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NOTES FROM USAEC MEETINGS (MINUTES)

I will try to pick up pertinent discussion and decisions and staff papers and actions that are documented in the minutes of the actual meetings of the commission beginning in 1958 and going through the time of interest.

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Meeting #1324, 8 January 58:

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Chairman Strauss reported that at Killian's suggestion President Eisenhower had appointed a panel of five people to study the feasibility of accurately detecting weapons tests. The suggestion was made because of conflicting views now existing on the possibility of detecting tests anywhere in the world. Panel members are: Harold Brown, Rod Spence, Carson Mark, Hans Bethe, and Starbird. The commissioners concurred in the selection of the individual members of the committee.

The general manager said that the Army intended to begin testing satellites during early 58 and had requested permission to use Enewetok as a launching site. The commission expressed their feelings that the AEC should cooperate fully and offer all possible assistance including the use of Enewetok. Strauss believed that the project had such importance that it warranted delay or interference with Hardtack if this might be necessary in order to accomodate the Army's project.

Meeting #1325, 22 January 58:

The commission Chairman is to meet with Von Braun and other scientists from the Army Signal Laboratory on the next day. Perhaps this had something to do with the high altitude events coming up this summer.

Starbird went over with the commissioners the testing schedule

for calendar year 58, in which he requested an additional test in the atmosphere. Along these lines, "Mr. Strauss reiterated his concern about the large number of weapons scheduled for testing during operation Hardtack and recalled that the President had asked that the Commission eliminate some of the shots originally scheduled. If the contingency shot is added, he said, the total number scheduled will be up to again. This, he remarked, seemed to be a reflection of the DOD's requirement for an increasing number of different nuclear weapons types. The Commissioners discussed the shots scheduled for 58 and Mr. Libby requested that the letter to the President concerning operation Hardtack state the amount of off-site fallout which will result from the series." The Commission then approved the revised Hardtack program (including tests), approved underground tests at Nevada (MILLRACE) and also approved the conduct of 1-point safety tests at the NTS during 58. This then would go into the appropriate letters for execution authority to the President, etc.

Meeting #1327, 28 January 58:

Among the discussion at this meeting, Libby discussed the question of avoiding detection of a nuclear test by placing the weapon in an earthquake fault, either underground or submerged, and then having detonation in sequence. His inquiries of certain California seismologists had indicated that detection under conditions would vary with the medium and it was felt that it would be difficult to detect such tests in the Pacific but not in Nevada.

Meeting #1328, 31 January 58:

The President had approved informally the first 6 months of Hardtack but had some questions regarding the fall testing for the NTS.

Meeting #1331, 5 February 58:

Mr. Floberg said that recent statements made by Senator Humphrey indicated he didn't clearly understand the problems with haulting nuclear weapons testing and Humphrey was under the impression that it is impossible to conduct a weapons test without other countries being able to detect each shot. The discussion ended with the feeling that Captain Morse, the chairmans special assistant for NSC affairs, should present a short briefing on the subject to Senator Humphrey.

Meeting #1337, 26 February 58:

As has been discussed for the month or so previous to this, discussion continued at this meeting on the question of a so called observer demonstration test during Hardtack. This apparently would be one test that would be open to international observation and for which there exists the possibility of allowing nations to get radioactive samples for either their own or U.S. analysis to determine the cleanliness of the detonation. The discussion continued with a lot of strong pros and cons at this meeting and it was not decided what the concensus recommedation should be but it was pointed out that President Eisenhower had indicated that there would be such a test and for him to retract this now would be a problem.

Also at this meeting, there was discussion of an AEC paper #226/132, which outlined 10 possible armament positions and their advantages and disadvantages.

Meeting #1338, 28 February 58:

The Commission approved conducting a UN observer program during operation Hardtack to demonstrate the US clean weapons capability and requested a detailed program be submitted for their consideration.

The Chairman reported on a letter received by the White House from Linus Pauling which requested an appointment with President Eisenhower to discuss the cessation of nuclear weapons tests. Strauss did not feel that such an appointment should be allowed and the Commissioners discussed the matter with some expressing their views that the request for an appointment could not be ignored and that perhaps it should be given to Dr. Killian to handle.

Meeting #1340, 7 March 58:

Some comments of General Starbird in addressing the upcoming budgets for weapons testing and other related projects are pertinent: "during the summer of 59, it is planned to conduct a harbor excavation experiment with a nuclear device at Point Barrow, Alaska. ---Starbird said that it was his belief that in the near future, the US would adopt a policy either of continuous weapons testing or testing all weapons underground, and slated intelligence reports of increasing numbers of Soviet weapons test series and of greater number of weapons being tested in each series.

Because of this belief, Starbird said he had requested from LASL and Livermore their comments on the advisability of maintaining the Pacific proving grounds on the basis which would permit testing throughout the year. He said he was not anticipating continuous testing on a scale such as operation Hardtack, but rather more frequent testing of a few weapons at a time. He added that he had changed his position on the need for testing a 20 to 40 kiloton weapon underground at NTS during 1958 and now believed it important that such a test be conducted during December 58 or January 59. Mr. Libby urged that the commission increase its underground testing program and said he also believed that the US may soon adopt a policy of testing all nuclear weapons underground except certain clean weapons which would be detonated above ground for weapons effects tests. General Starbird then reviewed the recommended budgets supplemental of 4.8 million dollars for the weapons laboratories, pointing out that 2.7 million for LASL would be spent largely on development NIKE-ZEUS , and anti-ICBM missile; and the 2.1 million for Livermore would be spent on accelerating work on the Polaris and on the development of small size nuclear weapons. ----Mr. Graham inquired whether the Department of Defense was, in effect, beginning a trend toward the development of smaller and cleaner weapons. Starbird replied that the policy was to maintain large thermonuclear weapons at the present level and to develope medium size and small clean weapons." A lengthy discussion followed which indicated the problems posed by the large number of military weapons systems being proposed, on which the AEC was asked to prepare warheads, and the difficulty with meeting the DOD's needs within present budgets. Eventually, the commissioners agreed that

1 million dollars should be added to the next fiscal budget for the underground testing program but made no other changes in the weapons program budget.

Meetings #1345-1349, 22 March-1 April58:

Discussion began and continued through this period on the subject of one of the high altitude shots (TEAK) planned for Hardtack during this summer. At the beginning of the discussions, two problems existed. One was that in order to acquire what was felt to be necessary technical data from the Teak event, a satellite must be launched quickly which would gather this data and would use the same launch team as planned to be used at Enewetok. Second, and perhaps more importantly, is the eye burn problem associated with this burst at an altitude of about 250,000 feet. York, Ogle, and Dunham have been mentioned as estimating the eye burn hazard radius as being about 350 miles. This would include from 2,000 to 4,000 natives depending on whether the shot was done during the day or at night. Even with the assurances of the Task Force Commander as to how he could control the population, the commission is extremely worried about this eye burn problem. Starbird recommended two things: that the satellite be launched the week of 24 March, and that the shot be fired on 16 April as planned. At the outset, it is noted that Ludeke is discussing the problem with trust territory officials, and chairman Strauss intends to discuss it with Secretary of State Dulles. Starbird maintained throughout the discussion that firing the shot at a reduced yield just would not provide the information required for defense purposes. Starbird pointed out a number of factors, such as that the available warheads for such a test

on the desired time scale are only three and that only the largest one would give the defense information required; that the rocket equipment is already in the Pacific in March of 58 and that any changes now would effect the satellite firing. Of particular note is the statement "even though he thought the Hardtack test series would be the last in the Pacific and he could appreciate the need for this vital defense information, the Chairman (Strauss) questioned the element of urgency, in as much as the commission had known nothing of this development six months ago." Starbird had extensive discussion with the Task Force during this short period of time of discussion and two messages in particular are noted on 26 March and 28 March from JTF7. Shot at another location. Further discussion addressed to alternative locations came in the 1 April Commission meeting which began with Starbird presenting the JTF7 information on the advantages and disadvantages of using Wake, Midway, Christmas, and Johnston Islands. The commission members quickly focused on the possibility of Johnston Island and "Strauss said he had visited JI and believed this would be a satisfactory location. He added that in view of the possibility of flash blindness for natives on atolls in the vicinity of Enewetok, you could not support holding the shot there. Mr. Libby remarked that he also would favor Johnston Island." ---Mr. Floberg inquired about the additional time required if the shots are to be moved to JI. General Starbird replied that necessary construction work and the removal of personnel would require an additional 5 or 6 months. He added that this might be a conservative estimate of time required. During further discussion, the Commissioner referred to Mr. Strauss' earlier suggestion

and agreed that he should discuss with the DOD the question of cancelling the shots as well as the use of JI if the shots are to be carried out. The subject DOD concurrence on the alternative location and a final Presidential determination, the AEC would proceed with plans for the high altitude tests at Johnston Island." Also entering into the discussion was the fact that the Army had already launched the satellite which was to make certain measurements and that a time delay would lead to the possibility of it not operating when needed.

Other items at these meetings included Flobergs comments on a recently detected but uidentified seismic signal which demonstrates the difficulty of certain identification of each Soviet test and he suggested that Senator Humphrey be apprised of these reports and their relationship to establishing a fool-proof weapons test detection system "Senator Humphrey, he recalled, had been urging that U.S. agree to a suspension of nuclear weapons test based on a world wide system of test detection."

Also, in the 1 April meeting, " Mr. Strauss referred to a press conference held earlier in the day by Dulles, and said that Dulles had commented on recent White House consideration of a possible statement regarding cessation of nuclear tests in anticipation of the USSR statement on this subject."

Meeting #1351, 4 April 58:

The discussion on the high altitude shots continued, with the inclusion of General Loper, assistant to the Secretary of Defense for Atomic Energy.

Clearly the JCS is not anxious to move the shots or even to delay them and rather lengthy discussion ensued at this meeting and , since it is not classified, I will make a copy of it to attach to these notes.

