CHRON-13

411667

PT

December 1961:

In the area of high altitude detection, the W-Division work which has been going on for many months has developed an open window photomultiplier detector which is to be placed aboard Discoverer missiles in October and December of 1962. These flights "should be useful in determining the radiation background which a surveillance ~~surveillance~~ satellite will encounter in space."

The section on testing indicates that Fisher caused considerable equipment loss due to its yield and cratering effects. Three amplifiers and a power supply were completely destroyed and the zero rack and Perkins supply suffered lesser damages. Also, due to the high pressures experienced, the pressure transducer measurements on Fisher were of no value since the ranges chosen were too low. "The Bourdon pressure gauges yielded interesting informaiton although pressures developed were higher than gage ranges (greater than 300 PSI)."
Thus far there has been no real mention of any possibilities for testing other than the NTS with the exception of the outfitting of the C-130 aircraft.

Documentation in early December of 1961 indicates that Sandia is requesting 72M-5 Rocket Motors from the Army Guided Missle Agency (ARGMA) and is to fill the requirement for diagnostic rockets ~~fro~~ for the 3 AEC Laboratories, to be launched by Sandia, and requesting delivery by Feb 1, 1962.

PZ

Here are two letters from Harold Brown to Seaborg dated 1 Dec.[6'] on slightly different subjects. The first covers the proper procedures for inclusion of effects tests and Brown mentions the "confusion caused at our recent meeting (of the NSC subcommittee) by the sudden injection of a high altitude effects shot sponsored by LASL." With this somewhat misunderstood position as a basis, Brown goes on to discuss the problems with the grey area in responsibility between the DOD and the AEC and the surface neutron effects tests which has also come into the

RH

tests series thru LASL and not thru DASA as it should according to Brown. He just tries to clarify the procedures as the DOD feels they should be followed for including AEC measurements on DOD shots and for properly proposing DOD tests thru DASA. The second letter from Brown addresses the letter to the President on 29 Nov. with the possible atmospheric shot list and gives Brown and the DOD's specific disagreements. He lists 6 of the AEC tests which for one reason or another the DOD does not feel should be included in the initial list. Basically they feel they don't meet the following criteria: "they can be fully justified on the basis of real (tho not necessarily immediate) military importance, and there would be very great difficulity in performing them in other environments." Brown makes no mention of communicating these disagreements and exclusions to anybody but Seaborg.

Note that there were frequent exchanges between Mainkins of the United Kingdom, Seaborg and Rusk, as well as other high level officials, thru Dec. addressing the agreement and planning and working out of details for testing the UK device in Nevada.

A 1 Dec. TWX from Froman to Betts covers the LASL proposal for additional high altitude shot. He notes that neither of the DOD proposed shots are fully satisfactory for learning how to test warheads in space, in particular because with the yield and altitude of Starfish, it is so close as to cause serious saturation problems in detectors suitable for diagnostics in space testing. Froman believes we should check out the methods of testing in space in order to avoid ignorance in that field such as we have had about underground testing. Specfically, LASL proposes that the AEC sponsor a shot of 1000 or more kilometers altitude and of 165 kilotons or less. Additional merits to this proposal are that the incremental costs will be small for the AEC since they will certainly instrument and be highly manned for the 400 kilometer shot, and also Argus effects for the DOD, data relevant to Vela Hotel, and Vela Sierra, and pure physics data, as well as some data on fallout from that altitude.

- A 1 December TWX from Froman to Betts discusses that LASL does not feel any of the planned high altitude tests can be adapted to fully satisfy the investigation of testing warheads in space. Thus LASL proposes that the AEC sponsor a 1000 or more kilometer shot of 165 KT or less.

- A 2 December TWX from Hertford to Betts is a reply to a request from DMA on 27 November for the Laboratory's feelings on the integration of the Vela Hotel effort with the planned high altitude shots. Briefly it is pointed out that LASL and Sandia have addressed many of the questions in the preparation of the Vela Hotel program but will now be useful in planning for making measurements on the high altitude experiments. Thus the LASL Vela Hotel people who will now be working on the high altitude program, are in a good position to present their engineering and production requirements having solved the R&D problems on the LASL measurement package for space testing and, using outside fabrication and other expediencies, the measurement portion of the Vela Hotel satellite is ready to go ahead. Sandia has reorganized their field test group to separate the division that will be addressing the high altitude test measurement from the division addressing Vela Hotel. Thus, the impact of high altitude weapons testing on the Vela Hotel program is as detailed here in relation to the AEC fulfilling their committment to the ARPA program

A memo from Captain Craig of the DMA Test Office to Gen. Betts on 1 December covers the last atmospheric tests coordination meeting held by DASA on 28 November since all future meetings will be held under the jurisdiction of JTF8. It is noted that General Starbird and a few of his staff are at ALO and may visit Vandenberg on their way back to Washington. And that on his return Starbird will recommend one of three systems being considered for high altitude delivery to Genral Booth the director of DASA. Gen. Polhamus is mentioned here and I infer that he is the deputy director of DASA. There is little new information here except that a statement that JTF8 is doing parallel planning for the overseas operation and is considering a combination air/sea operation perhaps utilizing Hawaii and Johnston Island and another alternative of using Christmas Island or other island for a base of operations. The DoD funding picture is presented as follows: they presently have 18 million dollars for atmospheric operations and expect to obtain 32 million more from the emergency fund for a total of 50 million for FY 62 and expect to have 100 million included in their FY 63 budget.

→ NO — Still undecided on 6-8 Dec,

There is no further correspondence until 1 December 1961 when in discussions of the atmospheric and high altitude testing being thought of the outer space testing question came up again. In a TWX on this date from Frohman of LASL to Betts, it is noted that continuing studies now being proposed for high altitude tests are not really satisfactory for learning how to test warheads in outer space. The high yield test of 400 kilometers being planned is too large to really address the question of diagnostics in outer space. LASL feels that to avoid ignorance in these fields such as we had in the area of underground testing when the moratorium ended that the AEC should sponsor a shot of something like 165 KT at 1,000 kilometers. Not only would this shot be done quite in line with the other high altitude shots since the capability would already be there but they could address data relevant to the Vela Hotel and Vela Sierra programs.

1 Dec. correspondence from DASA to Air Force and Navy cites a document entitled, "Initial Manning Requirements for Headquarters JTF-8"and dated 6 Nov. 1961 (#SM-1201-61). Apparently this document assigned a certain number of each of these services personnel to JTF-8.

A 4 December letter from General John Samuel of DASA Annex (JTF8) to General McCorkle notes that the JCS will soon consider a paper which will clarify the respective roles of each of the military services in planning for the test resumption. Rather than wait for such a letter and direction from Headquarters Air Force, Samuel feels that all concerned organizations must move at once to tie down as many of the loose ends as possible. Consequently he is forwarding a letter a draft of which has already been seen by McCorkle to the air staff asking that they designate an air force planning agency for the tests and that JTF8 is thinking of AFSWC in that capacity.

In order not to waste further time until such decisions are made on formalities, Samuel asks that the AFSWC planners get back to work on the more extended operation that is beginning to take shape and on which they did so much preparation when it was known as Blue Straw. Samuel offers to act as the eyes and ears in Washington for AFSWC to inform them of anything that may have an implication on the Air Force role. He notes that he has been informed that the AFSWC staff will soon be augmented as they have requested. Attached to this cover letter is a first cut at a current status report for JTF8. Since this status report contains mostly the same information I have documented elsewhere, I will note only those items that look somewhat new. As for the status of Christmas Island he notes its desirability but also the improbability of having it and states, "naturally we must see if time and facilities will permit us to establish the Eniwetok type control center there with backup in the form of an aircraft carrier. As to the overall picture, however, I feel that we will in great part have to look at Christmas as a distant Bikini with Hawaii substituting as the Eniwetok type home base." As for Jarvis, he notes that one of the thoughts as to getting this Island for a land base shop is that it is close enough to Christmas for sampler aircraft support. For conjugate point measurements, he states that AFSWC must look into the minimum air support requirements in the Samoa-Fiji area. As for the possibilities for the air drop program he states the following " because of increased requirement for diagnostic data not programed in Blue Straw, detailed inquiry into capability for precision open sea drops is mandatory. We are currently suggesting as possible alternates a sea born control center, a special control radar for the drop aircraft, and the positioning of precise deep anchored, survivable radar offset floats."

BZ

Samuel sent a 4 December memo to Headquarters Air Force (AFRDC-AE) urging them to set up immediately an Air Force planning and operation agency designated and manned to assist the Joint Task Force on the Air Force side of planning for the upcoming operations. Due to the need for experienced personnel on a rapid basis he requests authorization for the following: "a. extensive latitude 'by name' designation of key personnel. b. immediate TDY manning of an adequate planning staff to see this headquarters and the Air Force planning agency through the critical initial planning and kickoff phases."

4 December – 61

General Assembly (XVI) adopts resolution asking Secretary-General to inquire into conditions under which countries not now possessing nuclear weapons might form "non-nuclear club." Vote: 58 Yes, 10 No, 23 Abstaining.

CR

Second Assembly resolution calls for international agreement under which nuclear powers would refrain from giving nuclear weapons or information necessary for their manufacture to non-nuclear countries. Resolution adopted by acclamation.

635 Johnston Island

A 4 December 1961 TWX from Jim Reeves to Gen. McCorkle, Commander of ~~ASWP~~ AFSWC of Kirtland, documents the proposed visit to inspect Johnston Island and the facilities there on 12 and 13 December. The AEC party will consist of Jim Sugden (OFO/ALO); J. Ryan, M. Curran, F. Drake, or J. Pollet, H & N; and two Sandia representatives. Also, Douglas Corporation will be represented. Also by this message permission is requested for the AEC contractor to visit Vandenburg on a continuous basis to survey the ~~implace for~~ emplaced installation there, and for the AEC architect engineer to receive Fishbowl criteria from the user and for ~~H&N~~ H+N to deal with the Fishbowl user on engineering and design matters.

BN

PV

Here's a most interesting memo to the Secretary of State from Arthur Dean on 4 December 61 recording a conversation at a lunch in Geneva on 30 November. Tsarapkin sat on Dean's left and Godber of UK sat on his right. Dean steered the conversation around to whether it might not be a good idea "to assemble the Soviet, the UK and the US scientists in an effort to review the entire ... and to see whether we could not work out something that would be acceptable to the Soviet Union from a control standpoint and from an on site inspection standpoint." Tsarapkin firmly asked "Do you really want to know why we resumed nuclear testing on Sept. 1?" Dean replied that he was very much interested and Tsarapkin continued "the sole and only reason we resumed testing was ~~that~~ because we were concerned lest you actually were ahead of us in this field of nuclear weapons. We know that you had plans to destroy the Soviet Union and its people with the use of nuclear weapons and when we proposed to end the allied rights in West Berlin by the negotiation of a treaty with East Germany requiring the re-negotiation with them of these rights, that you said that you would respond if necessary by the use of nuclear weapons in connection with West Berlin and so far we have not been able to convince you that the signing of the treaty with East Berlin was really realistic in 1961 as compared to 1945. Since we knew also that you planned to attack the Soviet with nuclear weapons, we decided to test. We have carried out a well planned and well executed series of tests and know we know that you are definitely not ahead of us in this field and that if you decide to use nuclear weapons, you will get a little worse than you send. You and your country might as well know that in view of the present tensions in this world, there is no posibility whatsoever of anyfurther negociations on the nuclear test ban agreement. The Soviet Union will not accept any control posts on its territory and will not under any circumstances except on site inspections." Although Dean tried to keep the conversation on a more pleasant but firm basis and Godber asked a great many questions, Tsarapkin continued very earnestly getting

his point across that at the moment "nothing would be worked out except general and complete disarmerment and then of course there would be no nuclear weapons to test." In discussion later on amongst the three of them, Tsarapkin reiterated his points and kept noting the plans of the militarists in the Western Countires to destroy the Soviet Union and its people with nuclear warfare and noting that this did not have to do with the sincere efforts of the negotiators but had to do only with the militarists.

Here is a 4 Dec. 61 memo from Miller to Reeves documented a 30 Nov. meeting at ALO of key AEC Dominic personnel, including Ogle, and since this secret document with many details of the organization and set-up for the overseas open sea plan are contained herein, I will copy it in its entirety for our files. PR

Here is a 4 Dec. 1961 memorandum for Johnson from Starbird which is, I believe, the first progress report of JTF-8. Starbird states that JTF-8 is developing a concept of operations for an open seas initially with later phases to be conducted in the open seas or at Christmas Island should it become available. Various proposals from the services for the high altitude events are being studied by his staff with the booster reliability, system availability, and data collection requirements being addressed. Johnston Island is considered to be the location for these events unless the Navy proposal for firing from a ship is adopted. The JTF position on the high altitude testing will be forwarded to the Chief of DASA by 6 Dec. The Task Force is also studying the location of and execution of the LASL surface tests in the Pacific. JF

As for manning, the 51 of the 69 persons required have reported and the initial increment should be filled by 15 Dec.

5 - 10 December Ogle, Shook (AFSWC), Ryan (H & N), and British went to Christmas Island to investigate possibilities as test base. B a

A 5 December TWX from DASA to AFSWC quotes in full a progress report of Joint Task Force 8 sent from DASA to Jerry Johnson on 4 December. It notes the status of planning for the Pacific Operation stating that planning is being oriented toward open seas operations initially with later phases either in the open seas or at Christmas Island should the latter become available. As for high altitude events which the services are providing various proposals for, Johnston Island is considered to be the location unless the Navy proposal for ship firing is adopted. DASA says that they will have the decision of JTF8 on this matter by 6 December. The Joint Task Force also is planning for at least one event in a remote land area (Jarvis). Manning of the initial increment of the Joint Task Force is proceeding as follows: of the 69 personnel requested, the services had designated 60 by name of which 51 have reported for duty and the remainder should report prior to 15 December.

B2

61

Test bulletin #7 on 5 December states that the present plan for the Pacific is a 3 month series beginning 1 April

NF

61

A 5 December letter from Jim Scott and Don Shuster to the Laboratories gives the "payload capabilities of the proposed Aerodynamic Balloon System." These are tethered balloons which can carry, with no wind restrictions, 5000 lbs. of payload to 1500 feet and 3500 lbs. to 5000 feet. Also, the amount of movement of the balloon in winds up to 30 knots at various altitudes is given and it is noted that actual movement and payloads will be verified by flight testing sometime in January of 62.

AT

A 5 December letter from Hans Bethe to Bradbury discusses the question of atmospheric testing and in particular notes Bethe's recent conversation with President Kennedy and Dr. Seaborg. Bethe still feels that the US has a considerable propaganda advantage in the eyes of the world since they haven't done any testing other than underground and that, where he does not consider atmospheric fallout very important, many people do, and as soon as we test in the atmosphere our propaganda advantage will be lost. He feels that, contrary to the extended series proposed by the NSC committee on Atmospheric testing policy under Seaborg, the US should make a real effort to avoid atmospheric testing or at least restrict it to an absolute minimum. Bethe has presented this opinion as his recommendation to President Kennedy. Bethe expresses his opinion to Bradbury on the question of holes versus tunnels for underground testing and states that "it seems to me for once that LRL has a better method". There are some interesting marginal remarks addressed to this opinion. He feels that the method of getting samples radiochemically from the tunnel reasonably soon after the explosion is very useful and feels that Los Alamos should adopt the same methods and in time would probably improve on them. Briefly, Bethe stresses that he feels that even underground testing is difficult and takes a great deal of time and money that we should expend this time and money rather than go to the atmosphere and he addresses himself to a number of questions in relation to underground testing. One of these is a recommendation that perhaps we should look to an additional geographical area such as West Virginia to alleviate certain problems in NTS and also increase the capability of the overall national undergraound testing system. As for doing certain effects tests in the air, Bethe feels that certain of the information desired can be calculated from the JI tests of 1958 and much of the remainder is not really vital and that he would have to be convinced that there is any sufficient justification for air testing.

C1

The first item is a 5 Decembr 61 letter from Froman to Dave Anthony of DMA on the subject of LASL manning and costs for FY-62 as a result of the test resumption. The statement is for the so-called 03 program costs and is broken down into five categories: Weapons R & D, VELA, TEST, EQUIPMENT, AND SECOND 7.90. The bulk of the personnel and dollars are assigned to Weapons R & D with over 1300 people and over $36,000,000. Only 82 other personnel are noted which are split fairly equally between VELA and TEST and it is stated that because ~~there~~ they are really the same people dividing their effort between these two categories it is a high arbitrary

JI

split. The overall 03 numbers are 1390 personnel and 47.5 million dollars. It is noted that even if testing stops suddenly, very little change overall in 03 will be seen since that effort is actually being diverted from other programs within 03.

