

HEADQUARTERS
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logged 1/19/57

SA 2000 8872000
DOCUMENTS

J3-H-29

16 January 1957

SUBJECT: UCRL's Proposal on TAONGI (U)



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1. A conference was held on 3 January 1957 relative to the employment of Taongi Atoll as a shot site in the EPG.

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2. The following persons attended:

G. L. Felt, CTG 7.1
W. D. Gibbins, UCRL
J. R. Sanders, ALOC
D. Curry, Jr., LASL
A. W. Kelly, LASL

R. H. Campbell, LASL
R. J. Van Gemert, LASL
E. A. Lucke, LASL
R. H. Gattis, LASL

3. Following is an edited transcription of the conference.

FELT: Walter, would you expand somewhat on the UCRL conception of the scope of operation HARDTACK. I have given my impression of that, gathered from conversations with you, Jerry Johnson, Harry Keller and Vay Shelton. We had a short session yesterday morning in which I elaborated on that paper you just read (Felt's Memorandum). We concluded that the first thing we should do this morning is ask you to go into some detail on two things. First, what you have done to date and second, what is your concept of how Taongi should be integrated to meet the requirements of UCRL, so far as the utilization is concerned.

GIBBINS: The best place to start is with what has been done. Originally, we took it upon ourselves to study the feasibility of using Taongi as a firing site. The information concerning the place geographically and weather-wise is quite meager. Weather information, from the mean daily hodograph,

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was that we should have been working with the AEC all the time. So the way the thing stands now, I think we can go ahead and write this feasibility study leaving out two of the most important answers; first, how soon can you get back in there after the first shot and secondly, the fea-

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in the narrow passage. No funds have been made available for this survey.

FELT: Did Jerry talk to Starbird?

GIBBINS: I think he did not.

FELT: After we came back, I called and told him that I got an answer from Musick.

GIBBINS: I think he talked only to Musick.

FELT: You don't know what happened there?

GIBBINS: No I don't, except that he had apologized for not having kept us informed.

FELT: Jerry said when I talked to him, that he thought that he had kept Starbird informed of what we were doing here, and pointed out to him that he had not since seen a copy of that letter.

GIBBINS: That's right, and that was a mistake.

FELT: But Jim Reeves had sent one, he made a photostat of the copy he got and sent it on to him. I gave him my impression that Starbird was a little bit piqued at being left out. I suggested that he get ahold of Starbird and argue the case with him. You say that you think he talked to Musick, but just not to Starbird.

GIBBINS: Johnson will be in Washington this week.

move a shot barge or the API barge into position unless he could use ATF's in the lagoon. Sam says he can do it with M Boats, and I believe he can. We realize, that even though you widen the channel, you are not going to

wise like, and in the absence of the strong westerly swells which they do get very often.

No firm design work has been done on mounting the diagnostics on a ship. People are just getting started on that now. So I am not prepared to say that this is a reasonable way to do it, and we might end up with stations ashore. My feeling is that we probably will not be able to build any major stations ashore and have Taongi approved as far as the Commission is concerned, just because of the financial outlook.

CURRY: Even if the ship couldn't be ready or wouldn't work, you would still want to use Taongi for HARDTACK, is that right?

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installation of some kind? Is that the reason for associating a ship with this thing? My impression would be that it would be better (and we don't know how much more expensive), as far as HARDTACK is concerned to put in the shore installation. That way you know you can do the instrumentation.

there is a question about whether you can get a ship released for this purpose.

GIBBINS: Well, there are two things, first we feel that the installation on the ship would be less expensive than the building of a major alpha station and a fast photo station.

FELT: Yes, but suppose you leave the alpha measurement out since you intend to leave that out anyway.

GIBBINS: Excuse me, I left out Wouters important optical experiment. He is using this optical system for reaction history.

FELT: Using which optical system?

GIBBINS: The thing that they are using in Nevada.

FELT: Is he going to do that from a ship?

GIBBINS: Yes. They are thinking about it. We think that this is difficult, it may not be, but if we went ashore to build a fast photo station I know that they would want to.

FELT: Well, the thing is, its quite possible and its one of the things that perhaps we can develop some firm opinions on, that if you develop the atoll at all, the investment will be pretty heavy to begin with and the addition of one or two major instrument stations, lets call them, would not change it by a factor of two or three or something like that at all. We would

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LUCKE: It seems to me that the most important thing to determine is that what we are looking for really, is to try and shorten the operation, and we believe it can be done by using Taongi.

LUCKE: Is that based on not using Bikini?

