MBARI MARS CABLE PROJECT EIS/EIR

PUBLIC SCOPING MEETING

TRANSCRIPT OF PROCEEDINGS

Santa Cruz, California

June 9, 2004

Taken on behalf of the Monterey Bay Aquarium Research Institute at 8272 Moss Landing Road, Moss Landing, California, before Melinda Nunley, CCR #9332, a Notary Public within and for the County of Monterey, State of California.

PROJECT SPEAKERS

Vicki Hill, MBNMS

Marcia McNutt, MBARI

Keith Raybould, MBARI

Also Present:

Deirdre Hall, MBNMS

Michelle Brown, Project Manager, CSLC

Stephen L. Jenkins, Assistant Chief, Environmental Planning & Management Division, CSLC

Nancy Quesada, Lease Negotiator, Land Management Division, CSLC

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Moss Landing, California, Wednesday, June 9, 2004

4:12 p.m.

MS. HILL: Okay. I think we'll get started. If everybody will take their seat, that would be great. I want to welcome everyone here today to the scoping meeting for the proposed Monterey Bay Aquarium Research Institute's Cable Observatory Project. That is such a long name, anyway, the MBARI cable. My name is Vicki Hill and I am the environmental planning consultant under contract to the Monterey Bay National Marine Sanctuary responsible for overseeing the NEPA environmental analysis portion of the project. We're holding a joint meeting today between the state lands commission and the sanctuary since we've decided to prepare a joint document assessing the environmental impacts of the proposed project.

I want to take care of a couple of housekeeping items before we launch into the presentation. I want to make sure that everybody signed in on the sign-in sheet and if you haven't done that, please do so before you leave, and also check the column if you'd like to be on the mailing list for the project notices for when the draft EIS is available. Also there are speaker slips for that portion of the meeting. Please fill those out if you're planning on speaking about the project, not just asking

questions but providing comments, and then also there are other handouts, environmental issues list, as well as application materials that they've filed with the state lands commission and the sanctuary. Did I cover everything? Okay. And please feel free to ask questions on the project description when we get to that. That's one of the purposes of today's meeting is to describe this proposed project for you, and then the main purpose of the meeting is to get the public input on the issues that you think are important to the environmental analysis, and not only the issues but also the alternatives that may be feasible for this particular project. So our main purpose is to hear from you, the members of the public that are here today. And by the way, how many members of the public are here that aren't consultants who may be bidding on the project? You'll have the floor all to yourself.

Just real quickly, I'm going to give some background information on the CEQA and NEPA process, and then the applicant is here. MBARI is here to present information on the project description. After that I'll give a brief summary of the environmental issues and then we'll open up the floor for public comments. As you may have noted on the agenda, at the end of the public scoping meeting, we'll have a separate session for the potential bidders for the EIS/EIR, and at that time we can answer

more detailed questions on the proposal, you know.

With that I'd like to introduce the other agency -- sorry, Steve -- agency staff who are involved in this project, and I'll start with Dierdre Hall from the sanctuary.

MS. HALL: Yeah, I'm Dierdre with the sanctuary and our role in this process is that we'll be looking at the project, and one of the mandates of the sanctuary is to facilitate research, so we will be looking at it from that perspective as well as ensuring that there aren't any environmental impacts of putting the cable in place, so we'll be taking comments on that. Thanks.

MS. HILL: And then we have Stephen Jenkins from the state lands commission.

MR. JENKINS: Hi, good afternoon. I'm the Assistant chief of the environmental planning division. Our role on this will be to serve as the CEQA lead agency and also to enter into a contract with a consultant to prepare the joint EIR/EIS, and with me today I have Michele Brown who will be the project manager for the state lands commission and Nancy Quesada. I'll give you the spelling of her last name at the end, but she is the land management negotiator for the lease that MBARI will have to have from the state lands commission to put the cable out across the state lands to the 3-mile limit. Thank you, Vicki.

MS. HILL: Okay. Just a little background information on the CEQA and NEPA process. This is a little bit different since we're doing a joint document. The National Environmental Policy Act requires environmental assessment of projects under federal jurisdiction, and for this project they're requiring an Environmental Impact Statement, so that's the EIS component of the project. Under the California Environmental Quality Act, which is the state act that requires environmental impact analysis for projects, an EIR is required. The requirements of both an EIS and EIR are very similar and that's why we have decided to prepare a joint document. Obviously the offshore portion of the project is under the sanctuary's jurisdiction and the state lands commission has jurisdiction over both the onshore and offshore portion.

The scoping process was initiated through the issuance of the Notice of Preparation and the Notice of Intent. Both of those documents were published on June 21st and June 23rd, so the end of the 30-day -- I mean May 21st and May 23rd -- I am really jumping -- and the end of the 30-day scoping period is June 24th. You might want to mark that down. During that period of time, we're taking written comments and the oral comments today, and on the handouts on the table I believe the addresses for submission of written comments are listed, and you don't

need to send comments to both the state lands commission and the sanctuary. One or the other will be fine. We'll take those comments and put them together in a summary and then give those to the environmental consultant who will be preparing the EIS/EIR to use in scoping out the EIS/EIR. The document will evaluate all onshore and offshore components of the project including preconstruction activities, construction and installation, operations, repair and maintenance, and eventually abandonment and removal of the cable. The document will include an executive summary, a project description, environmental setting meeting existing conditions, environmental impacts and mitigation measures for any impacts that are identified as being significant, cumulative effects, alternatives, and also the documents will identify an environmentally superior alternative. Please note that the EIS is an information document, not a decision document, so there will not be a recommendation in the document although it will identify an environmentally superior alternative.

This is just the first step in the EIR/EIS process and there will be other opportunities for the public to get involved and make comments once the draft EIS/EIR is prepared and published. We're hoping that a public draft will be published around the first of the year in 2005, January 2005. From there, there will be a 45-day

public comment period, and following that, a final EIS/EIR will be prepared in which all of the comments will be responded to in a written format. The agencies will take separate actions on the project after the final EIS/EIR is published, and we're hoping that that will occur by next summer or June of 2005. Don't hold us to that date but that's what we're hoping for right now. Okay. Any questions about that, the background, CEQA/NEPA process? No?

Okay. With that I'd like to turn it over to Marcia and Keith from MBARI to talk about project description.

MS. McNUTT: Okay. Thanks, Vicki, and thank you, everyone, for coming today. I'm just going to give a brief presentation for those of you who are not familiar with this project and hopefully I can provide some background information that will get us all on the same page.

