Houghten, R.A.
710. CORPORATE SOURCE Los Alamos Scientific Lab., NM (USA)
371. PUB. DATE(YYMMDD) 490803
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT The significant role of Mach reflection and the W{sup 1/3}/ scaling law which is used to relate the blast pressures from chemical explosions and nuclear explosions is discussed: the simple scaling law can be expected to fall at distances near the explosions because of the vastly different energy densities involved in the two cases. A new set of values for reflected pressures in the Mach region is presented as a function of incident pressures and angles of incidence. A free air curve deduced for an atomic bomb is presented. The most striking change in the height of burst tables resulting from the present study arises from an observation that in the region from 4 to 20 psi peak overpressure the blast from an atomic bomb of W kilotons total energy release is most nearly equal to the blast resulting from a scaled 3/4 W kilotons of a spherical pentolite charge. LA-743R differs from LA-743 primarily in that the free air curve so deduced for an atomic bomb from Bikini Able is somewhat altered from data given in Annex 5.
801. KEYWORD(S) ABLE BURST/blast measurements ;ABLE BURST/height of burst ;HEIGHT OF BURST/scaling laws ;MACH REFLECTION/; ATMOSPHERIC BURSTS/height of burst ;ATMOSPHERIC BURSTS/scaling laws ;MACH STEM;PEAK PRESSURE STUDIES; SHOCK WAVES; PENTOLITES

Item 173

150. REPORT NUMBER LA--730
110. PRIMARY TITLE(M) Predetonation probabilities for X-ray, Fox, and Zebra Gadgets
70. PERSONAL AUTHOR(M) Mayer, H.
710. CORPORATE SOURCE Los Alamos Scientific Lab., NM (USA)
371. PUB. DATE(YYMMDD) 490315
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT The probability of predetonation with less than a given yield is calculated for the x-ray. Fox and Zebra gadgets as a function of the neutron background present in the fissile material. The loss in the average yield of these gadgets due to this probability is also calculated. The reliability of the Fox gadget fabricated with 400 grams per ton plutonium is the same as the present x-ray gadget with 200 grams per ton plutonium.
801. KEYWORD(S)

Item 174

150. REPORT NUMBER LA--727
110. PRIMARY TITLE(M) Investigation of the use of carbon as a threshold detector of fast neutrons in the presence of large numbers of lower energy neutrons (U)
70. PERSONAL AUTHOR(M) Brown, L.; Ogle, W.
710. CORPORATE SOURCE Los Alamos Scientific Lab., NM (USA)
371. PUB. DATE(YYMMDD) 490300
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT Spectroscopically pure graphite has been irradiated by a U{sup 235} source in the glory hole at the water boiler and found to have a short period beta activity (20 to 30 minutes) which is not due to C{sup 11}, but rather is due to low energy neutron activation of some impurity in the carbon. From these data it is concluded that data from the spectroscopically pure carbon exposed to Sandstone bomb radiation are valueless as far as determinations of high energy neutron flux are concerned, and that no attempt should be made to use carbon as an n, 2n threshold detector in future bomb tests. (U)
801. KEYWORD(S) THRESHOLD DETECTORS/;X-RAY BURST/neutron measurements ;YOKE BURST/neutron measurements ;ZEBRA BURST/neutron measurements ;CARBON;FAST NEUTRONS;NEUTRON DETECTION

Item 175

150. REPORT NUMBER LA--724
110. PRIMARY TITLE(M) Investigation of the use of Ni{sup 58} as a threshold detector of fast neutrons in the presence of large numbers of slow neutrons (U)
70. PERSONAL AUTHOR(M) Brown, L.; Ogle, W.
710. CORPORATE SOURCE Los Alamos Scientific Lab., NM (USA)
371. PUB. DATE(YYMMDD) 490200
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT Irradiations of nickel metal samples by the U{sup 235} source in the water boiler and subsequent chemistry have shown that the short period (27 hour) activity observed on the nickel samples irradiated at Sandstone was definitely not due to the decay of Ni{sup 57}, but rather was due to impurities in the nickel metal samples used. However, the experiment reported here does show that the use of nickel as an (n, 2n) threshold detector

in future bomb tests is practicable. A rough determination of the (n, 2n) cross-section of Ni{sup 58} at 14 MeV was made. The value obtained was 7.4 x 10{sup - 27} cm{sup 2}. (U)

801. KEYWORD(S) X-RAY BURST/neutron measurements ;YOKE BURST/neutron measurements ;ZEBRA BURST/neutron measurements ;THRESHOLD DETECTORS/;NICKEL 58;RADIATION DETECTORS

Item 176

150. REPORT NUMBER LA--613
110. PRIMARY TITLE(M) Nuclear efficiencies of the Bikini shots as determined by the radiochemical method. Crossroads technical instrumentation report, Tests A and B
70. PERSONAL AUTHOR(M) Rubinson, W.
710. CORPORATE SOURCE Los Alamos Scientific Lab., NM (USA)
371. PUB. DATE(YYMMDD) 461126
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT

801. KEYWORD(S)

Item 177

150. REPORT NUMBER LAMS--5888
110. PRIMARY TITLE(M) Handbook of chemical analyses (U)
70. PERSONAL AUTHOR(M) Cowan, G.A.
710. CORPORATE SOURCE Los Alamos Scientific Lab., NM (USA)
371. PUB. DATE(YYMMDD) 470708
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT Procedures for the determination of zirconium, molybdenum, cerium, neptunium, plutonium, and strontium,

as used for Operation Crossroads are described. (U)
801. KEYWORD(S) ABLE BURST/quantitative chemical analysis ;BAKER BURST/quantitative chemical analysis ; CERIUM/quantitative chemical analysis ; MOLYBDENUM/quantitative chemical analysis ; NEPTUNIUM/quantitative chemical analysis ; PLUTONIUM/quantitative chemical analysis ; STRONTIUM/quantitative chemical analysis ; ZIRCONIUM/quantitative chemical analysis ; SEAWATER/quantitative chemical analysis ;CERIUM; MOLYBDENUM;NEPTUNIUM;PLUTONIUM;ZIRCONIUM;SEAWATER

Item 178

150. REPORT NUMBER ITR--1604
110. PRIMARY TITLE(M) Special meteorological measurements for very-low-yield fallout studies. Project 2.14c/34.10 of Operation Hardtack. Preliminary report
70. PERSONAL AUTHOR(M) Palmer, D.G.; Cowan, M. Jr.
710. CORPORATE SOURCE Sandia Corp., Albuquerque, NM (USA)
371. PUB. DATE(YYMMDD) 590120
34. CLASSIF. LEVEL TEXT Confidential
950. ABSTRACT Wind velocity was measured for Bursts Quince and Fig to support the fall-out studies of Program 34.8. The methods used for collecting and evaluating these data for a zero time wind forecast are briefly described. Pertinent data for Burst Fig are presented.
801. KEYWORD(S) FIG BURST/meteorology ;FALLOUT/;WIND/velocity ; METEOROLOGY;FALLOUT;WIND;VELOCITY

Item 179

150. REPORT NUMBER LAMS--2605
110. PRIMARY TITLE(M) Castle and Teapot Elf EM signals. Albert loop data (U)
70. PERSONAL AUTHOR(M) Malik, J.; Ray, R.; Glass, N.
710. CORPORATE SOURCE Los Alamos Scientific Lab., NM (USA)
371. PUB. DATE(YYMMDD) 611004
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT None
801. KEYWORD(S) YANKEE BURST/electromagnetic pulse ;UNION BURST/electromagnetic pulse ;APPLE BURST I/electromagnetic pulse ;ZUCCHINI BURST/electromagnetic pulse ;ELECTROMAGNETIC DETECTION/

Item 180

150. REPORT NUMBER UCRL--6478
110. PRIMARY TITLE(M)

70. PERSONAL AUTHOR(M) Waldron, R.L.
710. CORPORATE SOURCE California Univ., Livermore (USA). Lawrence Radiation Lab.
371. PUB. DATE(YYMMDD) 610328
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT

801. KEYWORD(S)

Item 181

150. REPORT NUMBER UCRL--6291
110. PRIMARY TITLE(M)

70. PERSONAL AUTHOR(M) Perl, H.N.
710. CORPORATE SOURCE California Univ., Livermore (USA). Lawrence Radiation Lab.
371. PUB. DATE(YYMMDD) 610228
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT

801. KEYWORD(S)

Item 182

150. REPORT NUMBER UCRL--6290
110. PRIMARY TITLE(M)

70. PERSONAL AUTHOR(M) Perl, H.N.
710. CORPORATE SOURCE California Univ., Livermore (USA). Lawrence Radiation Lab.
371. PUB. DATE(YYMMDD) 610228
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT

801. KEYWORD(S)

Item 183

150. REPORT NUMBER UCRL--5969
110. PRIMARY TITLE(M)

70. PERSONAL AUTHOR(M) Perl, H.N.
710. CORPORATE SOURCE California Univ., Livermore (USA). Lawrence Radiation Lab.
371. PUB. DATE(YYMMDD) 600429
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT

801. KEYWORD(S)

Item 184

150. REPORT NUMBER UCRL--5664
110. PRIMARY TITLE(M)

70. PERSONAL AUTHOR(M) Westbrook, R.W.
710. CORPORATE SOURCE California Univ., Livermore (USA). Lawrence Radiation Lab.
371. PUB. DATE(YYMMDD) 590800
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT

801. KEYWORD(S)

Item 185

150. REPORT NUMBER UCRL--5569
110. PRIMARY TITLE(M)

70. PERSONAL AUTHOR(M) Hodges, A.J. Jr.
710. CORPORATE SOURCE California Univ., Livermore (USA). Lawrence Radiation Lab.
371. PUB. DATE(YYMMDD) 590417
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT

801. KEYWORD(S)

Item 186

150. REPORT NUMBER UCRL--5421
110. PRIMARY TITLE(M)

70. PERSONAL AUTHOR(M) Perlman, T.
710. CORPORATE SOURCE California Univ., Livermore (USA). Lawrence Radiation Lab.
371. PUB. DATE(YYMMDD) 581203
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT

801. KEYWORD(S)

Item 187

150.	REPORT NUMBER	UCRL--5395
110.	PRIMARY TITLE(M)	
70.	PERSONAL AUTHOR(M)	Miller, W.M.
710.	CORPORATE SOURCE	California Univ., Livermore (USA). Lawrence Radiation Lab.
371.	PUB. DATE(YYMMDD)	581100
34.	CLASSIF. LEVEL TEXT	Secret
950.	ABSTRACT	

801. KEYWORD(S)

Item 188

150.	REPORT NUMBER	LAMS--2842
110.	PRIMARY TITLE(M)	Operation Hardtack Program 13 measurements (U)
710.	CORPORATE SOURCE	Los Alamos Scientific Lab., NM (USA)
371.	PUB. DATE(YYMMDD)	630822
34.	CLASSIF. LEVEL TEXT	Secret
950.	ABSTRACT	Diagnostic measurements made under Program 13 of

operation Hardtack are discussed. Instrumentation, methods, and preliminary results are presented. (U)

801. KEYWORD(S) BUTTERNUT BURST/diagnostic experiments ;CACTUS BURST/diagnostic experiments ;ELDER BURST/diagnostic experiments ;HOLLY BURST/diagnostic experiments ;KOA BURST/diagnostic experiments ;LINDEN BURST/diagnostic experiments ;MAGNOLIA BURST/diagnostic experiments ;ROSE BURST/diagnostic experiments ;SEQUOIA BURST/diagnostic experiments ;TOBACCO BURST/diagnostic experiments ; WALNUT BURST/diagnostic experiments ;YELLOWWOOD BURST/diagnostic experiments

Item 189

150. REPORT NUMBER LAMS--2577
110. PRIMARY TITLE(M) Ten to 1000 microsecond gamma ray dose rate data (U)
70. PERSONAL AUTHOR(M) Malik, J.
710. CORPORATE SOURCE Los Alamos Scientific Lab., NM (USA)
371. PUB. DATE(YYMMDD) 601031
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT Data obtained by US and UK groups in the time range 10-1000 microseconds are summarized. Data are given for Antler, Buffalo, Walnut, Yellowwood, Tobacco, and Item. (U)
801. KEYWORD(S) ANTLER BURST/gamma dosimetry ;BUFFALO BURST 1/gamma dosimetry ;BUFFALO BURST 2/gamma dosimetry ; BUFFALO BURST 3/gamma dosimetry ;BUFFALO BURST 4/gamma dosimetry ;WALNUT BURST/gamma dosimetry ;YELLOWWOOD BURST/gamma dosimetry ;TOBACCO BURST/gamma dosimetry ; ITEM BURST/gamma dosimetry ; DOSE RATES

Item 190

150. REPORT NUMBER LAMS--2377
110. PRIMARY TITLE(M) Semi-final radiochemical results on the Hardtack Wahoo event
70. PERSONAL AUTHOR(M) Browne, C.I.; Cowan, G.A.
710. CORPORATE SOURCE Los Alamos Scientific Lab., NM (USA)
371. PUB. DATE(YYMMDD) 591028
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT The yield of the Wahoo event has been measured by radiochemical means based upon Pu{sup 239}, Pu{sup 238}, and the fission products to be 9{sup +1.5}{sub -0.5} kt.
801. KEYWORD(S)

Item 191

150. REPORT NUMBER LAMS--2376

110. PRIMARY TITLE(M) Semi-final radiochemical results on the Hardtack Umbrella event
70. PERSONAL AUTHOR(M) Browne, C.I.; Cowan, G.A.
710. CORPORATE SOURCE Los Alamos Scientific Lab., NM (USA)
371. PUB. DATE(YYMMDD) 591028
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT The yield of the Umbrella event has been measured by radiochemical means based upon Pu{sup 239}, Pu{sup 238}, and the fission products to be 8.0{sup +2.5}{sub -1.5} kt.
801. KEYWORD(S)

Item 192

150. REPORT NUMBER LAMS--2370
110. PRIMARY TITLE(M) Semi-final radiochemical results on Hardtack Sequoia event
70. PERSONAL AUTHOR(M) Browne, C.I.; Cowan, G.A.
710. CORPORATE SOURCE Los Alamos Scientific Lab., NM (USA)
371. PUB. DATE(YYMMDD) 591000
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT

801. KEYWORD(S)

Item 193

150. REPORT NUMBER LAMS--2369
110. PRIMARY TITLE(M) Semi-final radiochemical results on hardtack Pisonia event
70. PERSONAL AUTHOR(M) Browne, C.I.; Cowan, G.A.
710. CORPORATE SOURCE Los Alamos Scientific Lab., NM (USA)
371. PUB. DATE(YYMMDD) 591000
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT

801. KEYWORD(S)

Item 194

150. REPORT NUMBER LAMS--1710
110. PRIMARY TITLE(M) Work of Task Unit 4 on Operation Castle
70. PERSONAL AUTHOR(M) Agnew, H.M.
710. CORPORATE SOURCE Los Alamos Scientific Lab., NM (USA)
371. PUB. DATE(YYMMDD) 541124
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT This report covers the work of TU-4, the LASL-assembly group, at the Pacific Proving Grounds (PPG) during Operation Castle. No attempt is made here to describe the many technical operations that were carried out since these were done according to the pertinent assembly manuals and check lists written by other organizations before TU-4 became an operating unit. In the sections devoted to each device appropriate reference is made to these manuals as well as other sources of information. Technical matters concerned with each of the five LASL test devices are discussed in chromological sequence.
801. KEYWORD(S)

Item 195

150. REPORT NUMBER LAMS--1520
110. PRIMARY TITLE(M) Lectures 1953 on thermonuclear weapons. Lectures given by E. Teller, et al
70. PERSONAL AUTHOR(M) Rosenbluth, A.
710. CORPORATE SOURCE Los Alamos Scientific Lab., NM (USA)
371. PUB. DATE(YYMMDD) 530301
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT

801. KEYWORD(S)

Item 196

150. REPORT NUMBER LAMS--447
110. PRIMARY TITLE(M) Crossroads technical instrumentation report: fast neutron measurements using sulphur detectors
70. PERSONAL AUTHOR(M) Linenberger, G.A.
710. CORPORATE SOURCE Los Alamos Scientific Lab., NM (USA)
371. PUB. DATE(YYMMDD) 460901
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT

801. KEYWORD(S) ABLE BURST/neutron measurements ;NEUTRON MEASUREMENTS/;SULFUR/radioactivation ; ACTIVATION DETECTORS/performance ;SULFUR;RADIOACTIVATION; PERFORMANCE

Item 197

150. REPORT NUMBER LAMS--446
110. PRIMARY TITLE(M) Crossroads technical instrumentation report: FASTAX photography (U)
70. PERSONAL AUTHOR(M) Brixner, B.

710. CORPORATE SOURCE Los Alamos Scientific Lab., NM (USA)
371. PUB. DATE(YYMMDD) 461015
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT (For other reports in this series see LA-613, LAMS-428, LAMS-428A, LAMS-429, LAMS-430, LAMS-431, LAMS-432, LAMS-439, and LAMS-447. For summary report see LAMS-434.) No photographic record of the nuclear explosion was obtained for test A because of the delay in starting the cameras. A satisfactory photographic record of test B was obtained from cameras at the Enyu tower station. The space-time relations for the water jet and cloud formation were obtained from these films. (U)
801. KEYWORD(S) ABLE BURST/high-speed photography ;BAKER BURST/high-speed photography ;HIGH-SPEED PHOTOGRAPHY/

Item 198

150. REPORT NUMBER LAMS--439
110. PRIMARY TITLE(M) Crossroads technical instrumentation report: radiation intensity vs time inside target ships (U)
70. PERSONAL AUTHOR(M) Tuck, J.L.
710. CORPORATE SOURCE Los Alamos Scientific Lab., NM (USA)
371. PUB. DATE(YYMMDD) 460901
34. CLASSIF. LEVEL TEXT Confidential
950. ABSTRACT (For other reports in this series see LA-613, LAMS-428, LAMS-428A, LAMS-429, LAMS-430, LAMS-431, LAMS-432, LAMS-446, and LAMS-447. For summary report see LAMS-434.) The intensity of gamma radiation in Tests Able and Baker was measured by an ionization chamber recording equipment over the period from one second to several hours after the explosion and at several points throughout the ship array. In the air burst shot, the observed variation of gamma ray intensity is roughly compatible with a hypothesis that most of the fission products are in the ball of fire, emitting delayed gamma rays at the rate observed in the laboratory. Intensity after the first minute was small. In the underwater shot, the burst of intensity the first minute was smaller, but followed by a sustained rise attributable to the return of fission products to the vicinity of the ships as rain. Estimates of gamma dose were found to agree with independent estimates made by the radiological group from similarly located films. Tactically, the dosage rates are such that in an ABLE type attack, exposed personnel could benefit by prompt dodging behind a shield while in a BAKER type attack, ship evasive action could be taken. (U)
801. KEYWORD(S) ABLE BURST/gamma radiation ;ABLE BURST/instrumentation ;ABLE BURST/telemetry ;BAKER

BURST/gamma radiation ;BAKER BURST/instrumentation ; BAKER BURST/telemetry ;GAMMA RADIATION/;INSTRUMENTATION/; TELEMETRY/;TARGET VESSELS/radiation monitoring ; SHIPS/radiation monitoring ;INSTRUMENTATION;TELEMETRY; IONIZATION CHAMBERS;ELECTRONIC CIRCUITS;SHIPS;GAMMA DETECTION

Item 199

150. REPORT NUMBER LAMS--438
110. PRIMARY TITLE(M) Critical summary of some Able shot measurements (U)
70. PERSONAL AUTHOR(M) Hirschfelder, J.O.; Magee, J.L.
710. CORPORATE SOURCE Los Alamos Scientific Lab., NM (USA)
371. PUB. DATE(YYMMDD) 460901
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT This report summarizes some of the results of Able Burst stressing the Los Alamos work since the writers have had access to only Los Alamos reports. In section I there is a summary of a number of phases of the test including air blast, gamma radiation, neutrons, cloud formation, cloud chamber effect, height of waves, damage to ships, and a discussion of radioactive marbles on Prinz Eugen. Section II deals with condenser gage air blast measurements. Section III discusses visible and thermal radiation; Section IV discusses the fast neutron measurements and Section V is on gamma radiation. (U)
801. KEYWORD(S)

Item 200

150. REPORT NUMBER LAMS--434
110. PRIMARY TITLE(M) Summary of Project Y Crossroads activities (U)
70. PERSONAL AUTHOR(M) Holloway, M.G.
710. CORPORATE SOURCE Los Alamos Scientific Lab., NM (USA)
371. PUB. DATE(YYMMDD) 460930
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT This report is part of the Crossroads Technical Instrumentation Report and consists of a memorandum from Los Alamos Field Group 013-H to Technical Director, JTF-1, which summarizes activities of LASL at Crossroads. Specific reports as indicated below give detailed explanations of the LASL participation in the program: Project II-1, Airborne Blast (LAMS-428 and 428A); Project IV-12, Timing Radio Links (LAMS-430); Project IV-13, Firing Circuits Test Baker (LAMS-432);

Project V-11, Gamma Radiation (LAMS-439); Project VII-2, Fast Neutron Density (LAMS-447); Project VII-1A and 1B, Implosion Time Measurement (LAMS-429 and 431); Project VII-3, Radiochemistry (LA-613); and Project IX-1, Fast Cameras (Island Photography) (LAMS-446). (U)

801. KEYWORD(S) ABLE BURST/instrumentation ;ABLE BURST/telemetry ; ABLE BURST/neutron measurements ;ABLE BURST/blast measurements ;BAKER BURST/instrumentation ;BAKER BURST/telemetry ;BAKER BURST/neutron measurements ;BAKER BURST/blast measurements ;INSTRUMENTATION/;TELEMETRY/; INSTRUMENTATION;TELEMETRY; ELECTRONIC CIRCUITS

Item 201

150. REPORT NUMBER LAMS--432
110. PRIMARY TITLE(M) Crossroads technical instrumentation report: firing signals (Test B)
70. PERSONAL AUTHOR(M) Hall, H.J.
710. CORPORATE SOURCE Los Alamos Scientific Lab., NM (USA)
371. PUB. DATE(YYMMDD) 460901
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT (For other reports in this series see LA-613, LAMS-428, LAMS-428A, LAMS-429, LAMS-430, LAMS-431, LAMS-439, LAMS-446, and LAMS-447. For summary report see LAMS-434.) This report describes the firing and repeat-back instrumentation used on the LSM-60 for the underwater atomic bomb explosion, Test Baker. The firing signals from the USS Cumberland AV-17, 15 nautical miles away, were transmitted simultaneously on three radio channels in the 2 to 5 megacycle band. Audio modulations were detected and selected by special filter units to operate appropriate relays which controlled the charging, arming, firing, or disarming of the X unit in the bomb. The associated repeat-back system consists of two radio channels in the 63 to 65 megacycle band with similar audio modulation and detection, which results in a series of monitor lights on the control console on board the AV-17. Thus the operator in charge has before him a continuous check on the progress of the firing sequence on the LSM-60. Multiple channels and parallel circuits are arranged to provide interlocking and to increase reliability. A system for testing the equipment both before and after connection to the X unit is also provided. Complete descriptions of the equipment, circuit diagrams, photographs, operational notes, and test results are included in this report.

