

UNITED STATES OF AMERICA

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FEDERAL COMMUNICATIONS COMMISSION

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PUBLIC SAFETY NATIONAL COORDINATION COMMITTEE

GENERAL MEMBERSHIP MEETING

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FRIDAY

MAY 31, 2002

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The General Membership Meeting was held in the Commission Meeting Room, Federal Communications Commission, 445 12th Street, S.W., Washington, D.C. 20554, at 9:30 a.m., Michael Wilhelm, Acting Steering Committee Chairman, presiding.

PRESENT:

WAYNE LELAND	Steering Committee Member
TIM LOEWENSTEIN	Steering Committee Member
HARLIN McEWEN	Steering Committee Member
STEVE PROCTOR	Steering Committee Member
MARILYN WARD	Steering Committee Member
MICHAEL WILHELM	Designated Federal Official
RICHARD MURPHY	Steering Committee Member

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1 P-R-O-C-E-E-D-I-N-G-S

2 9:30 a.m.

3 MR. WILHELM: We will start the 16th  
4 meeting of the NCC.

5 As the more perceptive people out there  
6 have recognized already, I'm not Cathy Walman. Cathy  
7 called me at home last night. She's been ill for the  
8 past couple of days and regrets that she can't make  
9 the meeting. She assures us that she will be  
10 available for our meeting in September if the virus  
11 doesn't catch her again.

12 We have two speakers we're going to hear  
13 from this morning. We're going to hear from Steve  
14 Proctor on his experience at the 2002 Olympics in Salt  
15 Lake City, and we're going to hear from John Oblak on  
16 the progress that TIA has made in developing a wide-  
17 band data standard.

18 I think we'll start this morning with  
19 Steve Proctor. As most of you knew when you tuned  
20 into the Olympics this last February, there was a  
21 tremendous communications infrastructure underlying  
22 those programs. There was a need for crowd control

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1 initially, and then they started planning for the  
2 Olympics. Then, after September 11, there were severe  
3 concerns about security and the need for  
4 communications that related to security.

5 Our speaker this morning, Steve Proctor,  
6 was more than aware of these communications systems;  
7 he was responsible for them. As the executive  
8 director of the Utah Central Area Network, Steve was  
9 responsible for communications from ten Olympic venues  
10 using over 15,000 radios. He has a few thousand now  
11 he'd like to get rid of, but he'll talk to you about  
12 that.

13 (Laughter.)

14 MR. WILHELM: His systems performed  
15 without a hitch and without any serious interference  
16 problems. So, Steve is going to tell us how he pulled  
17 this off. Here's NCC Steering Committee Member Steve  
18 Proctor.

19 STEVE PROCTOR: Thank you very much,  
20 Michael. It's a pleasure to be here and tell you what  
21 happened during the 2002 Winter Olympic. I've  
22 hopefully cued this thing up, and everything's

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1 working.

2 I know some of you have seen these slides  
3 and the music that goes with them, and I apologize for  
4 you having to see them again. I have changed a couple  
5 of them, but they kind of change the story in a  
6 pictorial sense, rather than me having to spend a  
7 thousands words.

8 First of all, the challenge we had -- this  
9 began in 1993, and we had the same challenges that  
10 each and every one of you can identify with: the turf  
11 issues, the funding, the financing, what technology  
12 are we using, what type of coverage do we want to  
13 achieve, what happens if the users don't come to help  
14 support the system, staffing, input of the agencies,  
15 maintenance, coordination of frequencies,  
16 interference, site construction, dispatch  
17 interconnection and governance. All these issues were  
18 the most difficult issues that we had to deal with as  
19 we built this radio system over the past ten years.

20 I made a presentation to this Committee, I  
21 believe it was the second or third meeting, about the  
22 struggles we were going through and what we were going

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1 to achieve. And our theme throughout the building of  
2 this system. And in the words of Daniel Webster, that  
3 we can't do singly, what we can do jointly. And after  
4 seven or eight years of working through this process,  
5 this is how it turned out.

6 (Whereupon, a video is played.)

7 STEVE PROCTOR: Those just give you a  
8 couple of the images that we lived with for about 17  
9 days straight. And, as we constructed the system for  
10 about three years, those were pictures of the tower  
11 sites and facilities that we had to construct.

12 As the Olympics unfolded in Salt Lake  
13 City, it was a very emotional event for all of us. We  
14 felt a deep sense of trying to put on an event that  
15 would help heal a nation that was attacked just a few  
16 months earlier.

17 A couple of examples -- the flag used on  
18 the tower was raised September the 12th as we  
19 constructed that tower, by the power crew that was  
20 putting up that tower on top of the mountain.

21 And when they brought the World Trade  
22 Center flag into the opening ceremonies, it was

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1 deathly quiet, and there was a great deal of respect  
2 for what had happened and for that flag, as those  
3 athletes brought it in. It was a tremendous  
4 experience to be there and to feel that.

5 The pictures you saw of the towers with  
6 the ice storm were a great test for us because they  
7 took out some of our system prior to the games. That  
8 happened in November, and were able to effect repairs  
9 and get the systems back up and run through some test  
10 scenarios with it prior to the Olympic games starting.

11 During the Olympic games, in 17 days, we  
12 processed 8-1/2 million radio calls, averaging 500,000  
13 every 24 hours, or about 5.7 per second, into the  
14 system. That was public safety, that was the Olympic  
15 Management Committee that were managing the games  
16 using the radio system -- that was significantly heavy  
17 traffic. That was through 500 repeaters at 43 sites,  
18 and 10 venue sites. So, you can see that we had a  
19 significant amount of infrastructure there.

20 During the Paralympics, which were 10  
21 days, beginning March the 8th, about a month after the  
22 Olympics started, we were processing at a rate of

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1 about 180,000 calls over a 24-hour period; a million  
2 seven total. About 2 calls per second. And our daily  
3 traffic is boiling down, after the Olympics, to about  
4 136,000 calls over 24 hours. Now, we have removed  
5 some infrastructure. We're down to about 350 trunk  
6 repeaters located around the area.