GIBBINS: No. We use Bikini for small shots. There may be some intermediate fields that could go at Bikini nicely to be fired at Bikini at almost any time. The combined disadvantage of protecting Eniwetok and worrying about the repatriated natives and trying to fire the major portion of the barge shots at Bikini points out a real advantage of going to Taongi. The concept of operation of not building major stations ashore is based on this flat pattern concept that we talked to you about when we started off expecting fallout. To take advantage of Taongi's meteorological advantage you need to fire in this flat pattern because it is the stable one there, and it is the one which comes most often as we know. So this is why I say, I think the first point to determine for sure is that there is a real advantage as far as firing frequency is concerned.

FELT: Yes, weather wise. This aspect is something that must come out of the Weather Office.

GIBBINS: So we need Rex's report.

FELT: You see for our purpose, we simply assume that there is an advantage.

GIBBINS: We are too, but also in this assumption, you consider that you use the flat pattern and this gives you a lot of trouble on recovery, particularly at that atoll. Access back into it is not, nor ever be, as free as Bikini.

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shielding and reinforcement would have to be fairly heavy.

FELT: It would not be so much floor area.

GIBBINS: That is just what I am thinking of, you would need the same shielding.

RHC: It might house the communication link as Station 70 does and would probably require the tower. Sandia has had trouble in the past getting lines of sight from the barges in the vicinity of Yurochi. You are talking about

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don't buy that argument, I don't think that's true. I think that whenever the weather people make the statement in answer to the question will there be any fallout on Rongerik and Rongelap, at least on REDWING they said there should be none and to go ahead and fire. If there were natives there, they would say are you sure? There is a difference.

CURRY: Do you feel you will still save time even though this operation were completely based afloat, with no airstrip, no helicopters nothing but boats?

iring frequency at Raong.

LUCKE: Do you think your personnel could live with say a forty hour trip from Eniwetok?

GIBBINS: Yessir, yessir, on the right ship.

LUCKE: Well, as I see it, you would have to have an APL up there to eliminate this necessity of ship to shore movement daily of personnel. And your instrumented ship, whatever it might be, say the CURTISS or something else, of course could not be moored but would have to be steaming all the time.

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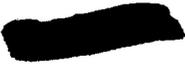
FRIM: It is not clear to me that we would need it, even if we did build major stations ashore.

RIC: That's hard to do, Joe.

SANDERS: Well, it could be.

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as a weather station before, but the study got misplaced. He is repeating this business in a different light, as a firing site, giving the average mean hodograph from what data they have available.

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probably recoverate many of the other weather stations during the test operations in order to make the analysis. I don't expect they will have that out there, but it may be enough to evaluate the firing frequency. I think it is quite unlikely that they will discover that the firing frequency up there is appreciably lower than it is at Bikini. I think they will end up with a conclusion that it is about the same. If it is, then that is probably good enough. That's just speculation.

GIBBINS: It should be better.

FELT: Maybe, maybe not. It will be hard to demonstrate that it is better, it will be easy to demonstrate that it is just as good, but it would not be of any great advantage if it's a lot better, because the firing frequency at Bikini isn't bad. Even under the restrictions that we imposed on REDWING. Better probably than you could make on an operational basis. Of course, having it better than that is to your advantage which means you don't hit the valleys.

its clear that firing the whole series at Eniwetok is almost impossible. Under condition two, where you use Bikini for small shots, here again the advantage of using Taongi is pretty easy to demonstrate. Suppose you take eight megaton range shots or something like that, you can split them in part between Eniwetok and Taongi, so there is a distinctive advantage there. If you were still using Bikini for some large shots, then the advantage is really quite preferable on the basis of time versus the cost of development. Then it was on the basis of this kind of argument that I suggested that the approach be divided into these categories, so we could just see what each one of them looked like individually to see what the costs are along side the advantages. In savings of time and

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hours. Alright, that's something, but against that is, what, \$200,000 to put in an assembly installation at Bikini? Is that worth it? I don't know. Forty hours is a good time under normal circumstances. There are times when the trades are pretty brisk, and this might be worth the forty hours haul up there, you would be going up wind all the way, what do we know about that? Well, we don't know much about it, but maybe Dan, in their weather study will be able to make some estimates on the state of the sea. The unknown subject is probably feeding a barge through the channel. If it has to be timed with high slack water, then there must be some average delay resulting from that. I don't know what it is. Maybe there is, maybe there isn't, but it's probably under Simpson's consideration. The mooring of the barge is something we understand fairly well for the areas we have used. We can make pretty good estimates. What the situation will be at Taongi, we are just going to have to guess. Under the conditions proposed for testing, it's pretty clear that you do not require high precision in the moorings. This saves you something, I don't know how much it is. If you are trying to moor in a crater which is

breached through to the open sea, the state of the water in there is probably not quite so pleasant as it is in the sheltered Fox-George region. Despite the fact that you don't need precision, it may be a little bit harder to put down successful moorings that will hold the barge moderately well. On the

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other hand, if you go inside Taongi Atoll, it may be as Walter suggests, that the exchange rate of the water is such that you have to let the place sit for a while before you can get in. That's from a radiological viewpoint. There may be a day or two lost in there. How much time we will need for dry running, I don't know. By changing the firing systems, you can probably dry run the systems successfully at Eniwetok or Bikini, wherever you do the assembly and don't have to dry run your equipment on the site. I would guess that the experimental people, and the weapons people would probably not give up all dry running, but they would probably not insist on three or four days dry running or something like that.