Also of interest is that there is a ship of people protesting the Pacific testing, the "Golden Rule," on its way to the Pacific test area to carry out thier protest; also a law suit has been filed in the District Federal Court by fourteen scientists and others from the US and three other countries, seeking an order to halt US nuclear testing.

Meeting #1352, 7 April 58:

Chairman Strauss attended a meeting this same day at the Pentagon with representatives from the State Department, the DOD, and James Killian to consider the question of transferring the high altitude shots to JI. The DOD indicated that they favored carrying out the shots as scheduled at Enewetok and Dulles agreed with the AEC that, if the shots were carried out at Enewetok and any incident occurred involving the natives, such an incident would be a serious threat to any continuation of Hardtack. "After further discussion, the representatives of the AEC and Departments of State and Defense had agreed to transfer the high altitude shots to JI. He added that the Department of Defense representatives were, however, reluctant to approve the change and that although he was relieved that the decision had been made, he was still concerned about the possibility of personal injury resulting from the shots. " Further discussion had to do with recent information that seemed to indicate that the eye burn hazard was less than earlier predicted and , Starbird would be in touch with Ludeke immediately as to accelerating the efforts to transfer the

facilities to JI and set up a shot date as early as possible.

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Meeting #1353, 9 April 58:

The President approved JI as the high altitude site on 7 April 58. A discussion of the non-military uses of nuclear devices determined a number of activities and positions that directly effected the Plowshare program. "Mr. Libby referred to the possibility of a disarmament agreement being reached which would restrict all nuclear weapons tests to underground detonations. Because of this possibility, he said, he believed that the AEC should accelerate its program of underground testing so that it would have greater experience with tests of this type if the US should agree to a test limitation. Starbird said he intended to submit to the commission the following week, recommendations concerning an expanded underground test program. " Among other things, the Commission approved broadening the Plowshare program and increasing the funding level for FY59 to 4 million dollars. A number of items were approved to address the planning and preparation for the Alaskan excavation project.

Meeting #1354, 11 April 58:

Here is an interesting item on test detection: "Mr. Strauss said it had been suggested that the National Academy of Sciences conduct a study on the ability to detect accurately any nuclear weapons tests. He said the Killian Committee report on this subject had not been conclusive. The cost, Mr. Strauss said, would be approximately $20,000. The commissioners said they would favor such a study."

Meeting #1357, 16 April 58:

Discussion of upcoming NTS testing by Starbird addressed the remainder of 58 and early 59 prior to operation Trumpet, planned for spring of 59. "In response to a question by Libby, Starbird said the 40 kiloton shot planned for NTS would be ready by January or February 1959 and could be ready in November 58, if it is assigned a high priority. Mr. Libby commented on the need for accelerating the underground test program and observed that future disarmament negotiations may result in the US abandoning testing in the Pacific completely with the exception of 100 kiloton device tests for weapons effects. General Starbird said he agreed that the underground test program was urgent but that AEC should not give the impression that it is expediting the underground program in anticipation of any disarmament agreement. He said it is important for government officials outside AEC to realize that an underground test program cannot accomplish the same results as testing above ground. ..... Libby said he believed that the letter to the President concerning the underground test program did not adequately state the urgency of the present situation. He said he believed AEC's position on the importance of underground tests had never been properly presented to the President and that it should be pointed out to him that underground testing at Nevada may be the only way the US will be able to carry on weapons tests in the future." The commission's actions included appoving the 20 to 40 kt. underground tests for early 59 and that the number of 1-point safety tests for the NTS in the fall of 1958 had been cut from 10 to about 7.

Discussion at this meeting was addressed to a desire by the DOD to test the Nike-Hercules missile in a full scale configuration in Nevada with a nuclear warhead. The discussion addressed mainly the problems with attaining complete safety and the reason why the DOD wants this safety test at the NTS rather than in the Pacific.

On the question of test detection, "Floberg said that during a discussion the previous day with representative Holifield and Mr. Vance, Holifield had asserted that, in his opinion, the AEC weapons lab were following a policy of de-emphasizing the possibility of accurate long range weapons test detection. Floberg said he believed this was absolutely untrue but that since the charge had been made, an investigation should be undertaken to determine whether it had any basis in fact."

The commisssioners approved, on 16 April, a letter to the GAC asking them to address the adequacy of the commissions present underground test program and how the weapons program might be conducted if only underground testing were permitted at their 58th meeting, to be held 5-7 May.

Meeting #1359, 21 April 58:

This was the first meeting at which the tests which later became Argus, were brought up and the discussion was led by General Loper. He discussed the proposal as it had already been presented to Killian and Quarles, among other people. Noted was that the proposal and the concept of the Argus effect came generally from Livermore and that LASL that such possible tests certainly deserved serious consideration. Mention was made that the shots needed to be done at a much higher

altitude than those presently planned from Johnston Island and a tentative detonation location in the South Atlantic was suggested. The shot was now planned in some detail , including the date (about 1 September), the method of launch, the location, etc. Loper said that after a decision has been made to proceed with the shot, the State Department , AEC, and DOD could meet jointly with the President and Killian to obtain Presidential approval. "Strauss said he appreciated the importance to US defense planning of the information to be obtained from the proposed shot. However, he expressed concern over the possible overtones of this test and observed that if the shot were carried out at the proposed location, the US would not be in a position to object to weapons testing by the USSR in international waters."

Meeting #1361, 24 April 58:

Along the lines of the potential Argus tests, : Starbird reported that he had received a telegram from Teller responding to questions in connection with the special weapons test proposed for later in the year. Teller, he said, had stated that there would be no eye damage to observers of the shot and that there would be no perceptable effects at surface level. Starbird said he had communicated this information to Dr. Al Graves who is presently in the Pacific test area." Starbird suggested that a briefing be prepared for the next GAC meeting to obtain their views and that plans for the shot proceed right away, and that the President and Department of State be notified of the plans, a procedure approved by the Commission.

Meeting #1366, 29 April 1958:

Perhaps some indication of the increased and accelerating pressures on declaring a test moratorium are indicated by a couple items here.

"Strauss said that during a conversation with Mr. Bernard Baruch, Mr. Baruch had suggested that a reply be made to Mr. Albert Schweitzer's recent statement calling for the halting of nuclear weapons tests. The reply, Baruch said, would be most effective if it were made by a distinguished public figure with a large popular following." Libbey was requested to prepare the material for such a statement and the Commissioners all agreed that this then could be used to provide to such an individual as Baruch would locate.

"Mr. Libbey remarked that, aside from the Commissioners themselves, the AEC had received relatively little support for its position that U.S. weapons testing should not be completely halted. The fact that the question has become a political issue has restricted persons employed by AEC from speaking out freely about it, Mr. Libbey said. He suggested that it would be helpful if the support of Senate leaders such as Lyndon Johnson and William Knowland could be enlisted in presenting to the public the case for continued testing."

Meeting #1367, 30 April 1958:

A proposal by the Air Force to test both the Nike-Hercules missile and the Fighter-Interceptor/MB-1 using nuclear warheads was presented. The DOD said that it would be impossible to prepare for testing these

systems at the EPG by 1 September and they were proposing conduct of the tests in the U.S. It was stated the NTS could not be used for the MB-1 tests since they involved firing warheads at drones and the NTS area was not large enough to provide adequate safety. The DOD had presented a proposal now to test these two systems at Eglin Air Force Base. The discussion addressed the possible problems with public relations and the reasons why Cape Canaveral and Eniwetok could not be used. The Commission as a whole were not very sympathetic to the DOD's desires or to agreement to opening up another U.S. test site, for various reasons.

Discussion ensued in this meeting on a revised letter to the JCAE commenting on a bill introduced into the House of Representatives by Representative Porter (HR8269) to halt the testing by the U.S. of nuclear weapons. Some discussion by the various Commissioners ensued but no agreement on a letter was reached so the General Manager said that another revision to the letter would be prepared and submitted at a later time for consideration.

Meeting #1370, 7 May 1958:

Project Plowshare was discussed, on which a site had been selected in Alaska for the Harbour Excavation Project. After noting that 3 million dollars had been allotted for Plowshare, Starbird remarked that the cost was now estimated at 7 million in FY59 but that some phases might be deferred until FY60. "In response to a question by Mr. Libbey,

General Starbird said the Department of the Interior had not indicated that they would provide any funds for the project. Libbey suggested that consideration be given to expanding the project and inviting cooperation from private industry and universities on an unclassified basis. In view of the possible civilian uses which could be developed, he said this was an important project which could be developed on a cooperative basis." In remarking on the weapons testing budget, "Mr. Fields remarked that the 45 million dollars in the base budget for weapons tests might not be sufficient and General Starbird pointed out that underground tests require more funds than the surface tests at the NTS."

Meeting #1371, 9 May 1958:

Lengthy budget discussions for the upcoming fiscal years included Libbey's remarks that in connection with test funding in the Pacific, "Consideration should be given to the possibility that by 1960 all testing would be underground at NTS. The Commissioners briefly discussed with the General Manager and Mr. Burrows the question of whether underground shots would be more expensive than testing at Enewetok, and Mr. Burrows said he believed underground testing would be less expensive than testing at Enewetok. Mr. Libbey suggested that it might be desirable to footnote the cost estimates for testing, indicating that if all testing is carried on underground, additional funds might be required." Note that Starbird was not at this meeting.

Meeting No. 1372, 9 May 1958:

Further indications of pressures to discontinue testing are a request from Representative Porter to present his views on the need for a test cessation to the Commission and the Commissioner's feelings that they should meet with him provided the JCAE had no objections. Also, Commission Graham visited earlier in the afternoon with a group of Pacifists who were staging a hunger strike in the Lobby of the AEC Headquarters Building. Also, Libbey discussed with Starbird the possibility of utilizing sites in Chile and Utah for underground weapons detonations and the possibility of interesting oil companies in nuclear explosions for their purposes.