7 This system supported 91 public safety  
8 agencies throughout a 9-county area, encompassing  
9 about 80 percent of Utah's population, over about a  
10 third of the state. And the service has been super.  
11 Post-games, we've done some management changes that  
12 have allowed us to change the way we do business. We  
13 are currently adding some additional service into  
14 areas that we've had issues and problems with, using  
15 the Olympic infrastructure that was left behind.

16 We have 16 enhanced 911 centers tied to  
17 this network that provide first-responder service  
18 through 911. These centers -- you saw the  
19 construction pictures of one of the major centers in  
20 Salt Lake; that was the large building with the  
21 monopole tower.

22 We had 15,600 radios in use during the

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1 games. All of them were on this 800 MHz system. The  
2 traffic loading -- we learned very quickly that  
3 traffic loading and traffic management is critical.  
4 Opening ceremonies night, we were experiencing a  
5 significant number of busies on the system, but by  
6 managing the traffic, we allowed our busies to go  
7 right down to almost nothing throughout the rest of  
8 the games. That was really a good test.

9           You have to remember, in Utah this is the  
10 first event of any sort, of this type of magnitude,  
11 that we've ever held in Utah. I was involved several  
12 years ago with a multi-agency response over a two-week  
13 period to a hostage situation with a family, where a  
14 couple of officers were killed, and the communications  
15 problems were horrendous during that. During the  
16 Olympics games, we used that as an example and tried  
17 to make sure that we had the communications necessary  
18 when it was needed, and the capacity necessary to get  
19 the calls through.

20           Michael asked me to talk a few minutes  
21 about interference issues. What we did about a year  
22 out as we established a radio engineering group

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1 representative of all the services that were going to  
2 be during the games. That included cellular, PCS,  
3 Nextel, public safety, anybody who was going to have  
4 radio communications during the games.

5 We met on a monthly basis for a year prior  
6 to the games, and then we met weekly about two months  
7 out. Everybody was on call during the games. And as  
8 we tuned up systems and venues -- for instance, in the  
9 stadium where the Olympic opening and closing  
10 ceremonies were held, there were two about 15-story  
11 buildings just kitty-corner from that stadium. Each  
12 was packed with tons of cellular equipment, Nextel  
13 equipment, all focusing on providing coverage into the  
14 stadium during the games.

15 Remember the picture of the Olympic  
16 athlete gal that handed the phone to the President so  
17 he could talk to her mother? I guess it was. We  
18 wanted to make sure the interference issues were  
19 minimized. And by having this engineering group  
20 working together on a daily basis, all disciplines, we  
21 minimized the interference.

22 Right before the opening ceremonies, we

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1 did have a big interference problem because all the  
2 staging area was right west of the stadium, and the  
3 whole one side of the stadium is glass. So, these two  
4 buildings that were projecting signals into the  
5 stadium were projecting them right at that glass, and  
6 it was reflecting in the staging area, desensing all  
7 the radios of the Olympic workers who were trying to  
8 get the events stages and put together. But we got  
9 all this group together, we worked out some  
10 compromises with power output and we were successful  
11 in eliminating the interference.

12 It's interesting -- after the Olympics are  
13 over now, we have a couple of areas in the city that  
14 have some real interference problems, and nobody's  
15 quite as willing to worth together to eliminate the  
16 interference.

17 (Laughter.)

18 STEVE PROCTOR: But anyway, during the  
19 games, we had not a whole lot of problems with  
20 interference.

21 As we put this system together, we had  
22 many of the qualities, we feel, that some of these

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1 Olympic athletes had as they competed, and I've  
2 selected a couple of them to represent where we came  
3 from also. This competitor from Thailand was there to  
4 represent his country in the 30-kilometer cross-  
5 country ski -- the most grueling cross-country ski  
6 event. He's 41 years old, competing against 21 year-  
7 olds, yet he was determined to make it.

8 This bobsledder, 12 months before the Olympics, was  
9 going through chemo and radiation therapy for cancer  
10 but wanted to participate in the thrill of  
11 competition. Chris Klueg won a bronze medal after a  
12 liver transplant a year before he made comeback. And  
13 these two exhibited more class than any athletes I've  
14 seen in a lot of years by simply announcing, we just  
15 skate. And they obviously skated good enough to win a  
16 gold medal amidst that controversy.

17 We feel that determination, courage,  
18 class, comeback, all contributed to our success, also,  
19 as we put on this major event in Utah and had the  
20 communications to support it. For once, the radio  
21 system really worked, and our Olympic legacy was a  
22 system that will continue to provide service to our

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1 community for many years.

2 I'd be happy to take any questions that  
3 you have, or answer any comments.

4 MR. WILHELM: Steve, I have one. There  
5 was a considerable federal presence there at the  
6 Olympics. How did you interoperate with the federal  
7 agencies?

8 STEVE PROCTOR: In each of the venue  
9 locations, they had a switching box that allowed  
10 patching between the federal and the state systems,  
11 and we also provided the feds with radios on our  
12 system. They didn't provide us with radios on their  
13 system, but most of the venue communications were  
14 handled locally, and we had the ability to patch  
15 through the systems.

16 The PSWN program helped us fund a solid  
17 patch between three dispatch centers, state, county  
18 and federal, and all the dispatch communications were  
19 handled through that patch network. When it was  
20 necessary for feds and locals to talk together, it  
21 worked very, very well.

22 AUDIENCE PARTICIPANT: You mentioned

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1 (inaudible).

2 MR. SINES: You mentioned during opening  
3 ceremonies, you got some busies on your system and  
4 that through managing your network, you were able to  
5 reduce those down to nothing. Can you elaborate what  
6 you did to reduce that?

