CHRON-5

411670

7.2

The July 1959 activities report notes that there appropriate ceremonies held on Independence Day which included an address by the Task Group Commander and a 41-gun salute. As to the future, plans were developed in problem areas isolated in connection with the possible phase out of Army activities in EPG. Planning for maintenance standby culminated in a letter to CJTF-7, subject: Possible Disestablishment, dated 24 July 59, which outlines problem areas anticipated by CTG 7.2 and included recommended solutions." Among other things during this period of time a native ~~xxxxxxxx~~ boys band from Majuro (consisting of 36 boys ranging from 7 to 15 years old) performed at the Terrace Theater on 7 July for an estimated crowd of 650 persons.

JC

Here is a report from the 4950th forwarded to JTF-7 in July of 1959 and entitled "USAF Requirements for Conversion of EPG from Minimum Maintenance Standby Basis to Fullscale Nuclear Test." It notes that the 4951st at the EPG now consists of 21 officers and 219 airmen which provide air transportation for personnel at the EPG, as well as a nucleus for build up in the event of a future test series, as well as providing for a state of readiness of the air facilities.

JA

Here is another tentative budget estimate of an inspection and control system in July of 59. Including an aircraft sampling operation in the monitoring system, the initial cost to establish would be about 1 billion dollars and the annual operating costs would be over 200 million dollars.

In July of 59, to help the labs prepare their inputs to this report, Starbird asked that they consider three possible degrees of test bans in discussing the future of the laboratories weapons programs and projected accomplishments. These are as follows:

"1. If we have early agreement preventing all atmospheric testing (and agreement remains in effect throughout period)

2. If we have early agreement that all weapon testing above 10 tons is prohibited (and remains prohibited throughout the period)

3. If the overall moratorium on weapons testing endures until July 1, 1960, and then atmospheric test on a limited basis is permitted (say 2 megaton of fission per year by US plus additional desirable tests not in the atmosphere)."

Bradbury submitted his reply for LASL on 14 Sept. 59 which included the history and current activities of LASL; weapons research and development at the lab under the three different test moratorium conditions; non weapons activities at LASL under the three different moratoriums; activities of LASL and their relationship to universities and industries; and general comments on the future of LASL.

JULY - DEC 59

The following notes cover the latter half of calendar year 59. As of 1 Nov. 59, John Kodis became Acting Director of the Test Division, a job that would have made him head of Task Unit 3 in the Task Force structure, I believe.

Total strength of this group was at 116 in this time period. Furthermore, they were studying possible reductions if the moratorium continues.

There are three memoranda from Bob Newman of J-6 to Ogle on various aspects of containing and testing underground which were written in July and August of 59. JS

Description
The first of these, 2 July 59, #J6-8241, is subject "Tentative and a Proposed Operational Procedure for Firing in 1100 Foot deep holes." It is a plan of attack for 1100 foot vertical holes which will have Alpha measurments and quickly recoverable radio chemical samples and would be almost completely back-filled. The paper described the configuration in great detail including dimensions as well as the operational sequence for instrumenting and executing the test, as well as a brief recovery procedure. It noted that there are yet unsolved problems in the area of both the Alpha and the Radken measurments. Comments are solicited.

A 7 July 59 letter from NOL to numerous addresses including LASL includes a paper on the need for further test information on nuclear blast kill mechanisms from high altitude detonations, and the subsequent need for a high altitude balloon shot in Operation Willow. LG

7 July 1959, the study group under separate cover letter forwarded a report on future status and utilization of Eniwetok proving ground" to the Assistant to the Secretary of Defense (Atomic Energy) and the General Manager of the AEC. The remainder of the report, about 165 pages long, contains this sub-committee's report on Eniwetok. This concludes the notes on this study group's report on future test operations organization. BO

In an 8 July 59 letter from Newman to Hohner of AEC in Las Vegas, Newman points out approval has been given to procure 20,000 feet of coax cable for balloon use at the He states the basic requirement for these ~~lengths~~ lengths of coax that will be unsupported minimum lengths of 500 feet and possibly as long as 1200 feet. NT

hroughout 1959, long drawn-out negotiations were conducted concerning ie possible transfer of JI from the Air Force to the Army for the ike-Zeus Program. Plans for enlargement of Johnston Island by approximately 3 acres by means of fill dredged from the ocean bottom were made and a ontract was awarded 9 July 1959 with completion scheduled for 1 February 960. Construction personnel and equipment arrived in August and September. . causeway was built into the lagoon to facilitate obtaining the fill.

9 July - 59 CR At meeting of Executive Council of the French Community, France announces intention to conduct atom tests in Sahara. CR

59
A 10 July Memo For Record within the 4950th on the status of the EPG notes the deliberations of the high level committee including General Starbird on the recommendation to drop the EPG to a minimum maintenance status and their agreement "In principal". Further it is noted that the PMR activities involving facilities at the EPG will not be able to have the support of the helicopters based on the planned phase down.

III. A USGS Trace Elements Memorandum Report Number 1036 (TEM-1036) entitled "Geology of the Marble Exploration Hole 4, NTS, Nye County, Nevada" by F.A. McKeown and V.R. Wilmarth.

This USGS report made to Mr. Reeves of ALOO, I mentioned only because it documents the drilling of a 1200 foot hole in the north central part of the Tippipah Spring quadrangle at the NTS. The drilling took place between July 13 and August 30, 1959.

A 15 July 59 letter from Teller to Starbird responds to requests for information and proposals in development of tactical weapons with enhanced nuclear radiation and what the Livermore program is and might be. The type of weapon is defined as that which would have a large radius for radiation kill compared to that of blast effects.

Teller sets forth the present lab effort in these areas and what would be required in the way of shift of personnel from other programs or additional hiring to meet various schedules for testing and preparation of these devices. Of interest, he states, "First of all it should be reiterated, that the most important factor to insure early stockpiling of some radiation weapons would be the prompt resumption of nuclear testing. . . . For the purpose of this discussion we will assume that testing

of yields in the range of a few kilotons and below will resume underground some time in the neighborhood of Jan. 1, 1960." He notes that the only other organization with the ability to work on these programs would be LASL and encourages that they get started on such things and mentions also that AWRE might be able to pursue these ideas and that some calculational support might be sought from Rand and possibly NYU. In summary, he says, "A careful but necessary preliminary planning of the development of radiation weapons has been carried out. On the basis of this, we believe that a rapid and reasonable development in this area will require cancellation of some and the delay of other important work at the laboratory, and will also require a moderate expansion (80 direct heads in the Whitney effort during the next year). . . . As a result we expect that an effective radiation weapon could go into stockpile not later than 1964. The lab would appreciate an early directive to proceed on an accelerated plan toward a development of the radiation weapons. Because of the heavy sacrifices required in any of the alternatives mentioned above and because of our manpower shortage we feel that we cannot make the acceleration of these developments without a clear directive." The Livermore mid-year review sent from Teller to Starbird on 16 July 59 contains a lengthy discussion of the impact of the moratorium. "In reviewing the program of the Lawrence Livermore Laboratory for 1959, the currect moratorium on nuclear weapons testing continues to be the most important factor. This handicap and uncertainty, combined with a heavy commitment to a number of very important weaponization programs, produce an anomalous situation in which both factors work to inhibit device development on advanced concepts, which is vital to the ~~fnxhnxn~~ development of future weapons. This situation will be temporary as regards the balance between weaponization and device effort, and may also be temporary as regards the test moratorium, but, of course, it creates serious problems for LRL." After noting that Livermore regards nuclear explosives development as their most important job and that prediction of developments beyond five years is

meaningless, Teller continues "If testing does not resume, it will be necessary to development new techniques which do not involve nuclear weapons tests, to carry us as far as possible in the development of new nuclear weapons. Depending upon the nature of the designs involved in the full yields desired, one can hope for a substantial measure of development. It is clear, however, that the rate of progress in weapons development would be very markedly decreased by a continuance of the moratorium, even if substitute development efforts were expanded. By more extensive and elaborate calculations, use of mechanical safing and a more liberal use of fissile material in device design, etc., we would hope even under circumstances of a complete moratorium to be able to make one or perhaps two generations of weapons development progress, at least in some areas. While the uncertainty persist, the lab is making a very extensive effort to become and remain prepared for testing underground and in deep space so as to be able perform such tests if national policy so decides. We consider it our responsibility to be able, in such a case, to obtain the necessary diagnostic data. This constitutes our principal effort in the testing area which has been cut back from 350 during Hardtack to a level of the order of 150 direct personnel." The rest of the review notes the details of lab developments in the various classes of weapons as well as other programs such as Plowshare, Sherwood, and Pluto. Noted is that some investigation has been given to the detection of tests in outerspace as well as the programs completed and underway for test detection underground.

An update of this memo on 16 July 59 #J6-8267, is the same subject and notes several minor changes to the description of the method of testing. One is that the depth will now be 1200 feet due to the 550 scaling law which has been "more or less agreed upon as desirable by the Planning Board." Newman notes that ALOO has received the forms "Advance Notice for Bids" for the four deep holes from H & N but is holding them until DMA authorizes construction.

JS

16 July 59 letter from Teller to Starbird is midyear review of LRL programs. Among many other things, notes weapons development with continuing moratorium. LRL is making effort to become and remain prepared for testing underground and in deep space. Vortex is mentioned as helpful in moratorium. Plowshare effort is increasing: early calendar 61 is proposed for Chariot, Gnome for mid-calendar 60, and Oxcart is mentioned.

FP

Meeting #1529, 17 July 59:

Starbird presented to the Commission three studies prepared by ~~DNA~~ DMA on the subject of Weapons Testing, one concerning requirements for additional weapons tests, one concerning underground weapons tests, and one concerning high altitude weapons tests. These have been prepared as a result of the meeting between McCone and Killian in April of 59 in which certain studies were assigned to the AEC and others to the DOD. As for underground testing, it would be feasible to conduct 14 tests between November 59 and September of 60 at an estimated cost of 50 million dollars. As for high altitude testing, the plans are for 6 devices for weapons development and two calibration tests. The estimates for completion range from 85 million dollars in 2 years to 220 million dollars in 4 to 5 years depending on the altitude to be used for detonation. The lowest figure is for 500 to 1000 kilometers and the highest figure is for 100,000 kilometers or higher. In all such high altitude tests only minimal diagnostics could be obtained. The 100,000 kilometer altitude would be required if it was an absolute requirement that there could be no atmospheric fallout.

NG

The Commission then discussed at some length who should receive these reports outside of the AEC. McCone stressed the extreme sensitivity of the content and the fact that the reports had been done and it was agreed that in the Department of State only the Under Secretary of State and Philip Farley would receive copies. Chairman McCone also Goodpaster on the

Letters of transmittal for the most part indicate meetings of the Bethe panel by the AF
nd papers published through 59 and 60 addressed mainly to analyzing the
ussian weapons program and a meeting is planned for October of 59 to discuss with 27
he British the latest data on Soviet devices. One interesting comment is in a
etter from Doyle Northrup to Carson Mark on 21 July 59 in which he says "I notice
ou have successfully escaped reassignment to Geneva. Congratulations!"

Further correspondence between DASA and DMA and the other AEC organizations 2G
including the labs in July and Aug. of 59 gave a clearer indication that the Willow
program was largely a DOD program and that they were not readily seeking assistance
from the AEC. A 22 July letter from Parker to Starbird said that, whereas the AEC
had proposed providing warhead-diagnostic packages for all 5 Willow shots, DOD only
had room for such packages on the 2 highest shots. Sandia was working at this time
with the Army Ballistic Missile Agency (ABMA) on the design of such packages. Hoerlin,
noting that he was not enthusiastic about any extensive participation in the Willow
program since DOD was controlling it to such a great extent, said that he had had
disoussion with Sandia personnel on the contents of the diagnostic packages and that
they were "carrying the ball" on that item.

New entry...

Note that DASA, together with the Office of Naval Research, sponsored a PV
"conference world-wide distribution of radioactive fallout" with international parti-
cipation on 21-22 July 1960. The participants were all from western countries.

22 July TWX from Starboard to Bradbury and Monar documents the fact that n air force organization is preparing overall plans for R&D aimed at the etection and identification of high altitude nuclear explosions and the final program may take some time to formulate and be approved and funded by the DOD. Since the Air Force organization feels that certain studies should be initiated without delay they are requesting emergency funding and LASL is requested to formulate a concrete proposal along these lines for forwarding to that air force organization by DMA.

BR

L

23 July 1959, J-3 Report: On 25 June, JTF-7 issued general order number 5 discontinuting Task Groups 7.1 effective 31 August 1959.