Our shorthand for this, rather than calling it the MBARI Fiberoptic Cable Submarine Project or whatever, we call it MARS, Monterey Accelerated Research System, so from now on we can just refer to it as the MARS project which I think is less of a mouthful. What MARS is is a fiberoptic cable that's going to provide power, about 10 kilowatts power, and high band width communications, about 100 megabits per second, to a deep sea observatory that we're

planning to put out here at the cable end on Smooth Ridge in Monterey Bay.

This project, although it's called an MBARI project, in actual fact this project has been funded by the National Science Foundation through a grant to MBARI to install this, and so because this is public funding for this, this will be a publicly available project for researchers funded by the National Science Foundation, funded by NOAA, funded by Office of Naval Research, funded by state agencies. It's open to anyone who wants to come and use the capabilities of this observatory for doing science in the deep sea.

We anticipate that there will be a 25-year lifetime to the observatory. This could be a conservative estimate, but we think that reasonably, based on the experiences from the telecommunications industry, that this observatory should continue to provide data for 25 years or more.

The primary purpose of it is to further ocean research requiring long-term records particularly from equipment that requires either large amounts of power or real time communications to shore, neither of which can be supplied by other sources of power or communications. And our further purpose of this is to enhance public education and understanding of ocean issues.

So let me begin just with the challenges of ocean observing. We are quite accustomed to being able to do scientific -- make observations and do scientific experiments on land, but this is far more difficult in the ocean. For example, to begin with, in the ocean there's no electricity grid. There's no equivalent of the wall socket that we can just plug our equipment into. Solar panels are fine for something floating at the surface, but once you get below the very narrow sunlit zone at the surface, solar panels don't work anymore, so our only opportunity to power instruments in the deep sea is to use batteries, but it's difficult and sometimes impossible to swap the batteries when they die because of the difficulty of getting down to instruments in the deep sea and installing new batteries given in many locations in the ocean very limited weather windows for ships to visit them and the need for very sophisticated underwater vehicles to change out battery packs.

In addition, there's of course no telephone grid in the deep sea. We can't just plug in a modem. Wireless networks which we're very accustomed to using on land for internet don't work under sea because the RF only propagates over a very, very short distance, and for many scientific problems we need the data in real time. If we don't get it back in real time, it's of very limited use.

So although many instruments subsea are capable of doing internal logging of the information, to get that data 3 months later, 4 months later, 6 months later, it's -- very often for some decision we might need to make, that's too late. So what this all really boils down to is the need for power in the deep sea and the need for communications and that's what MARS is intended to provide.

Now, this just shows a vision for the future. The limiting factors of power and communications in the deep sea are so overwhelming that it's led some very visionary oceanographers to propose an entire network of fiberoptic cables on the deep sea up here off the cost of Washington and Oregon that would instrument 2 of the tectonic plates the Gorda Plate, the Juan de Fuca Plate, and also, through a Canadian extension, the Explorer Plate. These are tectonic plates with active vulcanic mid-ocean ridges, active transpond faults along the edges of the plates, and the idea would be to study at the plate scale processes that are going on on the sea floor.

Now, this project has gained enough interest and momentum from the scientific community that the Canadian government has already pledged $40 million to install the northern portion of this and there are plans pending in the National Science Foundation to put up 120 million U.S. dollars for the southern portion of this installation, so a

total $160 million that the scientific community wants to put into using fiberoptic cables to put observatories on the deep sea floor. This plan has been endorsed by 5 separate scientific reviews in the past 6 years, so it's on extremely firm ground in terms of very, very high priority that the scientific community is placing on fiberoptic observatories to monitor processes and events in the deep sea.

Now, as you can imagine, this is a major undertaking with big bucks associated with it, and therefore, all of these reviews that have gone on have -- oh, I should say before I go on to that that the idea of putting cables in the ocean is not something that's new. Cables in fact are very common in the deep sea. This just shows the area from San Francisco Bay up to the straits of Juan de Fuca showing cables that have been installed for telecommunications crisscrossing the ocean here. By the year 1997 it was estimated that more than 300,000 kilometers of subsea cable had been installed, and we anticipate that the amount that's been put in today is nearly double that amount, so more than half a million kilometers of submarine cable. The communications capacity that's carried by these cables is between 10 and 100 gigabits, so that's 1,000 times of what's available from satellites, so it very much reduces the cost and increases

the amount of communication that is available by having these cables under water.

But what's new with this scientific purpose of installing cables is to deliver the communications and power to undersea scientific nodes. These cables, the only purpose of them is to get communications from one continent to another continent or to an island. It is not to parse out that communications to undersea nodes. The power that goes through these cables is to reinforce the signal so it doesn't die on the way. It is not to power undersea instruments, and so what's new in what we're proposing is to deliver that communications and power in order to study problems that are displayed under the sea.

So now before someone's going to spend nearly 200 million on something that's never been done before, all of these scientific studies have underscored the need for a test bed. You've got to start with something that's affordable and that's manageable and use that to build on before you go out and spend $200 million.

So we need a proving -- and there's a number of reasons why we need a test bed. One is to provide a proving ground for new instrumentation. The instruments that will go on an observatory like this are probably unlike most of the instruments we have today. For example, because we will no longer be power limited, the kinds of

instruments that will go on cable observatories will be far more capable than anything we put down in the ocean before. Secondly, because we can get real time information back, in some sense the instruments can be cheaper and less sophisticated because they won't have to have all of the intelligence in the instrument to make decisions when events happen. Because they're connected to shore in real time, there's a human brain that can say "oh, this happened, and therefore, the instrument should do that." We don't have to count on the instrument being able to make those decisions absent any human intervention.

Another reason for needing a test bed is to provide a learning experience for researchers. When researchers can be connected to these instruments on the deep sea floor in real time, they're going to be able to do science in entirely new ways that we've never been able to do before. And before we get all of this in, this is going to have a 25- or 30-year lifetime. We don't want to waste 5 years while the scientists learn how to use it. We want to get something in the ocean quickly so that they can get that learning experience. By the time this is up and running, they're ready to use the full capability, the full baud rate, the full power capabilities of this kind of installation.