7 STEVE PROCTOR: In the Salt Lake Valley --  
8 for those of you who have been there, you know it's  
9 shaped like a bowl. And on the west side of the  
10 Valley, we have one of our high intelligent repeater  
11 sites. And because that site is so high, all the  
12 radios roam to that site. And what we did was simply  
13 shut access off from some of the northern and southern  
14 county users so that they couldn't access that site.  
15 And it allowed us to remove that traffic from the  
16 system and manage the traffic better, by simply  
17 removing their ability to talk on that site. They  
18 didn't like it, but during the opening ceremonies,  
19 they had to live with it.

20 MR. DEMPSEY: Ted Dempsey. Steve, how was  
21 the system funded? And I guess, just to show the  
22 benefit after the Olympic games were over, how did it

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1 benefit the community?

2 STEVE PROCTOR: We received three federal  
3 grants to assist us in funding the system, and it  
4 helped pay for the development costs and purchased the  
5 infrastructure. The users pay a monthly user fee,  
6 which is recouped to cover the operations and  
7 maintenance of the system.

8 We received a couple of grants to purchase  
9 -- I should say SLOC, the Salt Lake Organizing  
10 Committee -- and us combined together with one of our  
11 federal grants to purchase the infrastructure for the  
12 Olympic games, which consisted of about \$13 million  
13 worth of radios and equipment. And that equipment,  
14 per the agreement we had with SLOC, is left in Utah to  
15 benefit Utah public safety agencies. So, that  
16 equipment will be reassigned and re-deployed to other  
17 areas to help us put them on a new system. We  
18 received a lot of federal funding, and very much  
19 appreciate it.

20 Any other question?

21 (No response.)

22 STEVE PROCTOR: Thank you very much.

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1 Thank you, Michael.

2 (Applause.)

3 MR. WILHELM: Anyone who had any questions  
4 about whether 800 MHz systems would perform in rugged  
5 terrain, I think Steve just answered them. It was an  
6 impressive set-up of communications equipment.

7 We'll go from narrow-band communications  
8 now to wide-band communications. John Oblak is chair  
9 of TIA's engineering committee for private radio.

10 He started his career in 1973 with RCA.  
11 In 1984, he joined the E.F. Johnson Company, and  
12 there, he's now the chief engineer. He's devoted  
13 himself to TIA's activities for over 20 years, which  
14 is an impressive record in public service.

15 Today, he's going to give us an update on  
16 TIA's efforts to develop a wide-band data standard  
17 with 700 MHz public safety channels. John.

18 MR. OBLAK: Thank you and good morning.  
19 I'd like to present to you the progress that TIA is  
20 making on the wide-band data standard.

21 (Brief pause.)

22 MR. OBLAK: Our agenda this morning --

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1 we're going to be talking about the status of the  
2 working group. We'll put together our schedule, as we  
3 had presented in the past, and show you updates to  
4 that, and give you a list of recommendations that  
5 we're going to give to the NCC.

6 First of all, TIA, the working group, has  
7 maintained a vigorous conference schedule, meeting  
8 approximately every two weeks by telephone, in  
9 addition to the regular meetings that we have -- five  
10 a year. And so, we're making good progress towards  
11 the standards.

12 The IOTA physical layer standard ballot is  
13 complete and we're undergoing some comment resolution  
14 right now. MAC and RLA layers -- we're merging the  
15 two technologies into a single standard at these  
16 layers. We've gone through several drafts of this,  
17 and we are ready to take this document to ballot. The  
18 link layer control protocol -- again, it's going  
19 through various drafting levels, and again,  
20 progressing on target.

21 We did have one significant event during  
22 this time. That is that Marconi, who had presented

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1 and proposed a technology, has withdrawn their support  
2 of that and has withdrawn their support of the  
3 project. Basically, as stated here, they just had  
4 other priorities that they wanted to focus on.

5 Very briefly, I'll present this I chart,  
6 which is our development schedule. As you can see,  
7 the green areas are the key ballot points. Again,  
8 we're working toward having documents balloted and  
9 approved prior to the end of the year. As you can  
10 see, this schedule takes us basically there.

11 I'll discuss some of the recommendations  
12 and decisions that need to be made as we progress on.

13 First of all, there were two modulation types  
14 proposed for the physical layer -- those being SAM, as  
15 proposed by Motorola, and IOTA as proposed by EADS  
16 DSM. It's been very difficult to choose one or the  
17 other based on technical reasons. They're very close  
18 in performance.

19 And so, there are very few overriding  
20 technical reasons that would recommend one over the  
21 other. But we are working in the Committee to develop  
22 a recommendation. It is our intent that we will

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1 present to the NCC one standard. We may publish two  
2 standards, but we will propose one standard as the  
3 interoperability standard.

4 We've also decided as we progress on, as  
5 we go up the protocol stack, that we will only have a  
6 consolidated or converged standard. We won't progress  
7 with two standards. As we progress on the protocol  
8 stack, we will harmonize with one standard. And our  
9 work has so far gone well toward consolidating into  
10 one standard.

11 We have a few documents that are either  
12 published or soon will be published that we're  
13 presenting to the NCC as documents. We have TSP-902A.

14 This is the Shell Standard, the overview document  
15 that describes the system. That has been published.  
16 We have a TIA standard for the SAM physical layer.  
17 That has been published.

18 We have several documents that are in the  
19 ballot stage right now -- TIA-902.BABB, the IOTA  
20 physical layer specification; and TIA-902.BAAC, media  
21 access control radio link adaptation layer. These are  
22 in ballot and should be published very shortly.

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1           We obviously, as I mentioned several  
2 months ago when I presented our first update in  
3 November, said that while the suite of standards may  
4 have a considerable number of documents associated  
5 with them, we feel that there are a few documents that  
6 are pivotal to defining interoperability. Just as in  
7 Project 25, there are thirty-some documents in the  
8 suite of standards. There were only a few that were  
9 selected by the NCC and chosen to represent the basis  
10 for interoperability. We feel the same will happen in  
11 the wide-band data standards. We're working to try to  
12 get those documents published prior to our deadline.