BY

24 July 1959, J-13 Report: The testing of full scale boosted weapons in a vertical shaft 1100 feet or more deep poses cabling problems for signals in the boost region which are being addressed by J-13 among others.

BY

A 24 July 59 memo from Reevesto Starbird discusses the balloon development program

NT

ich is moving towardsdemonstration of 20,000 lb. balloon with 15,000 lb. payload. sembly is 50% complete with delivery date estimated for 1 August (at the NTS, assume). It is estimated that the flight tests of the prototype will be completed metime between 1 September and 1 October. Reeves feels it is in the government's t interest to continue the program through the minimum number of flights essary to obtain the information that Sandia requires or until the prototype ves to be unsatisfactory. Thus Reeves intends to proceed with the program unless ected otherwise.

A 24 July 59 message from Starbird to Bradbury notes, in connection with current discussion of a possible decoupling shot, DMA needs an estimate of the accuracy of the yield of the low yield MARK 7.

A 24 July 59 message from Starbird to Hertford, Teller, Bradbury, and Rodenhauser (Air Force) says "the Chairman desires that the AEC go ahead with plans on an accelerated basis to initiate studies and actions to stage a nuclear shot or shotsunderground to check on decoupling. It is recognized that such a program, if it is to be worthwhile, cannot be adequately completed by January 1, 1960. However, it is believed that by making all necessary funds available and expediting this program to the utmost that at least one decoupled nuclear event together with an associated closely tamped nuclear event can be staged, completed, and sufficiently analyzed so that definitive data will be available by mid 1960." He requests that a meeting be held in Washington on 3 August to lay out a technical program and assign responsibilities to achieve these goals and that the following be present: Latter, Northrup, Romney, Sanders, and others. A handwritten comment at the end of the message in the LASL copy says "how come the Chairman will let this test be planned but Starbird says "nothing doing (by 1 Nov) on one points? Surely getting ready for a coupling shot will be "obvious" and arouse comment."

In his letter to Wilson of the ALOO on 24 July 59, Bradbury spells out more specifically the funding impact on LASL with this program. Allowing for a small amount of overall laboratory growth and noting that there will be only a slight reduction in the effort devoted to weapons due to the need to be ready to meet those demands if testing is resumed, the weapons budget is shown at a level of about 38 million for the next two fiscal years (60 and 61) with the combination of the reactors, Rover and thermocouple (program 4000) coming to about 25 1/2 million in 60 and 36.6 million in 61. He notes that this is LASL's planning position whereas he realizes that there are already FY 60 problems with the amount available in DRD. Since the total for LASL for FY 60 is 68.1 million and 79.8 for FY 61, there is apparently an increase of roughly 10 million dollars in the reactors, Rover, and thermocouple for 60 and about 21 million for 61 as compared

FY 60 funding

irst formal discussion regarding the transfer was held 24 July 1959 by
epresentatives of interested agencies; Pacific Air Force Base Command,
S Army Hawaii, Headquarters Pacific Air Force, Airwaysand Air
ommunications Service, 1502 ATW (MATS), US Weather Bureau, and
.S. Coast Guard. Other meetings included personnel from U.S. Army
acific, 11th Navy District, and Pacific Missile Range. Target date for
e transfer was tentatively set for December 1959. A proposed transfer
reement was forwarded to higher Headquarters on 23 September 1959.

28 July 1959, J-6 Report: As for Eniwetok the items which have been mentioned ~~for~~ before are still in various stages of design and study and completion by H&N. As for NTS, the 4 new 500-foot deep 36" diameters holes in area 3 have been drilled and cased; the contract was completed on 10 June 1959 and the contractor has pulled out of NTS. There has been considerable discussion and some solidification of ideas relating to the solution of firing and containing the underground. J-6 is drafting the various ideas which have merit any one of which could be used to provide complete containment, a radchem sample, and alpha measurements. The deep holes formerly listed at 1100 feet are now proposed for 1200-foot depth with the new figure based on the most recent thinking for absolute surety of containment, i.e. a scaling law of 550 w to the 1/3. In addition to numerous other design and engineering and study items concerned with NTS underground testing, post shot explorations are progressing slowly in area 3.

Here is a memo from Herbert Loper (ATSD for AE) on 28 July 59 to the assistant for Atomic Energy, USAF, and the Chief of DASA on the future status of the EPG. He states that, the AEC having indicated agreement in principle with the conclusions of the current reports on the EPG, the Secretary of Defense also agrees that personnel and equipment at the EPG should be reduced to the minimum required for a 12 month response capability and that the associated DOD organizations are to proceed with functional and manning changes as already agreed.

A 29 July message from Starbird to Bradbury transmitts a message from Graves who is in Geneva to Ogle as follows: Suggest reading Berkner report material as well as anything available on Al Latters decoupling scheme. " Apparently Ogle is going to Geneva about this time.

An interesting letter dated 29 July 59 from Starbird, Director of DMA to York, DDR&E, addresses the AEC Laboratories' cooperation with the Military on the question of high altitude studies. The letter is more or less in response to a February letter from York to Starbird requesting AEC cooperation with the Air Force in exploring the possibility of having certain high altitude weapons effects investigations performed by the AEC Laboratories. The cooperation then on-going between the various Laboratories and ALO with the Air Force through AFSWC is noted. And Starbird further states that the Labs are exerting a fairly modest effort in this field of high altitude weapons effects and feel that they can spare no further effort on this work at this time, despite the considerable interest in these effects. The letter further enumerates the various areas in which the Labs are working, including high altitude weapons diagnostics.

29 July 1959, J-10 Report: As for optical detection of nuclear explosions in space a prototype wide angle optical system for florescense detection has been developed by GMX-9 and 2 units are under construction. The waterwave problem is addressed and surveyed by a J-10 report, J-10-542, "Production of ocean waves by nuclear explosions - an evaluation."

59

A 31 July TWX from Starboard to Bradbury and McMillan of LRL at Berkely references Starboards' letter of 7 July which requested Lab reports covering future plans for non-weapons activities to be used in a composite report to the JCAE. He notes that the overall report will, of course, include the weapons laboratory reports of their primary weapons mission and that in basing the LASL and Livermore reports on three possible degree of test bands, the weapons program will be automatically included. The three possible degrees are defined as:

BR

"1. If we have early agreement preventing all atmospheric weapons tests (and the agreement remains in effect throughout the period).

2. If we have early agreement that all weapon testing above 10 tons is prohibited (and remains prohibited throughout the period).

3. If the overall moratorium on weapon testing endures until 1 July 1960, and then atmospheric testing on a limited basis is permitted (say 2 megaton of fission per year by U.S. plus additional desirable tests not in the atmosphere)."

In addressing each of the above levels of test ban, he suggests that each Lab estimate through 1970 such things as possible weapon and other military application accomplishments as possible, various types of non-military work, and for all efforts an estimate of manpower and facility requirements. Starboard requests the reports at least in preliminary form by early September. In an elaboration of this message on 13 August Starboard further asks that the laboratories reports address a list of activities currently carried on at each laboratory which should be considered for transfer to other institutions such as universities at some time during the next ten years.

BR

August 1959: PT

In the ongoing research and development effort for high altitude detection techniques, the problem of discriminating between explosion phenomena and lightning effects seems to be soluble and a method of discrimination has been worked out and is being tested.

The first lengthy discussion on the general subject of concealment of underground explosions states "the consealment of nuclear explosions by containing them within underground cavities of a sufficient size to ensure the elastic behavior of the cavity walls had been suggested. Many facets of the problem lend themselves to theoritical considerations and are presently being investigated. In particular, a theoritical analysis of the stress distribution existing at the surface of the cavity excised from an elastic solid has been undertaken. Expressions have been obtained for the "Hoop stress" exerted on the surface of a spherical cavity in two cases of interest. In the first case (considered jointlywith T-Division) an elastic half-space from whichthe cavity is excised, is acted upon by a gravatational body force. In the second calculation a spherical cavity is excised from a region initially in a state of arbatrary stress. Calculations using the second analysis lead to a conclusion that any inner cavity pressure arising from an explosion could easily give rise to splitting of the cavity wall would consequent emmission of a much larger sismic signal than would be the case if the wall behaved elastically." This was written by J-Division. Data analysis and calculations based on the Teak shot are continuing at a significant level.

By a 3 Aug. memo to DDR&E, the Chief of DASA adds another test to the tests planned for Willow which already include high altitude tests and water surface and sub-surface tests. The new addition is a land surface weapons effects tests to be performed at the EPG. JA

A 3 Aug. 59 memo from DASA to DDR&E addresses the latest thinking with regards to Willow and the details of the technical plans. The delivery vehicle to be used from Johnston Island is called the Jupiter and 2 to 4 pods would be used with each rocket as well as a number of companion rockets launched.

The final Newman memo, 6 August 59, #J6-8290, subject "Underground Shots in rty-six inch diameter cased holes," contains brief descriptions, including wings, of five different proposals for testing in various geometries with various gnostic capabilities. The nummeous addressees are requested to look at the posals and provide any possible comments.

9 Here is the 7 Aug. message from CJTF-7 to 7.2 at Eniwetok which states, "The conclusions contained in the report of the Jeffrey Committee concerning the status of the EPG have approved in principle by the chairman of the AEC and the Secretary of Defense. JTF-7 has been assigned the implementing responsibility for the actions under DOD cognizance in coordination with the AEC and the services." It goes on to say that the EPG will be phased down immediately to maintenance standby with a capability to resume testing within 12 months. Only facilities and equipment which cannot be replaced within 12 months will be kept at the EPG and there will be maximum consolidation of the AEC-DOD functions. TG7.2 will turn over their functions to the AEC contractor with the ultimate release of all Army personnel from the EPG and this phase is to begin immediately and be complete by Jan. 1960. Various other preliminary details of the areas to be transferred or phased down are contained in this lengthy TWX. The Jeffrey Committee was known as sub-committee No. 1.

On the AEC side, Jim Reeves of 7.5 sent messages to the various AEC agencies which instructed them to proceed with a phasedown of the EPG resources, in order to retain a capability to begin a 12 barge shot at EPG 1 year after approval to resume testing.

Note that there is no firm indication of the future of the Air Force operations at EPG, under the auspices of the 4951st. As a matter of fact in this time frame, JA

Headquarters Air Force decided that it would be in their best interest to relocate the TAC EWP mission from Kwajalein to Eniwetok. JA

59

Here come on 10 August, is the report of the 3 August AEC meeting "Plans for a Proposed underground detonation to check on decoupling." The LASL attendee was Carson Mark. The meeting addressed planning for a nuclear decoupling experiment as requested by the AEC chairman and agreed that HE experiments at Winfield be held later this year which would provide useful information relative to decoupling, but would not in themselves be conclusive that nuclear detonations could be conducted in a large cavity and probably would not adequately demonstrate the capability of a control network for monitoring underground nuclear tests. "To convince world opinion of the possibilities of nuclear decoupling, a nuclear decoupling experiment must be performed. In this connection, it was argued by Seismologists that the nuclear detonation for this experiment, to be convincing to the world, must be in the kiloton range.

it was agreed should be fairly convincing to all but the most obstinate doubters. Plans therefore are proceeding

A table of the cavity volume, sphere diameter, and cylinder diameter (for a 5:1 ratio) versus the depth of burial for various yields is given. With DOD funding, the Air Force they could be ready by March of 1960 to perform the field measurements as long as no other Seismic projects are given a higher priority. Three alternative plans for obtaining the appropriate cavity are set forth and discussed: first, an existing natural or man-made cavity at sufficient depth and proper size, requiring very little additional work; second, digging

he necessary cavity by mechanical means;and third, washing out a cavity in a salt ormation. The latter method seems to offer the most hope from the standpoint of ime and money and ALOO is to pursue it with the appropriate mining and industry ersonnel.

Correspondence between DMA and the Labs in the September time period indicates hat all sorts of ideas for decoupling and concealment are being discussed and tudied at this time (energy absorbtion by finely divided carbon, detonations in ce, explosions in graduated holes, etc.).

On 10 Aug. 59, Gen. Anderson, Commander of JTF-7, sent letters to the Chiefs of the various services summarizing the changes to take place at the EPG and in essence allowing and directing each service to transfer functions and decrease manning appropriately. The instructions to the Navy include returning all ships to the Navy with the exception of 16 LCM's and 4 LCU's to be retained at the EPG for use by the AEC maintenance and security force.