A 5 December letter from Seaborg as Chairman of the NSC Committee on atmospheric testing policy to the President addresses some additional questions from the President following the submission of the total report of this committee. It would be very helpful to have copies of or access to the letters from the executive to the AEC and probably also to the DoD. This letter deals with several items. First of all Christmas Island where Seaborg states that technical discussions with the British on the nature of the program are scheduled in Washington on December 8th and 9th and at this time also the Secretary of State will be briefed on the status of Christmas Island. As to the specific dates for the beginning of this series it is to be set at 1 April for the time being and the earliest possible date that it is felt the very important high altitude effects test can be performed is mid-June, therefore, setting the end of the test window at around June 15th as the target date with the understanding that it may well be necessary to extend this date to about July 1st. But for purposes of planning the window is now set at 1 April through 15 June '62. In accordance with the President's request the proposed atmospheric tests have been and are being thoroughly reviewed for deletion, substitution, consolidation, etc. to reduce the number from to a lower number. While it is felt that all of these items are important, Seaborg lists several suggestions for a few items which may be substituted underground, one particular pair of tests which may be consolidated, and also several tests which might be done in lieu of each other and which would allow for a reduction in the total numbers and in summary he states that there is attempt being made to reduce the number by about 5 to 7 tests. The reduction in total yield would be very little, about 2 to 4 hundred kilotons and this would be largely fission yield. Furthermore, Seaborg notes that a study of ways to accelerate and expand the underground test program is currently underway.

Betts sent a TWX to Bradbury and Foster on the 6th of December querying them as to the possibility of
for various reasons and received a reply immediately from both laboratories to the effect that it is indeed feasible to do this. LASL, however, points out that it is not desirable to do . . . .

Here is a 6 Dec. trip report from Frank Drake of H&N documenting a meeting at Vandenberg on 30 Nov. with AEC, Sandia, and Douglas to "discuss the ground facilities required for the use of Thor missiles during the test series" at Johnston Island. Douglas provided an inspection of launch pad No. 6 (R. Saye) which they said would be dismantled in its entirety and moved to Johnston to "expedite the project under consideration." A number of engineering details

which would be peculiar to Johnston from the Vandenberg consideration were discussed and detailed to H&N who would be doing the construction work. The various peripheral facilities such as a propulsion shop, hydraulic shop, and AC Spark Plug shop, were noted and Douglas said they would provide the equipment to be installed in these shops but the facilities in various states of cleaniness would be required at J.I. Saye estimated it would take 13 weeks after completion of pad construction for Douglas to have the launch complex ready for operations. Douglas estimated that they would require approximately 120 people at Johnston until the missile is ready for launch after which this would decrease to about 40.

Pendaflex folder, labeled:
"Dec. '61 – Pacific Tour"

– Ogle's trip to Christmas (5-11 Dec)
w/ Patt Ryan (H&N)
Whelden
Beards } British
Jones
Shook (AFSWC)

Here is a copy of a 6 Dec. letter from Seaborg to Johnson on the activities of JTF-8 which begins "The Commission was pleased to hear of intention of the Dept. of Defense to appoint Major Gen. Starbird to the Command of JTF-8. The Commission is pleased to concur in this appointment and has full confidence in Gen. Starbird as a result of extended experience during his term as Director of our Division of Military Application. The Commission is, as you know, engaged in developing, with the coordination of your office, a test program for an overseas test operation. Such program awaits Presidental action. In accordance with the recommendations of the National Security Council meeting of Nov. 2, 1961, the Commission is studying possible sites for overseas and will make a selection after further consultations with the Dept. of Defense and Dept. of State. . . . As a consequence of the above requirement, it is the Commission's intention, after site selection and development of a test program, to designate the Commander, JTF-8 as the senior AEC representative at the overseas test site, or sites during the operational phase of the test operation. Your concurrence in this designation is requested. Such responsibilities and authorities that are delegated to Gen. Starbird will be operational in nature and will be limited to the period of overseas test operations and should not impose excessive administrative burdens on Task Force Commander. In fact, it is not intended that this delegation include administrative and technical responsibilities and authorities now exercised by the Commissions Albuquerque Operations Office, its weapons laboratories and its contractors." Note that on the same day Johnson sent a letter back to Seaborg concurring in the appointment of Starbird and his designation as AEC senior representative.

A 6 December TWX from Headquarters Air Force to TAC notes that the two AFSWC C-130B aircraft will remain on loan to AFSWC until further notice and that the personnel will remain in TDY status. BZ

A 7 December TWX from Headquarters Air Force to AFSWC states the following about the sampler aircraft situation. Based on current high level decisions which have reduced the number of events upon which sampling requirements are based, Headquarters Air Force feels that a force of 15 samplers is sufficient provided the one B57D is repaired. "Our present capability is two sampling teams consisting of two B57D and four B57's each, with three spare B57's. : This headquarters concurs with the requirement for gaseous modification of all B57 samplers and is proceeding with plans for this work." BZ

Here is a copy of a lengthy document by JTF8 which contains draft proposals for documents to go to the Joint Chiefs of Staff on the subject of the operation as then seen by JTF8. Of most interest are the ship and air requirements which would be laid on the Air Force and Navy. As for air requirements they include: eight 135's three of which would be used for sample return missions, and five of which would be required for optical and photographic measurements on the very high altitude shots. One of those five is to be the Cambridge Research Lab aircraft.

CI

A 7 Dec. message from the NTS to Betts gives the results of the Tweezers Phase Two Operation which was completed on 6 Dec. NQ

Here is a letter from Teller to President Kennedy on 7 December 1961, Number BY-61-198, which is Teller's reply to the President's suggestion that he study in detail the recommended program for atmospheric testing to be performed in the spring of 1962 and present his comments to the President. The first part of the letter summarizes the specific reasons why Teller feels atmospheric testing has become essential, and the second section addresses the proposed tests specifically. Teller begins by citing the Soviet's progress already to date in their surprise resumption of testing and that the "specific danger against which we must guard is the possibility that the Russians can achieve effective defense against a United States retaliatory blow. He notes that the Russians already have put a great deal of yield into the warheads that can be carried by their missiles as well as claiming to have made progress in their missile defense systems and that we must undertake an atmospheric testing program which will help to counter these dangers. Specifically we must develop light weight warheads for our rockets to enable us to put a number of warheads on target to cut down the the capabilities of their missile defense system as well as to putting work into the development of high yield warheads that could do damage from high altitude and would not have to be detonated at low altitudes where the atmosphere can provide discrimination and increase the effectiveness of a Russian missile defense system. The combination of our need to develop both more numerous and more powerful weapons results in Teller's feeling that we must add effort into the development of "clean" explosives, which is intimately connected with the clean thermonuclear type of explosives in which the latest Soviets tests have put them into the leading position. The question of an effective ABM system bases several areas in which additional testing is required according to Teller. Not only to perfect or to develop a somewhat effective ABM system

but to address a number of areas concerning the vulnerability and effects. He emphasises the limitation on yields capable as well as the slowness of the testing, both connected with the underground capability, as requiring us to make progress that can only be accomplished by atmospheric testing. Generally, he states "Since we have not foreseen the present emergency and since we have not planned for it, the atmospheric testing program of the spring of 1962 will fall short of accomplishing a major portion of the objectives stated above. It is nevertheless essential that we should proceed with an appropriate testing program next spring. The necessarily limited results of such a series will certainly enable us to plan a next series in 1963 in a much more fruitful manner. There is no theoretical way which can replace the hard facts obtained from experience." In the next section specifically dealing with the proposed test series he begins "The plan which has been worked out by the Lab Directors and the DDR&E is the result of a careful study with which I agree." He then goes on to give several pages of comments on specific devices as well as

specific areas, such as high altitude effects and vulnerability in which he wishes to make points. Worth mentioning is that he proposes an operational ABM test as early as possible, utilizing a missile launched from the U.S. to Kwajalein with a Nike-Zeus ( ) making the intercept at Kwajalein. Recognizing the possible political problems with the Trust Territory situation, he still suggests that such a test be attempted as early as May or June of 1962. In the last section of the letter, he makes general remarks and recommendations as follows: The series must contain a great deal of flexibility so that the latter tests can be designed and benefit the most from the results of the earlier tests. As for the problems with maximizing the instrumentation , he notes that it looks like the Marshall Islands will not be able to be used as

previously and sees this as limiting the instrumentation at any other location. In noting that Christmas Island might be used, he emphasises that the greatest value there would be if the shots could be on the ground, on towers, or using balloons. He looks ahead to a test series in 1963 as being of utmost important to plan for since then adequate instrumentation can be made available. He also states "In case ground operations on Christmas Islands are ruled out, a very thorough review of all other alternatives is indicated." Next he emphasises the importance of an accelerated underground testing program in contributing to the progress that can be made with atmospheric tests. As for testing in outer space, he sees it as a good idea to address if possible from a number of aspects, including the high yield achievable, the lack of fallout, and the lack of being hemmed in by a specific test period. He notes the need to do the high altitude tests now planned in order to test some of the diagnostic apparatus which might be used to develop an ongoing space testing capability, and notes the extreme expense of developing and using such a capability. The last section on the problems of personnel is worth quoting in full: "During the extended period of the moratorium the men working on the development of nuclear explosives had been subjected to considerable strain. This was partly due to lack of progress. But in greater part the cause was that public opinion continued to frown upon activities connected with nuclear explosives. Perhaps the most damaging result was the fact that it has become increasingly hard to induce excellent young people to work on nuclear explosives. It is of great importance to do something about improving the present situation. It would be of the greatest possible value if you, Mr. President, could make a short visit to each of the two weapons laboratories, if you could talk briefly with the Senior people, and possibly address the whole membership of the Laboratory. It would be of similarly great

value if at some appropriate time you could make a public statement directed to the scientists of our country. In such a statement you might emphasize the development of nuclear explosives can be used to provide us with the strength that ensures peace. You might point out at the same time that the development of nuclear explosives for peaceful purposes is proceeding at an accelerated rate. It is my firm conviction that the United States does have ample scientific capability to hold its own in the development of nuclear explosives. In the present climate of opinion, however, we are working under great handicaps. Your words and your leadership can have a most profound influence on future developments of nuclear explosives and their effect on the nations welfare and security."

Here is a memorandum for the Chief of DASA on 7 Dec. which is titled, "JTF-8 Recommendations Relative to the Booster System to be Used in the Fishbowl series." JT The three systems proposed by the services - Polaris, Thor, and Redstone - are all being addressed from numerous facets due to the fact that they differ in many respects from one another. Prior to drawing any conclusions, Starbird addresses 8 critical questions and discusses each of them as to the merits of the three systems as follows:

1. Is the booster one which has been proved to be reliable? There is little difference in reliability in the three systems as far as delivering a payload to a satisfactory position in space with Redstone having the best record and Thor slightly behind although both are over 90%; Polaris although having a lower propability of successful performance is the newer booster and has had remarkable success in its short period of limited firings and its reliability should continue to improve.

2. Will a trained team be available to conduct the firings? The Navy would organize experienced personnel into a cadre for a full ship-missile team which could be ready in early May. The Air Force proposes to use an experienced

contractor team now engaged an Vandenberg who would be organized to assemble the equipment, make pre-shipment checks, perform the installation at Johnston Island, and perform the firings. The Army would assemble immediately an experienced crew. None of the services proposed to furnish a crew which has been functioning recently as a team but each could provide a satisfactory team by the proposed shot date.

3. What data gathering capability would be incorporated in the missile? The Navy plans to incorporate 4 powered pods in the nose section including 1 nose ejection pod. The Army would use unpowered tail pods as done on Hardtack and additionally would engineer and build a nose ejection pod. The Air Force would use unpowered Atlas pods on the tail section and would have no nose-ejection pod. They propose to position certain items by supplemental rockets.

4. Is any critical engineering and developments still required for each proposal?

JF

Here there is some notable difference between the different boosters. The Polaris has several areas which would require some modifications and new designs: the nose cone shape would be new; a warhead adaption and firing ship would have to be designed and provided; powered pods are a new requirement. "Though Navy studies indicate no problem should arise in any of these efforts, the schedule necessary to accomplish two shots by 15 June leaves no room to remedy unexpected difficulties." For the Redstone, the nose-eject pod and the warhead adaption kit must both be built. The firing and fusing system used on Hardtack would be used again but with some modifications still to be engineered. As for the Thor, no significant modifications of the warhead-nosecone configuration or existing adaption kits would be required. A new firing and fusing system would have to be developed and the Thor has now been flown with the Atlas tail pods. In summary for this question, "On balance, it appears that significant engineering and development is required for the Polaris system. That needed for the Redstone is less by considerable degree,

and that for the Thor still less, although in the Thor case, it will be centered around the critical firing and fusing elements."

5. What systems test is possible prior to nuclear firing? Only for the Polaris is a prior systems test proposed by the service. A full Polaris systems test with a ship-missile-crew system could no occur before 1 May and at that very little time would remain to remedy any gross deficiencies. As for the Thor, the time required to prepare the fusing and firing set and incorporate the tail pods should allow conducting a test from Vandenberg within 2 to 3 months. A Thor systems test from Johnston Island could not occur probably before mid-May. As for the Redstone, a limited systems test incorporating the nose-pod and fusing and firing system changes could be tested in early April at Johnston.

6. Does the system have adequate technical flexibility? Providing the Navy schedule can be met, the Polaris has by far the most flexible system which would allow firing from a ship and counting down two missiles simultaneously to T-1 minute and holding there indefinitely. Additional shots could be performed with minimal time delay and no fixed land base would be required. The Thor can be counted down to about T-8 minutes and held there due to the short fueling time required. The Redstone, on the other hand, begins to be fueled at T-45 minutes and can only hold for periods up to 3 to 4 hours. Further difficulties arise after T-15 minutes when the batteries must be replaced if an extended hold is required. As for other considerations of flexibility, the Redstone is limited to about 800 kilometers altitude whereas the Polaris and Thor can get well over 1000 kilometers. All three boosters thus meet current requirements although future authorization over 800 kilometers would provide an obvious problem. In summary, "The operational flexibility of being able to operate from any chosen area on short notice gives to the Polaris a definite advantage over the other two systems. The simultaneous countdown feature and the long T-1 minute hold capability are also great assets. Of the liquid fueled systems, the Thor's longer hold capability at T-8 also gives a significant advantage over the Redstone. Yet, any of the three should be

capable of sufficient flexibility to permit the firing to occur under ~~xxxxxxx~~ opportune weather conditions and in coordination with other instrumentation."

7. Does each system give assurance of being able to accomplish the required program within available time? Assuming the Bluegill and Starfish events and a final cut off of 1 July, Starbird places a requirement of the second nuclear shot being done by 15 June to take into account delays. The Polaris, requiring ship conversion and a payload redesign could be scheduled for a test in early May, followed by the nuclear shots on 1 June and 15 June. However, unforeseen engineering, development, or ship-conversion delays could retard these dates and it would not be possible to advance either of the firing dates without foregoing the proposed systems tests. TheThor program which would include a Vandenberg shot should be capable of executing the two tests on 15 and 30 May, providing some time cushion. The Redstone would permit the greatest cushion with a certification tests at Johnston on the 1st of Apr. and perhaps nuclear tests at 15 day intervals thereafter.

8. Does each system give assurance against catastrophe and personnel injury? None of the three systems has yet provided an overall safety analysis or submitted complete hardware designs. The proposed warheads are 1 point safe. "As of now, no one of the three systems would appear to be ruled out by a lesser chance to give sufficient protection against premature nuclear detonation or nuclear contamination." As for the eye burn problem, Starbird states that we don't know as much as we would like to about this but he personally is convinced that for the shots planned, a firing from Johnston would be entirely safe at distances like Ohau.

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Starbird then goes on to make the following recommendations: "The Thor system, qualified by the system test described in a paragraph above be selected for the launch. My primary reason for selected the Thor over the Polaris is that it gives greater assurance of conducting the planned firings within the period allowed. My primary reason for recommending the Thor over the Redstone is the Thor's higher altitude capability and my belief that we may want to fire the 1000 kilometer or

higher shot during, or immediately after this series." His further recommendations include leaving the responsibility with the Air Force for organizing and conducting training of the Thor team as well as assembling the appropriate equipment while everything is in the conus. Following this the operational control of the team and the equipment will past to the Joint Task Force when the system comes to the Pacific. Also the Task Force and the Air Force must be given the highest priority immediately to prepare for the planned firings and Starbird states that he cannot emphasize too strongly the necessity for immediate action. Further, DASA must crystallize immediately the experimental programs to be built around the firings and initiate these programs. Starbird says that it is his intent "to assign a special assistant to the Scientific Deputy who will have as his sole responsibility coordination of the high altitude program." Finally, as a backup he recommends that a minimum program with relationship to the Polaris of conducting the necessary payload-missile R & D and test of the re-designed nose be carried out to provide a backup to the Thor until the Thor has gone through its certification test.

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A 7 December TWX from Betts to Hertford of ALO addresses Reeves request for urgently needed authorization to increase manpower and activities. Betts states that he realizes the urgency and the necessity, however, DMA cannot at this time authorize any further actions which might increase manpower ceilings or dollar committments but they expect relief from this situation probably within a week.