GIBBINS: Well, they have to aboard ship.

FELT: Yes, I think they could.

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Maybe not,

but the chances are good they will. So, five days is pretty tight operationally, I would think.

CURRY: There's another out about which we don't know much and maybe their study will show something, and maybe it won't. That is, how soon can you unload the LSD, do you have to wait on the average of a couple of days to get the sea calm enough to unload?

GIBBINS: You're speaking now of the northwest swell?

CURRY: Yes.

GIBBINS: Through the months of April, May and June, the average days each month when the northwest swell is running -- I've forgotten -- well, the swell would be considered more than just the small swell for five days, but it increases through the other months to something like 17 or 18 days a month, later on in November. Now, how much trouble this would cause is dependent on

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nize that this vertical mining thing is a hard thing to dig up without knowing anything about the conch. But when we told them that there was a marine survey being contemplated, they asked us to be able to put one man at work on making a feasibility study of the feasibility of a model. Which is the right way to approach it, believe me, and we agreed that this was all right. The Laboratory is willing to pay for this one guy. Isaacs had requested that after the marine survey, they get a photo survey of Taongi up to date and when we started talking to the people at the Richmond Field Station, they said they would like to have this survey made before Isaacs goes out so that if there are any points of information that Isaacs could pick up for them, that they could discover from the photo survey, they could do it at that time. So, we asked the Task Force to get such a survey, and they have started that. Whether they can get it to us in color or not

...ing to appear in the photo as they are taken with 60% overlap along the run and 30% on the sides, they can tell something about current movements from the foam patches, but that's all the current information they will have across the reef. So, it's a sketchy thing to go on without actually measuring it, and you won't know anything about the vertical measurement.

REC: Is this a stereo lapping?

GIBBINS: Yes.

SANDERS: I have a hard time visualising a test without an airstrip somewhere. It seems to me that you are going to tie up a lot of people for a long time.

FELT: Well, we talked yesterday and I told those present what I understood of your needs. We discussed the whole thing from a somewhat more general point of view, trying to consider what needs would arise from the requirements placed on other task groups by 7.1 to support test operations in the area. One of the major subjects that we discussed was the question of an airstrip. We felt that the chances were quite good that there will be very strong pressure arising out of 7.4 to put in an airstrip there. Their justification would be an emergency landing strip. This we intend to explore with 7.4 and find out just how strongly they feel about it. They have felt quite strongly about it before and they even went to the extent of asking to have a barricade put on Engebi, for example, and we put out pots on the Eninman airstrip, and we put a barricade up over there at Enyu, and so forth. Our hunch is that 7.4 would push pretty hard to put in some kind of emergency airstrip up there. That was the first thing. The second thing we talked about was Holmes & Narver's methods of operation. While they could successfully get along up there without an airstrip, I nevertheless felt that if you got down into the H&N working level and asked them how they felt about it, they would develop fairly strong arguments

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~~that whether it was reasonable to assume that if the place was developed,~~
if pressure would be sufficient that an airstrip would be put in anyway,
whether it was asked for by you, or us or anybody else.

GIBBINS: Well, that might be, but we are not asking for it.

FELT: Yes, but despite the fact that you didn't ask for it for UCRL operations,
there would be enough pressure for it anyway. So, it would be a fair assump-
tion for planning purposes, at least in one category of the planning, that
an airstrip would be put in, and we were exploring the implications of what
the general idea for developing the place would be, on the basis that there
was an airstrip. We also felt that if you put an airstrip in, you also hope
that you can use the thing after you begin to shoot up there and that perhaps

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you should arrange to pick a firing location to improve that likelihood. This is just a question of following up implications in a more or less general manner. We also explored the implications of putting in one or more stations and I think that my feeling on this was based on the feeling that we should do this, that we had to do this, and that the value of Taongi as an operations site should not be based on your being able to get a remote instrumentation ship. Either Taongi is useful or it isn't useful. And if it is useful, how do we use it without the whole thing depending on some other questions or assumptions. You can develop a method of operating up there which is based on your getting the ship and your proving out the instrumentation, but while you can do this, I don't think you should base the usefulness of the place on those two things. So we decided that we should consider what would be necessary if you did not have the ship and we had to put the necessary instrumentation ashore. Having tossed it around, we decided in any event there would have to be something ashore up there to house communications. Now you would say that this was not necessary because you have the ship. The argument against this was that you're going to have E&N support people working up there quite a ways in advance of the time you'll have operational communication facilities up there. So, the feeling was that having to have high frequency radio circuits, you'll probably have to put in teletype. Chances are, you'd better put this in in such a way that you can use it after the first shot, although this is not absolutely necessary. This leads you to believe that you're going to have something, not like Station 70, not quite so elaborate, but something that is a communications center. The thing is that this is not something required by 7.1, but E&N is going to need it. So, we've got something there already. Then I mentioned the likelihood of having a telemetering relay station. Now, there's a little more building required. So you've got an airstrip and one

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building. Then, if you don't get the ship, you will probably have to have one more building, possibly two. Now you are beginning to get something that looks like the Fox-George complex.