Meeting #1376, 21 May 1958:

The Commission discussed and approved the declassification of information relating to the Pinon shot of Hardtack, which I gather is to be the shot which will be observed by U. N. observers. The discussion noted that the observers would receive short-range cloud samples from which it could be determined that the device was a thermal nuclear weapon. Also the samples would give other information about the materials in the device, but the Commission determined that this information plus publicizing the fact that it is a stockpiled nuclear weapon was acceptable.

Further discussion of the possible missile tests at Eglin led to the following recommendations: That the Commission advised the Secretary of Defense that the AEC had no objection to the DOD conducting these tests; that the AEC cooperate but not assume any responsibility

for the tests; that the AEC review the DOD safety and operational plans. Along these lines, "General Starbird remarked that the DOD was particularly anxious to carry out the tests by September 1 in view of a possible test moratorium this year. Consideration had also been given to the Secretary of State's statement on April 7, 1958, the tests of this kind should be conducted before September 1, 1958. General Starbird said that he believed that the tests desirable but expressed concern that the U.S. may be accelerating too many weapons tests to meet the September 1958 date. Such action he said might not prove to be in the best interests of the U.S. in view of the serious consideration being given to a test moratorium."

Along these lines of a possible test suspension the following was stated" "The Commissioners discussed with the General Manager and General Starbird the question of suspension of nuclear weapons tests in connection with its consideration during the forthcoming meeting of President Eisenhower and Prime Minister Macmillan. The Commissioners agreed that in view of the possibility of an establishment of a moratorium on weapons testing, the Commission should be informed on the advantages and disadvantages of underground weapons testing in the event that it is considered desirable to propose continuation of such tests. The Commissioners requested Starbird to arrange a meeting of the Commissioners with Messrs Bradbury, Teller and others on May 28 to discuss the question of underground shots."

Meeting #1377, 28 May 1958:

Additional personnel in attendence at this meeting included Bradbury, Brown, Graves, Sewel, and Teller. The lengthy discussion in which these gentlemen participated on weapons test limitations and the possibility and effects of a moratorium are classified SECRET and a copy will be obtained to keep in our classified files.

The afternoon session of this 28 May meeting addressed the possible additional of shots to Hardtack. Libbey had calculated that approximately 8 megatons of fission yield would be contributed to the atmosphere by those shots already approved and the discussion of the additional fallout contribution of the new shots took place. The Commissioners were addressing whether to request the additional shots for the President's authorization and what to present as the request for Project Millrace. A couple of the points brought up were: That the President was very concerned about the number of weapons and the amount of fallout being contributed by Hardtack; That, in view of the present international climate with respect to weapons testing and a possible moratorium, the President might not question inclusion of additional shots since Hardtack might be the last test series. Apparently the total estimated fission yield with the new shots included in the Hardtack would be 8.4 megatons. The Commission approved for preparation and later revision possibly a letter to the President requesting the completion of Hardtack with two additional and one contingency shot. Also it would request that Millrace be approved and, if Millrace were not approved, then Hardtack would require one additional atmospheric and a 1-point

safety shot. One of the Commissioners stressed the importance of getting an underground shot in Millrace as a primary objective. Strauss noted that he had provided President Eisenhower with a copy of the GAC recommendation regarding underground shots, which did not have unanimous support from the GAC.

Meeting #1380, 6 June 1958:

The action taken against the "golden rule" vessel which attempted to sail into the Pacific Test Area during Hardtack is noted that three crew members had been given 60-day jail sentences for attempting to sail into the area against a court order.

As for a test moratorium inspection, Strauss met with Fisk, Bacher, and Lawrence, members of the U. S. team appointed by the President to negotiate a weapons test moratorium inspection system and said that they inquired about the possibility of conducting another underground weapons test at the NTS. They said that the Rainier shot had not provided sufficient information about underground test detection and suggested that a larger test be conducted so that they might collect additional data. Strauss said he made them aware that a second tunnel at the NTS might be completed by October and said that they would write the AEC requesting acceleration of preparations for this test.

Meeting #1381, 12 June 1958:

Discussion of possible announcement of specifics about events in the

Hardtack series included Mr. Libbey saying that Jim Fisk, a member of the President's appointed group to negotiate with the Soviets on a weapon test inspection system, had called the day before regarding announcement of such shots. Fisk had requested that the AEC make no detailed announcements at least for the next several weeks since negotiations about an inspection system would begin soon and the U.S. may be able to use the possible release of further test information as a bargaining point during the negotiations. The Commissioners concurred with the proposal that further consideration of release of any detailed information about Hardtack tests be deferred for the time being.

A discussion of the proposal to be presented to the President to include more tests in Hardtack included Libbey's remarks that he had asked not to be recorded as approving the additional shots for Hardtack since he felt that the weapons labs had previous test data which had not yet been analyzed and on which he felt greater emphasis should be placed prior to more tests. "He said one possible explanatinn for the disappointing results from some of the tests to date in Operation Hardtack may be because full use was not made of weapons information available from other test series." Straus said:"He believed it quite likely that Operation Hardtack may be the last test series held by the U.S. before a weapons test moratorium is agreed to by the U.S., U.K. and the Soviet Union. Therefore, he now believed that any tests which the labs consider important should be carried out without regard to

the total number of shots detonated during the series. Floberg said he agreed but suggested that the President be told that this is the primary reason for the AEC requesting the additional shots. Strauss added that although the Commission is disappointed that all Hardtack shots had not been completely successful, this should not be interpreted as meaning that the Commission wishes the laboratories to become more conservative in their design of new weapons."

Meeting #1383, 18 June 1958:

Mr. Strauss reported that the President and the Secretary of State had approved the AEC request for additional shots in Hardtack as well as approving Millrace. President Eisenhower expressed the hope that Millrace could be accelerated in order to begin before the conclusion of Hardtack, and Strauss had pointed out the additional cost and time factor but had requested Starbird to initiate necessary action to accelerate that series.

Meeting #1385, 25 June 1958:

The Commission approved the appointment of Al Luedecke as AEC General Manager upon his retirement from the Air Force following Hardtack and, in the interim, appointed Paul Foster to succeed Fields as General Manager until Luedecke assumes the duties.

Before the Commission at this meeting was a paper, AEC 226/143 which recommended declassification of certain effects information needed by the U.S. Delegation to the Geneva Conference of Experts to begin

discussions on 1 July. After discussing in whose hands the authority to declassify should lie, it was said that such a declassification should be conditional upon a determination by the Chairman of the U. S. Delegation, Dr. James B. Fisk, that final release of such information was necessary to successfully carry out the mission of the delegation. "During discussion of the question, Mr. Marshall pointed out that information proposed for declassification relates to tests detection systems and has been requested by Chairman Fisk as possibly needed during the conference period. In addition, Chairman Fisk had stated that the U. S. delegation should also be able to discuss the physical aspects of the Argus if the Soviet Union appeared familiar with this subject." A lengthy discussion on this subject followed with some of the following brought up: The DOD's concerns about any release of information; the suggestion that in general the U. S. delegation discuss matters only to the extent that the Soviets had at first brought them up; that the Commission have a physical representative with declassification authority at Geneva or delegate the responsibility in the U. S. to a Commission person below the Commission. Further, the discussion ended up agreeing to consider the question following the next day's AEC-MLC Conference.

Meeting #1386, 26 June 1958:

Chairman Strauss announced that this was to be his last meeting as Chairman and said that the Senate would hold a public confirmation meeting on the 2nd of July for John A. McCone, nominated by the President to be a member of the Commission.

As to the question of declassification of information for Geneva, the commission agreed to the delegation of authority to Captain John H. Morse, the AEC's staff representative with the US Delegation at Geneva and specified those topics in which he would have declassification authority. There were a few things that the commission and the MLC agreed they did not wish to declassify and any mention of these topics would have to be brought directly to them for consideration.

Meeting #1387, 2 July 58:

The following high level discussions on the possible Air Force missile tests from ~~England,~~ Eglin President Eisenhower told the State Department to inform Cuba and Mexico that some relatively small-yield nuclear tests would be held at or near ~~England~~ Eglin and, if either government reacts adversely, the tests are to be reconsidered.

A memorandum written by Captain Morse prior to his departure for Geneva on 27 June was brought up since it raised a question on which the AEC ought to take a position, that of international participation in weapons tests. Staff recommendations on this question were requested by the commissioners.

Meeting #1388, 8 July 58:

Discussion of the Geneva conference began addressing certain items which had been requested from the US Delegation for Declassification and it was noted that Loper and the MLC opposed any additional declassification since so far the Soviets have discussed primarily theories rather than scientific facts. Morse reported to the commission that so far he had complete confidence in the way Fisk was conducting

the US side of the talks.

Meeting #1389, 10 July 58:

Starbird brought up a proposal to consider cancelling the UN demostration program for the Pinon event of Hardtack. He noted that several events had taken place since the recommendation for the program on 18 March, which required a reappraisal of the program. The pros and cons of cancelling the test at this late date and the fact that approximately 3 to 4 million dollars of the 10 million dollar cost for the shot could be recovered were brought up and the commission agreed that Libby should recommend to the President the caneellation of this program.

Further discussion of the position to be taken on international cooperation in nuclear testing, as discussed in AEC 226/147, led to a position which would be given to the Secretary of State for transmission to and use by the Fisk group at Geneva. "Starbird reviewed at length the background of the proposal, pointing out that the Geneva technical conference may afford the US an excellent opportunity to obtain a propaganda victory over the USSR. He added that in presenting the proposal under consideration, the Fisk group would confine its comments to international observation of nuclear tests and not concern itself with international conduct or monitoring of nuclear tests. In addition, he pointed out that nothing would be said about high altitude shots. He also commented that the proposed position had the concurrence of General Loper."

Note that in the meetings about this time, the question of cooperating with the French in exchange of information, and inparticular weapons information, begins to come up more and more frequently. In this

particular meeting some conversations that will be held with DeGualle by Secretary of State Dulles are mentioned.