A third reason for needing a test bed is to scope

out operations management and maintenance costs. This MARS observatory we're talking about putting in Monterey Bay is 50 kilometers of cable and it's one node with 8 science ports on it. This is going to be 3,000 kilometers of cable and it's going to have many nodes on it. We really need to find out sooner rather than later what the costs are going to be. Now, the experience from the telecommunications companies is that this is a great way to do communications because these networks are incredibly reliable. The cables undersea have a very, very low failure rate. We want to make sure that that's going to also be the case once we're starting to use the power and communications for instruments on the sea floor. Are we going to experience similar kinds of reliability? Will we have reasonable operations, management and maintenance costs?

There is certain aspects of the observatory technology that we'd like to test out before we put this in, and finally we'd like to experiment with effective methods of bringing deep sea science to the public. This is going to be a great opportunity for classrooms of school children, for aquaria, for television, other ways to take the deep sea floor and bring it into the classroom, bring it into the living room, bring it into the museum, and MARS will give us an opportunity to figure out how to do that, so again we've got some good models to apply once this

larger observatory is installed.

So given the very compelling arguments for starting with a test bed, why has it been decided to put that in Monterey? This could happen anywhere in the United States theoretically or perhaps even overseas, but the reason for wanting to put this in Monterey Bay is, first of all, there is no other warm water U.S. site that offers faster access to deep water. And what I mean by warm water port is that it's someplace that we don't have -- I mean there are places up in Alaska that actually get to deep sea as fast as we can in Monterey, but let's face it. When it's covered with ice, you know, 8 months of the year, you're obviously not going to put the test bed in there.

The second reason for choosing Monterey as the site for the test bed is year-round weather window for operations. Although this larger network observatory is going to go in off the Washington/Oregon coast, the problem with that larger observatory is that there's only 3 or 4 months of the year that ships with remotely operated vehicles can put instruments down on that, so if you're going to be in a test and debug cycle where you might want to go out on Tuesday and put something down and go back on Thursday or go back 2 months from now and fix something that's not working right, you're going to need to be someplace that has a year-round weather window.

The third reason is that this is the only region that is accessible daily by scientific ROVs, and I think that probably applies in the entire world. Because we have 2 scientific ROVs in Moss Landing, one of which is operated as a day boat, that if there's any need to go out and swap instruments or check on a failure, we can be there immediately.

A fourth reason which should not be discounted is the fact that Monterey Bay is home to a very ocean aware audience. If there's any audience that's going to be a great test audience for the kinds of outreach methods, this is a great place to come because of the many members of the public around Monterey Bay who really care about the oceans, are really interested, scientifically savvy, et cetera.

And then down here I've got also MBARI's reputation for technological innovation. In the reviews that came back on deciding on a test bed for this, what stood out over and over again was MBARI's reputation for pulling off technologically difficult maneuvers under water. The scientific peer review community felt if there's any group that could pull this off, it would be MBARI.

And then of course there's no point in having a test bed someplace where there's no scientific signal.

If we need to test out instruments, there's got to be something happening so the instruments can respond to it, and there's strong signals of great scientific interest in Monterey Bay such as climate change, the cycle of food transport from the surface to the deep sea, lots of sound in the sea because of all the marine mammals, and of course earthquakes and landslides because we are on an active plate boundary with a very active submarine canyon.

Just as an example, here's a distribution of atmospheric weather stations in the United States just to show you how very well monitored the land side of U.S. territorial waters are. We know a lot about climate change on land thanks to this dense network of continuously operating weather stations, but by comparison we know little about climate change in the ocean and nothing about climate change in the deep sea because of the lack of this kind of network, and in fact I've only showed you stations that have been operating for more than 100 years. Imagine if we had the equivalent of deep sea weather stations that had been monitoring the changes in the deep sea over a 100-year time period, what we could do with that record, how much further advanced we would be in understanding the communication between the atmosphere and the ocean and how that relates to changes in climate.

Now, MBARI has had a time series for ocean weather

and climate that has been operating for 15 years now at the surface of the ocean. We've been making measurements from the surface to about 150 meters on changes in temperature and changes in chlorophyll through our moorings and shipboard time series over this 15-year period. What you can see are the annual cycles between summer and winter. You also see the large 1998 El Nio coming in here. You also see a tendency for the decade of the 90's to be warmer than the time period after the El Nio, and you also see the anticorrelation between temperature and chlorophyll. The ocean is much more productive here when it's cold. It's less productive when it's warm. In particular you'll notice that during the very warm ocean temperatures of the 1998 El Nio how the surface productivity as measured by chlorophyll in the ocean plummeted. Now, a question we have from this is how did that low productivity of plants in the upper ocean affect the food supply to the ground fish? Well, because this time series only shows a record down to 150 meters, we don't know at a kilometer depth what the effect was of that El Nio on the food supply to the deep sea. These are the kind of questions that we can begin to answer once we start to instrument the deep sea.

Here's a record from Toby Garfield at San Francisco State which is a record showing time and minutes from zero to 40 minutes and a frequency spectrum of sound

in the sea that was taken by a -- a hydrophone that was actually out on a cable. What you can see here are whale calls coming in here at the lower frequencies. You see a passing ship mostly up here at the higher frequencies. You can see an earthquake, the T phases rumbling in. Now, this is an example of a sound record from a hydrophone on an early generation cabled observatory. This early generation one was installed by the military for classified use. What's the difference with this MARS cabled observatory, we learned from the military that, yes, it is possible to do observations from cables, but instead of our data being classified, it will all go out real time on the Internet, so anyone who is interested in understanding what kind of sound is happening in the ocean will be able to go to a website and see the data coming in in real time.

I also mentioned how education and outreach is an important component of MARS and of the larger observatory NEPTUNE which will go in further north. We have already started a pilot project called EARTH, Education And Research Testing Hypotheses, and we've had workshops now which provide teachers with a means for integrating real time data with existing educational standards and tested curriculum in an interactive and engaging way, and this is just a picture from one of the projects that was held at MBARI. This project is using near real time data or will

use near real time data from the MARS observatory. Right now they're using near real time data from our buoys to design and test outreach with the Internet as an interface to scientists, to teachers, to students and to the public. This project is in collaboration with the Monterey Bay Aquarium.

Okay. So the next question is while we have identified -- while the peer review community has said that Monterey Bay is the right place to put in this MARS test bed, why did we choose Smooth Ridge? And just to orient you who are not familiar with the geography here, you are here, right here at the mouth of the Monterey Bay -- Monterey Canyon. Here's Monterey. Here's Santa Cruz. The canyon moves down here, and this shelf area here -- I'm sorry. My battery's dying -- is Smooth Ridge, and it turns out that the neck of Smooth Ridge, which is this narrow area here, is the only viable route to deep water. If we go south of the canyon here, we can't get out to deep water without crossing canyons. Oh, thank you very much, Mandy. Okay. So this neck is an important route to get into deep sea.