801. KEYWORD(S) BAKER BURST/instrumentation ;BAKER BURST/radio communication systems ;BAKER BURST/telemetry ; INSTRUMENTATION;ELECTRONIC CIRCUITS

Item 202

150. REPORT NUMBER LAMS--431
110. PRIMARY TITLE(M) Crossroads technical instrumentation report: gamma timing radio link (test B) (U)
70. PERSONAL AUTHOR(M) Cabot, T.D.; Jerrems, A.S.
710. CORPORATE SOURCE Los Alamos Scientific Lab., NM (USA)
371. PUB. DATE(YYMMDD) 460901
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT (For other reports in this series see LA-613, LAMS-428, LAMS-428A, LAMS-429, LAMS-430, LAMS-432, LAMS-439, LAMS-446, and LAMS-447. For summary report see LAMS-434.) A 300 megacycle radio link system for remote measurements of a short time interval (about 100 microseconds) between two voltage pulses is described. The radio link itself is a modified form of the relay used in the Navy's model APS-20 (AEW) radar system. The input circuit includes a pulse amplifier which accepts pulses supplied for measurement and converts than into form suitable for sending through several hundred feet of cable to the transmitter. At the output of the link pulses are presented on oscilloscopes and photographed. A pulse coding system is employed to exclude spurious (interference) pulses from the output. Measurements are made at a range of 30,000 yards with a precision of +- 0.2 microseconds. (U)
801. KEYWORD(S) BAKER BURST/instrumentation ;BAKER BURST/radio communication systems ;BAKER BURST/radar relay systems ; BAKER BURST/telemetry ;INSTRUMENTATION;TELEMETRY;GAMMA RADIATION;ELECTRONIC CIRCUITS

Item 203

150. REPORT NUMBER LAMS--430
110. PRIMARY TITLE(M) Crossroads technical instrumentation report: tests A and B (U)
70. PERSONAL AUTHOR(M) Weiss, H.G.
710. CORPORATE SOURCE Los Alamos Scientific Lab., NM (USA)
371. PUB. DATE(YYMMDD) 460901
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT (For other reports in this series see LA-613, LAMS-428, LAMS-428A, LAMS-429, LAMS-431, LAMS-432, LAMS-439, LAMS-446, and LAMS-447. For summary report see LAMS-434.) Described in this report are the radio-links used in Tests Able and Baker for the remote operation of the various instrumentation. Discussed are the timing control laboratory and the portable timing units, their design, construction, and maintenance. Also included is a critique of the equipment on the basis of the

experience gained in the two tests. (U)
801. KEYWORD(S) ABLE BURST/instrumentation ;ABLE BURST/radio communication systems ;ABLE BURST/telemetry ;BAKER BURST/instrumentation ;BAKER BURST/radio communication systems ;BAKER BURST/telemetry ;INSTRUMENTATION; TELEMETRY;ELECTRONIC CIRCUITS

Item 204

150. REPORT NUMBER LAMS--429
110. PRIMARY TITLE(M) Crossroads technical instrumentation report: gamma-ray timing (test B)
70. PERSONAL AUTHOR(M) Nereson, N.
710. CORPORATE SOURCE Los Alamos Scientific Lab., NM (USA)
371. PUB. DATE(YYMMDD) 471114
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT

801. KEYWORD(S) BAKER BURST/implosion ;BAKER BURST/instrumentation ;BAKER BURST/telemetry ;BAKER BURST/transit time ; IMPLOSION;INSTRUMENTATION;GAMMA RADIATION;ELECTRONIC CIRCUITS

Item 205

150. REPORT NUMBER LAMS--428
110. PRIMARY TITLE(M) Crossroads technical instrumentation report: air-dropped condenser gauges (tests A and B) (U)
70. PERSONAL AUTHOR(M) Wieboldt, J.C.
710. CORPORATE SOURCE Los Alamos Scientific Lab., NM (USA)
371. PUB. DATE(YYMMDD) 460901
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT (For other reports in this series see LA-613, LAMS-429, LAMS-430, LAMS-431, LAMS-432, LAMS-439, LAMS-446, and LAMS-447. For summary report see LAMS-434.) Parachute gauges, released from B-29's, were used to obtain pressure-time curves of the blast in air at both Bikini shots. These gauges are equipped with transmitters, operating in the 55-63 mc range, which furnish radio link to the planes where the recording equipment was located. Described are the equipment, the

operational procedures, and the results of both Bikini measurements, and of earlier uses of the gauges. Included is a discussion by J. Hirschfelder of efficiency determinations from these blast gauge records. Thirty-six supplementary drawings are included in LAMS-428A. (U)

801. KEYWORD(S) INSTRUMENTATION/;ABLE BURST/instrumentation ;ABLE BURST/airborne electronic equipment ;ABLE BURST/yield ; ABLE BURST/telemetry ;ABLE BURST/blast measurements ; AIRBORNE ELECTRONIC EQUIPMENT/;YIELD/;BAKER BURST/instrumentation ;BAKER BURST/airborne electronic equipment ;BAKER BURST/yield ;BAKER BURST/telemetry ; BAKER BURST/blast measurements ;TELEMETRY/;HIROSHIMA BURST/blast measurements ;NAGASAKI BURST/blast measurements ;INSTRUMENTATION;YIELD;TELEMETRY;ELECTRONIC CIRCUITS

Item 206

150. REPORT NUMBER EGG--1183-5118
110. PRIMARY TITLE(M) First light phenomenon: a pictorial presentation (U)
70. PERSONAL AUTHOR(M) Mitchell, C.K.; Stewart, H.S.; Hoerlin, H.; Woodward, E.C.
710. CORPORATE SOURCE EG and G, Inc., Los Alamos, NM (USA)
371. PUB. DATE(YYMMDD) 801100
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT A series of reproductions of photographic streak camera records and streak spectrograms of the very early phases of atmospheric nuclear explosions is documented. These photographs were selected to demonstrate the characteristics of the First Light, and extremely sharp, intense light pulse which precedes the slower rising molecular Teller Light. The pulse was seen with the then-available detector sensitivities only on boosted devices, which yield a very high rate of gamma-ray energy deposition in the close-in atmosphere. The spectrum of the First Light is a continuum in the visible wavelength range. Free-free emission in the field of neutrals and in the presence of a strong radial electrostatic field is a physical process which can adequately explain the magnitude, duration, and dimensions of the light pulse.

801. KEYWORD(S) ATMOSPHERIC BURSTS/teller light ;TELLER LIGHT/streak photography ;FLATHEAD BURST/teller light ; DAKOTA BURST/teller light ;WILSON BURST/teller light ; HOOD BURST/teller light ;OWENS BURST/teller light ; DOPPLER BURST/teller light ;NEWTON BURST/teller light ; CHARLESTON BURST/teller light ;MORGAN BURST/teller light ;NUTMEG BURST/teller light

Item 207

150. REPORT NUMBER EGG--1183-5063
110. PRIMARY TITLE(M) Operation REDWING: analysis of the Flathead and Navajo chord experiments
70. PERSONAL AUTHOR(M) Mitchell, C.K.
710. CORPORATE SOURCE EG and G, Inc., Los Alamos, NM (USA)
371. PUB. DATE(YYMMDD) 790600
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT Analysis of chord experiments conducted at Operation REDWING on Flathead and Navajo event confirms that prompt radiation (gamma rays and neutrons) produces both continuum and discrete absorption in the vicinity of sea level nuclear bursts. The absorption is due primarily to NO{sub 2}, HNO{sub 2} and vibrationally excited O{sub 2}. NO{sub 2} and HNO{sub 2} are formed on a time scale equal to or shorter than the 200 ns time resolution of the Navajo experiment. The Navajo data show that quantities of NO{sub 2} and HNO{sub 2} formed follow energy deposition, or dose, over the 50 {mu}s time period data were taken. Time dependent column densities of both NO{sub 2} and HNO{sub 2}, measured over the Navajo chord geometry, fit a simple, strictly dose dependent model that assumes fast neutrons to be 2.44 more effective than gammas in the production of those absorbers. In neither chord experiment was dosing sufficient to produce observable absorption bands of NO{sub 2} and HNO{sub 2} in the spectrum of the weapon primaries. The prominent absorption features of vibrationally excited Schumann-Runge oxygen (O{sub 2}) were observed in the spectrum of both the primary and secondary stages. A continuous absorption as a function of wavelength is observed in the chord spectra. Plots of true weapon gamma yield vs apparent weapon gamma yield, as determined from the radiance in prominent N{sub 2}{sup +} Teller emission bands are presented that account for (1) resonance absorption within the bands and (2) absorption due to NO{sub 2}, HNO{sub 2} and the continuous absorption attributed to O{sub 2} .
801. KEYWORD(S) FLATHEAD BURST/chord experiments ;FLATHEAD BURST/teller light ;NAVAHO BURST/chord experiments ; NAVAHO BURST/teller light ;NITROGEN OXIDES/production ; NITROGEN OXIDES/absorption spectra ;GAMMA RADIATION; NEUTRONS;PRODUCTION;RADIATION DOSES

Item 208

150. REPORT NUMBER EGG--1183-5115
110. PRIMARY TITLE(M) Radiant characteristics of the high altitude

nuclear explosion Yucca (U)
70. PERSONAL AUTHOR(M) Colvin, J.D.
710. CORPORATE SOURCE EG and G, Inc., Los Alamos, NM (USA)
371. PUB. DATE(YYMMDD) 800400
34. CLASSIF. LEVEL TEXT Confidential
950. ABSTRACT

801. KEYWORD(S) YUCCA BURST/radiometric analysis ;YUCCA BURST/optical properties ;HEIGHT OF BURST/measurement ; ATMOSPHERIC BURSTS/height of burst ;MEASUREMENT;VISIBLE RADIATION;POWER

Item 209

150. REPORT NUMBER LA--8393-MS
110. PRIMARY TITLE(M) Output calculations and related activities funded by Defense Nuclear Agency 1975-1978 (U)
70. PERSONAL AUTHOR(M) Henderson, M.; Gordon, J.W.; Lilley, J.R.; Streetman, J.R.; Rich, M.; Whalen, P.P.
710. CORPORATE SOURCE Los Alamos Scientific Lab., NM (USA)
371. PUB. DATE(YYMMDD) 800900
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT The Annual Progress Reports on Output Calculations for 1975-1978 are combined into one document. Almost all activities relevant to x-ray neutron, and gamma-ray output are briefly discussed. The activities range from predictions of environments for underground effects tests to x-ray outputs from speculative design for x-ray sources. Also included are outputs from stockpile devices and system-Nuclear Warhead Modeling handbook. (U)

801. KEYWORD(S) MING BLADE BURST/electromagnetic pulse ;MING BLADE BURST/neutron spectra ;MING BLADE BURST/gamma spectra ; MING BLADE BURST/x-ray spectra ;HUSKY PUP BURST/neutron spectra ;HUSKY PUP BURST/gamma spectra ;HUSKY PUP BURST/x-ray spectra ;HYBLA FAIR BURST/x-ray spectra ; BLUE GILL BURST/gamma spectra ;KING FISH BURST/gamma spectra ;KING FISH BURST/x-ray spectra ;WEAPON 61/neutron spectra ;WEAPON 61/gamma spectra ;SMALL BOY BURST/gamma spectra ;DINING CAR BURST/electromagnetic pulse ;DINING CAR BURST/neutron spectra ;DIANA MIST BURST/x-ray spectra ; TAMBOURINE/x-ray spectra ; HIROSHIMA BURST/radiation doses ;NAGASAKI BURST/radiation doses ;HOLLY BURST/neutron spectra ; HOLLY BURST/gamma spectra ;WEAPON 78/x-ray spectra ; SPRINT/neutron spectra ; SPRINT/gamma spectra ;WEAPON 80/neutron spectra ;WEAPON 80/gamma spectra ;WEAPON 78/neutron spectra ;WEAPON 78/gamma spectra ;WEAPON 78/x-ray spectra ;WEAPON 76/neutron spectra ;WEAPON 76/gamma spectra ;WEAPON 76/x-ray spectra ;WEAPON 69/x-ray spectra ; WEAPON 61-4/gamma spectra ; WEAPON 61-4/x-ray spectra ;COUGAR/x-ray spectra ;WILDCAT/x-ray spectra ; NEUTRON SPECTRA/computer calculations ;GAMMA SPECTRA/computer calculations ;X-RAY SPECTRA/computer calculations ;NEUTRONS; GAMMA RADIATION;COUGAR;WILDCAT

Item 210

150.	REPORT NUMBER	LA--7787-MS
110.	PRIMARY TITLE(M)	Radiation transport in the LACROSSE event
70.	PERSONAL AUTHOR(M)	Hoerlin, H.
710.	CORPORATE SOURCE	Los Alamos Scientific Lab., NM (USA)
371.	PUB. DATE(YYMMDD)	790500
34.	CLASSIF. LEVEL TEXT	Secret
950.	ABSTRACT	

801. KEYWORD(S)

Item 211

150. REPORT NUMBER LA--8391-MS
110. PRIMARY TITLE(M) Chemistry of a nuclear fireball (U)
70. PERSONAL AUTHOR(M) Zinn, J.; Sutherland, C.D.; Hoerlin, H.; Wilson, D.; Mitchell, K.
710. CORPORATE SOURCE Los Alamos Scientific Lab., NM (USA)
371. PUB. DATE(YYMMDD) 800600
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT This report describes some results of theoretical and observational/ spectroscopic studies of chemical processes outside a nuclear fireball. It includes a quantitative interpretation of the chord spectrum from the 1956 Navajo test and an analysis of fireball streak spectra from the 1952 Ivy-King event. (U)
801. KEYWORD(S) ATMOSPHERIC BURSTS/ball of fire ;BALL OF FIRE/chemical reactions ;BALL OF FIRE/brightness ; ATMOSPHERE/chemical reactions ;AIR/chemical reactions ; KING BURST/ball of fire ;NAVAHO BURST/ball of fire ; BRIGHTNESS;ATMOSPHERE;AIR;IONIZATION;SPECTRA

Item 212

150. REPORT NUMBER LAMS--2843
110. PRIMARY TITLE(M) Reanalysis of selected alpha data from operations of 1956 through 1958 (U)
70. PERSONAL AUTHOR(M) Malik, J.
710. CORPORATE SOURCE Los Alamos Scientific Lab., NM (USA)
371. PUB. DATE(YYMMDD) 630301
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT (Revision of parts of LAMS-2772 and LAMS-2742) This report is to summarize the alpha data obtained on the devices fired in the 1958 project and in Operation Hardtack, as well as a few from Redwing and Plumbbob, reported in field reports. The present work is a complete reanalysis of the data. (U)
801. KEYWORD(S) HARDTACK/alpha measurements ;REDWING/alpha measurements ;PLUMBBOB/alpha measurements ; HARDTACK-PHASE II/alpha measurements ;ALPHA MEASUREMENTS/data tabulations ;BERNALILLO TEST/alpha measurements ;BLACKFOOT BURST/alpha measurements ;

BUTTERNUT BURST/alpha measurements ;CACTUS BURST/alpha measurements ; CATRON TEST/alpha measurements ;CHAVES TEST/alpha measurements ;COLFAX TEST/alpha measurements ; DE BACA BURST/alpha measurements ; DONA ANA BURST/alpha measurements ;EDDY BURST/alpha measurements ;ELDER BURST/alpha measurements ;FRANKLIN BURST/alpha measurements ;FRANKLIN PRIME BURST/alpha measurements ; GALILEO BURST/alpha measurements ;HIDALGO TEST/alpha measurements ; HOLLY BURST/alpha measurements ;HURON BURST/alpha measurements ;KEPLER BURST/alpha measurements ;KOA BURST/alpha measurements ;LEA BURST/alpha measurements ;LINDEN BURST/alpha measurements ;LUNA TEST/alpha measurements ;MAGNOLIA BURST/alpha measurements ;MORA BURST/alpha measurements ; NEWTON BURST/alpha measurements ;OTERO TEST/alpha measurements ;PASCAL TEST A/alpha measurements ;PASCAL TEST B/alpha measurements ;QUAY BURST/alpha measurements ;RIO ARRIBA BURST/alpha measurements ;SANTE FE BURST/alpha measurements ; SEQUOIA BURST/alpha measurements ;SOCORRO BURST/alpha measurements ;STOKES BURST/alpha measurements ;TOBACCO BURST/alpha measurements ;VALENCIA TEST/alpha measurements ; YELLOWWOOD BURST/alpha measurements ;HARDTACK;REDWING; PLUMBBOB

Item 213

150.	REPORT NUMBER	LA--1214
110.	PRIMARY TITLE(M)	Rate of growth of atomic fireballs
70.	PERSONAL AUTHOR(M)	Porzel, F.B.
710.	CORPORATE SOURCE	Los Alamos Scientific Lab., NM (USA)
371.	PUB. DATE(YYMMDD)	510203
34.	CLASSIF. LEVEL TEXT	Secret
950.	ABSTRACT	Previous theory predicted that the radius of the fireball should vary as the 0.4 power of the time from detonation. In the present work, the growth of the fireball is derived principally from the theory of strong shocks, but the equations of motion include two factors which have been previously neglected: first, an early phase of the explosion, where strong shock theory is not applicable, during which transport of energy by radiation is used as a model, and second, the variation in {alpha} predicted radius vs time curve with a variable power time whose average value is approximately 0.377 over the range of measurement. The results of Sandstone were 0.374 + 0.005.
801.	KEYWORD(S)	BALL OF FIRE/growth ;GROWTH;SIZE;KINEMATICS; SANDSTONE

Item 214

150. REPORT NUMBER LA--4569-MS
110. PRIMARY TITLE(M) High altitude explosion phenomenology. Quarterly report for the period ending September 30, 1970 (U)
70. PERSONAL AUTHOR(M) Hoerlin, H.
710. CORPORATE SOURCE Los Alamos Scientific Lab., NM (USA)
371. PUB. DATE(YYMMDD) 701200
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT None
801. KEYWORD(S) IONOSPHERIC BURSTS/bomb debris ;IONOSPHERIC BURSTS/radiation effects ;IONOSPHERIC BURSTS/ultraviolet radiation ;IONOSPHERIC BURSTS/multiple bursts ;BOMB DEBRIS/interactions ;BOMB DEBRIS MOTION/;ATMOSPHERIC BURSTS/multiple bursts ;ATOMIC EXPLOSIONS/multiple bursts ;BIRDSEED/;CHECK MATE BURST/;MAGNOLIA BURST/; MULTIPLE BURSTS/calculations ;SECEDE/; SPARTAN/calculations ;SPRINT/calculations ;STARFISH BURST/calculations ;TIGHT ROPE BURST/calculations ; PLASMA;AIR;SIMULATION;RESEARCH PROGRAMS;BIRDSEED; CALCULATIONS;SIMULATION;SECEDE;SPARTAN;SPRINT