JA

Here is an important memo for the secretaries of the services and the chairman of the JCS ~~on the letterhead stationery of the Secretary of Defense and signed by~~ from Neil (Sec Def) ~~a Mr. Neel~~ McElroy on the subject of "Guidance Covering Nuclear Effects Experiment Phasing During Test Suspension." It begins by referring to Sept. 1958 guidance which directed the services to assume conduct of limited and extensive test operations in Feb. of 1960 and mid-1960 respectively. This guidance is rescinded and the following applies: "test planning will be maintained ~~and~~ in a current status at all times. However, expenditures for construction, equipment and instrumentation for specific tests will be based on the following assumptions and will be limited to funds available to the military departments and to the DASA for weapons testing purposes; JT

A. One or more underground tests may be authorized during calendar year 60 and may be conducted on 5 to 6 months notice.

B. An extensive weapons effects series involving overseas operations and in environments other than underground may not be conducted prior to the spring of 1961.

Within the above guidelines the DDR&E will provide specific guidance on preparedness for test programs from time to time as warrented by changing circumstances."

Aug 59 correspondence indicates meetings, discussions, etc., addressing decoupling and testing thereof. Salt domes as sites being studied. FP

Use of snow or ice as decoupling medium discussed.

he following items are extracted from a folder entitled "Orchid, Cottontail".

(1) 12 August 1959 letter from Howell of Holmes & Narver to Mr. Jim Reeves of ALO on the subject of engineering and construction for Concerto extension. This plan documented by an H&N book published in August of 1959 proposes alternatives and construction for 7 different projects as follows: Project Orchid, a nuclear shot 2 to 3000 ft deep in tuff; Project Porpoise, a nuclear shot 10,000 ft deep at the NTS; Project Cottontail, a nuclear shot in the Rainier environment; Project Coffee Pot, a nuclear shot in Rainier environment; Project Crystal, a nuclear shot in the Rainier environment; Project Stingray, a nuclear shot in Rainier environment; Project Dinosaur, a nuclear or greater shot at location other than the NTS. AV

Concurrently, the Air Force was working along the same lines and at the end of August 59 published a report for the Assistant to the Secretary of Defense for Atomic Energy on the subject of possibilities for detection of nuclear explosions both at high altitudes in the atmosphere and outer space shots.

Reference to a message from Reeves to AEC Headquarters and others on 13 August 1959 is contained in "353.4 Planning" and directs the appropriate people to proceed with the phase down of EPG resources as described in Plan A, consolidation on Site Fred, Jeffrey Committee Report. FK

59
13 August TWX from Reeves to the overseas testing contractors directs at all agencies proceed with phasing down the EPG resources as described a Jeffrey sub-committee report. I believe this was a report included in e joint report on an organization for future test operations signed off Starboard, Parker, and the JTF7 commander about this time. BR

oss-referenced here is a letter from Bradbury to Starboard on 14 Sept. 959 which is filed in "635 Lab Program" and transmits a series of A comments the various questions from Starboard concerning the ensuing ten years LASL.

Meeting #1536, 13 August 59: NG

Teller and Brown of Livermore attended this meeting and presented the Livermore concept of development of enhanced radiation weapons

. The details of this discussion and proposal are classified and a copy will be in our files (AEC 1027/1).

JQ

Carl Lyon's Files

'J-3 Handbook, 1959," J-3-W-95, 14 August 1959"

This lengthy document was written by Task Group 7.1 just before the Group was ormally deactivated during the moritorium at the end of August 1959. It seems to ay that, after deactivation of the Task Group, the LASL J-3 Group will be what will emain of the 7.1 organization and this document is being written as a guide and ackground from prior experience for facilitating rapid expansion of J-3 to a Task roup 7.1 should the need arise in the future.

The document contains much background of how the Task Force and Task Groups were anned and operated during previous test operations through HARDTAEK; how the nuclear esting operations were actually carried out, with an emphasis on the fact that the ask Force supported the scientific weapons testing and data gathering; information n the overseas test sites (Eniwetok, Bikini, Johnston, and Christmas) and NTS; nformation on how the various types of shots (air drop, balloon, missile, etc.) ere carried out ; make-up and manning of the staff organizations of Task Group .1; and the number of the specific details of preparing for, activating the acilities and resources, and executing an actual test operation as well as the ibsequent roll-up.

A copy of this informational document hopefully can be obtained on loan and led in our safe.

Note that this 1959 document, under "Test Site Information," states: "Since e EPG is part of the trust territories and may be subject to extrainternational litical pressures that could prevent its use in the future, Christmas Island, e British test area, has also been briefly described in this chapter as a possible st site." As for open sea operations (such as ARGUS), "for surface open sea shots, d AEC feasibility study in January 1959 recommended an area 300 miles south of lo, Hawaii." As for Christmas Island, it is noted that much detail is contained

a LASL memorandum #J3-GO-312, dated 21 January 59.

In the discussion about the use of missles for nuclear detonations, a LASL 3 memorandum #J3-W-82, dated 29 June 59, subject "High Altitude Nuclear Detonations om Johnston Island," is referenced for further information.

In discussing the details of the open sea method of testing, six different :ters are referenced as having covered various aspects of this subject beginning April of 1959 and going through a J-3 report on 19 August 59, #J3-W-96, subject :sting of Nuclear Detonations on the Open Sea." All of these should be in the)ivision files and perhaps the J-3 files (wherever they are). They are listed Page 76 of this report.

The discussion of underground testing notes the accomplishments to date, and ites that there are presently five five-hundred foot vertical holes available in :a 3, and four twelve-hundred foot holes in the planning phase, with three-:e old holes which may be re-usable if cleaned out. A J-6 memorandum #J6-8241, :ed 2 July 59, addresses the feasibility of vertical hole tests.

A 14 August reply from Fleming to Colonel Thompson gives his personal opinion iat there will be no nuclear tests requiring sampling other than the Rover and XCART (PLOWSHARE) type for a long time to come. Thus, based on his opinion that ındia will have completed development of a drone aircraft sampling system by the id of the calander year 59, he is saying that Livermore will not need the 4926 :ter OXCART if his assumptions prove to be true. His estimate of a date for XCART, nuclear testing which depends on the political situation and specifically IA's authorization which has not been forthcoming, can not be done prior to the :ginning of 1960.

A 17 Aug. 59 letter from JTF-7 to the Commander of the Army Task Group at Eniwetok is entitled, "Phase Out of U.S. Army Task Group 7.2," and uses the wording "upon inactivation of your organization." This indicates to me that even though there was an indication that 7.2 was transferred back to Washington in Jan. 1960, it was with no personnel other than on the headquarters JTF-7 staff.

An 18 August Trip Report from Col. Eddy of AFSWC reports on planning or the WILLOW Operation which was recently discussed with Cambridge Research people. DDR&E has informed the service secretaries to plan on an ssumed date for WILLOW of no earlier than March 1961 and the proposal is for FSWC to launch rockets and pods in conjunction with the AFSWC-proposed RGUS I and II High Altitude Shots and this has been approved by DASA and ecommended to the JCS but at a cost of 2 million dollars rather than the 6 illion which AFSWC recommended would be needed. In this event the use f pods would be selected to keep the cost down and give more precise ositioning. Headquarters, Air Force has withheld concurrence from the ASA proposal. Furthermore AFCRC (Air Force Cambridge Research Center) as requested support from AFSWC on the launching of rockets for a number f measurements to be made. In a late August letter from Col. Byrne f the 4950th to the AFSWC, the 4950th points out that the 4952nd has this ocket launch and associated capability within its unit and that the types of ctivities associated with WILLOW would indeed come under and within the upport requirements of the 4950th as Task Group 7.4 if the testing should ome to pass. Therefore in principal, the 4950th will find support of the FCRD requirements operationally feasible.

Here is a copy of a TG 7.1 document mentioned elsewhere, a memo from Colonel James Avery of J-3 for the record on 19 August 59, #J3-W-96, subject "Testing of Nyclear J R
:tonations on the Open-Sea." An open-sea shot is defined as "a surface shot so remote :om land areas that all D-1 and D-day operations and diagnostics would have to be)nducted from ships, barges and airplanes." Among the assumptions arethat "the

etonation zero site would be in the area determined during the ALO conference of 3 January 59 as being the most feasible, i. e., three hundred miles south of avaii; and that base facilities on Oahu and Hawaii will be made available for the verseas [illegible] part of the operation." The January 59 meeting estimated it would ake five months of preparation to conduct such an open-sea test and the following lanning items or actions have already taken place in preparation: the Navy has eleased six LCU's for zero sites, three of which are being maintained by Task roup 7.3 boat pool in San Diego. H & N will do the modifications when required. he Navy Task Group 7.3 has identified the other types of ships which will be)btainable and appropriate for this type of an operation but no specific boats ther than the LCU's are presently earmarked. Also, J-6 and EG & G have designed 'ransportainer type of CP that can be placed on an LSD for the firing system panel. G 7.4 has addressed sampling and determined that B-57 aircraft stationed either)n Oahu or Hawaii will have an ample safety margin to sample as far as 500 miles way. Certain effects of tests near the Islands have been investigated with the)roblem of water waves being estimated by J-10 as six-foot waves in Hawaii for a)ne megaton shot at 250 miles or a ten megaton shot at 800 miles distance. Also)oted is that fall-out patterns will encroach on the main commercial sea and airline routes between Hawaii and the Continental U.S. Other details of the :apabilities of the Navy ships and the requirement for standoff distances are Listed.

Under the background discussion is first noted that the possibility of an pen-sea shot has been in the minds of the testing people for some years because f the flexibility of time and place of operation that it allows and the following nteresting statement is made: "Immediately following HARDTACK I, prior to the test oritorium, a crash program was planned to implement an open-sea test of a weapon ssential to the stockpile. Because of the stability it offered, a large concrete il barge, excess to the needs of the EPG, was planned for use as the zero site. ; would have been towed to an area two hundred miles north of Eniwetok for a etonation where fall-out weather delays would have been minimized. Use of JR ongi was rejected beeause of fall-out on the Marshallese. This plan to resume esting in the Pacific was rejected by Secretary Dulles and to date no open-sea urface testing has ever been conducted." The political pressures xisting from the UN are noted since they "may prevent any further use of" EPG nd the January 59 selection of the area three hyndred miles south of Hilo by LOO is noted. This is documented in the minutes of the ALOO conference of 8-29 January 59, forwarded to Starbird from Burtford on 6 February 59 by . letter # TE: MFS: 3199. Several pages address in some detail the concept f the operation including the time within the overall five month time frame hat the various movements and activities would take place, the locations of ertain activities such as preparation of the LCU shot platform, and the details f actually executing the shot and performing the diagnostics are noted. This s followed by several pages of the specific activities and problem areas that J-3 will face in the various phases of build-up and execution. The final section contains an estimate of the resources required which include: Seven to to eight ships of six different types; fifteen to twenty aircraft of seven or eight different types; minimum comminications; and a brief description of the basefacilities on Hawaii.

MRA-7 (Case File)
"Report of the Study Group on Organization for Future Test Ops"
MUST GET COPY - SRD
Signed off by Starbird (DMA), Parker (DASA), and M/Gen. Charles Anderson (then Cmdr. JTF-7) 20 August 1959.

FL

A 20 August 59 letter to the Department of the Army from the Chief of Staff JTF-7, Brig. Gen. George Duncan indicates the activities of late in phasing down JTF-7 and its functions and concludes that after FY 60, there will be no requirements for a general officer in the task force.

JA

BO

ALO FILES

NOTES ON "REPORTS OF THE STUDY GROUP ON ORGANIZATION FOR FUTURE TEST OPERATIONS", 20 August 1959

This report about 260 pages long is classified SRD and a copy of it was sent to Los Alamos which was destroyed some time in the past and therefore I am taking the notes from the ALO copy for our records. The report was signed out on 20 August 1959 with a cover letter for the Secretary of Defense, the AEC Chairman, and the JCS Chairman from the study group who approved the conclusions and recommendations of the study who were the Commander of Joint Task Force 7 (Major Gen. Charles H. Anderson, U.S.A.F.) the Chief of ~~DACA~~ DASA (Rear Admiral Edward N. Parker, U.S. Navy), and the Director of DMA (Starboard).