13           There are several other aspects that we'd  
14 like to discuss. They were also discussed somewhat in  
15 the Interoperability and Technology Subcommittees  
16 yesterday. That is, if you look at the possible  
17 modulations, bandwidths, etc., we have three  
18 bandwidths that are available -- 50 kHz, 100 kHz and  
19 150 kHz.

20           We have three levels of modulation -- a  
21 low, medium and a high level -- and we also have two  
22 physical layers that have been identified. The total

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1 gives us 18 combinations. Certainly, we're not  
2 proposing all 18 to be interoperability standards.  
3 TIA is proposing that we limit the number of  
4 combinations of these, in fact, to one combination --  
5 that being one bandwidth, one modulation type, and one  
6 modulation level.

7 We're recommending, first of all, that 50  
8 kHz be the recommended channel bandwidth for  
9 interoperability. We stated some reasons here.  
10 Certainly, it gives three times the power per bit as  
11 compared to 150 kHz, for example, and that gives us  
12 the best signal-to-noise ratio for coverage. It also  
13 allows three times the number of individual channels  
14 for communication, as compared to using up the whole  
15 150 kHz slot. Therefore, we'll have less units  
16 competing for resources and better grade of service.

17 We feel that the 50 kHz channel will  
18 provide through-put needed for such applications that  
19 were defined, such as text messaging and so forth.  
20 Lastly, we believe that by limiting to one channel  
21 bandwidth, we will open our opportunities for the  
22 various manufacturers to participate. We feel that

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1       although the standards will define all three  
2       bandwidths, all three modulation levels, we feel that  
3       if we can limit the interoperability mode to one of  
4       those bandwidths and one of those modulation levels,  
5       that manufacturers will be able to deploy these  
6       systems in a more rapid fashion.

7               Pictorially, we'll define what I mean by  
8       the bandwidths. Obviously, the interoperability of  
9       wide-band channels are segregated into three  
10       contiguous 50 kHz channels. That's depicted on the  
11       top line -- 1, 2 and 3. The channels can be  
12       aggregated into 100 kHz blocks, as we see in lines 2  
13       and lines 3, or the full 150 kHz, as aggregated all  
14       together. Our proposal is line number one, where we  
15       have three channels separately, and acting as 50 kHz  
16       channels.

17               So, we bring the recommendation that the  
18       50 kHz band width be used. We also bring our  
19       recommendation that a specific bit rate be chosen.  
20       Both of the physical layer standards that we're  
21       dealing with have multiple -- in fact, three --  
22       modulation rates. Those are dynamically allocated as

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1 a situation warrants. Certainly all control signaling  
2 is doing at the most robust level.

3 But we are proposed that the mid-level  
4 modulation, which would correspond to 16 QAM in the  
5 SAM proposal or 4ASK in the IOTA proposal, be focused  
6 on in the interoperability mode. It certainly meets  
7 the 2.56 bits per hertz, as the statement of  
8 requirements dictates. It allows a moderate level of  
9 coverage, and again, we feel that it provides the  
10 through-put that is required to meet, first of all,  
11 the text messaging and some level of streaming video.

12 Certain other bit rates could be allowed, but we  
13 believe, and we would propose, that this mid-level  
14 modulation bit rate be the mandatory interoperability  
15 standard.

16 Decisions that need to be made --  
17 certainly, there are two modulations, three simple  
18 constellation modulations and three bandwidths; as I  
19 mentioned before, 18 possible modes of operation.  
20 It's a lot of modes for a manufacturer to implement.  
21 We believe that interests would be best served if we  
22 could focus on some of those selections. TIA is

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1 recommending to use the single-bandwidth at 50 kHz.

2 We're recommending that the mid-level  
3 constellation modulation be recommended, and further,  
4 we are recommending that TIA itself will propose to  
5 the NCC one of the two technologies for a physical  
6 layer. We propose to make that decision shortly, and  
7 we'll present it to the NCC for your concurrence.

8 I will mention that yesterday, in the  
9 interoperability and Technology Subcommittees, there  
10 was a level of concurrence both on the bandwidth of 50  
11 kHz and the mid-level modulation, although we do  
12 recognize that there were some applications that were  
13 identified that may require the wide 150 kHz  
14 bandwidth. We'll keep that operation open as we  
15 continue.

16 In summary, I'd like to say that we are  
17 making progress, keeping current with our schedule.  
18 We're looking forward to presenting to the NCC those  
19 documents that will be pivotal for defining  
20 interoperability, and we're looking to do that in the  
21 timeframe that we're proposed, and that is prior to  
22 the early 2003 deadline for the NCC.

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1 Thank you very much.

2 (Applause.)

3 MR. WILHELM: Any questions?

4 MR. McEWEN: I'd just like to thank TIA  
5 for the work that you're doing in this regard and to  
6 help bring it all together. It's a complicated issue,  
7 so I think you should be commended, and the group  
8 that's working with you to do this.

9 MR. OBLAK: Thank you very much. As I  
10 mentioned the last time we've presented, I've been  
11 very pleased with the progress of the subcommittee.  
12 The chairman, Jeff Anderson from Motorola, who's been  
13 working the issues is a very dedicated chairman. And  
14 we take the deadline very seriously. So, we're  
15 working with all diligence to meet those requirements.

16 Thank you.

17 (Brief pause.)

18 MR. OBLAK: While Chief McEwen fixes the  
19 communications problem with his Swiss army knife, I'd  
20 like to attend to a couple of housekeeping matters.  
21 One is that, as required by the statute, we must have  
22 a list of persons attending the NCC meeting. So, if

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1 you haven't signed in at the table to my left, please  
2 do so before you leave today.

3 We had three subcommittee meetings today,  
4 and the chairs of these subcommittees are going to  
5 present summaries of what they did and any  
6 recommendations that they bring to the Steering  
7 Committee for Steering Committee action this morning.

