STATE WATER RESOURCES CONTROL BOARD

DIVISION OF WATER QUALITY

WORKSHOP

IMPLEMENTATION OF FEDERAL CLEAN WATER ACT SECTION 316(b) REGULATIONS

LAGUNA BEACH CITY HALL

505 FOREST AVENUE

LAGUNA BEACH, CALIFORNIA

MONDAY, SEPTEMBER 26, 2005

9:00 A.M.

A P P E A R A N C E S

Pete Silva
State Water Board Member

Jerry Secundy
State Water Board Member

Also Present

Dominic Gregorio
State Water Board Staff

Steve Saiz
State Water Board Staff

Dr. Michael Foster
Moss Landing Marine Laboratory

Tim Havey
Tetra Tech

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P R O C E E D I N G S

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BOARD MEMBER SILVA: -- and Steve Saiz, and then in the audience we have Bill Iserena (ph.).

As you may know, there's a growing scientific and public concern about the ecological health of the coastal bays' estuaries and ocean eco-systems. The impact of impingement and entrainment of aquatic life by cooling water intake structures and how to generate facilities is our focus today.

The purpose of this workshop is to receive comments on whether the State Water Board should develop a statewide policy to implement the Federal Clean Water Act Section 316(b) regulations on cooling water intake structures. The State Water Board also seeks public comment on issues that should be addressed if a statewide policy related to implementing 316(b) regulations were to be developed.

In addition, the State Water Board is especially interested to hear suggestions or ideas that will help to control or mitigate the entrainment and impingement of marine life at power generating facilities.

For the agenda today we have brief statement from -- first a brief statement from staff regarding the federal 316(b) rules, and then we have two half-hour presentations,

one by Dr. Michael Foster of the Moss Landing Marine Lab, and the other by Tim Havey of Tetra Tech.

And then after these presentations we will open the workshop to public comment. If you wish to speak today please fill out a blue speaker card and give it to staff if you haven't already done so. And I think also we'll accept written comments, if you have any, today.

So with that, Jerry, any comments?

BOARD MEMBER SECUNDY: No. It should prove to be a very interesting meeting. Pete and I are very anxious to hear your ideas so please don't be shy in terms of your public comments. I doubt that you will be.

BOARD MEMBER SILVA: Okay. Jerry and I are sort of the tag team on, on marine issues. We've been working closely. We had a workshop yesterday on ASBS and hope to have some other workshops around the state.

So with that, Dominic.

MR. GREGORIO: Good morning, Board Members. For the record, my name is Dominic Gregorio, Senior Environmental Scientist with the Ocean Unit.

Let me start by describing the current status of the relevant legislation and regulations. Clean Water Act Section 316(a) requires the states to regulate thermal discharges from power plants. And the State Water Board's Thermal Plan, which dates from 1975, is a statewide water

quality control plan that addresses the impacts of heated discharges from power plants as required under 316(a).

We are conditioned to consider the impacts of -- or on beneficial uses from discharges from industrial facilities and to regulate those accordingly. Today's subject forces us to consider the intake and mortality of marine life.

In coastal California, the power generating industry has discharges, if we consider their permitted maximums, of about 16 million gallons a day. So, you know, now considering the intake, that would be 16 millions of -- 16 millions of gallons a day also of marine or estuarian water and its associated marine life. The intake of marine life is addressed in Section 116(b) of the Clean Water Act.

316(b) requires that cooling water intake structures request the best technology available for minimizing adverse environmental impacts. The (inaudible) USEPA recently issued regulations, and it was in phases. There's a Phase 1, a Phase 2, and upcoming will be Phase 3. Today we're only going to concentrate on the first two phases, with an emphasis on Phase 2.

Phase 1 regulations were applicable to new power plants and those were finalized in December of 2001. The Phase 2 regulations are applicable to existing large power plants, and those were finalized in February of 2004. I

should mention that we have no new power plants that are planned right now or are in the application stream that would have once-through cooling, so really, the applicable regulations for today's discussion are the Phase 2 regulations.

California Water Code currently requires that new or expanded power plants minimize the intake and mortality of all forms of marine life. And there's an existing State Water Board policy, also dated from 1975, that promotes the use of once-through cooling in oceans and bays instead of inland water bodies as a means of conserving fresh water. However, that policy does not address the effect on marine life. And the thermal plan also does not include any requirements for intake structures, and therefore there is currently a void of any statewide plan or policy to address the entrainment and impingement effects.

As you know, the regional boards issue NPDES permits that regulate the impacts of thermal discharges, chemical constituents, and entrainment and impingement from power plants under the 316(b) rules. And these permits are, for the audience's sake, are reconsidered and renewed every five years. So for California's existing power plants, this is an opportunity to reconsider and further regulate the reg caps. Up until now, each regional board has been independently addressing the entrainment and impingement

issues within the NPDES renewal process. However, the 316(b) rules are difficult to implement because, among other reasons, it's hard to estimate the baseline conditions and to evaluate equivalent restoration measures. Also, there's a great deal of flexibility in the rules, and sometimes that is the source of a little bit of discussion, I would say, between the stakeholders.

It's important to note that the L.A. Regional Board has several power plant NPDES permits that are due for renewal this year. Or, I guess it is next year, but they're considering them now. And that's the largest number of any of the regional boards. Beginning in 2003, the L.A. Regional Board staff formed a 316(b) stakeholder group. The purpose of the stakeholder group is to provide a forum for addressing permitting issues, including the procedures for conducting the required studies. And I should say that if we, at least the staff recommendation is that if we do move forward on a statewide policy that we build on that stakeholder process that's already been issued.

So now I'll turn the presentation over to Steve Saiz of the Ocean Unit to briefly describe the actual 316(b) rules.

MR. SAIZ: Good morning, Board Members and audience. As Dominic mentioned, the -- as Dominic mentioned, Phase 1 of the 316(b) regulations -- go back --

were established for new, new facilities, and there are no new facilities, so the main focus is going to be on the Phase 2, existing facilities.

In California there are 21 existing power plants along the coast of California that use once-through cooling. And this slide and the next slide are a enumeration of those facilities. Part of the requirements in the Phase 2 regulations that the EPA has promulgated is that the facility has to have 50 MGD or greater, and you can see, looking down this list, some of these facilities have some very substantial flow rates. We're, we're measuring some of these in the millions of gallons per day level. For instance, Pittsburg, that would be one million gallons per day. Diablo Canyon, 2.5 million gallons per day. And the largest permitted discharge for the power plants is at the SONGS facility, the San Onofre Generating Station, 2.6 million gallons per day.

So you can see that these are not insignificant flows, and the issue really becomes what are the environmental effects of the impingement and entrainment at these facilities.

The NPDES -- the Clean Water Act states that -- actually, it's the national, the promulgated facilities -- let me start over. Sorry.

There's national performance guidelines that are

part of these regulations, the 316(b) regulations, and for impingement, what basically that means is that the fish or shellfish or aquatic life is being impinged against some type of intake stream at the, the mouth of the intake structure. And the national performance guidelines requirements are for impingement to be 80, the reduction from baseline to be 80 to 95 percent on the calculation based on. And entrainment, the entrainment is all those organisms that pass through the, the intake facility, intake structures, those streams, and become entrained into the waterways internal to the facility. And here those -- locally, we're talking about through now like stages of fish and aquatic life. And those organisms are exposed to stresses of heat, chemical, and physical stresses. The new regulations have explicit data requirements, so that the character, we need to characterize the environment where the water is being drawn from, the design and operation of the facility, and so on.

There are options in the Phase 2 regulations for designing and constructing some parts of the facility to reduce, to meet those performance guidelines for entrainment and impingement, and there's also some options for restoration. And the restoration means that they will have a -- there's ecological benefits to the water body at a level that is similar to that level that would be met from

the performance standard. And there are some requirements for having these restoration measures, it has to be more feasible, higher cost effectiveness or a better environmental desirability.

So a very critical question is how should that baseline calculation be measured. In other words, what is the reference that those performance guidelines of 60 or 80 percent going to be based on. And this is an area where I think that what we've seen from industry people, they have told us that they would like to see some consistency in how those baselines are calculated for each of the facilities within California.

And similarly, for -- if the option of restoration is the best option, how, how can you restore an eco-system and measure what is going to happen at that facility and, and say that there is a one to one correspondence with the improved eco-system.

And now I'd like to introduce Dr. Michael Foster, from the Moss Landing Marine Laboratory, and he'll make the next presentation.

DR. MOSS: Thanks, Steve, for the introduction. I'm going to talk about issues that are (inaudible) this issue of once-through cooling. This, the title is actually the title of a White Paper that was developed by the CEC this spring and early summer as a thorough review of those

issues related to California power plants. And I think that copies of that paper, which is actually quite long and extensive, and I think thorough, are available here as well as on the Energy Commission website.

My part of this -- my part of this White Paper was to look at the biology of the impacts and the science behind the impacts. Being, as Mr. Silva pointed out in his introductory remarks, there's sort of an increasing recognition that coastal and estuarian waters are degraded, and a considerable concern about what's causing the degradation and what the citizens of the United States can do about it. And the major impacts that have been sort of identified nationwide are listed there. Pollution, over-fishing, habitat destruction, (inaudible) species, ocean warming, and so forth.

Work that the Energy Commission has done, in terms of re-powering projects over the last probably ten years, suggested that once-through cooling may actually -- should be on this list. And so what I put up there is a question mark. I then reviewed the existing information on once-through cooled coastal power plants, and that's what I'm going to talk about today.

There are 21 power plants, as Dominic pointed out. We've got to get together on our map, Dominic, I've got 17 million, you get 16. But anyway, I guess it's likely

(inaudible). And the distribution of those plants, in terms of where they, what habitats they impact, are as follows. There's two (inaudible), six in coastal sand harbor habitats, and 13 in bay and estuarian habitats. And you can see, the largest by and large are the bay and estuarian habitat plants.

In addition, there are clusters of plants which, and particularly in the San Pedro Bay area, Santa Monica Bay area, and the Sacramento-Delta/San Francisco Bay region, and there's a concern that there may be cumulative impacts. That is, the overall impacts of these clustered power plants may be greater than the sum of the individual impacts due to overlapping the source waters, et cetera.

So just by way of a brief background, this is Diablo Canyon, just to show you what the main impacts are. You can see the discharge impact there is largely thermal, and then the other impacts are impingement and entrainment over on the right, and associated with the intake.

So what actually happens. Fish and other organisms are entrained with the cooling water. There are screens usually around three-eighth inch mesh that impinge everything larger than three-eighths of an inch, and those are removed. And then everything else that goes into the plant is what we usually refer to as the real entrainment, and that's subjected to turbulence, hot -- heating, et

cetera, and then pumped back out of the environment. I think the thermal plant limit is 20 degrees, and plants vary a bit around that, but that's a fairly good average. So we have three major sources of impact; thermal, impingement, and entrainment.

This is an example of how extensive the thermal, this effect can be. This is Diablo Canyon, and the aerial photograph showing the extent of the heated water coming out from the discharge into Diablo Cove, and then spreading up and down the coast and out into the ocean. You can see the scale there, it's pretty large, that's 500 meters. So we're talking of kilometers of coast in some areas.