GIBBINS: That is right.

FELT: Alright, there you are.

GIBBINS: You have to protect the data, you have to have blast doors for the cameras.

FELT: That is right. You have the airstrip and you hope that you may be able to keep the airstrip, but you do not count on it. You have to plan the operation so that you are not using it for shuttle aircraft or something like that. But if you are going to use it for an emergency strip and it is justified on that basis, then it should be possible to get the thing in condition to meet that requirement, which is basic to all operations in the area. Then, you have got to have at least one piece of grading machinery. You have got to have fuel service for it, probably, so that you can get in there and scrape the thing off again after you have used the site. If the airstrip is basic to air operations in the area, and we have already assumed that the Air Force has pushed the thing, then this leads you to say that you had better put the shot in such a place so that you can probably at least get in there and patch up the strip.

GIBBINS: That leads you to put it up at the north end someplace.

FELT: Still you haven't said anything about whether it is on the reef or whether it is inside.

LUCKE: I don't think you could ever fix that lagoon, say, to get in an LST, which draws 14 or 15 feet.

KELLY: It would be expensive, but it could be done.

GIBBINS: You mean without a nuclear shot.

LUCKE: Another thing that bothers me, you mentioned in your study and I realize that

LUCKE: As a layman, I don't know whether that would increase it or decrease it.

GIBBINS: We don't either.

KELLY: It looks sort of like a bathtub because there are no outlets or inlets, and the exchange may be pretty slow.

GIBBINS: You have to breach the lagoon on the far side, or you're not going to do anything else in there for three months.

FELT: Yes, you can, if you are not doing it inside the lagoon.

LUCKE: If you do that, you have to go to a shore establishment.

REC: That's the thing that I'm trying to establish, that there has to be something ashore. Barb didn't have any more room than he needed for his firing circuits. I think we are talking about something like Station 70, and this is a sizeable job, so you would have to move something in there and before long, you find that you've got quite a bit of equipment tied up just to build one building. Even if you leave out the airstrip and just have the repeater station, you've

KIC: Sure, but at the moment he doesn't have a batch plant. We're discussing one between Eniwetok and Bikini, at the moment. If we'd had a big construction program at Bikini that would have taken a lot of time, we'd have been in a fix. This would mean to Joe, I think, that rather than try and stretch his batch plant over two atolls, which was a little bit difficult, although he did a good job of it, but to do this over three atolls, with Taongi as far away as it is, it would mean we'd either

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until the last few weeks, and yesterday, of course, we all got together. I think the next step is for me to ask the question of whether 7.5 can do it, more or less legally.

GIBBINS: Well, I think we should.

SANDERS: If we are going to go in there and prove the thing to be feasible, we have got to recognize what we have to have, and I don't know if this sounds a little bit too simplified, if we go up there with a boat and a barge.

FELT: Look, I think from Walter's point of view, so far as weapons and experimentation, there is a way in which it can be done without doing very much ashore. The thing that I'm afraid of is that there, are hidden in this scheme, services which will develop that will be put on other people which will lead to a somewhat more elaborate installation than that which

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is required for weapons testing purposes alone. If you say that this is true, that there will be a somewhat more elaborate installation, then you would try to guess what it would look like, then its very much to our advantage to go one step further and say, well, how do we make more effective use of the area up there considering what other people are going to need anyway even the support with a less elaborate thing than you have been talking about. I am not suggesting here that that means you guys, your diagnostic people of Livermore, should go all out with high collimated experiments and what not. I'll take your experimental plans as you propose it and consider how it gets done up there, in the light of what other people are likely to put in there anyhow. The other thing is this. In the breakdown here, try to put some sort of quantitative estimate of the relative importance of the three categories, and I think that you would find the following. If Taongi is an extension of the existing facilities and there are no required changes in the operating procedures at Eniwetok or Bikini, then there are perhaps desirable features, but it probably is not economically justifiable to develop the facilities at Taongi; now maybe it is and maybe it isn't, but we ought to take a little closer look at that thing. In the second circumstance where you are restricted at Bikini, then Taongi becomes really quite desirable in that it is an alternate firing site for large shots and it is approaching a necessary installation. In the third situation where you do not have Bikini at all, then Taongi becomes absolutely necessary under the initial assumption that we made and if the program looks as it appears to look. If you do not get Taongi and you loose Bikini too, then you have only two alternatives; one, is that you cut the program, and the other is; well, you say that the program is going to last six or eight months, and that's it.