8 Our first subcommittee is the  
9 Interoperability Subcommittee, which is chaired by  
10 John Powell -- John, if you'd come take the podium and  
11 tell us what went on yesterday and what your  
12 recommendations are, please.

13 MR. POWELL: We discussed a number of  
14 items yesterday within the Interoperability  
15 Subcommittee. First of all, within working group  
16 three, which covers rules, policy and spectrum  
17 planning, the working group is chaired by Steve Devine  
18 from Missouri.

19 We discussed a proposal that was raised at  
20 the last meeting to request that the commission  
21 initiate an action -- and we'll have to determine  
22 exactly what that should be -- and we are asking the

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1 Steering Committee to consider this for forwarding to  
2 the commission, some form of rulemaking to address  
3 interoperability management for all of the  
4 interoperability channels in all of the bands, to  
5 cover such items as standardized nomenclature, control  
6 of the channels, or coordination of the channels is a  
7 better term, for example, using what we have at 700,  
8 either putting them under the control of an SEIC  
9 original planning committee under the same guidelines  
10 as exists at 700.

11 Also, incorporating a mechanism in there  
12 for single-point licensing within the state for the  
13 federal VHF interoperability channels.

14 Finally, there may be a couple of other  
15 smaller issues, but addressing a digital standard for  
16 interoperability on the channels outside of the 700  
17 band. As a number of the SEICs have begun to  
18 function, it's become clear immediately that  
19 interoperability needs to be addressed in the wider  
20 venue to be effective. And so, we are asking the  
21 Steering Committee -- and I will be sending a letter  
22 forward to you and Cathy from the subcommittee, asking

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1 that you forward such a request to the commissioner.  
2 Again, we'll have to work out the exact details, and  
3 maybe we can do it on the phone before we finish the  
4 letter up so we can get it in a format that can be  
5 used, and hopefully quickly.

6 The second issue that we discussed was  
7 within Working Group 6, which is the wide-band  
8 interoperability standards, chaired by David Buchanan  
9 from San Bernardino County, California. We discussed  
10 a number of items there, including the user need  
11 statement of requirements, from which we can determine  
12 the most appropriate bandwidth and data rates, as John  
13 just mentioned, for recommendation to the Technology  
14 Committee.

15 Perhaps a better way to put it is, define  
16 the need so that the Technology Subcommittee could  
17 make the determination of the appropriate bandwidth  
18 and data rates, although we did believe that most of  
19 our activity would be within a 50 kHz band.

20 Looking at loading criteria, somehow  
21 trying to establish that -- we had another big  
22 discussion on management of the database for the IP

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1 addresses for the data interoperability channels.  
2 We're going to approach NPSTC to see if that can be  
3 added on to the original plan database as an  
4 additional task for NPSTC.

5 And finally, the last item -- and we will  
6 also include this in the last letter to the Steering  
7 Committee -- we will ask that the Steering Committee  
8 first of all compliment TIA in a letter on their  
9 progress to date, but stress the need to have the  
10 wide-band data standard completed as quickly as  
11 possible.

12 From my notes, those were the major issues  
13 that we tackled yesterday.

14 MR. WILHELM: Thank you, John. I think  
15 that brings up two issues for consideration by the  
16 Steering Committee. One is whether it's the consensus  
17 opinion of the Steering Committee that the NCC should  
18 address interoperability below 512 kHz, and, if the  
19 Interoperability Subcommittee should go forward with  
20 initiating that letter, that letter should go first to  
21 the chair of the NCC, then to the Steering Committee  
22 for action, and then, with any modifications made by

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1 the Steering Committee, it should be submitted to the  
2 FCC.

3 So, I guess the question before us right  
4 now is whether the Steering Committee believes that  
5 the subcommittee should proceed on developing this  
6 letter on interoperability below 512.

7 (End side 1; continuing on side 2.)

8 MR. POWELL: Actually, Michael, it would  
9 be -- it should include above 512; to the 700 because  
10 it has the 800.

11 MR. WILHELM: Well, it ill include 700 and  
12 800 also.

13 MR. POWELL: 700 and 800 also.

14 MR. WILHELM: Thank you. I see a number  
15 of heads nodding, and Tim Loewenstein, you had a  
16 comment?

17 MR. LOEWENSTEIN: I was just going to  
18 speak approval and encouragement that we do this.

19 MR. WILHELM: Okay. That gives the  
20 subcommittee its marching orders on that particular  
21 issue.

22 The second one is the letter from the

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1 Steering Committee to TIA asking them to expedite  
2 development of wide-band data standard. And as John  
3 mentioned, it would also be appropriate to thank TIA  
4 for some exceptional work done so far.

5 So, is it the sense of the Steering  
6 Committee that we should send such a letter?

7 (Affirmative response.)

8 MR. WILHELM: All right. That concludes  
9 issues having to do with Interoperability  
10 Subcommittee. Now, if Glen Nash is prepared to give  
11 his presentation on what took place yesterday in the  
12 Technology Subcommittee --

13 MR. NASH: Thank you. As always, a lot of  
14 this overlaps, and so some of it's been discussed  
15 already.

16 First off, we did have discussions  
17 relative to the wide-band data standard, and the  
18 Technology Subcommittee reached consensus that we went  
19 back to John and TIA with -- that they should  
20 concentrate their standard using the 50 kHz wide  
21 channel, operating at a mid-level symbol rate. And  
22 the specifics of that symbol rate are dependent upon

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1 that modulation scheme; that is, a 15 QAM-type symbol  
2 rate or an ASK-type symbol rate would be applicable to  
3 either the SAM or IOTA-type modulation.

4 And so, to the extent that TIA has not yet  
5 reached a recommendation on the modulation scheme,  
6 it's not appropriate at this point to make a  
7 recommendation at this point on the modulation rate to  
8 be used. Nonetheless, they should target their  
9 efforts toward the mid-level symbol rate and come back  
10 to us with a recommendation on the modulation scheme.