And there are significant thermal impacts. Diablo Canyon is an example, South, South San Diego Bay is a good example. But these generally are very site specific, and particularly large rocky bottoms with enclosed waters. This is an example of (inaudible) tidal zone in Diablo Canyon before the discharge started and then after the discharge started, and you can see that most of the major (inaudible), most of the large seaweeds are eliminated.

But all of these suggest that these are very site specific. And this is interesting because when the power plants were first being constructed and looked at in the seventies, the big worry for most marine ecologists was the effects of the thermal discharge. And it turns out that --

and it was hindsight, it looks like people should've been more aware about entrainment, except at specific locations.

Impingement's the same way. It also turns out to be very site specific, depending upon sort of the habitat right around the intake, particularly if there's (inaudible) nearby and so forth, impingement's going to be quite large. If it's an open sandy beach area, impingement is often quite low. But it can be significant. In the analysis of the Huntington Beach Power Plant project, we did try to do a cumulative (inaudible) analysis with (inaudible) on the impingement, and it turns out the impingement in the southern California by power plants is somewhere between eight and 30 percent of the total sport fishing catch, which is not an insignificant number. By the way, 90 percent of that is, is on the San Onofre Nuclear Power Plant, which draws water from an area (inaudible).

So that brings us to entrainment, then. And I think that the reasons that folks thought that entrainment was not going to be a significant issue with coastal power plants was there was this notion in the seventies that the ocean was a sort of limitless frontier. But it turned out, and we know now that that's not the case, that coastal and estuarian water is a very distinct habitats, and they have their own communities to a limited extent. And in fact, sea water is not just water, it's actually a community of living

organisms, some of which spend their whole lives in that water, and some of which produce eggs and larvae which grow up in that water. And so it's, you can think of the area that's being entrained as rather a thin strip along the coast, and it is not limitless.

So what's in there. Well, this is a, this little chart was based on a review and analysis of the data in the more recent 316(b) studies, everything from (inaudible) generating station, through Morro Bay. And you can see that these are, these are members of species, and then the environments in terms of numbers per 1,000 cubic meter. And you just look at it and one thing that impresses you is there's a lot of things in the sea water, and a lot of them are extremely abundant. The other thing that's impressive is that, is that there are lot of fish along with those things, and that has been the main concern and the main analytical concern in most 316(b) studies.

And you can see that for the recent 316(b) studies that have been done, the number of fish per thousand cubic meters is around 400 to 600. That's a (inaudible) fish. Well, if you scale that up to the 17 million gallons a day, using the scaling factor of (inaudible), that means that around 50 million marine and estuarian fish are entrained per day in California, and these fish are killed. So that is suggesting that that could potentially be a problem.

Again, looking at this as a limited habitat, not an unlimited habitat.

So why are these entrainment effects assessed? The traditional view that was used in the seventies and early eighties was the one on the left, where you look at the larvae that are entrained and use information about their life histories to estimate how many adult fish of that species do those larvae represent. And then you compare that to the fisheries' catch for that species. Those analyses essentially conclude they ignore impacts on all other species, and their comparison is only to the fishery catch.

In more modern analyses, starting with the Diablo Canyon Nuclear Power Plant and, and I think supported very well by the Southern Coast Regional Water Quality Control Board, which has developed considerable expertise in this area, is to use a model which actually estimates the percent of larval mortality, that is, the number of larvae killed, so that the -- divided by the total number of larvae available in the source water. And so you determine that, the area of the source population. You determine the proportion of mortalities, and if you multiply those together you get a -- for that species, you get a sense of the actual habitat that's been lost as a result -- the habitat that's consumed as a result of the power plant

consuming the production of that habitat. And we call this the habitat reduction (inaudible) method, and I'll talk a little bit more about it in a second.

We often get asked, well, why not a more direct determination, why can't we more thoroughly assess impact on all species, and the little box at the bottom sort of outlines that problem. And it really is a (inaudible) problem. The impacts occur over large areas, there's lots of species, there's a lot of natural variation, and there's multiple impacts in the involved areas besides these power plants. So it's presently impossible to accurately analyze the effects sort of on a cumulative level.

So instead, what we've tried to do is, is apply this habitat reduction (inaudible) method in a little bit larger context. So that would look as follows. Let's assume that you have a hypothetical power plant and the entrainment study found the average proportional mortality for the estuarian species that could be assessed, which (inaudible), was 17 percent. And let's assume the area of estuary was 2,000 acres, and that's the source water, so it's the same for all species.

So then that habitat is required to compensate for those losses, which would be the new estuarian habitat needed, (inaudible) the area times the proportion, average proportional mortality, which are these 240 acres. That

represents the acreage in which all production of larvae was eliminated, and this has formed the basis of mitigation measures, or mitigation discussions in all recent (inaudible) studies in California.

I mentioned cumulative effects. Because of our lack of understanding of (inaudible) coastal oceanography, we're sort of (inaudible) into this field. But a possible example here. If you just use (inaudible) data for circulation within Santa Monica Bay, and look at the estimate of percent of surface water that's entrained, drawn in in cooling systems in the three power plants that (inaudible) El Segundo and Redondo Beach, and you can add those up. Just on sort of volumetric basis, they account for about 13 percent of the surface circulation in Santa Monica Bay. That's potentially a fairly scary number, given everything else that's happening in the Santa Monica Bay. And if those withdrawal areas overlap, the effects on the organisms is going to even be greater.

So considerable more attention, I think, needs to be paid to these cumulative effects than have been in the past, and I don't think the Phase 2 316(b) regulations address those at all.

So what have the results been from recent studies. So the original studies up there, six power plants are listed, they were done in 19 -- 1980. And you can see that

based on the fisheries' losses, they pretty much all concluded there was no adverse impact. On the right are estimates from recent 316(b) studies, giving this habitat reduction for (inaudible) analysis, and you can see that the result is quite different. Considerable numbers of acres of production lost, using this method, as a result of power plant operation.

If you just take the estuarian loss, the 13 power plants, 8.39 million gallons a day, and if you use the studies that have already been done, it turns out that the habitat reduction (inaudible) is about 1.2 acres per million gallons a day. Now, we've looked into, in the case of Moss Landing and Morro Bay, the cost of restoring wetlands in these areas, of any area in California, and it averages, at least of about five years ago, about $114,000 per acre. So if you scale that up and say okay, we'll use that to look at all the power plants, that amounts to about 10,000 acres lost and a cost to restore of over a million dollars. That 10,000 acres is, is over twice the total acreage of Elkhorn Slough and Morro Bay, which are two nationally recognized important estuarian systems in California.

So I would argue that these data suggest that this is not an insignificant problem. They also suggest that alternative (inaudible) technologies should be seriously considered when these plants are being evaluated.

Okay. So there are 13 coastal power plants that lack recent entraining impact assessments. Based on review that I've done, I argue that the accuracy of the original assessments is unknown, largely because of the methods used. Only impacts on fish species were considered. No cumulative impact assessments were done, and the studies are 25 years old and out of date. And if we're going to truly determine what the general effect of the coastal power plants are, we really need to know these impacts both on an individual plant level and a cumulative level. And to know them comparatively it's absolutely essential that they're consistent approaches and interpretations used in the studies. Otherwise, (inaudible) comparing apples, apples and oranges.

Lastly in that list, I'm convinced, and it's not just to feather my own nest, that review of these studies is needed by unbiased experts. It is unfortunate, but I think most water board staffs simply do not have the expertise to, to critically evaluate the very technical information that is required in assessing entrainment. And I think also that since most of this is done by consulting firms hired by the industry, it just makes sense that there's some (inaudible) even though our experience with industry studies has been actually excellent.

And finally, I want to point out, because I have

gotten a lot of criticism for this, industry often says well, that's all well and good, Foster, but really, we're, we're complying with the regulations. And my argument is that assessment is fundamentally a science issue. And until the science is right, nothing else will be right.

Thank you.

SPEAKER: Next we have Tim Havey, from Tetra Tech. Tim has been involved with permitting issues related to 316(b) throughout the nation.

MR. HAVEY: I've also, for better or worse, been involved in 316(b) regulatory development for about eight years now, so I'm a little familiar. I'll try to not be too duplicative of Steve and Dominic's presentation earlier. I'm going to give a little bit more background on 316(b) itself, and also the (inaudible) regulations and how compliance is going to proceed from here.

Two quick things about Section 316(b) that kind of make it unique. It's the only place in the, in the law that discusses water intake as opposed to discharge, and it's the only use of the phrase, "best technology available for minimizing adverse environmental impact." If they had kind of defined those things, it might have given us a little more guidance now. But as it is, AEI does not have any kind of a definition of the use for 316(b), at least across the board.

How exactly did we get here? 1976 was the first effort by EPA to put out some sort of a regulation. That reg was remanded on a technicality in 1978 or '79, I believe. Since that time it's been implemented on a case by case basis, and there's been a wide variety of exactly how that's occurred from state to state and region to region. Fast forward to the early nineties. The river keeper, Hudson River, filed a lawsuit against EPA. That resulted in a consent decree by which EPA agreed to develop new regulations, first in two phases, later in three. I think originally it was new and existing facilities. Later, EPA said it would be much easier and more effective if they divided Phase 2 into two phases itself. Phase 3 is going to deal with all the small power plants less than 50 MGD, and that's the design intake capacity in all the manufacturers, as well.

Phase 1, as I mentioned, is final and effective. It was adjudicated in February of 2004. As I'll discuss a little bit later, the only part of Phase 1 that was remanded was restoration, and it may or may not have a significant impact on Phase 2 proceeds. The effective date for Phase 2, which is what we're here discussing today, is September 7th of last year. That's currently in litigation by both industry and environmental groups. Several issues, major ones, I believe, are being decided. There's no schedule as

of yet. I believe that oral arguments will be scheduled sometime in either late winter or early spring. A possible decision, final decision sometime in the summer or fall. It depends.

Originally, Phase 2 was assigned to the Ninth Circuit, but it was moved back to the Second Circuit, which is also the same circuit that decided Phase 1, so they do have the advantage of being educated on the issues, at least. That may provide for a more expedited schedule.

Phase 3 does not have much impact on California, as far as I can tell. Based on the, the survey data, I think there are only three facilities that I can find that would be subject to Phase 3.

Exactly who's applicable, who it's applicable to. You have to be in the NPDES program. Surface water withdrawal, you -- obviously use 25 percent or more for cooling water. That's exclusive use for cooling purposes, no processed water, 50 MDG or greater. Part of the SAC 49 group for electric power, and also meet the definition of an existing source.

Exactly what is an existing source? The new facility rule defined it as, as a facility that commenced construction on or before January 17th, 2002. It gets a little bit murkier, though, in terms of how we consider a facility and what part of the facility is under

consideration for 316(b) purposes.