Item 215

150. REPORT NUMBER LA--3409-MS
110. PRIMARY TITLE(M) Prompt air fluorescence excited by high altitude nuclear explosions. Data and results (status report). Operations Hardtack and Dominic (U)
70. PERSONAL AUTHOR(M) Bennett, E.W.
710. CORPORATE SOURCE Los Alamos Scientific Lab., NM (USA)
371. PUB. DATE(YYMMDD) 660518
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT Photoelectric and spectrographic data on x-ray excited air fluorescence from Starfish, Bluegill, Kingfish, and Teak are presented. After correction for air transmission and instrumental effects, the data are analyzed with the aid of the LASL HAF code to obtain the fluorescence efficiency. An average of 1.2% is found as the efficiency for each of the molecular nitrogen spectral systems, N{sub 2}{sup +} first negative and N{sub 2} second positive. However, the data are quite inconsistent. (U)
801. KEYWORD(S) STARFISH BURST/teller light ;TEAK BURST/teller light ;KING FISH BURST/teller light ;BLUE GILL BURST/teller light ; FLUORESCENCE/;TELLER LIGHT/; AIR/fluorescence ;PHOTOELECTRIC EMISSION; X RADIATION; OPTICAL DETECTION;HARAC CODE;HAF CODE;AIR

Item 216

150. REPORT NUMBER LA--2479
110. PRIMARY TITLE(M) Neutron spectra from the secondary of Koa
70. PERSONAL AUTHOR(M) Brolley, J.E. Jr.; Visscher, W.M.
710. CORPORATE SOURCE Los Alamos Scientific Lab., NM (USA)
371. PUB. DATE(YYMMDD) 601114
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT During Operation Hardtack, the time integrated neutron energy spectrum from a matrix of points of the Koa secondary was obtained. Spatial resolution was obtained by having a matrix of detectors, possessing inherent energy resolution, map onto the secondary subject to the constraints of two pinholes. The spectra from some regions of the secondary agree with calculations. Intensities from other regions were not consonant with prognostications.
801. KEYWORD(S)

Item 217

150. REPORT NUMBER LA--2323
110. PRIMARY TITLE(M) External neutron measurements made by LASL group J-12 on Operation Hardtack
70. PERSONAL AUTHOR(M) Biggers, W.A.; Brown, L.J.; Kohr, K.C.
710. CORPORATE SOURCE Los Alamos Scientific Lab., NM (USA)
371. PUB. DATE(YYMMDD) 581215
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT Program 12 of Operation Hardtack, External Neutron Measurements, was designed to determine the configuration of the active material of certain devices during the nuclear reactions. This was done by the Pinex technique, whereby a neutron-collimating "pinehole" is placed between the device and detector. A pinhole camera image of the device is formed on the detector, which is a sandwich of various materials to be activated by the neutrons. The sample may be cut into segments and counted on scintillation counters or placed against a photographic film to produce an autoradiographic image. Pictures showing the configuration of active materials were obtained for four primaries and two secondaries. Experimental results from both the film and counting techniques are compared with calculated results.
801. KEYWORD(S) HARDTACK/neutron measurements ;PINEX/measuring instruments ;HARDTACK;PINEX

Item 218

150.	REPORT NUMBER	LA--2313
110.	PRIMARY TITLE(M)	Cactus Tritex experiment. Operation Hardtack
710.	CORPORATE SOURCE	Los Alamos Scientific Lab., NM (USA)
371.	PUB. DATE(YYMMDD)	590300
34.	CLASSIF. LEVEL TEXT	Secret
950.	ABSTRACT	
801.	KEYWORD(S)	

Item 219

150.	REPORT NUMBER	LA--2251
110.	PRIMARY TITLE(M)	Electromagnetic measurement of time interval. Operation Hardtack
70.	PERSONAL AUTHOR(M)	Janco, M.
710.	CORPORATE SOURCE	Los Alamos Scientific Lab., NM (USA)
371.	PUB. DATE(YYMMDD)	580900
34.	CLASSIF. LEVEL TEXT	Secret
950.	ABSTRACT	Electromagnetic measurements of time intervals were made by Project 17.2 from site Bruce on Eniwetok Atoll during Operation Hardtack. Time intervals were measured on Butternut, Koa, Yellowwood, Tobacco, Sycamore, Walnut, Elder, Oak, Dogwood, Poplar, Pisonia, Olive, and Pine.
801.	KEYWORD(S)	PINE BURST/time interval-tn ;OLIVE BURST/time interval-tn ;PISONIA BURST/time interval-tn ;POPLAR BURST/time interval-tn ;OAK BURST/time interval-tn ; ELDER BURST/time interval-tn ;WALNUT BURST/time interval-tn ;SYCAMORE BURST/time interval-tn ;TOBACCO

BURST/time interval-tn ;YELLOWWOOD BURST/time interval-tn ;KOA BURST/time interval-tn ;BUTTERNUT BURST/time interval-tn ; TIME INTERVAL-TN/; ELECTROMAGNETIC RADIATION

Item 220

150.	REPORT NUMBER	LA--2247
110.	PRIMARY TITLE(M)	Safety tests and critical mass measurements on Hardtack devices
70.	PERSONAL AUTHOR(M)	Wood, D.P.; Plassmann, E.A.
710.	CORPORATE SOURCE	Los Alamos Scientific Lab., NM (USA)
371.	PUB. DATE(YYMMDD)	580800
34.	CLASSIF. LEVEL TEXT	Secret
950.	ABSTRACT	
801.	KEYWORD(S)	

Item 221

150.	REPORT NUMBER	LA--2246
110.	PRIMARY TITLE(M)	Vulnerability of nuclear weapons to neutrons from a nuclear explosion
70.	PERSONAL AUTHOR(M)	Goad, W.B.; Allen, L. Jr.
710.	CORPORATE SOURCE	Los Alamos Scientific Lab., NM (USA)
371.	PUB. DATE(YYMMDD)	580901
34.	CLASSIF. LEVEL TEXT	Secret
950.	ABSTRACT	Theoretical and experimental work on the

vulnerability of nuclear weapons to neutrons from nearby nuclear explosions is discussed. Results are presented on (a) neutron emission by various one- and two-stage nuclear weapons, (b) transport of these neutrons through the atmosphere, and (c) their penetration into various primary bombs. The damage caused to the penetrated weapon is also discussed, and predictions are made of lethal ranges when one weapon is attacked by another for various pairs of attacking and attacked weapons.

801. KEYWORD(S)

Item 222

150. REPORT NUMBER ITR--1603
110. PRIMARY TITLE(M) Dimensions of nuclear cloud from a very-low-yield burst. Project 2.14b/34.9 of Operation Hardtack. Interim test report
70. PERSONAL AUTHOR(M) Sweeney, H.G.; Cowan, M. Jr.
710. CORPORATE SOURCE Sandia Corp., Albuquerque, NM (USA)
371. PUB. DATE(YYMMDD) 581212
34. CLASSIF. LEVEL TEXT Confidential
950. ABSTRACT Dimensions of the cloud produced by Burst Fig were determined as a function of time by photographic methods to aid an analysis of fallout data. Preliminary results indicate that the cloud stabilized at about H + 6 minutes with a maximum diameter and height of 1900 and 5400 feet respectively. The shape of the cloud could be approximated by a cylindrical puff and a cylindrical stem. Stem height was about 75% of the total cloud height and puff diameter was 1.35 times stem diameter.
801. KEYWORD(S) ATOMIC CLOUD/size ;FIG BURST/atomic cloud ;SIZE; LOW-YIELD WEAPONS;SHAPE;COLUMN FORMATION;BASE SURGE

Item 223

150. REPORT NUMBER WDC--951
110. PRIMARY TITLE(M) Report to the Test Director on the Thermonuclear Test Device, Sausage
70. PERSONAL AUTHOR(M) Good, C.W.
371. PUB. DATE(YYMMDD) 530700
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT

reactions ;LUTETIUM 175/neutron reactions ;IRIDIUM 191/neutron reactions ;IRIDIUM 193/neutron reactions ; GOLD 197/neutron reactions ;THALLIUM 203/neutron reactions ;CRITICAL ASSEMBLIES/computer calculations ; XENON 129/half-life ;XENON 131/half-life ;XENON 135/half-life ;AMMONIA/solubility ;PLUTONIUM/deuteration ; BARBIZON/;REVIEWS;BOOSTING;MIXING;LASERS;PERFORMANCE; DENSITY;VELOCITY;ALUMINUM;CALCULATIONS;SPRINT;AIR; ATMOSPHERE;GRIP;PHASE STUDIES;TENSILE PROPERTIES; VELOCITY;NEUTRONS;FAST NEUTRONS;MEV RANGE 10-100;CROSS SECTIONS;SCANDIUM 44;NICKEL 57;YTTRIUM 88; YTTRIUM 87; ZIRCONIUM 89;SILVER 106;SILVER 105;EUROPIUM 149;THULIUM 168;THULIUM 167;LUTETIUM 174;LUTETIUM 173;IRIDIUM 190; IRIDIUM 189; IRIDIUM 192;GOLD 196;GOLD 195;THALLIUM 202; THALLIUM 201;HALF-LIFE;ISOMERIC NUCLEI;GROUND STATES; AMMONIA;SOLUBILITY;HYDROGEN; NITROGEN;PLUTONIUM; DEUTERATION;CHEMICAL REACTION KINETICS

Item 240

150. REPORT NUMBER LA--5843-PR
110. PRIMARY TITLE(M) Annual report on radiation characterization program, FY 1974 (U)
70. PERSONAL AUTHOR(M) Preeg, W.E.; Henson, R.M. (comps.)
710. CORPORATE SOURCE Los Alamos Scientific Lab., NM (USA)
371. PUB. DATE(YYMMDD) 750400
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT Monitoring of the 1974 French nuclear test series is reported. Neutron and gamma output of the Flathead event is shown. Teller light from gamma rays, including carrier effects, is discussed. (LTW)
801. KEYWORD(S) FRENCH ATOMIC EXPLOSIONS/monitoring ;FLATHEAD BURST/neutron spectra ;FLATHEAD BURST/gamma spectra ; GAMMA RADIATION/teller light ;TELLER LIGHT/calculations ; MONITORING

Item 241

150. REPORT NUMBER LA--5130-PR
110. PRIMARY TITLE(M) LASL weapons quarterly for the period ending September 30, 1972 (U)
70. PERSONAL AUTHOR(M) Redman, L.M.; Carnes, C.C. Jr. (comps.)
710. CORPORATE SOURCE Los Alamos Scientific Lab., NM (USA)
371. PUB. DATE(YYMMDD) 730100
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT Progress is reported on the following studies: Albino; laser program summary; Cebolla results; Chessboard review of the Cactus experiment; Yerba impulse mesurements; Misty North experiments; high-altitude and atmospheric phenomena; late-time

phenomenology at low altitudes; neutron-induced ground activities from small TN and fission weapons; weapons computations; materials and fabrication technology; containment; component development; Site Defense; Atarque results; Oscuro results; Mk 400 RV; Subsonic Cruise Armed Decoy (SCAD); Pershing II Phase 1 study; Cuchillo results; Solano results; Re-containing W--Fe--Ni alloys; Grip studies; stockpile management; DOD sources and support; physics and mathematics; instruments and techniques; chemistry and metallurgy; readiness program; and test detection. (LTW)

801. KEYWORD(S) ALBINO/;LASERS/design ;LASERS/performance ; LASER-DRIVEN FUSION/computer calculations ;CEBOLLA BURST/;CACTUS BURST/temperature ; ALUMINUM/x-ray impulse ; ALUMINUM/blowoff ;TANTALUM/x-ray impulse ; TANTALUM/blowoff ;BERYLLIUM/x-ray impulse ; BERYLLIUM/blowoff ;ASBESTOS PHENOLIC/x-ray impulse ; ASBESTOS PHENOLIC/blowoff ; YERBA BURST/effects experiments ;MISTY NORTH BURST/effects experiments ; ALUMINUM OXIDES/x-ray impulse ;ALUMINUM TITANATES/x-ray impulse ;HAFNIUM OXIDES/x-ray impulse ; HAFNIUM TITANATES/x-ray impulse ;PECAN/x-ray impulse ;QUARTZ PHENOLIC/x-ray impulse ;SHOCK WAVES/computer calculations ;ATMOSPHERIC BURSTS/shock waves ; ATMOSPHERIC BURSTS/computer calculations ; TACTICAL ATOMIC WEAPONS/;SURFACE BURSTS/;COAX CODE/;RADIATION TRANSPORT/computer codes ;APPLEJACK/; PLASTIC-BONDED EXPLOSIVES/physical properties ;SITE DEFENSE/; ANTIMISSILE MISSILES/missile warheads ;ATARQUE BURST/; OSCURO BURST/;RE-ENTRY VEHICLES-400/design ; SCAD/design ;PERSHING II/missile warheads ;CUCHILLO BURST/;SOLANO TEST/;TUNGSTEN BASE ALLOYS/tensile properties ;NICKEL ALLOYS/tensile properties ;IRON ALLOYS/tensile properties ;RHENIUM ALLOYS/tensile properties ; GRIP/tensile properties ;GRIP/phase diagrams ; EQUATION OF STATE/calculations ;FERMIUM 257/spontaneous fission ; CALIFORNIUM 252/spontaneous fission ; LUTETIUM 175/proton reactions ; LUTETIUM 175/neutron reactions ; CALCIUM 40/neutron reactions ; THULIUM 169/neutron reactions ;THALLIUM 203/neutron reactions ;GOLD 197/neutron reactions ;IRIDIUM 193/neutron reactions ; IRIDIUM 191/neutron reactions ; PALLADIUM 108/energy levels ;RUBIDIUM 85/energy levels ;ALBINO;LASERS;DESIGN; PERFORMANCE;BLOWOFF;TANTALUM;BERYLLIUM;PECAN;NEUTRONS; RADIOACTIVITY;APPLEJACK;GRIP;CALCULATIONS;PROMPT NEUTRONS;HAFNIUM 175;HAFNIUM 173;HAFNIUM 172;HAFNIUM 171; HAFNIUM 170;CROSS SECTIONS;MEV RANGE 100-1000;ALPHA PARTICLES;ARGON 37;MEV RANGE 01-10; NEUTRONS;THULIUM 168; LUTETIUM 174;THALLIUM 202;GOLD 196;IRIDIUM 192; IRIDIUM 190;CROSS SECTIONS;MEV RANGE 01-10;SPIN;PARITY

Item 242

150.	REPORT NUMBER	NVO--102-07
110.	PRIMARY TITLE(M)	NV program and project schedule
710.	CORPORATE SOURCE	USAEC Nevada Operations Office, Las Vegas
371.	PUB. DATE(YYMMDD)	740927
34.	CLASSIF. LEVEL TEXT	Secret
950.	ABSTRACT	This document summarizes Nevada Operations Office related activities for planning and information purposes. In addition to the general updating of the material published in the previous issue (May 9, 1974), the principal items of interest reflected in this document are: projection of the underground testing program in the first half FY 1975; findings of the spring environmental effects survey of Amchitka; FY 1975 program activities related to nuclear test readiness; NV Applied Energy Technology Program; and status of DBER-sponsored activities in the Pacific. (LTW)
801.	KEYWORD(S)	ATOMIC WEAPON TESTS/research programs ;NEVADA TEST SITE/research programs ;UNDERGROUND BURSTS/research programs ; PLOWSHARE/research programs ; ENIWETOK/radiation monitoring ;ENERGY SOURCES/research programs ;ADMINISTRATIVE REPORTS;ENIWETOK

Item 243

150.	REPORT NUMBER	NVO--102-06
110.	PRIMARY TITLE(M)	NV program and project schedule
710.	CORPORATE SOURCE	USAEC Nevada Operations Office, Las Vegas
371.	PUB. DATE(YYMMDD)	740530
34.	CLASSIF. LEVEL TEXT	Secret
950.	ABSTRACT	This document summarizes Nevada Operations Office related activities for planning and information purposes. In addition to the general updating of the material published in the previous issue (September 26, 1973), the principal items of interest reflected in this document are: projection of the underground testing program in the second half FY 1974; FY 1974 program activities related to nuclear test readiness Status of NRDS close-down activities; NV Applied Energy Technology Program; and status of the Eniwetak Radiological Survey. (LTW)
801.	KEYWORD(S)	ATOMIC WEAPON TESTS/research programs ;NEVADA TEST SITE/research programs ;UNDERGROUND BURSTS/research programs ; ENIWETOK/radiation monitoring

Item 244

150.	REPORT NUMBER	NVO--102-05

110. PRIMARY TITLE(M) NV program and project schedule
710. CORPORATE SOURCE USAEC Nevada Operations Office, Las Vegas
371. PUB. DATE(YYMMDD) 740926
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT This document summarizes Nevada Operations Office related activities for planning and information purposes. In addition to the general updating of the material published in the previous issue (February 28, 1973), the principal items of interest reflected in this document are: projection of the underground testing program in the first half FY 1974; activities with regard to Supplemental Test Sites disposition and monitoring; FY 1974 program activities related to nuclear test readiness. Status of NRDS close-down activities; and NTS Plutonium Research Program. (LTW)
801. KEYWORD(S) UNDERGROUND BURSTS/research programs ;ATOMIC WEAPON TESTS/research programs ;NEVADA TEST SITE/research programs ; PLOWSHARE/research programs ; ENIWETOK/radiation monitoring ;ENIWETOK

Item 245

150. REPORT NUMBER LA--5995-PR
110. PRIMARY TITLE(M) LASL weapons quarterly for the period ending March 31, 1975 (U)
70. PERSONAL AUTHOR(M) Redman, L.M. (comp.); Eden, E. (ed.)
710. CORPORATE SOURCE Los Alamos Scientific Lab., NM (USA)
371. PUB. DATE(YYMMDD) 750500
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT

801. KEYWORD(S) SAPELLO BURST/computer calculations ;GAMMA-RAY WEAPONS/computer calculations ;GAMMA-RAY WEAPONS/design ; PRATT BURST/;BALL OF FIRE/computer calculations ; FLATHEAD BURST/spectra ;NAVAHO BURST/spectra ; IONOSPHERE/ozone ;GEOMAGNETIC FIELD/;MAGNETOSPHERE/; TORDO/; SYMPATHETIC DETONATION/statistics ; TRUNK/fabrication ; LASERS/design ;LASER-DRIVEN FUSION/; THERMONUCLEAR REACTORS/design ;ISOTOPE SEPARATION/lasers ;URANIUM HEXAFLUORIDE/ultraviolet spectra ;URANIUM HEXAFLUORIDE/infrared spectra ; SULFUR FLUORIDES/absorption spectra ;CLEAN WEAPONS/; SUPPRESSED-RADIATION WEAPONS/;WEAPON 76/re-entry vehicles-4 ;BILGE BURST/;MOLOCH/design ;MOLOCH/testing ; TOPGALLANT BURST/;ARCTURUS/design ;ARCTURUS/testing ; AMERICIUM 241/neutron reactions ;PLUTONIUM BASE ALLOYS/compressibility ;PLUTONIUM BASE ALLOYS/tensile properties ;GALLIUM ALLOYS/compressibility ;GALLIUM ALLOYS/tensile properties ;URANIUM PENTAFLUORIDE/crystal structure ;X-0219/detonation ;SPECTRA;IONOSPHERE; MAGNETOSPHERE;TORDO;STATISTICS;TRUNK;FABRICATION;DESIGN; MOLOCH;TESTING;ARCTURUS;CROSS SECTIONS;CAPTURE;X-0219; DETONATION

Item 246

150. REPORT NUMBER LA--4995
110. PRIMARY TITLE(M) Radiation-hydrodynamics computations for ten sea level test events (U)
70. PERSONAL AUTHOR(M) Zinn, J.; Kodis, J.W.; Sandford, M.T. II; Hoerlin, H.; Horak, H.G.
710. CORPORATE SOURCE Los Alamos Scientific Lab., NM (USA)
371. PUB. DATE(YYMMDD) 720900
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT A set of calculations of fireball development and thermal output for 10 seal level nuclear test events is described. The 10 events span a range of yields between 1 kt and 10 Mt and were selected on the basis of the quality of supporting optical and thermal data, with which the calculations are compared. The computer times of thermal minima are in good agreement with the data, although computed second maximum times are early by about 10%. Other observed and calculated inflections in the optical output signatures are discussed. The computed thermal output fractions are found to decrease with increasing weapon yield in agreement with the observed trend. The absolute magnitudes of the computed thermal fractions appear to be too low by about 10%. The

attenuation of early fireball light by gamma-ray and neutron-produced ''smog'' is discussed, and computed results are compared with data from past nuclear ''chord'' experiments. (u) (auth)

801. KEYWORD(S) ATMOSPHERIC BURSTS/ball of fire ;ENCINO BURST/ball of fire ;NAMBE BURST/ball of fire ;TRUCKEE BURST/ball of fire ; KING BURST/ball of fire ;HARLEM BURST/ball of fire ;CHAMA BURST/ball of fire ;YESO BURST/ball of fire ; HOUSATONIC BURST/ball of fire ;TUMBLER-SNAPPER BURST 1/ball of fire ;TUMBLER-SNAPPER BURST 4/ball of fire ; COMPUTER CALCULATIONS;THERMAL RADIATION