The enclosures to this study make up the background for conducting the study and also have some very interesting information of the deliberations and thinking in the AEC and DOD that have preceded this study and were very relavent to the moratorium situation through 1959.

b. The 20 August 1959 "Report of the Study Group on Organization for Future Test Operations" (DASA 79189) concluded that "...the DOD capability to conduct and/or support the AEC-DOD nuclear test operations can most effectively and economically be achieved by a single DOD organization." It recommended that "This DOD test organization should retain its unit integrity and identity as Joint Task Force Seven and should be a subordinate command of DASA..." It also recommended that "The JTF-SEVEN should assume the function of providing support which is required of the DOD for nuclear tests at the NTS." and "When not deployed for a test operation, the Test Organization headquarters should be located in the Washington, D. C. area with an office in the Albuquerque, New Mexico area." This study report was approved by the Chairman, AEC and the Secretary of Defense on 27 November 1959.* ** FS

APPENDIX A

* Enclosure to DOE 2179/122
** Enclosure to DOE 2179/124

24 August 1959, J-1 Report: Task Group 7.1 Property items were transferred to AEC by JTF-7 for use by J-Division concurrent with the termination of the military personnel in 7.1 and the deactivation of that group. BY

25 August 59, J-15 Report: In this report I believe is the first reference to the addressing of containment of underground explosions and the calculations and computations associated with predicting the proper containment. The work in this time period was done by Brownlee, Eilers, and Art Cox. BY

26 August 59, J-16 Report: Here is a discussion of the study of containing explosions within metal spheres with the details of a small sphere being designed for actual tests. Apparently the sphere will be instrumented and the explosions will be performed in the sphere when it is filled and when it is empty.

27 August 1959, J-6 Report: As for EPG the following is stated: "The AEC is placing EPG on a standby status. Capability for testing would be to commence ~~at~~ a 12 barge shot operation 1 year after approval to resume testing. In line with this, we are returning to LASL the shop equipment presently installed at EPG. All up-island stations are to be stripped of their equipment ~~at~~ as after Castle and the equipment stored at Parry or Eniwetok Island. There will be no engineering capability at EPG for design survey or reports. However, H&N's home office will continue to function much as in the past." As for NTS, a memorandum detailing 5 different proposals for underground firing has been distributed. POst shot exploration in area 3 is continuing. As for Los Alamos a proposal has been submitted and approved ~~to~~ to fire scaled 1. tests with a target date of mid-September.

BY

The last activities report contained herein for August of 59 indicates that phasedown planning and coordination has been the object of concentrated effort by all concerned during this month and that official notification of a maintenance standby status phasedown was received on 8 Aug. Joint committees of 7.2, Air Force, H&N, and AEC personnel have been established and have had preliminary meetings and tentative plans have been made for the transition based on the latest planning dates. The phase down strength, effective on the 7th of Aug., was established at 267 and the reassignment of personnel during the upcoming months is being worked on.

JC

That concludes the notes in these fairly brief files from 7.2.

In Aug. of 1959, all indications are that all of Task Group 7.2 is stationed at Eniwetok and the Commander there is Army Col. Leo W. H. Shaughnessey.

JC

Note that in August of 59, PMR was making visits to the island to survey the facilities, equipment, status.

September 1959:

For the first time, a lengthly explanation of the P-Division work in the area of high altitude test detection from satalites addresses several of the detection techniques being considered and developed in cooperation with Sandia Corporation. "A neutron detector package similar to the type described above, an electron magnetic spectrometer, and a protron counter-telescope have been flown in Deacon-arrows. Continuation of the experimental work is planned." PT

The section on test planning and evaluation contains some words about containing 1 point tests as follows: "an experimental program has been started to investigate means of obtaining radio chemical samples from contained 1-point shots. The program will involve detonation of a scaled-down HE and-metal systems in a closed environment provided with exit passage ways to conduct some fraction of the debris to a sample collector without releasing debris to the air. The size of the passage ways or channels will be varied in an attempt to fix the optimum conditions for limited but ample radio chemical sampling consistant with effective containment for a variety of energy releases."

In the area of underground containment and concealment, analysis dealing with the fact that spherical cavaties are very difficult to construct and therefore the investigation of the effect of cavity shape on the explosion phenomenology is being addressed.

It is notable that EG&G has improved their capability for measuring alpha, in part due to some of the Engineers shifting back to this effort from the Rover program, although the personnel designing these experiments are said to be inexperienced, LASL has little capability presently in that direction. Further, "EG&G have done very little in detector canister design for full alpha coverage of completely contained explosions. This design will entail appreciable effort if there is to be any reasonable confidence in system calabration and performance due to the large amounts of attenuator, since even the G&S code is inadequate for computing attenuations."

Notable among the publications in this time period is a J-Division report, LA-2334, "Theory of Seismic Decoupling." Also there was a J-Division report, LAMS-2337, "High Altitude Explosions and Eyeburn Problem."

A 1 September 1959 memo from Walt Gibbons to Myron Knapp covers the yields of the Mark device. It is noted that most of the CONCERTO events and some of the Plowshare events will involve Mark s with their yield appropriately adjusted, and that the are identical hydrodynamically. Gibbons gives a detailed list of the various configurations of the Mark VII which have been tested, retired, or put in war reserve and details of the tests; he notes that LASL has expressed confidence that the adjusted yields will be quite reliable even in the low-yield range.

NF

M & R Records Center

35 Advanced Research Projects Agency, up to 12/31/63" Folder

NV

Many of the items in this folder are cross-referenced to two other folders: 71.6 high altitude nuclear effects" and "310.1 UAP group." In our files these are Q, and Y.

There is a fair amount of confusion in September of 59 as to which agencies are sponsible for which areas of test detection and who is working with whom. Apparantly, e arrangement is something like: LASL, Sandia, and ABMA are working under ARPA pervision in the high altitude field; and Livermore is working with STL the underground area. This could be entirely wrong.

LG

Note that all of these replies are more or less along the same lines as the round of replies from the labs to Hertford and from Hertford to Starbird from Sept. through Nov. of 59, which reflected the laboratory's feelings that DASA was wrong in seeing the program so heavily controlled by the DOD and that only equal footing could be acceptable and that DASA was also missing the importance of the high altitude diagnostic measurements on the detonations in understanding all the data and forwarding weapons development.

Sept. 59 correspondence on plans and activities to prepare [illegible] hole for Lollipop (readiness date of 1 Feb. 60). FP

AFBMD (ARDC) 1 Sept. 59 report on a proposed program for Outer Space Weapon Testing (OSWT). Foreward notes our "realization that the USSR has such a capability and may well be in a position to exploit it." Proposal to deliver "test package" containing device and sensors and transmitting data back to Earth. Atlas/Agena/third stage proposed as carrier for 1000 lb total payload. ETR & J.I. looked at as possible launch sites. Estimated lead times are 18 months for non-nuclear proof test and more than 24 months for nuclear tests. Funds estimated for 5-launch ETR program (where facilities exist) were ~30 million. FP

1 September 59 Memo within AFSWC notes that the projects being followed re: JAGUAR, JAVELIN/JOURNEYMAN, Reactor Hazards, Kiwi-B, ARLYBIRD, WILLOW, EPG Phase Down, and TRUMPET. BU

AFSWC History Office

A 2 September 59 TWX from Joint Task Force SEVEN to the 4950th indicates that agreement for interim operation of the EPG between AEC and JTF-7 was entered into on 27 August and in essence gave the AEC more responsibility for operation there whereas the military is phasing down most of their operation. BU

Meeting #1541, 9 September 59: NG

McCone noted that the DOD had prepared a draft press release announcing the HE tests to be done in Louisiana as decoupling experiments and preparation for a possible nuclear detonation (small) at the NTS for the purpose of seismic evaluation. No decision had yet been made as to whether to issue the press release.

Here is some very important status information on PLOWSHARE in the fall of 1959 beginning with a rather comprehensive memorandum from Starbird on 9 September 59 which discusses some of the problems of sensitivity and opinion amongst the Commission and the Congress and others in Washington on the subject of the various proposed projects and proposed in some detail how the various projects might be proceeded with from this time and what might be the outcome of trying to carry the different things out. Also there's a reply from Edward Teller on 28 September 59 as to what he feels should be the course of action. Next comes some testimony by Chairman McCone before the JCAE on the subject of PLOWSHARE and some correspondence exchanged between McCone and Teller in November of 59 on the specific subject of PLOWSHARE

NC

but more generally on the Test Ban Treaty and the effects on the weapons laboratories. Since the highest classification on this is confidential I will get a copy for our files. The next set of activities in pushing PLOWSHARE documented in this folder came in May of 1960, when on 11 May , Teller presented the program on the most urgent projects as far as Livermore could see, to the President and members of the Cabinet. I will make a copy of the letter documenting the highlights of this presentation as well as the replies from Commissioner Wilson and Kistiakowsky, Eisenhower's scientific advisor. In the 11 May letter ~~matter~~ to the President, Teller identifies as the most ambitious of PLOWSHARE projects the sea-level Trans Isthmian Canal, which requires two preparatory steps as follows: first, the development of nuclear explosives such as envisaged in our proposal (which eliminates certain hazards to personnel) and, second, a trial run on a reasonably large scale. For the latter step, it is proposed to carry out the Chariot project in Alaska. The 23 May letter from Commissioner Wilson to Teller notes that he has had good reports on the PLOWSHARE presentation before the Cabinet and particularly on the Panama Canal project and finishes " I trust it is hardly necessary to urge you to emphasize (before Senator Kerr's Committee, on May 26) in all such appearances that PLOWSHARE is practically stymied at present unless we resume testing, at least for this purpose."

There is no further correspondence of interest in this folder, or before 1962.

Here, transmitted by a 14 Sept. 59 cover letter, are several papers answering questions from Starbird dated 7 July, 31 July, and 13 Aug. All the questions concern the future of LASL in the area of weapons testing. weapons development, non-weapons activities, and research such as done by universities, over the next decade. Several types of testing situations are presumed: moratorium A where all atmospheric testing is prohibited; moratorium B where all testing over 10 tons is prohibited; and moratorium C where limited testing is permitted after July 1960. Bradbury expresses little confidence in projecting a 10 year progress in weapons development given these conditions and therefore just trys to lay out some of the areas of investigation which would seem to be more fruitful and likely for further exploration in the 3 situations. The moratorium A would allow weapons development across the board but at greatly increased expense and would require a national devotion with the appropriate funding and effort to pursue weapons development in this environment (underground and outerspace only). Under moratorium B, Bradbury specifically feels that this would allow developments and refinements only in low yield tactical weapons and improvement of "1 point safety characteristics of

weapons." He further states that "development of new large yield weapons would be essentially impossible." Under moratorium C, the same progress would be attainable as under moratorium A with things being somewhat easier, cheaper, and faster than if they had to wait for outerspace capabilities such as in the high yield areas. After discussion of the effect on non-weapon activities under the several hypothesis and the need for LASL to do plenty of basic research just as universities do, some general comments on the future of LASL are provided: "It is probable that the overall size of the LASL should show only growth over the next decade - a growth permitted primarily by the additional housing as areas such as Barranca Mesa and White Rock are opened up. There would seem no pressing need for it to expand much more than possibly 10% or 15% beyond its present level and then under a philosophy which would suggest the maximum use of its existing facilities. Perhaps the greatest single question is whether, under a maximum of weapon responsibilities, this will permit adequate progress to be made in areas such as nuclear rocket propulsion, plutonium burning reactors, and similar fields in which the LASL has a unique capability and one which could be duplicated or installed elsewhere only at extraordinarily great expense. This question could not be answered in a quantitative sense at the present time."

Meeting #1546, 14 September 59:

In budget discussions for FY61, Luedeke addressed the Plowshare budget and stated "it was difficult to make a budget recommendation in this matter because of the status of the Geneva conference and its effect on the expenditure of FY60 funds available. Therefore, he recommended 8 million dollars for this budget for FY61 to permit flexibility in the event the Plowshare program goes ahead." Starbird reviewed the proposed Plowshare projects and said he was satisfied with a budget of 8 million for 61.

NG

2) A 15 September 1959 letter from Harold Brown then Deputy Director of RL to General Starbird DMA, Document No. BY-59-126. This letter contains he LRL proposal to perform the Concerto seismic program. It notes that t is based on experiments proposed by the Berkner Panel and as pecified in DMA's message No. S-140, date group 151506 July 1959. Brown's etter proposes a program to be conducted jointly by the AEC and DoD to mplement those experiments. Other pertinent earlier references are 2 LRL ommunications, a message No. BYX59-121 dated 12 August 1959 and a letter lo. COPAA59-22, dated 5 June 1959. Brown notes that this letter is a detailed lescription with refined cost estimates for the various experiments and the mplacement and technical program and that it supersedes the previous communi- ations and excludes the granite shot named Lollipop which was proposed y the Berkner Panel. The letter goes into the details of how LRL would propose o emplace and perform the detonations of the six nuclear events and one high xplosive event (Cottontail) which they claim would make up the Concerto program.