As a short end, I like to tell people that if you consider the cooling water intake structure itself up to and including the pumps, that's a good starting point for how you consider an existing facility under Phase 2. A couple of examples of facilities that would be considered an existing source are listed there. Facilities that modify their process, they increase the intake capacity of their cooling water structure would be considered a Phase 2 facility. Likewise, if they built a new, a new generating unit or so on at the site and they increased their capacity, they, too, would be considered an existing source.

This does come into play for several facilities up and down the coast. And (inaudible) possibly in the future will be repowering Redondo Beach, Morro Bay, of course. El Segundo has a repower project, as well. So how we consider those facilities is important.

Again, if there's one number you come away from this meeting with today, it should be 21 facilities up and down the coast. A couple of notes here about these facilities. Phase 2 considers estuary and ocean, estuary and tidal river and ocean facilities, all of which these are. But they define estuary and tidal river a little bit differently than, say, the thermal plant or the, the ocean plant. It's largely based on salinity and the impacts of

tides. All of these would be considered estuary type river or ocean facilities. But again, that's different from the discharge point. It's based on the intake point. Several facilities that I'm aware of actually intake or withdraw water from a different water body than they discharge to.

Exactly what is required? The performance standards is really what it comes down to for Phase 2. We're talking about impingement mortality, not actually the active impingement, and that's reduced by 80, 80 to 95 percent from the calculation baseline. I'll talk about that in just a moment. Entrainment -- actually, that number's wrong. It should be 60 to 90 percent from the calculation baseline. Entrainment, we're talking about active entrainment, not entrainment survival. There's a lot of debate about whether or not this is appropriate, since there are some studies, disputed, of course, that show that some organisms survive entrainment and go on to be viable in the aquatic community. Other people say absolutely not.

The other issue is that the reduction of entrainment, the manner in which it's accomplished is important. If it's by screening, it's possible that that actually has the same negative effect as if the organism were entrained themselves. I'll talk about that a little bit later, also.

For California, as I said, all of the facilities

are either ocean or estuary tidal river. It's, for 316(b) it's a bit of a distinction without a difference, because the impingement mortality and entrainment standards apply to both in the same manner. The only difference would be for peaking facilities in which impingement mortality is the only standard that applies. A peaking facility is defined as, as one that uses 15 percent or less of its generating capacity.

Exactly what is the baseline. This is how we're going to determine compliance and measure compliance down the road. EPA set up a standard for, for measuring a baseline facility, and that is a shore lining type structure having the standard three-eighths inch mesh screens, no other controls. Essentially, that is what, what most facilities are right now. A common facility.

You can take credit, though, when you estimate your baseline numbers for your existing reductions that may result from either an intake configuration or a technology that's in place. A lot of the southern California facilities have velocity caps, or they're located offshore, that may reduce impingement and entrainment, as well. A facility (inaudible) can take the as built approach, which says we'll take what we are right now and that'll be our baseline, so they can measure their impingement and entrainment and go from there without actually having to do

any kind of estimates from there.

Phase 2 has five compliance alternatives that are available to all the facilities. I'll go through these pretty quickly. The first is velocity approach restrictions. If a facility decides that they're going to reduce their intake flow commensurate with the closed cycle system, they're basically out of the rule. They just have to demonstrate that they've done so. They can also reduce their design through screen intake capacity to a half-foot per second, and that's applicable for impingement standards only, and it's largely based on a generally agreed upon number of half a foot per second, which most motile fishes can escape during the intake process. A small number, that is a through screen intake velocity, not an approach velocity. There's a difference.

Alternative two. If you are already complying, basically, if you have technologies or your operational measures actually meet the Phase 2 requirements, then you don't have to do anything else save demonstrate and, and validate that you are doing so.

Alternative three is probably the most common for most Phase Two facilities, and it basically will say -- is that the facility will go out and analyze technologies or operational measures, possibly restoration, as well, that meet the performance standards, and provide guidance to

their regional board exactly how those measures will be implemented. It's basically things that are not occurring at the facility at the time.

Alternative four does not really apply to California yet. It's for an approved, pre-approved technology. In the Phase Two regs, EPA approved one technology that was cylindrical wedge wire screens for use in freshwater rivers and streams only, based on a variety of factors that, again, don't apply to California, but it does leave open the option for the director, whether it be from the state board or the regional board, to approve another technology that can be, that can be implemented. And this approved technology option has a more streamlined approach to the compliance side of it. There's less study requirements, the verification monitoring is a little less stringent, as well.

The fifth, which may be the most common for a lot of facilities, is a site specific determination. How that occurs is based on cost (inaudible) cost benefit test. EPA estimated cost, compliance costs for all the Phase Two facilities in the rule, and they also estimated benefits through evaluation study that would result from, from compliance at all facilities. If a facility can demonstrate that the costs they would need to comply with the Phase Two rule would be significantly greater than those estimated by

EPA during the rulemaking process, they could then go for a site specific determination. The same applies to the cost benefit side. If the benefits are significantly less than the costs that would be required to comply, they can then go ahead for a site specific. But again, the site specific is supposed to be as close as practicable to those proposed standards while following the same general approach, which is a technology based approach, to complying with the Phase Two rule.

The schedule itself. Again, the rule itself was effective on September 7, 2004. What that means is any facility that has a permit expiring on or after that date is required to comply immediately, although -- the second bullet there -- facilities that are in that first four year period after September 7th can, can request an extended schedule for compliance because, obviously, there's a significant amount of data that needs to be collected and studies that'll need to be completed in order to actually submit the final demonstration study. They do allow for that schedule, although they stated that no more than three and a half years after the publication date of the rule, which results in the January 8th, 2008, deadline, which is basically six months before the expiration of the permit, which is the typical re-application timeframe for the NPDES program anyway.

There's a rough schedule below. The main items that facilities need to be addressing. The proposal for information collection is really the kick-off for any facility. I'll go into detail a little bit about what the requirements of the PIC are. After the PIC is, is approved, although approval is not required for a Phase 2 facility in order for them to begin the process of developing the comprehensive demonstration study, it's highly suggested. Consultation is a key component of the Phase 2 rule with other environmental agencies, regulatory agencies, as well as the permitting agency, going forward.

The PIC itself, as I said, is kind of the kick-off. It basically sets the stage of where the facility is, what they plan to do, and what their compliance strategy may or may not be for Phase Two itself. The -- the description of the technologies and restoration methods, if any, that they're going to be evaluating, including those that they are not going to be evaluating and why. Some, some technologies have absolutely no place being in a, in mid-ocean depths where some of these intake structures are. Also, the historical studies, a summary of those. As Dr. Foster mentioned, there are significant concerns with studies that go back for even 25 years. How are those applicable, can they be used in any kind of determination for Phase Two, what kind of protocols were they conducted

under, et cetera.

Also, a summary of the consultations with the various agencies, CEC, Fish and Game, the (inaudible) and, and the what-not. Most facilities also will be conducting some sort of impingement and entrainment sampling plan, whether to characterize the current conditions at the facility or to evaluate a new technology or operational procedure.

There's a couple, a couple of items I put down at the bottom just as suggestions. They're not really requirements yet, but it's, it's helpful to begin the discussion as early as possible. What exactly is the current conditions. This has come up just about in every conference call I've been on and every meeting I've been. How do you account for the actions of a power plant that's been operating for 30, 40, or 50 years. How does, how does a study that's conducted today actually take into account any effects that may be, that may be historical in nature and, and vary over 50 years.

What is the compliance metric going to be? EPA leaves this to the director's discretion because there, there's a variety of variables that can affect individual facilities. But are we going to be talking about representative species, are we going to be talking about all species, are we talking about raw numbers or bio-mass, that

sort of thing. It's good to start that discussion as early as possible because it may affect some of the study requirements or protocols in the, the PIC.

Also, kind of concurrent with the current conditions assessment is the compensation for other impacts and influences. Again, over decades, there are other impacts, obviously, that can cause degradation of fish habitat. How do we address those, how do they, how do we actually -- how do we actually compensate for those in the proposal for information (inaudible). How does that affect the compliance determination down the road.

The CDS, or the Comprehensive Demonstration Study, is kind of the, the main body of data that will be submitted by the facility if they, if they choose one of those last three compliance options. And I won't go through in great detail what's required, but you can probably imagine. It's a characterization of what's occurring at the facility, a description of the species, et cetera, various life stages. Times of year that impacts are occurring, if there's a, if there's a variation. Design and construction technology plan is basically what the facility is going to do, whether it's actually installing an actual technology or whether it's going to be operational measures such as a reduction in flow possibly during different times of the year, or restoration also falls under this, as well.

Restoration -- excuse me. A site specific justification, again, as I mentioned earlier, which would be the cost, cost or the cost benefit tests, would also have to be included in this study if the compliance option five is going to be used.

Restoration itself. Restoration can be used as a technology. Phase Two does make that pretty explicit. But there has to be a demonstration of the consideration of other technology measures, whether it's operational or design and construction measures. The measures themselves that would be used for restoration must, or should produce fish and shellfish in the same, in a similar quantity to those that are taken by the intake structure itself. Quantification of the ecological benefits is important. The timeframe is essential in a restoration plan. Some restoration plans we've reviewed have gone out 30 to 80 years in terms of when those benefits would actually be realized. Is that appropriate for Phase Two or is it something that we need to see more demonstrable effects in the near term.

Also, in kind versus out of kind restoration. It's been discussed in, in some areas that out of kind restoration, which is akin to compensation, is not appropriate for Phase Two, since you're basically compensating for a loss that's not permitted under the NDPES

program. A monitoring plan, of course, is also essential to the restoration plan.

I'll close with just a, a brief note about restoration itself. As I mentioned earlier, Phase One did have restoration as a component for compliance. The Second Circuit remanded that, basically saying that it has nothing to do with DNC or the capacity of cooling water structures. But they did close by saying that it does not predetermine the decision for Phase Two and Phase Three. How that plays out, I don't know. There are other significant issues, I know, that they are addressing, particularly the definition of existing source, that had a fair amount of coverage in the brief itself.

Thank you.

SPEAKER: We had one more follow-up slide as part of our staff presentation. And the basic idea is what the whole reason for this workshop is. We've seen how complex these issues can be, and at the state level we would like to provide some kind of over-arching guidance for the permitting of these facilities, and the basic question is what will the form of that guidance be and where would it go, because there's -- we have the California, the California Ocean Plan which regulates ocean discharges. We have the thermal plan, and it would probably make sense to have (inaudible) produce some kind of guidance, it would

make sense for that guidance to maybe go in the federal plan. Alternatively, we could have a stand-alone guidance specifically related to these types of 316(b) implementation issues.

And the other thing is we could have no guidance and just provide informal, sort of question and answers, frequently asked questions kind of guidance. That's been brought to our attention, also.

So that concludes the staff presentation.

SPEAKER: Could you talk maybe about the CEQA issue? I know you had it up there, in terms of time, how long (inaudible).

SPEAKER: CEQA?

SPEAKER: Yes. I mean, if we decide to go with the (inaudible) document. How long would it take?

SPEAKER: Yeah, I'll let Dominic handle that one.

MR. GREGORIO: It could take quite a while. Just to get changes to the Ocean Plan accomplished took about a year and a half. And, you know, we could fast track certain items if they're consistent with USEPA regulations. But given the potential controversies associated with this issue, it might not be conducive to fast tracking, so it could take quite a while.