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A memorandum for Gen. Betts from Cel. Banks with DMA on 7 December covers a JTF8 meeting of 6 December with Gen. Starbird. Adm. Mustum, Gen. Samuel, Mr. Howell of H&N, Shuster of Sandia, LRL, Herman Herlin of LASL, Mr. Miller of ALO and others in attendance. Gen. Starbird made some specific remarks on the status of the planning for the atmospheric program and gave a rundown as follows: Program will consist of 20 to 25 diagnostic tests and because of the inability to use Eniwetok and the question on Christmas Island many of the test would be air drops in the open ocean south of Hawaii or adjacent to Johnston Island with some of the shots to be on ships. The best possible diagnostics are sought using Air Force capability and diagnostic trailers designed so that they can be used on either ship or land Starbird stated. The first shot would be planned for April 1 with the whole program concluded as soon as possible but by 15 June as planned. A skeletal organizational chart was presented by a Mr. Parsons of JTF8 showing the commander and the deputies and the line of command then through a chief of staff to four subgroups one of which would have the scientific

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groups, one Navy, one Air Force, and one a support group. As for financing Starbird mentioned effort was being made to try to reinstate an old AEC DoD agreement whereby each of the parties pays the total cost for an event based on to whom the event was of primary interest. A large amount of the discussion centered around the support requested of each of the individual services, the Navy, Air Force and Army, and enclosures to this memorandum are the formal drafts of the memoranda for the Chief of Naval Operations, the Chief of Staff of the Air Force, and the Chief of Staff of the Army as they would read from JTF8 to the respective services. Certains things of note on these enclosures are that on the Navy enclosure where the ship requirements are listed included is a request for six shot ships of the Liberty class which are to be expendable since they would serve as the platform for detonation of the near surface shots. Also included in the Air Force request list for support is a request for six B57D aircraft which was crossed out and changed to 10 and a note is written in that at this time only 3 of these were available for high altitude sampling and that others would be hard to come by. An LRL list of device by device readiness date for testing is contained herein as it was reported at the meeting and a note that LASL will provide a similar list for JTF is included. There was also some discussion of the missile requirements between Gen. Starbird, Don Shuster of Sandia Corporation, Dr. Herlin of LASL and Mr. Gale. In addition to the two shots that are planned, AEC is interested in a third shot with a yield of 50 kilotons or so at a few thousand kilometers to check out the capability of space testing as well as making physics measurements and doing some measurement relative to the Vela Hotel and Vela Sierra programs. There was agreement that the high altitude schedule would be set up to accommodate three shots in case one of the shots was a failure but that the likelihood of an added shot was remote.

Note that there is a copy of Joint Staff memo No. 5, 7 Dec. 61, which may or may not be in our other files.

By a 7 Dec. 61 message, the Chief of DASA (Booth) authorized the Commander of JTF-8 at Barton Hall to issue travel orders for military personnel assigned to JTF-8 as done previously for JTF-7.

A TWX DATED 8 December from AFSWC to numerous addressees on the subject of an upcoming visit to Johnston Island is interesting in that it names certain specific personnel who are involved at this time. From Douglas Aircraft Corporation are Jennings Simons, William Hooper, Roland Saye, B. P. Crass, Allen Hittendale, and E. L.Arthur. From Field Command, DSA, Major Walter A. Dumas is listed.

9 December U.S. Atomic Energy Commission announces, as result of study of Soviet test series, that "there is no reason to believe that the balance of nuclear power has been changed to favor the Soviet Union."

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Chairman Khrushchev says USSR has super-bombs even more powerful than 100 megatons.

~ December — NSC to President: states that, with 1 April start of atmospheric testing, mid-June and possibly 1 July is the earliest completion which could include very important high altitude tests. C

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A 9 Dec. memo for the Sec. of State from Phillip Farley, is on "use of RA Christmas Island for US Nuclear Tests-discussion with Lord Home." As background, Farley notes that both the Prime Minister and foreign Secretary of England will have to be convinced "that our proposed tests are necessary for maintaining free world security and that a sound and consistance public defense of resumstion of atmospheric testing can be made in the US ' He notes the reconnaissance party visit to Christmas during the week of 4 Dec. and the review by US experts with senior UK technical officials of the tentative testing program on Dec. 8. As to these 2 steps, he says "the two preliminary steps specifically suggested by Prime Minister Macmillan in his letter of Nov. 16 have thus been taken well in advance of the Bermuda meeting." Noting that preparations are continuing for testing without Christmas Island, he emphasis that the AEC and DOD are eager to obtain access to Christmas and briefly the reasons. He further states "if adequate preparations for any considerable use of the island are to be made, however, a decission to its availability is needed by the end of the Bermuda meeting." As for the suggested approach to Rush he states "it is recommended that you discuss this matter in Paris with Lord Home: you might (a) confirm that, while intensive preparations to test have been authorized, the President has not decided to resume atmospheric testing, (b) express the hope that US-UK technical discussions have shown that, in developing our tentative test program, we have followed the criteria

the President and Prime Minister have exchanged, (c) reiterate our strong interest in use of Christmas Island in view of the undesirability of re-activating Anawetack (?) (d) indicate the general terms we have in mind, and (e) attempt to ascertain the UK attitude and any specific dificulties which the British see beyond those raised in the Prime Ministers letter of Nov. 16.

As regards implimenting arrangements, we are willing to agree with the UK on the general nature, scope, and purposes of our test program, but would need to retain control of operations and flexibility as to individual tests. We want the UK to agree to take promptly the necessary steps to make Christmas Island suitable for conduct of our tests.

Tab A outlines a suggested basis of agreement concurred in by Chairman Seaborg and Dr. Johnson of DOD, which might be given to Lord Home with a view to making it an agreed minute at Bermuda if acceptable."

There follows the "statement of principles, use of Christmas Island in connection with United States Atomic Weapons tests."

In 11 December 61 letter from Betts to Hurtford, Bradbury, and Schwartz addresses the latest developments in decisions for high altitude testing as well as VELA HOTEL Modifications proposed by the Labs AIV

He notes the amounts of money requested by the two Laboratories in addition to the present VELA HOTEL budget in order to develop the capability on the same time frame as the present VELA program. He notes that both Labs have agreed to try to support the high altitude testing program within the time scales being discussed and concludes

Test bulletin #9 on 11 December 1961 documents a 6-7 December meeting with JTF8 in Washington attended by the authors of this bulletin, Gilbert and Gibbons. NF It gives the present status as documented in detail elsewhere which includes the following: no decision on whether the THCR, POLARIS, or REDSTONE is to be the high altitude booster; a preliminary list of support requirements must be submitted to the services as soon as possible so the task force can negotiate the support; out of these agreements will come the basis for an agreement with

[illegible] needed construction, support, equipment, etc; the series is to include 20 to 25 diagnostic events and 2 high altitude effects tests, and Enewetok will not be used and possibly not Christmas; "some shots will have to be made from shot ships either because the device to be tested is not 1 point safe or engineering problems prevent resolution of the airdrop problem; as for boosters, it is stated that the Polaris is the preferable system but, due to developmental work required, one of the two landbase systems will be chosen due to the time squeeze; the Presidents guidance is that the first shot be on 1 April 1962 (or earlier if possible) and the AEC and DOD are planning for the April date but trying to get something ready earlier in the event the political situation requires that option; as for the financial situation, it is stated that there is a definite lack of money and it is essential that the old AEC-DOD agreement be reinstated which provides that the agency with the primary interest in an event provides the funds for it; general plans for the ship borne operation are that Alameda will be the port of debarkation, that the ships should be available there in January 1962, and that two laboratory ships as well as two PMR ships should be obtained to insure as adequate capability; present plans are for six ships to be prepared for shot platforms with one requirement that each must have a helicopter pad to permit removal of the arming party. As for the location of the operation, the authors state that in order to get any advantage out of operating near Johnston, the operations must be carried out within 100 to 150 miles of the island and that the task force is leaning towards the location south of Hawaii whereas Ogle wants to use JI. Among other considerations are that the near Hawaii operation may cause shock waves (Tsunamis ?) to effect Hilo, whereas the Johnston location might present a fallout problem to Hawaii. As for selection of an area and designation of a danger area, Schuster will chair a meeting of the following personnel: Shelton, Stopinsky, Reed, Ogle, Shook etall, on 11 December

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1961, whose recommendations will be used by the JTF and CINCPAC. The use of Jarvis as a test island was discussed at some length, and Capt. Craig is to look into this possibilitywith the AEC and the Department of the Interior. As for the main diagnostic effort for Livermore it is stated: "although LRL would prefer its own carrier, it appeared that the LRL diagnostics could be carried out from the CVS. This ship would then combine the functions of LRL diagnostics, command and aircraft launching. Most of the trailers would be mounted on the hanger deck with Coax to the detectors on the flight deck.. Where necessary trailers could be placed on the flight deck." Numerous other details, particularly

A memo written by a Navy civilian named N. M. Brown of the Bureau of Yards and Docks on 11 Dec. reports on his meeting at AEC headquarters and his briefing on the possibilities of the Pacific atmospheric operations by a Cmdr. Stephens. The memo for the files seems to be considering the fact that the AEC retains the services of Holmes & Narver for engineering and construction, etc. in the Pacific area as necessary and that therefore the Navy Bureau of Yards and Docks might not be looked on with any great seriousness if they offered their services to Gen. Betts. This memo was forwarded by a cover letter to Cmdr. Stephens of the DMA Test Office from Brown who stated that it was decided that the Bureau would not contact either Gen. Starbird or Gen. Betts at this time but that if the services of the Navy Bureau could be utilized at some future time that it would be appreciated if DMA would get in touch with them.

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An 11 Dec. letter from Task Force Headquarters to the Air Forc e gives the latest concept of the upcoming atmospheric testing as follows: the two high altitude test already discussed; 15 to 20 air dropped devices over the open ocean south of Hawaii or Johnston Island or in the immediate vicinity of Christmas; one to five surface fired devices on the open ocean in the same areas as the air drops; 1 surface test, possibly on Jarvis Island. All are scheduled to be done between roughly 1 Apr. and 1 July 62.

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A TWX from AFSWC to the Laboratories, SAC, other Air Force Units, etc., on 11 December, Addresses a preplanning conference on additional aircraft and instrumentation in support of overseas nuclear testing. This conference to look at the problem of additional instrumentation needed on various aircraft, and whether these aircraft should be C130's or KC 135's is to be held on 19 December at AFSWC.

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studied to date were discussed in some length. The first of these is called WIRTS which means weapons intermediate range testing system and would allow the capability of testing at altitudes from 100 to 1,000 kilometers using boosters such as the Thor from Johnston Island and rocket-borne diagnostics. The cost of such a program is fairly moderate, less than 10 million dollars and the fall-out danger is quite small due to the altitude. If no contamination of the atmosphere is allowed, meaningful tests could be conducted at about 1 million kilometers employing the ASWT concept which stands for Advanced Systems for Weapons Testing, and this was the one study which would use the Atlas vehicles and would take anywhere from 9 to 24 months to be ready.

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A TWX on 11 Dec from Betts to Reeves of ALO, Shuster of Sandia, Ogle of LASL and Howell of H&N notes the plans for a survey trip by these gentlemen and Gen. Starbird and JTF-8 staff members to the Hawaiian area and Johnston Island starting on the 12th of Dec.

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A TWX on 11 Dec. from Betts to Foster and Bradbury notes the possible problems with the "Christmas tree" concept that LRL had been pushing for some time and that following the contamination problems arrising from such happenings as those following Antler and the situation arrising after Chena, there is considerable scepticism in DMA regarding this concept. These experiences plus other unknowns make a thorough and timely examination of the Christmas tree concept as opposed to the outer space testing concept immediately necessary. And due to the high cost involved with developing either one of these capabilities it seems clear to Betts that both of them can't be developed and therefore a choice must be made at an early time. He asks both LASL and Livermore to prepare a discussion of the advantages and disadvantages of the Christmas Tree concept and submit these on 14 Dec to the chairman so that an early decision and an early concentration of resources may be made.

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An 11 Dec. Memo for record written by Col. McMillan of the DMA Test Office is on the subject of "Pacific Islands Discussion with Representatives of Department of State and Department of the Interior". The meeting was held on 11 Dec to discuss the possible use of 3 U.S. islands, Jarvis, Baker and Howland. These islands have no inhabitants and are being thought of as sights for surface bursts. The Department of State has no concerns about these areas for political reasons, however, they are concerned with the fallout problem. Also the matter of the birds on Jarvis Island was discussed but didn't seem to generate much concern. The conclusion was that there are no domestic or foreign policy problems which seem to preclude the use of the islands for the conduct of the proposed tests and that to proceed separate letters should be sent to the Departments of State and Interior stating the proposed uses of the islands outlining the safety aspects and requesting approval. Both State Department and Interior Department Representatives felt that an affirmative answer would be forthcoming.

On the 11th of December it is clear from a TWX from Betts to AEC personnel that the trip to JI will now include General Starboard, JTF8 staff members, Jim Reeves for Bob Miller, Ogle, Schuster, and Sam Howell of H&M. BN

A message from Betz to Hertford and Reeves on 12 December 61 notes that the proposals to expend weapons funds for certain activities on Gnome and Hard Hat to perform activities to investigate the Christmas Tree concept is not approved at this time since the Christmas Tree concept has not been approved. PD

A 12 Dec. 61 message from Hertford to Foster, Bradbury, and Rex in Las Vegas gives a number of details in relation to the proposed NTS schedule due to budget questions at this time. He states that there is in process a request for a deficiency allowment pending a supplemental budget which it is hoped will be transmitted to the budget bureau and executive department shortly. The requests for authorization for construction and such that was forwarded by Hertford, apparently to Headquarters, AEC, deleted about 7 to 10 holes and drifts at the NTS and is contemplating dropping 6 other items. He notes that 32 holes for FY 63 have been added in lieu of partial tunnel work. Also, "the funds for post-shot Hard Hat and Gnome were left in but I am not approving this if it is for Christmas Tree or Plowshare effort." As for an update to this status, "We are to receive within the next few days a further increase in FY 62 funds. This increase will permit funding into Jan. and committments NQ

for off continent work. Committments toward use of Christmas Island should not be made at this time."

The AEC in Las Vegas transmitted to Al Graves a proposed statement on the subsidence crater formed as a result of the 3 Dec. test. Apparently this was the first such crater formed and the paper contains the details of what took place following the tests and proposes that a public announcement be made. Washington would have to approve the proposed announcement. The event was Fisher, the largest to date in Nougat, being over 10 Kt. 13.5 KT announced yield

NQ

By a 12 Dec. message from Headquarters AFSWC to LASL, the Air Force, and others, the planning for a conference on additional aircraft and instrumentation in support of overseas nuclear testing is discussed. It is noted that two C-130 aircraft are already being outfitted with instrumentation gear, and the subjects to be discussed at the conference are additional aircraft, additional instrumentation for another C-130 or for a KC-135, applicability of the different aircraft and diagnostic instrumentation systems to various tests ~~scenarios~~ scenarios, such as balloon shots, high altitude shots, etc.

HI

Here is a summary document as of 12 Dec. 1961 which was sent by the Chief of DASA to the Sec. of the JCS with the title, "Weapons Test Plans and Preparations," and summarized the decisions and activities of JTF-8 to date and enclosed suggested memorandum for the Chiefs of the three services as well as a memorandum with instructions for the Commander of JTF-8 which, if approved, would be sent to those gentlemen to provide the instructions for their support for Dominic. Actions taken to date for and by JTF-8 are as follows: the staff is operational in Barton Hall and is referred to as "DASA Annex." The JTF-8 commander, having analyzed the available launch systems, has recommended the Thor be used for the high altitude tests and that DASA concurs. AEC and JTF representatives have inspected Christmas Island, are on route back, but no final authority for use has been secured. The JTF-8 commander has arranged for Bill Ogle from LASL to serve as Scientific Deputy; he will also serve as Director of all scienfific and experimental units. Details of the scientific and the other task groups are noted. As for the concept of

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operations, "It has been determined that preparations for the open sea operation to accomplish AEC development objectives must start immediately and be placed on the highest priority basis if the proposed schedules are to be met and satisfactory diagnostic information gained. Instrumentation must be installed, on a highest priority basis, aboard ships and aircraft and in certain locations ashore. These requirements are being coordinated with those listed above. To rely solely on airborne diagnostic will reduce materially the quality of the measurements gained. Some 75% of the diagnostic shots can be delivered to the detonation point by air drop. Some 25%, however, may require a surface platform and Liberty ships can be used for this purpose. A remote unpopulated island may be necessary for 1 event and the AEC is investigating this matter. . . . To assist in making rapid movement to Christmas Island or other land mass, if this becomes desirable, AEC shipborne instrumentation is being mounted on trailers, and the control ships and the Hawaii aircraft bases could be used to the maximum extent possible to substitute for ground installation which would require extensive construction."