11 In spite of our saying, you know, to focus  
12 their efforts toward a 50 kHz-wide channel, they  
13 should leave the door open to going up to 150 kHz  
14 operation, either within the fairly near term here, as  
15 the Interoperability Subcommittee takes another look  
16 at the potential applications that may come during our  
17 next meeting here, or even longer-term, potentially  
18 after the NCC's function is completed here.

19 It may be desirable to start off here  
20 identifying a couple of the wide-band channels for  
21 interoperability use in the immediate future, and  
22 decisions for the remainder of them being, if you

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1 will, held in reserve for a later decision, in  
2 recognition of the fact that as far as the wide-band  
3 goes, public safety doesn't have a whole lot of  
4 experience in using the wide-band channels and what  
5 the would be of great use and function for.

6 And so, making some definitive decisions  
7 on the interoperability aspects of that might be a  
8 little premature at this point. I know that at this  
9 point in time, the only thing that we have identified  
10 is simple text messaging. John's committee will be  
11 taking a look at some other potential applications,  
12 but we're still on a very steep learning curve as far  
13 as wide-band channels go here. So, there's no  
14 specific recommendation that we need from the Steering  
15 Committee on this issue. It is merely guidance that  
16 we've given the TIA on how to move forward with their  
17 work at this point.

18 The second issue we discussed, and it's  
19 been a long-term topic of discussion, is the issue of  
20 encryption. As you may recall, the decision was made  
21 that encryption is not required on the  
22 interoperability channels. However, if you are going

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1 to use encryption, then that encryption should follow  
2 a standard. We previously recommended that the DES  
3 standard be the standard implemented on the  
4 interoperability channels, and that recommendation  
5 went forward from the Steering Committee to the FCC.

6 Since then, some consideration has been  
7 given to the fact that DES is an older encryption  
8 standard, there is evidence that it has been  
9 compromised by various groups, and that therefore it  
10 may not be the best choice for encryption.

11 A new standard was being developed, called  
12 AES. That standard, which up until just a few months  
13 ago was in the developmental stages and was not under  
14 the guidance that we had on what standard could  
15 considered in adopting 5ENCC, really was not an  
16 option.

17 TIA has completed the work on the AES  
18 standard. It has been balloted and approved, and is  
19 now a published ANSI standard. Therefore, it becomes  
20 something we can give consideration to. And it is the  
21 consensus recommendation of the Technology Committee  
22 that we forward a recommendation to the FCC, that they

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1 implement appropriate procedures to modify the rules  
2 so as to identify the AES standard as the encryption  
3 standard to be used, if encryption is implemented on  
4 the interoperability channels.

5 We do have a specific document reference  
6 to refer to on that. Specifically, it's ANSI TIA EIA-  
7 102.AAAD and XC. If I got all those numbers right,  
8 John -- you're staring off into space like you think  
9 that's right. I will confirm those numbers when I  
10 send up the formal recommendation, a written  
11 recommendation, nonetheless, to say that we are now  
12 suggesting that the Steering Committee modify the  
13 recommendation to the FCC.

14 The final item that we discussed yesterday  
15 was an issue that had been brought forth. It  
16 addresses some of the concerns that we and others had  
17 expressed concerning potential interference, primarily  
18 from the commercial users in the adjacent band. From  
19 an engineering standpoint, when you're looking at  
20 interference, there's really two parts to an equation.  
21 There's the interfering signal, but there's also the  
22 desired signal. And if you're trying to improve an

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1 interference situation, you can attack either one of  
2 those two sides of the question.

3 In the past, the recommendations that have  
4 gone from here have addressed particularly the  
5 interfering signal and making specific recommendations  
6 that the users in the commercial portion of the band  
7 keep their signal levels -- their interfering signals  
8 into our portion of the band at very low levels.

9 Some of the counter-arguments that have  
10 been made have said, well, yeah, but public safety,  
11 you really aren't doing enough to protect yourself  
12 from the interference that we might present to you.  
13 They're saying that we ought to attack the desired  
14 signal site of the equation. Relative to that, a  
15 suggestion had been made that public safety should  
16 change the way it designs its radio systems.

17 We currently -- a typical design criteria  
18 is to provide what's known as a 40-dBu signal that is  
19 considered an adequate signal level. The suggestion  
20 had been made that we increase after the 700 MHz to 50  
21 or perhaps 52 dBu of signal. That's a 10 dB increase.

22 It would allow for performance in the presence of an

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1 additional 10 dB worth of noise.

2 We had some discussion on that yesterday.

3 This is not a simple answer. There are many parts of  
4 the equation. As you make efforts to increase the  
5 signal level, there are a number of other issues that  
6 come into play -- issues such as, do you increase the  
7 power output in order to do it, which has additional  
8 interference concerns within the band, do you increase  
9 the number of radio sites, which have obvious concerns  
10 about the cost of radio systems, and a number of such  
11 issues.

12 The recommendation that's out at this  
13 point is that we ask TIA to a more technical analysis  
14 of the trade-offs to be made relative to increasing  
15 the signal level, and whether or not something between  
16 40 and 50 might be a more appropriate number.

17 We don't know at this point, so our  
18 recommendation right now is that we do ask TIA for  
19 some technical assistance and guidance on that. Based  
20 on nodding heads from Wayne and John yesterday,  
21 they're willing to take that on.

22 That's my report. Any questions?

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1                   MR. WILHELM: Thank you, Glen. I might  
2 ask John Oblak whether we need anything further from  
3 the NCC to initiate that TIA analysis.

4                   MR. OBLAK: I don't believe, anything  
5 formal. It might help if we just had some sort of  
6 brief statement of your desire for us to do the work,  
7 but it doesn't need to be very formal.