AV

he events are named Orchid, Porpoise, Cottontail, Coffee Pot, Crystal, Stingray nd Dinosaur. Brown notes their understanding that DoD would carry out the listant seismic measurements and that AEC would provide the detonation and easurements of device performance, close in earth motion, and intermediate eismic signals. He lays out some of the details of what LRL would propose ould be the measurement program. The cost estimates are laid out and generally re derived from the August '59 Holmes & Narver study. In conclusion Brown equests immediate authorization to proceed with construction of Station U12B.10 hich would be used for the high explosive Cottontail event and sets 15 February 960 as a ready date for that shot. He adds that authorization to proceed with ore detailed planning of the entire Concerto program is also requested but hat presumably at this time only Cottontail can be conducted with no political estrictions.

A 15 September 59 TWX from Starbird to the Laboratories addresses the studies and experiments for detecting nuclear weapons tests underground. First of all, it notes the highest priority is now being given to large-hole decoupling tests, such as Project Cowboy, associated engineering studies and theoretical studies associated with large-hole decoupling. He asks the Labs to consider other methods of concealment and/or decoupling such as small-hole decoupling or combinations of small holes, as well as other schemes of decoupling such as use of other mediums, like ice. Further, Starbird asks for the extension of engineering studies to consider the practicality in cost of large holes for detonations in the range of 20 to 100 kilotons. He concludes by asking that effort not be detracted from the high priority program to do these other studies. He also stresses the need to avoid any leak or speculation that the large-hole experimentation is indicative of AEC planning for any nuclear tests. Replies from Livermore and LASL discussed the on-going studies in the areas of detonation concealment

Y

Neither folder has much of anything of interest after 1959.

n 18 September 59 Memo for Record by Col. Rose of the 4950th notes that
ir. Merle Smith of ALO visited that day and in conversations, advised him
iat AEC personnel are presently surveying possible canal and harbor sites
i Alaska with a view towards using atomic weapons to excavate these facilities
i 1961.

It looks like there might have been some intra-AEC Lab friction here in
c that at the end of September 59 LRL, under Teller, presented to DMA a
p. technical program for weapons testing in outer space, seemingly done
completely separately from the joint Sandia-LASL effort on test detection.

Meeting #1554, 21 September 59:

On the subject of Geneva negotiations, the Commissioners discussed a proposed US position on test suspension and requested revision of a draft press release, AEC 226/220.

Note that here is November of 59 and the discussion of weapons testing and of the Geneva talks has essentially been zero for quite sometime. Furthermore, this is the end of the one year voluntary moratorium and there has been no mention of this at this time.

A 24 September 59 Operation Order for the 4926th Test Squadron documents the upcoming support to be provided by this organization for air sampling for the BUGLE CALL and SUNDAY PUNCH scheduled for 1 October through 16 October 1959 and utilizing three B-57D aircraft.

24 Sept. 59, J-6 Report: As for weapons testing it is noted that design work for overseas operations is being done slowly, apparently when there is no pressing design work needed for Plowshare or the NTS which means that about 90% of the work is for LRL, 5% for LASL and 5% for others. As for EPG where things are being rolled up, a J-6 man is out there taking care of closing up the J-6 machine shop and returning the equipment to LASL and J-6 has requested the return of 15,000 ft. of 7/8 in. styroflex cable which is in the LASL warehouse at EPG and is to be stored for LASL at NTS. A number of items planned for the EPG are listed and the specific status of the design of each by H&N is noted. As for NTS, Newman says "The enormous quantity of work that Holmes and Narver has had to do for LRL weapons, Vortex and Plowshare has made H&N progress on LASL designs very slow. There is a small indication that they will divert more effort to our projects any time in the near future."

BY

H&N is at various stages of completion in the design work for 1200 ft. holes and the peripheral equipment for such holes.

"The scaled 1-point program continues with the first shot scheduled for approximately 30 Sept provided all materials are delivered from the suppliers without further delay."

29 Sept. 59, J-1 Report: It is noted here that as of 1 Sept. all military personnel of task group 7.1 had terminated employment with LASL.

BY

30 Sept. 59, J-10 Report: Under the subject of concealment of underground explosions, LAMB is considering from an engineering point of view the construction of cavities for containing underground explosions and numerical computations are being carried out for cavities of various shapes. Don Westervelt signed this status report, I believe since Hoerlin is on leave of absence. The subject of air florescence comes up through out the report with codes being written and reports made to look at this method of performing high altitude tests diagnostics and detection. Westervelt notes in a conversation with the Air Forces he learned that that organization is thinking in terms of six months for producing the first prototype of a fluoerescence detection system and 12 months for equipment in a number of stations for a unilateral versus an international detection system.

BY

The next piece of correspondence is dated 30 September 1959 and is a letter and a report from Teller to Starboard on the subject of deep space test capability. Livermore pushes such a concept at this point and they estimate it would take about 18 months from an authorization date to have a calibration shot with a total cost of about 50 million dollars and that following this each shot would cost between ten and fifteen million dollars. Livermore also states that for the responsibility for the experiment to be given either to LASL or LRL because of other LRL committments they could not undertake the job without an increase of staff and, therefore, would prefer that LASL undertake it. Method of device delivery address was to use a 3 stage Atlas Booster to be launched from either the Eniwetok-Bikini area or Christmas Island. Johnston Island was not considered due to overcroweded facilities at that

1-7

fade

BK

Here's a document entitled, "Weapons Effects Program, Operation Willow, for Planning Purposes Only," dated 30 Sept. 59 from DASA. It includes high altitude shots, 6 in number, with the highest at 1000 to 1500 kilometers and 3 of the shots

JA

continued in 3 pages at *

Correspondence in Sept. of 1959 indicates that Operation Switch is underway, i.e., the Army Task Group 7.2 is handing over their responsibilities and presumably facilities and equipment to H&N who will replace them functionally. JC

Here in the Sept.-Oct. time frame, the 4950th discusses the phasedown of Air Force operations at Eniwetok in parallel. They state as the USAF-ARDC agent for this effort, they concur that they will re-deploy all personnel of a helicopter squadron to their home station as soon as possible. JA

The requirements to support the TAC mission(apparently tanker operations and deployment of strike forces) as well as the increased logistics flight activities is described in detail in the late Sept. time frame and JTF-7 notes that in the turnover of functions from the Army to the AEC, these requirements are being taken into consideration and they can be met by the AEC following transfer. This is with the exception of the airfield and related support which are responsibilites of ARDC (4951st). JA

October 1959:

PT

Note that all through this period calculational work is accompanying the hardware design for a high altitude fluorensence detection system and in particular Bennett's high altitude fluorensence (HAF) code has been modified and developed to address the fluorensence detection as well as certain of the Teak phenomonology.

P-Division continues to work on detectors for satalite detection of high altitude tests and has attempted two rocket launches with Sandia: 1 with a protron spectrometer and the other a neutron detector. Both of these rockets failed shortly after launch and therefore the electon spectrometer payload that has been developed has not been tested. A capability report of the satalite system proposed has been prepared by a joint Sandia-LASL working group (Buzzer?) and presented to DMA

This was about the time the plasma theromocouple program was getting increased funding from Washington and J-Division in this month reported on their own work along these lines with one particular configuration to be fabricated and tested. In the testing section of this report there is a section on the "one tenth scale test program," for which four shots have been fired to gain information "on the flow of active material in circumstances a bomb is fired in pipes or holes." The program will continue and so far has been moderately successful from a containment point of view.

Some time between Spring and Fall 59 efforts got re-directed at least in part to the question of a satellite system for surveying and detecting nuclear bursts and the Buzzer Committee, it looks like, put out a formal report in October of 59 entitled "Capability Report for a Satellite System for Nuclear Burst Surveillance."

The relationship of various organizations in October of 59 seems to be that the Army Ballistic Missile Agency (ABMA) and Space Technology Laboratory (STL) were on contract to ARPA to allow the DoD to provide information to the Department of State for use at the Geneva talks on TestBans. This information was addressing the question of detectability of high altitude detonations. The AEC Labs were asked to assist, based on the planning and studying in theoretical work that had already gone on inhouse.

1 Oct. 59 TWX from Hertford to Starbird gives rough Sandia and LASL estimates for their FY 60 involvement in test detection (high altitude and underground) programs.

2 Oct. 59, J-15 Report: One of the areas covered is containment problems, indicating that J-15 is now working to understand the results of the nine underground vertical holes shots in area 3. They are trying to model what takes place and put it in a hydrodynamics code to better understand containment.

A 5 Oct. 59 memo to the CNO from CJTF-7 indicates that the AEC will retain 18 LCM's and 12 LCU's at the EPG during the maintenance standby period.

to be performed by Redstone and 2 by Jupiter, with the 6th a balloon shot. The water surface and sub-surface programs includes 5 shots, 3 underwater and 2 over deep water. The land surface weapons effects program includes 1 high yield surface burst and 1 low yield air burst.

Here is a copy of a letter from ARDC Headquarters to Headquarters Air Force on 6 Oct. 59 which refers to the recent 4950th study on the status and build up required to support testing at the EPG from a minimum maintenance situation. As far as the Air Force is concerned, ARDC agrees that the presently authorized manpower at the EPG (4951st) must be retained in order to allow conversion to full-scale nuclear testing in the required 12 months. Further, they say it is important to retain the 4950th as it presently exists.

Inserted in this time frame are some details from the Army to PMR on their requirements for the Nike-Zeus target program which shows one IRBM target test to be performed in the last quarter of calendar year 61 and sixteen to be performed in calendar year 62. The schedules for activities to support these launches from Johnston Island show dredging to add 21 acres being done in the last half of 1959 with all the rest construction and support activities in the development, approval, and design stages until early 1960. The contracts won't be awarded and the work won't physically begin on the other items until about 1 July 1960.

(3) A 6 October 59 TWX No. C-4219 from Gerry Johnson of Livermore to Starbird seems to be the next correspondence on the Cottontail/Concerto program and requests authorization again to proceed with engineering and construction for the Cottontail event. However, at a new location with a new ready date. LRL now plans for the Cottontail explosive to be emplaced in a separate tunnel located north of the present U12b tunnel instead of U12b.10 as previously proposed. They note a ready date possible of 1 May 1960 which they claim is consistent with the [redacted] readiness for Lollipop on 1 April '60.

There are some interesting notes which I have put in the Livermore Classified notebooks from the JERICHO program files here and here is one document worth mentioning. It is a 7 October 59 report on a meeting of the JERICHO steering committee held on 16-17 September. Among the planning details are that DASA plans JERICHO as the first experiment they intend to do; that the moritorium has been extended to 31 December 59; a decision on further planning beyond the end of 1959 is expected to come sometime in late November or early December and that DASA cannot anticipate a JERICHO date of 1 May 1960 as firm; that planning should be made extremely flexible; and that the funding which has been requested and detailed for certain preparations and executions is not yet being provided in adequate amounts. The name given to the test now is MARSHMALLOW and the tunnel constructions status was summarized as follows; "the line of sight tunnel is complete, the cross-cuts have been holed through, a nominal sized tunnel has been pushed to ground zero. All excavations will be complete by 25 October." Numerous other details of both simulation techniques to do preliminary testing for this event as well as the problems being investigated to prepare for various diagnostic and effects measurements aspects of the test are discussed in some detail. Among the agencies involved are Livermore, AFSWC, EG & G, and Lockheed.

LP

A 7 October 59 Trip Report from Col. Rose documents among other things the future of Project JAGUAR in relation to sampling requirements and also the possibility of U-2 aircraft being assigned to the 4950th to support extremely highly high altitude sampling requirements of Col. Rose feels there is a very good chance that the U-2 aircraft will be assigned.

B4

Memo to Commissioners from DV Starbird on 8 Oct 59 summarized very nicely the tests

It is worth mentioning that even though the title of this folder is simply Succotash, in it the entries/are far more than just the formal Succotash Program but include all of the readiness sorts of thinking through the moratorium all the way up until the resumption of testing in 1961. This to me is significant since it means that perhaps the name Succotash was the one that was thought of as ~~synonamus~~ with Readiness in the Livermore Community during the moratorium.

LR

The first piece of correspondence in this folder is in reply to a 12 October letter from Teller to Starbird concerned with increasing the degree of readiness and a similar teletype on 22 October. There is a 16 November 1959 letter from Starbird to Teller responding to these proposals. In his opening paragraph he states "As I told you when you were here, I had not intended to answer the letter right away because the answer would have had to be in the negative. I prefered to wait until the situation in regard to Geneva clarified somewhat. Now, however I believe I must answer sooner. The two basic reasons are:

A. John Foster has emphasized that it is essential to do something to keep the theoretical people concretely at work. I must believe him on this but I regret this is the situation.