As the formerly designated systems test (Asroc) was assigned to the Navy and is now designated an underwater effects shot, the Chief of DASA feels it should be the responsibility of DASA and JTF-8. Finally, the Chief of DASA requests that the enclosed memoranda for- the Chiefs of the Services which detail the concept of operations for Dominic as well as the specific requirements for each service be forwarded after approval by the JCS. The requirements for the Navy are as follows:

1 carrier at a West Coast shipyard on 20 Jan. for installation of instrumentation and use as the headquarters ship for JTF-8 and the scientific group during the period 15 Mar. to approximately 1 July.

3 LSD's operating in the forward area on 1 May as launching platforms for firing instrument sounding rockets and as instrument receiving ships.

1 LSD at Pearl Harbor on 5 Mar. to function as a "tender" for deep sea mooring of shot ships and aircraft positioning barges.

Two destroyers to be on station on 15 Feb. in various locations in the Pacific to function as weather stations taking upper air observation.

8 destroyers or destroyer escorts required in Pearl Harbor, half in March and half in May, with the first half needed for conducting surface surveillance patrol and the second half required for "pod recovery" operations and as instrument receiving platforms for the high altitude portion.

1 destroyer equipped to fire the ASROC.

4 LST ships in Jan. and Feb. to provide transport for the build up, support, and roll up of Johnston Island between Pearl Harbor and Johnston Island.

4 PMR class ships required, 2 in Feb. and 2 in April at a West Coast port, to be outfitted with scientific gear in trailers and function as laboratory ships for the air drop portion of the operation and later for the Johnston Island portion.

6 Liberty shot ships required at a West Coast shipyard on 2 Jan. to be expendable and used as platforms for the detonations. They will be moored in deep water, will required special instrumentation and certain modifications, and should arrive in the test area by 5 Mar.

16 Navy aircraft required at Barber's Point on 15 Mar. to conduct air surveillance and anti-submarine patrol in the open ocean and Johnston Island areas.

16 helicopters required on board the carrier by 15 Mar. to provide close in air surveillance as well as recovery of scientific instrumentation and certain logistic support. Numerous additional aircraft and ships to provide rescue, logistics, towing, scientific support, etc.

Likewise, the Air Force requirements are listed as follows:

8 C/135 aircraft, 3 required by 15 Mar. for sample return missions and 5 more required by 15 May for optical and photographic measurements at very high altitude in connection with the high altitude tests from Johnston Island (1 to be in the

conjugate area).

2 B-52 aircraft required by 1 Mar. for air drops.

2 RC-121 aircraft required by 1 Mar. as airborne control aircraft.

12 B-57 B/C required by 15 Mar. for medium altitudes sampling.

10 B-57 D required by 15 Mar. for high altitude sampling.

3 C-130 required, 2 by 15 Mar. for low altitude diagnostic measurements and one additional by 15 May for high altitude diagnostic measurements.

2 U-2 by 15 May for very high altitude weather photography.

10 WB-50 by 1 Mar. for weather reconnaissance.

1 VC-121 by 15 Feb. as a transportation aircraft for commander and distinquished personnel.

3 C-54 by 1 Mar. for documentary photography.

13 C-118 or C-54, 1 by 15 Jan. to support logistics at J.I., 1 more by 15 Feb. for the same purpose, 1 more following a decision to operate at Christmas for logistics build up, and 10 more by 15 May to support the DOD retinal burn experiments.

8 helicopters to provide transportation following a decision to operate at Christmas Island.

12 December	Harold Brown to President: says not all HA shots can be done in series but those that can are of utmost importance. July cut-off allows only 2 HA effects tests,
12 December	Betts tells Labs to assume no termination of underground testing in near future and atmospheric testing to begin in April 62. Requests details of desires for underground and atmospheric shots and asks Reeves to have the NTS Planning Board make up an overall detailed schedule.

A 12 December TWX from Betts to Bradbury, Foster, and Reeves directs that they reevaluate their underground tests program and come up with proposed underground testing programs in light of the following considerations:

1. Assume that the underground test program will not be terminated in the near future.
2. Assume that an atmospheric test program will begin about 1 April and will

7. A 12 December 61 message from Betts to the Lab directors Reeves and Hertford asks the laboratories and field offices to come ~~***~~ up with a most FJ

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realistic schedule for the future underground program and atmospheric program which he wishes the NTS Planning Board to consider and pass on to him. He emphasizes that it should be assumed that the underground program will not be terminated in the near future and that the thinking should address a "long pole" type of operation and this seems to be the first time that such an assumption is directed by Headquarters AEC. Bradbury responded directly to Betts with the LASL shot list and his feelings about why such shot lists must be taken with a grain of salt no matter how realistic they are supposed to be. Since the NTS Planning Board members couldn't be assembled in the time requested by DMA, Reeves sent a rather lengthy TWX on 18 December to DMA after a meeting of the field personnel including the NTS contractors and excluding the labs in which they tried to estimate the work load and give the various alternatives for length of workweek, length of workday, requirements for hiring additional personnel etc. etc. This TWX I believe led Livermore as documented in other notes to complain about the field offices taking unilateral action that effects the laboratories testing programs. The next NTS Planning Board meeting which did consider these schedules in detail was held on 3 January 1962 and is documented in other notes.

12 DEC

A 12 Dec. TWX from Bradbury to Gen. Betts addresses the Christmas Tree concept and in general, states plainly LASL is prejudiced in favor of use of vertical holes as opposed to tunnels or the Christmas Tree configuration. As for outer space testing, Bradbury stresses that he feels the development of such a capability should be explored in Bluestraw, and that LASL would like to again press for the inclusion of a very high altitude shot, like 1000 kilometers. He feels the purpose of such a shot would be primarily to explore diagnostic techniques of a known system and only in a secondary way to observe the bomb debris behavior and geophysical interactions. LASL believes that such a shot would be cheap compared to a full Christmas Tree attempt and Bradbury understands that Foster supports the idea of a space shot directed toward the similar objectives.

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In a TWX to the labs and ALO on 12 Dec. Gen. Betts outlines the letters from Seaborg to the President on the NSC Committee shot list and recommendations for schedules etc. for an atmospheric test series as well as some of the President's feedback following the initial letter and asks that the labs continue planning for atmospheric testing according to this guidance. Among other things he notes that the President has not approved the atmospheric test list, nor has he approved the test period between April 1 and June 15, nor has he made a final decision on the actual resumption of testing.

In a TWX on 12 Dec. Betts asks Bradbury, Foster and Reeves to continue considering the question of ← COMPLETE ? NO — CLASSIFIED! *

On 12 Dec. Betts sent a TWX to Bradbury in regard to a letter from the DDR&E to Seaborg on 1 Dec. That letter referred to the gray area of responsibility for certain types of test measurements between the DOD and the AEC. The problem area has to do with a particular effects test which the DOD felt was being generated by LASL for the Army and hadn't been properly handled in that DASA should have responsibility for arranging and planning for effects tests as this was felt to be. The letter from DDR&E to Seaborg discusses in a little detail the historical and legal division between responsibilities for weapons tests diagnostics that affect performance and design of the weapon as being the AEC responsibility and output measurements and measurement of effects caused by weapons output as being the DOD responsibility. Betts is asking Bradbury for assistance in preparing the Chairman's response to the DDR&E letter and is taking the approach that this particular device, which is a warhead for the Nike Zeus, must have the military characteristics and in particular the neutron output spectrum verified and that therefore this is actually a test for diagnostic measurements that affect performance and design of the weapon. Not only does Betts feel that there is misunderstanding between whether this is a development test or an effects test, or a test by some other name, but that also there was a question as to where the request for the test came and that Betts feels that it came from the DOD to the AEC and not as alledged from the Army directly to LASL.

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sent the President a rather lengthy letter on 12 Dec. addressing the justification, for the need for and the specifics of the various tests which should be included in or should not be included in an atmospheric test resumption. Although Brown was a member of Seaborg's committee which had submitted a couple weeks earlier their own position, Brown comments here on the specifics of that. I believe he makes a strong justification for the need for development tests, as well as effects tests, and he makes some rather convincing

arguments about excluding several tests not biased towards either laboratory from the overall list as well as pointing out that the overall systems tests of the antisubmarine rocket, the Polaris and the Atlas, while highly desirable if they can be done on essentially a non-interference basis, are certainly not necessary completely for our confidence in these systems.

A 13 Dec. TWX from Graves of LASL to Col. O'Brien of DMA discusses in some detail the need for land-based diagnostics and the importance of being able to pinpoint exactly the device position relative to the instrumentation if such land-based diagnostics and precise accurate positioning is possible.

A 13 Dec. TWX from Bradbury to Betts addresses (CLASS.)

Here is a ~~let~~ set of minutes written by D. Sherwood of ALO on 15 Dec. covering a 13 Dec. meeting at ALO on the high altitude test program. Most of the attendees were from Sandia or LASL with a few from Livermore and DMA and ALO represented. It was at this meeting that the various companions rocket requirements were discussed and Mid-way was decided not to be required whereas it would be desirable to launch 2 Journeymans from Point Arguello. The thinking at this time is that these missiles would be launched approximately 7 minutes before the Thor in order to attain the proper apogee for a line ~~site~~ sight to the 400 kilometer shot. Support at both Johnston Island and Kauai for companion rockets was also discussed.

Here is a 13 Dec. letter from Gen. Booth to Betts on the subject of Fishbowl. He briefly gives the details of the 2 shots planned to date and the means of carrying them out as well as the tentative schedules and notes that Don Shuster and Herman Hoerlin have already had some conferences with DASA staff on these tests. He requests that DMA determine to what extent the AEC labs might be able to participate so that coordination may be done.

13 December — At WWG, LASL participation for Operation Blue Straw (surface, air drop, and high altitude) was discussed. Need to conduct Nougat shots Germane to Blue Straw (1 April to 15 June) as soon as possible was decided and planned. Westervelt reported an agreement had been reached for LASL to test a UK device at NTS.

61

Keto to Reeves message on 13 Dec. on possible mid-Feb. 62 shot for U.K. HP Cost estimates, alternative, etc. are detailed and information is requested. Situation is somewhat confused.

BZ

AFSWC History Office

A 13 December in-house memorandum in AFSWC notes that planning group called the Nuclear Test Directorate with office symbol SWS has been formed within the AFSWC to handle the planning for and preparations for any Air Force support of nuclear testing. Approximately 15 personnel from other areas and within AFSWC have been assigned to this office which is under the direction of Colonel Paul Wignall.

61 NQ

A 14 Dec. message from Bradbury to Betts, in addition to updating the underground test schedule at NTS, notes for the first time that I have seen that even after the start of atmospheric testing (proposed for 1 April), underground testing will continue indefinitely at the NTS.

Note that in the updated Livermore underground shot list transmitted to Betts on 15 Dec., of the 30 possible tests through Aug. 62 for Livermore, 14 of them are proposed for Area 12 tunnels. This was just prior to the Feather event (which vented) and following Feather, there were only additional tunnel shots attempted in the time frame before the end of Aug. in fact.

61

On 14 December, Foster sent a message #BYX-61-206 to Commissioner Leland Hayworth, Attention: Chairman Seaborg. The message particularly addresses the use of Pacific Islands and begins "This TWX is in response LY to a request from the Chairman during his visit here for an early reply concerning

the latest feelings of LRL with regard to the use of Christmas Island for the forthcoming test series. We continue to feel that Christmas Island can represent the most desirable test location for the atmospheric series if it can be made available for exclusive use by the U. S. from January 1 through July 1... In addition, diagnostics which we could expect to obtain will be superior to those of any other available location. For example, which require alpha diagnostics, could be adequately diagnosed with the balloons at Christmas Island. Tests at these yields can of course be done underground more expensively at a much slower rate.....A further general advantage of Christmas Island would be the opportunity to fire a large number of devices fixed at altitudes by balloons. This procedure minimizing the probability of component malfunction." He goes into further detail on the Sioux Vulnerability Experiment which requires that a number of samples be placed on the surface in the vicinity of a nuclear explosion and, whereas, NTS would be the most suitable location, if not possible there, then Christmas Island would be the next best choice since it cannot be done on shipboard. Also, conducting this test underground raises questions about the feasibility of sample recovery and information transmission. Thus, in summary for Christmas, "If use of the Island would impose limitations on U. S. authority in direction of the test program, types of devices or number of shots, then the Lab would recommend selection of another site. In the event the Island is not available for a series this spring, we would still urge that arrangements be made to provide assurance on the use of this facility for future nuclear programs." He notes that he has had discussions with Starbird on a possible shipgoing operation which would also utilize Jarvis Island and that, by and large, the major Livermore objectives can be achieved

by such methods. He feels the Liberty Ships would make suitable shot platforms but Livermore feels the presence of such a large ship may disturb the radiochemistry to the extent that the samples may be questionable. Note that this message was certainly used by Commissioner Hayworth as an input to his letter to Bundy on 15 December which is documented in File Notes A.

- A TWX from Bradbury to Betts on 14 December responds to the 12 December request from Betts for an updated underground shot plan with the LASL plans covering the time period up thru June 62. CU
- On December 15, George Cowan sent a memorandum to Bradbury addressing the letter from Bethe on 5 December. As for prompt sampling on underground shots, the experience to date since September has been very poor but the Fisher event has yielded the first useful prompt radiochemical sample in the multi-filoton region known to Cowan. As for a delayed sampling, the time delay has been one to two months and may come down to approximately three weeks and is reasonably accurate in determining yield for single stage devices but for multi-stage diagnostics determinations are relatively poor. LASL drill-back problems In contrast with Livermores has been greater since it is more difficult to drill in uncompacted alluvium than it is in compacted tuff. As for the question of tunnels versus holes, Cowan feels Bethe is making his conclusions based on certain recent overly optimistic LRL's statements and that the stemming problem in tunnels still exists whereas the only significant advantage of tunnels over holes is the added ease of line-of-sight experiments and does not exist in the realm of sample recovery. CU

14 December — Bradbury replies to Betts' 12 December message with LASL desires through June 62 but expresses hope that the President will soon realize such detailed advance planning is so temporal and changeable as to not last very long. B e

Here is a letter from Taschek to Scott at Sandia on 15 December 61 which is unrelated to VELA HOTEL. It is the LASL preliminary request for diagnostic rocket capability for the high altitude tests and includes mention of KAUAI, possible use of Midway if the warhead tumbles or is "laid over" on its side, and Point Arguello or other west coast launch site for the highest altitude of the detonations. NY

The progress report covering thru 15 Dec. 61 mentions under the heading of hydrodynamic techniques experiments being planned

1

There are other discussions in these early progress reports of such experiments going on at some location, I assume 410, with results being obtained by this group. The discussion in this report of the Gnome event emphasizes the myriad of problems that the people ran into with the equipment once it had been shipped to the field, due in part to the poor prepara

for shipment and the fact that certain data was salvaged because of the efforts of personnel in the field. After a brief discussion of each of the NTS events being planned and prepared for and some of the problems there due partly to lack of personnel, the Pacific operation is noted as not having any progress in certain due "to absence in the field of appropriate personnel." Furthermore, and significantly, the development of the "electronic oscilloscope recording system actually regressed due to scavenging of its components for use in operative NTS systems."

As of 15 Dec. 1961, AFSWC has done a large amount of work on a distance measuring equipment (DME) system for use in the upcoming air drops. This is reported on by AFSWC to Systems Command Headquarters as of the 15th of Dec. and it is by no means a completed project as of this date. The reports of the three tests of system that has been developed to date have not yet attained a satisfactory drop test where the drop shape with the transmitter was able to be tracked by the three aircraft (2 C-130's and B-52). The goal of the system is to obtain accuracy of .25% over ranges of 15 miles and the tests to date have included some air borne tests over White Sands. This brief study outlines the future plans to modify the system and continue testing it until if is satisfactory.

HR

61 A 15 Dec. message from DASA to the Air Force and the Navy notes that the McMillan panel has been studying the Fishbowl effects program and made a strong recommendation for exposing a full scale ICBM re-entry vehicle or vehicles on the JB Starfish event to observe missile vulnerability. The RV would be instrumented to measure neutron heating and x-ray effects and would be recoverable. The RV would be rendered inert.

61 Here is a 15 Dec. letter from Gen. Booth to Headquarters Air Force informing them of the JTF-8 decision to use the Thor for Fishbowl. Among the details of the JE tests to be performed, it is stated that 3 pods will be deployed from each missile for each test and that for the Bluegill event, a propelled pod should be provided on the nose of the missile. DASA has previously funded for the design and test of such a pod with Chrysler as part of Willow planning. It is requested that the Air Force consider this particular design even though it was designed for the Redstone system.

A 15 Dec. TWX from Foster to Betts contains the planned LRL underground test program for Dec. 61 through Aug. 62 and includes shots.