SPEAKER: Thank you. Thank you for all the remarks. And now we're going to go to public comment, and

first is the, Jim McKinney and Joe O'Hagen, from the California Energy Commission.

I understand you have a, you have a Power Point?

MR. McKINNEY: Yes, I do.

Members of the Board, good morning. My name is Jim, Jim McKinney. I'm staff at the California Energy Commission. My colleague, Joe O'Hagen, and I would like to present you with a brief overview of what our agency has learned in the six years that we've been reviewing repowering applications before the Energy Commission. There is a -- this could easily be a multi-hour discussion, but I'm going to try to briefly go through these slides to highlight the key issues that we've encountered thus far.

First off, in terms of our authorities. The CEC has three main authorities that bear on the issue of evaluating once-through cooling impacts associated with repowering coastal power plants. The first is our exclusive authority to license power plants under the Warren-Alquist Act of 1974. In that (inaudible) for repowers in our jurisdiction.

Secondly, there's the recent Integrated Energy Policy Act that was introduced by Bowen and Sher and passed in 19 -- or, 2002. SB 1389 directs the Energy Commission to assess the state of affairs with energy issues and formulate policy recommendations for the Governor's office and the

legislature on all aspects of energy policy, and certainly including environmental issues.

Third, with the passage of the deregulation bill in 1996, we now administer the Public Interest Strategy and Research Program, or PIER, and currently that project for electrical (inaudible) research is about $60 million, and Mr. O'Hagen will talk about that at the end of this presentation.

I'd like to emphasize that each of these statutes require us to balance energy supplies, reliability cost, and environmental protection.

So we've heard this number several times today. There are 21 existing facilities using this once-through cooling technology in California. From an energy perspective, this is about 24,000 megawatts, which is about 40 percent of the state's total generation capacity. It's a little more than half of our natural gas pipe capacity, which is the fuel of choice these times, and it's all of our nuclear capacity, so the two (inaudible) as well.

It's an old fleet. Most of this was built in the fifties and sixties, well pre-dating CEQA, or organic act and most of the other environmental statutes, so (inaudible). I think it's a good analogy to say the work that your agency does in relicensing hydro facilities, we have very old infrastructure that develops, generates

energy, applying current standards for impact assessment, especially with the CEQA issue, is, is tricky. It's quite tricky.

Something else about these plants which some of the other presenters have already mentioned is that they are spread throughout the coast, and a lot of them, unfortunately, are, from an environmental perspective, happen to be located in extremely sensitive estuaries and bays, and there are concentrations of these facilities in the San Francisco Bay, Delta estuary, Santa Monica Bay, and then further south.

Once-through cooling is a very efficient cooling technology. Seawater is, is cold, it's quite a good heat conductor, and it's really a least cost or low cost cooling technology.

Going to the second major bullet here, we've reviewed five applications to repower since 1999. As a CEQA lead agency we're charged with developing the analyses, the standards for data collection and protocols, evaluating alternatives, and formulating mitigation if significant adverse effects are determined to be in existence. We (inaudible) do this in collaboration with the regional boards, the Coastal Commission, and other state and federal agencies to essentially create the proper standards, both regulatory standards and scientific standards, to do this in

conformance with current laws, the science, and technology.

The data collection analysis is quite expensive, it's time consuming, and there's really no consensus on what the standards should be thus far. Most of the applications we've looked at pre-dated the 2004 USEPA 316(b) regulations, as well.

As a matter of policy, our Commissioners have determined that offsite mitigation or restoration is an appropriate course of action for, for mitigating from the impacts, and this is in lieu of impact reduction which, as you know, is one of the standards of CEQA.

We know from the recent federal studies on the state of the ocean, both the U.S. Commission on Oceans and the (inaudible) commission, that our near shore eco-systems are imperiled, they're degraded, they're subject to multiple stressors. And again, in sensitive estuaries, the, the concerns are (inaudible). You can argue once-through cooling from coastal power plants is a contributing factor to this degradation, but we only have lead agency jurisdiction for those plants that come before us. We've looked at, at five, and again, there are 21 plants. So in my view, on a going forward basis, it's really going to be agencies such as yourself, especially yourself, to set the standards and guidance for how we resolve this on a, a comprehensive basis.

This table summarizes kind of the key facts and what we're learned. Let me just highlight a couple of things here. On the far left column, these are locations of the plants. If you're not all familiar with the coastal resources, at Elkhorn Slough, the Bay Delta, Morro Bay, Santa Monica Bay, those are important sensitive and stressed eco-systems.

Looking at the size of these facilities, these are big. They're important power plants. Moss Landing, that was just the re-power capacity. I think total capacity there is 2600 megawatts. That's a very important facility in terms of power generation in the state.

In terms of permitting time, Warren-Alquist directs us to review and approve license applications in a 12-month period. We are not able to do that when the coastal resources are involved, and for three of these plants it's been about four years to do it, as opposed to one. And the issues associated with once-through cooling have been a key factor in delaying or complicating our review of those plants.

New entrainment studies for -- were required for four of five. In terms of mitigation or enhancements, I'm, I'm not an expert on this part of it. But just to draw a comparison to the capital cost for a re-power facility, a 500 megawatt unit goes for 360 to $400 million, a thousand

megawatt unit is 650 to $700 million. (Inaudible) mitigation dollars, those are quite modest compared to the capital cost for a major facility re-power.

Two of these plants have been constructed and are operational. One has suspended its license application, that was Potrero. Two others have licenses but have not yet begun construction.

Our staff has been working diligently to understand the issues, worked with the experts on both the Moss Landing, with the main consulting firms and other agencies. This is just an overview of our key products. Let me highlight a few for you.

First is this once-through cooling paper, and members of the Board, I've provided copies of those for your reference. This is a compendium, an overview, a primer on our experience with once-through cooling in California, both through our re-licensing, the research work that we sponsored, et cetera. This was prepared in support of our Integrated Energy Policy Report for 2005, and Rick York, who is the supervising biologist for our staff, and Dr. Mark Foster, are the lead authors on that paper.

Another important document is the staff analysis. In that study we retained Dr. Foster to review the studies, the data, and the assessments for each of the 316(b) permits of the 21 facilities in California. The question that he

posed was is there sufficient information within the studies and the reports to determine significant adverse effect. We weren't trying to answer the question is it significant, we were just trying to understand is there sufficient data available. For two-third of those plants, in his professional view, he determined that no, there is not sufficient information just to understand the severity of the impact.

Another technical document that we have in the works is a draft protocol for entrainment impact analyses, and this is being authored by (inaudible) Raimundi, et al. And again, that is in preparation. We've looked at this and other reports. Our PIER program, or our Public Interest Energy Research program, has sponsored a couple of major reports on alternatives to once-through cooling, and last year they made a $1.5 million grant to the Moss Landing Marine Labs for continuing work on this.

And just a few weeks ago, our Commission -- excuse me, Commissioners released our draft, their draft policy statement to the Governor and the legislature as part of the Integrated Energy Policy Report. I'll talk about that in one or two slides.

To summarize, this is the slide summarizing the staff view of the issue. Once-through cooling is a major ongoing environmental issue in California's power plants.

In my professional view as project manager for our environmental assessments of all power generation in California, this is the single greatest and unaddressed environmental issue associated with power plant operation in the state. I think the science is pretty clear that it's a contributing factor to degrading marine and estuarian eco-systems, and we're especially concerned about cumulative effects, again both in these bays and estuaries where there are a concentration of power plants. There's really very little work that's been done on that thus far.

Impact assessment, reduction and mitigation. These are all the buzz words for how you do things properly from a (inaudible) approach, and there's a lot of work to be done in that area.

Due to circumstance, we work on a (inaudible) on this. Again, that (inaudible) energy de-regulation (inaudible), and we had to look at part of these units in a difficult set of circumstances. We don't think that many more of the 16 remaining units will come before us jurisdictionally, and that's for two main reasons. One, applicants will try to structure their applications so they avoid our jurisdiction, so for re-powers it has to be a net 15 megawatt increase over exisiting capacity. So we expect to see applications coming to other agencies below that threshold.

And then secondly, the capital market for financing new facilities is quite weak right now. Contrary to popular belief, we have an abundance of baseload energy in the state right now. It's just peaking resources that are (inaudible) parts of the state.

On a going forward basis, staff from our agency seek to work collaboratively with staff from your agency, the Coastal Commission, and the other state and federal agencies that are going to have a key role in doing this. Again, a few key areas that we see are the cumulative effects analyses, the sensitive estuaries, and the standards themselves for the 316(b) permitting rules.

This summarizes what our Commissioners have put forth in draft form to the Governor and the legislature. The first one is a finding that once-through cooling can contribute to declining fisheries and the degradation of estuaries, bay and coastal waters. Secondly, they direct us at the staff level to work collaboratively with agencies on once-through cooling through the work at the Ocean Protection Council. Third, that PIER should continue its research on impact assessment protocols, impact reduction and alternatives to once-through cooling. Fourth, that Commission staff update its MOA with the State Water Board, the regional boards and the Coastal Commission to develop consistent regulatory approaches, including investigating

retrofit technology -- say that again -- retrofit control technologies. And lastly, we've been directed to update our data adequacy regulations for license coming before our agency.

Now I'll let Mr. O'Hagen take it from here.

MR. O'HAGEN: Thank you, Jim.

Good morning, Board Members. My name is Joe O'Hagen, I'm with the Public Interest Energy Research program. The PIER program is a little over $60 million research program funded by the ratepayers to conduct public interest research. It was enacted by the legislature when the electricity market was deregulated. And my colleague, Melinda Dorin, handed a hand-out which provides a little more information on it.

But basically, the PIER program is funding research for developing new and innovative electricity generating technology, particularly renewable technology, addressing energy efficiency issues, including cross-cutting issue such as integration of distributed generation with transmission lines and things like that. And there's also an environmental research program that addresses the environmental impacts of electricity generation and transmission (inaudible). And certainly we're talking today about an issue regarding generation.

The environmental program deals with everything,

with global climate change, air quality, land use, terrestrial habitat, effects such as the transmission line (inaudible), as well as what we call aquatic resources. We have a program that's been addressing the effects from (inaudible) at hydropower facilities. Jim Kennedy, of the state board, has been real instrumental in that program, and I think it's been quite successful.

In that vein, we wanted to start a new program, research program, that addresses the effects of once-through cooling technology, based on the model of the hydropower research program. In that (inaudible) created a research agreement, which was just approved late last year, with Moss Landing Marine Laboratory under the leadership of Dr. Laura Ferry Graham, a post, post-doctor at Moss Landing, to conduct research that addresses the issues regarding once-through cooling. In other words, to understand, improve our understanding of what's going on there and improve our ability to address any adverse effects that we're seeing.

And once again, this is public interest research which, I guess the short, short way to define that is this would be research that would not be normally done through a regulatory market. In other words, if we had a power plant project, the regional board might require AES or, or Duke to do a study. We certainly could not fund that, but our interest is to inform the regulatory process. So we

certainly could fund research that would amplify and augment that, and improve our understanding of exactly what's going on.