The next reason why we want to put it on Smooth Ridge is it allows a seismometer to be connected from the far side of the San Gregorio Fault to the seismic network. This blue line right here is the San Gregorio Fault. It is

the western-most fault strand in the San Andreas Fault system. Currently the only seismometers that are reporting data in real time to the Northern California Seismic Network are all on land on this side of the fault. By coming down Smooth Ridge and terminating the observatory right here, we can put a seismometer to the west of the fault, and that -- I'll show you what happens when you can do that.

And finally, this location here allows easy access for extension cables. You can sort of think of them as like your Internet extension cables or your extension cable -- or extension cords that you plug into a phone socket, would allow us to put instruments to seeps, and this just shows the location of seep sites that harbor unusual chemosynthetic biological communities. It allows us to reach the dynamically active Monterey Canyon and the potential for core holes that would be installed by the Integrated Ocean Drilling Program to look at processes going on underneath the sediment surface.

Now, here's just an amplification on the need for the seismometer. This shows all the seismometers that are on land. You can see a lot of them. Here's the site of where we would like to put the seismometer connected to the MARS cable. As you can see, it's the only one that would be west of all of the strands of the San Andreas Fault. By

putting a seismometer out there, it improves our ability to forecast seismic hazards in the Monterey Bay area. By reducing the size of an earthquake that can be detected, our magnitude threshold is reduced and we get far better locations for the earthquakes. Just to show that, here are the other strands, the Hayward Fault and the Calavaras that go up through East Bay, and you can see in this area the San Andreas is very well defined by the earthquakes lying on the fault. Once we get offshore, it's kind of a sloppy distribution of earthquakes with respect to the San Gregorio Fault. We don't think this is real. This is just because our earthquake locations are so lousy out there, the earthquakes aren't falling on the faults and so we need to really sharpen up our focus of the seismicity out here. You can see lots of earthquakes that happened sort of north of the canyon, very few that happened to the south. We think this is a sort of long-term aftershock effect of the Loma Prieta earthquake that brought this part of the fault closer to failure and this part of the fault further from failure, but we would like to monitor how that goes forward in time so that we can understand better seismic hazards for both the Monterey Bay area and the Santa Cruz area.

We -- we know from experience that giant landslides -- some have been associated with large waves -- can occur in the Monterey Canyon which is shown in 3-D

perspective here. What we think is there are very often events that are like large landslides that send sand, gravel and debris moving down the canyon in very large volumes. By putting in the MARS observatory and being able to instrument the canyon will allow us to understand the frequency of such events, the risk they pose, and the effect they have on deep sea communities. This is just a picture of some MBARI equipment that a landslide moved a 1,000-kilogram instrument node hundreds of meters down the canyon and it happened like that. So these are the kinds of events that we would like to study. We know very little about them.

Now, Monterey Bay here is part of the Great Salinas Aquifer, but little is known about the quantity and the history of fresh water seeps into the ocean. There are some interesting stories that the fishermen will tell you about fishermen being able to take bottles, and if they put them over the side in the right place and pop the corks, they can pull them up with fresh water in them. Well, we certainly know that fresh water does seep from the Salinas River into the ocean, but we have actually very little study of the time history on that and how effects on land affect that delivery of fresh water into the deep sea, but the MARS observatory will allow us to better understand the hydrological connection between land and sea by

instrumenting some core holes which the Integrated Ocean Drilling Program may put into the Smooth Ridge. By putting the MARS node there, we'll be able to monitor the hydrology of the submarine environment and understand better that connection between land and sea.

Now, this just shows you our proposed route for the cable coming here out of Moss Landing, running north of Soquel Canyon, going down to snake onto Smooth Ridge and then hugging the eastern side of Smooth Ridge to where the node would be placed in about 900 meters water depth. Our plan would be to bury the cable to about a meter depth everywhere where feasible, and that means that all of this area of the cable would be buried. There may be some areas in here where there are some rocky outcrops that may be problematic for burying it, but then it would be buried again all the way until the node sits on the bottom here.

And I'll invite Keith Raybould who is the project manager for MARS up to tell you a little bit more details about both this end of the cable and that end of the cable.

MR. RAYBOULD: Okay. So what I'm going to be talking about will be the offshore cable route that Marcia has mentioned, proposed landing locations, shore facility of the cable, very briefly our installation plans and then the alternative routes that we've considered.

So this is the route Marcia's described, this route. One thing Vicki asked me to mention was that we have done a lot of work on surveys along the route. Last year we did a full marine survey with a side bottom scan and a subbottom profiling. We also took cores along here for a full biological survey and we've had those samples analyzed for infaunal and epifaunal samples. We did a full video survey of the entire route and we did a burial assessment for the cable, and that's the basis of the information that we've asked the state lands commission for the application.

So what I'm going to talk about now is the area here where the cable landing is in Moss Landing. There are 2 proposed routes. The preferred route is north here. For those who don't know the area around here, we are just about down this region. This is Highway 1 that runs this side of the harbor, this is the harbor entrance, and this is a sand dune area on the north of the harbor and on the south. The 2 routes that we were considering for the landing is the northern one here and the southern landing down this area here.

This is our preferred route, the northern site. There is a pipeline that is already installed. It was installed back in the 1930's by Duke so it's been in place now for 60 or 70 years. The pipeline runs to about 600

feet offshore and in about 70 feet of water. It then runs to the shore. It's completely buried along here. You can see a little bit of the pipe here near the harbor entrance. It's buried going into the harbor, then it takes a sharp turn here right at the shore as it comes out of the harbor and that's what this is a photograph of here. This is the Highway 1 bridge which is up here. The pipeline comes out of the water and takes a sharp turn and it runs actually parallel to the harbor for something like 100 yards and then takes a turn and goes through a tunnel underneath Highway 1 into the Duke facility on this side. So we would be installing the cable out here in about 70 feet of water about 600 feet offshore. It would be inside this pipeline all the way through to the shore until it gets to this shore landing facility here, and in a short time I'll discuss what we're going to do in the shore facility. So I just want to stress again this is an installed, main pipeline. We don't want to disturb it. It's been there 60 or 70 years so far already.