8                   MR. WILHELM: Thank you. Glen, could you  
9 draft something of that nature.

10                  MR. NASH: I'll draft something.

11                  MR. WILHELM: Glen mentioned that the  
12 current encryption standard has changed. The Steering  
13 Committee notified the FCC some months ago that they  
14 should anticipate that the standard would change. Now  
15 that we have the actual public standard, it would be  
16 appropriate to forward it to the FCC, if that's the  
17 role of the Steering Committee. And I gather from  
18 that that it is.

19                  This is the time in the meeting that we  
20 reserve for public participation. Anyone in the  
21 audience is free to raise any issue related to the NCC  
22 -- oh, I forgot Ed Dempsey. How could I do that?

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1 (Laughter.)

2 MR. WILHELM: The star of MSNBC's clip on  
3 why television stations should be purged from the 700  
4 MHz strand.

5 (Laughter.)

6 MR. DEMPSEY: They cut out the part that  
7 should be purged from everything, but they weren't  
8 happy about that statement. And I even come bearing  
9 gifts; and you forgot me.

10 Yesterday, we had -- with my being  
11 notorious for short meetings, we had one of my longer  
12 meetings yesterday. I guess the primary topic, which  
13 was at the end of the subcommittee meeting was the  
14 region 5 plan that was submitted by Southern  
15 California.

16 We hit Dave Buchanan with a few good  
17 questions -- it was more like an inquisition -- which  
18 brought out some of the major points as to how they  
19 developed their plan. And what we're going to do with  
20 Dave's plan in our subcommittee is we're going to go  
21 back and look at it, and try to take any of the high  
22 points back into our guidelines and make sure that we

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1 didn't miss anything.

2           And of course, we'll also make  
3 recommendations to Dave's plan, if we believe there  
4 are some shortcomings there. I haven't read it in  
5 full. I've only had a chance to look at excerpts from  
6 it, but it looks pretty good and seems to have  
7 followed the guidelines. So, my subcommittee can take  
8 pride in the fact that we did a pretty good job of  
9 setting forth some decent guidelines.

10           Another topic of discussion was that NPSTC  
11 agreed to look into the role of the National Plan  
12 Oversight Committee. That was something that we  
13 recommended in our previous year's report, that there  
14 be some type of continuing committee to look at,  
15 monitor, the progress of the plans. NPSTC has agreed  
16 to look into that, with hopefully a decision to take  
17 that on as a permanent task.

18           Tom Tolman's working group announced that  
19 additional funding has been secured for the remainder  
20 of 2002, at the level of \$30,000, to assist the RPCs  
21 in advertising and preparing their plans.

22           We also had a discussion on channel

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1 loading terminology. Dave (inaudible) brought it to  
2 our attention that some of the plans that are out  
3 there now being prepared are using terminology from  
4 the old MPSPC plans, based on the loading criteria.  
5 So, because a lot of things have changed, trunking  
6 systems are more prevalent and the standards, the  
7 actual usability standards based on wider-band  
8 technology and faster through-put, have also changed  
9 the requirements for data system loading.

10 So, we're also going to look at the  
11 terminology that we're using, and the criteria. And  
12 this will be used at the RPC level for help in  
13 evaluating the applications. We're not trying to set  
14 any standards. We're not trying to come up with  
15 guidelines that the users are going to have to follow.

16 This is strictly for the RPCs to look at evaluating  
17 their applications that they receive for voice and for  
18 data.

19 We also developed a checklist for  
20 evaluation of the regional plans as they're submitted,  
21 which I will forward to Michael for distribution to  
22 the Steering Committee. And we also offer that to the

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1 FCC as a template to start evaluating the plans. I  
2 guess the first one that they'll use will be Dave's  
3 Region 5.

4 We also prepared a suggested work flow and  
5 timeline based on our previous report -- the  
6 recommendations that were in our report -- we just put  
7 into a summary form document that we'll also submit to  
8 the FCC, as well as the standing committee, just to --  
9 and they just summarized the points and our suggested  
10 workflow for the submitted plans.

11 And I also have here the first -- I guess  
12 it's really final, John? Okay, this is the final  
13 version of the NPSTC guidebook that was prepared. But  
14 using the documents that were prepared by the  
15 Implementation Committee, with some input from the  
16 regional plans that were forming and some very hard  
17 work from the NPSTC support office, they put together  
18 a guidebook that could be distributed. NPSTC's  
19 support office will be funding 125 of these to be  
20 distributed to the regional plan chairs. So, there  
21 will be one for Kathy and one for Michael. John  
22 Powell's preparing some CD-ROM versions of those

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1 documents.

2 I would imagine that once the Steering  
3 Committee approves the format and the document, then  
4 we'll give you the go-ahead, Tom, to print the books  
5 for distribution. I think that was it.

6 MR. WILHELM: Thank you very much, Dave.  
7 Next time we'll put you on first so we don't forget.

8 The Steering Committee has seen previous  
9 versions of the guidebook. And most of the changes  
10 are editorial. The guidebook weighs about two pounds.

11 So, I'm wondering if, given the fact these are only  
12 editorial changes and the Steering Committee has  
13 already approved it, whether we could have an  
14 authorization to go ahead with publication of the  
15 book. I see some nodding heads, so I assume we have  
16 consensus on that.

17 Many of you know Dick DeMello, who's made  
18 some outstanding contributions to the FCC. I  
19 mentioned it yesterday, but I'll mention it again for  
20 those of you who weren't there.

21 Dick sent an email saying he couldn't make  
22 the meeting today because he was undergoing radiation

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1 treatments. He's quite ill, and we ask that you keep  
2 him in your thoughts and prayers in the coming months.

3 We come now to the public participation  
4 portion of the meeting, and I encourage any of you who  
5 have any questions or comments on the work of the NCC  
6 to step forward to the microphone.

7 Dave Buchanan.

8 MR. BUCHANAN: Yes. Dave Buchanan, County  
9 of San Bernardino. I just wanted to thank Ted and the  
10 Implementation Committee for their guidelines. We did  
11 use them. They were very helpful in preparing our  
12 plan, and I'd recommend them to all of the regions to  
13 -- even if you don't know specifically what the  
14 guidelines say, and in some cases we deviated from the  
15 guidelines for good reasons. They still brought up  
16 all the points that you need to cover, and it was very  
17 helpful in preparing our plan, so I just wanted to  
18 make that comment.