Meeting #1390, 17 July 58:

This was John McCones' first meeting as AEC chairman, having been sworn in by the President on 14 July.

A lengthy discussion followed on the advisability of cancelling the Pinon shot including international observers. McCone had been at a meeting of the Operations Coordinating Board (OCB, including Representatives of the Department of State, CIA, and USIA, all of whom had been opposed to the AEC proposal to cancel the shot following the Presidents' announced invitation to foreign countries to send representatives. This was all tied to a shot that was to demonstrate the US's ability to develop a clean weapon. The responses from foreign nations to date were: accepting the invitation were Sweden, Brazil, Canada, Belgium, Australia, and France; declining the invitation were the Soviet Union and Czechoslovakia; no replies as yet from Japan, Mexico and Argentina. McCone had informed the OCB that he would bring up the question again with the AEC, and he noted that the OCB was disturbed to a certain degree because they felt that they hadn't gotten all of the real reasons for the desire to cancel from the AEC in the proposal. Discussion revealed that Ludeke, Commander of JTF7, had said that the task to prepare for such an observed shot would require an additional 2 to 3 weeks to carry out. Following discussion, the Commission changed their position and agreed that the shot should be held as originally planned and requested that the test be accelerated.

Meeting #1391, 17 July 58:

On the subject of development of clean weapons, Libby said that the current Hardtack tests had demonstrated that the US had achieved a "remarkable breakthrough in the development of clean nuclear weapons." With the other commissioners in agreement, he expressed his feelings that the Commission should renew its efforts to convince the DOD to increase their requirements for clean weapons and McCone said he would arrange a meeting with the JCS for the AEC to discuss this question and have the laboratory directors present for the meeting.

Meeting #1392, 29 July 58:

One of the first items was the report that the President had decided to cancel the proposed UN observers shot in Hardtack and that the Department of State had issued a press announcement along these lines on 26 July.

On the subject of discussions of clean weapons and DOD requirements for such weapons, a joint AEC-DOD briefing to be conducted by the weapons lab directors on these developments and requirements was to be scheduled for the week of 11 August.

Meeting #1394, 7 August 58:

The chairman had received a memo from Philip Farley, special assistant to the Secretary of State, outlining proposed revisions to the US policy on nuclear testing and this memo was scheduled for committee consideration the next day (AEC 226/157).

Another item at this meeting was "expansion of AEC laboratories," in which Libby said "after serious consideration of the question of the growth

of the AEC's laboratories he believed the laboratories were becoming too large. He suggested that the commission consider this matter and discuss it with the GAC at their next meeting." I recall in a meeting about 4 or 5 months prior to this, Libby (I believe) had noted that he felt that LASL had already gotten beyond the optimum size for their job whereas Livermore was just about at that point and should probably grow no further. In this current discussion, the General Manager noted that one problem was that no one person or group was responsible for long-range planning for the laboratories as a whole.

There are some commission discussions that were held on the subject of weapons test suspensions and policies to be presented publicly and at Geneva which are classified and will be copied from about the 9-10 August time period.

Meeting #1397, 11 August 58:

The discussion began with the General Manager reporting that a revised draft position paper on the suspension of weapons tests was being circulated among officials of government departments and agencies concerned.

Colonel Stewart (of DMA, I believe) reported on a meeting earlier that day with the DOD and Department of State to consider a draft position for the US on weapons testing limitations. Stewart stated at the meeting that the AEC had strong reservations about limiting all testing to underground. McCone said it was important for the Commission to present its views to the President. "Mr. Graham commented that the AEC representative at Geneva, Captain Morse, had reported that the head of the US Delegation

Mr. Fisk, was in favor of continued underground testing rather than a complete cessation of all tests. Mr. Libby requested that a redrafted US position paper be submitted to the commissioners the following day."

Meeting #1398, 14 August 58:

Starbird reported that he had concurred with a DOD decision not to hold a third high altitude shot during Hardtack, after consulting with Mr. Libby and Bradbury of LASL. Cloud cover had prevented AEC observers from obtaining some important data on the high altitude tests but aircraft had collected samples. As for including some of the Millrace tests shots in Hardtack, this would now be impossible since the devices would not be ready until October. Starbird proposed to the Commissioners that the announcement on the closeout of Hardtack not read that way but that, instead, he simply issue an announcement on the closing of the test areas after the last regular shot but make no statement about conclusion of Hardtack. Also he noted that Argus would not be shot for another week or more.

On the subject of weapons test limitations, the Chairman attended two meetings at the Department of State on this subject, one on 8 August with Dulles and the other on 13 August, attended by Under Secretary of State Herter.

Meeting #1399, 27 August 58:

Note that, between this meeting and the last Commission meeting held on the 14th of August, the President made his announcement about a test moratorium, but there were no meetings held in this time period and on this 27 August date, the discussions did not in any explicit way mention

the possibility of a test cessation.

In the afternoon meeting on 27 August (meeting #1400), Colonel Stewart of DMA "remarked that the proposed reductions in the weapons budget would adversely affect weapons laboratory personnel. The Commissioners stated that any overruns from other programs would be allocated first to the weapons program and second to the research program." This discussion followed the presentation of the FY59 budget, which had had reductions made in it in order to fit with the final appropriation for FY59. The Commission approved the following budget reductions: weapons-6.5 million; reactor development-5.8 million; research-1 million; and training and education-1 million.

Meeting #1402, 17 September 58:

Note that this is the next date on which Commission meetings were held and the afternoon discussions began with the subject of budget for the weapons program for FY60. As these notes are unclassified and the details are of great interest in indicating the initial direction and feelings of the Commissioners in reducing the weapons program even before the moratorium began, I will copy these pages of the minutes and put them with these notes later.

At an evening meeting on the same day, McCone reported that the State Department would appoint a 3 man US Delegation to the upcoming Geneva test ban discussions. The delegation would be composed of a representative of theState Department, an attorney in the field of international law, and a

scientist. After a phone conversation with Farley of the State Department, the General Manager reported that the scientific member would be appointed with the concurrence of the Commission.

Colonel Stewart of DMA discussed with the Commissioners the estimated effects of a $46million weapons program budget reduction, as discussed earlier in the day. He pointed out "that such a reduction probably would result in a 30per cent decrease in the numbers of weapons produced in FY60. The Commissioners said they found it difficult to understand how a cut of 8 percent in funds could cause such a large reduction in the number of weapons and requested a more detailed report on the effects of holding the weapons budget at $500,000,000." Further in executive session, McCone said he had talked with Starbird by telephone, who was in Albuquerque, and Starbird had expressed the view that any percentage cut in the weapons budget could result in a reduction as much as 4 times as large in the number of weapons produced.

Meeting #1407, 30 September 58:

Mention is made of a draft press release on international observation at project Plowshare which is to be submitted to the OCB for approval. In discussing the Nevada testing, now called Plowshare Phase2, Starbird noted the failure of an ASROC shot on 29 September. He requested the Commission to submit to the President a letter requesting authorization for 4 additional tests in this latter series. The shots would be for an ASROC, a GNAT, a MARK VII, and an X-RAY test, all requested by the DOD. Mr. Graham questioned the need for such shots feeling they were laboratory experiments rather than DOD requirements and abstained from the

Commission decision to prepare the letter of request for the President.

Meeting #1414, 15 October 58:

As has been growing, the discussion of the importance of project Plowshare is brought up again here by Chairman McCone who has suggested to the OCB that they might establish a subcommittee on project Plowshare to stimulate wider interest and participation in the program.

General Starbird reported on some current problems with operation Hardtack in Nevada and the desire to present to the President another letter requesting the authority to make certain modifications in the remaining tests scheduled. McCone said that, prior to his departure for Rome at the end of the week, he might confer with the President about such modifications.

Meeting #1415, 21 October 58:

In the continuing discussions of preparations for the Geneva test ban talks and who would represent the US with what position, Libby reported that McCone had met with the Deputy Secretary of Defense (Quarles) and was successful in reversing a decision to send only the Presidential Disarmament advisor James Wadsworth to the Geneva Conference. The Deputy Secretary of State Herter agreed that the AEC might send a representative and the Commissioners discussed who this might be. They decided to inquire whether Captain Morse would be willing to accept the assignment and , if he were unable to attend, Libby stated that Mr. George Kavanagh, assistante to Mr. Vance, should represent the AEC.

Meeting #1417, 24 October 58:

As for the upcoming Geneva talks, McCone noted that he had discussed representation with Robert Bacher and planned to propose that one of the three US negotiators for the conference be an outstanding scientist familiar with weapons matters.

Meeting #1418, 28 October 58:

McCone reported that Dulles had announced in a press conference that, if the Soviets continue to conduct tests after 31 October, the US would plan to resume its testing also. The Commissioners decided that the brief announcement that the last shot in the NTS Hardtack series had been concluded should have no reference to any position as to conducting weapons tests after 31 October.

Meeting #1421, 31 October 58:

Here are the words on the final day of operation Hardtack :"three tests of the Polaris warhead remained to be held on October 30. First was a tunnel shot of a mockup warhead that had not been proved 1-point safe. This shot was detonated successfully giving the desired yield. The second was a 1 point safety test of a reduced-mass (blank) and this test proved the (blank) to be 1 point safe. The third test was to have been a detonation of a mockup warhead . However, in the afternoon, when the test was scheduled, the atmospheric conditions were such that some blast damage would have occurred over the Las Vegas area and so the test was delayed. At 11:00 PM, the weather seemed to be clear and an additional high explosive test was held to determine the blast prediction. This indicated that the last shot could safely be fired and a test

was scheduled for 11:30 PM and General Starbird said he approved proceeding with the test at that time. Subsequently the weather changed and it was decided the test would have to be delayed until 2:00 AM. Starbird said he then conferred with Department of State officials and was told that US-USSR discussions were scheduled to begin in Geneva at 9:00AM EST, October 31. He stated he decided at this point that in view of the probable political and psychological repercussions of holding a test at this late date the final test should be cancelled. Starbird said there will always be a question as to whether the final shot should have been fired in view of its importance to the Polaris weapons program, but that he believed that the other considerations were of overriding importance. The Commissioners unanimously agreed that General Starbird had made the right decision in cancelling the final test."