Item 247

150. REPORT NUMBER LA--5811-MS
110. PRIMARY TITLE(M) Neutron and gamma-ray output for the Flathead event (U)
70. PERSONAL AUTHOR(M) Preeg, W.E.; Rogers, B.B.
710. CORPORATE SOURCE Los Alamos Scientific Lab., NM (USA)
371. PUB. DATE(YYMMDD) 741100
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT Detailed neutron and gamma-ray output calculations have been made for the Flathead event. Energy deposition calculations along a chord between an argon flash and observing station have been made to provide input to the interpretation of this optical experiment. A comparison of one-dimensional calculations with the actual calculation demonstrates that the 3D aspects of the problem change the predicted output significantly along the chord. (U) (auth)
801. KEYWORD(S) FLATHEAD BURST/neutron spectra ;FLATHEAD BURST/gamma spectra

Item 248

150. REPORT NUMBER UCRL--50000-74-4
110. PRIMARY TITLE(M) Military application programs. Monthly report, April 1974 (U)
70. PERSONAL AUTHOR(M) Coyle, P.E.; Berlo, R.C.; McCaleb, C.S. (eds.)
710. CORPORATE SOURCE California Univ., Livermore (USA). Lawrence Livermore Lab.
371. PUB. DATE(YYMMDD) 740000
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT

801. KEYWORD(S)

Item 249

150. REPORT NUMBER UCRL--14397-Rev.1
110. PRIMARY TITLE(M) Total mass and concentration of particles in dust clouds (U).
70. PERSONAL AUTHOR(M) Gutmacher, R.G.; Higgins, G.H.
710. CORPORATE SOURCE California Univ., Livermore (USA). Lawrence Radiation Lab.
371. PUB. DATE(YYMMDD) 650928
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT A nuclear device in the megaton yield range, detonated on the surface, raises a large quantity of dust and water vapor into the stratosphere. The values of total mass and concentration in the dust cloud and the crater dimensions are given for 7 different events in the Pacific Test Series. Applicable data from Plowshare events Sedan and Palanquin are included. The effects that volatility and fractionation have on the choice of a bomb fraction indicator and on the reliability of the cloud mass calculations are considered. Information on correlation of crater volume with cloud mass is given. Dispersion in early cloud history is discussed. An appendix discusses natural particle concentrations in the high troposphere.
801. KEYWORD(S) SURFACE BURSTS/craters ;SURFACE BURSTS/atomic cloud ;APACHE BURST/craters ;APACHE BURST/atomic cloud ; BRAVO BURST/craters ;BRAVO BURST/atomic cloud ;KOON BURST/craters ;KOON BURST/atomic cloud ;LACROSSE BURST/craters ;LACROSSE BURST/atomic cloud ;MOHAWK BURST/craters ;MOHAWK BURST/atomic cloud ;PALANQUIN BURST/craters ;PALANQUIN BURST/atomic cloud ;SEDAN BURST/craters ;SEDAN BURST/atomic cloud ;TEWA BURST/craters ;TEWA BURST/atomic cloud ;ZUNI BURST/craters ;ZUNI BURST/atomic cloud ;DUSTS;WATER VAPOR;CRATERS;PARTICLES;FRACTIONATION-WD;STRATOSPHERE; MASS

Item 250

150. REPORT NUMBER LAMS--921
110. PRIMARY TITLE(M) Analysis of fireball growth at Sandstone. Progress report
70. PERSONAL AUTHOR(M) Orphan, R.C.
710. CORPORATE SOURCE Los Alamos Scientific Lab., NM (USA)
371. PUB. DATE(YYMMDD) 490727
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT Measurements of fireball diameter vs. time in the region before the light minimum are summarized in graphs. In general, it was found that in the region where the fireball diameter and the shock front coincide the fireball diameter increases in proportion to D = (a + t){sup 0}.{sup 374+-005} where t is in milliseconds and the diameter is in meters, and a is an apparent displacement in the time variable. Relative yields for the three Sandstone bombs were determined and the results compared with radio-chemistry data. It can be said that the comparison by two separate methods was good. The Yoke shot relative to x-ray varied from the radiochemistry results by 6%. The Zebra shot relative to x-ray differed from radiochemistry results by less than 2%.
801. KEYWORD(S) YOKE BURST/yield ;YOKE BURST/ball of fire ;ZEBRA BURST/yield ;ZEBRA BURST/ball of fire ;X-RAY BURST/yield ;X-RAY BURST/ball of fire ;BALL OF FIRE/;YIELD

Item 251

150. REPORT NUMBER WT--1359
110. PRIMARY TITLE(M) Report of the commander, Task Group 7.1. Operation Redwing
710. CORPORATE SOURCE Los Alamos Scientific Lab., NM (USA)
371. PUB. DATE(YYMMDD) 560800
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT A description of the activities of Task Group 7.1 at Operation Redwing is presented. Summaries are included of the following experimental programs: Task Unit 3, Department of Defense; Task Unit 1, Los Alamos Scientific Laboratory; Task Unit 2, University of California Radiation Laboratory; and Task Unit 4, Sandia Corporation. General objectives of the programs are discussed, and the devices and weapons tested are described.
801. KEYWORD(S) REDWING/administrative reports ;REDWING/effects experiments ;REDWING/diagnostic experiments ;REDWING

Item 252

150. REPORT NUMBER WT--1358
110. PRIMARY TITLE(M) Release tone system. Project 31.2 of Operation Redwing
70. PERSONAL AUTHOR(M) Ray, B.M.; Scussel, R.J.
710. CORPORATE SOURCE Sandia Corp., Albuquerque, NM (USA)
371. PUB. DATE(YYMMDD) 570200
34. CLASSIF. LEVEL TEXT Confidential
950. ABSTRACT This report describes in detail the operation and components of a frequency shift/frequency modulation system which provides telemetering of bomb release time from an aircraft to a ground station.
801. KEYWORD(S) REDWING/telemetry ;BOMB RELEASE/telemetry ;REDWING; TELEMETRY

Item 253

150. REPORT NUMBER UCRL--5168
110. PRIMARY TITLE(M)

70. PERSONAL AUTHOR(M) Hodges, A.J. Jr.
710. CORPORATE SOURCE California Univ., Livermore (USA). Lawrence Radiation Lab.
371. PUB. DATE(YYMMDD) 571216
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT

801. KEYWORD(S)

Item 254

150. REPORT NUMBER UCRL--5314
110. PRIMARY TITLE(M)

70. PERSONAL AUTHOR(M) Waldron, R.L.; Naillon, P.M.
710. CORPORATE SOURCE California Univ., Livermore (USA). Lawrence Radiation Lab.
371. PUB. DATE(YYMMDD) 580804
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT

801. KEYWORD(S)

Item 255

150. REPORT NUMBER UCRL--5336
110. PRIMARY TITLE(M)

70. PERSONAL AUTHOR(M) Stone, R.G.
710. CORPORATE SOURCE California Univ., Livermore (USA). Lawrence Radiation Lab.
371. PUB. DATE(YYMMDD) 580900
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT

801. KEYWORD(S)

Item 256

150.	REPORT NUMBER	UCRL--5390
110.	PRIMARY TITLE(M)	Data book for Piccolo devices. Operation Hardtack
70.	PERSONAL AUTHOR(M)	Crooks, L.; Karpenko, V.
710.	CORPORATE SOURCE	California Univ., Livermore (USA). Lawrence Radiation Lab.
371.	PUB. DATE(YYMMDD)	581000
34.	CLASSIF. LEVEL TEXT	Secret
950.	ABSTRACT	

801. KEYWORD(S)

Item 257

150.	REPORT NUMBER	UCRL--5391
110.	PRIMARY TITLE(M)	
70.	PERSONAL AUTHOR(M)	Henry, C.R.
710.	CORPORATE SOURCE	California Univ., Livermore (USA). Lawrence Radiation Lab.
371.	PUB. DATE(YYMMDD)	581100
34.	CLASSIF. LEVEL TEXT	Secret
950.	ABSTRACT	

801. KEYWORD(S)

Item 258

150. REPORT NUMBER UCRL--5313
110. PRIMARY TITLE(M)

70. PERSONAL AUTHOR(M) Waldron, R.L.; Naillon, P.M.
710. CORPORATE SOURCE California Univ., Livermore (USA). Lawrence Radiation Lab.
371. PUB. DATE(YYMMDD) 581107
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT

801. KEYWORD(S)

Item 259

150. REPORT NUMBER UCRL--5276
110. PRIMARY TITLE(M)

70. PERSONAL AUTHOR(M) Henry, C.R.
710. CORPORATE SOURCE California Univ., Livermore (USA). Lawrence Radiation Lab.
371. PUB. DATE(YYMMDD) 590120
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT

801. KEYWORD(S)

Item 260

150. REPORT NUMBER UCID--4265
110. PRIMARY TITLE(M) Simplified method for the determination of device yield from the measured integrated gamma pulse (U)
70. PERSONAL AUTHOR(M) McMaster, W.H.
710. CORPORATE SOURCE California Univ., Livermore (USA). Lawrence Radiation Lab.
371. PUB. DATE(YYMMDD) 590908
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT The method is based on a calculation of escape probabilities. Examples are given for the Swan, Robin, and Wren devices.
801. KEYWORD(S)

Item 261

150. REPORT NUMBER WT--1370
110. PRIMARY TITLE(M) Fireball yields, August 17, 1959. Project 10.1 of Operation Redwing
70. PERSONAL AUTHOR(M) Mullaney, J.F.; Blumberg, L.N.; Cowan, R.D.; Gatt, L.; Hoerlin, H.; Jordan, T.J. Jr.
710. CORPORATE SOURCE Los Alamos Scientific Lab., NM (USA)
371. PUB. DATE(YYMMDD) 620223
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT The yields for Blackfoot, Cherokee, Dakota, Erie,

Flathead, Huron, Lacrosse, Navajo, Osage, and Seminole bursts of Operation Redwing have been calculated from fireball diameter-time data using several related methods. The yield numbers obtained from these calculations are presented, and a yield is recommended for each burst.

801. KEYWORD(S) BLACKFOOT BURST/yield ;BLACKFOOT BURST/ball of fire ;CHEROKEE BURST/yield ;CHEROKEE BURST/ball of fire ; DAKOTA BURST/yield ;DAKOTA BURST/ball of fire ;ERIE BURST/yield ;ERIE BURST/ball of fire ; FLATHEAD BURST/yield ; FLATHEAD BURST/ball of fire ;HURON BURST/yield ;HURON BURST/ball of fire ;LACROSSE BURST/yield ;LACROSSE BURST/ball of fire ;NAVAHO BURST/yield ;NAVAHO BURST/ball of fire ; OSAGE BURST/yield ; OSAGE BURST/ball of fire ;SEMINOLE BURST/yield ;SEMINOLE BURST/ball of fire ;YIELD

Item 262

150. REPORT NUMBER PM-B--18
110. PRIMARY TITLE(M)

70. PERSONAL AUTHOR(M) Toll, J.
710. CORPORATE SOURCE Princeton Univ., NJ (USA). Project Matterhorn
371. PUB. DATE(YYMMDD) 520915
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT

801. KEYWORD(S)

Item 263

150. REPORT NUMBER PM-B--37

Order number 940406-165953-13 -001-001
page 140 set 5 with 341 of 341 items

110. PRIMARY TITLE(M) Project Matterhorn
70. PERSONAL AUTHOR(M) Wheeler, J.A.
710. CORPORATE SOURCE Princeton Univ., NJ (USA). Project Matterhorn
371. PUB. DATE(YYMMDD) 530831
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT This is a final summary report for Project Matterhorn which was a Los Alamos subcontract for theoretical work on thermonuclear reactions and gadgets at Princeton University. Included are a discussion of the history of the project, a bibliography of all Matterhorn publications, and discussions of: two solid fuel supers, burning, the Ivy Mike Burst, compression, thermonuclear reactions in general, the runaway super, and mixing.
801. KEYWORD(S)

Item 264

150. REPORT NUMBER DIR--1992
110. PRIMARY TITLE(M) Los Alamos Scientific Laboratory program status. Weapons research and development, April-June 1965. Part 2 of two (U). (Special Access)
710. CORPORATE SOURCE Los Alamos Scientific Lab., NM (USA)
371. PUB. DATE(YYMMDD) 650803
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT None
801. KEYWORD(S) ALUMINUM ALLOYS/physical properties ; ASROC/; ATOMIC EXPLOSIONS/containment ; ATOMIC PROJECTILES/design ; CLASS D WEAPONS/design ; WEAPON 61/design ;BARBEL BURST/yield ; BLUE GILL BURST/yield ;BOLTZMANN BURST/yield ;PARROT BURST/yield ;ERIE BURST/yield ; GUANAY BURST/yield ;TERN BURST/yield ; BRONZE BURST/; BUTEO BURST/;COUGAR/;CRESS/;DASHAR/;DILUTED WATERS BURST/;MAUVE BURST/; MUSCOVY BURST/;OSTRICH/;PETREL BURST/;PERSHING/;PITS/corrosion ; PITS/surveillance ; DOVEKIE BURST/;KESTREL BURST/;LIGHTBULB/;MAGNESIUM OXIDES/physical properties ; REFRACTORY MATERIALS/physical properties ;SCARAB/;SCREAMER BURST/; SRAM/;TSETSE/;UNDERGROUND BURSTS/;WAGTAIL BURST/;WEAPON 25/;ARSENIC ISOTOPES;CONTAINMENT;DESIGN;YIELD;COUGAR; CRESS;DASHAR;DETONATION ASSURANCE;DIAGNOSTIC DETECTORS; OSTRICH;PERSHING;PITS;SURVEILLANCE;HALBERD;LIGHTBULB;

5003326

801. KEYWORD(S)

Item 224

150. REPORT NUMBER WDC--950
110. PRIMARY TITLE(M) Report to the Test Director on the Thermonuclear Test Device, Sausage
70. PERSONAL AUTHOR(M) Good, C.W.
371. PUB. DATE(YYMMDD) 530700
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT

801. KEYWORD(S)

Item 225

150. REPORT NUMBER WR--9001
110. PRIMARY TITLE(M) Preliminary hydrodynamic yields of nuclear weapons: general report on weapons tests
70. PERSONAL AUTHOR(M) Porzel, F.B.
710. CORPORATE SOURCE Los Alamos Scientific Lab., NM (USA)
371. PUB. DATE(YYMMDD) 531200
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT The analytic solution, as derived by the author, is an absolute method for the determination of the total hydrodynamic yield of a nuclear explosion from a measurement of the rate of growth of a strong shock. The diameter vs time of the shock front is measured, and the analysis for yield includes the first and second logarithmic derivatives of radius with respect to time; the method does not use the similarity assumption but assumes the presence of radiative transport, departures from the ideal gas laws, and a mass effect from the bomb and surrounding material. The yields of all tests through Upshot-Knothole (excluding Bikini Baker and Jangle Underground bursts) have been evaluated in this manner in what is considered a preliminary way and are presented. A summary of the analytic-solution and radiochemical yields is given.
801. KEYWORD(S) ABLE BURST/yield ;BUSTER/yield ;BUSTER BURST

B/yield ;BUSTER BURST C/yield ;BUSTER BURST D/yield ; BUSTER BURST E/yield ;CROSSROADS/yield ;DOG BURST/yield ; EASY BURST/yield ;GEORGE BURST/yield ;GREENHOUSE/yield ; ITEM BURST/yield ;IVY/yield ;JANGLE/yield ;JANGLE S BURST/yield ;KING BURST/yield ;MIKE BURST/yield ; RANGER/yield ; RANGER BURST A/yield ;RANGER BURST B2/yield ;RANGER BURST B2/yield ;RANGER BURST E/yield ; RANGER BURST F/yield ;SANDSTONE/yield ;TRINITY BURST/yield ; TUMBLER-SNAPPER/yield ;TUMBLER-SNAPPER BURST 1/yield ;TUMBLER-SNAPPER BURST 2/yield ; TUMBLER-SNAPPER BURST 3/yield ;TUMBLER-SNAPPER BURST 4/yield ; TUMBLER-SNAPPER BURST 5/yield ;TUMBLER-SNAPPER BURST 6/yield ; TUMBLER-SNAPPER BURST 7/yield ; TUMBLER-SNAPPER BURST 8/yield ; UPSHOT-KNOTHOLE/yield ; UPSHOT-KNOTHOLE ANNIE/yield ;UPSHOT-KNOTHOLE BADGER/yield ;UPSHOT-KNOTHOLE CLIMAX/yield ; UPSHOT-KNOTHOLE DIXIE/yield ; UPSHOT-KNOTHOLE ENCORE/yield ;UPSHOT-KNOTHOLE GRABLE/yield ; UPSHOT-KNOTHOLE HARRY/yield ;UPSHOT-KNOTHOLE NANCY/yield ;UPSHOT-KNOTHOLE RAY/yield ;UPSHOT-KNOTHOLE RUTH/yield ; UPSHOT-KNOTHOLE SIMON/yield ;X-RAY BURST/yield ;YOKE BURST/yield ;YIELD/data tabulations ;YIELD;BUSTER; CROSSROADS;GREENHOUSE;IVY;JANGLE;RANGER;SANDSTONE; ANALYTIC SHOCK SOLUTION;HYDRODYNAMICS

Item 226

150.	REPORT NUMBER	EGG--1183-5096
110.	PRIMARY TITLE(M)	Radiometric analysis of the bright Mach stem on event GREENHOUSE/GEORGE
70.	PERSONAL AUTHOR(M)	Gow, N.P.; Colvin, J.D.
710.	CORPORATE SOURCE	EG and G, Inc., Los Alamos, NM (USA)
371.	PUB. DATE(YYMMDD)	781200
34.	CLASSIF. LEVEL TEXT	Confidential
950.	ABSTRACT	Bright Mach stems appeared on all US nuclear events for which a Mach stem formed prior to light minimum time. It is shown that the yield, Y, in kilotons for events on which bright Mach stems are expected to appear must be not less than 2.1 x 10{sup -4} [H(m)]{sup 2} {sup 67}, where H is the height of burst in meters. A geometric and radiometric analysis of one film record of event GREENHOUSE/GEORGE (225 kt, 61 m height of burst), an event which had a particularly bright and long-lived bright Mach stem, is discussed. It i shown that the bright Mach stem-base surge region accounted for about 28 percent of the optical radiation at early times and approximately 62 percent near light minimum time. Radiance contours and radiance profiles are presented showing the detailed radiance structure of the fireball and the Mach stem-base surge region for the time

interval during which the Mach stem was bright (8 ms to 40 ms). Measurements showing the growth of both the fireball and the Mach stem in this same time interval are also presented. (auth)

801. KEYWORD(S) GEORGE BURST/mach stem ;GEORGE BURST/ball of fire ; PHOTOGRAPHY;IMAGES; GEOMETRY;OPTICAL PROPERTIES

Item 227

150. REPORT NUMBER EGG--1183-5086
110. PRIMARY TITLE(M) Fireball spots: a comprehensive study of the photographic data (U)
70. PERSONAL AUTHOR(M) Colvin, J.D.; Gow, N.P.
710. CORPORATE SOURCE EG and G, Inc., Los Alamos, NM (USA)
371. PUB. DATE(YYMMDD) 780800
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT A comprehensive analysis from photographic data of the morphology, geometry, kinematics, radiant characteristics, and the conditions for existence of fireball spots is described. The past data studies are reviewed. Measurements of film data of selected events and the solution of kinematical equations describing spot motions in terms of these film measurements are described. It is found that spots were coincident in position with the air shock and moved radially with it. Measurements were obtained characterizing in detail the spot size behavior as a function of time and its dependence on yield. A radiometric analysis of one film record of Event BLUESTONE is discussed, along with findings from this analysis that the spots accounted for a maximum of about 20% of the fireball light near light minimum time. A review of much of the film data showed that spots only and always appeared on events that had a weapon weight to yield ratio less than 200 lbs/kt and that there is a correlation between the number of spots and the yield. It is inferred from the analyses that fireball spots are physically associated with the air shock and are some manifestation of the hydrodynamic behavior of the explosion. (auth)

801. KEYWORD(S) FLATHEAD BURST/ball of fire ;FLATHEAD BURST/photography ;BALL OF FIRE/optical properties ;BALL OF FIRE/kinematics ;BALL OF FIRE/geometry ;BALL OF FIRE/mathematical models ;MIKE BURST/ball of fire ;MIKE BURST/photography ;KING BURST/ball of fire ; EASY BURST/ball of fire ;DOG BURST/ball of fire ;ENCINO BURST/ball of fire ;BLUESTONE BURST/ball of fire ; PAMLICO BURST/ball of fire ;UPSHOT-KNOTHOLE SIMON/ball of fire ;PRISCILLA BURST/ball of fire ; BIGHORN BURST/ball of fire ;KINEMATICS;IMAGES