The alternative landing is here right near Moss Landing's pier. There was actually an old pier that was destroyed a couple winters ago and there's plans to construct another pier on this same site. The cable, if we use this alternative landing, will run along the same route to the end of this pipe. It will come past here in about

40 or 50 feet of water. It will come to the end of the new pier that's not constructed yet. It will then come up the pier and then go through the pier across the shore landing, so again there would be no drilling or anything necessary to get across this critical shore landing at this place. And then the pier would end just close to where MBARI buildings are right here where we would have a shore facility. Complications with the southern route, we would have to come across the mouth of the canyon. The mouth of the canyon runs right into the harbor entrance. It's very active. We know the soil sediments have been massively transported down the coast seasonally and the height of the sediment varies by 9, 10 feet between the seasons, thus a very active place to have a cable survive for extended times. So for that reason and the reason that this pipeline is already in place, this is our preferred landing site.

So just to show you, the area where the pipeline runs down the -- down the landing here, it takes a sharp left-hand turn here into this facility on the -- just on the west side of the Highway 1. It looks like this, so this is the pipe that's come along the -- along the shore and it takes this sharp turn and then it goes through a tunnel to the other side of the Highway 1 to the Duke facility. There's an existing concrete pad and this

contains -- on this area here, and this is where the filter system is for the Duke Energy for their water intakes. We would run our cable from where it came out just near that first sharp turn. We would probably run it either inside this pipeline or in a conduit along the side of this pipe. It would then go across to essentially a shore facility which is going to be either a 20-foot container very similar to what's here already or a modular building of the same size, so it's a modular construction. It would sit on an existing concrete pad. We would then connect this shore facility to shore power and fiberoptics to get through to the Internet. So the extent of the shore facility is very minimal. This is where the Highway 1 runs. It's very unusual -- well, we'd been passing this area for years and never even knew this area existed, so actually it would look very similar to a container already down in that region.

So for the installation of the cable and the landing, we would be using Alcatel which is a reputable cable installer. Their vessel on the west coast is the Ile De Re. The cable is actually -- we've purchased the cable. It's on the ship. They would install the cable and the main node. The node -- I showed this real briefly -- is actually in 2 sections. There's this part here which is called the trawl resistant mount and then this part here

which is the main science node which is removable. This is the cable that comes from the shore from the shore landing. It's terminated in this large frame. This frame, to give you the size of it, it's about 2 tons in weight. It's 50 feet by 12 foot, so it's a good size office. It's a steel structure. There's no active electronics in the system. It's been designed with all high reliability industrial telecom practices so it's got a long life. We don't envision ever having to remove this and put it up for repair, and in fact that's part of the main intent of this design to put all the electronics into these 2 pressure housings here. This unit is -- in water it's essentially almost naturally buoyant, so the way this will be installed and retrieved, we can attach this to one of our ROVs that operate daily from Moss Landing. We touch the bottom. It then just drops down inside this mount and then there's 2 connectors to take the power and communications between this fiber to the shore and connect it up into the pressure housings. These are the cables then that would go to the science experiments and the science instrumentation that Marcia just talked about.

So with installation, the Ile De Re will install this cable, these mounts. The following day we will fly these down with our own ROVs and install the cable system. The cable installation will be varied. This is a cable

plow. This is a unit that's going to be used for -- for burying the cable. It cannot bury the cable right near the node or near the shore landing, so after the main cable and mount is installed, the contractors will take down the ROV and use the ROV to plow in the cable near the node and near the shore landing to the same level of depth as the rest of the -- rest of the rounds. Before we do the final installation of the cable, the ship moves us to a grapnel run to make sure any debris, anchors and such are not in the way of the cable because that could cause problems with the cable long term. After installation there will be a post lay inspection and burial. We'll also be revisiting critical areas of the installation periodically after the installation, so every 5 years we'll go back and use an ROV for 2 or 3 days to inspect critical areas of installation to make sure the cable's buried and make sure there's no problem with the installation.

On the shore end operations of the installation, this is the area we mentioned before with the bridge going across Highway 1. This is where the pipeline comes out. This pipeline just here takes a sharp 90-degree bend, so we would pull the marine cable from the ocean side through this cable -- through here, so we would be installing a winch here that is a temporary installation for pulling the cable ashore. It would then be connected to the threshold

cable and be brought down to the shore facility that I showed you earlier.

And lastly the alternative routes. One alternative route that we investigated for a while was a route that came to the same location on Smooth Ridge. We really need to get over to Smooth Ridge for the many reasons that Marcia mentioned in terms of the science that we want undertaken in this area. This route, in terms of its feasibility, is very similar to going across the continental shelf. We can bury it to the same depth, to the substrate as we've said many times. To get across this new bridge, we would then have to actually cross the canyon and then take a bend that takes it then around to Smooth Ridge. The canyon walls here are too steep to run a cable straight up. This is the smallest gradient that we could actually bury the cable. The turn here is problematic in terms of ensuring that the cable can be buried. Particularly in deeper water doing turns or sharp turns in plowing is what's led to problems I believe up at the Olympia installation where during a turn they did actually find the cable plow and then the cable to the side of that, so -- and the reason was during the sharp turns, the cable does bury when you go through the turn, but the tension as you're going round does cause the cable to come out in this area, so for that reason we do prefer this route going out

on Smooth Ridge. We want to ensure that the cable is buried throughout as much as possible. We're also concerned about the survivability of the cable going across the canyons. We've had a great deal of difficulty losing equipment. We can't guarantee survival of anything we put into the canyon. And that's all I have.

MS. HILL: Keith, do you maybe want to show them what the cable looks like?

MR. RAYBOULD: Oh, I brought along a section of cable. This is not the actual cable but it's very similar and you're welcome to take a look at this. The cable we'll be using is armored. It's a single armored cable. The fibers are through the center and sort of housed in a small one millimeter in diameter stainless steel tube and then the conductors around that and various insulation, but this is roughly the size of the fiber that will be buried one meter.

MS. HILL: Because I think the conduit gives a --

MR. RAYBOULD: The conduit is a 24-inch conduit.

MS. HILL: It's much larger.

MR. RAYBOULD: So this is the cable that will be installed. It's really less than an inch, just about an inch in diameter.

AUDIENCE MEMBER: How big would the node be?

MR. RAYBOULD: The node. The node itself, the

part that stays down there, that's about 15 feet by 11 feet. The element that's removed is closer to 10 feet by 7. And it's something like 6, 6 feet high. Okay.