Meeting #1424, 12 November 58:

Here is the first mention of a weapons test readiness program which was presented to the Commission by a memorandum to the Chairman from General Starbird dated 10 November 58. A copy of the words from the minutes as well as a copy of this document AEC 226/172 will be obtained for our files.

Meeting #1431, 20 November 58:

At this meeting, the Commission authorized the creation of a Plowshare Advisory Committee which had been under discussion for several months.

Note that through this time period, the early days of the Geneva negotiations, some meetings were devoted in their entirety to discussing the question of

nuclear test suspension and needs for testing and there was major discussion a number of times. All of this I am trying to have extracted in its entirety and , since it is classified, will be obtained for our classified files.

Note that Alvin R. Luedecke assumed his duties as AEC General Manager on 1 December 58 and Paul F. Foster who had been acting as General Manager became Deputy General Manager on that date.

Meeting #1436, 4 December 58:

Commissioner Floberg showed a graph of the seismic signal of the Rainer test shot and stated that the amplitude had been over-rated and was different than originally believed. The net effect of this data is to show how extremely difficult it is to detect underground test shots and a reappraisal of the GORE proposal (in the classified notes) should be considered. Foster added that this indicated the "threshold" limit for the detection of nuclear tests would have to be increased from 5 to 20 kilotons.

Increasing discussion was given about this time to budget problems both within the AEC and within the US Government as a whole. Mention has been made of the Presidents concern with the gold outflow and mention is made at meeting #1437 as to the stability of the dollar in world markets due to the alarming increase in the gold outflow. McCone stressed these points, observing that the situation imposed a responsibility on the Commission and Staff to make every effort to achieve major AEC budget reductions for FY60. McCones' objective was to reach agreement on a greatly reduced budget in accordance with the Presidents criteria. The budget discussions which

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followed at this meeting in the weapons program area resulted in reductions in "plant aquisition" in the amount of 5 1/2 million dollars and "operationg expenses" in the amount of 9 1/2 million dollars. Also the Plowshare funding was reduced from 10 million to 7 1/2 million for FY60. Starbird began budget discussions at the next meeting by pointing out that after drawing money from the contingency fund he still found himself 4 1/2 million dollars short from what was needed for the FY60 budget and requested that this 4.5 million be restored. "General Starbird said the contingency would be sufficient if only low yield testing were resumed. However, if full scale testing were resumed, a supplemental budget request might be necessary." The Commissioners, after discussion, agreed that the 5 million dollar reduction at the previous meeting should not be restored and agreed to consider a supplementary budget request from Starbird later.

Meeting #1442, 12 December 58:

Here is an item about Teller which says "McCone reported that Teller had agreed not to make any announcement about tests until the Geneva conference recessed. McCone said that Teller believed that, as a matter of scientific fact, he should announce that underground tests cannot be detected under certain conditions."

The meeting on 19 December 58, #1447, had extensive discussion with AFOAT on the data from Hardtack II. A copy of this will be obtained for our files.

Meeting #1456, 15 January 59:

The Commissinn was told that Harold Brown of the US Delegation at Geneva was to be temporarily replaced by Kenneth Street, Deputy Director

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of Livermore. After considering the matter, McCone said any replacement of Brown should be on a permanent basis as the Delegation must have continuity in scientific advice and the General Manager agreed to further look into this matter.

Meeting #1457, 16 January 59:

From a meeting with Senator Anderson of the JCAE, Mc Cone reported that Anderson felt it was unfortunate that the Department of State had not' discussed the test cessation with the JCAE before entering into the negotiations because the JCAE might have been able to forestall Congressional comments. They might have been able to dissuade Senator Gore from making his proposal. Commissioner Floberg noted that the Commission also was not properly brought in to the discussions prior to negotiations.

Meeting #1459, 26 January 59:

Among other items in relation to the Geneva talks, the Commission recommended that Dr. Sterling Colgate of Livermore be sent to Geneva to replace Harold Brown as the technical advisor.

Meeting #1461, 30 January 59:

Paul Foster presented a draft letter to the Commissioners which would go to the Secretary of State with the AEC's position currently in regard to the test ban talks at Geneva, a letter which had been prepared in accordance with McCone's guidelines. Libby expressed concern over the implication that additional seismic data could not be obtained in less than one year but Starbird explained that , while two nuclear tests could be

carried out in 6 and 8 months respectively, the evaluation of seismic data would require at least a year; evaluation of a high altitude detection shot would require even more time. The Commissioners then approved as revised a letter to Secretary Dulles.

Note that around the beginning of 1959 there is a marked decrease in the frequency of discussion of anything having to do with weapons developments, weapons testing, and to a certain extent the test ban discussions at Geneva.

Meeting #1476, 24 February 59:

Libby reported on a cable from the US Delegation at Geneva requesting guidance on answers to the latest Soviet proposals which concerned the number of detonations for peaceful purposes to be permitted the two countries and reciprocal rights concerning inspections. The Commissioners agreed with Libby's proposed reply "on inspection rights with respect to replacement parts for weapons stockpile for peaceful purposes." Copies of these messages are in the files here.

Meeting #1488, 20 March 59:

Libby reported that Harold Brown, now at Livermore, had replied by message to Libbys' questions regarding control of a test ban on atmospheric tests. He felt Browns' proposal was a more practicable plan that currently being considered at Geneva and said the proposed plan involves "approximately 14 control stations, perimatrical air inspection with no direct fly over, noreference to a "threshold" limit, and no provision for inspection teams."

This reply, prepared on short notice, seems to be "adequately feasible" to Libby and thus he has requested Brown to prepare an alternative study with respect to control of nuclear testing by the use of satellites.

Meeting #1496, 23 April 59:

In executive session, several items having to do with weapons testing were discussed. McCone reported that that day he attended a meeting with Killian of the White House, Deputy Secretary of Defense Quarles, and Starbird, and agreement had been reached on various studies to be undertaken by various government departments in connection with weapons testing and test detection. The AEC would cooperate in a number of these and would be primarily responsible for the following: "the Berkner panel recommendation relative to undertaking an experimental test program to determine the perimeters of detection and concealment; determination of the feasibility, practicability, costs and timing of underground tests; and determination of problems of conducting tests in the atmosphere, but above the limit of detection by the Geneva system, and of establishing any limitation of altitude in view of fallout." McCone said that the AEC and the DOD would jointly try to establish test requirements.

McCone said that Killian requested the Commissions views on declassifying the Argus experiment and he asked for a staff reply promptly.

The problem of increasing weapon complexity was discussed and Luedeke said he would consider a possible laboratory study of this aspect.

As for future weapons tests, McCone said that "he had expressed the view at the conference that there is a need for distinguishing between weapons tests that are absolutely essential and those which are desireable but have only marginal importance. As an example, he said at a request by the DOD for a 20 kiloton weapon with a plus or minus factor of two kilotons. Such a weapon would require several test detonations to perfect. On the other hand, the laboratories now can develop a 20 kiloton weapon with a plus or minus factor of 5 kilotons without conducting any test detonations."

Meeting #1499, 29 April 59:

McCone read to the Commissioners a draft letter which Eisenhower intended to send to Khrushchev; Starbird recommended certain changes pertaining to inspections and the new scientific data now available. The Commission then approved the suggested changes and McCone requested Starbird to discuss this with Farley of the State Department.

Note that on or just before 8 May 59 Deputy Secretary of Defense Quarles died.

Note, that in a meeting on 12 May 59, Luedeke reported on the upcoming adjournment of the Geneva talks until 8 June 59. The Commission agreed that the AEC representatives, Al Graves and Sterling Colgate, should return to the US and a meeting should be set up with the Commission to discuss the conference negotiations with them.

Meeting #1507, 14 May 59:

This meeting began with a consideration of two AEC papers 580/84 and 580/85 which were planning estimates as of this date as well as a weapons development status report to be used by the DOD in planning for future weapons development and production. These items were being treated specially since the Commissioners realized that the DOD would treat these estimates and statuses as hard facts in projecting their own need for weapons systems and request for device development for the years to come. This discussion and the approval for transmittal of these papers was followed by a discussion of the Geneva talks with Graves and Colgate present. All of this, which is classified, will be obtained for our files.

Meeting #1511, 22 May 59:

For the first time in a while, Plowshare got a great deal of attention in this Commission meeting. In particular, Starbird noted the change in the scope of the Harbor project in Alaska (Chariot) and, as the Commission had previously requested if additional expenditures were required, he was now explaining the need for certain studies to be done and the additional funding requirement of about 1. 3 million dollars. As near as I can gather, the Commission seems to approve continuing the surveys and plans for this project at additional funding levels as of this date.

Starbird also informed the Commission that two salt mines (in the Houston and Louisiana Gulf Regions) appear as feasible locations for testing the Latter Hole theory. Time required to prepare for the tests is estimated at 60 to 90 days and both mine owners have been approached. Arrangements are being

coordinated with a committee consisting of Killian, a State Department Representative, and a DOD representative. A joint press release is being prepared to answer questions regarding the use of high explosives.

One of the two items discussed in executive session was seismic test preparations.

Meeting #1519, 8 June 59:

McCone is enroute to Geneva at the request of Secretary of State Herter for discussions relative to the Foreign Ministers meeting there and the conference on nuclear test cessation.