The research agreement with Moss Landing is for a million and a half dollars. We had a workshop in May, and we invited a broad spectrum of people, and we had about, I believe, 50 or 60 attendees, including Regional Water Quality Control Board staff, staff from USEPA, a lot of representatives from the generating sector, as well as environmental groups and other state and federal agencies. The thrust of the workshop was to develop research priorities to address once-through cooling. In other words, guide what research we would fund to address these issues.

Since that time, these research priorities have been refined somewhat. We have sent it out for evaluation by a number of people, and that'll be distributed to a wide number of people shortly. And we urge the regional boards and state board staff to take a look at these. We're, we're, really view the state board and the regional boards, as well as the generators and other stakeholders as our audience for this research, and we really look forward to getting your input. I think that's the thrust of this whole program is to do research that would help this regulatory process of addressing 316(b) impacts.

So as the last bullet up there says, we certainly

invite staff, board members and everybody in the audience to give us their comments on what they think is important research. And the thrust is, is that we will be sending out our request for proposals shortly. We have about a million dollars available for research. As you know, these 316(b) studies are expensive, but we hope we can find enough research to help us with that, and that hopefully, in subsequent years we can get additional funding for this.

This is the research priorities that so far we have developed. And as you can see, that really covers the gamut from looking at developing new or, or enhancing existing tools for sampling; developing protocols for analyzing impacts from entrainment; determining when monitoring should be done if it's needed; what type of monitoring is most appropriate. Developing criteria for indicator species. A certain number of species are sampled when we do an entrainment study. Perhaps we could identify in some areas, at least, species that would be a very good indicator for the overall ecological health of the, the local eco-system, or at least, you know, a good indicator of what's going on due to entrainment impacts. We'll also address impingement effects, as well as thermal. But we see the entrainment issue as the one needing the most research here in California.

And then also we address technology to mitigate

impacts, as well as potentially research to address onsite mitigation such as habitat enhancement, marine preserves, redevelopment, and that sort of thing. In that light, we've, the PIER program has already funded one study. This is a list of CEC reports that have been done both by the PIER program and by the siting division. And I would just point that the, the fourth bullet there, research on the estimated environmental benefits, is a study that's on the web, as all of these reports are, that takes a look at estimating how much habitat enhancement and restoration would be required to offset entrainment impacts. It discusses the habitat, production for (inaudible) that Dr. Foster mentioned, and also the EPA's favorite approach is to have (inaudible) restoration factor.

So we've also had an extensive program, as Jim McKinney mentioned earlier, on looking at alternative cooling. This includes dry cooling, hybrid systems. We have several reports, one of them is mentioned there on the, the page, several reports that are on the web addressing these issues, and we have several more that should be posted shortly. In June 1st and 2nd we had a workshop in Sacramento, and we had a number of presentations and papers presented on the research on these topics, and that also should be posted shortly, as well.

So I thank you for this opportunity to make this

presentation, and I think that was the last slide. One more? Okay. Here's the contact information. Rick York is the biology unit supervisor in the siting division, in terms of siting cases for the Commission (inaudible). Jim McKinney's (inaudible) environmental performance report project manager. That's his contact information. My contact information is, is there, in terms of the research program. And also, in the hand-out that my colleague distributed, there is the contact information for Dr. Jerry Graham at Moss Landing, who is running the research program.

Well, once again, thank you very much.

SPEAKER: Thank you. Any questions from -- just a comment. We had a, three or four years ago we had a joint state board, State Water Board and Energy Commission meeting on permitting issues. As we move forward on this, if we decide to get some kind of Water Board guidance, we might think about a joint meeting again. Especially if we want to update our MOA, those kind of things. So, keep that in mind.

SPEAKER: Okay.

SPEAKER: We would love to have, down the road here. It's important.

SPEAKER: Thank you.

SPEAKER: Appreciate it.

Before -- I'm sorry. Go ahead.

SPEAKER: I'm sorry. I just wanted to make one last announcement for the audience. I do have black and white copies of the presentation, and I think the list of references might be of, of interest to people here, so I'll put that up on the front desk.

SPEAKER: Thank you. I appreciate it.

We'll have public comment again, but I want to have Nancy Yoshikawa, (inaudible) from EPA -- wanted to comment a little bit about the project.

MS. YOSHIKAWA: Yeah, thanks. Well, first I'd just like to say that we do support the State Board's efforts to consider, you know, developing some consistency (inaudible). Definitely, the state has the authority to apply its own policies in terms of how they implement the federal rules. And then going beyond kind of the minimum set of rules (inaudible). And, for example, the cumulative effects. You may want to look at developing policy to address that, because the 316(b) rules, as it is, do not address the cumulative impacts that some of the folks have been talking about today.

We're available to provide some technical assistance, of course with the caveat that, you know, we all have a ton of things to do, like everybody else here. Marina Ray is in the audience, and she's interested in perhaps providing more of a California specific assistance

on the policy issues.

We have some (inaudible) experts who have been on the rules, helping people (inaudible). We're also interested in working with you as part of the regional federal/state partnership on key ocean issues. We're scoping issues for this partnership now, and we'll be meeting with your staff in the future, and I think Maria's going to be involved in this, as well.

And then I would just like to expand on a few things that Tim Havey talked about today. Just for your information, on the Phase 3 rule, which is kind of -- which is not complete yet, Tim Havey mentioned that there's Phase 1 and Phase 2. Phase 3 is coming up. I just wanted to let you know that the consideration right now is to not look at power plants in that rule. It's just going to be existing manufacturing facilities above 50 MGD. So the MGD, the way they've been looking at it so far is that it's going to be, it's still going to regulate things above 50 MGD, but it's going to be manufacturing facilities. So some of you may be interested in smaller power plants, and that, that's what EPA is considering at this point.

The, another issue that I wanted to address that Tim brought up was what happens when you submit your PIC. I think the rule states that the director will provide, you know, have the option or strongly suggested that the

director provide comments on the PIC. We don't approve the PICs. EPA approval process is, is a kind of, the terminology kind of means a different thing which involves (inaudible) consultation and things like that. We don't go through that with the PICs. It's just you've received comments from your permitting authority.

And then the other issue I wanted to mention was the issue of restoration. When EPA wrote the Phase 2 rule, they recognized that the Phase 1 restoration was thrown out by the courts in the Phase 1 rule, and the Phase 2 rule has a different legal basis for restoration. So, you know, whereas we don't really know, you can never know what's going to happen in the courts, we're pretty confident and, and we're suggesting to go ahead and implement restoration. We think it's a good thing. We think it's important, and we, we're hoping that, you know, this is not going to get thrown out of the courts.

So that's all I have for today. Thank you.

SPEAKER: Okay. Thank you.

Tom Luster, with the Coastal Commission.

MR. LUSTER: Thank you. Mr. Silva, Members of the Board, I'm Tom Luster, staff of the California Coastal Commission. Thanks for having the opportunity to speak here today.

I have a few prepared comments for your

consideration, relating both to once-through cooling systems and the proposed use of those systems for desalination. I also have a couple of recommendations for you, and request that this workshop be part of a continued coordination between other agencies and stakeholders to resolve some of the issues we're here about today.

You've heard today that once-through cooling is an outdated technology that causes significant environmental impacts. Once-through cooling systems on California coast are generally several decades old and were sited before we knew about their many significant adverse impacts on marine biology.

To provide a sense of scale to the numbers you've heard today, the 16 million gallons a day is about 50,000 acre/feet, which is about 80 square miles of coastal marine and estuarian waters that go through the power plants every day. That's 80 square miles of lost habitat, lost fish production, lost environmental and economic benefits to the state. If you take it another step, that's about 30,000 square miles per year.

Importantly, there are feasible and less environmentally damaging alternatives to once-through cooling. The issue is not about whether California will have the electricity it needs; it's about whether we can have that necessary electricity without suffering huge

losses to the state's resources. We can readily provide for our electrical needs with less harmful alternatives to once-through cooling, using recycled or reclaimed water, dry cooling, hydro-cooling, various alternatives like that, any of which would reduce or entirely eliminate the adverse effects on marine organisms and would overall have fewer adverse environmental impacts.

Further, these other cooling methods are available, feasible, and economically viable. They're the ones used by power stations in non-coastal settings, and most of them can be used in coastal locations. Once-through cooling can be considered efficient or less costly only if you ignore its cost and impacts on the marine environment.

We recognize that for a few of the state's coastal power plants, once-through cooling may be the only feasible alternative, due primarily to the space constraints or lack of any nearby alternative water -- water sources. In those cases, we recognize that the best (inaudible) is to develop effective mitigation to reduce the adverse impacts, pending, of course, the decision by the (inaudible).

We also know, we have heard about a number of the desalination facilities being proposed (inaudible) power plants not using once-through cooling systems. These proposed facilities (inaudible) very similar issues and concerns about their effects on coastal resources. I was

pleased to serve, along with Mr. Silva, a couple of years ago as one of the co-chairs of the state's de-sal task force. As part of our work, the task force developed several dozen findings and recommendations to help the state's development of economically and environmentally acceptable desalination (inaudible) water source.

Among those findings and recommendations were several identifying concerns about once-through cooling systems. They included making sure the review of proposed facilities was based on up to date entrainment studies, designing facilities to avoid or minimize impacts to marine resources by using B-12s or sub-surface intakes; evaluating the effects of proposed (inaudible) located in de-sal facilities separate from those of the power plant, and providing funding for projects meant to reduce entrainment and impingement.

With regards to that last recommendation, we note that the Department of Water Resources has provided funding through its Proposition 50 grant program of several sub-surface research projects. Earlier this morning I visited a site of one of those proposed projects just down the road at Dana Point. There's another being proposed at the City of Long Beach, currently undergoing environmental review.

It's likely that the growth of de-sal in the state will not be dependent on once-through cooling systems.

Moving away from those systems may affect the largest and costliest and least efficient de-sal proposals, but it should not affect those proposals that are economically and environmentally acceptable.

Finally, a few acclamations. Review and permitting for continued once-through cooling operation will require up to date and site specific entrainment studies to determine how significant the cooling system's adverse effects are, what the available alternatives are, and which mitigation measures are best suited to address those impacts. We recommend that you build on the work already completed by some of your regional boards and the Energy Commission and the Coastal Commission on (inaudible) projects you heard about earlier today. The studies recently completed by those various agencies are considered state of the art right now. The recent changes to the Clean Water Act and 316(b) requirements include allowances for using something less than this approach, and in most cases, these allowances would not be adequate to determine impacts under other reviews done in California for conformity to the CEQA Warren-Alquist Act and the Coastal Act.

For example, when the Coastal Commission reviews proposed desalination facilities, it would probably (inaudible) they would use an open water intake. We'll need to -- excuse me. We'll need updated results from studies

like these done recently. Some of the analysis in 316(b) won't be adequate for our purposes. And therefore, a single facility may be subject to different studies unless we can reach an agreement on, on coordinating the requirements so that one coordinated approach works for each of the involved agencies.