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SIBINS: It's not my position, Gaelen. I will say this. I think that if you re-
quest that Taongi be opened up to the point of a Fox-George camp with a
Station 70, the money will not be available.

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RCIC: We had an awful lot of questions on CASILE, from the visiting dignitaries, as to what the operation cost per day. The only figure I remember, and I was surprised that it was as low as it was, was one for the M&N pay roll during the interim period, something like \$55,000 a day.

SANDERS: I think one good point, as I understand it, that the possibility of contaminating the islands from Taongi is very slight, and you might save a lot of expenditure there. I think someday if we keep using Bikini, we're going to have to wash that place off or something.

GIBBINS: Well, we have to look at all three of these situations, because it's going to be quite a long time before we know just which one of these three we're going to have to operate under.

FELT: Let me say one more thing here. I think we've been getting slightly off the track here. We've been talking about justifications and I really don't think that that's quite our business. I think what we want to do is establish what various needs are under these various conditions and that we are going to have to get some help. What we really want are facts or best expert opinions, or something of that sort, rather than arguments. In the arguments, we can help but I would imagine that this would be left up to York and Bradbury to argue with Hertford, Starbird, etc. What we want to do here, I think, is to see why we would need to include

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haven't been doing anything different than what you just said, and we do need this survey. You're talking to me about what kind of a feasibility report can be written without the marine survey. You can write one -- you can write down all kinds of things. As Gaalen says, we have

to Musick on the 18,000 without including the political question but I'm
dead sure that the real hold-up is not where does the money comes from,
I think the real problem is that Starbird is worried, he suspects that
the Commission is worried about the general question of what would appear

CURRY: Do you want to say anything about your progress in getting a ship, or haven't you made any progress?

GIBBINS: We haven't requested a ship. All we did was explore the availability; asked people's opinions. The opinions were these; Pride said you'll never get a Navy ship, you might as well forget it. If we get one, it will come out of the Reserve Fleet and then he asked me a few questions about clear deck space, complement to be housed aboard, etc. Fleming,

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for instance, from the Maritime Authority, said that it sounds like what you're after is the RESCUE, a hospital ship. I think this is true, you don't need a ship like the CURTISS, with heavy shops.

LUCKE: How about another LSD?

GIBBINS: Al, I believe, personally, that if we go to Taongi, and we're going to operate like this, we should have a second LSD.

LUCKE: I think so too, but I was wondering if, outside of a mother ship for your M-boats, etc., could you also use an LSD as your instrumented ship?

GIBBINS: No, I don't think you could. I'm sure you couldn't house the number of 7.1 people that would have to be housed and still use it to support the small boats and move the barge, etc.

LUCKE: Well, as I see it, if you use Taongi, you're going to have one LSD devoted full time to that atoll, to move the barges and support the small craft.

GIBBINS: Well, it would not have to be there full-time, if you moved in an APL; a H&N APL, not a Navy APL.

LUCKE: But there's a problem of boat maintenance, repairing M-boats and T-boats, etc.

GIBBINS: Well, supporting your APL camp ashore would be similar to the boating for a weather station, except you have to make more trips.

LUCKE: Well, I remember the time small boats had maneuvered in the open sea on trips from up-atoll sites to Nan at Bikini. You'd have the same problem at Taongi; the distances would not be so great and you would be in the lee of the atoll, but you would still be operating in the open sea.

RHC: I think an M-boat would be sort of useless to you outside the atoll.

CURRY: The only circumstance I can think of under which you wouldn't need

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an eleven day cycle between shots.

GIBBINS: Eleven days. How do you figure that?

LUCKE: It would be about eight days. Two days down to Eniwetok, one day to load, two days back and about 72 hours to moor.

GIBBINS: Seventy-two hours to moor?

RHC: About that, from mooring to firing.

VAN: Another LSD would cut that down.

GIBBINS: Well, I thought you were adding up what you could do with two LSDs.

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LUCKE: No, this is with one LSD.

GIBBINS: What you're saying is that you have a conception of three LSDs for the whole operation.

LUCKE: Right.

FELT: That's if you're using Bikini.

RIC: If you have just one for Bikini and one for Taongi, one more than we've had in the past, that means probably a four day round-trip, at least, and probably another three or four day stand-by.

LUCKE: You might run into the same problem we had at Bikini, having to lay off the LSD for four days to reline it's boilers.

RIC: Well, you almost have to have one hauling and one standing by if you're going to make this five day firing schedule you're talking about.