On 15 Dec. Bradbury sent a rather lengthy TWX to Gen. Betts on the subject of DOD and AEC responsibilities as brought up by the recent DDR&E TWX to Betts and the question of the so called effects test of the 50 X1Y2 device. Bradbury makes a strong argument for the misunderstanding DOD seems to have of just what it is that the AEC has been responsible for in weapons testing for years and points out that it was the responsibility of the AEC to develop weapons and make appropriate diagnostic experimental measurements towards this objective and in addition, to provide by calculation or direct measurement for the using agency the definitive information regarding the fundamental output of those bombs. This, of course, specifically includes the spectrum measurements in such areas as x-ray and neutron outputs, which is often required by the DOD. He goes into some detail on what he feels is the proper definition of the weapons effects responsibility which the DOD does in fact have, and makes the following statements: "We believe the AEC should understand these words to mean the effects which are caused by the use of nuclear weapons on systems or things of DOD interest, for example structures, communication, etc. The effects of nuclear weapons on nuclear weapons are an AEC responsibility as is the determination of the actual eminations coming out of the detonating nuclear system. The latter should not be considered to be a "weapon effect." It is also important that the AEC ascertain whatever it can about the phenomena associated with nuclear explosions whether of immediate interest to the DOD or not." Dr. Bradbury also discusses the theoretical role of DASA as a collection and sorting agency for the various services within the DOD and feels that the AEC should have no objection to them acting as such but sort of wistfully wishes that they in fact could act as such instead of having the various contractors and services come directly to the AEC and the labs in so many cases.

A letter from Commissioner Leland Haworth to Mr. Bundy, the President's special assistant for national security affairs on 15 Dec. addresses the advantages to be gained by having Christmas Island available for the test series. The summary of the letter reads "To summarize, the availability of Christmas Island by Jan 1962 for the coming series of tests would be highly advantageous in that it would permit the conduct of a more extensive, more carefully instrumented, and operationally simpler program with greater assurances of attainment of test objectives. Even if use in this series were limited by shortage of time, availability for subsequent series could be of great importance. However, ~~two~~ rigorous restrictions imposed by the British, particularly on the content of the test series or on our freedom of control, could largely, or even completely, nullify the potential advantages." Mr. Haworth concentrates some length in his letter on the subject of the desirability of having the island base for the most accurate and proper diagnosis and output measurements of the tests themselves. He makes a very strong point as to the need for a fixed base and at most desirable a land base for diagnostic instrumentation to carefully pinpoint its position and also the desirability of having the detonation carefully located and he compares the use of Christmas Island either in conjunction with airdrops or in some cases balloon tethered shots to the diagnostics problems with having an open ocean series where the devices would be either airdropped or on ships in some cases and the instrumentation would be largely either ship-based or airborne.

A 15 December TWX from the Chief of DASA to the Chief of Staff Air Force and the Chief of Naval Operations begins with the following: "McMillan panel in studying effects programs for Fish Bowl has made strong recommendation for exposure of full scale ICBM re-entry vehicle or vehicles on the Star Fish Event to observe missile vulnerability." DASA asks that the services advise them of feasibility of this proposal by 22 December.

A 15 December TWX from AFSWC to AFSC details the latest in sampler aircraft requirements as seen by this agency. It is stated that a letter from the Chief of DSA to the JCS has stated that the requirement is for 22 sampling aircraft for Bluestraw, divided into 12 B57B and 10 B57D aircraft. AFSC is urged to assign to the airweather service 6 more B57D aircraft and major repair of one D aircraft will be required to satisfy the requirements. Further augmentation of B57B's is not requred.

A 16 Dec. TWX from Foster to Gen. Betts on the subject of the gray area between AEC and DOD responsibilities states the following: "Specifically my understanding is that the AEC has responsibility for warhead design and output, including blast, x-rays, neutrons, and gamma rays. The "gray area" is the transmission of these effects. The DOD responsibility is the response of military equipment and personnel to these effects. This position seems adequately covered in Starbird's letter to Dr. Brown, Director, LRL, on Nov. 23, 1960." Foster goes on to say that he doesn't feel there is a gray area involved in the request for LASL to make a measurement on the radiation produced by the warhead being questioned here, as well as he feels there is no question on the 1000-kilometer shot which he feels are both appropriate experiments for the AEC to perform if it so desires.

635 Christmas Island

Correspondence in mid-December 1961 indicates that the advantages and disadvantages of either having islands based and fix shot location testing versus having an open sea shot location with measurements being done from either fixed or mobil sites as possible is well under way. A TWX from Al Graves to DMA on 14 December seems to indicate that LASL was fully behind having available an island such as Christmas for fixing the position of the diagnostics as well as the device detonation location.

BM

Here is a copy dated 17 December 1961 of Bill Ogle's Christmas Island trip report to Gen. Betts. The visit was made from 5 December to 11 December.

A TWX on 17 Dec. from Mr. Reeves of ALO to Gen. Betts seems to be addressing the need for information by the beginning of work on Dec. 18 by a man named Anderson of DMA and Reeves is stating there is no time to call a planning board meeting to arrive at the information requested prior to that time but he presents the information as ALO is able to come up with it in this TWX. Apparently, based on the current LRL and LASL underground test schedules, ALO was asked to come up with detailed cost and schedule figures and to discuss and perhaps address various alternative methods of saving money and improving schedules, etc. The TWX goes into a great deal of detail on the advisability of hiring extra crews at the NTS, of working extra shifts, of changing the number of hours per work week, of shutting down rigs for week-ends, etc.

On 17 Dec. Bill Ogle sent a report on a summary of his visit to Christmas Island to Gen. Betts which is enclosed here and I believe we have a copy of at LASL, the number being JO-541. I will quote here the conclusion of this report. "While Christmas Island is not developed to the extent that is Eniwetok-Bikini, it could be made into an emminently satisfactory site for atmospheric tests. The main point that strikes the observer immediately is that there is so much space, all flat. Air fields, parking ramps, etc. can be as large as necessary. Buildings need not be crowded together, scientific stations can be properly placed.

A

There is no serious fallout hazard. The weather is good. The site seems to be ideal for balloon sites and air drops. It is more difficult for barge shots because of deep anchorage. But experience would probably teach us how to do even this properly.

While there are many problems, it appears that the most serious ones that arise in considering a quick operation have to do with the technical facilities, in particular those concerned with Alpha. For longer ranged planning the main problem is clearly that of docking facilities for large ships.

Therefore, from an operational and technical point of view, Christmas Island is to be highly recommended. Politically of course, the finger may point elsewhere."

Box 558

PI

This box contains the 17 Dec. 61 trip report by Bill Ogle on his visit to Christmas Island earlier that month. It is document No. JO-541 and is contained in the first folder in the box.

This box also contains information on Pacific and NTS building and land programs thru the period of interest as well as some security and classification notes from Dominic.

Correspondence in the last half of December of 61 indicates a possible visit by Fleming of Livermore to England to discuss the problems of B-57 sampling of air bursts, apparantly to get information that the British acquired on their use of these aircraft. A letter from Foster to Betts on 22 December notes that LASL desires to send Paul Guthals along with Fleming and that Livermore prefers ~~xxxx~~ the week of 15 January for the visit.

JT

An 18 Dec. memo from Col. Anderson, Deputy to Gen. Betts, to Gen. Betts discusses the results of a meeting with Gen. Starbird and includes the following items among others. DMA has issued authority to ALO authorizing Reeves to direct H&N to begin hiring personnel immediately and H&N plans to have about 1000 people ultimately involved in the JTF operations. The first DOD high altitude shot is scheduled for 7 May at Johnston Island with actual work towards this date beginning at Johnston Island on Jan 3. It is stated also that Johnston will not be used as a base for sampler aircraft. The Honolulu newspapers have written a couple of articles which are regarded as "surmise" articles, addressing the H&N hiring. The JTF generated cover story is that the hiring is for strictly DOD work at Johnston Island for construction, rehabilitation and service support for Johnston Air Force Base. As for funding for Johnston Island build-up, it is tentatively decided that DOD will pay for construction which relates to the DOD technical program, whereas the rehabilitation of the administrative facilities will be paid for by the AEC. As for the Johnston Island management it is planned for an agreement to be negotiated such that JTF-8 will take control of J. I. from the present controlling agency which I believe is PACAF and will negotiate satisfactory agreements for use with the present users. H&N will then provide the support facilities and the AEC will be reimbursed for the costs that are attributed to non-JTF users. Operational drop aircraft and sampler aircraft are planned to be based at Barbers Point Naval Air Station with only minor additional facilities needed there. The remainder of the Air Task group will be based at Hickam and there is a need for at least $100,000 to be spent there to build and rehabilitate barracks buildings. Furthermore, the MATS freight terminal at Hickam which is presently jammed to capacity will require some additions for the JTF needs. JTF headquarters will be located on Ford Island and the Navy has agreed to the use of the buildings there which are in need of some repair. Gen. Starbird feels the AEC should pay the rehabilitation costs listed above for Ford Island and, I believe, Hickam also, based on the fact that the requirement of these facilities arises primarily from the AEC development shots.

A

A

There are a couple memos from the AEC secretary on about 18 Dec. noting the fact that a response to Dr. Harold Brown's letter on the subject of the atmospheric test series be prepared and that Gen. Betts of DMA will be preparing a reply.

A

Here is an interesting message from Reeves to Betts on 18 December 61 which is documented briefly in the NTS planning board notes but a few specifics ought to be mentioned. Based on a request from Betts on 12 December, Reeves makes certain estimates such as total fiscal year costs for testing of 121 million for FY-62 and $28,000,000 for FY-63. The drilling program for the program set out by Betts requires a 56 hour work week (7 days) on three shifts, with drilling support activities and construction of surface facilities requiring a 54 hour work week on the average. Reeves estimates the amount of drilling and the fact that it will require additional personnel to be hired immediately and sets out various interesting statistics such as that there are presently about forty rigs on rental at an average rate of about $25 per hour which is equivalant to $1000 per hour just for the drill rigs and thus, if work is shut down on the week-ends, which would amount to $48,000 of rental money wasted each week. In general, he seems to be arguing against adding a fourth shift to cut down the pay per man and jutifying the fact that the hours cannot be decreased at this time in order to meet the planned shot schedules. As for the area of tunneling, the average work week required to meet the schedules is fifty-four hours and even at that additional personnel are needed to be hired immediately, which among other problems, will tax the presently overcrowded state of Camp 12. In the area of tunneling crews he is arguing for both more people and more facilities.

JI

Around the last week of December, the AEC is making estimates from their Field Offices and from their contractors, such as H & N for Washington on how much the expanded overseas atmospheric program will cost under various assumption and how the costs should most appropriately be split between the DOD and the AEC.

An 18 December TWX from Headquarters Air Force to Systems Command starts off "the DASA has made the decision to use the Thor Missile in Operation Fish Bowl." AFSC is assigned the responsibility for Air Force participation in this project and will support DASA with the firing of two missiles from Johnston Island suitably modified and instrumented; the addition of three pods to each booster. Such pods have been designed and tested by Chrysler Corporation as part of the Willow Planning. Although this was done for the Redstone System, preliminary information is that the design is compatible with the Thor. One Thor confirmation test is to be done about 1 March. Two additional missiles are to be suitably modified as backups. The weapon effects program for DASA is to be delegated to the Commander of Field Command. The Chief of DASA is responsible for overall technical management of Fish Bowl and will coordinate the instrumentation to be placed in the pods.

BZ

In the letter from Ramey referred to two items back, dated 18 December 1961, to General Ludecke, Ramey notes that there were previous oral discussions in December between Betts, Senator Jackson, and Ramey who was executive director of the JCAE. The discussions concerned selection and priority of weapons tests in the event the U.S. resumes atmospheric testing and Ramey says "In accordance with the above discussion, it would be appreciated if the commission will prepare for the information of the Joint Committee a set of alternative lists of tests in order of priorities dependent upon various limitations, variations and asbumptions as, for example, if there are no limitations on atmospheric testing compared with limitations on total yields, size of blast, and location of detonation."

BL

- On 18 December, Sam Howell of H&N sent a letter to Sherman Sullivan of AEC (Los Angeles) on subject of "feasibility study, shot barges and other vehicles." This is an update and expansion of information included in a report titled "Feasibility Study, Shot Barges" dated February 1960. Five different types of barges are discussed, known as a Type I, Type II, etc., and their availability adaptability to rapid transit, forecasted delivery to forward area, and outfitting as shot vehicles is discussed in some detail. As for handling them as shot vehicles it is noted "the Eniwetok Proving Ground provides suitable facilities, but other sites thus far contemplated do not have sufficient depth of water for movement of outfitted barges to sea, or the use of existing dock facilities would impose a considerable handicap to cargo handling, Therefore, it is recommended that unless EPG is utilized, outfitting of barges should be accomplish at a shipyard in the Honolulu area, for sites thus considered." Howell notes that a study by H&N of deepsea moorings is continuing but that another method is presented here for positioning vehicles in the open sea in the event that anchoring shot vehicles in deep water is not feasible. This method is known as Project MOHOLE, and a drawing of the proposed vessel known as Cuss I is provided. Thru a combination of radar, sonor, and outboard motors working in conjunction with underwater buoys and special reflectors, the vessel will maintain its own position within about 250 feet. C

- On 19 December, Conrad Longmire sent a message thru Betts to Panofsky who apparently was working with Spurgeon Keeney with the administration at this time. The major thrust of this lengthy message was to provide justification for the effects tests being considered as well as general justification for doing nuclear effects tests at all. One of the major arguments of course was that as long as the Russians did not test and therefore did not learn specific and discreet effects of various weapons, the U.S. probably would not be losing any advantage; however, since the Russians seem to have been doing such effects tests in their testing to date as well as operational systems tests, there is an urgent need for the U.S. to do some effects tests of their own. Longmire addresses certain questions on which these test should throw light, including EMP, Blackout, XO atmospheric C1

On 19 Dec. Mr. Batzel of LRL sent a TWX to Gen. Betts on the subject of the desirability and feasability of pursuing the Christmas Tree concept which Betts had earlier requested comments on. Mr. Batzel goes into some of the details of the desirability of having tunnels for improved diagnostics on detonations as opposed to using just holes, and he discusses some of the engineering problems and stemming problems involved in both holes and tunnels. As to a recommendation about pursuing the Christmas Tree concept he states "In the light of our existing experience, LRL also has reservations about the feasibility and desirability of starting construction of a Christmas Tree facility at this time. As we gain more experience about the problems of stemming, radii of damage, and the effects of geology, we will be in a position to make a firm recommendation." On the question of outer space testing, Batzel states that LRL believes it is very important to develop a capability to diagnose nuclear tests in space and that an effort should be made to establish this capability. Further, LRL believes that it is urgent that the techniques for diagnosing and instrumenting such tests be checked out during the forthcoming atmospheric series.

A

Important TWX from Batzel to Betts on 19 Dec. discusses success (and lack of) ith tunnel containment to date; relation of this to yield of device. The feeling s that testing should use a mix of tunnels and holes, and new concepts of ntrances for tunnels, reentry probabilities, etc. He feels tunnels are ptimum ways to do extensive diagnostic shots and capability should be developed. etween now and May 62, LRL site-limited (due to lack of tunnel sites) and some xperiments will be delayed. Expanding Area 9 hole operations are in effect. eservations are voiced about feasibility and desirability of "Christmas Tree" t this time. Space testing and need to establish capability to diagnose such ests is strongly favored.

HP

Here is a report by Major Trimble of the AFSWC Nuclear Test Planning Office to his commander on his visit to Sandia Corporation and discussions with Schuster, Hollingsworth, and Eckhart on 19 December. In addition to learning the status of the Planned Laboratory Airdrop Programs, he learned from Mr. Hollingsworth that tracers would be installed on certain of the LRL airdrop devices. Another requirement for several of the airdrops will be the release of 28 instrumented dummy shape by the B52 aircraft three to five seconds prior to the release of the test device for the purpose of obtaining ALFA measurements. A discussion of possible targets resulted in general agreement that it be free floating and sea anchored and probably be mounted on a barge or several barges lashed together. Furthermore both visual and radar reception of the target is required. Thus as a minimum the target must have: lights; radar reflectors; and beacons. Among other recommendations made by Trimble are that the test directorate identify a radar beacon which is compatible with the B52 BOMB-NAV System and barge mounting limitations, and that the Air Crew Training Program concentrate on radar releases as well as visual.

BZ

In answer to the question about any Soviet weapons effects tests, the three high altitude tests are noted saying "they could be used to determine ~~ionospheric effects~~ ionospheric effects, while the latter two are associated with complex missle firings, and may be in addition connected with attempts to see the effective weapons firings on missle warning systems." Also noted are the underground tests, underwater tests, and near surface water test which may have yielded effects information.