Meeting #1521, 19 June 59:

The Chairman reported on the planned establishment of a "scientific panel to evaluate the over-all adequacy of test detection systems." The guidlines for this panels study will be drawn up by a Committee composed of representatives from the DOD, AEC, CIA, the White House, and the State Department. McCone expressed the AEC's desire to berepresented on both the panel and the committee and proposed Harold Brown and Spofford English as the representatives, with Starbird available for consultation. Starbird stated that the AEC staff believed that Brown should be the representative and English and Starbird should be observers, a proposal with which the Commissioners agreed.

Meeting #1529, 17 July 59:

Starbird presented to the Commission three studies prepared by DNA on the subject of Weapons Testing, one concerning requirements for additional weapons tests, one concerning underground weapons tests, and one concerning high altitude weapons tests. These have been prepared as a result of the

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

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

Meeting #1536, 13 August 59:

Teller and Brown of Livermore attended this meeting and presented the Livermore concept of development of enhanced radiation weapons . The details of this discussion and proposal are classified and a copy will be in our files (AEC 1027/1).

Meeting #1541, 9 September 59:

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

Meeting #1546, 14 September 59:

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

Meeting #1554, 21 September 59:

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

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

Meeting #1565, 3 November 59:

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

Meeting #1571, 24 November 1959:

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

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technical discussions on methods of detecting underground shots."

Meeting #1572, 11 December 1959:

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

Meeting #1573, 15 December 1959:

On the subject of Geneva negotiations (AEC 226/229), Starbird reviewed a proposed AEC position on the test ban for high altitude in a phased test ban treaty. Guidance was needed from the Commission on a staff proposal

that the ban initially extend up to 300,000 kilometers, the same limit that would be named in the event of a "comprehensive" treaty including underground tests. Mr. English explained "that prohibition of tests below this altitude should eliminate this problem of fallout and a satisfactory system for monitoring such an agreement based on current technical estimates could be installed involving ground control equipment and systems of earth satellites."

Meeting #1579, 6 January 1960:

Note that for some time the roles and relationships of the various AEC laboratories have been under discussion by the Commission and at this this meeting the General Manager presented to the Commission a report prepared for the JCAE on the "Future role of Atomic Energy Commission Laboratories". Generally the report seems to deal with the national laboratories but there is an interesting paragraph on Livermore, which is also probably erroneous. "With regard to the future personnel level for the Lawrence Radiation Laboratory, at Livermore, Mr. Graham said that he had understood it was to be held to 600. He noted that the report calls for an expansion to 700 or 800 by 1963 and requested that this matter be investigated further."

Meeting #1583, 22 January 1960 and Notes of discussions of the Plowshare Program and Project Oilsand on 12 and 22 January:

The Plowshare program discussions on 12 January included Jim Reeves, Gerry Johnson and ALOO consultants Beers, Maxey and Newmark.

The overall plowshare program is being considered per a Staff Paper, AEC811/53, that at the initial meeting and through much of the discussion the consideration is given mainly to Project Gnome. It was noted that the Plowshare advisory committee had advised going ahead with Gnome and, after discussing in great detail with the Commissioners the potential safety problems with contamination of the aquifer and earthquake problems and so forth, the ALOO consultants seem to be saying that the probability of hazards was negligible and therefore recommending approval of the tests from the hazards standpoint. Another Plowshare project, Cilsand, a project to recover oil from tar sands in the Athabasca area of Alberta, Canada, by heating with a nuclear device explosion, was discussed at some length with Jerry Johnson, Philip Farley and representatives of Richfield Oil Company present on 22 January. The initial oil sand test was to use a device whereas Richfield believed that would provide an economical return. Richfield further commented "That they believed that the Canadian Government was waiting for the U.S. to go ahead with the Gnome project before granting approval for the Oilsand experiment. Mr. McCone said that the U.S. had insisted at the Geneva negotiations that peaceful uses of nuclear energy be excluded from any prohibitions on testing, and he believed that this reservation was recognized, at least in principle, by the Russians and would be included in any agreement reached at Geneva. The Chairman commented that he thought in a relatively short time the Geneva negotians would indicate one way or the other whether we could proceed with the Gnome project."

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In the 22 January Commission meeting, Plowshare was summarized at some length, with Luedecke summarizing the finding of the ALOO consultants who concluded that the tests could be conducted safely and the details and time scale and funding requirements for the Gnome project were then set forth. Mr. English reviewed the words that the Plowshare Advisory Committee had provided, following their 14-15 January 1960 meeting, with the recommendations: "That each Plowshare detonation be highly instrumented; that the Project Gnome shot be detonated at the earliest date consistent with the International situations; that the Ditchdigger program be initiated as soon as possible in order to demonstrate Ditchdigger principles by the time the Chariot detonations are carried out; and that the bio-environmental survey work for project Chariot be continued at its present level but no further expanded." In further discussions of Chariot, "Mr. McCone thought the plans were getting ahead of reality and referred to a psychological attitude building up in the public against activities which would place additional fission products in the atmosphere..... The Chairman said that before the AEC could proceed with Chariot there would be problems with the White House, Congress, State and other Federal Agencies. He thought it would be alright to continue with the ecological survey, but there should be no other shot preparation. Mr. Floberg said he believed the ecological survey alone was worth the money being spent for Chariot." The Commission decision at this meeting were to: Approve proceeding with site preparation and construction for Gnome, which would be made public by a release at the time that the bids went out for site preparations;

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approved proceeding for preparations for bio-environmental survey for Project Chariot during the summer of 1960; approved an HE scaling program; and noted that the Livermore Lab will continue the study in development of the Ditchdigger device and probably undertake preliminary field work for an experiment in late FY 1961. Also it was noted the State Department should be informed of the plans for Gnome and Chariot and their advice sought as to whether to proceed with Ditchdigger.

Meeting #1590, 4 February 1960:

Further discussion of the Gnome shot and Plowshare gives a summary of the objectives: "(1)To explore the feasibility of concluding nuclear explosive energy into latent heat which would be available for the production of electric power; (2) To investigate the feasibility of recovering from natural salt useful isotopes produced by nuclear explosives; and (3) To extent knowledge about characteristics of an underground explosion in a medium (natural salt) having physical properties in marked contrast to the only medium (volcanic tuff) for which such information is presently available." Also note that the Commission felt at this meeting that it probably would not be possible to conduct a Ditchdigger experiment in the near future, at least where the entire configuration of the tunnel and instrumentation could be open for inspection.

Meeting with NASA Representatives, 24 February 1960:

At this Commission meeting, T. Keith Glennan, the Administrator of NASA and several of his staff were in attendance and the Commissioners covered a wide range of items where there was mutual interest and interaction

between the Commission and the NASA. Among those things discussed were nuclear hazards in space, potential capabilities for measurement of background radiat ion with satellites, the VELA Project which would address the satellites, Project Rover, etc.

Meeting #1597, 2 March 1960:

Further discussion of Project Chariot resulted in a decision to continue with the Project and the bio-environmental surveys as authorized earlier. Further, spring of 1962 was approved as the target date for firing which would obviate the need for any construction work in the summer of 1960. Further recommendations were thus requested for the Commission in October of 1960 as whether to proceed with planning for conduct of the experiment in the spring of 1962.

Meeting #1602, 30 March 1960:

Loper and several military representatives of Strategic Air Command attended this meeting which, for the first time that I have seen, discussed the Air Force request for AEC authorization to use EPG as a target area for certain SAC exercises. The EPG had been selected not only for its favorable geographical location for the shots to be launched from Vandenberg but also for its "installed communications and weather facilities. Bikini was considered by SAC as a possible alternate target site but rejected due to its nearness to native populations and its lack of needed equipment." SAC personnel briefed on the operation including the accuracy and specific details of the test events and the possible hazards.

In the ensuing Commission discussion, the Commissioners came out strongly in favor of safety measures to protect the contractor personnel and AEC physical facilities at the EPG. One of the Commissioners felt that the statistics were inadequate to guarantee the safety of unconcerned personnel and did not favor exposing them to such risks. Finally, the Commission approved the use of the EPG for this exercise, only if the AEC personnel would be evacuated by the Air Force or provided adequate shelter, the DOD would assume full responsibility for any damage to AEC facilities, and the exercise would be announced as an Air Force project clearly not involving the AEC.

Note that the Commission meetings about this time did not include any substantial discussion of the beginning of French Atomic Testing.

Meeting #1606, 7 April 1960:

For the first time in quite a while, the funding for the weapons program was specifically discussed, with the paper AEC 1019/14 being used as a basis. Generally, the discussion centered around the fact that the recent "semi-annual budget review by the field offices indicated that as a result of various weapons requirements which have occured since the FY1961 budget was submitted, a supplemental appropriation of 45 million dollars is now needed." The full discussion of the need for the money and the specific amounts discussed is contained in the extract from these minutes which will be obtained for our files. Generally, the Commission agreed in full to the request for additional funding. Note that no mention is made of funds to be expended at the NTS for either

Succatash or LASL weapons test readiness preparations which I believe had been approved for that location at about this time by DMA.

Meeting #1609, 12 April 1960:

Here is a discussion of "Exchange of atomic weapon information with the UK," not a new item but of interest here since it focuses in part on the US/UK discussions on sharing any tests for weapons test detection purposes. A copy will be extracted for our files.

Meeting #1610, 14 April 1960:

Here, in a discussion on the budget for the weapons test/detection program, the Commissioners expressed concern over the Bureau of Budget policy that funds for this program must come to the AEC from the DOD budget. The concern is that for such an important program, the AEC should have its own funding and shouldn't have to depend on another Federal Agency and also concern that the government is not pursuing this program with enough vigor. The details of this discussion will be extracted for our files.

Meeting #1614, 28 April 1960:

In these discussions of the procedures for conducting nuclear tests for seismic improvement, Edward Teller was present and the lengthy discussions of the AEC's policy and the possible procedures are extracted in full for our files.

Note that the increasing frequency of and detail of discussions on these subjects in this period of time indicates that the Commission is becoming increasingly involved again in the possibility of a nuclear test ban and the

details of detection, inspection, threshholds, etc.