VAN: Well, if you need these two LSDs to operate, that almost justifies the expenditure for a nice camp ashore.

FELT: No, I don't think that's right.

VAN: Well, it makes that much more money available, rather than pour it into ships. That LSD will cost you, what?

RIC: Well, the point you're missing, Van, is that whether you have a camp or not, just to move barges and support the small boats, you have to accept this LSD thing.

FELT: Well, it's possible you could have a camp and stay in there.

RIC: Yes, in the same fashion you stayed on Enyu this time. But you have to have a capability of doing something else, too. You can't pick up your boat pool on the night of minus one and get back to Eniwetok to pick up another bomb. Now you might sneak in a trip back to get another bomb while you're mooring the barge you have.

FELT: But then when you have a bomb on board, you can't pick up the boats.

RIC: I think maybe you could. If you changed that barge design, those things

the barge waiting to pick up the boats, it could be making a trip to Eniretok to pick up the next barge.

FELT: I will make you a bet that it isn't the night of minus one. Not up there.

RHC: Perhaps not in that place.

CURRY: Maybe you just use T-boats, and use tugs or something like that to escort the T-boats to sea. I think you are going to have quite a time getting two LSDs, let alone three.

RHC: I think one of the questions here is just what does the addition of Taongi buy you, timewise, in shortening the operation. We are just trying to get an estimate of how often you could fire over there with

GIBBINS: He would like to preserve a five day capability.

FELT: You have come down two days since I last talked to you. It was seven.

GIBBINS: With a seven day capability, I think you can do it, with one LSD.

FELT: Just barely.

GIBBINS: Two days down, two days back and three days up there.

RHC: Yes, but this three days up there is with everything running very smoothly.

VAN: Yes, and down there, he has got to load too, you have to allow time for that.

LUCIE: You know how we got the LSD up in the lee of Bikini Island, because of the smoothness of the water in the lagoon. Here you would be discharging the barge again in the open sea.

GIBBINS: Not after the first shot.

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RHC: Oh, yes, you would never bring that LSD into the lagoon.

GIBBINS: You couldn't?

FELT: How much does that ship draw?

RHC: About 14, 15 feet, doesn't it.

FELT: The Dog boat?

LUCKE: More than that.

RHC: If you shoot something like Mike on the reef, and get a crater about a mile in diameter, which is about what we got, this is hardly maneuvering room for the Dog boat. I don't think they would come into a hole and try and turn around and come back out.

FELT: We are not going to settle this until we talk to the Captain. I think we should assume that it is probably going to be a little more difficult to off-load a barge in the Taongi area than it was in the Bikini area.

GIBBINS: Whether he goes into the crater or not?

FELT: I am not sure that that would make all the difference. If you fire a shot and breach the reef, so that it is open to the sea but still does not afford a lot of protection, this is still an improvement.

RHC: There is one thing that is bothering me about this firing a shot and breaching the reef or placing it in the north end of the atoll; if you get permission to use Taongi, eventually you will go to shore-based facilities.

FELT: We will fire it at Eniwetok.

RHC: Well, maybe so, but I have got a hunch that if you put that alpha station as far up on the northern land mass as you can, and operate with the range we have used in the past for these things, you don't come close, to the reef, anyway.

GIBBINS: I agree.

RHC: I am wondering if it is really sensible to talk about firing up in that

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north corner and blowing a hole, because the hole doesn't do you a bit of good unless you can clear a path down through the lagoon.

GIBBINS: I agree with you, Bob, but you are going along with the concept that we are going to build major shore installations up there.

RHC: Maybe not for HARDTACK, but eventually. I think that if you get permission to use Taongi, you should keep some sort of planning in your head and not build a photo station where you will want an airstrip later. Try to make eventual use of the land as much as possible.

GIBBINS: Maybe with a remote diagnostic system, you will want to breach the reef in two places.

KELLY: Have you settled where you want to put the first one, yet?

GIBBINS: No, north of the Pokaakka Island Passage somewhere. We don't know anything about the currents. We would like to get back in that same crater. I think it is not clear that the edge of that crater would be cleaned out to the point where you could set another barge in there and have the gang work on it. I do not think you would want to go along on the basis of firing every shot in the same crater. Even with the remote diagnostics, it is advisable to keep stepping in on each shot.

FELT: I don't see how you can help but clean out the old crater enough. There isn't any land there, you get shine off islands, you do not have any islands, you are not going to have any shine. You are going to have contaminated water. It is going to be right at the edge of the ocean. It obviously is going to get diluted and mixed on the edge of the reef.

GIBBINS: I think we are saying that we just do not know enough about the place. Don't know enough about the whole operation.

RHC: And you are not really sure enough about just what you want to do.

FELT: No, you don't know exactly what you want to do, but you can make a couple of assumptions.