19 MR. WILHELM: Thank you very much.  
20 There's some tremendous effort and thought that went  
21 into that document, and I would underscore Dave's  
22 thanks to the Subcommittee for doing that.

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1 I see Bob Schlieman, computer in hand,  
2 approaching the microphone.

3 MR. SCHLIEMAN: Bob Schlieman, New York  
4 State. There's been much said about interference  
5 between CMRS and the public safety radio systems. It  
6 has been suggested that public safety receivers are  
7 not up to the quality necessary to accommodate the  
8 interference from CMRS, and that there's something  
9 that should be done in terms of buying better radios.

10 In the six months interim report on  
11 Project 39 that came out recently, in Appendix 5,  
12 there's a report on intermodulation rejection  
13 specifications on high-spec radios. The Orange County  
14 Sheriff's Department in California has done some  
15 studies on the -- they have interference problems out  
16 there. The upshot of that whole thing is that, even  
17 with a high-spec radio, which is what they're  
18 evaluating here -- oh, Windows is shutting down.  
19 Sorry about that.

20 (Laughter.)

21 MR. SCHLIEMAN: The intermodulation  
22 specification radio -- even a high-spec radio -- is

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1 not good enough. And the requirement, shooting from  
2 the hip, by memory now, is about 95 or thereabouts dB.

3 And I guess the best specifications are 74 or 75. In  
4 any case, the problem isn't in the public safety  
5 receiver not being good enough because there's better  
6 receivers that can be bought. They said that it's not  
7 good enough for the environment that they have to work  
8 in. And in fact, their radios have better performance  
9 than the commercial radios.

10 So, the solution is to reduce the  
11 interference level, not try to buy better receivers  
12 that aren't available.

13 MR. WILHELM: Thank you, Bob. Anybody  
14 have comments on that? Ed Dempsey?

15 MR. DEMPSEY: Thank you. After the  
16 discussions that we had yesterday and Bob's statement,  
17 I just wanted to reiterate that it's the cart before  
18 the horse, that, you know, public safety again, is  
19 going to be asked to improve their equipment, spend  
20 more money, build out more sites and better their  
21 systems because a commercial entity has caused  
22 interference to us. Yet, public safety is sitting and

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1 willing to look at making our equipment better so that  
2 the manufacturers don't have to step up to the same  
3 standards that we do.

4           Putting on my retired NYPD hat, everyone  
5 talked about the 800 MHz interference with Nextel.  
6 When we operated in the 470 band, we had interference  
7 with Nextel equipment, and it was resolved very  
8 quickly. It wasn't an issue of intermod. It was  
9 strictly, as Wayne said yesterday, their mission mask  
10 was greater than our receivers could handle.

11           Now, these are receivers that Motorola  
12 builds out portable radios to a higher standard  
13 because of the higher noise level in New York City in  
14 the RF environment. If we're able to survive in that  
15 New York RF environment and now we have to make a  
16 better portable radio? We're paying \$2,000 for a  
17 portable radio now.

18           Now, we're going to have to pay \$3,000 for  
19 a conventional analog portable radio because our  
20 specifications are a little bit tighter than most  
21 because of the tough RF environment in New York City.

22           You know, I agree with us having TIA having a look

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1 at it, but I don't agree with public safety having to  
2 make adjustments to our equipment to accommodate a  
3 commercial provider.

4 MR. WILHELM: Thank you, Ted. Any other  
5 thoughts on that?

6 (No response.)

7 MR. WILHELM: If now, we'll now go to the  
8 matter of upcoming meetings. We're not scheduled to  
9 meet September 19th and 20th here in Washington. And  
10 the Steering Committee has also suggested that we meet  
11 again in November, bearing in mind that the term of  
12 the NCC ends in February of 2003. The suggestion was  
13 made that we meet on November 21st and 22nd in New  
14 York City, that posh RF environment --

15 (Laughter.)

16 MR. WILHELM: -- which also coincides with  
17 the annual meeting of the Radio Club of America.

18 So, I'd like to throw out those two dates,  
19 November 21st and 22nd, and see if anyone is in favor  
20 or opposed to those dates.

21 (No response.)

22 MR. WILHELM: Hearing nothing, we will

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1 tentatively schedule those meetings for November 21st  
2 and 22nd in New York City. I say tentatively because  
3 it depends in part on the FCC's travel budget, which  
4 won't be set until the end of the fiscal year. So, if  
5 it is not held in New York City, we will probably hold  
6 it here in Washington, and I would ask Bert to check  
7 those dates with the staff and see if the room is  
8 available.

9 MR. McEWEN: That's not the way to do it  
10 because a lot of us are going to be in New York City,  
11 regardless.

12 MR. WILHELM: You don't want to take a  
13 shuttle to the dinner.

14 MR. McEWEN: We could, I supposed.

15 MR. WILHELM: Your point is well taken.  
16 We can't be in two places at the same time, although  
17 sometimes I think Chief McEwen manages to do that.

18 All right. Let's leave it as tentatively  
19 for New York on November 21st and 22nd. And we'll run  
20 it first past the Steering Committee and then notify  
21 people on the list server.

22 We are going into a summer hiatus now.

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1 That doesn't mean there's not work to be done, and I  
2 would encourage you to save the list server for the  
3 exchange of ideas of the kind that we had here  
4 yesterday and today in the Subcommittees.

5 With that, I am prepared to adjourn the  
6 meeting, unless anybody has any other comments.

7 (No response.)

8 MR. WILHELM: If not, the 16th meeting of  
9 the NCC is adjourned, and I thank you very much for  
10 coming.

11 (Whereupon, the Committee was adjourned at  
12 10:47 a.m.)

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