Item 228

150.	REPORT NUMBER	EGG--1183-5084
110.	PRIMARY TITLE(M) (U)	Spectral shift of minimum: the FLATHEAD spectrum
70.	PERSONAL AUTHOR(M)	Wilson, D.C.
710.	CORPORATE SOURCE	EG and G, Inc., Los Alamos, NM (USA)
371.	PUB. DATE(YYMMDD)	780600
34.	CLASSIF. LEVEL TEXT	Confidential
950.	ABSTRACT	This report describes data reduction and analysis of a spectrum taken near minimum time of the REDWING/FLATHEAD event. Difficulties encountered in explaining discrepencies between calculated and observed radiant power prompted this effort. The report also makes comparisons with computer models (RADFLO), offers a qualitative explanation of the spectral shift at minimum, and suggests an explanation for theoretical and observational differences. (auth)
801.	KEYWORD(S)	FLATHEAD BURST/spectra ;FLATHEAD BURST/ball of fire ;NITROGEN OXIDES/spectra ;ENCINO BURST/spectra ; ENCINO BURST/ball of fire ;TUMBLER-SNAPPER BURST 3/spectra ;TUMBLER-SNAPPER BURST 3/ball of fire ;SPECTRA

Item 229

150.	REPORT NUMBER	LA--7163-PR
110.	PRIMARY TITLE(M)	LASL weapons quarterly, October--December 1977 (U)
70.	PERSONAL AUTHOR(M)	Redman, L.M.
710.	CORPORATE SOURCE	Los Alamos Scientific Lab., NM (USA)
371.	PUB. DATE(YYMMDD)	780200
34.	CLASSIF. LEVEL TEXT	Secret
950.	ABSTRACT	
801.	KEYWORD(S)	WEAPON 61/secondary components-tn ;WEAPON

61/primary bombs ;COUGAR/testing ;COUGAR/design ; AGAMA/testing ;EBBTIDE BURST/yield ;EBBTIDE BURST/alpha measurements ;WEAPON 61-4 TEST DEVICES/testing ;WEAPON 76/re-entry vehicles-4 ;WEAPON 78/re-entry vehicles-12a ; SEAMOUNT BURST/yield ;SEAMOUNT BURST/alpha measurements ; WEAPON 78 TEST DEVICES/testing ;WEAPON 78 TEST DEVICES/design ;LIZARD/testing ;WEAPON 80 TEST DEVICES/testing ;WEAPON 80 TEST DEVICES/design ;SANDREEF BURST/yield ;SANDREEF BURST/alpha measurements ;SANDREEF BURST/temperature ;WEAPON 81/design ; BOBSTAY BURST/yield ; BOBSTAY BURST/alpha measurements ; BOBSTAY BURST/temperature ; BOBSTAY BURST/neutron measurements ; BOBSTAY BURST/pinex ; BOBSTAY BURST/photography ; BOBSTAY BURST/brightness ;HYBLA GOLD BURST/yield ;HYBLA GOLD BURST/alpha measurements ;HARPOON/testing ; HARPOON/design ;CHAMELEON/; ATOMIC WEAPONS/emergency destruct systems ;EMERGENCY DESTRUCT SYSTEMS/;WEAPON 25/emergency destruct systems ;WEAPON 28/emergency destruct systems ;WEAPON 43/emergency destruct systems ; WEAPON 56-1/emergency destruct systems ;WEAPON 61/emergency destruct systems ;MERCURY 194/half-life ; URANIUM DIOXIDE/equation of state ;PLUTONIUM/grueneisen constant ;PLUTONIUM FLUORIDES/absorption spectra ; PLUTONIUM FLUORIDES/infrared spectra ;PLUTONIUM BASE ALLOYS/crystal structure ;PLATINUM ALLOYS/crystal structure ;AMERICIUM/superconductivity ;BALL OF FIRE/computer calculations ;KING BURST/ball of fire ; YAQUI CODE/;GASES/implosion ;IMPLOSION/computer calculations ;EARTH PLANET/plasma ;SOLAR WIND/plasma ; COUGAR;TESTING;DESIGN;YIELD;LIZARD;TEMPERATURE;PINEX; PHOTOGRAPHY;BRIGHTNESS;HARPOON;CHAMELEON;JETS;SHAPED CHARGES;HALF-LIFE;PLUTONIUM;ISOTOPE EFFECTS; INTERMETALLIC COMPOUNDS;AMERICIUM;SIMULATION;GASES; IMPLOSION;ROTATION;PLASMA; MEASUREMENT;SATELLITES; UNDERGROUND BURSTS;IONOSPHERE

Item 230

150. REPORT NUMBER LA--6166-PR
110. PRIMARY TITLE(M) Radiation Characterization Program (U). Progress report, July 1, 1974--June 30, 1975
70. PERSONAL AUTHOR(M) Henson, R.M.; Preeg, W.E. (comps.)
710. CORPORATE SOURCE Los Alamos Scientific Lab., NM (USA)
371. PUB. DATE(YYMMDD) 751200
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT Progress is reported on the following studies: categorization of primaries by prompt diagnostics (diagnostics from gamma dot, x-ray diagnostics) and calculations of Navajo air fluorescence experiment. (LTW)

801. KEYWORD(S) WILDCAT/x-ray spectra ;MING BLADE BURST/x-ray spectra ;HUSKY ACE BURST/x-ray spectra ;VISE BURST/x-ray spectra ;KING BURST/x-ray spectra ;WEAPON 74 TEST DEVICES/x-ray spectra ;SMALL BOY BURST/x-ray spectra ; OSAGE BURST/x-ray spectra ;WEAPON 25 TEST DEVICES/x-ray spectra ;GUNDI PRIME BURST/x-ray spectra ; NAVAHO BURST/; AIR/fluorescence ;WILDCAT;DIAGNOSTIC EXPERIMENTS; CALCULATIONS;AIR;FLUORESCENCE;OPTICAL DETECTION

Item 231

150. REPORT NUMBER EGG--1183-5060
110. PRIMARY TITLE(M) Review of high speed photographic records (U). Progress report, 1 March--30 September 1975
70. PERSONAL AUTHOR(M) Cobb, D.A.; Mitchell, C.K.
710. CORPORATE SOURCE EG and G, Inc., Los Alamos, NM (USA)
371. PUB. DATE(YYMMDD) 750000
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT Progress is reported on the following studies: Teller light (N{sub 2}sup +/ first negative resonance absorption); Flathead event Teller light; and analysis of Navaho event chord data. (LTW)
801. KEYWORD(S) ATMOSPHERIC BURSTS/teller light ;FLATHEAD BURST/teller light ;NAVAHO BURST/teller light ;TELLER LIGHT/;AIR/fluorescence ;AIR;FLUORESCENCE;OPTICAL DETECTION

Item 232

150. REPORT NUMBER EGG--1183-5048
110. PRIMARY TITLE(M) Review of high speed photographic records (U). FY74 year end status report
70. PERSONAL AUTHOR(M) Cobb, D.D.; Lebeda, C.F.; Mitchell, K.C.
710. CORPORATE SOURCE EG and G, Inc., Los Alamos, NM (USA)
371. PUB. DATE(YYMMDD) 740900
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT Early-time optical data from near sea level U.S. nuclear explosions has been reduced to radiometric quantities and analyzed in terms of current LASL low-altitude weapons effects studies and the AFTAC optical diagnostics program. Data and results presented include: first light spectral radiance, radiance, and total energy for Event Dakota; Teller light radiance for Event Dakota as a function of time for several prominent fluorescence bands through the time of second stage neutron Teller emission; Teller light power at 4278 A as a function of time for French 47; a wavelength and time dependent smog extinction coefficient extracted from FLATHEAD chord spectral data; spectral radiance of the veil and early fireball through first maximum for Event

HOOD; and relative spectral power near the time of minimum for Events CHAMA, YESO, and BIGHORN. These data are compared with predictions based on yield scaling laws currently used by AFTAC. (auth)

801. KEYWORD(S) ATMOSPHERIC BURSTS/teller light ;DAKOTA BURST/teller light ;FLATHEAD BURST/teller light ;HOOD BURST/teller light ; CHAMA BURST/teller light ;YESO BURST/teller light ;BIGHORN BURST/teller light ; TELLER LIGHT/; FRENCH ATOMIC EXPLOSIONS/teller light ; AIR/fluorescence ;OPTICAL DETECTION;SPECTROSCOPY;AIR; FLUORESCENCE

Item 233

150. REPORT NUMBER LA--6438-MS
110. PRIMARY TITLE(M) Effect of device emplacement on the power-time curves of nuclear explosions in the atmosphere (U)
70. PERSONAL AUTHOR(M) Hoffman, M.M.
710. CORPORATE SOURCE Los Alamos Scientific Lab., NM (USA)
371. PUB. DATE(YYMMDD) 760700
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT Most radiated-power-vs-time records of atmospheric nuclear explosions show a region between the first maximum and the minimum where the slope of the curve changes abruptly. The time t{sub b} at which this break occurs has been determined from bhangmeter records of several Redwing and Hardtack events. It was found that t{sub b} scales with yield similar to the minimum time t{sub min}. Breaktimes of fourteen LASL shots are discussed. For seven of these, mass placed very near the shot point appears to influence the value of t{sub b}. Preliminary results of a study of the relationship between t{sub b} and mass adjacent to the emplaced device are given. (U) (auth)
801. KEYWORD(S) ATMOSPHERIC BURSTS/;ERIE BURST/;LACROSSE BURST/; MAGNOLIA BURST/; BUTTERNUT BURST/;HURON BURST/; YELLOWWOOD BURST/;FLATHEAD BURST/; ELDER BURST/;DAKOTA BURST/;KOA BURST/;WALNUT BURST/;CHEROKEE BURST/;NAVAHO BURST/;OAK BURST/;TIME DEPENDENCE;POWER;DIAGNOSTIC EXPERIMENTS; BHANGMETERS;BALL OF FIRE;YIELD;TEMPERATURE

Item 234

150. REPORT NUMBER LA--5006-PR
110. PRIMARY TITLE(M) Research on nuclear weapons phenomenology. Quarterly summary for the period ending June 30, 1972 (U)
70. PERSONAL AUTHOR(M) Kerr, D.M.; Peek, H.M.
710. CORPORATE SOURCE Los Alamos Scientific Lab., NM (USA)
371. PUB. DATE(YYMMDD) 720700

34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT

801. KEYWORD(S) ATMOSPHERIC BURSTS/optical detection ;ATMOSPHERIC BURSTS/ball of fire ;ATMOSPHERIC BURSTS/yield ; ATMOSPHERIC BURSTS/x-ray spectra ;ATMOSPHERIC BURSTS/teller light ;ATMOSPHERIC BURSTS/computer calculations ;BALL OF FIRE/luminosity ;BALL OF FIRE/computer calculations ;CHAMA BURST/ball of fire ; TANANA BURST/ball of fire ;TELLER LIGHT/production ; RADFLO CODE/;AIR/opacity ; ENCINO BURST/ball of fire ; DAKOTA BURST/teller light ;SPARTAN/;IONOSPHERIC BURSTS/; RADIATION BELTS/electron precipitation ;YIELD;LUMINOSITY; VISIBLE RADIATION;TRANSMISSION;TEMPERATURE;PRODUCTION; AIR;OPACITY;SPARTAN; ELECTROMAGNETIC RADIATION;STABILITY; IONOSPHERE;MAGNETOSPHERE

Item 235

150. REPORT NUMBER EGG--1183-5064
110. PRIMARY TITLE(M) First negative teller light data and analysis. Events FLATHEAD and DAKOTA (U)
70. PERSONAL AUTHOR(M) Cobb, D.D.
710. CORPORATE SOURCE EG and G, Inc., Los Alamos, NM (USA)
371. PUB. DATE(YYMMDD) 760400
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT Teller light radiance-time histories in selected N{sub 2} Second Positive and N{sup +}{sub 2} First Negative bands are reported for Events FLATHEAD and DAKOTA. Quantitative models of smog and resonance absorption for the N{sup +}{sub 2} First Negative bands are also reported. The models are based on analyses of optical data from U.S. events, and are designed for use in numerical simlations of First Negative Teller light

signatures. Calculations of FLATHEAD and DAKOTA Teller light which incorporate the absorption models are compared with the data. Major conclusions based on these comparisons are: smog and resonance absorption both strongly affect First Negative Teller light, and both are adequately described by the models; gamma and 14 MeV neutron stage-yields can be extracted by comparing simulated Teller light signatures with Teller light observations; the ratio of 14 MeV neutron to gamma First Negative Teller light conversion efficiencies in air is 0.5 +0.22 -0.11; ground state N{sup +}{sub 2} vibrational populations ({nu} = 0,1,2) are very nearly equal; the two-body N{sup +}{sub 2} reaction rate in air at NTP is 2 {sup +}2 - 1 x 10{sup 9}s{sup -1}; and N{sup +}{sub 2} recombination with electrons can be neglected in Teller light transport calculations. (auth)

801. KEYWORD(S) FLATHEAD BURST/teller light ;DAKOTA BURST/teller light ;CALCULATIONS; NITROGEN IONS;RADIATION TRANSPORT; MODEL STUDIES;SPECTRA

Item 236

150. REPORT NUMBER LA--4939-PR
110. PRIMARY TITLE(M) Quarterly summary of research on nuclear weapons phenomenology for the period ending March 31, 1972 (U)
70. PERSONAL AUTHOR(M) Kerr, D.M.; Peek, H.M.
710. CORPORATE SOURCE Los Alamos Scientific Lab., NM (USA)
371. PUB. DATE(YYMMDD) 720400
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT Current research progress in the areas of nuclear weapons effects and optical diagnostic and detection methods is reported. The principal accomplishments have been to (1) improve early-time low altitude coupled radiation transport-hydrodynamics codes, (2) complete a series of studies using full electromagnetic plasma simulation codes, and (3) carry out the Febe infrared simulation and Oosik shaped charge barium jet experiments. Low-altitude results reported include radius vs time, thermal yield, and review of scaling laws for a number of U.S. tests. In support of weapons diagnostic problems, information on x-ray veil breakthrough vs time, first light, the measurement of alpha from Teller light signals, and a discussion of the ''smog'' problem are given. Additional work related to the early-time behavior of low altitude fireballs is also included. (auth)

801. KEYWORD(S)

Item 237

150.	REPORT NUMBER	EGG--1183-5038
110.	PRIMARY TITLE(M)	Operation REDWING: spectrographic observations of DAKOTA (0--10 {mu} sec) (U)
70.	PERSONAL AUTHOR(M)	Cobb, D.D.; Mitchell, C.K.
710.	CORPORATE SOURCE	EG and G, Inc., Los Alamos, NM (USA)
371.	PUB. DATE(YYMMDD)	740600
34.	CLASSIF. LEVEL TEXT	Secret
950.	ABSTRACT	

801.	KEYWORD(S)	DAKOTA BURST/teller light ;AIR/teller light ; SPECTRA;FLUORESCENCE;AIR;STREAK PHOTOGRAPHY

Item 238

150.	REPORT NUMBER	LA--6198
110.	PRIMARY TITLE(M)	Output calculations for the Navajo Event (U)
70.	PERSONAL AUTHOR(M)	Bond, H.H.
710.	CORPORATE SOURCE	Los Alamos Scientific Lab., NM (USA)
371.	PUB. DATE(YYMMDD)	751200
34.	CLASSIF. LEVEL TEXT	Secret
950.	ABSTRACT	

801. KEYWORD(S) NAVAHO BURST/gamma spectra ;NAVAHO BURST/neutron spectra

Item 239

150. REPORT NUMBER LA--4880-PR
110. PRIMARY TITLE(M) Weapons research and development. Quarterly status report for the period ending December 31, 1971 (U)
70. PERSONAL AUTHOR(M) Redman, L.M.; Carnes, C.C. Jr. (comps.)
710. CORPORATE SOURCE Los Alamos Scientific Lab., NM (USA)
371. PUB. DATE(YYMMDD) 720300
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT Progress is reported on the following studies: nonequilibrium TN devices; hydrodynamic effects of mixing metal into boosting gas; final results of the Pedernal, Algodones, and Petaca events; the laser program; effect of x-ray deposition time on damage potential; density and velocity measurements in blowoff vapor; atmoshperic and high-altitude effects; computer codes; materials and fabrication technology; component development; Hospah results; Deming results; Guaje results; W-74 activities; stockpile management; Yerba results; physics and mathematics; chemistry and metallurgy; the readiness program; and test detection. (LTW)
801. KEYWORD(S) THERMONUCLEAR WEAPONS/reviews ;BOOSTING/mixing ; LASERS/design ;LASERS/performance ;PEDERNAL BURST/; ALGODONES BURST/;X-RAY IMPULSE/time dependence ;QUARTZ PHENOLIC/x-ray impulse ; BLOWOFF/density ; BLOWOFF/velocity ;ALUMINUM/blowoff ;BALL OF FIRE/calculations ;ATMOSPHERIC BURSTS/ball of fire ; SPRINT/ball of fire ;BOLTZMANN BURST/ball of fire ; TRUCKEE BURST/ball of fire ;DAKOTA BURST/ball of fire ; AIR/fluorescence ;ATMOSPHERE/fluorescence ; RADIATION TRANSPORT/computer calculations ;RUDI CODE/; JUNTURA CODE/;MCNG CODE/;PHOTON TRANSPORT/computer calculations ; NEUTRON TRANSPORT/computer calculations ;GRIP/equation of state ;HOSPAH BURST/;DEMING TEST/;GUAJE BURST/; TUNGSTEN BASE ALLOYS/equation of state ; PLATINUM ALLOYS/equation of state ;RHENIUM ALLOYS/equation of state ;YERBA BURST/; EXPLOSIVES/sound transmission ; SCANDIUM 45/neutron reactions ;NICKEL 58/neutron reactions ;YTTRIUM 89/neutron reactions ;ZIRCONIUM 90/neutron reactions ;SILVER 107/neutron reactions ; EUROPIUM 151/neutron reactions ;THULIUM 169/neutron

LITHIUM TRITIDES;SCARAB;SRAM;STARFISH BURST;MISSING LINK BURST;TSETSE;WATER WAVES;WHIPCORD

Item 265

150. REPORT NUMBER WT--44
110. PRIMARY TITLE(M) Natural frequencies of structures and stimascope measurements. Part 1. Natural frequencies of structure 3.1.1. Part II. Stimascope measurements. Supplement I and II to WT-10. Annex 3.4 [of] scientific director's report of atomic weapon tests at Eniwetok, 1951. Operation Greenhouse (U)
70. PERSONAL AUTHOR(M) Jacobsen, L.S.; Wells, W.M.
710. CORPORATE SOURCE Sandia Corp., Albuquerque, NM (USA) ;Stanford Univ., CA (USA)
371. PUB. DATE(YYMMDD) 521015
34. CLASSIF. LEVEL TEXT Confidential
950. ABSTRACT (Suppl. to WT-10.) Natural frequencies and Stimascope (sound-time-in materials) measurements were made on the structures at Operation Greenhouse. Using the natural frequency measurements, as obtained from a mechanical shaker, it was possible to calculate the stiffness changes caused by the blast loading. Calculated values of the preshot frequencies, assuming a rigid foundation, were considerably greater than the measured values. Ground stiffness, calculated from the measured frequencies, appeared to be of the correct order of magnitude. Damping ratios, calculated from the resonance curves, were low compared with values obtained by other experiments. The Stimascope was adequate for determining the elastic modulus of concrete to a precision of {approx_equal} 12%. It also gave satisfactory indications of the condition of the concrete, indicating qualitatively the existence of internal thermal cracks and the development of internal strucural damage caused by blast loading. The minimum error of the stimascope measurements directly with a decreased length of path. (U)
801. KEYWORD(S) GREENHOUSE/;STRUCTURAL MATERIALS/blast loading ; STRUCTURAL MATERIALS/vibration testing ;STRUCTURES/blast loading ;STRUCTURES/vibration testing ; CONCRETES/blast loading ; CONCRETES/elasticity ;GREENHOUSE;STIMASCOPES; STRUCTURES;SOUND TRANSMISSION;ELASTICITY

Item 266

150. REPORT NUMBER WT--9002
110. PRIMARY TITLE(M) Ground-motion studies on operations Ivy and Castle. General report on weapons tests
70. PERSONAL AUTHOR(M) Perret, W.R.

710. CORPORATE SOURCE Sandia Corp., Albuquerque, NM (USA)
371. PUB. DATE(YYMMDD) 550200
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT

801. KEYWORD(S) KING BURST/ground motion ;MIKE BURST/ground motion ;KOON BURST/ground motion

Item 267

150. REPORT NUMBER WT--953
110. PRIMARY TITLE(M) Koon alpha, gamma, and Tenex measurements. Program 22 Operation Castle
70. PERSONAL AUTHOR(M) Heusinkveld, M.
710. CORPORATE SOURCE California Univ., Livermore (USA). Lawrence Radiation Lab.
371. PUB. DATE(YYMMDD) 550900
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT

801. KEYWORD(S) KOON BURST/tenex ;CASTLE;DIAGNOSTIC EXPERIMENTS; TENEX

Item 268

150. REPORT NUMBER WT--951
110. PRIMARY TITLE(M) External neutron energy distribution from Morgenstern. Program 24 of Operation Castle
70. PERSONAL AUTHOR(M) Oliver, A.J.; Violet, C.E.; White, R.S.
710. CORPORATE SOURCE California Univ., Livermore (USA). Lawrence Radiation Lab.
371. PUB. DATE(YYMMDD) 550700
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT

801. KEYWORD(S)

Item 269

150. REPORT NUMBER WT--947
110. PRIMARY TITLE(M) Total hydrodynamic yield. Operation Castle
70. PERSONAL AUTHOR(M) Andrews, T.J.
710. CORPORATE SOURCE Los Alamos Scientific Lab., NM (USA)
371. PUB. DATE(YYMMDD) 541100
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT Yields for Castle bursts have been calculated by Group J-10, Los Alamos Scientific Laboratory, using Porzel's analytic solution and the time-difference

method. The hydrodynamic yields obtained by the former method are regarded as relatively precise, whereas the time-difference values are approximate at best, and for that reason are used only as a basis for preliminary yield quotations. The analytic solution and the time-difference yields are summarized.