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whether or not you do put in one major instrument station for
purposes. This is a part from what ever else one thinks has to be put
in there, on the beach. You would probably want to put one in anyway.

RHC: Whether you have a ship or not you have to put in something like Station
70.

FELT: Alright, but I am talking now about an Instrument Station.

RHC: In addition to that. In any method of operation you have to have something
like Station 70.

FELT: I think it is not correct to call it a Station 70. It is something, but
it is not clear to me that it has to have a firing system in it. I think
the only thing that you really want to put ashore is communications.

RHC: You can put the firing system aboard the barge.

FELT: That is right. It would seem to me, though, that if you put in a
diagnostic system, you should also put the firing system in this building.
You do not put it on the barge, in that case.

RHC: This is going to be a pretty healthy structure, just for the relaying of
gas pressures, alpha measurements, etc.

FELT: If that is what you do, but you may not have to do that. It could be
quite simple. The gas system, for example, it may not be necessary to
relay that.

RHC: Well, the systems that Sandia uses are quite involved. They are a "line
of sight" proposition and this involves some height above the water if
the ship is 20, 30 miles away.

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shot barge at shot time?

GIBBINS: You are talking about the diagnostic ship? Fifteen to twenty miles.

LUCKE: We were 26 miles on the Bassoon shot.

RHC: What yields are you talking about, Gibby? Roughly?

GIBBINS: One megaton and greater.

RHC: How much greater? This is a basic question in designing any structure ashore.

GIBBINS:

~~DELETED~~

~~DELETED~~

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Now,

I think that we are going to hit an AEC restriction anyway, on the top yield.

RHC:

~~DELETED~~

~~DELETED~~

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GIBBINS:

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whether it is full yield or not, will be the governing thing in any shore installation you might have. That is what I was trying to get at.

GIBBINS:

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GIBBINS: No, I think it is too big for that. This is a device.

RHC: When we went into CASTLE, with Mike fresh in our minds, we did the construction on Enyu based on the idea of firing in the Namu region, for the powerhouse and permanent structures, we used a yield of 20 MT. It would be a little hard to design a structure, and therefore hard to estimate the cost for a structure at Taongi, depending on where you were going to shoot. I think you could make the worst assumption and proceed from there.

FELT: Are you talking about design pressures?

GIBBINS: Yes, supposing we went ahead developing Taongi, where you think you might go with the yield ceiling, later on. I don't think you would ever see it over 15 MT clean, probably not over 5 MT dirty.

FELT: You are talking now about a permanent communications building of some sort?

GIBBINS: Design criteria for any building.

RHC: Just as a general guide, what type of building are we talking about? You can probably save money on an individual shot by building light construction, but this is not a reasonable way of doing things. You are re-building each time you increase the yield of a bomb.

FELT: I think there is any easy out for all this. You build for shielding as

REC: If you get in a hot spot in a boat, don't you sort of louse up the boat be-

I don't see why you need helicopters. This is assuming you have no installations or data ashore.

KELLY: You just wouldn't approach it until you knew from knowledge of the currents that the place was fairly clean.

REC: But you do have to approach it the first time, to find out what the currents are doing.

GIBBINS: That's right.

REC: And probably for that pass, you'd like to have a helicopter rather than a T-Boat or something like that. It's a little slow getting out of a hot spot.

GIBBINS: That might be, but I think it can be done with a boat.

need. Ultimately, you're going to have to go in by boat anyway, in order to put in the next barge. If you have an airstrip, you'd want to have some estimate of two things, physical damage and radiation levels. If you have a telexeter relay station, you may or may not want to get into that.

GIBBINS: It's not as urgent.

urgency. Nevertheless, if you do not have helicopters, you're counting on getting in by boat. I suppose you could have a couple of helicopters if you had a suitable landing platform someplace.

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LUCKE: Oh, yes, on something like the CURTISS, but you'd have a maintenance problem.

FELT: What about helicopter transportation? Well, I suppose if you pursue the helicopters and have them for some other reason, then you probably wind up putting a helicopter platform on your shot barge.

KEC: We've gone through this helicopter platform on the shot barge several times before, but for safety reasons, it's always been killed.

FELT: I daresay, if you had the helicopters around for some other reason, you'd very shortly wind up with a helicopter barge parked in there someplace.

CURRY: What you'd probably like to have if you're going to have a special ship, is one with a boom large enough to hoist an LCM, and a platform large enough to hold a couple of copters.

GIBBINS: I'm convinced in my own mind that the way UCRL would like to operate in there is from an afloat set-up, and hold the cost of installations ashore to an absolute minimum, even to the point of making the people a little uncomfortable.

FELT: I think we should begin to think about listing some of our assumptions, hoping to discover what the major areas are that we ought to investigate more thoroughly. We've tossed around a lot of assumptions and ideas, and they're all perfectly valid assumptions. They fit someplace into this picture; some of them are pertinent when considering them in one light, but they are not pertinent in another.