We also recommend that you update and revise the policy 7558 of 1975, related to the priority of different sources for cooling (inaudible). It lists ocean water as the second of five sources in that priority list. That's based in part on the belief at the time that ocean waters were more forgiving than (inaudible) waters of this type of use. We recommend that the policy be updated to better address feasible alternatives other than those dependent on fresh water or ocean water, and that the priorities be established to recognize the substantial effects once-through cooling is having on California's marine environment. These changes may be along the lines of what's being considered by the Energy Commission as part of its policy development.

This coordinated approach would have a -- likely have a number of benefits, would provide more certainty for dischargers and project applicants. It would be a, an efficient use of state resources. It would reduce environmental impacts and would likely result in a better

way for California to get the water and electricity it needs, a way that doesn't involve killing every organism in the 80 square miles of seawater every day.

The increased efficiency and reduced environmental impacts would also align with the interest of the state's Ocean Protection Council, which this last week, on Friday, voted to investigate the issues related to once-through cooling.

In closing, I think most of us recognize that it's just a matter of time before most once-through cooling systems are replaced with less damaging methods of providing electricity. Your support for helping this change will be most appreciated. I'm probably getting too far out in front of the issue, but your support would be more akin to helping accelerate the inevitable. That is, it would help move California from its misplaced dependence on antiquated and harmful technology to a sensible, available, and affordable method of providing electricity with benefits that would extend along much of the California coast.

With that, thank you again, and I'd be happy to answer any questions you have.

SPEAKER: (Inaudible) is that, is that the Commission's statement, or staff?

MR. LUSTER: That is staff. The Commission was involved in the power plant repowering projects (inaudible)

and on those decisions the Commission made they were largely in support of alternatives other than once-through cooling (inaudible).

SPEAKER: And (inaudible) could you tell me again what the Ocean Protection Council decided on Friday? I was not able to go to that meeting.

MR. LUSTER: All I've heard is that they asked their staff to look into the once-through cooling issue and report back to them. So they are taking that on to --

SPEAKER: Yeah, that's what I heard (inaudible). Just, I want to make some comments. The Energy Commission, I know, you know, we had this committee meeting between us, the State Board and the Coastal Commission, we picked two people. And Jerry and I right now are doing the ocean issues. And it might be good if both staff, our staff and your staff to get together and set something up. We've got the desalination, we've got this, we've got ASDS (inaudible) talked about. I was at that, that was a very productive meeting we had last time, so I would encourage our staffs to get together and set something up. The sooner the better, probably.

SPEAKER: Yes. I think even (inaudible).

SPEAKER: Yeah. I know one time we met in Sacramento and then we met in San Francisco, and so, you know, we can do it either way. I think it's important,

we've got a lot of things on the table. And we'll (inaudible).

SPEAKER: Great. Thanks.

SPEAKER: Okay. Mr. Paznokas, with Fish and Game.

(End Tape 1, Side A. Start Side B.)

MR. PAZNOKAS: Board Members, Members of the State Board staff, Regional Board staff, and ladies and gentlemen. My name is Bill Paznokas. I'm the staff Environmental Scientist for the Marine Region of the California Department of Fish and Game, and I just wanted to make a few brief comments regarding this workshop and, and the issue of 316(b).

The department has been participating for a number of years on the various studies that you've heard talked about already that have been either ongoing or completed, and that will be coming up, issues from the South Bay Power Plant in San Diego, Huntington Beach, all the way up to Diablo Canyon and Morro Bay, and so forth. So we have been participating on these various technical work groups or technical advisory committees. And I would like to echo the, the sentiments from Mr. Luster, that you, if you are going to continue on this, this road for guidance, that you, you build on those, those efforts. And they have been very productive so far.

Obviously, we are the trustee agency for the, the

fish and wildlife resources of the state, so we are directly involved with all the, the issues that are at hand. And you, you've heard all of the different things in terms of impingement and entrainment, so I won't go back through that.

The department is very interested in working with the state boards, the regional boards, the other state and federal agencies as well as the stakeholders to make sure that -- and you've heard about these baseline studies. That's going to be key in determining those impacts and what reductions are going to have to occur because of those impacts. And so we are, we are going to continue that (inaudible), as our resources permit, staffing-wise, and that we, we want to make sure that those characterization studies are done in, in an appropriate way. And you've heard some of the methodologies, the new methodologies that have been done so far, and, and those are the best we have right now.

We also want to make sure, though, that those studies are done in a timely manner so that, that we get the, the kind of information that we need to make the kind of the, the decisions and determinations that need to be made down the road.

We've heard about restoration. Obviously, if restoration is a chosen compliance alternative, then the

department will have, will need to have significant participation in the, in the development and the extent and the appropriateness of those restoration measures. And finally, we are, the department will continue to participate in these efforts, again, as staffing permits.

And with that, if you have any, any questions, I'd be happy to answer them.

SPEAKER: Questions? Thank you, Bill.

MR. PAZNOKAS: Thank you.

SPEAKER: Appreciate it.

Just a comment. We, we want to get out of here around noontime, I think. We've got about 14 cards, so it works about five minutes per person. If you can keep your comments to a maximum of five, it would be appreciated.

First, David Kay.

MR. KAY: Good morning, Board Members and staff. My name is David Kay. I'm manager of environmental projects at Southern California Edison Company.

Edison provides electric service to over 12 million people throughout a 50,000 square mile service territory in central and southern California. We're also a majority owner and operator of San Onofre Nuclear Generating Station just down the coast from here. San Onofre is subject to the regulations that are the focus of today's workshop. My comments will be limited to summarizing our

over-arching concerns. I understand my colleague in L.A. Water and Power, Susan Damron, will address specifics. Susan and I have collaborated on 316(b) issues for two decades for our respective organizations.

In the public notice, the board wrote that the purpose of today's workshop is to receive comments on whether the state board should develop a statewide policy to implement the Federal Clean Water Act 316(b) regulations. We believe the answer is yes, and that policy should be simply stated and follow the federal rule. The USEPA regulations implementing 316(b) for existing facilities that we have heard are so extraordinarily prescriptive and supported by such thorough and exhaustive technical appendices, we believe the state could not possibly add significant value to the rule in a timely manner.

Furthermore, the federal rule imposes clear compliance deadlines which the state has no authority to expand. Affected dischargers must comply by completing prescribed tasks by dates certain or risk enforcement or citizen litigation under the act. We believe if the state were to move forward today to adopt policies, guidelines or regulations consistent with CEQA and other due process requirements of state law, we believe affected dischargers would have long since implemented the federal requirements before any final state directive were even published.

If California were truly interested in adding a signature to 316(b) implementation, today's workshop should have been convened eight years ago, when EPA announced its proposed rulemaking. In fact, California could've adopted policies in the 1970s, when 316(b) was enacted.

With all due respect, the cow's not just not out of the barn on this issue. The cow's been grazing in the pasture for a decade. It's been butchered, it's been cut into steaks, and the steaks have been barbecued. We're all ready to sit down and eat now. It's a little late to weigh in on how to raise the calf.

As you have heard, the federal rule specifies exactly how each affected facility shall propose, finalize, and undertake a comprehensive entrainment and impingement demonstration study, including involving interested resource agencies such as Fish and Game, (inaudible) fisheries, Coastal Commission and others, in the crafting of the study design. Regional board staff need only ensure that we follow those directives. As they have done for NPDES permit renewals, regional board staff may employ contractors to assist with required reviews, if needed. The state board may wish to guide the regions on following the federal rule, but the rule itself needs no help.

For San Onofre, particularly, the rule mandates that Edison complete its studies in 2008, in time for

application for our NPDES permit renewal in 2010. We must and will meet these deadlines. Failure to do so would expose our ratepayers to citizen litigation under Section 1365 of the Clean Water Act. State implementation policies for 316(b) could be adopted in time for new or repowered or not yet built facilities to comply with, but existing facilities will already have completed the process.

And because the process will cause expenditure of millions of dollars for prescribed studies, and perhaps much more for plant modifications or other compliance efforts, after the fact policy should clearly exclude existing facilities, as does the California Thermal Plan. Otherwise, the state could cause the waste of millions of electric customer dollars.

Some have suggested that the Energy Commission should administer implementation of 316(b) in California. We believe this would be inappropriate. While we acknowledge the CEC has acquired good expertise in this area, either agency will depend on expert consultants to formulate proposed policy, just as we are depending on them to pursue compliance. 316(b) was implemented under NPDES permit regulations. The NPDES program has been the responsibility of the state and regional boards since Porter (inaudible) was enacted, and they've served us well. There's nothing broken in our administrative structure that

requires fixing just for 316(b).

To sum it up, the federal, federal 316(b) rule for existing facilities is an excellent vehicle for administering an exceedingly complex and site specific compliance program. Direct your regional boards to administer the rule as written, no more, no less. Give them the resources they need to perform their work in a timely manner. Exclude existing facilities from any future statewide policies or regulations that would force the repeat of demonstration studies. And most importantly, ensure that any policies or guidelines are scientifically defensible and add significant value to the existing framework.

Thanks for the opportunity to comment.

SPEAKER: Thank you. Susan Dawson.

MS. DAMRON: Good morning, board members and staff. My name is Susan Damron --

SPEAKER: Oh, I'm sorry.

MS. DAMRON: -- and I am, I'm with the, I'm the manager of the Wastewater Quality Compliance group at the Los Angeles Department of Water and Power. LADWP provides electric services to approximately four million people within the city of Los Angeles and is the largest municipally owned power utility in the nation.

I'm here today representing a number of

(inaudible). These once-through cooled power plants represent, as you've heard today, approximately 24,000 megawatts of California's generated resources, equalling over one-third of California's total generating capacity.

The state board's public notice sought input on the manner in which the state should implement the federal 316(b) regulations, and all the issues that should be addressed. The electric utilities seek statewide consistency in implementing the federal rule through the issuance of state guidelines for use by the various regional boards.

For critical timing reasons, the California utilities advocate implementing the federal rule which was first signed by EPA in February of 2004 and ultimately published in the Federal Register in July of 2004, in the more expeditious use of guidelines. Since the rule hit the street, the utilities have been moving forward towards achieving compliance with the rule. Requests for proposals have been circulating, consultants have been hired. The rule requires proposals for information correction, which you've heard described to you today, and these have been submitted to the regional boards, or very soon will be submitted, and the year-long impingement mortality and entrainment characterization studies have either been completed or are set to commence January of 2005. Excuse

me, 2006.

The compliance gears are already well in motion to gather the necessary information to comply with the conditions of the federal rule and to submit the comprehensive demonstration study by January of 2008. Utilities must adhere to the January 2008 deadline in order to not be found in non-compliance with federal law. At this late date, it is highly unlikely that efforts to develop state law approved by the Office of Administrative Law will be available prior to the January 2008 deadline.

In addition to timing reasons, the utilities advocate consistency with the federal rule because its structure purposely allows compliance flexibility. USEPA recognized the need to account for plant specific, site specific, water body specific differences across the United States and within states. A one size fits all rule was clearly not workable. USEPA spent many years developing the Phase 2 316(b) rule, listening to stakeholders, scientists and other knowledgeable experts, gathering data and responding to comments. As such, the federal rule represents the best approach to minimizing impacts from once-through cooling systems. California's implementation of the federal rule allows for application of this best approach, and for achieving consistency between the regions while providing the necessary flexibility.