B. We are getting queries from the test organization and its contractors with whom your people are talking concerning our intentions. This leads to confusion and the matter must be clarified."

The letter seems to contain so much that is important and it is so lengthy that I will try to get a copy of the SECRET letter for our files. Starbird is certainly

negative in his response to arguments from Livermore and perhaps Teller and Foster in particular that efforts be made at the NTS to bring the readiness response times down to the order of two weeks. He proposes and authorizes certain kinds of work on two or three specific designs in the area of tunnel construction but not in the area of any real work on scientific construction and installation (with the exception of extensive planning) which he feels will give a readiness for certain very important things to the DOD of about 30 to 40 days for the first item. I think it is no coincidence that this pressure was being applied and that the decision was being sought right around the end of October 1959 which coincided with the end of the one year moratorium.

59

A 12 October TWX from Starboard for Bradbury addresses the ~~plan~~ course to be followed at Geneva when the talks reconvene on 27 October and he notes that we will attempt to have the Soviets join us in joint technical discussions on the underground problem with the objective of showing the impracticability of any system at the present time. Further Starboard states that if the Soviets will not engage in joint discussions, Wadsworth will present to the delegation the facts as we see them and present documentation to back up those facts. Starboard says the DMA wants very badly for either Al Graves or Bill Ogle to go back for the first month of these very critical discussions, with the man going as the AEC representative and Herbst would be there as the technical representative in the same capacity as before. In further discussing the men's qualifications for helping the delegation, it is noted that during the period that Bill was with the delegation, it was one of real doldrums and almost nothing was going on, whereas Al was there during a period when there was somewhat more activity. Prior to the session beginning in Geneva, there will be work going on in Washington with other agencies where Harold Brown will head up the preparation of certain papers for possible joint discussions and that he would be the leader of any technical delegation that we would send over for these discussions. This group will meet beginning about the 15th of October and those involved in the preparation of this documentation will include Brown and some representatives from an Air Force organization as well as one or both of the latters, somebody from the CIA, and probably someone from the Killian committee. Further, Starboard feels that the ASL man to be sent to Geneva should come in about the 14th of 15th to be in on the beginning of these technical talks.

BR

Here is a letter from Bradbury to Hertford on 14 Oct. 59 which contains Bradbury's feelings as to the possible improvements in weapons in the next 5 years or so with and without testing.

"could be achieved with adequate confidence to warrent stockpiling. This belief does not appear to be shared by the DOD at the present time, and if this lack of confidence persists, nothing beyond what has been tested already will be achieved (from the point of view of the stockpile) if testing is not resumed."

16 Oct. 59 letter from Starbird to Hertford (same info to Bradbury) defines relationship of Dept. of State, DoD, ARPA, etc., with Geneva talks. Task of ARPA from Geneva negotiators is to study and evaluate systems to detect high altitude explosions 1 kt or larger (above 30 to 50 km) by either surface or satellite detectors and provide reports on 7 Oct. 59 and updates within 6 months.

9 Oct. 59 Memo COPAC 59-32 from M. Knapp of Succotash program. References BY 59-133 hich outlines LRL plan for reaching readiness-to-test capability of two weeks, .e., first event fired on two weeks' notice and events following at two week ntervals, This memo sets forth following schedule:

		Ready Dates
400 T	U12i.01	1 Feb. 60
400 T	j.01	15 Feb. 60
400 T	k.01	1 Mar. 60
12 KT	e.03	1 Mar. 60
30 KT	e.07	1 Apr. 60
2 KT	b.09	15 May 60

All shots show diagnostics of R. C., HETT, pins, alpha, and initiator monitor as a minimum.

The documentation through 1959 indicates a certain amount of discussion pertaining to the ground water problems at the NTS and a 20 October 1959 letter from Graves to Jim Reeves which answers a request for information from the previous June indicates that apparently the judgment has been to look at the ground water picture at the NTS in great detail and this is going to be a very expensive investigation. Apparently because this would be a large effort for the USGS there has been some suggestion that the whole test organization look to using other locations within the U.S. for extended underground testing. Graves feels that this is a case of "a very small tail wagging a very large dog." Pertinent information includes "although I agree with the desirability of an extensive survey to establish the ground water picture at NTS, I doubt criticism of the Commission's underground test activities is justifiable since the knowledge that we have caused no water contamination by previous tests constitutes the best possible evidence that the commission's program has been acceptable. I would agree that large extrapolation of that program requires considerable thought before being carried out, but small extrapolations can almost certainly be made with very minimum risk of causing difficulty."

(4) A 22 October '59 TWX from Starbird to Teller and Johnson among others states that the new plan for emplacement of the Cottontail explosive will be discussed with [redacted] following a review by ALO. it is noted must approve such a plan and commit funds for it prior to any such approval which indicates that the seismic program or Vela Uniform or whatever it was called at this time was more or less under the overall cognizance of [redacted].

23 Oct. 59, J-16 Report: Dick Wakefield reports that one shot has been fired in the 1/10th scale model of a proposed container for use in 1-Point tests.

23 Oct. 59, J-3 Report: Here is an entry on the report entitled "Report of the Study Group on Organization for Future Testing Operations," 20 August 59, published by the military, and documented in several other sets of my notes to a great degree. Here it is noted that Duncan Curry is studying the impact of this report in conjunction with Sewell of Livermore and Fowler of Sandia to determine what must be done with such a report. It is stated "The report proposes additional steps in the wrong direction; more task force control, even in the planning stages, without any increased capability for plans and operations; and the creation of several scientific tasks groups without any adequate machinery for resolving their conflicts in requirements and operations. The report was prepared without ascertaining the views of the laboratories or of ALO. DMA and DOD are reported to be working on a new agreement referred to in the report. Frank DiLuzio of ALO says that this agreement will be referred to ALO for comment before being consummated; and that ALO will obtain Laboratory advise before commenting."

BY

26 Oct. 59 memo (KPS 59-144) from Knapp documents modification of Succotash which now includes planning for only two projects as follows:

POET	Ready Date -- 15 Feb. 60
BUTLER	Ready Date -- 15 May 60

CW

Dates are based on manpower allocation in early November 59.

Documents show planning along these lines continued through November.

Planning and preparations for POET readiness continued through 22 Jan. 60 as

ocuments show, still based on a 15 Feb. ready date.

27 Oct. 59, J-6 Report: No significate changes are noted in EPG or NTS status; the scaled 1-point program has been started with about one shot a week for the last four weeks.

Here is a proposal from AFSWC for ARGUS experiments for Operation WILLOW dated 27 October 1959 and there are several interesting points: BV AFSWC feels strongly that the most meaningful and militarily significant data which can be obtained from the high altitude tests is in relation to the creation of the so-called "Bubble", its expansion, its collapse, and collateral phenomena. The proposal includes recommendations that the three devices be carried to altitudes from 100 to 400 kilometers from Johnston Island by THOR rockets and that the diagnostics be done by JAVELIN rockets. Furthermore the THOR missile would carry certain instrumentation pods.

On 28 October 1959 Mr. Mc Cone, Chairman of the AEC sent a brief memo to Starboard listing items that he discussed with Edward Teller at a recent BL meeting that he would like to discuss with Starboard. They include the Vortex program, and Teller's views that the testing program should consider capabilities for outer space testing as well as consider possible underground testing on the order of 20 to 24 shots a year between the two laboratories and the fact that Teller stressed that readiness for underground shots should be

reached by 1 March 1960 which would require about three quarters of a million dollars immediately from Starboard.

Notes on these folders in the time frame of 1960 thru 1961 are included in a different set of notes labeled A.

29 Oct. 59, J-10 Report: Under the subject of fluorescence detection, the present effort is directed toward arranging for EG&G to develop prototype hardware based on J-10-supplied data. Various aspects of the physics of the problem as well as the instrumentation and optical systems required to implement such a detection system are being address by calculations and design work. As for the question of

BY

uorescence detection from satellite, it is stated "A study was made of the detection om high altitude nuclear explosions by means of X-ray excited air uorescence observed from satellites orbiting at high and low altitudes. It was ıncluded that a satellite system is inferior to the ground based in range but ıat the high altitude system in particular may be capable of eliminating some ind spots. "

One item of interest is a large report entitled, "Port of Eniwetok-Intelligence Survey, 1959." It was written by Task Group 7.2 and submitted in Oct. of 1959 JC and includes extensive maps and photos and drawings of the area and the facilities thereon.

November 1959:

PT

Just to get an indication of the J-Division involvment other than testing activities, the sections in the Physics staff of the Laboratory under which they have entries are: nuclear reactions, fission studies, high altitude fluorensence detection, SANE, charged droplet experiment, and cluster dynamics.

Note the expansion of J-Divison discussion of the plasma thermocouple activities in this month with sections under the headings of: difusion from ZrC-U235C thermocouple pin, final radiochemical results on plasma thermocouple life experiment, plasma thermocouple cell, DC plasma gun, plasma sheath calculations, high-temperature reactors for PTC application, and high -temperature studies of materials.

Note in the test planning and evaluation section, the discussion of NTS and EPC activities and preparations has come now to zero after tapering off since about six months previous and the headings in the particular months report are only on concealing underground explosions and containing explosions. The one-tenth scale tests had been continued to understand how well the containment vessel can hold up and based on what has been learned "a full scale container is on order and a final end cap design and salt filled configuration should be forthcoming in the next two weeks."

Meeting #1565, 3 November 59:

DRAFT

NG

For the first time in the Commission meetings that I have seen, one of the proposed seismic improvement shots was specifically discussed. Lollipop, a proposed underground nuclear detonation in granite, had been recommended by the Berkner panel as one which would be valuable in acquiring new seismic data. Starbird brought this up for review since there were now proposed additional projects related to gathering data on this shot. "Mr. Graham inquired whether any instrumentation proposed for the projects would have to be concealed from Soviet representatives if the test were conducted under international sponsorship. Starbird replied he knew of no instrumentation which could not be examined by Soviet scientists. Mr. Williams expressed the belief that several of the proposed projects could not be defended solely on the basis of seismic detection of underground nuclear explosions. He said they appeared to aim more at the development of weapons testing techniques and non-military uses of nuclear explosions. He sighted specifically the programs of interest to the CIA as being extraneous to the central purpose of the shot, and said he was not convinced that the $248,000 requested for the projects in question was justified. " The Commission then approved, subject to Mr. Williams' concurrence, the addition of these AEC-DASA sponsored programs , and noted that data collected on the event would be publicly released.

On 3 November 59 the Commander of the 4951st at Eniwetok became the Senior JTF-7 representative in the EPG during the minimum maintenance period. BU During an October visit to Eniwetok by Maj. Gen. Anderson (Commander of JTF-7), the agreement for Eniwetok operation was accepted and the responsibility was generally divided between the AEC Resident Manager and the 4951st Commander.

-7 In the same time period, the last quarter of calendar year 1959, the military, under AFSWP, was addressing a question of the capability for outer space testing and specifically ARDC, the Air Research and Development Command of the Air Force, had submitted a proposal. Both the LRL proposal and the ARDC proposal saw the Atlas as a prime candidate for a carrier. A letter from Adm. Parker, the Chief of DASA in 1959, Nov. 5, to Gen. Starbird documents the DASA interests in preliminary planning and development of an outer space testing capability and states "provided you concur in the desirability of developing such a capability, I am prepared to provide fiscal support for this preliminary planning under the current DOD guidance which requires us to maintain a capability to resume testing." BK dc

Some correspondence in the November-December time frame indicates that there was an Air Force Scientific Adivsory Board with a "ad hoc committee on test moratorium" which solicited the assistance of Al Graves and Harold Agnew. There is more on this filed under "334 Scientific Advisory Board". BR

Here, on 8 Nov. 1959, Lt. Col. Otis Moreman, Jr. assumes command of Task Group 7.2 at Eniwetok. JE

"JTF-7/DASA" FV

HEADQUARTERS
DEFENSE ATOMIC SUPPORT AGENCY
WASHINGTON 25, D. C.

DASAPL 320

9 November 1959

MEMORANDUM FOR: DEPUTY CHIEFS OF STAFF, DIRECTORS AND CHIEFS OF SEPARATE OFFICES

SUBJECT: Joint Task Force-7 Relations with DASA under the Proposed Reorganization

1. On 19 October 1959 and 5 November 1959, Brigadier General G. T. Duncan, USA, Chief of Staff, JTF-7, and I discussed the action to be taken in the implementation of the "Report of the Study Group on the Organization for Future Test Operations," dated 20 August 1959.