LUCKE: Well, this one on the airstrip. I think that, certainly, the requirement for an airstrip, other than UCRL, is one field we have to examine.

FELT: Yes, I think that's true.

GATTIS: Yesterday, I talked with Colonel Hynes at 7.4, and he had heard the rumor of Taongi, but this was in an informal stage and they had not done any serious thinking on the problem. I told them that Walt would be here today and we would appreciate their feelings on the subject. They couldn't come to the conference, but I got a call from him a short time ago and he said that on sampling, it would have to be done with B-57's, which we had already concluded.

they were concerned. They would not support an airstrip simply from the safety factor.

LUCKE: While it's not in his field, exactly, I talked to Parsons about it this morning, and that was his answer on the thing, too.

GATTIS: Safety, of course, as a factor, can be built up whichever way you choose. If we need it to support a requirement for an airstrip, I'm sure it could be included as a factor in requesting an airstrip.

SANDERS: Could we bring a C-47 over there?

GATTIS: It's within range.

GIBBINS: Well, we should get back to seeing if we can arrive at some logical sequence of events.

FELT: Yes, but I don't know quite where to start on it.

GIBBINS: Suppose you start with the idea of having to consider each one of the three categories you've listed, by answering the question of what happens with major stations ashore and without major stations ashore.

FELT: Alright, there are a lot of things that one can write down regarding stations ashore. Is there anything that has to be ashore? We can start writing things down and then discuss whether they are necessary or not.

It was decided that three general situations could be listed and that the remainder of the session should be devoted to a discussion of the implications of each of these situations. The situations are:

- (a) Three sites available in the EPG.

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- (b) Two and one half sites (Bikini used on a limited basis).
- (c) Two sites (Bikini eliminated entirely).

The general requirements discussed under each of the situations are as follows:

NAVIGATION AIDS

AIR

Homing Beacons
Reflectors

NAVAL

Beacons

COMMUNICATIONS

7.3

E&N requirements. Take up with AEC & E&N.

TELEMETERING REPEATER STATION

Within 7.1

AIRSTRIP

7.4
7.5 (E&N)

PHOTO STATION

ALPHA STATION

POWER PLANT

WORK CAMP

E&N

ACCESS

7.3

CHANNEL CLEARANCE

7.3

SEA DROME

7.3 (Emergency evacuation)

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those four reports written and then attempt a consolidation?

FELT: It would be nice to consolidate ahead of time but if it can't be done, we will just have to take what we can get. There is a purpose behind this

and there is to present some kind of results for consideration of members, as yet unknown, apparently the Planning Board, I don't know. The thing that would worry me a little bit is that if we don't make some effort to consolidate ourselves, its purpose won't be very well served, because the consolidation will have to take place in the Planning Board and they are liable to consolidate the way they think it should be.

RHC: Why don't we scurry around for a couple of weeks? I would like to talk to 7.5 and Al will probably want to gather information from 7.4 and 7.3. Maybe in a couple of weeks we could report back and see what, if anything, we have learned.

CURRY: Yes, perhaps I didn't make myself clear. I didn't mean that we should never attempt to consolidate; I meant, do we try to consolidate before that deadline, or do we take the four separate reports at that deadline and try to consolidate then?

FELT: Why don't we try to get together the week of the 20th or 21st of January and see where we stand? Possibly the 18th, when Gibby will try to be here again.

GIBBIES: I think we're going to be a little pushed to get anything by that time. We've just been talking about whether or not we could get the consolidation done by that time. But right now, you're aiming at the 18th of January?

FELT: Yes, not to have the thing completed by that time but to see what we have at that point.

GIBBINS: That's when you were planning on having me come down again.

FELT: Yes.

SANDERS: Let me ask this question. It is something we might bring up when we talk to Sam Howell. If we assume an operation of the same size as REDWING, how many shots would we be transferring to Taongi?

GIBBINS: The best number we can use right now is five. I think what you need to say is that it is very likely to be more than three and very likely to be less than six.

LUCKE: They would be all over 1 MT?

GIBBINS: Yes.

SANDERS: And all would be barge shots?

GIBBINS: More or less.

KELLY: I'd like to ask one more question about these people up there. Gibby, did you say 175 total personnel if you were ship-based?

GIBBINS: Yes.

KELLY: And this includes everybody, E&N, etc.?

GIBBINS: This is a real off-the-cuff opinion, without talking to any EG&G people, Sandia people or anybody.

RHC: If you can guess the number of UCRL people, you can probably infer the number of total people up there

GIBBINS: Yes, I think if you talk about 50 to 60 UCRL people, it seems like 175 billets would handle it.

The meeting was adjourned at approximately 1430 hours.

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J-3
Plans & Operations

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