801. KEYWORD(S) ALARM CLOCK/yield ;BRAVO BURST/yield ;KOON BURST/yield ;NECTAR BURST/yield ;ROMEO BURST/yield ; UNION BURST/yield ;YANKEE BURST/yield ;CASTLE/yield ; RUNT/yield ;RUNT II/yield ;MORGENSTERN/yield ; SHRIMP/yield ;ZOMBIE/yield ;YIELD;ATOMIC WEAPONS;CASTLE; MORGENSTERN;SHRIMP;ZOMBIE;ANALYTICAL SOLUTION; HYDRODYNAMICS

Item 270

150. REPORT NUMBER WT--942
110. PRIMARY TITLE(M) Radiological safety. Operation Castle
70. PERSONAL AUTHOR(M) Servis, J.D.
710. CORPORATE SOURCE Los Alamos Scientific Lab., NM (USA)
371. PUB. DATE(YYMMDD) 540800
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT This report contains a description of the mission, responsibilities, organization, and activities of Task Unit 7, the Radiological Safety Unit of Task Group 7.1 during Operation Castle. The chapters are devoted to a general discussion of the organization, activities, and recommendations of the scientific sections necessary to implement a thermonuclear test radiological-safety unit. Appendixes and illustrations contain specific details of certain operational procedures, radiological situation data, and fall-out decay curves. As a result of Rad-Safe operations during Castle, it was determined that contamination resulting from high-yield surface bursts creates radioactive hazards over such large areas that land-based operations at the Pacific Grounds are in constant jeopardy. Water-surface detonations of the thermonuclear devices created less of a radiological problem than ground-surface detonations; however, the most important factor in the over-all radiological situation was the disposition of the winds between 10, 000 and 60,000 ft at the time of detonation.

801. KEYWORD(S) BRAVO BURST/radiation monitoring ;BRAVO BURST/fallout ;KOON BURST/radiation monitoring ;KOON BURST/fallout ;NECTAR BURST/radiation monitoring ;NECTAR BURST/fallout ;ROMEO BURST/radiation monitoring ;ROMEO BURST/fallout ;UNION BURST/radiation monitoring ;UNION BURST/fallout ;YANKEE BURST/radiation monitoring ;YANKEE BURST/fallout ;CASTLE/radiation monitoring ; CASTLE/fallout ;FALLOUT/radiation intensity contours ;

FALLOUT;CASTLE;RADIATION PROTECTION; COMMAND AND CONTROL; PACIFIC OCEAN

Item 271

150. REPORT NUMBER WT--611
110. PRIMARY TITLE(M) Water-wave motion pictures over shallow water. Project 6.4a [of] Operation Ivy
70. PERSONAL AUTHOR(M) Baker, W.D.
710. CORPORATE SOURCE Los Alamos Scientific Lab., NM (USA)
371. PUB. DATE(YYMMDD) 530200
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT Motion pictures were taken of the waves produced by the Ivy Mike Shot. They were taken over shallow water inside the lagoon near some of the islands of the atoll. Records were obtained at Elmer and Yvonne which give arrival times corresponding to an average wave vleocity of about 80 fps. The general character of the waves was a long slow rise followed by a long negative phase during which several smaller oscillations were observed. The complete wave train was not observed. The indicated product of wave amplitude (highest to lowest water) times the horizontal distances from zero was 4.5 x 10{sup 5} sq ft. Since this value was increased by shoaling, the deep- water amplitude was somewhat less, and the product is estimated as 2.7 x 10{sup 5} sq ft. The results are in agreement with theory, including the predictions of George N. White on the upper limit for the Mike water-wave amplitudes.
801. KEYWORD(S) MIKE BURST/water waves ;WATER WAVES/wave propagation ;IVY;PHOTOGRAPHY

Item 272

150. REPORT NUMBER WT--610
110. PRIMARY TITLE(M) Measurement of material density with beta densitometer. Project 6.9 [of] Operation Ivy
70. PERSONAL AUTHOR(M) FlorCruz, P.R.; Young, C.G. Jr.; Andrews, T.J.
710. CORPORATE SOURCE Los Alamos Scientific Lab., NM (USA)
371. PUB. DATE(YYMMDD) 530200
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT The objective of beta-densitometer instrumentation at Ivy Mike shot was, primarily, to measure material density near ground surface as a function of time and, secondarily, to test the latest modifications to previous densitomer models. The results showed: (1) that thermal or preshock dust is absent at a ground range of about 23,000 ft (Station 690.02); (2) that it is possible to calculate the overpressure due to air shock alone from the measured density change, provided that

preshock turbulence is not excessive; and (3) that the modifications to the densitometer proved to be satisfactory. The calibration and electronic engineering of the Ivy-model densitometer were considerably improved over previous models.

801. KEYWORD(S) DENSITOMETERS/modifications ; DENSITOMETERS/calibration ; RADIOMETRIC GAGES/modifications ; RADIOMETRIC GAGES/calibration ; MIKE BURST/air density studies ;MIKE BURST/dusts ;AIR DENSITY DEVICES;DENSITOMETERS;MODIFICATIONS;CALIBRATION; IVY;DUSTS;ATMOSPHERE

Item 273

150. REPORT NUMBER WT--608
110. PRIMARY TITLE(M) Report of commander, Task group 132.1. Operation Ivy
70. PERSONAL AUTHOR(M) Burriss, S.W.
710. CORPORATE SOURCE Los Alamos National Lab., NM (USA)
371. PUB. DATE(YYMMDD) 521100
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT This report discusses the organization and mission of Task Group 132.1 (Scientific) of Operation Ivy. The Mike device and King weapon are described briefly and an outline of the diagnostic experiments which were performed are qiven.
801. KEYWORD(S)

Item 274

150. REPORT NUMBER WT--605
110. PRIMARY TITLE(M) Underwater pressure measurements in the lagoon. Project 6.7b [of] Operation Ivy
70. PERSONAL AUTHOR(M) Rollosson, G.W.
710. CORPORATE SOURCE Sandia Corp., Albuquerque, NM (USA)
371. PUB. DATE(YYMMDD) 530400
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT On Mike shot of Operation Ivy, measurement of underwater pressures was attempted at four locations near the floor of the lagoon. Gages were installed at distances ranging from approximately 5700 to 112, 000 ft from ground zero and about 1 mile from the reef. The single usable record showed sharp pressure spikes at 0.3 and 0.6 sec after zero time. Although the later spike corresponded with the time of arrival of the air shock at the surface of the lagoon above the gage, no satisfactory explanation for the first spike has been found. Because two of the four gages were apparently

faulty in their operation and the recorder to which a third was connected failed to start at all, it was impossible to draw any conclusions regarding the nature or magnitude of the underwater shock.

801. KEYWORD(S) MIKE BURST/underwater pressure measurements ; UNDERWATER SHOCK WAVES/underwater pressure measurements ; IVY;PRESSURE GAGES

Item 275

150. REPORT NUMBER WT--603
110. PRIMARY TITLE(M) Shock winds, after-winds, and changes in air temperature resulting from large atomic bursts near the earth's surface. Project 6.3 [of] Operation Ivy
70. PERSONAL AUTHOR(M) Cowan, M. Jr.
710. CORPORATE SOURCE Sandia Corp., Albuquerque, NM (USA)
371. PUB. DATE(YYMMDD) 530500
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT Measurements were made on Mike and King Bursts of the characteristic parameters of the blast waves. Measured peak dynamic pressures (q), temperatures, and sonic velocities are compared with those predicted from the Rankine-Hugoniot relations on the basis of measured overpressures and ambient conditions. Within the range of experimental error there is reasonable agreement between these measured peak changes in dynamic pressure and temperature across the shock front and those calculated. Dynamic pressure and total head measurements throughout the positive and negative phases were quite successful except at overpressure levels greater than 20 psi. Durations of positive and negative phase winds were in agreement with the durations of the corresponding overpressures. Velocities of after-winds resulting from both Mike and King Bursts proved too small to be measurable by the instrumentation used.
801. KEYWORD(S) KING BURST/afterwinds ;KING BURST/blast measurements ;KING BURST/peak pressure studies ;MIKE BURST/afterwinds ;MIKE BURST/blast measurements ;MIKE BURST/peak pressure studies ;BLAST WAVES;IVY;AFTERWINDS; MATERIAL VELOCITY DEVICES;PRESSURE MEASUREMENT

Item 276

150. REPORT NUMBER WT--601
110. PRIMARY TITLE(M) Materials and production for cryogenics. Operation Ivy
70. PERSONAL AUTHOR(M) Johnston, H.L.; Steitler, W.H.
710. CORPORATE SOURCE Los Alamos National Lab., NM (USA)
371. PUB. DATE(YYMMDD) 530100
34. CLASSIF. LEVEL TEXT Secret

950. ABSTRACT The objective, background, construction, installation, operation, and results related to the liquid-deuterium, liquid-hydrogen, and liquid nitrogen plants used at Operation Ivy are discussed in Part I of the report. The cyrogenic materials used in conjunction with the operation are discussed in Part II.
801. KEYWORD(S) DEUTERIUM/production ;HYDROGEN/production ; NITROGEN/production ;IVY/cryogenics ;DEUTERIUM; PRODUCTION;HYDROGEN;NITROGEN;IVY;CRYOGENICS;INDUSTRIAL PLANTS

Item 277

150. REPORT NUMBER UCRL--4621
110. PRIMARY TITLE(M) Weapon development during November 1955. No. 17
710. CORPORATE SOURCE California Univ., Livermore (USA). Lawrence Radiation Lab.
371. PUB. DATE(YYMMDD) 551215
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT The type of work and its status is reported under the following headings: physics research, chemistry, instrumentation and research tool development, general weapons development, specific weapons, test planning and evaluation, and nuclear rocket propulsion (Rover).
801. KEYWORD(S) SMALL THERMONUCLEAR WEAPONS/;ROVER PROJECT/; REDWING/; GRAPHITE/chemical preparation ;HELIUM/spectra ; REDWING;RADIOCHEMISTRY;HELIUM;SPECTRA

Item 278

150. REPORT NUMBER UCRL--4606
110. PRIMARY TITLE(M) Weapon development during October 1955. No. 16
710. CORPORATE SOURCE California Univ., Livermore (USA). Lawrence Radiation Lab.
371. PUB. DATE(YYMMDD) 551118
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT The type of work and its status is reported under the following headings: physics research, chemistry, instrumentation and reseach tool development, general weapons development, specific weapons, test planning and evaluation, and nuclear rocket propulsion (Rover).
801. KEYWORD(S)

Item 279

150. REPORT NUMBER UCRL--4584
110. PRIMARY TITLE(M) Weapon development during September 1955. No. 15
710. CORPORATE SOURCE California Univ., Livermore (USA). Lawrence

Radiation Lab.
371. PUB. DATE(YYMMDD) 551026
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT The type of work and its status is reported under the following headings: physics research, chemistry, instrumentation and research tool development, general weapons development, specific weapons, test planning and evaluation, and nuclear rocket propulsion (Rover).
801. KEYWORD(S)

Item 280

150. REPORT NUMBER UCRL--4566
110. PRIMARY TITLE(M) Weapon development during July 1955. No. 13
710. CORPORATE SOURCE California Univ., Livermore (USA). Lawrence Radiation Lab.
371. PUB. DATE(YYMMDD) 550920
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT The type of work and its status is reported under the following headings: physics research, chemistry, instrumentation and research tool development, general weapons development (which includes a Rand progress report for April through June 1955), specific weapons, small weapon program (including Teabag and Redwing), and nuclear rocket propulsion (Rover).
801. KEYWORD(S)

Item 281

150. REPORT NUMBER UCRL--4548
110. PRIMARY TITLE(M) Weapon development during June 1955. No. 12
710. CORPORATE SOURCE California Univ., Livermore (USA). Lawrence Radiation Lab.
371. PUB. DATE(YYMMDD) 550803
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT The type of work and its status are reported for the period under the following headings: physics research, chemistry, instrumentation and research tool development, general weapons development, and test planning and evaluation.
801. KEYWORD(S)

Item 282

150. REPORT NUMBER UCRL--4525
110. PRIMARY TITLE(M) Weapon development during May 1955. No. 11
710. CORPORATE SOURCE California Univ., Livermore (USA). Lawrence Radiation Lab.
371. PUB. DATE(YYMMDD) 550616
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT The type of work and its status are reported for the period under the following headings: physics research, chemistry, instrumentation and research tool development, general weapons development, and test planning and evaluation.
801. KEYWORD(S)

Item 283

150. REPORT NUMBER UCRL--4514
110. PRIMARY TITLE(M) Weapon development during April 1955. No. 10
710. CORPORATE SOURCE California Univ., Livermore (USA). Lawrence Radiation Lab.
371. PUB. DATE(YYMMDD) 550603
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT The type of work and its status are reported for the period under the following headings: physics research, chemistry (general and organic), instrumentation and research tool development, general weapons development, specific weapon development program, and test planning and evaluation.
801. KEYWORD(S)

Item 284

150. REPORT NUMBER DIR--2230
110. PRIMARY TITLE(M) Program status. Weapons research and development, July-September 1970
710. CORPORATE SOURCE Los Alamos Scientific Lab., NM (USA)
371. PUB. DATE(YYMMDD) 701000
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT None
801. KEYWORD(S) ACINI/;AMCHITKA/;ATOMIC EXPLOSIONS/simulation ; TITANIUM ALLOYS/physical properties ;ATOMIC PROJECTILES/design ;ATOMIC WEAPONS/russia ;BEEBALM BURST/;BLADE BURST/;CADMUS/;CAMPHOR BURST/;CHECK MATE

BURST/;DIANA MIST BURST/;FOLSOM BURST/;FRENCH ATOMIC EXPLOSIONS/detection ;GRAPE B BURST/;HOREHOUND BURST/; JAL BURST/; KNIFE B BURST/;LOVAGE BURST/;MAGNOLIA BURST/; MANZO/; MENTA/;MILROW BURST/;MONERO BURST/;MULTIPLE BURSTS/simulation ;NARANJA/; PESCA/;SNUBBER BURST/; SPARTAN/;SPHERICAL SHELLS/fabrication ; URANIUM ALLOYS/physical properties ;TRUNK/; VULNERABILITY/; WATER WAVES/;WEAPON 66/;WEAPON 69/;WEAPON 72/; WEAPON 74/;ACINI;AMCHITKA;ATMOSPHERIC BURSTS;SIMULATION;DESIGN; CADMUS;DETECTION;MANZO;NARANJA;SPARTAN;TRUNK;WEMBLEY BURST

Item 285

150. REPORT NUMBER WT--98
110. PRIMARY TITLE(M) Staff reports. Parts I to IV. Annex 9.1 and documentary photography. Annex 9.4 [of] scientific director's report of atomic weapon tests at Eniwetok, 1951. Operation Greenhouse
710. CORPORATE SOURCE Los Alamos Scientific Lab., NM (USA)
371. PUB. DATE(YYMMDD) jdate
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT This report consists of three staff reports and one documentary photography report of Operation Greenhouse. Personnel and administration, D-2 Section security functions, plans and operations, and supply and logistic are discussed in Parts I to IV, respectively. The mission, implementation, and results of the photographic section are presented in Annex 9.4 of this report.
801. KEYWORD(S) GREENHOUSE/command and control ; GREENHOUSE/logistics ;GREENHOUSE/photography ;GREENHOUSE; LOGISTICS;PHOTOGRAPHY

Item 286

150. REPORT NUMBER WT--38
110. PRIMARY TITLE(M) Base facilities. Annex 9.5 of scientific director's report of atomic weapon tests at Eniwetok, 1951. Operation Greenhouse (U)
70. PERSONAL AUTHOR(M) Spain, P.W.
710. CORPORATE SOURCE USAEC Albuquerque Operations Office, NM
371. PUB. DATE(YYMMDD) 510900
34. CLASSIF. LEVEL TEXT Confidential
950. ABSTRACT This report presents a general summary of the engineering and construction activities on Eniwetok Atoll from October 1948 to the end of Operation Greenhouse in June 1951, at which time the facilities were placed in maintenance status. (U)
801. KEYWORD(S) GREENHOUSE/;GREENHOUSE;BUILDINGS;ENIWETOK PROVING

GROUND

Item 287

150. REPORT NUMBER DIR--1823
110. PRIMARY TITLE(M) Los Alamos Scientific Laboratory program status, August 1962 (U). (Special access)
710. CORPORATE SOURCE Los Alamos Scientific Lab., NM (USA)
371. PUB. DATE(YYMMDD) 620913
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT None
801. KEYWORD(S) ADOBE BURST/;AIR/opacity ;HAYMAKER BURST/; JOHNIE BOY BURST/;LITTLE FELLER I BURST/;SCARAB/;SMALL BOY BURST/;STARFISH BURST/;SUNLAMP/;WALNUT BURST/;WEAPON 53/; AIR;OPACITY;DELAYED NEUTRONS;SCARAB;SUNLAMP

Item 288

150. REPORT NUMBER WT--1725
110. PRIMARY TITLE(M) Attenuation of weapons radiation: application to Japanese houses. Projects 39.1 and 39.2 of Operation Hardtack. Program 39
70. PERSONAL AUTHOR(M) Auxier, J.A.; Cheka, J.S.; Sanders, F.W.
710. CORPORATE SOURCE Oak Ridge National Lab., TN (USA)
371. PUB. DATE(YYMMDD) 610315
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT Measurements were made of the radiation-dose distributions in facsimiles of Japanese dwellings as a function of house size, orientation, and mutual shielding. Collimators were used in determining the angular distribution of neutrons and gamma rays incident on the point of measurement relative to a line between the point and the detonation. The relaxation length for fast neutrons measured for three nuclear detonations was 210, 218, and 205 yards, reduced to standard temperature and pressure. Criteria have been established to calculate the fast-neutron-dose distribution in Japanese houses for a given geometrical configuration and free-space dose.
801. KEYWORD(S) HARDTACK/gamma dosimetry ;HARDTACK/neutron dosimetry ;BUILDINGS/gamma dosimetry ;BUILDINGS/neutron dosimetry ;HARDTACK;BUILDINGS;GAMMA RADIATION;NEUTRON MEASUREMENTS

Item 289

150. REPORT NUMBER WT--945
110. PRIMARY TITLE(M) Ganex, Tenex, and alpha measurements on shrimp. Project 12.1 [of] Operation Castle
70. PERSONAL AUTHOR(M) Colgate, S.A.

710. CORPORATE SOURCE California Univ., Livermore (USA). Lawrence Radiation Lab.
371. PUB. DATE(YYMMDD) 540900
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT

801. KEYWORD(S)

Item 290

150. REPORT NUMBER WT--944
110. PRIMARY TITLE(M) Some experiments on alarm clock reaction history. Group J-16. Project 12.3 [of] Operation Castle
710. CORPORATE SOURCE Los Alamos Scientific Lab., NM (USA)
371. PUB. DATE(YYMMDD) 541000
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT

801. KEYWORD(S)

Item 291

150. REPORT NUMBER WT--940
110. PRIMARY TITLE(M) Report of Commander, task group 7.1. Operation Castle

710. CORPORATE SOURCE Los Alamos Scientific Lab., NM (USA)
371. PUB. DATE(YYMMDD) 540600
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT The objectives, devices tested, and technical conclusions reached at Operation Castle are discussed. The devices tested included the Shrimp, Runt I, Morgenstern, Alarm Clock, Runt II, and Zombie. Discussed also are the general activities of Task Goup 7.1.
801. KEYWORD(S) CASTLE/planning ;CASTLE/administrative reports ; CASTLE;COMMAND AND CONTROL;DIAGNOSTIC EXPERIMENTS;ALARM CLOCK

Item 292

150. REPORT NUMBER WT--643
110. PRIMARY TITLE(M) Gamma radiation as a function of distance. Project 5.1 [of] Operation Ivy
70. PERSONAL AUTHOR(M) Storm, E.
710. CORPORATE SOURCE Los Alamos Scientific Lab., NM (USA)
371. PUB. DATE(YYMMDD) 550700
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT Film measurements of gamma-ray exposure vs distance were made on both Mike and King. The results show that gamma radiation from large yield devices cannot be scaled directly from measurements of nominal-size devices, and that the effect of the shock wave and the cloud rise must be taken into consideration. For the 550 KT King shot, the gamma-ray exposures were about 1.5 to 1.7 times those expected by scaling directly from a nominal device. For the 10 MT Mike shot, measured values were 30 to 80 times those expected from scaling.
801. KEYWORD(S) GAMMA RADIATION/measurement ;KING BURST/gamma radiation ; MIKE BURST/gamma radiation ;MEASUREMENT; DETECTION;IVY;PHOTOGRAPHIC FILMS;RADIATION DETECTORS; ATOMIC CLOUD; DISTANCE

Item 293

150. REPORT NUMBER WT--636
110. PRIMARY TITLE(M) Personnel and administration. Operation Ivy
70. PERSONAL AUTHOR(M) Kelly, A.W.
710. CORPORATE SOURCE Los Alamos Scientific Lab., NM (USA)
371. PUB. DATE(YYMMDD) 540100
34. CLASSIF. LEVEL TEXT Confidential
950. ABSTRACT The administration and organization of Task Group 132.1 as used in Operation Ivy are presented. The preoperations and operations phases of the Task Group, as well as conclusions and recommendations, are discussed.