2. General Duncan informed me that the Task Force is currently engaged in the phase-down of the Eniwetok Proving Ground, which will be completed by 1 February 1960. The Task Force will have a continuing responsibility for monitoring DOD activities in the EPG.

3. The following actions were discussed:

a. Activation of the Albuquerque Office of JTF-7. (See para 5 below)

b. Activation of the Task Group 7.4. Action will be deferred until the Joint Chiefs of Staff implementing directive is issued.

c. Phase-down of Headquarters, JTF-7. (See para 4d)

d. New authorized TD strength. (See para 4e)

e. The assumption of the responsibilities of providing military support of the Nevada Test Site. (See para 5 below)

4. In regard to future relations between DASA and JTF-7 under the new organization, it was agreed that:

a. Under the present plan, the Task Force will retain its unit integrity.

b. The Task Force will operate under the approved policies of the DASA.

c. Within these approved policies, the Task Force may deal directly with the Services and other governmental agencies on operational matters concerned with preparation for and conduct of nuclear weapons tests.

d. JTF-7 will administer its personnel to include the writing of travel orders and will be authorized to deal directly with the Services on personnel matters. The Task Force will clear with Chief, DASA, prior to dealing with the Services, regarding replacements for key personnel of JTF-7. These are construed to be the Commander, the Chief of Staff, and the Chiefs of respective staff agencies. General Duncan will discuss with General White and General Harrison the desirability of JTF-7 personnel being assigned to DASA reporting units.

e. Deviation from the suggested manning contained in the final report will be submitted to Chief, DASA, for approval.

f. Commander, JTF-7 will prepare and submit to the Chief, DASA, recommended budgets of the Joint Task Force for review and inclusion in the overall DASA budget.

5. At the 19 October 1959 meeting, I directed Colonel Penly to work with the JTF-7 staff in the development of a plan to transfer the NTS support functions to JTF-7 and to establish an Albuquerque Office of the Task Force, as recommended in the Study Group's Report. A briefing covering these areas will be scheduled in the near future.

6. Although JTF-7 may contract to the status of a relatively small unit during non-test periods, it will be treated at all times as a major command of the DOD as well as a subordinate command of the DASA due to the priority and importance of its operational mission. It is expected that members of Headquarters, DASA, staff will exercise diligence in coordination of planned actions which may effect the operational capabilities of the Joint Task Force-7.

Edward N. Parker

EDWARD N. PARKER
Rear Admiral, USN
Chief, DASA

On 10 November 1959, Col. Wignall as Commander of the 4950th responds to AFSWC on their staff study on the reorganization of AFSWC. Judging from the comments apparently the AFSWC authors have recommended reorganizing the 4950th probably by absorbing its mission within the center, if not in whole at least partially. The response from Wignall is that the study is based largely on conjecture and statements purporting to be facts for which no substantiation is evident; neither does it take into consideration certain facts such as the true domestic and international situation regarding resumption of testing and the fact that the 4950th has a current mission, which seem to be very pertinent and necessary in considering reorganization. Clearly the 4950th feels they are fighting for their life and in fact fighting for the proper support to nuclear test planning during the moratorium period.

BU

13 Nov. 59 TWX from Sandia requests approval for Tonopah test in Dec. 59 to prove out ground-controlled aircraft (drones) for radchem sampling Starbird disapproved test on 1 Dec. due in part to possible adverse propaganda effect at Geneva.

FP

BK

1-7 A memo dated 18 November 1959 from Hertford to Starboard mentions the possible use of the Scout missile system presently being developed between the USAF and NASA for nuclear device testing activities in outer space. Furthermore AFSWC is designated as the Air Force Agency for the project and any AEC discussion should be directly with AFSWC. Some notes which followed this memo indicate that the payload capability of the Scout was far too low even to consider using for nuclear weapons testing since ... package would weight much more than the capability.

1959

3 - 20 November — UN General Assembly (XIV) debates "Question of French Nuclear Tests in the Sahara." France maintains it "does not create any risk for the rest of the world and for Africa ... the question of equipping herself with nuclear weapons is a question which concerns only the French ..." General Assembly adopts resolution asking France to refrain fron conducting nuclear tests in Sahara. Vote: 51 Yes, 16 No, 15 Abstain. France, US and UK against; USSR in favor. *(For full text of resolution and record of vote, see Appendix "II".)*

21 November - 57 — General Assembly (XIV) adopts resolution urging countries concerned in Geneva test ban negotiations to make every effort to reach an accord and to continue voluntary test suspension. Resolution also appeals to other nations to refrain from testing.

CR

23 Nov. 59, J-3 Report: Duncan Curry reports that Col. William S. Hutcheson Jr. of field command DASA visited J-3 to discuss the planning for integrating JTF-7 into DASA, and the hope that this will create a more favorable climate for test planning. He notes that perhaps field command will take over JTF-7 proposed liaison duties in Albuquerque rather than having a small task force liaison office there. It is also mentioned that the Secretary of Defense has approved the report of the study group on future testing. Also, roll up and transfer of personnel and functions from Parry to Eniwetok are proceeding on schedule and should be completed by the end of the year.

BY

Meeting #1571, 24 November 1959:

Here is an item at the end of these minutes: "Mr. Luedecke announced that the Soviet Union had accepted the U.S. compromise terms of reference at the Geneva Conference, and there was now an agreement to hold

technical discussions on methods of detecting underground shots."

10 – 27 Nov 59: Pursuant to JCS order SM-1209-59, dtd 27 Nov 59, JTF-7 assigned as subordinate command of DASA. FU

General Order No. 10, dated 27 Nov. 59, from DASA, announces that JTF-7 is assigned as a subordinate of DASA effective 27 Nov. 59. On 22 Mar. 1960, the Navy Task Group 7.3 was reassigned from JTF-7 to Headquarters DASA.

55

c. Joint Task Force SEVEN was assigned as a subordinate command of the DASA on 27 November 1959 and furnished with a charter embodying the recommendations of the AEC-DOD Study Group (2b above). This charter made JTF-7 responsible for conducting all DOD nuclear weapons effects tests without regard to location.

30 Nov. 59, J-6 Report: For EPG, small advances are reported on several of the design work items being done by H&N. Newman states, without J-6 knowledge, AEC Headquarters cancelled a number of the items which had been approved for design at J-7's request or recommendation, such as the air conditioning and sound proofing improvements for buildings on Parry, a barge photo tower to replace MACK, etc. DY

The scaled 1-Point activity continues with one shot per week.

December 1959:

PT

In the test evaluation section there is an entry onthe one point test in December 1957 where analysis of the core drillings obtained long after the event have just been completed. The result is a refinement of the yield calculation and the conclusion that such sampling even long after a test has great diagnostic value. The section on underground test concealment states "present theoretical predictions of the seismic decoupling to be achieved by detonating an explosive in an underground cavity depend quite critically upon the interpretation of the plastic motion observed on past underground explosions." The areas of misunderstanding or lack of knowledge that are critical are being investigated and it is expected that there will be an improvement of understanding of these phenomona from certain calculations.

Further one-tenth scale tests have been preformed in the cylinders with hemispherical end caps to attempt to understand the best design and maximum yield usable and containable within thisconfiguration. The weak points seem to be the ends and filling those hemispheres with salt makes this area more tolerant.

A 1 December 59 letter from Shuster to Allaire of ALOO discusses the procure-
t time for balloons. He recommends test flight of at least one balloon under NT
ere conditions prior to actual use and feels that the following response times
a reasonable estimate: five months for delivery of test balloon; two months
test flying of balloons; three to five months for delivery of first production
t. He says it isn't anticipated that Aerodynamic balloons would be used exclus-
ly in future test series. "Present plans are to have one or two flying in a
nd-by condition and to use them only when high winds are forecast or when an
eptionally heavy [redacted] . . . ." (Lost on tape)

n December 1959 a draft paper which set forth the proposal for the BU
establishment of a U.S. Air Force Task Group 7.4 which would be in fact the
4950th under the command of Col. Wignall, who would now be the Commander
of Task Group 7.4 was written up. This Task Group would be responsible
o JTF-7 although it would physically function and be located at the same place
t Kirtland Air Force Base as it had been and how far this draft Charter got,
don't know.

A TWX dated 2 December from Headquarters, Air Force to AFSWC indicates BU
hat the discussions of the future of the 4950th and its subordinate units is
being carried on at this level. Headquarters, Air Force requests that certain
information be submitted not later than 1 February which should include
the information contained in a briefing dated 20 November on the maintenance
of the capability to conduct overseas tests. Headquarters desires the specific
details on requirements for aircraft and manpower and the time phasing to
build up this capability should it be needed.

An 8 December letter from Gen. McCorkle, Commander of AFSWC to Gen. Canterbury of AIDC indicates McCorkle's feeling that the 4950th should indeed be designated as Air Force Task Group 7.4 but that it would carry both titles and that it would continue to be an AFSWC unit. Further, McCorkle states that he has been informed that the JCS has approved the formation of a permanent 7.4.

BU

On 8 December 1959, there came a memo from Bill ~~Allerie~~ Allaire of Nevada Operations to Bob Newman at LASL that shed some light on the practices at the NTS to attain and maintain test readiness during the moratorium. ~~Allerie~~ Allaire states that "our general policy on procurement of items from maintenance of the testing capability is that we will procure only those items having a procurement lead time of 90 days or longer." Apparently the equipment that Newman has requested which are induction motor generator sets for LASL do fall within the criteria of having a lead time of 90 days or longer.

BP

~~The folder contains no entries during either 1960 or 1961.~~

By December of 59 the high altitude detection system study was taking on some detailed shape including discussions with NASA as to their cooperation and help and it had taken on the name VELA. This concludes the notes on the Upper Atmospheric Physics Group folders through 1959.

n parallel with those negotiations mentioned above, the Secretary of the reasury by letter of 30 June 1959, requested the Secretary of Defense o make Sand Island available to the United States Coast Guard for use s a Loran A and C station site. The Secretary of Defense by letter of 0 December 1959 granted permission for the installation of the Loran tation on Sand Island with the provision that it operate on a non-interference asis with the proposed Nike-Zeus program. As the Loran Station satisfied equirements in support of military operations under the operational authority f the Commander in Chief, Pacific, authority to shut down was vested in im. On 30 October 1961 the U.S. Coast Guard relinquished its permit o occupy a portion of Johnston Island.

BB

fill construction program was completed in June 1960 and

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BB

oral-fill construction program was completed in June 1960 and roximately 25 additional acres were added to the island.

7.c

1.2 The last progress report I could find was sent to CJTF-7 in Washington from Eniwetok on 14 Dec. 1959 and indicates that personnel strength is now down to 20 personnel from a level of about 1000 at the beginning of the year and the H&N personnel have taken over virtually all functions. JC

A further update of the JERICHO planning follows a meeting of the steering committee chaired by Jerry Johnson of Livermore, on 10-11 December 59. As of this LP time, DASA reports that there is no specifically-defined national policy in regard to testing, that an executive statement is expected which will continue the test ban on a week-to-week basis and that the State Department and AEC have expressed favor in this plan, and that the DDR & E (York) has agreed within the last week that, with the exception of underground testing, DASA should cut back the amount of effort in the DOD test programs. Loper, the Assistant to the Secretary of Defense for Atomic Energy is quoted as expressing his views just recently as follows: "

1. The chance of doing under water or atmospheric testing in the foreseeable future (EG June 61 after the new administration has had sufficient study to make such a decision) is very small.

2. Underground testing is about the only type for which he can see any chance of complete accomplishment.

a. It is conceivable that the state of international negotiations may indicate we should initiate underground testing in order to try to push the negotiations along.

b. We may reach agreement on a proposal to suspend all testing by phases beginning with areas where detection and identification techniques are clear. We would sucessively develop techniques on other types of of testing and suspend them also.

c. The probability of doing any kind of testing not high but it is higher for underground than for anything else. Therefore, it is the one we should be prepared for."

DASA deduces from these high level statements that their objectives should be to mothball the MARSHMALLOW experiment at some logical and sensible stopping point and asks the steering committee to assist in the details of how to go about this phase down. Jerry Johnson stated that after the steering committee draws up a program for moth balling, he intends to propose to DASA that Livermore phase out of the management beginning on 1 January and be completely relieved of their responsibilities by 1 March 60. Also noted is that a program under AFSWC which apparently is investigating some of the JERICHO R & D questions will continue and will utilize both HE and exploding foil.