USEPA also seriously considered the nature and scope of the Phase 2 rule. In this rule, EPA specifically and intentionally avoided defining adverse environmental impacts, while at the same time constructing a rule to address adverse impacts. The scope of this federal rule is in contrast to EPA's previous requirements under their 1976 development document, which someone spoke about today. That document addressed what the best technology available for cooling water intake structures ought to be. It required that adverse impacts be assessed and based on the existence and/or nature of these adverse impacts the technologies be assessed.

This time, however, EPA developed a rule that is expressly based on meeting a level of protection performance with the establishment of performance standards. In fact, during rule development, EPA considered and rejected explicit limitations based on adverse environmental impact and cumulative impact, and chose instead to focus on performance standards.

As previously noted, EPA recognized that addressing 316(b) issues on a national basis would require some flexibility in the rule in order to address some of the specificities that I've already mentioned. An example of where EPA provided some clear definitions and yet has also built in some flexibility is the definition of calculation

baseline. Because of this flexibility, many have commented that the EPA definition is unclear or vague. However, the definition is very straightforward. And since we had a discussion of the definition earlier I'm going to skip over that.

Where other impingement and entrainment controls are in place, for example, velocity caps, and many (inaudible) do have velocity caps, submerged discharges, fish divergence systems, fish return systems, these controls would constitute credits against that baseline. The perceived vagueness or lack of clarity arises because for most utilities, the calculation baseline won't be known until the impingement and characterization studies that are due to start next year are completed, at which time the calculation baseline will be, will be the measured values minus any of these existing credits.

There have also been comments by some interested stakeholders that the calculation baseline should be a point in the historic past. That, the point that must be made here is that if the state chooses to deviate from the federal rule definition, namely, the calculation baseline that is --

SPEAKER: Ms. Damron, are you reading, could you just give us that information (inaudible). You're almost ten minutes now. Could you wrap up, or -- it seems like

you've got a long way to go there.

MS. DAMRON: I do.

SPEAKER: Could you give us a written comment?

MS. DAMRON: I am representing all of the utilities, not just --

SPEAKER: I know, but we're going to be here all day, and a lot of people will go home. I've given you more than, almost ten minutes now, so I'll give you time to wrap up, two more minutes.

MS. DAMRON: It is recognized that the state of California may wish to establish its own rule, and that the state can be more stringent than the federal law. However, the utilities offer these reflections. Section 12590 of the federal rule states that nothing in (inaudible) can preclude a state from adopting and enforcing a requirement with respect to control pollution. This law is, is not less stringent than the federal law. It is important to note that this applies to control or abatement of pollution, not impacts.

The point, to summarize that, is the rule says that you need to address the control technology, or the controls. It was not designed to address impacts. So if the state wants to come up with a law, it must decide that EPA's performance standards were insufficient to minimize adverse impacts, and that EPA's performance standards of 80

to 95 percent or 60 to 90 percent are insufficient for purposes of state law.

We are advocating that the, that there be a transparent process for the development of state guidance to implement the federal rule. Guidance that can be, can also be as flexible as the utilities and the state work through the compliance steps, and can better respond to the areas which are still in a state of flux, like the (inaudible) of restoration. Basically, guidance will give you more flexibility to go through the process of implementing the federal rule.

We advocate the use of restoration. We feel that it will be a very viable compliance tool. Just as a point of mentioning, LADWP has looked at a number of different technologies, and one of them we're (inaudible) is returning those fish if we have a fish return system. Two of our power plants have over a mile and a half to get them back to the source water body. If we can't get them back safely, that technology, even though it's there, will all be very productive, and therefore restoration becomes a valuable thing to look at.

Lastly, we advocate the use of the funding that's available, perhaps through the California Energy Commission's PIER group, as you've heard today, to deal with some of the other stressors that are on the fishery

population. Yes, power plants are a, a factor to be considered, but there are other stressors that we don't know what their impact is on the fisheries, and we think that that money would also be very helpful to look at the overall use for identifying fisheries.

And lastly --

SPEAKER: You said lastly last time.

(Laughter.)

MS. DAMRON: We would encourage the expeditious efforts on the part of the state to seek federal funding so that you, that the, the state and the various regional boards will have the technical experts that they need to help implement the rule. Thank you.

SPEAKER: Thank you.

Bob Lucas.

MR. HEMIG: Well, I think most people here know I'm not Bob Lucas.

SPEAKER: I was just going to say, Bob, you've had a transformation. You're a lot younger.

MR. HEMIG: And my name is Tim Hemig, actually, and I'm with West Coast Power. Bob had trouble getting out of Sacramento this morning and could not make it, and so that he's not coming in until later. So what I'd like to do is, is quickly address his comments that he was prepared to give On behalf of the California Council for Environmental

and Economic Balance.

I'm a board member of, of CCEED, and I'm speaking on behalf of the CCEED members. In fact, 75 percent of the owners of once-through cooling system and power plants utilizing that system are CCEED members, and so this set of comments represent their, their viewpoint. And I'm going to just kind of summarize down just to the main points so that we can move on to another comment.

Anyway, CCEED understands that the state board is looking for, you know, comments on whether or not a state policy needs to be developed with regard to these once-through cooling systems, and CCEED believes that the answer to that question is no. (Inaudible) that the State Water Board should not have to provide valuable oversight and consistency regarding the 316(b) implementation at the regional boards. In fact, CCEED strongly supports such guidance.

The, the, basically the two main reasons for not supporting a formal policy or regulatory process, I think you've heard those numerous times today, is the timing aspect of that. USEPA spent nearly a decade developing these regulations. The rule does include very aggressive reductions in impingement and entrainment levels at these power plants, but it also retains the needed flexibility to meet the reductions in a feasible and cost effective manner.

We believe that it's premature to decide on the regulation without the right balance of environmental protection and how it's affected power generation at these 21 facilities in the state of California. The implementation of the regulation is not yet realized.

Second, the compliance with the federal regulation is in full swing, and many of the mandatory steps already being completed by the regulated facilities are well underway. In fact, my, my company, West Coast Power, that I'm also representing today, has just completed one study at one of its coastal power plants and is on the verge of beginning a second study. A state policy at this stage will only serve to provide uncertainty and delay implementation for the federal regulation, and most likely will delay the desired end result, which is to reduce impingement and entrainment at these, at these power plants.

My suggestion is that CCEED believed that the state water board can and should provide this valuable oversight and authority that I mentioned earlier, and how the regional boards implement this regulation. The most appropriate way to do that is through some specific guidance on the provisions of, of the regulation. And that way the state water board can assure implementation of the regulation if carried out in a consistent manner and an efficient manner throughout the state. However, such

guidance should be developed to stay within the bounds of the federal regulation and to not limit compliance flexibilities for these facilities.

This statement represents the viewpoint of both my company and CCEED members that utilize once-through cooling systems at their power plants, and I thank you for the time to voice our, our viewpoint.

SPEAKER: Thank you very much.

David Nelson.

MR. NELSON: Good morning. Thank you for the opportunity to speak here. My name is David Nelson, and I live in Morro Bay and I've been, I'm co-president of the Coastal Alliance on Plant Expansion. We've been an intervenor in the Morro Bay Power Plant expansion since 1999, and Dr. Foster's provided much of the stuff, and he's right on, on a lot of things.

My comments today have to do with two things. Historic studies are one thing. We need, the board needs to look back at the historic studies and where these historic studies have failed the citizenry of California, and we need to be more stringent. In my work at Morro Bay I've been involved in the Diablo (inaudible), and years ago they were hit with a cease and desist order because their general plan was so far off that it just couldn't be justified. This is just a huge risk for our regional board to deal with. And

this comes from bad studies, and in power plants that we can show have bad studies, they need to be treated differently.

Restoration. Restoration is important for a reason. The reason is that we can't determine what the cumulative effect is. We can hardly determine what the effect of once-through cooling is because it's so gigantic. We were counting 12 or 13 species among hundreds of species, and we have no idea what their part in our eco-system is. All we know is that in my estuary in Morro Bay, it's an impaired water body to begin with, that we have this massive power plant sucking from one of the narrowest channels going out of our estuary, sucking in 16 to 32 percent of our stuff and killing it, and we have no idea where it's going or what it's doing.

The other thing is we heard our friends from Southern Edison say how easy and how uncomplicated these 316 rules are. Well, they're not. I mean, I, I read these differently. I see in here that EPA is worried about the cumulative effect. Again, Morro Bay, I, I know that Diablo is sucking almost two million gallons when we add Morro Bay into it. It's all the same water stream. It's not the ocean, it's a river. It's just like a river. It's a tidal current that we've got working in and out of this estuary. Diablo's killing, Morro Bay's killing, and it has an effect overall. We can't determine the effect because it's too

large. It's just too huge.

I would also agree with the power companies that the regional board needs to be funded in a way that Dr. Foster and his colleagues can actually chase these reports to understand the effects. And the only way to do that is to look at the benefit. The benefit of this, as we heard again, was the huge efficiency of these once-through cooling systems. They are efficient. They do cool. But what is the percentage of benefit to the power company. When you have a coastal power plant taking water and gaining a six percent -- I'm using this number because Mark Sidal (ph.), the vice-president of Duke, came to the city council and was asked how much percentage increase they get with cold water, he used a number of 30 percent, which I ran by somebody in waterkeepers on the east coast, and he said no, that's why off. It's probably more like six percent.

Now, if you're talking six percent boost in energy efficiency, that doesn't come back to the people of California. That goes to the bottom line profit of the corporations. That's where we get our funding for Dr. Foster and these independent scientists. We figure out how much that 18 billion gallons a day is worth in energy production, because that's, that's an artificial subsidy for coastal power plants. And we need to know how much that is. Nobody's addressed it. I've asked many times over the

years.

I ask this board again. Find out what that is. How much is it, and why shouldn't that money be going for scientific research. It's as simple as that. This is an antiquated system. As was suggested earlier, this, this committee has the opportunity to push forward energy production in California. The governor has a one and a half million dollar solar program that they want to institute, 3,000 megawatts, 3,000 megawatts of non-polluting energy comes to a million and a half dollars. Morro Bay, they're telling us is going to cost $880 million to create a 1200 megawatts of energy. Come on, let's do the math. It doesn't take much to understand that when you add in the destruction of marine estuary, you add in the fossil fuel that's going into the atmosphere, we don't need to encourage this kind of abuse. And that's what you're doing when you're allowing this once-through cooling.

Thank you.

SPEAKER: Thank you.

I have two gentlemen from Surfrider, Rick Wilson and Joe Geever. Do you have any particular order?

MR. WILSON: I'm Rick Wilson. I'm the chairman of the Laguna Beach chapter of Surfrider Foundation and also a member of the environmental staff at our headquarters in San Clemente.

I'd like to urge the, the state board and the regional board to do everything you can to implement the 316(b) regulations as soon as possible, in particular, and also to encourage the implementation or selection of the first alternative with cool-through cooling technology.