801. KEYWORD(S) IVY/administrative reports ;IVY;COMMAND AND CONTROL;RECOMMENDATIONS

Item 294

150. REPORT NUMBER WT--634
110. PRIMARY TITLE(M) Gamma radiation versus time. Projects 5.1 and 5.2 [of] Operation Ivy
70. PERSONAL AUTHOR(M) Malik, J.S.
710. CORPORATE SOURCE Los Alamos Scientific Lab., NM (USA)
371. PUB. DATE(YYMMDD) 540200
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT The gamma radiation vs time from the Operation Ivy devices was measured at two distances for each burst. Measurements on the Mike burst were over the time range of 1 {mu}sec to 12 sec, permitting some understanding of the behavior of the reaction itself, of the sources of the major portion of the total radiation, and of the effect of the shock wave upon those sources. The shock-wave effects upon the fission-product gamma rays is such as to make this source a predominant one even at rather great distances. Time separation between the initiating gadget and the thermonuclear reaction was obtained in the uncollimated measurement. Measurements on King Burst were obtained over the time range of 1 msec to 20 sec. These measurements confirm that the total gamma radiation delivered from a high-yield weapon should not scale directly with yield unless a correction is introduced to subtract that portion which is due to shock-wave enhancement of the fission-product gamma-ray contribution.
801. KEYWORD(S) GAMMA RADIATION/measurement ;KING BURST/gamma radiation ;MIKE BURST/gamma radiation ;DIAGNOSTIC EXPERIMENTS;INSTRUMENTATION;MEASUREMENT; DETECTION;IVY; YIELD;TIME DEPENDENCE

Item 295

150. REPORT NUMBER WT--630
110. PRIMARY TITLE(M) Heavy nuclides in bomb debris. Project 1.1b [of] Operation Ivy
70. PERSONAL AUTHOR(M) Browne, C.I.
710. CORPORATE SOURCE Los Alamos Scientific Lab., NM (USA)
371. PUB. DATE(YYMMDD) 530300
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT The results of the work of the personnel of A.N.L., L.A.S.L., and U.C.R.L. on the heavy nuclides formed in the detonation of Mike Burst are presented. It was found that isotopes of uranium far heavier than those known from other bombardment sources were formed in the

detonation. The decay of these nuclides led to the formation, in turn, of new heavy isotopes of plutonium, americium, curium, berkelium, and californium. It seems quite probable that isotopes of at least two new elements, those of atomic numbers 99 and 100, were formed. From the yields of these nuclides it is possible to construct a mass-yield curve of considerable interest in diagnostic information.

801. KEYWORD(S) AMERICIUM ISOTOPES/radioisotope production ; BERKELIUM ISOTOPES/radioisotope production ;CALIFORNIUM ISOTOPES/radioisotope production ;CURIUM ISOTOPES/radioisotope production ;MIKE BURST/bomb debris ;MIKE BURST/heavy element production ;PLUTONIUM ISOTOPES/radioisotope production ;URANIUM ISOTOPES/radioisotope production ;IVY;DIAGNOSTIC EXPERIMENTS

Item 296

150. REPORT NUMBER WT--628
110. PRIMARY TITLE(M) Afterwind measurments with the sonic anemometer. Project 6.3 [of] Operation Ivy
70. PERSONAL AUTHOR(M) Whitener, J.E.
710. CORPORATE SOURCE Los Alamos Scientific Lab., NM (USA)
371. PUB. DATE(YYMMDD) 530800
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT The afterwind from a nuclear explosion originates from two sources: (a) the rise of the fireball. The purpose of this experiment was to measure the afterwind velocity and to determine the feasibility of the sonic anemometer for measuring free wind velocity. The sonic anemometer measures the upwind and downwind velocity components of sound pulses, from which the wind velocity can readily be determined. The records show that turbulent afterwinds with velocities as high as 125 fps at 30,000 ft from ground zero resulted from Mike Burst. The instrumentation of the project is discussed.
801. KEYWORD(S) MIKE BURST/afterwinds ;SONIC ANEMOMETERS/performance ;IVY;MATERIAL VELOCITY DEVICES; MASS MOTION MEASUREMENTS-WD;AFTERWINDS;BALL OF FIRE

Item 297

150. REPORT NUMBER WT--627
110. PRIMARY TITLE(M) Blast-wave mass-motion measurements. Project 6.2 [of] Operation Ivy
70. PERSONAL AUTHOR(M) Seacord, D.F. Jr.
710. CORPORATE SOURCE Los Alamos Scientific Lab., NM (USA)
371. PUB. DATE(YYMMDD) 530600
34. CLASSIF. LEVEL TEXT Secret

950. ABSTRACT Operation Ivy was instrumented for the mass-motion method of pressure measurment in a manner similar to that used on Operations Buster-Jangle and Tumbler-Snapper. Low-altitude pyrotechnic mortar bursts and high-altitude gun bursts (on Mike only) labeled the air for photographic recording. The methods of instrumentation are described; the method of data analysis is outlined; and derived data on time of arrival, peak material velocity, peak shock velocity, and peak overpressure are presented in tabular and graphical form. Appendixes present meteorological and ballistic data and calculations. An outstanding conclusion of the experiment is the lowness of peak overpressures near the surface compared with the peak overpressures at altitudes up to 25,000 ft because of the effect of atmospheric inhomogeneity at long ranges. The mass-motion technique offers a useful diagnostic tool for the determination of total hydrodynamic yield.

801. KEYWORD(S) KING BURST/blast measurements ;KING BURST/mass motion measurements-wd ;INSTRUMENTATION;IVY;TIME OF ARRIVAL;SHOCK VELOCITY;PHOTOGRAPHY; PRESSURE MEASUREMENT

Item 298

150. REPORT NUMBER WT--619
110. PRIMARY TITLE(M) Remote transit-time measurements. Project 2.5 [of] Operation Ivy
70. PERSONAL AUTHOR(M) Wulfe, R.F.
710. CORPORATE SOURCE Sandia Corp., Albuquerque, NM (USA)
371. PUB. DATE(YYMMDD) 530600
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT The objective of the participation of Division 5222 in Operation Ivy was to successfully measure transit time, as requested by Los Alamos Scientific Laboratory. This organization proceeded to utilize equipment on hand, altering it where necessary in presentation, reception, and recording subunits. Reliable results were received on all operation stations and recorded on 35-mm motion-picture film. Results were read in detail and averaged to a final figure. Possible sources of error in the equipment of the organization are analyzed in this report, and recommendations are made for a more accurate determination of the cutoff generation of alpha.
801. KEYWORD(S) KING BURST/transit time ;IVY;INSTRUMENTATION; PHOTOGRAPHY

Item 299

150. REPORT NUMBER UCRL--6283

Order number 940406-165953-13 -001-001
page 158 set 5 with 341 of 341 items

110. PRIMARY TITLE(M) Operation Redwing: postoperational report for program 22, reaction-history measurements (U)
70. PERSONAL AUTHOR(M) Wouters, L.F.
710. CORPORATE SOURCE California Univ., Livermore (USA). Lawrence Radiation Lab.
371. PUB. DATE(YYMMDD) 610200
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT

801. KEYWORD(S) APACHE BURST/diagnostic experiments ;BASSOON/; BASSOON PRIME/;INCA BURST/diagnostic experiments ; KICKAPOO BURST/diagnostic experiments ;MOHAWK BURST/diagnostic experiments ; TEWA BURST/diagnostic experiments ;YUMA BURST/diagnostic experiments ;ZUNI BURST/diagnostic experiments ;SWALLOW/;SWAN/;SWIFT/; WEAPON 27 TEST DEVICES/testing ;FLUTE/;BASSOON;SWALLOW; SWAN;SWIFT; YIELD;TESTING;REACTION HISTORY;FLUTE

Item 300

150. REPORT NUMBER UCRL--5344
110. PRIMARY TITLE(M) Weapon development during August 1958. No. 50
710. CORPORATE SOURCE California Univ., Livermore (USA). Lawrence Radiation Lab.
371. PUB. DATE(YYMMDD) 580916
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT

801. KEYWORD(S)

Item 301

150. REPORT NUMBER UCRL--5131
110. PRIMARY TITLE(M) Morgenstern radiochemistry (Program 21 of Operation Castle)
70. PERSONAL AUTHOR(M) Goeckermann, R.
710. CORPORATE SOURCE California Univ., Livermore (USA). Lawrence Radiation Lab.
371. PUB. DATE(YYMMDD) 580315
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT

801. KEYWORD(S)

Item 302

150. REPORT NUMBER UCRL--5079
110. PRIMARY TITLE(M) Measurement of time of condensation of bomb debris by a radiochemical technique
70. PERSONAL AUTHOR(M) Stevenson, P.C.
710. CORPORATE SOURCE California Univ., Livermore (USA). Lawrence Radiation Lab.
371. PUB. DATE(YYMMDD) 580107
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT Fractionation of fission product nuclides having known precursors has been used to calculate the time of occurrence of a phase-separation phenomenon occurring in the Tewa event of Operation Redwing and the Whitney event of Operation Plumbbob. Fractionation in the case of the Whitney event was deliberately produced by fractional dissolution of the debris.
801. KEYWORD(S) TEWA BURST/fractionation-wd ;TEWA BURST/bomb debris ;WHITNEY BURST/fractionation-wd ;WHITNEY BURST/bomb debris ;FRACTIONATION-WD/;BOMB DEBRIS/fractionation-wd ;FRACTIONATION-WD;RADIOACTIVE

CONTAMINATION

Item 303

150. REPORT NUMBER UCRL--5076
110. PRIMARY TITLE(M) Weapon development during December 1957. No. 42
710. CORPORATE SOURCE California Univ., Livermore (USA). Lawrence Radiation Lab.
371. PUB. DATE(YYMMDD) 580110
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT The work undertaken and its status are reported for the period under the following headings: Physics Research, General Chemical Research, General Weapons Development, Specific Weapons, Weaponization-General, Test Planning and Evaluation, and Nuclear Propulsion (Pluto). Items of special interest include: design of a new code, Los, to compute multigroup neutron cross sections and velocities from experimental data for heavy elements; studies on the change in conductivity as a material changes crystal structure under pressure and the change of an insulator to a metal under pressure; data on titanium-uranium-vanadium and lead-magnesium alloys; design, testing, and weaponization of various weapon systems; preparation for Hardtack; and progress on Jericho.
801. KEYWORD(S) WEAPON 45/;WEAPON 48/;WEAPON 47/;WHISTLE/;BANJO/;ROBIN/;JERICHO/;HARDTACK/;SPAD/;SERAPH/;SANDPIPER/;BERYLLIUM/metallurgy ;LEAD ALLOYS/;MAGNESIUM ALLOYS/;TITANIUM ALLOYS/;URANIUM ALLOYS/;VANADIUM ALLOYS/;LOS CODE/;WHISTLE;BANJO;ROBIN;JERICHO;HARDTACK;SPAD;SERAPH;SANDPIPER;BERYLLIUM;METALLURGY;EQUATION OF STATE

Item 304

150. REPORT NUMBER UCRL--5024
110. PRIMARY TITLE(M) Weapon development during November 1957. No. 41
710. CORPORATE SOURCE California Univ., Livermore (USA). Lawrence Radiation Lab.
371. PUB. DATE(YYMMDD) 571212
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT The work undertaken and its status are reported for the period under the following headings: Physics Research, General Chemical Research, General Weapons Development, Specific Weapons, Test Planning and Evaluation, and Nuclear Propulsion (Pluto). Items of special interest include: data on cross sections for the scattering of 14-Mev neutrons from the 4.43 Mev level in carbon; data on inelastic scattering of 14-Mev neutrons from the 2.43 Mev level in beryllium; data on "25" Kev neutron activation cross sections; initiation of study

of neutron scattering in the atmosphere; plans for phonex type experiment for Whistle at Hardtack; design and development of various weapon systems; preparation for Hardtack; planning for test of Jericho.

801. KEYWORD(S)

Item 305

150. REPORT NUMBER UCRL--5002
110. PRIMARY TITLE(M) Weapon development during October 1957. No. 40
710. CORPORATE SOURCE California Univ., Livermore (USA). Lawrence Radiation Lab.
371. PUB. DATE(YYMMDD) 571108
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT

801. KEYWORD(S)

Item 306

150. REPORT NUMBER UCRL--4853
110. PRIMARY TITLE(M) Weapon development during February 1957, No. 32
710. CORPORATE SOURCE California Univ., Livermore (USA). Lawrence Radiation Lab.
371. PUB. DATE(YYMMDD) 570311
34. CLASSIF. LEVEL TEXT Secret

950. ABSTRACT The type of work and its status are reported for the period under the following headings: Physical Research, General Chemical Research, General Weapon Development, Specific Weapon Development, Test Planning and Evaluation, and Nuclear Propulsion (Rover).
801. KEYWORD(S)

Item 307

150. REPORT NUMBER UCRL--4734
110. PRIMARY TITLE(M) Weapon development during July 1956. No. 25 (U)
710. CORPORATE SOURCE California Univ., Livermore (USA). Lawrence Radiation Lab.
371. PUB. DATE(YYMMDD) 560809
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT The type of work which was accomplished and its status is reported under the following headings: Physics Research, Chemistry, Instrumentation, General Weapons Development, Specific Weapons, Test Planning and Evaluation, and Nuclear Rocket Propulsion (Rover). (U)
801. KEYWORD(S)

Item 308

150. REPORT NUMBER UCRL--4725
110. PRIMARY TITLE(M) Weapon development during June 1956. No. 24 (U)
710. CORPORATE SOURCE California Univ., Livermore (USA). Lawrence Radiation Lab.
371. PUB. DATE(YYMMDD) 560712
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT The type of work and its status is reported under the following headings: Physics Research, Chemistry, Instrumentation, General Weapons Development, Specific Weapons Test Planning and Evaluation, and Nuclear Rocket Propulsion. (U)
801. KEYWORD(S)

Item 309

150. REPORT NUMBER UCRL--4662
110. PRIMARY TITLE(M) Weapon development during February 1956. No. 20
710. CORPORATE SOURCE California Univ., Livermore (USA). Lawrence Radiation Lab.
371. PUB. DATE(YYMMDD) 560313
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT The type of work and its status is reported under the following headings: physics research, chemistry, general weapons development, specific weapons, test planning and evaluation, and nuclear rocket propulsion (Rover).
801. KEYWORD(S)

Item 310

150. REPORT NUMBER UCRL--4638
110. PRIMARY TITLE(M) Weapon development during January 1956. No. 19
710. CORPORATE SOURCE California Univ., Livermore (USA). Lawrence Radiation Lab.
371. PUB. DATE(YYMMDD) 560210
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT The type of work and its status is reported under the following headings: physics research, chemistry, general weapons development, specific weapons, test planning and evaluation, and nuclear rocket propulsion (Rover).
801. KEYWORD(S)

Item 311

150. REPORT NUMBER UCRL--4633
110. PRIMARY TITLE(M) Weapon development during December 1955. No. 18
710. CORPORATE SOURCE California Univ., Livermore (USA). Lawrence Radiation Lab.
371. PUB. DATE(YYMMDD) 560113
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT The type of work and its status is reported under the following headings: physics research, chemistry, general weapons development, specific weapons, test planning and evaluation, and nuclear rocket propulsion (Rover).
801. KEYWORD(S)

Item 312

150. REPORT NUMBER UCRL--4574
110. PRIMARY TITLE(M) Weapon development during August 1955, No. 14
710. CORPORATE SOURCE California Univ., Livermore (USA). Lawrence Radiation Lab.
371. PUB. DATE(YYMMDD) 551010
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT The type of work and its status is reported under the following headings: physics research, chemistry, instrumentation and research tool development, general weapons development and specific weapons, test planning and evaluation, and nuclear rocket propulsion (Rover).
801. KEYWORD(S)

Item 313

150. REPORT NUMBER UCRL--4375
110. PRIMARY TITLE(M) Castle diagnostic photomultiplier detectors
70. PERSONAL AUTHOR(M) Kloverstrom, F.A.
710. CORPORATE SOURCE California Univ., Livermore (USA). Lawrence Radiation Lab.
371. PUB. DATE(YYMMDD) 540831
34. CLASSIF. LEVEL TEXT Confidential
950. ABSTRACT Photomultiplier scintillation detectors capable of producing a pulse signal of one ampere were developed. A dynode voltage distribution was found such that stock RCA type 931-A photomultipliers would produce a linear 200-ma pulse, and the detector utilized five such tubes in parallel. The dc calibration and balancing procedures are described. Proper sensitivies were obtained by adjusting optical attenuation and photomultiplier gain. Detector performance in Bravo scattered Tenex and Koon Ganex was satisfactory, although in Bravo an unexpected background saturated the most sensitive detectors. Investigation of photomultiplier saturation characteristics showed that data from the least sensitive detectors are valid.
801. KEYWORD(S) CASTLE/diagnostic detectors ;KOON BURST/ganex ; BRAVO BURST/tenex ;SCINTILLATION COUNTERS/;DIAGNOSTIC DETECTORS/;CASTLE;DIAGNOSTIC EXPERIMENTS;GANEX;TENEX; PHOTOMULTIPLIERS

Item 314

150. REPORT NUMBER UCRL--4374

110. PRIMARY TITLE(M) Weapon development during July 1954. No. 1
710. CORPORATE SOURCE California Univ., Livermore (USA). Lawrence Radiation Lab.
371. PUB. DATE(YYMMDD) 540818
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT The type of work and its status are reported for the period under the following headings: physics, chemistry, instrumentation and research tool development, general and specific weapons development, and test planning and evaluation.
801. KEYWORD(S)

Item 315

150. REPORT NUMBER UCRL--4290
110. PRIMARY TITLE(M)

70. PERSONAL AUTHOR(M) Biehl, A.T.
710. CORPORATE SOURCE California Univ., Livermore (USA). Lawrence Radiation Lab.
371. PUB. DATE(YYMMDD) 530210
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT

801. KEYWORD(S)

Item 316

150. REPORT NUMBER UCRL--4285
110. PRIMARY TITLE(M) Monthly progress report No. 17, period to January 31, 1954
710. CORPORATE SOURCE California Univ., Livermore (USA). Lawrence Radiation Lab.
371. PUB. DATE(YYMMDD) 540219
34. CLASSIF. LEVEL TEXT Secret

950. ABSTRACT Brief comments on the Hectoton program, test operations, hydrodynamics research, diagnostic studies, chemistry, health physics, mechanical engineering, electronics, and nuclear physics are presented.
801. KEYWORD(S) CASTLE/;CASTLE;DIAGNOSTIC EXPERIMENTS; HYDRODYNAMICS;PREDETONATION

Item 317

150. REPORT NUMBER UCRL--4267
110. PRIMARY TITLE(M) Castle electronic diagnostic preoperational report. Volume IIC. Koon electronic installations
70. PERSONAL AUTHOR(M) Owren, H.M.
710. CORPORATE SOURCE California Univ., Livermore (USA). Lawrence Radiation Lab.
371. PUB. DATE(YYMMDD) 531200
34. CLASSIF. LEVEL TEXT Confidential
950. ABSTRACT This report describes the electronic equipment used to accomplish the fast diagnostic experiment on the Koon Shot of Operation Castle, as outlined in Volume IIA, UCRL-4249. Included in the description are the methods of assembly, calibration, and operational tests. Also contains a list of drawings.
801. KEYWORD(S) KOON BURST/diagnostic experiments ;KOON BURST/instrumentation ;ELECTRONIC EQUIPMENT

Item 318

150. REPORT NUMBER UCRL--4265
110. PRIMARY TITLE(M) Castle electronic diagnostic preoperational report. Vol. IC. Bravo electronic installations
70. PERSONAL AUTHOR(M) Owren, H.M. (comp.)
710. CORPORATE SOURCE California Univ., Livermore (USA). Lawrence Radiation Lab.
371. PUB. DATE(YYMMDD) 531200
34. CLASSIF. LEVEL TEXT Confidential
950. ABSTRACT This report describes the electronic equipment used to accomplish the fast diagnostic experiment on the Bravo Shot of Operation Castle, as outlined in Volume IA, UCRL-4193. Included in the description are the methods of assembly, calibration, and operational tests.
801. KEYWORD(S) BRAVO BURST/diagnostic experiments ;BRAVO BURST/instrumentation ;ELECTRONIC EQUIPMENT

Item 319

150. REPORT NUMBER UCRL--4263
110. PRIMARY TITLE(M) Monthly progress report No. 16
710. CORPORATE SOURCE California Univ., Livermore (USA). Lawrence Radiation Lab.