LA

A 20 December 61 letter from Bradbury to Bethe answers a letter from Bethe to Bradbury a few days ~~earlier~~ earlier that had to do with underground testing versus atmospheric testing and Bethe's strong feelings about not going back to atmospheric testing. I believe that I took notes on this elsewhere but since I can't find them right now I will make a few comments about this letter from Bradbury. He feels that Bethe is "oversold on the virtues of tunnels versus holes for underground testing in which the primary information desired yield, Alpha, and some timing information." Bradbury goes on to note that so far, the tunnel shots have all given trouble to a greater or lesser degree with their lack of confinement, whereas the vertical holes have given no such trouble and this is significant especially from the personnel exposure point of view. "By this technique LASL has been able to fire about twice as many shots as Livermore during the same time period , and all our shots have (or will have) eventual diagnostics. We will agree that for some types of heavily diagnosed, heavily collimated experiments, tunnels are probably preferable to holes." Bradbury goes on to note that Bethe's point probably is not most emphatically that tunnels ~~are~~ are better than holes but that LASL should believe "more fervently in the virtues of underground testing." He then makes his arguments that he feels that whoever tests in the atmosphere will certainly make progress over whoever tests underground and feels that, while we should keep at underground testing while it is all we can do, we had better get ready to do things in the atmosphere. As for the international situation: "the great international political virtues ascribed to the present U.S. course of action have been and are unclear to me. I have regretfully come to the conclusion that small seem to act (like many people) on the basis of fear and pure self interest. No one is afraid of the U.S.-we are the nice people but those bold bad Russians-one had better be nice to them! Why, they don't even think they are! I suspect that it is now believed among the neutrals that the Soviets [illegible] win a war with the U.S. And if you are little, you had better get on the side of the winner! In any event, in contrast to the usual views that we [illegible] politically, I find myself wondering if we might not find ourselves [illegible] more respect. We would at least show that we can be tough too."

A 20 Dec. 61 letter from Reeves to Betts addresses the work week at the NTS. Reeves recommendation for the time being is for the crafts to be put on a 54 hour work week.

Here is a 20 Dec. 61 letter from Keith Byrne, Acting Director of the Air Force Operations within AFSWC at this time to ALO which informed them that AFSWC has PR requested 24 B-57 type samplers of Headquarters Air Force and been informed that this requirement cannot be satisfied. I think this letter is documented elsewhere and the Air Force has replied that 15 B-57's, including 4 D's, would be made available.

Here is documentation of a communications meeting held in Las Vegas on 20 Dec. 61 and attended by representatives of the 3 labs, Douglas, AFSWC, EG&G, H&N, AEC, and Air Force Organizations with both requirements and support PR capabilities.

A 20 Dec. 61 letter from Gen. Booth to the Air Force Chief of Staff discusses the need for samplers for the Task Force. He states, "As you know I am asking for a total of 10, of which only 4 are already modified and 1 of these is in such poor JB shape as to make its repair uncertain. Because of the time limitations on the proposed test series I must continue to press for all 10. However, in view of the nature of the proposed series and the over-riding importance of adequate sampling, it would completely unrealistic to undertake the test with less than 5 and even 6 would be the minimum number assigned to positively insure the minimum required of 5 available for any of the 7 larger yield devices programmed. Consequently it is obvious that some D's must be modified by the 15 Mar. deadline necessitated by the proposed schedule of events."

CU

- A 20 December TWX from Ogle to Task Force Personnel notes that there will be a 28 December meeting in Las Vegas to discuss J-3 type operations plans for Hilo.
- A 20 December letter from Col. Joseph Byrne of AFSWC to the manager of ALOO, outlines the status of the procurement of sampler aircraft todate and in particular provides this for LASL since they are spending time and money procurring particulate sampling tanks to equip the fleet and therefore must know what size the fleet will be. The original AEC request for 24 sampler configured B57 Aircraft cannot be satisfied; the USAF response initially has been that four B57D's and 11 B57B/C/E's as well as 15 B57's will be made available. Subsequent guidance which includes planning for a maximum of only one event per day has led to a new determination of requirements for only 10 B57D's and 12 B57B/C/E's. AFSWC has sent this restated and new requirements on to higher headquarters requesting reconsideration of Air Force support. John Foster on 21 December in a TWX to Betts put his support behind the LASL proposed very high altitude event. He stated that Livermore's present understanding is that there is only 2 high altitude shots planned from JOhnston Island and that LRL will piggyback on these shots to develop space tasting techniques. Of these shots, one is too low an altitude (50 kilometers) but the other one (at 400 kilometers), Livermore hopes to use to test their diagnostic methods. Livermore feels that a second shot above 400 kilometers would be desirable and therefore recommends the retention of the DOD/LASL proposed 1000 kilometer, 165 KT test.

CU

A 20 Dec. TWX from the Chief of DASA to DMA and AFSWC requests AFSWC to proceed with the design and procurement of sea borne targets for the airdrops including radar reflectors, radar responders and lighting and requests the AEC to provide necessary initial funds.

A

A 20 Dec. TWX from Batzel of LRL to Gen. Betts and Mr. Reeves of ALO is on the subject of schedules for underground testing at Nevada and in particular the construction and digging schedules at the NTS. Batzel notes that the present LRL schedule through 1 April has a few shots removed from it for two reasons: 1) An appreciation of the difficulties involved in providing locations for the experiments and 2) preparation for the atmospheric series beginning in April. Batzel further discusses the fact that experiments which could have been done before April cannot now be executed because of the lack of suitable sites, particularly high yield sites. And requests that in the future decisions with respect to construction timing in the various tunnels should be coordinated with his laboratory and requests that an NTS planning board meeting be held before there is any action taken with respect to the reassignment of mining crews.

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A

cisions were required immediately to meet the April 1 schedule date since the holiday was fast approaching and Gen. Betts, among other things, authorized H&N to do certain hiring and initiate procurement of construction equipment, materials and supplies, authorized 3.5 million dollars of a $5 million authorization to H&N for the work to be performed prior to June 30 and presented H&N with the cover story as to the purpose of the work that they were performing in the Pacific area. The memo further states "Arrangements have been made to identify and contact past employees to determine if they are available to meet the predicted early needs."

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* Among other Planning Directives contained in the NVOO files are the following: one in 1962 nn the DOD shot Small Boy; one on the DOD shot Danny Boy; one in 1961 on 20 December on Project Wagon and the Buckboard Crater Excavation Project, known as Buckboard II, and this directive contains updated guidance for Project Wagon which is an excavation project involving detonation of a .4 kiloton device buried about 130 feet below the surface and to be detonated in basalt in Area 18. Planning for Wagon is to continue with a tentative detonation date set for late spring 1962. Buckboard II is a project to do Post-Shot exploration of the Buckboard Crater to obtain true crater measurements, partical distribution and permanent displacement. It is noted that design engineering is authorized for Buckboard II and that this work must be completed before Project Wagon can be detonated.

21 Dec. 61, J-16 Report: Under the heading of Airborne Measurement, Wakefield and others report that the airborne electromagnetic timing measurement equipment is being improved as well as other additions to the measurement gear for the aircraft being worked on.

22 Dec. 61, J-6 Report: A listing of status of each Area 3 hole contains the following information: Two holes were expended earlier in Dec.; about three holes were completed during this time period bringing the total of ready holes to about five, and several others are in various stages of completion.

B

- A lengthy TWX from Reeves to Betts on 21 December details the respective funding responsibilities between JTF8 and the AEC inconnection with the expanded Bluestraw Plan.

CU

  - 21 December 1961 Confidential TWX from Reeves to Craig, DMA on plans and estimates for Vela Uniform
    DRIBBLE - standby with very little activity
    SHOAL - carry program thru exploration, selection, and shot (May - June 1964)
    WHIRLAWAY - mention of these being held at Manzano by Sandia

On 21 December, Headquarters SAC queried Chief of Staff Air Force on various details of support for the FISH BOWL Operation. Based on the requirements that were becoming hard and fast for THOR Systems, SAC wishes to know who will provide the re-entry vehicles, the boosters, the ground support equipment, the launch facilities, etc. since SAC has most of these capabilities and facilities at the present time.

Reeves message of 21 Dec. to DMA Test Branch on Vela Uniform. Tells plans and asks concurrence and/or further guidance. Plans are to maintain "bare standby condition for a period of 6-12 months" on Dribble (off NTS), but continue with Shoal to shot in late 62. He asks about Whirlaway device storage and maintenance and technical readiness being maintained by Sandia.

Correspondence in late 61 and early 62 on "Tweezers" tests being performed at NTS in Frenchman Flat underground garage.

By a 21 Dec. TWX from Foster to Betts, LRL comes out in support of the LASL proposed 1000 kilometer high altitude tests as being useful and desirable for testing out the LRL space diagnostic methods. Furthermore, Foster states that Livermore plans to piggyback on the two DOD high altitude shots to develop space testing techniques, particularly on the high altitude one.

A 22 December TWX indicates the build up of JI preparations with plans for about 40 people to arrive at JI on 27 December to begin work immediately on the facilities there.

A 22 December TWX from Reeves to H&N addresses the cost estimate for the expanded Bluestraw program. Of interest is the locations being planned for use at this time which includes Oahu (including Ford Island, Hickham, and Barber's Point) , Kauai, Johnston, Weather Islands, and Rocket launch Islands, Jarvis Island, and the open sea setup to include barges, modifications, etc., H&N is requested to prepare the detailed cost estimate for two concepts: one south of Hawaii, and 2, off Johnston Island.

... to Headquarters DASA states that the AEC understands that shot ships have been selected by number and requests that copies of these drawings be sent to various AEC personnel as soon as possible.

CL

Another 22 December TWX from Reeves to Howell of H&N states that the AEC was informed on 21 DEcember that the Thor facility location at Johnston Island has been determined to be Priority #1 (new fill area) as identified at the Johnston Island conference on 14 December.

st Planning"

BL

Here is a letter dated 22 December 1961 from Starboard, now commander of JTF8, to General Betts noting that in planning for the atmospheric tests both laboratories have important experiments which can only be conducted on suitable land surface areas. Thus, since Jarvis Island appears to be the most suitable location within the operational area for these experiments, her requests Betts and his staff to make contacts with the interior and state departments and try to complete arrangements for use of Jarvis at the earliest practicable date. General Betts' reply on 5 January 1962 notes that about 1 million birds inhabit Jarvis Island and, therefore, he recommends that, if possible, Baker Island be carefully considered as an alternative and that he has asked Bill Ogle to look into its acceptability from a technical viewpoint. Until the decision has been made following preferably on-site reconnaissance of both Jarvis and Baker Island, Betts and his staff are going ahead to obtain approval and/or concurrence from the Departments of Interior and State for the use of either island for a nuclear test site.

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A 22 Dec. cover letter from Starbird to the Chief of DASA addresses the need for B-57 D's and states, "I understand Gen. Samuel advised you over the telephone that, though there is a valid requirement for 10 sampler-configurated B-57D's, we felt we could we could quite acceptably go it with 8 but absolutely no less." Starbird notes an attached letter which would sent this request from DASA to the Air Staff and I am not sure how this can agree with the 20 Dec. letter sent from Gen. Booth which gave the number as 6.

JB

22 Dec. message from Betts to labs, operations offices, et al requests "comments and recommendations concerning detonation of underground shots so as to form high chimneys and produce slight intentional venting as a means of reducing tunel contamination." He notes specific questions as to overburden criteria, assurance of reduced contamination, etc. HP

A 22 December 61 memo from Swihart of J-15 to Graves indicates that the FISHER shot was the first one to use the shock time of arrival technique for hydrodynamic yield determination. PN

A 22 Dec. Memo from Col. Banks of DMA to a Mr. Holland of the Fallout Studies Branch of the Div. of Biology and Medicine in the AEC covers some of the details of the planned atmospheric test operation which "may be useful to you in your planning investigations of various fallout phenomena." Among other things, Col. Banks notes that there are a total of detonations scheduled between April 1 and June 15 and that of the , about are currently planned as airdrops, 2 are high altitude shots and 2 are surface shots. He notes the range of yields of various shots and that the airdrops are to be conducted 400 miles south of Oahu with shots scheduled about uniformly throughout the test period. The 2 high altitude shots he notes are to be 1 at with a yield of and the other at 400 kilometers with a yield of and are scheduled to be performed between May 15 and June 15 from Johnston Island. The two surface shots which he notes are to be a 165 kt shot at Jarvis Island and a 2 kt shot at the NTS. Further, for the assistance of Mr. Holland, he states that Bob Goeckermann of LRL and George Cowan of LASL had been contacted relative to attending a meeting to discuss fallout phenomena. A

23 December TWX from DASA Annex (Ibeleive that this is the Washington base of JTF at this time) to Ogle and Schuster notes that the PMR ships are unavailable for Bluestraw but an MSTSC-2 Vicotry type ship which has the same type hold configuration is considered a good substitute and has certain communications and radar capability and can be available to the AEC at a cost at of $3,000 per day. Furthermore, Liberty class hulls can be obtained from the Maritime administration at no cost but DASA needs to know how many, what dates, and where they are to be delivered. The hulls are in good condition for a long tow at 4 knots,which will require 25 days tow from San Francisco to Pearl, and DASA needs to have the information CU

 CU

as soon as possible to request them from the Secretary of Commerce and request that Schuster and Ogle be prepared to discuss these two problems at the 27 December conference in Washington.

26 Dec. 61, J-8 Report: In addition to the details of their instrumentation functioning during two weapons test at the NTS, they report that the Fisher Crater caused considerable equipment loss. Measures were taken on the next shots to insure that this wouldn't happen again. A prototype of a proposed universal zero rack, UZR, was inspected at NTS and this design appears to meet all LASL requirements. BY

I will not attempt to report on the specifics the instrumentation coverage of the various shots unless they are extraordinary in some aspects.

26 Dec. 61, J-11 Report: Further information on the Shrew event indicates that a yield estimate based on one drill back sample has been made but that until the data from the second drill back on a different radius has been analyzed , this is a preliminary estimate. To date, the assumption has been made that the device exhibited spherical symmetry in its phenomenology. As for the event, samples of debris have been obtained from two drill back holes. As for the Mink event, one drill back sample has been used to estimate a yield and based on the dates from shot to this report that took no longer than about three weeks. No drill back sample has yet been obtained on the Fisher event which was about 10 days previous to this report. BY

In a folder entitled "Kauai," the first message is dated 26 Dec. 61 and requests DASA assist the AEC in acquiring real estate on Kauai adjacent to Bonham with space for about 22 rocket launchers for Nike Apaches for the Sandia program. Sandia will have complete technical and operational control of this real estate and these facilities. The use agreement was signed between PACAF and the AEC in late Mar. 62. HR

Once again, these 2 boxes contain a wealth of details and photographs of the various Pacific Islands.

Also mentioned in this meeting just above and in a message on 26 December 61 is the S-6 Coordinating Staff, which became known as the SPAIN Coordinating Committee, which Richard Moss of the AEC in Los Angeles is supposed to convene as necessary to oversee coordination of construction in the Pacific.

A 26 December letter from A Col. Redfield of AFSWC to the Conferees is the minutes of the conference entitled "PrePlanning Conference on Additional Aircraft and Instrumentation," held at Kirtland on 19 December. Information was passed out on the equipment and capabilities for diagnostics of the two C130B's which have been so configured, as well as the 2 KC135 Aircraft, which belong to ASD and ESD of the Air Force Systems Command. LASL stated that they would look t at the ESD KC135 (tail Number 131) and consider the existing hardware in that aircraft versus the LASL requirements for an additional airborne instrumentation platform. LRL stated a requirement for a 135 instrumented like the ASD 135 (tail number 127) for airborne diagnostic verification of certain previously recorded unknowns. Both laboratories were asked to make their requirements a matter of record to the chief of DASA. The overall requirements for the Bluestraw objectives showed the DOD requiring 2 KC135's one at the conjugate point and one at Johnston Island and LASL requiring a 130B and requesting a 135 with LRL in the same position. Some mention was made of the sampler aircraft situation in that the Air Force would provide 15 B57's but could not fill the Laboratories requirement of 22 aircraft, 10 of which would be B57D's. The fact that the Air Force has in its inventory sufficient B57D's was noted but the priorities make only 4 of these available. The question of using U2 aircraft was discussed. On December 22, Starbird sent a TWX to Ogle outlining the specific items which he desires to cover with Bill on Wednesday. They are: the acceptability of Liberty ships as substitutes for PMR ships as the 2 Lab vessels; the size and location of danger areas; the study of tidal effects on Hawaii; the possibility and desirability of adding a safety length to prevent surface burst of large detonation; what needs to be done to prepare an authoritative statement that there will be no serious eye burn problem; the standoff distance for ships from a base surge point-of-view; and the materials and people that need to be sent to Jarvis Island and the time schedule for this.