Note that on 2 June 1960, a briefing on "the Geneva Seismic Conference" was presented to the Commission by the Seismic Research Advisory Group (Romney, Keeny, Carlton Byer of ARPA, and Robert Scheid of CIA) and the summary notes of this briefing are extracted for our files.

Meeting #1634, 1 July 1960:

In attendance at this Commission meeting were the Lab Directors, Loper, Reeves, and Jerry Johnson. The meeting was devoted to "US Proposal for a Seismic Research Program," and McCone opened by reporting that as a result of the 30 June 1960 meeting of the principals, "A new proposal for the seismic research program involving the use of US, UK and the USSR nuclear devices pursuant to a proposed joint congressional resolution had been drafted for transmittal as an instruction to Ambassador Wadsworth." The details of this new proposal are then set forth and a long discussion involving the lab directors and others ensued, which is extracted in its entirety for our files. As a result of the meeting, instructions from the AEC for the Department of State were prepared and transmitted. Further discussion relevant to this topic is also extracted from Meetings #1636 and 1637.

Commissioners Meeting with the Staff, 25 August 1960:

In this summary on a variety of AEC topics by Chairman McCone, he addresses a subject entitled "International Activity." The following is contained in the Summary Notes: "The Chairman said he wished to brief

the Staff in three areas of International Activity of particular interest to the Commission--test suspension, disarmament, and the IAEA. Test cessation negotiations have been recessed until September 27 as a result of his trip to London, at the request of the President, accompanied by Under Secretary of State Livingston Merchant, Mr. Philip Farley, and General Starbird. The visit afforded an opportunity to discuss with the British the various questions separating the US-UK on the one hand, and the Soviets on the other, and to explain to the UK the difficulties involved in a unilateral offer to disclose devices used in seismic improvement work. The discussions identified about 12 areas of disagreement with the Soviets and, importantly, and dispelled the impression that if agreement could be reached on site inspection all other points of disagreement would be resolved. It was agreed to recess to let some of the issues become quiet and to review again our own position. Mr. McCone said he was anxious that the test suspension not become an issue in the election campaign because many of the issues were not clearly understood and the whole matter had assumed an importance quite apart from other aspects of our military stature. Competing campaign promises would prevent an objective analyses of the situation and might force us into an undesirable position in future negotiations."

AEC Briefing of Project Scooter Reentry Proposal, 30 August 1960:

This briefing for the Commissioners by Representatives of the contractors and Sandia and Livermore involved in Project Scooter addressed the details

of these HE shots to be performed at the NTS as part of the Plowshare Program, with some data being gathered for the Seismic Improvement Program.

On 12 September 1960, Chairman McCone sent a letter to the Deputy Secretary of Defense (Douglas) outlining six areas which needed clarification as they affected the AEC's budget for FY62. Following this, he arranged a meeting with the Secretary of Defense (Gates) for 5 October 1960 to discuss DOD requirements which affect the AEC FY62 budget.

Pertinent discussion of the AEC budget occurred during AEC meeting #1661, 8 October 1960, as follows:

"The Commission discussed the manner in which DOD weapon requirements are funded by AEC and the possibilities for AEC's control for this portion of its budget. The FY62 weapon requirements from the DOD require an AEC budget which is not in accordance with the Bureau of the Budgets Directive to maintain the FY62 budget at the FY61 level. After further discussion the Commission requested the preparation of a letter to the BOB, submitted for Commission review, which would outline the problem surrounding AEC's position of maintaining a level budget yet meeting increasing weapon requirements from the DOD. Mr. Olson suggested the letter note the 18 million dollars for weapons safety is not subject to revision. Chairman McCone said he did not favor reducing funds for programs which result in warheads for primary missile systems."

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After some lengthy period of no discussion on the subject of seismic testing, a briefing for the Commission was held which included Harold Brown and Roland Herbst on 28 October 1960 which is extracted for our files.

Meeting #1675, 23 November 1960:

In a weapons briefing on the warhead for the Minuteman System, Starbird made a couple of interesting remarks as to testing policy. "In answer to a question by Commissioner Graham he pointed out that a safe and reliable warhead could be developed without testing; however, more flexibility of design would be provided if tests were possible. General Starbird said that in order to ensure an adequate warhead without testing it would be necessary to proceed with two possible designs. In response to Commissioner Olsen, General Starbird said it would roughly double the cost of the program to proceed with both designs."

Meeting #1676, 2 December 1960:

In a discussion of FY62 budget estimates, within the weapons program, it was noted that the Budget Bureau had suggested reductionsof 10 million dollars for the VELA Program. "The AEC Staff deemed it appropriate to appeal this recommended reduction. General Starbird said if such a reduction was permitted, the deep shots and the D-coupling shots recommended by technicians in the seismic improvement program would be delayed considerably." The Chairman and Commission agreed that they would appeal the 10 million dollar reduction.

As for the Plowshare Budget, "The Bureau of the Budget has recommended a reduction of 7.5 million dollars in the Plowshare Program. The Commission would be able to accept a 6.5 million reduction on the assumption that this amount would be restored if approval were given for resumption of nuclear tests. However, 1 million dollars of reduction should be restored to permit AEC to proceed with necessary high explosive experiments. Mr. McCone remarked it was politically unfeasible to expend large funds on Plowshare when negotiations were continuing in Geneva. Starbird said if the BOB reductions were sustained the Ditchdigger and Chariot projects would be eliminated from the U.S. test program." Following further detailed discussion of the impact on continuing Chariot and Starbird's request for at least an additional .5 million dollars to continue ecological studies, the Chairman recommended in appeal to the BOB for the additional 1/2 million.

Meeting #1681, 19 December 1960:

On the subject of a position on nuclear testing, "The Chairman said the Commission had received a Presidential request to join with the Departments of State and Defense in preparing a coordinated position paper on the subject of nuclear testing." Also, in the discussions in the next Commission meeting on the subject of the annual report to Congress for 1960, it was "reported that the Chairman had reviewed the body of the report and was particularly pleased with the section dealing with the Geneva negotiations on nuclear test cessation."

Meeting #1690, 28 January 1961:

Most of this meeting was devoted to the "Deliberations of Disarmaments Study Group," and the details of this related discussion are contained in an extract in our files.

Note that both Starbird and McCone left the AEC just a few days prior to this meeting and Glenn Seaborg was about to come on board as Chairman.

Briefing on FY62 budget amendments, 7 February 1961:

This briefing for the Commissioners presented the proposed amendments for the FY62 budget, and, for weapons testing, it was said "a resumption of full scale weapons developments tests would require additional funds in the order of 40 to 60 million dollars for each series of tests. Laboratory experiments had been budgeted at 6.5 million in FY62 with 18 million dollars designated for Project Vela Tests.

Meeting #1696, 8 February 1961:

Discussion of proposed amendments to the FY62 budget continued with some of the following extracts: "Mr. Burrows discussed the 15 million dollar request for weapons production and stressed the increase was justified by a recent review of the readiness aspects of the weapons stockpile. The review indicated an urgent need for safety modifications to seven separate weapons systems to assure reliability and to avoid inadvertent nuclear detonations." Safety modifications for weapons which were approaching obsolescence, was questioned in

in lengthy discussions. "General Luedecke said the 10 million dollars proposed increase for the Vela Uniform Program would restore the reduction made during the course of the initial BOB review of the FY 62 budget. He explained the basis for the BOB reduction was their understanding that Mr. Kistiakowsky did not agree the proposed number of detonations was necessary to achieve the desired results. It was subsequently determined that the position of Mr. Kistiakowsky had been misunderstood and that he was in full agreement that to make the findings within the time scale of the Vela Program as originally approved would require the restoration of the 10 million dollars in FY62..... General Luedecke noted the current list of shots had been firm since November and included 12 or 13 nuclear and several high explosive detonations. After additional comments, the Commissioners approved the request of a 10 million dollar increase for Project Vela."

Discusions on budget increases continued at the next Commission meeting on the subject of Plowshare, which are extracted for our files. Also extracted is a 10 February 1961 meeting of the Commissioners with the Plowshare advisory Committee.

President's meeting with the Commission, 16 February 1961:
The Commissioners and members of the AEC Staff held discussions and presented briefings for President Kennedy on this date, which are documented in summary notes which I will try to obtain for our files. Accompanying the President were: Jerome Wiesner, Special Assistant to the President for Science and Technology; McGeorge Bundy, Special

Assistant to the President for National Security Affairs; and General Chester Clifton, Military Aide to the President.

Meeting #1707, 1 March 1961:

Among the Commission actions taken was approval of the "AEC-DOD agreement for implementation of joint AEC-DOD nuclear weapon vulnerability assessment program."

Also at this meeting, Carl Walske was present from Geneva and a lengthy discussion of test cessation negotiations took place, a copy of which is in our files.

Meeting #1711, 10 March 1961:

Noted at this meeting was a session of the JCAE later that day at which Mr. McCloy would testify and the discussion would address the Geneva Test Ban discussions. Attending from the AEC were Commissioner Graham and Spofford English.

Meeting #1721, 5 April 1961:

The following is extracted from a discussion of "Acquisition of Salt Dome site for Vela Uniform experiments." "In view of the current negotiations underway in Geneva, Mr. Olsen said proceedings should not be initiated for acquiring land for underground experiments. He inquired if it would be possible to proceed with the drilling of the shafts and underground preparations without condemnation proceedings..... In answer to a question from Mr. Seaborg, the General Manager said experiments in the Mississippi Salt Dome were dependent upon the additional 10 million

dollars requested by the Commission from the BOB for Project Vela. .....Mr. Olsen said he favored condemnation proceedings as a suitable means for acquiring the mineral rights but questioned the timing of the proceedings in relation to the Geneva negotiations." After further discussion, the Commission deferred action pending resolution of the Geneva talks.

Meeting #1735, 9 May 1961:

At this meeting, two subjects concerning funding -- May 61 planning estimates and future budget planning-- were addressed in some detail and these discussions are extracted for our files.