371. PUB. DATE(YYMMDD) 540115
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT The report presents a detailed summary of the Laboratory's work in the following fields: Hectoton Program, experimental hydrodynamics, diagnostic studies, theoretical studies, thermonuclear reactions, nuclear physics, chemistry, health chemistry, health physics, mechanical engineering, electronics, and subcritical studies.
801. KEYWORD(S) CASTLE/;RAMROD/;WILLIE CODE/; CYCLOTRONS/;CASTLE; RAMROD;HYDRODYNAMICS;DIAGNOSTIC EXPERIMENTS

Item 320

150. REPORT NUMBER UCRL--4249
110. PRIMARY TITLE(M)

70. PERSONAL AUTHOR(M) Heusinkveld, M.; Winslow, A.M.
710. CORPORATE SOURCE California Univ., Livermore (USA). Lawrence Radiation Lab.
371. PUB. DATE(YYMMDD) 531200
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT This report describes the proposed fast electronic diagnostic experiments to be done on the Morgenstern device in Operation Castle. The alpha of the initiator will be measured with scintillators at the device, with coaxial cables to the recording station. Ganex and Tenex experiments will be made on the thermonuclear part of the device, with scintillation detectors for the Ganex and both proton recoil and scintillation detectors for the Tenex. Recording will be accomplished by photographing oscilloscope traces.
801. KEYWORD(S)

Item 321

150. REPORT NUMBER UCRL--4246
110. PRIMARY TITLE(M) Monthly progress report No. 15. Period to Nov. 30, 1953
710. CORPORATE SOURCE California Univ., Livermore (USA). Lawrence Radiation Lab.
371. PUB. DATE(YYMMDD) 531215
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT Report is made on the status of the Laboratory's work in the following fields; Hectoton Program, explosives research, diagnostic studies, theoretical studies, chemistry, health chemistry, health physics,

and thermonuclear reactions. The work of the nuclear physics group, mechanical engineering section, and the electronics group is also reported.

801. KEYWORD(S)

Item 322

150. REPORT NUMBER UCRL--4245
110. PRIMARY TITLE(M) Castle electronic diagnostic preoperational report. Vol. V. Detectors
70. PERSONAL AUTHOR(M) Easterday, H.T.
710. CORPORATE SOURCE California Univ., Livermore (USA). Lawrence Radiation Lab.
371. PUB. DATE(YYMMDD) 531200
34. CLASSIF. LEVEL TEXT Confidential
950. ABSTRACT This volume describes the detectors to be used for the fast electronic diagnostic experiments in Operation Castle. The detectors have been designed for use with two types of experiments: Ganex-gamma rays of 0 to 30 Mev energy; and Tenex-neutrons of 1 to 30 Mev energy. Two general types of detectors are described: scintillation detectors and proton recoil detectors. The construction, sensitivity, and useful dynamic range of each type of detector are discussed.
801. KEYWORD(S) CASTLE/diagnostic experiments ; CASTLE/instrumentation ;CASTLE;INSTRUMENTATION;GANEX; TENEX;RADIATION DETECTORS; DIAGNOSTIC DETECTORS

Item 323

150. REPORT NUMBER UCRL--4238
110. PRIMARY TITLE(M) Castle scientific photography experiment preoperational report
70. PERSONAL AUTHOR(M) Merkle, T.C.
710. CORPORATE SOURCE California Univ., Livermore (USA). Lawrence Radiation Lab.
371. PUB. DATE(YYMMDD) 530616
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT An experiment using high speed sweeping image cameras has been designed for performance in the Castle test. This experiment is expected to give information concerning the pressures developed within the Ramrod and Morgenstern devices during the implosion phase. Calculations of light intensity, expected precision, and background levels have been performed. The question of light absorption by an ionized atmosphere, which appears to have been troublesome in the recent Los Alamos tests during the Upshot program, is still being considered and

is not included in this report.
801. KEYWORD(S)

Item 324

150. REPORT NUMBER UCRL--4222
110. PRIMARY TITLE(M) Monthly progress report No. 14, period to October 31, 1953
710. CORPORATE SOURCE California Univ., Livermore (USA). Lawrence Radiation Lab.
371. PUB. DATE(YYMMDD) 531117
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT Report is made on the status of the Laboratory's work in the following fields: Hectoton Program, diagnostic studies for Castle, theoretical studies, subcritical assembly, scientific photography, basic detection development, chemistry, health chemistry, health physics, nuclear physics, and controlled thermonuclear reactions. Also reported is the work of the nuclear film group, the electronics group, and the mechanical engineering department.
801. KEYWORD(S)

Item 325

150. REPORT NUMBER UCRL--4190
110. PRIMARY TITLE(M)

70. PERSONAL AUTHOR(M) Ross, W.N.
710. CORPORATE SOURCE California Univ., Livermore (USA). Lawrence Radiation Lab.
371. PUB. DATE(YYMMDD) 530910
34. CLASSIF. LEVEL TEXT Confidential
950. ABSTRACT This report is compiled to provide a guide to the mechanical installations required for Ganex, Tenex, and Phonex experiments on Ramrod and Morgenstern. Preliminary installation drawings of all important associated equipment are included.
801. KEYWORD(S)

Item 326

150. REPORT NUMBER UCRL--4189
110. PRIMARY TITLE(M)

70. PERSONAL AUTHOR(M) Ross, W.N.
710. CORPORATE SOURCE California Univ., Livermore (USA). Lawrence Radiation Lab.
371. PUB. DATE(YYMMDD) 530910
34. CLASSIF. LEVEL TEXT Confidential
950. ABSTRACT This report is compiled to provide a guide to the mechanical installations required for Ganex and Tenex experiments on Shrimp. Preliminary installation drawings of the major components and assembly drawings of all important associated equipment are included.
801. KEYWORD(S)

Item 327

150. REPORT NUMBER UCRL--4178
110. PRIMARY TITLE(M) Pre-operation report: Castle program 2.4. External neutron measurements
70. PERSONAL AUTHOR(M) Violet, C.E.; White, R.S.
710. CORPORATE SOURCE California Univ., Livermore (USA). Lawrence Radiation Lab.
371. PUB. DATE(YYMMDD) 530908
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT Nuclear emulsions will be used to measure the energy spectra from the detonations of the Morgenstern and Ramrod. The methods used in exposing the emulsions and in their analysis are discussed. The expected revolution, yield, and background corresponding to various experimental parameters are given. A program to test the detection apparatus is outlined.
801. KEYWORD(S) CASTLE/diagnostic experiments ;MORGENSTERN/; RAMROD/;CASTLE;MORGENSTERN;RAMROD;YIELD

Item 328

150. REPORT NUMBER UCRL--4061
110. PRIMARY TITLE(M) Monthly progress report No. 5, January 1953
710. CORPORATE SOURCE California Univ., Livermore (USA). Lawrence Radiation Lab.
371. PUB. DATE(YYMMDD) 530304
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT Brief statements on studies of controlled thermonuclear reactions, accelerators, subcritical assembly, Univac, diagnostic studies with Upshot, Castle and Ramrod Shot, cryogeny, chemistry, health physics, electronics, and mechanical engineering problems.
801. KEYWORD(S)

Item 329

150. REPORT NUMBER UCRL--4048
110. PRIMARY TITLE(M) Monthly progress report No. 4, December 1952
710. CORPORATE SOURCE California Univ., Livermore (USA). Lawrence Radiation Lab.
371. PUB. DATE(YYMMDD) 530203
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT Brief statements on studies of controlled thermonuclear reactions, accelerators, theoretical considerations, diagnostic experiments with Castle and Ramrod Shot, cryogeny, radiochemistry and electronic, and engineering problems.
801. KEYWORD(S) CASTLE/diagnostic experiments ;RAMROD/;CASTLE; RAMROD

Item 330

150. REPORT NUMBER UCRL--4034(Rev.)
110. PRIMARY TITLE(M) Ivy electromagnetic detection experiment
70. PERSONAL AUTHOR(M) Wouters, L.
710. CORPORATE SOURCE California Univ., Livermore (USA). Lawrence Radiation Lab.
371. PUB. DATE(YYMMDD) 521229
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT An attempt was made to detect Electromagnetic Radiation emitted by the atomic explosions at Operation Ivy, using an array of radiofrequency detectors operating in the vicinity of 100 kc and 15 Mc. No direct transient pulses attributable to those explosions were detected. An extensive delayed fade-out of the Honolulu timing signals was noted following the Mike shot only. It is suggested that an ionospheric disturbance propagated radially from Elugelab was responsible; a possible application to LRD is also indicated.
801. KEYWORD(S) MIKE BURST/electromagnetic detection ; ELECTROMAGNETIC DETECTION/; IVY/electromagnetic detection ;LONG-RANGE DETECTION

Item 331

150. REPORT NUMBER UCRL--4018
110. PRIMARY TITLE(M) File of notes for Tuesday and Friday lectures
70. PERSONAL AUTHOR(M) Teller, E.
710. CORPORATE SOURCE California Univ., Livermore (USA). Lawrence Radiation Lab.
371. PUB. DATE(YYMMDD) 521112

34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT Lectures concerning the following subjects are given: Ganex, operation Pyrex, diagnostic experiments, and two lectures on thermonuclear explosions by E. Teller.
801. KEYWORD(S) THERMONUCLEAR REACTIONS/;DINEX/;GANEX/;GREENHOUSE DIAGNOSTIC EXPERIMENTS/;X-RAY EXPERIMENT-GREENHOUSE/; DINEX;GANEX;LECTURES

Item 332

150. REPORT NUMBER UCID--4380
110. PRIMARY TITLE(M) Yield calculations by diagnostics methods (U)
70. PERSONAL AUTHOR(M) Lindsay, W.F.
710. CORPORATE SOURCE California Univ., Livermore (USA). Lawrence Radiation Lab.
371. PUB. DATE(YYMMDD) 590812
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT This report indicates how device yield is determined given the peak gamma fission rate in gamma-MeV/sec outside device, the signal width at half maximum, and the device transmission in gamma-MeV/sec/ fission outside device as the parameters.
801. KEYWORD(S) BLANCA BURST/yield ;CHARLESTON BURST/yield ;DIABLO BURST/yield ; EVANS BURST/yield ;HAMILTON BURST/yield ; HICKORY BURST/yield ;HOOD BURST/yield ; JUNIPER BURST/yield ;LOGAN BURST/yield ;MAZAMA BURST/yield ; MORGAN BURST/yield ; NUTMEG BURST/yield ;OWENS BURST/yield ;RUSHMORE BURST/yield ;SANFORD BURST/yield ; SHASTA BURST/yield ;URANUS TEST/yield ;WHEELER BURST/yield ;WHITNEY BURST/yield ;WILSON BURST/yield ; WRANGELL BURST/yield ;YIELD/measurement ;YIELD; MEASUREMENT; DIAGNOSTIC EXPERIMENTS

Item 333

150. REPORT NUMBER UCID--4376
110. PRIMARY TITLE(M) Tare Koala experiment (U)
70. PERSONAL AUTHOR(M) McMaster, W.H.
710. CORPORATE SOURCE California Univ., Livermore (USA). Lawrence Radiation Lab.
371. PUB. DATE(YYMMDD) 580115
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT Information is presented concerning: gamma-gamma signal; the (n, n'gamma) signal; the (n,n) signal, Cherenkov Detector; Hickory Event; Recording System; Detector Collimation. (U)
801. KEYWORD(S) HICKORY BURST/diagnostic experiments ;KOALA PIT/; DIAGNOSTIC EXPERIMENTS/

Item 334

150. REPORT NUMBER UCID--4264
110. PRIMARY TITLE(M) Estimating primary stage device yields from reaction history data
70. PERSONAL AUTHOR(M) Lindsay, W.F.
710. CORPORATE SOURCE California Univ., Livermore (USA). Lawrence Radiation Lab.
371. PUB. DATE(YYMMDD) 591100
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT A procedure for calculating the fission energy yield of the primary stage of an exploded nuclear device has been analyzed. The Reaction History curve for the device and the predicted hydrodynamic and neutronic state of the device at the time of the maximum yield are required for the calculation. This procedure can determine full scale primary stage device fission yields to within +-15% standard error. The safety test yields are determined to within +-100%. The results of the yield estimates on devices shot in Plumbob-1957, 58-A-Spring 1958, Hardtack Phase I and II-1958 are given.
801. KEYWORD(S)

Item 335

150. REPORT NUMBER WT--114
110. PRIMARY TITLE(M) Neutron measurements. Part II. External neutron and gamma flux measurements by sample activation. Section I. Annex 1.5 [of] scientific director's report of atomic weapon tests at Eniwetok, 1951. Operation Greenhouse
710. CORPORATE SOURCE Los Alamos Scientific Lab., NM (USA)
371. PUB. DATE(YYMMDD) 541100
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT The Greenhouse operation consisted of a series of four shots conducted at Eniwetok during the Spring of 1951. The external neutron threshold measurements (see Appendix A) consisted in the use of gold samples to measure integrated thermal neutron fluxes and sulfur, iodine, and zirconium samples to measure fluxes of

higher energy gamma-ray intensity. In addition, measurements were made on slow- and fast-neutron intensities as a function of time.

801. KEYWORD(S) GAMMA DETECTION/activation detectors ;NEUTRON DETECTION/activation detectors ; GREENHOUSE/neutron measurements ; GREENHOUSE/gamma radiation ;ACTIVATION DETECTORS/;NEUTRON FLUX;GOLD;SULFUR; IODINE;ZIRCONIUM

Item 336

150. REPORT NUMBER WT--113
110. PRIMARY TITLE(M) Radiochemical yield and efficiency measurements. Annex 1.7 [of] scientific director's report of atomic weapon tests at Eniwetok, 1951. Operation Greenhouse
70. PERSONAL AUTHOR(M) Spence, R.W.; Knight, J.D.
710. CORPORATE SOURCE Los Alamos Scientific Lab., NM (USA)
371. PUB. DATE(YYMMDD) 540900
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT Efficiency, number of fissions, and total energy release of each of the four devices tested in Greenhouse were measured by radiochemical analysis of air-borne debris. Performance of the thermonuclear debris and performance of the thermonuclear components of George and Item Bursts were measured by the use of internal threshold detectors. The efficiency of Item Burst was estimated by the measurement of the fission product ratios Ag{sup 111}/Mo/sup 99/ and Cd{sup 115}/Mo/sup 99/. The procedures and results are given in the report.
801. KEYWORD(S) DOG BURST/efficiency-wd ;DOG BURST/yield ;EASY BURST/efficiency-wd ;EASY BURST/yield ;GEORGE BURST/efficiency-wd ;GEORGE BURST/yield ;ITEM BURST/efficiency-wd ;ITEM BURST/yield ;EFFICIENCY-WD; RADIOCHEMICAL ANALYSIS;FISSION PRODUCTS

Item 337

150. REPORT NUMBER LA--9819-Vol.2
110. PRIMARY TITLE(M) Optical atmospheric emissions excited by nuclear devices and their diagnostic applications. Volume II. The physical basis of optical
70. PERSONAL AUTHOR(M) Hoerlin, H.
710. CORPORATE SOURCE Los Alamos National Lab., NM (USA)
371. PUB. DATE(YYMMDD) 850700
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT

801. KEYWORD(S) ATMOSPHERIC BURSTS/optical detection ;ATMOSPHERIC BURSTS/diagnostic experiments ;ATMOSPHERIC BURSTS/teller light ;AIR/fluorescence ;CHINESE ATOMIC EXPLOSIONS/optical detection ;OXYGEN;AIR;FLUORESCENCE; ATMOSPHERE; EXCITATION; X RADIATION;VISIBLE RADIATION; ALTITUDE;GAMMA RADIATION; SATELLITES;CHAMA BURST;NAVAHO BURST;DAKOTA BURST; FLATHEAD BURST;AIR POLLUTION; ABSORPTION;NITROGEN; NITROUS ACID;NITRIC OXIDE

Item 338

150. REPORT NUMBER SRI-P--2418(FR)Pt.B
110. PRIMARY TITLE(M) Arctic atmospheric noise and propagation studies. Part B. The detection of nuclear explosions. Final report (U)
70. PERSONAL AUTHOR(M) Whitson, A.L.
710. CORPORATE SOURCE Stanford Research Inst., Menlo Park, CA (USA)
371. PUB. DATE(YYMMDD) 600200
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT Electromagnetic (EM) signals from 20 Hardtack nuclear events and from 8 possible Russian events were recorded simultaneously with sferic signals by a monitoring system designed to gather data on sferics

originating anywhere in the Northern Hemisphere. The data collected on nuclear explosions indicate that EM pulses may be detected in a sferic background by the use of a priori data on geographic location, time of occurrence, and pulse amplitude for discrimination. The technique of measuring peak-to-peak very low-frequency/extremely low-frequency ratio of the EM signal is discussed. Some data reproduced from Part A of this report are used to estimate the number of sferics received from the United States and from Europe that are equivalent to a nuclear explosion of specified yield.

801. KEYWORD(S) ATMOSPHERIC BURSTS/electromagnetic detection ; RUSSIAN ATOMIC EXPLOSIONS/electromagnetic detection ; SFERICS/wave propagation ;ATMOSPHERE;ARCTIC REGIONS; ELECTROMAGNETIC PULSE;SFERICS; HARDTACK;NOISE

Item 339

150. REPORT NUMBER WT--1364
110. PRIMARY TITLE(M) Ground-motion studies. Adjunct to Project 30.2 of Operation Redwing
70. PERSONAL AUTHOR(M) Perret, W.R.
710. CORPORATE SOURCE Sandia Corp., Albuquerque, NM (USA)
371. PUB. DATE(YYMMDD) 570400
34. CLASSIF. LEVEL TEXT Confidential
950. ABSTRACT Instrument container tests yielded data relevant to ground motion at high overpressure regions for LaCrosse and Blackfoot Bursts of Operation Redwing. Peak accelerations were observed at four stations ranging between 425- and 52-psi incident overpressures. These data, analyzed as functions of overpressure, show a power-law relationship similar to that found for data from Mike Burst of Operation Ivy. Velocity and displacement data were derived from the acceleration-time curves. However, data beyond peak accelerations were considered representative of ground motion in only three cases. This limits useful ground displacement information from these data to the 50- to 60-psi overpressure region. Acceleration spectra were derived and are included for systems having zero damping and 3 and 10% critical damping. An appendix includes acceleration spectra from several sets of ground-motion data from Operations Ivy and Upshot-Knothole.

801. KEYWORD(S) BLACKFOOT BURST/ground motion ;LACROSSE BURST/ground motion

Item 340

150. REPORT NUMBER SC-WD--67-175
110. PRIMARY TITLE(M) Comparison and evaluation of two approaches to

scaling of crater dimensions from surface bursts (U)
70. PERSONAL AUTHOR(M) Vortman, L.J.
710. CORPORATE SOURCE Sandia Corp., Albuquerque, NM (USA)
371. PUB. DATE(YYMMDD) 670900
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT Causes of differences in scaling laws for surface-burst nuclear explosions proposed by Laupa and Vortman are examined with the finding that the differences result from different methods of analysis. Scaling derived by Laupa describes the Pacific results well qualitatively but poorly quantitatively. A quantitative evaluation of essentially the same data as Laupa used yields a lower intercept and a higher exponent, leading to a conclusion that the large intercept value proposed by Laupa is an artificial product of the method of analysis used. Recommendations for crater scaling are made on the basis of actual cratering yield where it can be determined, and on nominal yield where it cannot. Intercepts are recommended for Pacific coral limestone, NTS alluvium, and hard rock. Appropriate variances are suggested for both intercepts and scaling exponents. 37 references. (U)
801. KEYWORD(S) BRAVO BURST/craters ;CACTUS BURST/craters ;FIG BURST/craters ;KOA BURST/craters ;KOON BURST/craters ; LACROSSE BURST/craters ;MIKE BURST/craters ;OAK BURST/craters ;SEMINOLE BURST/craters ;TEWA BURST/craters ;ZUNI BURST/craters ;CRATERING BURSTS/; CRATERS/scaling laws ;CRATERS

Item 341

150. REPORT NUMBER LA--1529
110. PRIMARY TITLE(M) Soil pressures and energy transfer on Mike Shot (U)
710. CORPORATE SOURCE Los Alamos Scientific Lab., NM (USA)
371. PUB. DATE(YYMMDD) 521010
34. CLASSIF. LEVEL TEXT Secret
950. ABSTRACT This study was made to investigate the feature of the shock wave on the soil beneath Mike Shot, by a rough hydrodynamic study, partly to gain insight into the pressure-space-time relationships and partly to investigate the possibility of a tsuname from the explosion. (U)
801. KEYWORD(S) GEORGE BURST/seismic effects ;GEORGE BURST/ground motion ;GEORGE BURST/time of arrival ;MIKE BURST/seismic effects ;MIKE BURST/ground motion ;MIKE BURST/time of arrival ;ENIWETOK/geology ;PRESSURE-DISTANCE STUDIES; HYDRODYNAMICS; UNDERGROUND SHOCK WAVES;TSUNAMI;ENIWETOK; GEOLOGY