- A TWX from Ogle to his test unit commanders (Goeckermann, Schuster, Strabala, and Kiley) on 26 December notes that Sam Howell has appointed Paul Spain to be the construction coordinator for the overseas operation and that he will chair a committee of J-6 type representatives of the various addressees. Spain is to set up a meeting of the representatives of each of the addresses who are to be appointed to discuss the plans and resolve the conflicts between the various users; and Rod Ray is requested to make arrangements with Spain along the lines of necessary missile base construction requirements for H&N. C,
- A 26 December TWX from Hoerlin to the DASA Adjutant General notes the LASL requirements for at least one aircraft instrumented optically for space diagnostic equipment. He details the number of windows, the specific criteria including the base it is desired to operate from (Johnston Island), the altitude capability (30,000 feet or higher), the requirements for pressurization and heating as well as the minimum amount of vibration, and in general those things which require a KC135 preferably.
  A 26 December TWX from Reeves to Col. Thomas Mann of Headquarters DASA notes that appropriate action is needed immediately so that Sandia and H&N can acquire the necesaary real estate for the rocket launchers for Nike Apaches on the island of Kauai. Approximately 22 launchers and associated trailer and tent facilities. CU
- A 26 December TWX from Hoerlin to Sam Howell of H&N notes the LASL requirements for space and facilities at Maui (Haleakala). Hoerlin requests that H&N secure at the earliest time the appropriate real estate as close to the top of the mountain as possible. CU

In addition to the meetings of the Bethe panel and the Joint U.S./U.K. Committee to evaluate the Russian progress, there is a military committee known as the "Twining Committee," which is chaired by retired General Nathan F. Twining. There was apparently some report either sent to Twining or received from his committee around Christmas of 61 to which comments were being made by people such as Foster, Griggs, Teller, and Ulam. Ulam sent his remarks in a 26 December 61 TWX to Headquarters Air Force for Twining beginning "there is an inescapable conclusion from the briefing we had and from the LA

LA

evaluation of the Russian tests by the Bethe panel that the Russian rate of progress, as proved by their series of tests, is most impressive and that in the design of weapons they have certainly closed the gap which existed between them and us." He is not so concerned by the improvement of yield to weight ratio or the cheaper cost of producing weapons which these developments are leading to, but is rather impressed by the knowledge of effects of detonations at various altitudes which they are gaining and which is "of extreme importance for military planning and applications. They are able to start working out tactical and strategic technical concepts, it seems, what we have been able to do in the past." Ulam strongly feels that our development and testing should address the relation between rocketry and nuclear weapons rather than the warheads themselves. He makes the example of designing and testing directed explosions.

Furthermore, "the effect of nuclear explosions at very high altitudes, for example, the range from 50 miles to 1000 miles or so, are really not much known and it is extremely important to learn about it if only because of the whole problem of anti-ICBM defense. . . . I believe that our committee should state in clear terms the necessity of a much more direct and more general engagement of the Air Force in space technology. It is not only for ground-launched missles but for satellites and space vehicles that military problems will arise. The connection between this whole field and the nuclear technology should be enteredinto, explored and worked on by the Air Force." He notes that the Russians will probably deploy the systems which they are testing now over the next few years but states "from the testimony given at our meeting in Santa Monica it appears that for the next few years a very promising retaliatory system would exist in the deployment of a great number of MINUTEMAN missles." He notes that a number of these (a thousand to fifteen hundred) widely spaced should provide us the destructive capability against Russia that we need during the next few years "under the assumption that the Russians do not now have and would not have during the next few years a very efficient defense against ICBM'S."

LA

He summarizes by trying generally to state the recommendations and conclusions which he feels should be made: a national defense effort which would include testing at various altitudes to address the defense phenomenology problems, a much expanded role of the Air Force in space technology, and an increase in our retaliatory strength, to include missles such as the MINUTEMAN and airplanes, perhaps such as the B-70. As for present planning, he feels "the present of "requirements" spelled out in detail as a necessary prelude to research and development of new technologies and weapons seems to me paralyzing and slowing down the development of new ideas and techniques. . . . I recognize the problem which will exist if the President should decide to start a series of new atmospheric or space testing: there will be a pressure for all kinds and numbers of minor and perhaps unimportant experiments. One of the reasons for the Russians' success, say in the field of "space" seems to be their ability to concentrate on a few major advances which then are pushed very strongly." He argues against the present trend towards diversification in numerous small developments and feels that there should be a "permanent civilian-scientific-military body than mere "laison" selecting the main lines of advance in the field of rocketry plus nuclear technology."

Here is a memo internal to Livermore, #COPB 4675, and entitled "Excerpt From AFSWC, Document #SWAP-1-2151 dated 26 December 1961, subject: Pre-planning Conference on Additional Aircraft and Instrumentation." This contains notes from a meeting held on 19 December 61 at Kirtland with the Labs and the Military discussing their requirements for diagnostic aircraft. It is documented in other sets of notes but I will quote in here certain pertinent sections for Livermore in particular. "LRL further stated that they had no specific requirement for high altitude diagnostically instrumented aircraft at this time. This is because they had planned for instrumented rocket powered diagnostic probes. They did express considerable interest in the participation and use of a KC-135 for pure speculative research purposes, if scheduling and utilization can make the aircraft (and/or space in the aircraft) available to their Laboratory personnel. In any event, LRL definitely did not want their present map of a specific requirement to be construed as either a lack of interest or a definite position that they have no requirements in the future. . . . LRL stated the requirement for a 135 type aircraft instrumented the same as KC-135, #553127(AFLC/ESD possessed) for airbourne diagnostic verification as previously recorded/measured unknowns." As for LASL: "LASL did not deliniate their specific airborne instrumentation requirements within the framework of conference objectives. They did state that educated estimates to fulfill their anticipated requirements for new, unique and modernized instrumentation would in probability require a C-130 in its entirety. LASL withheld further speculation in this area until they could evaluate the capability of the instrumentation contained in KC-135, #553131 (AFLC/ESD possessed), and equate the existing hardware with their requirement to determine if there is an overlap so as to reduce duplication of effort." The summary of the picture of aircraft requirements for the three agencies is given as follows:

DOD: A KC-135 at the conjugate point; a KC-135 at Johnston Island, with a probable requirement for a second KC-135 at this location which may be filled by the LRL KC-135.

LASL: A C-130B; a KC-135, with a possibility of this requirement being satisfied by the ESD KC-135, and a note that a C-130 has been requested to fill this slot.

LRL: A C-130B; a KC-135 (instrumented like ASD KC-135) and this aircraft is [illegible] for DOD at JI, if required.

— A 26 December TWX from Austin McGuire at Lasl to Ogle and Schuster in Washington discusses the LASL program fro 7 airdrops at sea and 1 land shot on Jarvis Island. The airdrops will be supported from 1 CVS(carrier) and 2 MSTS SHIPS. McQuire details the LASL personnel requirements on each ship with the LASL headquarters to be on the CVS. Further, he feels that Jarvis Island is not available, possibly LASL could execute one shot in a Liberty hull instead. Also, the possible LALS requirement for Liberty hulls will be discussed by the WWG on 27 December. CU

— A memorandum from Herman Hoerlin and Dick Taschek to Bradbury dtd 26 December discusses the LASL proposed high altitude shot at 1500 kilometers or higher. This memo may never have been sent to Bradbury or else it was extensively re-written and revised after being received because the copy in the folder here CU

has been changed quite a bit from the original. The memo notes the two planned DOD tests and notes that the large yield and relatively low-altitude of the 400 Kilometer shot make it impossible to explore space diagnostic techniques and Vela capabilities to the fullest extent from an AEC standpoint with this particular test. The major LASL objective in this proposed test should be to proof test a weapons diagnostic system applicable to possible space testing beyond the region of appreciable geophysical field coupling, ie, about 50,000 miles. It is noted that the higher altitide will give much better experience in investigating space diagnostics, and applications. LASL feels very strongly that this particular test is needed in addition to the 400 kilometer test to the AEC's objectives and notes that the Sandia Corporation would support and complement the LASL efforts as well as Livermore putting its space diagnostic capability to the test. One appendix to this memo notes the technical advantages of deep spaced testing as well as the political advantages.

The suggested modifications to the original paper from Foster, Griggs, and Teller, as transmitted by Longmire in a 27 December 61 letter, include the following: LA

The following paragraph indicates where they feel we have gotten to through the moritorium and what we must do: "during the years of the moritorium the U.S. efforts were mainly directed at smaller, "certifiable" improvements in our stockpile. We have not been so active in taking the larger steps and risks which ~~were~~ require verification by testing. This has resulted in a considerable loss of momentum. In view of the present

Russian pace, we cannot hope to keep up our underground testing alone. It will take an atmospheric nuclear test series to advanced to the present probable position of Russian nuclear technology. By that time we may be faced with further Russian advances. In case we are determined not to accept a permanently inferior position in nuclear weapons, a vigorous and continued effort is necessary." Finally, as for the Russian progress in ABM and the problem that poses: "take steps to insure that Russian advances and anti-missile techniques do not overtake our ability to penetrate such defenses. This requires rapid development of decoys that survive to low-altitude, especially for Polaris and Minuteman, working out of Salvo techniques for MINUTEMAN, and the development of precursor black-out routines."

It goes on to commend the efforts thus far to gather data from aircraft on Soviet devices but notes that such data is so important that all possible effort should go into improving the quality of this data in the future.

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Here is a message from AFSWC to LASL and Livermore on 27 Dec. (specifically to Wakefield, Wouters, Shearer, and Goeckerman) on 2 additional aircraft calibrations drops off the West Coast proposed for Jan. 62. These are in addition to 2 already planned drops and will include the B-52 dropping an instrumented expendable shape provided by Sandia. Observation from the C-130's will include DME, Sandia telemetry, and "some sort of photo flash or spotting charge which will be useful in determining the height of burst and in aligning diagnostic instrumentation." Major Martin of AFSWC is the contact for this if the labs desire to participate.

PR

- A 27 December TWX from Reeves to various JTF task unit commanders notes that planning requires immediate information on all addressees requirements for construction effort and that such requirements be sent to Mr. Richard Moss, AEC Los Angeles; furthermore, the logistical support criteria for each of the users should be sent to Mr. J. B. Sanders, AEC Las Vegas.

CU

- A 27 December TWX from Bradbury to Betts requests DMA to arrange procurement of Jarvis Island for detailed neutron flux distribution measurements on an XW50 surface test.
- A 27 December TWX from Austin McGuire to Bill Ogle states that at the WWG meeting that morning, the conclusion that LASL does not wish to retain the capability for handling and firing unsafe devices in Liberty hulls on the open sea; but they prefer to face operational problems of safing and unsafing mechanically and will so plan. CU
- A 27 December TWX from AFSWC Test Directorate to Livermore and LASL notes there will be 2 additional calibration drops by a B52 aircraft off the US West coast proposed for the month of January 62. It is noted that Sandia will provide the drop cases which will include distance measuring equipment, telemetry, and some sort of photoflash or spotting charge. Major Martin is the AFSWC contact. CU
- A 28 December TWX from E. H. Fleming of LRL to the Commander of AFSWC gives the predicted radiation exposures for air crews involved in the Livermore tests proposed.
- A 27 December letter from Jim Sugden to Col. W. A. Randall of DASA contains the information on the meeting of representatives from various organizations in Las Vegas on 20 December to discuss the communications for the Pacific Operations CU

- Due to the lack of definition by JTF 8 for the locations and specifics of a Pacific Operation, little was felt could be planned for an effective Communications system and therefore a major portion of the time was devoted to radio frequency requirements and specifically to the needs of Sandia Corporation to order equipment and know the telemetry bands that would be used.

A 27 Dec. TWX from Bradbury to Betts mentions the planned surface shot of an XW-50 X1Y2 to measure the neutron flux distribution and it is presently planned to be done as a surface shot on Jarvis Island. Bradbury requests that Betts arrange the procurement of Jarvis for that purpose and notify the lab of the Island's availability by the first of the year. A

A 27 Dec. memorandum for Gen. Betts and Dr. Gerald Johnson, the DOD Assistant to the Secretary of Defense for Atomic Energy, covers the arrangements regarding the use of Christmas Island and is written by a Mr. Phillip J. Farley, a Special Assistant to the Secretary of State for Atomic Energy and Outer Space. The cover letter notes that a tentative agreement with the United A

Kingdom experts has been reached at Bermuda to govern the use of the Christmas Island if it should be available in connection with the U.S. atomic weapons tests. He requests that pending further communication with the British that these two gentlemen review the draft statement of principles and advise Mr. Farley of their concurrence of their agencies or of any additional changes which appear desirable. The document is entitled "Statement of Principles - Use of Christmas Island in Connection with United States Atomic Weapons Tests" and is dated, Bermuda, 12/21/61. The statement states that Christmas Island would be used only in connection with a test program of agreed general nature and purposes which would use either airdrops or balloon shots and that the U. S. would have responsibility for control of the various aspects of the tests including their selection, scheduling and timing and the application of safety rules. The only direct position for the United Kingdom would be that the Base Commander would be a member of the safety committee. The UK government will take steps to assure the availability of such portions of the island and surrounding safety zones as are necessary. The U. S. may construct buildings and facilities as deemed necessary at their own expense with the approval of major facilities and buildings coming from the UK Base Commander. The UK would assist in providing security protection at Christmas Island. The U. S. in accordance with existing agreements for cooperation will furnish or otherwise make available to the UK detailed information concerning the tests making use of Christmas Island. Further the U. S. would be responsible for dealing directly with any claims due to loss or damage caused by such tests. Finally, all these arrangements would be made without prejudice to either Nation's claims to sovereignty over Christmas Island.

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Here's a copy of a 27 December TWX from Goeckermann of LRL to DASA (General Starbird) on the subject of LRL requirements for diagnostic aircraft for the Pacific Operation. The 19 December meeting of LRL personnel with AFSWC is referenced and the LRL position is stated here as follows:

CU

A. For C130 Aircraft LRL does not have a requirement for an additional C130 past the one that is already assigned.

B. For KC/C135 Aircraft, LRL does have a firm requirement for one of these as a diagnostic aircraft and they would want to install instrumentation similar to that furnished by LRL on the ASD Aircraft (-127) used in project Speed Light, in order to better understand this type of data. LRL anticipates using the 135 in several selected LRL aid drops as well as the high altitude shots, but do not object to sharing an aircraft with other DOD or AEC agencies providing it would be available for LRL use on some of their airdrops.

A meeting in Gen. Starbird's Office held the same day, 27 December, included Mustin, Ogle, Reeves and J-Staff Members. This was reported in Joint Staff Memorandum #10 dated 28 December. The main danger area was to be a 400 mile by 600 mile rectangle located 300 miles south of Oahu. A question about the range limitations of the B-57 Samplers was raised. Bill Ogle was very concerned that the samplers seem to be operating at the extremes of their range with the danger area planned to be where it was and the possibility of moving the shot points closer to the Hawaiian Islands was discussed. The large area of the danger area was not justified from a purely hazard point of view but was based on an operational consideration to keep all ship traffic far from a hazardous area and allow the Commander to fire at will. A danger area for Jarvis Island would be a 250 by 400 mile rectangle with Jarvis located in the northwest quadrant. Ogle felt that Jarvis Island was to near to the northern and western limits of the danger area and it was agreed that the danger area could be moved west to bring Jarvis 100 miles within the border rather than only 75. Just as for Teak and Orange, the Johnston Island danger area would provide protection on the surface for personnel up to 400 nautical miles and at altitude out to 700 nautical miles. Project 201 was discussed and it was ascertained that its operating area was a rectangle with Johnston as the center and comprising 1500 miles in an east-west direction and 1200 miles in an north-south direction; it was anticipated that Project 201 would give way to our operations and thus this would not be a problem. The remainder of the meeting consisted of discussions centering around questions that were posed to Bill Ogle. As for the shipborne array, the need to identify requirements for the various types of ships was brought forth, the need for various technical personnel to be able to examine these ships as soon as possible (possibly the next week) was noted, the need date for ships on the west coast

BW

was discussed as to whether it should be 1 February or 15 February as Ogle thought was more appropriate, the need for ships for shots was discussed (it was decided that 6 ships were still required, which would be towed to Mare Island where H&N would prepare a room for the device and install the radio equipment, after which three would be towed to Pearl Harbor), The problem of base surge from a high yield surface detonation was discussed and 10 to 15 to 20 miles was felt to be a safe distance for a ship array, a discussion of the problem of inadvertent surface detonation of the devices and the resultant requirement for a "safety-link" was discussed and Ogle felt that since the probability of such a problem was like one in 10^4 that he recommended that this be considered acceptable odds and that there be no requirement for such a safety-link. Partly because such a link would have a lesser reliability than the pure system itself, and numerous other problems.

Documentation between BSD and AFSC and AFSWC on 27 and 28 December addresses some planning being done by the Army (REDSTONE people) on planned NIKE-ZEUS warhead testing to be conducted in the area of Kwajalein. Aparently there are to be three separate ZEUS launches from Kwaj to place in each case a nuclear burst at about 80,000 feet altitude and ahead of a re-entering Mark V RV. The Air Force has apparently not been asked to participate in this program at all at least in the area of nuclear testing personnel and agencies. Furthermore as for the Air Force nuclear test planning a current AFSWC document proposes a three shot test series which would follow FISH BOWL and would define the blast effects at three separate ranges on a re-entering re-entry vehicle.

BZ

BW

"JTF-8 Joint Staff Memos," from December 1961 through February 1962.