MS. HILL: Okay. Any other questions? Thanks.

Okay. If there aren't any other questions on the project description, we'll go on to the next item and that is the opportunity for public comments on the scope of the EIS/EIR.

Actually I was supposed to go through the environmental issues, but given the time, I just want to make sure that everyone has the handout that was on the table, and this is the preliminary list of environmental issues that was based on our knowledge of the project and on previous experiences on similar projects. The state lands commission and the sanctuary put our heads together and created this list, and the list is also in the notice of intent that was published in the Federal Register. Like I say, it is preliminary because additional issues may be identified during the scoping process either today or through written comments and we also may receive input from the potential bidders on the EIS/EIR on other issues that they may think are important, so I'm not going to take the time to go through this list unless someone has a specific question that they'd like to ask. Don't all speak at once.

Okay. With that, I think we should just -- I'd

like to turn it over to public comments, and is there anyone here who would like to make a comment, a scoping comment? Great. If you could fill out a speaker slip.

MS. FOSMARK: Got one.

MS. HILL: And bring it up front, and my only instruction is that you identify yourself for the court reporter and then give me your speaker slip and speak slowly and clearly so that we can help out the court reporter. Okay? So Kathy, would you like to go first?

MS. FOSMARK: Yes.

MS. HILL: Okay. This is Kathy --

MS. FOSMARK: I'm Kathy Fosmark from the Fishermen's Association of Moss Landing and I represent about 900 fishing families, and the -- we have some questions and we also have some statements we'd like to make with regard to the cable project. The EIS should identify the socioeconomic impact to fishing in and around the cable and the EIS should identify all economic interests, direct and indirect. There needs to be an evaluation of the recurring impact yearly and forever in these 2 areas.

And the question I have is several. What is the market potential -- and this should be answered I think in the EIS -- for revenue drawing benefits from this development of technology? Will the EIS include a thorough

evaluation of the possibility of even consultation fees, long range use, and the potential for future development benefits? The EIS evaluation should identify the possibility of fishing gear snagging, and not only gears from bottom trawling but other gears, and if it becomes a closed area from -- for fishing and entails a no fishing zone, it needs to be viewed as a marine protected area and the EIS should explore if fishermen will get credit for it, and scientists need to accept the NPS credit. If it does not qualify for NPA, there should not be a cable there. Thank you.

MS. HILL: Thanks for your comments.

MR. JENKINS: Kathy, do you have a copy that you could leave of your statement?

MS. FOSMARK: Yes.

MR. JENKINS: We'll make that available to you.

MS. HILL: Tom Hart?

MR. HART: My name's Tom Hart. I'm president of our fishing association here in Moss Landing. I've made my living here for 40 years. I really won't get into talking about EISs and all this but I can see from where it's placed that it will be a problem. It will be something that I have to deal with every day when I go fishing. I will have to modify how I approach, how I make my living. I fish a lot of cracks here, and just like you said, where

it comes off of Smooth Ridge on the neck, these little necks and ridges and everything that come out of the canyon are how things like crabs that don't normally swim in the cracks do get up and swim, something people don't really think about a lot, but they're the highways and that's how some of these organisms come up out of the deep, and these are the places we fish. The sanctuary really needs to make sure that MBARI works with fishermen on where they place this and not just where but when. One of the bigger problems is going to be when it's actually -- while it's being installed. It certainly can't be in the opening week of salmon season or something. We have to use our mind about this, you know. There needs to be insurance, you know, for loss of gear and for loss of vessel or life because, you know, this is putting something in the middle of my road. I'm out there every day 200 days a year, 40 years. I'm going to have to deal with it. Thank you.

MS. HILL: Thank you.

Kaitilin?

MS. GAFFNEY: Yes, thank you. My name is Kaitilin Gaffney and I'm with the Ocean Conservancy. We are a national environmental organization and I work out of an office in Santa Cruz. We have commented on multiple cable projects in the past, particularly a couple years ago when we had many, many projects, commercial cable projects

coming forward in California, and some of the comments that we've made in the past are not directly relevant to this project as a research cable. We've raised concerns before the state lands commission, the coastal commission and the Monterey Bay Sanctuary regarding sort of policy consistency issues that relate to commercial cables for utility purposes that I think are quite different than what we're looking at today, and we certainly recognize that the end result of this research cable could be information that could be quite helpful for resource management and protection in the future and appreciate that distinction.

However, there are a lot of the environmental impacts that are the same, whatever kind of cable it is, and I think the summary sheet here actually does a pretty good job of identifying those so I won't repeat them, but I guess what I would urge is that in the environmental analysis for this cable that you take a pretty careful look at what we've learned from previous cable projects in terms of issues such as frackouts, the spill issue that we've seen both in Northern and Southern California with cable installation projects, you know, not predicted but an impact that has occurred during installation, difficulty in meeting parallel target rates. That's something that we've certainly seen with cable projects. There are EISs and EIRs that we've seen in the past that frequently predicted

near 100 percent burial rates or 95, 97 percent, and then when the cable is actually installed, going back in and taking a look seeing that actually the burial rates do not come anywhere near meeting those goals in any of those cases, and the issues that follow from that, the strumming impact, suspensions over rocky outcrops, so essentially just arguing that it's really important to try to make sure that the environmental documents do an accurate job of predicting the impacts associated with the cable over its full lifetime by taking advantage of the information we have from cable projects that have been done recently in California.

I was glad to see a plan for ongoing maintenance. I think that is a critical issue to cover and something to discuss in the environmental documentation again particularly because burial rates have not been met in other cable projects. I think it's also important that there's is a discussion about what happens at the end of life, and we have consistently argued that cable projects -- there should be an expectation that the cables are removed once the project is over. There's frequently a lot of incentive to invest a lot of money in putting it in and maybe even in maintaining it but a lot less incentive to investing in removal of the cable at end of life, so making sure that that commitment is made up front and held

to is something that would be important for us.

And then also that there be discussion of cumulative impacts if there are still other cable projects being considered in this area. We've had a couple in the past. It seems like they're not moving forward. Many of these companies are now in bankruptcy proceedings, the commercial cable companies, and perhaps those projects will not come back, but it would be important to do a thorough job of analyzing cumulative impacts either with other cable projects that might be on the horizon or other types of projects that might result with similar impacts, whatever those might be.

So we will be submitting written comments. I don't have anything prepared to give you today but we will do that before the 24th, and I appreciate for opportunity to come.