LP

Here is a very lengthy draft report on the [redacted] effects program that was written within Livermore, apparently by Clark, and also apparently during the moratorium. Some of the older histories of interest, indicating that the so-called JERICHO effect is the first seriously considered by Montgomery Johnson, Teller, and Al Latter in 1954. The first serious attempt to look at these effects was the LOGAN event of HARDTACK II, which was not planned until the last minute. As a matter of fact, it was about the time Eisenhower announced that the moratorium would be entered after HARDTACK II that the DOD pushed hard for a experiment during that phase. Livermore did not want to do it at first because they didn't believe within the funding they had been given that they could possibly field a significant experiment. Appparantly DASA considered the test very important as hey gave almost a blank check to Livermore to come up with an experiment by id-October, which became LOGAN. This 100 page report gives a tremendous amount of etail of the experiments fielded and the various results. The first serious planning f such an event by Livermore was being done in 1957 and was to produce a so-called ERICHO event during the operation called TRUMPET.

Meeting #1572, 11 December 1959:

NG

Here are a few short but important remarks on the need for weapon testing in the progress of the Test Ban talks: "McCone stated that the JCAE fully supports the Commission's position on the importance of adequate safeguard positions in any test ban agreement with the Soviet Union. He said Senator Anderson had urged that the Commission be in a position to test a number of devices immediately after the first of the year or as soon as the test moratorium is ended. For example, Senator Anderson said that he understood from Norris Bradbury that the Polaris warhead required further testing before it would be safe for stockpiling. Mr. McCone said he had later discussed this with Mr. Bradbury who stated that Senator Anderson was not accurately reflecting his views on the safety of the Polaris warhead. Mr. Bradbury said that he did not mean that the warhead was too unsafe to permit stockpiling. Mr. Luedecke mentioned that there seemed to be a misunderstanding among administration officials about the progress of work on tunnels for underground weapons tests. He said that he understood that work was proceeding on schedule, however, he would investigate the matter further."

Meeting #1573, 15 December 1959: AIG

On the subject of Geneva negotiations (AEC 226/229), Starbird reviewed a proposed AEC position on the test ban for high altitude in a phased test ban treaty. Guidance was needed from the Commission on a staff proposal that the ban initially extend up to 300,000 kilometers, the same limit that would be named in the event of a "comprehensive" treaty including underground tests. Mr. English explained "that prohibition of tests below this altitude should eliminate this problem of fallout and a satisfactory system for monitoring such an agreement based on current technical estimates could be installed involving ground control equipment and systems of earth satellites."

An 18 December Memo by the 4950th discusses the SAC-MIC conference at AFSWC on 18 December. This project involves ATLAS, ICBM's launched from Vandenberg with high explosive warheads impacting in the Eniwetok Atoll lagoon. The original first firing was to be in January of 1960 however it has been slipped anywhere from one to three or four months. BU

21 Dec. 59 memo from Sugden notes SAC/AFSWC plans for 6 Atlas tests from VAFB to Eniwetok (Mack Tower) scheduled for Jan.-Aug. 60. Concern over safety of Eniwetok personnel expressed and being studied. FP

21 Dec. 59, J-3 Report: On the subject of provision of aerodynamic balloons for test programs, Sandia has investigated the preparation time for being ready to carry out such testing. They have reported to ALO that it would take five months to deliver a test balloon, two months to test fly the balloon, and three to five more months for delivery of the first production unit. This means an estimated ten to twelve months from go ahead until the aerodynamic operations could proceed. BY

21 Dec. 59, J-6 Report: As for NTS activities, the post shot exploratory
illing continues in area 3. The design work for certain facilities incorporated
the proposed 1200 ft. vertical holes in area 3 has been received from the
ntractor and approved. The work on the scaled
Point program has been stopped; indications are that sampling without ground
ntamination is feasible but full scale or larger scale tests are necessary to
ove out any specific system.

Here is a General Order No. 14 dated 23 Dec. 59 from JTF-7 which notes that the Headquarters of US Army Task Group 7.2 closed at Eniwetok on 17 Jan. 1960 and opened in Wash. at Arlington Hall Station. CV

* 28 DEC 59 OGLE LTR IN H'

Here is a 28 December 59 memo from Ogle to Bradbury giving the NTS readiness of LASL. He notes there are four new five hundred foot deep, three foot diameter, cased holes with HEADHOUSE designs in existence. Designed for safety tests, they could be used for anything up to one KT. Also at the NTS are four used holes with depths greater than two hundred and fifty feet which would be re-used. LASL has requested six 1000 foot holes, later changed to 1200 foot, in order to be able to contain 10KT. The final agreement with AL00 was for four such holes and AEC authorized engineering but has not authorized drilling and do not intend to until it is clear the holes will be used. Since it is estimated that a 1200 foot hole could be ready for use in 3 plus or minus one-half month after notification, it looks like LASL has a marginal capability of firing up to 10KT on three months notice. However, certain long lead time items are in a somewhat shaky condition, such as winches. Also, the NTS stockpile of coax is in use locally and new coax can be NP

obtained on something like a four month delivery schedule. Thus, Ogle feels that three months would be an absolute minimum to do anything other than safety tests and this could easily stretch to four or four and a half months after go-ahead. As for Livermore, "it appears that LRL is continuing to dig at a somewhat reduced rate in Nevada. They have been in the process of arranging drift tunnels for several kinds of shots and have also drilled some fifteen hundred foot deep shafts which could be used. It is my impression that some of these shafts were drilled in connection with containment studies rather than in preparation for a real test series. However, it is still perturbing that they are allowed to sink large amounts of money into these things but we are not. I suppose the explanation has to do with the fact that any plans for firing we have presented include only vertical holes which the AEC feels can be drilled on short notice." This status report to the Lab Director coincides almost exactly with Eisenhower's announcement that we are no longer under a continuing moritorium but feel we can test if the need arises by giving prior nntification.

Here is the next program letter, dated 30 Dec. 59, from Bradbury to Starbird, wherein Bradbury begins by noting the LASL technical program for 60-61 suffers from "what appears to be becoming a chronic difficulty - i.e., the continued state of uncertainty regarding the extent and character of nuclear weapon testing by the United States. It must, therefore, be obvious that changes in the current domestic and international political scene could have a pronounced effect on the relevance and accuracy of the various technical forecasts which follow." Therefore this letter addresses mainly the changes from the last letter, the first of which

will be some decrease in the effort devoted to nuclear physics research with the various accelerators due to requirements for personnel to address the Vela Hotel and Vela Sierra programs. These latter programs will involved approximately 30 to 35 people. As for Plowshare, "the lab interest . . . has crystallized along the lines of the use of nuclear explosions for scientific research and for the conduct of scientific experiments for which nuclear explosions provide unique sources of neutrons and radiations. Specific planning is underway for the conduct of such experiments in connection with the Gnome shot." Also noted is the new Stretch computer expected to go into operation in mid-1960 and the effort required to take advantage of its capabilities. Most of the other programs are to remain at about the same level as previous with some specific comments in the area of nuclear weapons and testing. Bradbury notes that the course of the moratorium seems to be undergoing redefinition as this letter is being written. Bradbury's appraisal of the testing situation and readiness is probably worth quoting in full: "The laboratory situation with respect to a resumption of actual nuclear weapon testing is, at this writing about as follows: Holes exist at NTS in which 1 point safety or other shots to about 1 kt could be conducted. Certain equipment (eg coax cable and winches) is not immediately available
or is on order with long delivery times. The laboratories proposes to obtain as rapidly as possible all the necessary material for the resumption of testing and to have "on the shelf" certain appropriate devices for tests in the existing holes. However, it does not follow that the first such nuclear tests will occur instantly after a Presidential announcement that this country is resuming such activities. In the first place, it is not feasible to have personnel and equipment on an immediately "standby" basis nor does there appear to be any technical or political reason for this. In the second place, it is believed that it will require of the order of 3 months to obtain the necessary equipment for the Nevada Test Site. Thus, if it were announced today that this country were resuming nuclear weapons testing,

it is unlikely that the first shot could occur much before the end of March, 1960. Thereafter, testing (in the existing holes) could occur probably 30 to 60 days after such a public announcement, providing adequate preparations at the test site had been initiated well in advance. Since it is impossible to make active preparations for testing in Nevada in secret, the period of really active preparation must come after a Presidental announcement.

We also propose to request that the AEC now accede to an early request of this laboratory, namely that the digging of 1200 ft. holes to contain shots up to 10 Kt. proceed at such priority as you deem appropriate and that we be informed of the date when 2-4 such holes will be available. Furthermore, we believe that there should be an immediate and active study of the problem of how (and when) we can

they can be used to establish the fact that beyond any doubt that a particular system will "work" in an overall way and may therefore provide the DOD with adequate assurance for its purposes. Naturally, we would be more interested in experiments at full yield, and perhaps you can assure us that the containment of such shots will be not be unduly expensive or delayed in time. Furthermore, if we are in error in our assumption that testing in the atmosphere or in the gravitational field of the earth is toounlikely at this point to warrant any procurement or preparational effort, we would appreciate being so informed. Finally, for the purposes of this year's programatic statement, we are ignoring the practical possibilities of testing in outerspace."

Along the lines of nuclear development, a list is attached with the specific devices and their applications and the planned operational available dates.

Bradbury notes the Hood problem which has occupied a major portion of the weapons effort of the laboratory over the last six months and notes that experiments will supplement the theoretical results to date as they are done over the latter part of 1960.

In the area of weapons development, in addition to the specific devices on which work is being done, the lab will work on obtaining maximum yield from various weight ranges as well as working toward "clean" designs, pure fusion weapons, sub-kiloton weapons, and techniques of nuclear safing. For some reason, there are no 1960 entries in these folders. Interestingly, a 9 Jan. 61 budget letter from Bradbury shows the revised estimates for the labs FY 61 and 62 budgets. The 61 figure is 68.5 million and the 62 figure is 77.5 million, which correlate to about the same levels shown in an earlier budget letter however, they are a year later.

Note that there are no further of the standard annual and semi-annual program reports and mid-year reviews in these files as there had been up through the end of 1959.

Here is the "final report on the phasedown of U.S. Army Task Group 7.2, Operation Switch," dated 31 Dec. 1959 which reports on the details of the transfer from the Army functions at the EPG to AEC control and contains highlights such as, effective 1 Dec. 1959, the Commander of the 4951st was designated the JTF-7 representative at the EPG vice the Commander of the Army Task Group 7.2. Also, as of 17 Jan., Task Group 7.2 transferred to Arlington Hall Station, Virginia, and personnel were released and reassigned by the Army.

Note that the Navy planning during the early moratorium period referred to the Wahoo tests done during Hardtack and referred also to planning for similar tests in the future under the name Wahoo Prime.

3. Dec. 59, J-10 Report: Skumanich, the LASL member of the Steering Committee, reports on the 10 to 11 Dec. meeting of that committee, at which the plans to terminate and phase out the activities of the underground program at NTS were announced. The phase out is to take place from 1 Jan. to 1 Mar. of 1960. Livermore people involved are going to move into the area of high altitude studies (detection?) and Sandia also is terminating their experiment of measuring the bomb temperature and X-ray spectrum, which is apparently is to be taken over in some sense by Lockheed. "The program is to be mothballed after the present calibration experiments (of detector systems, etc.) are completed within the next six months. This means tunnel, vacuum pipe, observing stations, detectors, scopes, etc., to be placed on the shelf for future six month readiness. Whether the same contractors would do the unhyphened mothballing is left as a future problem." As for the interium status of the program then, nothing was decided and it looks like a competent civilian technical director must be found is the program is not to ~~farther~~ further. Mention is also made of a large high explosive program which will be funded by the military and is to study X-ray effects.

On 31 December Starboard provided the Laboratories and ~~At Lew~~ ALCO with some guidance on just what they can say in replying to queries on the AEC's test readiness and preparations. In reference to plans for resuming testing, they may comment that there are no plans to resume testing in the immediate future. In reference to how long it would take to resume testing, it can be answered that this would depend on the extent of the tests and will vary from a matter of weeks to months where preparation for a well thought out and detailed series would probably take quite a few months. Furthermore they can state that the EPG has been kept on a maintenance stand-by status

BR

throughout the past year and the NTS tunnels are being reconditioned and dug for readiness purposes. In reference to plans for personnel and material build up at either Eniwetok or NTS, they may comment that there are no present plans for any build up. As to what the course of action will be after the Geneva conference reconvenes in January, this is not within their province to comment upon.

- EPG put on 12-month response status late in 1959

- also late in 1959, 7950th fighting for their lives lost. AFSWP take over, rearrange, etc.