Meeting #1736, 9 May 1961:

For some time, discussion had addressed the exchange of atomic information with the French Government, just as there were agreements with the governments of Great Britain, the Netherlands, Greece, and others, on such exchange of information. The beginning of French testing in 1960 made the matter of coming to an agreement with France a harder problem and some of the discussion in this meeting, prior to the formal agreement with France,is indicative with these problems. Central to the problem was guarding all information that was restricted data from transmittal to the French, whereas apparently any defense information could be transmitted. Thus the question of the French getting weapons information from us boiled down to making sure that the information we wanted to guard was RD and not DI. Specifically addressing the agreement which was in the final stages of negotiation, "Mr. Kratzer

pointed out the proposed bilateral agreement with the French would include joint determination by the AEC and the DOD to transfer information to the French government. He added the type of information proposed for transfer would be non-sensitive design information and the general support information for defense against nuclear attack. He said this type of information would not significantly contribute to French weapons development. In answer to a question from Mr. Graham, Mr. Reichardt said the recommendations proposed would allow U.S. weapons labs, which were better qualified than the French, to receive debris from French nuclear tests, performed strictly chemical analyses, and inform the French of the analysis."

Meeting #1739, 16 May 1961:

On the subject of Chariot in project Plowshare, the criticism had been raised of the Plowshare advisory committee as to their objectivity in considering the safety aspects of the Chariot experiment and Spofford English, Chairman of the PAC, had asked a subcommittee to prepare a bio-environmental survey summary.

I think it is interesting to note that through the months of April and May, there is virtually no discussion of the test resumption or preparations therefore or any feeling of imminent resumption expressed in the Commission meetings. Perhaps the next strong statement made on the subject comes in a review of the Plowshare Program in Meeting #1742 on 31 May 1961 when Commissioner Wilson "suggested that work on redesigning the Chariot experiment should be delayed for a month or two

in the event development at the Geneva Test cessessation negotiations should make the recomputation unnecessary."

Meeting #1749, 12 June 1961:

In attendance at this Commission Meeting was Wilmot N. Hess of Livermore who had lately been at the Geneva negotiations. He reviewed for the Commission the recent status of the Geneva negotiations and this in the ensuing discussion are most interesting and will be extracted for our files. The discussions included, among other things, various British opinions as to whether the U.S. should resume testing; the opinion of Mr. Hess that "the U.S. should be prepared to resume testing before the commencement of the General Disarmament Negotiations on July 31st. He believed it would be undesirable to resume testing after the disarmament talks began. Chairman Seaborg said, however, it would be extremely difficult to prepare for nuclear tests to be conducted prior to August 1." The opinions of the State Department and various other pertinent people as to whether the tests should be for seismic improvement or for weapons development are also discussed.

On 20 June 1961, in a meeting with the Commissioners, Bradbury and Foster presented a briefing on weapons testing and the possibilities of test resumption, as a prelude to the discussions the next day with the JCAE. These summary notes are extracted for our files.

Meeting #1752, 23 June 1961:

In a discussion of AEC 1029/19, the Chairman noted this 22 June letter from Gilpatric which informed the AEC of Bundy's request for a draft of the AEC-DOD paper on the resumption of testing. Thus, the Chairman requested preparation of a draft of the AEC position by 26 June.

Meeting #1753, 28 June 1961:

The AEC budget review committee, having just completed a tour of the AEC laboratories, presented comments on the budget needs and associated programs, including test related funding, of LASL, Sandia, and Livermore, among others. The comments are extracted for future reference in our files.

Note that there was essentially no mention of the subject of test resumption explicitly in the Commission meetings at all during the summer until after test resumption in September. As a matter of fact, the first formal consideration that the test resumption program got by the Commission was in Meeting #1770, 13 September 1961, as documented by AEC 1077/5 and the extract from this meetings minutes, in our files.

Meeting #1773, 15 September 1961:

Following lengthy discussions on Operation Nougat at earlier meetings, the discussion at this meeting was of the Commission's letter to the President requesting authorization for the test series, Commissioner Graham recalled the Commissioner's had said the letter should point out to the President the desirability of authoring the Commission flexibility

to make changes in the test program, which would not be significant, as had been authorized in previously test series." The Commission approved this letter for the President at this meeting.

On the same day, the Commission approved a letter to the President on the Plowshare Program.

Earlier this day, Haworth had discussed with Jerry Johnson the draft of the "Report on Atmospheric-Underground Nuclear Test Considerations," and the updated draft would now include additional information on the cost of underground versus atmospheric tests.

Meeting #1777, 19 September 1961:

Letters approved by the Commission at this meeting included a joint AEC/DOD letter to the President on the comparative advantages of atmospheric and underground testing, which would now go to the Secretary of Defense for his signature. Also approved was a letter to the President on the follow-on test series.

Also mentioned was the report of an increase of off-site radiation level following one or both of the U.S. tests at the NTS and the need to develop meaningful and realistic information on this.

Meeting #1781, 9 October 1961:

In discussing revisions to the FY 62 budget, the Commission agreed to submit to the BOB as one of the proposed program reductions, a decrease in 8 million dollars operating expenses for the Vela Program.

Meeting #1789, 18 October 1961:

The Commission discussed at some length the question of construction management at NTS and a recommendation for selecting a contractor to perform these services.

Meeting #1790, 26 October 1961:

In a discussion of budgets for weapons programs, Betts noted that the FY 63 budget estimate first submitted had been made in the absence of specific weapons requirements and thus was just made to be the same as the FY62 estimate. DMA had now changed their estimate to 340 million from 289 million and a very recent review had upped that estimate to 350 million.

Meeting #1792, 31 October 1961:

A discussion at this meeting addressed "Disarmament policy" reviewing a new proposed disarmement plan submitted by the ACDA, requesting the AEC's opinions. The document in the files here in the AEC which addresses this is AEC 226/300.

Meeting #1802, 21 November 1961:

It was discussed that the pipe fitters and the operating engineers had had a disagreement at the NTS and the former group had established a strike picket line which certain other unions have refused to cross. Luedecke noted that as a result of this strike, the weapons test program will be seriously effected and the Rover Project will be delayed on a day per day basis as long as the strike goes on.

Meeting #1823, 20 February 1962:

In a discussion in a letter to the DOD on the test program, several comments were brought up for inclusion in this letter to Jerry Johnson which would present the AEC's position for preparing Christmas Island for atmospheric testing. "Commissioner Graham commented that he believed the letter should point out that preparations for atmospheric testing should remain flexible enough to permit seaborne as well as land based testing, and that in general the construction of substantial and permanent facilities at Christmas Island should not affect the flexibility and mobility of future test operations. The Chairman agreed that these points should be included and requested preparation of a letter to the White House regarding current preparations in support of the resumption of atmospheric testing." Note that a number of items are being reproduced for our files since the last documented ones.in these notes.

Meeting #1843, 3 May 1962:

The Chairman reported that he had met with President Kennedy and the Director of the BOB (Bell) and had discussed, among other things the amendments to the weapons program budget. He did include, within the FY63 budget amendments, 120 million dollars for the test program and 10 million dollars for Highway 95 to NTS. As for Plowshare, "The President directed that the program proceed on a 5-year basis, including continued studies by the AEC. The Chairman said the program would be re-evaluated with the White House to determine possible methods of funding."

In budget discussions for FY64 and later, later in the same meeting, "Betts pointed out that no provision is made in the projection of the Project Dribble subsequent to FY62. The General Manager said that he felt that in view of the priorities within the testing program and the provisions made for tests in the budget projections, Dribble had insufficient priority to be included at this time. Mr. Haworth commented on the importance of gaining further information on the de-coupling phenomena in order to have such information on hand in the event general disarmament or test ban treaty is signed. He urged the weapons program projections include at least funds for one Dribble experiment beyond FY62. Following brief remarks the Commission requests the inclusion of 15 million dollars for projects Dribble-Vela within the FY64-67 budget projections for the weapons program."

An interesting item in the minutes of meeting #1850 says "Mr. Hollingsworth informed the Commission that the Department of Justice will seek an injunction against the sailing of Every man I into the Dominic test area today, May 23, 1962."

At Meeting #1582 on 6 June, the General Manager informed the Commissioners that Bill Ogle would be available in the afternoon for a briefing on Operation Dominic, but I don't find any record of such a meeting or briefing in either the meeting minutes or the special summary reports of special meetings.

Meeting #1854, 16 June 1964:

In a discussion of "offsite radiation exposure criteria for NTS," those

criteria as they should be applied and perhaps announced for the upcoming Smallboy event were discussed. The policy arrived at after lengthy discussion was to inform the NTS Test Director that the limit as established in 1950 of 3.9 rem per year for offsite radiation would be the allowable limit, whereas, just as with Dannyboy, he would be encouraged to "make every effort to limit the off-site radiation to .5 rem, but also grant him the flexibility to schedule the event if this is not feasible."

Meeting #1880, 15 October 1962:

At this meeting, it was announced that a press release had just been received "indicating that the Soviet Union planned to fire a multi-stage rockets beginning October 16 into two areas in the Pacific Ocean. It appeared that one impact area would be very close to one of the danger areas designated for the U.S. tests. Mr. Ink said that he plans to issue a public statement to the effect that the USSR rocket tests would not interfere with AEC test plans. Later in the meeting, he read a second announcement stating that the period of the USSR tests would be from October 16, 1962 to November 30, 1962, and the tests were, according to USSR sources, part of a cosmic research program begun in 1960."

That concludes the review of all the Commission meetings through the end of 1962. A couple general statements that seem to be true are in order: The Commission almost never concerned themselves with the details of the underground or atmospheric test operations, except in

special situations as documented herein. Also, after the Geneva negotiations recessed prior to the Russian Test Resumption, the Commission never again mentioned them in their meetings even though they did reconvene and went on through 1961 and 1962.