MR. JENKINS: Just for the record, Kaitilin had a -- Steve Jenkins with state lands commission. I'd just like to clarify a couple of items on things that you've raised. With the respect to the cumulative impacts of potential cables, we will be looking at that. At this point the state lands commission is not aware of any other cables that are being proposed in this area.

With respect to frackouts that have occurred on some of the other cables, based on how this particular

cable is being constructed, there's no potential for frackouts being associated with this because there is no HTD type of drilling, so I just wanted to clarify those 2 points.

MS. GAFFNEY: And we definitely appreciated the use of the existing pipeline because that's a great thing to do to try to avoid some of those near shore impacts.

MR. JENKINS: Thank you.

MS. HILL: Are there any other comments? That's it? Okay. Just a reminder for you to make sure you signed in on the sheet there, and I think at this time we can close the meeting. Remember that the written comments deadline is June 24th and the comments should be directed to either the state lands commission or the sanctuary, and the next opportunity for public comments will hopefully be in January 2005 and there will be notice in the local newspapers as well as the Federal Register when the draft EIS/EIR is made public, and there are additional application materials on the back table if anybody would like to take a look at those. I think that's it. Anything else?

MR. JENKINS: That's it from the state lands commission.

Now, we will be closing this aspect of the hearing. We will have another hearing on the NOP and the

SOI at 6:30 for people that were not able to come today. Once we close this particular hearing right now, we're going to stop the court reporter and then we're going to convene a prebid conference for all of the consultants that are here so that we can talk to them about our solicitation for proposals and that.

MS. HILL: Okay. With that, the public scoping meeting is closed. Thanks a lot for coming out.

(The public hearing was recessed at 5:15 and reconvened at 6:30.)

MR. JENKINS: Why don't we start the 6:30 meeting? Vicki, why don't you go ahead and find out who's here from the public and whether they're going to comment again?

MS. HILL: Okay. Who is here who is not a consultant and who is a member of the public interested in finding out more about the project? Okay. Are you guys members --

MS. HALL: They're from MBARI.

MS. HILL: They're from MBARI. Oh, gosh. Okay. So is there anyone here from the public? No one? Did I miss anybody? Okay. If there is no one here from the public and we're just a repeat of the consultants from earlier today, I don't think that there's any reason to go on with this, but I'm going to give people just a few more minutes in case they're stuck in traffic or something like

that.

MS. McNUTT: Or a lot of times they show up at MBARI thinking it's Moss Landing. Maybe we should quickly have Mandy drive down there and see if there are any people kind of banging on the door. It happens.

MS. HILL: We'll just wait a few minutes.

(Recess taken.)

MS. HILL: Okay. I think we're going to start now. Welcome everyone. My name is Vicki Hill and I am an environmental planning consultant under contract to the Monterey Bay National Marine Sanctuary. I'm in charge of directing the NEPA portion of the joint EIS/EIR that is being prepared for the proposed Monterey Bay Aquarium Institute's cabled observatory project and tonight is our scoping meeting, the second scoping meeting today, and we're convening at 6:40. I've been told that there are no members of the public in the audience, but there is one person who is here -- there is one member of the public in the audience, and we will therefore go ahead and give the project description overview, but we are going to do an abbreviated version of what we did earlier today, and with that I would like to introduce the other agency representatives who are here who will also be involved in the project. To my right is Steve Jenkins from the state lands commission and Dierdre Hall from the sanctuary who

will be in charge of the permitting aspects of the project. As we go along, if you have any questions, please feel free to ask regarding the project description, and with that I'm going to turn the meeting over to Marsha McNutt from MBARI to go over the project description.

MR. JENKINS: And Marcia, before you do that, I'm not familiar with the gentleman who is here. Do you anticipate making comments on the scope of the environmental impact report EIR/EIS at this point or are you more interested in just understanding the project description?

AUDIENCE MEMBER: Just understanding the project description.

MR. JENKINS: Okay. Thank you very much.

MS. HILL: Okay. So that will be the focus of our meeting so that we can direct it to his interests.

MS. McNUTT: And in fact, since I'm giving just an abbreviated version of the presentation, what I'll suggest is that, as I go through these slides, if there's anything in particular you're interested in that you'd like to know more about, why don't you just go ahead and feel free to ask questions because -- and I can focus on those things that might be of more interest to you? Okay.

So the name of this project is the Monterey Accelerated Research System. We call it MARS for short.

It's to provide a fiberoptic cable that will provide kilowatts of power and megabits of communications capability to a deep sea observatory that will be out here on Smooth Ridge. Although MBARI is executing the project, it is really not an MBARI project. It's been funded by the National Science Foundation for the benefit of scientists in the U.S. and will also be undoubtedly used by scientists internationally.

We anticipate a 25-year lifetime to the observatory, and the prime purposes are to further ocean research that require long-term records, records that require a presence in the sea 24 hours a day 7 days a week and to enhance public education and understanding of ocean issues.

Now, these are just some of the reasons why it's hard to make observations in the ocean. When we look at this list, the problem of providing power, the problem of providing communications, it basically boils down to we do not have Internet drops. We do not have wall sockets in the deep sea, and that's prevented us from doing lots of observance in the ocean.

There is in the planning stages a very ambitious project to use fiberoptic cables to instrument a very large network of scientific observing nodes along the western coast of Canada and the U.S. stretching from Northern

California up through British Columbia. This is called Project NEPTUNE. The Canadians have already invested $40 million in this project and the U.S. has pending a request for $120 million for the National Science Foundation for this project, so $160 million to do this project for the purposes of science. The plan for this has been endorsed by 5 separate scientific reviews in the past 6 years and is very, very highly rated in terms of its potential for illuminating ocean issues in the deep sea.

Now, this idea of putting fiberoptic cables in the deep sea is not new. There are -- by 1997 there were already 300,000 kilometers of subsea cable installed. It's probably double that today. What is new about this project is not laying cable on the sea floor. That's been done before, but basically it's breaking out the communications and power to do science under the ocean as opposed to just running information from here to somewhere else far away.

So because that's a new part of it, all of these studies which have endorsed this NEPTUNE plan have identified the need for a test bed. Before you want to spend nearly $200 million on something this ambitious, you need to do it in a smaller scale beforehand. By doing that, we can prove out new instruments, instruments that have never before been deployed in the sea because of their power requirements or their real time communications

requirements, provide a learning experience for researchers so by the time this is installed, the research community knows how to use this new capability to its full potential, to scope out the cost of how much will it cost to operate it, to manage it, to maintain it, to test some aspects of the technology of this undersea observatory, and to experiment with effective methods of bringing the deep sea science to the public.