These are a few of the so-called Joint Staff Memoranda issued by JTF-8 and the first one in the folder is dated 28 December 1961. They are all signed by Col. Mann, Chief of Staff of JTF-8. This Memorandum, Number 11, documented a meeting of Task Force personnel on 27 December 1961. Among those in attendance were Starbird, Mustin, Ogle, Mann, Parsons, etc. Starbird listed a number of salient decisions made on the high altitude program to date: That the THOR had been chosen for the booster; that there was a possible increase in the number of events from two to three; that the earliest shot date is 7 May but May slipped due to instrumentation availability; that Systems Command was designating a Project Officer to handle preparations for this series and be responsible to the Commander of JTF-8; that H&N had begun advanced preparations on 26 December with equipment loading, arrival of work crews on Johnston Island on 27 December, and beginning of the H&N operation on Johnston Island on 3 January; and that Space Systems Division (SSD) would represent Systems Command in this program and not AFSWC. The Air Force recommended against any changes in either the missile or AGE which would effect the THOR systems reliability and specifically recommended against several different possibilities such as the installation of a nose pod, or the addition of a system to give separation of the booster and the warhead on the lower high altitude shot. The Air Force indicated that tracking the missile and performing the range safety functions were beyond

their capabilities and the Joint Task Force stated that initial inquiries with PMR led them to believe that PMR could accept this responsibility. Air Force offered to include a beacon on the missile to assist in tracking but said this requirement would have to be ~~layed~~ laid on at an early date. The tail pods discussed by AFSC which they could provide are conventional pods which had previously been used on the ATLAS Program; the system includes the ejection mechanism, recovery gear (including parachutes), and possibly a Telemetry package. Some of the discussion addressed the question of whether the trajectories should take the detonation above Johnston Island or move it significantly down range from Johnston Island and Starbird indicated that two main reasons gravitated against going downrange since this meant a vast increase in danger area and also that the danger area would encompass populated islands not all of whichwere under U.S. control. As for the availability of missiles, their distribution, and the disposition of spares the following was stated: "THOR production has stopped and all of the remaining operational THORs are committed to combat training launches with the British. These launches are accomplished once every three months. It may be possible to obtain enough of the missiles from this category and rebuild some older R&D types to fill out the remainder of the Combat Training Launch Program..... . It was recommended that all spare missiles be kept at Vandenberg rather than dispersing them to Johnston. It is planned that, should the first confirmation round, from Vandenberg fail, a second confirmation round be fired as soon as

possible thereafter from Johnston rather than Vandenberg. ..... It was recommended that two complete sets of missile spares be prepositioned at Johnston since repair of the missiles on the island will not be feasible."
As for the schedules for the THORs the following was set forth by the Air Force: Pad 6 at Vandenberg would be assigned and work would begin on 6 January with the pad being on the IOC configuration by 15 January when the first missile would be available; six weeks thereafter the missile would be ready for launch and 7 May would be scheduled for the first operational launch. Ten days would be required to refurbish the pad and five days to prepare the missile thus allowing a launch every 15 days after 7 May unless a major pad repair was required. Douglas is already under contract with the Air Force and is proceeding rapidly with the DOMINIC work. Systems Command designated Col. E.A. Meyer, Jr., to be their Project Officer on the High Altitude Program.

A 28 Dec. letter from the Chief of DASA to the Commander of Systems Command discusses the details of the preparations for the Thor high altitude tests just covered at a 27 Dec. meeting between JTF-8, DASA, AFSC, SSD, AFSWC and Douglas. Some of the items covered were planning for the 2 shots on 15 May and 1 June; recommendations against attempting to incorporate a powered nosepod, which would require some other means of placing certain instrumentation; fin pods would be provided by SSD similar to those now being procured from Convair; systems command is awaiting imminent release of the necessary five missiles, which must be gotten from those presently reserved to replace British tests; SFD indications that separation of the booster from the warhead on a lower shot could be effective only by a substantial system modification.

JF

PM

Here are minutes of a meeting held in Las Vegas and chaired by Ogle on 28 December 61 on the subject of overseas operations with the intent to clarify operational plans. The political situation is summarized as "best information on Christmas Island seems to be that there is no disagreement on obtaining it for operations.

Final negotiations will probably not be completed until January 15, 1962. Pursue open sea plans until Christmas is in our hands. Tentative agreement implies no barge operations. The British are proposing that they have an individual on our safety council. We must not forget the possibility of getting Christmas Island but must plan for open sea." As for Jarvis Island, it is noted to have been checked out and there are no objections to its use but it may be mid-January before the AEC can firm up its availability. As for J.I., H & N is moving out there with the control moving to the Task Force about 15 February. As of this date, the time

61

Here is a 28 December memo from Coon to Hoerlin which is the first summary of the P4/P1 high altitude weapons test preparations program. These groups intend to prepare NY instrumentation to be carried on rockets for diagnostic measurements of the 400 kilometer shot and the very high altitude (approximately 1800 kilometer) shot. Coon says that no attempt will be made to instrument the fifty kilometer shot; the main objective is to develop capability for space testing. Sandia has assigned 16 NIKI-APACHE rockets (eight per launch) to LASL, which will be launched from Kauai. Sandia is also trying to procure two Journeyman rockets for the extremely high altitude event, to be launched from Arguello, with the possibility of using Javelins. The groups are aiming at 15 April as the ready date for having their instrumentation in the field ready for launch.

scale for the operation is noted to be unchanged, from 1 April through 15 June 62 with the high altitude shots sometime on or after 7 May. The date for the Jarvis shot is 15 May. A discussion of the specific set-up of the Task Force with the technical organizations was gone into in detail with the specific individuals from each Lab and contractor and their cotacts within the Task Force staff being named. EG & G was given the responsibility of consolidating all of the timing signals and the individual named is Harold Sauer. Vay Shelton has been asked to head a blast prediction unit. The Task Force has requested six Liberty Ships and can get more lists of the specific devices for each laboratory and a tentative date of firing and method of implacement are discussed with Livermore having fifteen shots and LASL having eight. Only Livermore is shown to have need possibly for ships with as many as four needed and perhaps only one if balloon shots can be done. In discussing Jarvis Island, the LASL requirements to diagnose this shot are noted and Livermore is looking into using it after the LASL shot. This latter test would require a balloon. The plan is to use Barber's Point in Hawaii for preparing the air drop devices as well as staging the samplers. Mention is made of Ford Island. The tentative staging schedule for the ships is to leave the West Coast on 6 March, arrive in Pearl Harbor on 12 March and leave there on 22 March. A tentative ship array for the air drops is shown in a simple geometry with the carrier and two MSTS ships making the primary diagnostic measurements. As for Christmas Island planning, the equipment being designed for the ships should be able to go on land and Sandia is looking into balloon facilities at Christmas Island.

Another memo for the Chairman of the JCS from Gilpatric on 28 Dec. 61 increases the manpower augmentation for JTF-8. He authorizes 58 officers and 74 enlisted men assigned to DASA as Headquarters of JTF-8 and an additional assignment of 113 military personnel on a temporary duty basis.

A 28 December TWX from Starbird to Ogle and Schuster addresses the meeting of the previous day which apparently had to do with a booster for the high altitude shots and Starbird states that he would send a letter to the Systems Command immediately requesting a change in the target dates to 15 May and 1 June for the first and second shots respectively. The letter to AFSC went from General Booth and covered the 11 items of agreement. As for the high altitude tests a number of points and questions are made by Starbird as follows:

A. Question exists as to whether a nosepod should be incorporated
B. Question exists as to whether the experiment can accept having the booster still attached
C. Question as to the organizational responsibilities for those putting instrumentation into the pods and Starbird's opinion that the DASA proposal of using separate contractors can only work if a knowledgeable Convair or Douglas man are sitting continually in the shop of those charged with integrating the shot payload
D. Question of what payload will be carried in the pods on the Vandenburg Systems test and whether recovery should be attempted.
E. Question of who is responsible for telemetry in the Vandenburg test for fusing and firing component behavior.

Further Starbird notes that Muston is trying to arrange a meeting at PMR for 8 January with Ray and Schuster in attendance and a Mr. Hendrix. Starbird is planning to talk with Kiley at Field Command on 4 January and requests Ogle join him there.

A 28 Dec. memo from Col. Banks to Gen. Betts covers briefly some of the items discussed with Bill Ogle of LASL with Gen. Starbird present on 27 Dec. 61. The question of the availability of Jarvis Island was raised and it was pointed out that although this was presently being considered by the AEC and appeared to offer no problem to the Department of State, that actual approval had not yet been received. It was confirmed that only one shot, a surface shot, was planned for Jarvis. Ogle noted that so little is known of electromagnetic effects that LASL planned to make EM measurements on the surface shot at Jarvis. The status of negotiations for Christmas Island was discussed with Ogle emphasizing that even if it could not be used for shots, it would be most helpful as a base for sampler aircraft. The limitation that no barge shots could be fired from Christmas Island was of considerable concern to Ogle, who pointed out that ships could be located as far as 10 miles from shore and that he was pretty confident that contamination would go out to sea and that other problems could be taken care of. In subsequent discussion after this meeting, Col. Anderson of DMA pointed out that barge shots would be permissible if conducted off shore so that the island contamination could be avoided. Dr. Ogle felt that it would be desirable for the U. S. Hydrographic people to measure the water currents around Christmas Island since such measurements had never been made. Ogle advised that there was a very real problem being encountered by the military in finding ships other than the CVS appropriate for airdrop support. The Joint Task Force, it was noted, has asked Ray Shelton of LRL to put together a safety committee with representatives from the different laboratories and DASA and other appropriate organizations to consider such problems as blast, fallout and tsunamis and be an advisory group to the JTF. Ogle asked about the likelihood of a surface test being authorized at NTS and Mr. Gale of DMA said that this looked as firm as any noting the Dr. Brown's letter to the President had given justification for both the two high altitude shots at Johnston and the surface shot at the NTS. Gale further discussed a number of items of funding and personnel hiring authorizations.

A 28 December TWX from AFSWC to AFESD at Hanscom Field and to Westervelt of LASL notes that Westervelt is going to Hanscom Field on 4 January to inspect the KC135 tail Number 131 for suitability for LASL's use.

A 29 Dec. TWX from the Commander-in-Chief of PACAF to Gen. Starbird addresses the transfer of responsibility for J. I. support from PACAF to the JTF. Among other things, the PACAF Commander requests that the arrangements for transfer and assumption of complete operational control by the JTF Task Group be earlier than Gen. Starbird had proposed in the neighborhood of 10 Jan. but not later than 15 Jan. Further, the PACAF Commander notes that there are a number of programs with priorities from various military organizations which are presently being supported by PACAF and that JTF would be assuming responsibility for support of these programs as negotiated with the various users.

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A 29 Dec. 1961 letter from Gen. Samuel of JTF-8 to Gen. Greer of Space Systems Div. of AFSC proposes a new agreement between AFSC and JTF-8 for the period of operation of Dominic. Need for the proposal seems to be some planned operations of SSD in the area south of Hawaii and around Johnston Island which might conflict with and cause hazard to personnel during the atmospheric test operations. Therefore, the proposal in brief outlines the danger areas and the dates bracketing the possible tests series and would have SSD agree to have personnel and activities out of the area during these times. There is a great deal of correspondence in the January, 1962 time period addressing the aircraft requirements of the laboratories for diagnostics and sampling. There is discussion of the capabilities of the KC-135 versus the C-310 that has been already made available to LASL.

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- A 29 December TWX from Chief of DASA to Bill Ogle notes that the MSTS ships will be available in San Francisco as follows: The USNS Kimbrough, 28 December to 31 December; USNS Miller, 28 December to 2 January; and USNS Pendleton, 13 to 16 January.

CU

B 29 December — JTF-8 letter to SSD (AFSC) proposing an agreement to have SSD activities out of the J.I., south of Hawaii area during nuclear testing.

- Here's a 29 December TWX from Reeves to LASL and Livermore and Sandia on the subject of use committee advise for Reeves is requesting the concurrence and/or recommendations of the committee for using Area 5 in Frenchman's Flat for accomplishing the DOD experiment called for which executive approval has been granted to prepare and plan. The expected ready date is 29 May 62, the primary mission is the measurement of electromagnetic effects and comments by the Use Committee are needed by 5 January.

CU

- A 29 December TWX from Paul Guthals to General McCorkle at the Weapons Center notes some preliminary estimates for allowable exposures for the sampling aircraft aircrews. Guthals notes that at a later date the more correct exposure data will be published as part of the detailed mission requirement.

CU

Here is a document received on 29 Dec. from DASA, which is entitled, "Operation Fishbowl High Altitude Weapons Effects Test at Johnston Island," and is numbered DASA 58629. The documents gives some details of the two events (Starfish and Bluegill) HI The warheads and instrumentation pods are to be carried by suitably modified ~~four~~ Thor boosters and conducted under JTF-8 control. The purpose of the test is listed as satisfying urgent JCS stated requirements for weapons effects data and includes data on ICBM kill mechanisms, ABM effectiveness, etc. There is no mention of any Vela program application or space testing techniques as a purpose of the test. The estimated cost of the two tests, including the carrier system, the measurement systems, and the scientific programs, is 41.3 million dollars, of which about 18 million is for the Thor and the pods and the associated launch system. The four general categories of scientific program to be supported by the DOD are blast and shock measurements; nuclear radiation and effects; electric magnetic phenomena and effects on military equipment; and thermal radiation and effects. Specifics of the scientific data gathering programs are contained in this document, along with the approximate costs, and the sponsoring agencies and individuals involved.

The letter transmitting this document, came from Gen. Booth, Commander of DASA, and gives Field Command, DASA, most of the control of the specifics and funding of these tests.

29 Dec. 61, J-12 Report: Wendall Biggers reports "Preliminary design of equipment for neutron flux and sprectrum measurements is preceeding assuming a surface shot for the XW-50 X1Y2. Both water and land shots are considered in this design. BY Experiments are being conducted to ascertain methods of shock mounting nuclear emulsions so as to recover them at distances like 200 ft. from a shot ship board."

A 29 December TWX from Headquarters AFSWC to the 552 AEW and C Wing at McClellan Air Force Base in California is in relation to the air drop practice missions which have been flown and are planned for January of 1962. The planning for the test series now includes the concept of using floating targets as aiming points which would result in changes to previous aray and control concepts and thus 8 or 9 January is to be a conference for personnel to discuss the various aray and positioning procedures with this organization.

A 29 December TWX from AFSWC to Barbers Point presents what they consider a reasonably firm listing of the aircraft to be based at Barbers Point which will be : 12 B57B's, 8 B57D's, 2 B52's, 2 C130's, 1 C135, probably 1 C118. BZ

A 29 December TWX from AFSWC to DASA discussed the need for JTF8 and in particular Task Group 8. 3 to assist in the air drop aray and the floating target discussions. It is desired that a meeting be set up as soon as possible to discuss the possibilities of a practice mission with the Navy positioning a target in the open ocean off the West Coast.

A 29 December TWX from the Chief of DASA to a number of organizations and contractors involved in FISH BOWL presents detailed questions and subjects to be covered at a FISH BOWL planning meeting chaired by Field Command at Sandia Base on 5 January 1962. BZ

BZ

AFSWC History Office

A 29 December memo for record within AFSWC notes that over the telephone the Air Force has approved the use of four KC135's for DOMINIC. These will include two from AFSC (one of these is the ESD aircraft) and two from SAC.

A 30 December TWX from Chief DASA to AFSWC states that the radar reflectors and radio beacon assemblies for the target rafts should be sent to the Navy at San Diego for installation on the target pontoon. Plans are for a test at sea in the San Diego area when the pontoon is ready in the latter half of January.

BZ

A 31 December TWX from the Commander of JTF8 to AFSWC and Task Group 8.3 addresses the modifications to the targets and the tests that would be required to ready the targets for use in the Pacific. They cover generally testing out the floatation gear, testing the radar reflectors, transponders, and lighting systems, etc. Furthermore the Air Force when this test can be performed is to provide B52's at several appropriate angles of approach and altitudes to best test out the capabilities of locating this target. The overall target preparation is under Task Group 8.3.

BZ

1961 ↑

Through the end of Dec., Gen. Booth continues to correspondence concerning Fishbowl with the Air Force more or less in place of Gen. Starbird since perhaps JTF-8 can't take such an open role yet. Details of Fishbowl's discussions are sent to Gen. Schriver of Air Force Systems Command on 28 Dec. and include the fact that DASA is reconsidering the need for a nose pod. The details are essentially those of a JTF-8 staff memorandum reporting on a 27 Dec. 61 meeting.

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A great deal of correspondence from late 61 through the first half of 62 addresses the redoing of TG57 experiments which had to do with plutonium scavenging and disperal safety. Sandia and others note that even though following the 57 experiments, the Nuclear Safety Working Group recommended that there be more TG57 experiments, several people including Mel Merritt, and Jay Shreve of Sandia suggested than none be undertaken. However,

Here is a copy of the "Memorandum of Understanding Covering Administrative, Financial, and Scientific Collaboration Arrangements For The Use of Christmas Island by The United States Government in Connection With The Programme of Nuclear Tests Discussed By The President and Prime Minister at Burmuda, December 1961." This Memo of Understanding apparently was the official agreement that was signed to establish coordination and control arrangements between the two governments.