So why was Monterey selected? And this wasn't something that MBARI said "oh, let's do it here." We stepped up to the plate when we were asked. And the reason why we were asked to do this in Monterey Bay is that there is no other warm water U.S. port that gets faster access to the deep sea. We've got year-round window for operations which is not true of the NEPTUNE site further north. It's the only region in the entire world that's accessible daily by scientific ROVs. We've got an ocean aware audience around the bay here to test-drive some of our methods for outreach. MBARI frankly has a reputation for technological innovation and for pulling off very difficult tasks under water and that was a big part of it, and also there's strong signals of great scientific interest. No point in doing a test bed for instruments in someplace where there's nothing to measure, and fortunately here we've got evidence of climate change, of the carbon cycle, lots of sound in

the ocean, and of course active geological events such as earthquakes and landslides.

This is just contrasting the fact that, in terms of looking at climate change, we've got this huge network on land of stations that have been operating for more than 100 years and yet we have nothing like this in the deep sea to see how climate is affecting the deep ocean.

Here's just some time series from MBARI showing from 1990 up to the present the seasonal cycles, the El Nio cycles, and the Pacific decadal oscillation cycles from a warm period in the 90's to a cold period since and how temperature strongly correlated with the productivity of the upper ocean as measured by chlorophyll. The one question we can't answer, which is an important one, is for example, how did the low productivity of plants in the upper ocean that was coincident with the 1998 El Nio affect the food supply of the ground fish in the deep sea? Because these records have all been confined to the upper ocean, we have no way to answer questions that are as fundamental as that.

This is just a sound record showing a time series from zero minutes up to 40 minutes here in frequencies from low frequencies up to high frequencies of sound in the ocean. Here we see some blue whale calls. Here's the T phase of an earthquake. Here's a passing ship. You can

see a lot of noise at the higher frequencies compared to the lower frequency whale calls and the very low frequency earthquakes. Now, this record is from a hydrophone that was on an early generation cable observatory that was installed by the military for classified use. It's only recently that such data was made available at all, but the important thing about the MARS observatory is that the data will be available real time on the Internet to anyone who's interested in looking at sound in the sea or anything else that's from instruments on the MARS observatory.

In terms of education and outreach, we have already started a pilot program at MBARI called EARTH, Education And Research Testing Hypotheses, which provides teachers with the means for integrating real time data from ocean observatories and shows them how they're compatible with their educational standards and providing them with tested curriculum that they can use in the classroom in an interactive and engaging way. The whole reason for starting the EARTH project was to be ready for when MARS comes on line and to use that data in the classroom, and this is in collaboration with the Monterey Bay Aquarium.

We are proposing to have the observatory down here on Smooth Ridge which is this feature right before the mouth to Monterey Bay. The reason we've chosen this site is that the neck of Smooth Ridge provides the only viable

route to deep water here and we have to put the observatory in deep water in order to test the maintenance and operation procedures that will be used to the north on the NEPTUNE observatory.

Furthermore, this blue line here is the San Gregorio Fault. We want to be able to place a seismometer on the far side of that fault to help with monitoring seismicity on this fault, and it has easy access by extension cables to the many seep sites which are shown in this diagram and also to the dynamically active Monterey Bay Canyon. There's also the potential that the Integrated Ocean Drilling Program would put some core holes out here for research in marine hydrology.

This just shows there are many seismometers on land here but there is no continuously operating seismometer west of the San Andreas Fault System of all of its strands, and this is the proposed site for the seismometer which would be connected to MARS. This shows it in greater detail. You can see on land we can precisely locate the earthquakes and you see that they indeed fall on the faults, which is what you would expect. In the ocean it's sort of a clouded picture. One reason for that is our inability to precisely locate earthquakes if we only have seismometers on the land side. We need at least one seismometer on this side to improve the location of the

earthquakes.

We know from experience that giant landslides, some that have been associated with large waves, can occur in Monterey Canyon. MARS will allow us to monitor the frequency of such events, the risk that they pose, and the effect they have on deep sea communities. This just shows how a catastrophic event that happened just 2 weeks after the deployment of some scientific equipment destroyed it. A landslide moved a 1,000-kilogram instrument node hundreds of meters down the canyon in an extremely short-lived event.

The Monterey Bay is part of the Great Salinas Aquifer but little is known about the quantity and history of fresh water seeps into the ocean. MARS is going to allow us to better understand the hydrological connection between land and sea by instrumenting core holes. Here it just shows a possibility of putting some core holes out here in the sediments on Smooth Ridge and using connecting instruments then from these core holes to the MARS node so we can understand the flow of water between these sites.

And finally this just shows the route of the cable coming here from Moss Landing skirting north of Soquel Canyon and down here to the final observatory site in 900 meters of water depth down on the eastern side of Smooth Ridge.

MR. JENKINS: Marcia, before -- I think right now you're going to transition to Keith and that?

MS. McNUTT: Yeah.

MR. JENKINS: Before you do, I'm going to ask one more time if there is anyone that wants to make comments on the Notice of Preparation or Notice of Intent? If not, what we're going to do, because this is meeting being recorded for that purpose, we're going to stop the transcription and close the public hearing, and then we'll continue with the project description, so one more time, is there anyone here that intends to make comments during this hearing on the Notice of Preparation or Notice of Intent? No one has come forward, and therefore, at this point at 6:55, Vicki, are you in agreement that we close?

MS. HILL: Yes, sure.

MR. JENKINS: Okay. We'll close the hearing and then at this point we will go ahead and stop the transcription.

(The recorded proceedings concluded at 6:55.)

STATE OF CALIFORNIA)
) ss.
COUNTY OF SANTA CRUZ)

I, MELINDA NUNLEY, a Certified Shorthand Reporter, License Number 9332, and a Notary Public in and for the State of California, do hereby certify:

That the said Transcript of Proceedings was reported by me in machine shorthand at the time and place therein named and was thereafter transcribed by means of computer-aided transcription, and the same is a true, correct and complete transcript of said proceedings, to the best of my ability.

I further certify that I am not of counsel nor related to any of the parties hereto, nor in any way interested in the outcome of these proceedings.

IN WITNESS WHEREOF, I have hereunto subscribed my name and affixed my official seal this 18th day of June 2004.

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Certified Shorthand Reporter
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