You've heard several speakers talk about the millions of pounds of marine life that are killed by the 21 power plants up and down our coast, circulating 16 or 17 million gallons a day of water. You've also heard reference to the two studies, international studies the U.S. Commission on Ocean Policy and the (inaudible) oceans commission studies that indicated what a terrible shape our coastal waters are in, in part because of, of this discharge by the use of once-through cooling technology.

Although the regulations allow alternatives such as modifications to the existing once-through cooling to lessen the percentage of, of impingement and entrainment, we're very skeptical about the efficiency of those kind of modifications. Yes, there can be some reduction in impingement through modification to the velocity, intake velocity, but I'm not aware of any technology that will reduce the entrainment loss.

Another option is restoration of wetlands and estuaries. While we certainly have nothing against that kind of project, that's correcting, or trying to correct for

a damage that's already occurred. So that's, that's not our preferred alternative. And all of that is really, all these other alternatives are really unnecessary. Cold cycle, recirculating water, or air technologies have been around for decades, have been used by industry for decades. They've been used by power plants and are used by power plants, inland power plants throughout the United States.

The, the final point I wanted to make is that -- and this has been referenced by a couple of the speakers, including Tom Luster -- that, in effect, what we have here is the coastal power plants being subsidized. Their use of, of cooling water technology is being subsidized at the expense of damage to our marine resources. So that's the way we're paying for this. We're killing millions of pounds of marine resources, and we need to put a stop to that.

Thank you.

MR. GEEVER: Thanks for the opportunity today, to speak today. My name is Joe Geever, I'm the southern California regional manager for Surfrider Foundation.

Surfrider works on, is currently working on implementation of the Marine Lab Management Act and the Marine Life Protection Act. I've actually served as, on the advisory committee implementing one of the fishery management plans under the (inaudible), the near shore fishery management plans, so I'm familiar with the impact of

these facilities on the near shore fisheries.

I'm also the co-chair of an organization, a statewide organization that's looking at the implementation of de-sal facilities. And I guess, just as a disclaimer, we're a litigant on the Phase 2 litigation on the new regulations, so it won't surprise you if I tell you that I disagree with EPA's assessment that restoration measures will survive judicial scrutiny, and I think the court was fairly clear in our first, in their first ruling that that won't. But we shall see.

I wanted to just, some of my colleagues from the Baykeeper are here to keep about 316(b) directly, and so I want to endorse those comments before they get up here. But I wanted to take a minute to just talk about (inaudible) location of de-sal facilities.

As you know, there's numerous proposals to use existing cooling water intakes for source water, but there's also alternatives to using the cooling water intakes for de-sal source waters that don't rely on, don't rely on the continued destruction of marine life. We think this will be a complicated regulatory process for de-sal facilities, Beyond 316(b) problems. There is existing authority for the state water boards, Coastal Commission, the Energy Commission and Fish and Game Commission, and possibly others. We think this is a prototype issue for coordination

by the California Ocean Protection Council, guided by the policy of COPA (ph.) and other ocean resource and protection and management laws.

For your agency, I think there's three several, three relevant considerations, and likely more, about de-sal. First, there's the obvious consideration of whether the discharge from these new de-sal facilities will trigger in considerations for existing NPDES permits. For example, there's a proposal to discharge the brine from a co-located de-sal facility with cooling water at the (inaudible) plant in Carlsbad. This discharge is fairly close to shallow rocky reef, a relatively uncommon habitat in the region. Any displacement of natural marine life (inaudible) from that habitat is significant and raises a new and important consideration beyond the impacts of thermal discharges. The point is, mixing the brine (inaudible) and the cooling discharge is not always a benign issue, and deserves heightened scrutiny in your deliberations.

The next two issues are more about the implication of co-located de-sal with 316(b) regs. First, we're challenging the legitimacy of several of the (inaudible) to the 316(b) performance standards. But given that there's currently an exemption when the cost of compliance is fully disproportionate to the environmental benefits, we believe the board should make an immediate determination about co-

located de-sal facilities.

It would be contrary to sound public policy for the state to allow the construction of co-located de-sal facilities and then subsequently allow dismantling of these, of these facilities to be put on the cost side of the cost benefit scale. You should send a clear policy decision to coastal generators that the cost benefit -- cost benefit analysis will be determined by the circumstances that existed on the day the new regs were promulgated. There shouldn't be any allowance for intentionally (inaudible) cost before that permit is up for renewal.

Second, we've heard coastal generators intimating that there's not enough space available at their sites for the construction of alternative cooling technology, yet they're simultaneously leasing what limited space they have to de-sal proponents. Again, this back door effort to avoid compliance cuts against the spirit of the new 316(b) regulations. You should make it clear through the Ocean Protection Council that decision-makers at the state and local level need to consider this in their CEQA processes and their permitting processes.

We're also concerned that the energy demand for these numerous de-sal facilities will have the cumulative effect of just exacerbating the loss of marine life from cooling water intakes in real numbers, and it should be

clear policy-makers that in (inaudible) energy rebates and other subsidies for de-sal will only exacerbate current marine life mortality impacts.

Bottom line. We've been working for decades to reduce the dramatic impacts from once-through cooling on our marine eco-systems, and the de-sal industry has come to the table at the eleventh hour. We absolutely cannot go backwards on the marginal advances we've made to date when there are other alternatives available.

And I'm available to answer any questions, as well. Thank you very much.

SPEAKER: Thank you.

April Wakeman.

MS. WAKEMAN: Good morning. My name is April Wakeman, and I represented United Anglers of Southern California. United Anglers was established in 1996 as a volunteer driven non-profit organization dedicated to the enhancement of marine resources through management, conservation, and to education in order to pass this sort of fishing on to future generations. Through our affiliated clubs, United Anglers represents over 50,000 recreational anglers.

According to the 1997 Resources Agency study, ocean resources contribute more than $17,300,000,000 to the California economy and generate more than 370,000 jobs.

That number has obviously gone up. (Inaudible) natural resource, it's important not only to look at absolute dollars, but also to look at the intrinsic value of the resource. The intrinsic value, meaning the, the value to the, the soul's well-being, of looking at a sunset or hearing waves crash on the, the ocean shore. To fishermen, it means the ability to get out on the ocean. I assure you, when we go fishing, we don't always catch. It's the opportunity to get out and try to catch, to, in my case, freeze to death, usually, but it's still a soul-satisfying ability.

There's something about fishing that is particularly Americana. Think of Huck Finn and Tom Sawyer. Think of the beginning, for us older folks, of the Andy Griffith Show, Opie walking down with his fishing pole. Fishing is an American family tradition. At the current time, as Joe referred to, California is involved in a massive effort to implement the Marine Life Protection Act, which was passed in 1999 to preserve the state's marine eco-systems. Both commercial and recreational fishermen are participating in this, because their livelihoods and sport depend on good fisheries management.

Now, the California Energy Commission's January 2005 staff report has come out and found that, to quote the report, considering only recreationally fished species,

impingement amounting to eight to 30 percent, depending on the fisheries database used, are the number of fish caught in the southern California recreational fisheries.

Now let's put some of these stats together. We have a 17.3 billion dollar economic effect from fishing, and eight to 30 percent of the number of fish caught recreationally, not commercially, never have a chance to be caught. Or (inaudible) they're safe, anyway. They don't have a chance to be caught recreationally or commercially. I would say yes, there is a cost to once-through cooling, and the power plant operators aren't the ones that are paying. The loss is not merely economic. The marine environment, as we all know, if a finely-tuned eco-system with each species dependent on both the habitat and other species. Although man is the ultimate predator, he usually focuses on the higher and, and larger species in the food chain. The equation of the species lower in the food chain quickly affects these larger species. Impingement and entrainment of larvae and small fish have effects not only on the species impinged and entrained, but on the entire eco-system.

We in southern California are lucky in that we have the premier shark nursery in the Pacific Ocean right here on Harbor Shores. Species that use this area include both thresher and maco sharks, which are both important

commercially as bio-seafood and also as excellent sport fishing fish. The big white shark of "Jaws" movie fame also, which is considered a threatened species here in California, also uses the water of the nurseries. The loss of these organisms or the loss of organisms lower on the food chain affect these wonderful, wonderful beasts.

United Anglers therefore requests that the State Water Resources Control Board consider the economic effect of once-through cooling on fishing when developing a Section 316(b) policy, which should be consistent within the state. We do support a statewide guidance, and consider this when considering any licensing issues.

Thank you.

SPEAKER: Thank you.

We have a couple of gentlemen from the Stanford Law School, Mr. Rottenborn and -- I have a question for you, though, because we've got a, you know, a group of presenters. There's also somebody there from the Stanford Law School. Are you all the same?

SPEAKER: We are the same (inaudible).

SPEAKER: That's fine.

MR. MILLSAPS: Good morning, members of the board. I'm Brad Millsaps, representing, along with my colleague, Ben Rottenborn, the Stanford Environmental -- or the Stanford Law School Environmental Law Clinic. Before your

eyes start to glaze over, I just want to thank you for addressing this important matter and for having all of us here to help you understand what's at stake and what can be done about it.

Now, you've heard a lot from others here today about the enormously destructive effects of once-through cooling on California's delicate coastal environment. You know, you can wake up now because we're here to talk about a lighter subject, the state of federal and California law.

It's true that, that many of these laws can be a (inaudible) subject than E.E. Cummins poetry, but one thing is very clear from them. The law grants this board the authority, and arguably a mandate, to such stringent guidelines to protect the health of California's coastal eco-systems, and I might add that it's never too late to take action, with due respect to our, our energy industry advocates, until the coast is, is dead, and (inaudible).

The staff of the California Energy Commission noted in their report on cooling technologies that protection of the coastal environment is critically important, but that the health of California's coastal waters is declining. And you've heard that the scientific community and the EPA recognize that coastal power plants using once-through cooling technologies having -- are significant contributors to this decline. If no other

method existed for cooling power plants, then this environmental damage might be a necessary price to pay for low cost power to all. But as you've heard, other cooling mechanisms do exist.

You know, recirculated water cooling, air cooling, hydro-cooling systems, and inland plants throughout the state use these systems every day. So there are really no good reasons why coastal plants can't also use these economically viable alternatives instead of exploiting public coastal resources on others' dimes and diminishing the health of California's coastal waters in the process.

Now, as you know, states have the authority to set environmental regulations more stringent than those set forth by Congress in the Clean Water Act. The EPA fairly recently released its Phase 2 regulations of once-through cooling power plants. I'm sure that everyone here has read them thoroughly. And so you know that the regulations, in the regulations that EPA specifically notes that section 520 of the Clean Water Act, quote, "reserves for the state's authority to implement requirements that are more stringent than the federal requirements under state law," end quote. This clear grant of rulemaking power from the federal government forms the basis of California's particularly strong laws and initiatives designed to restore and protect the health of the state's coastline.

Now, California has always been a pioneer among the states with its environmental stewardship. It's rarely has the state settled for minimum standards set at the federal level by the Environmental Protection Agency. Over the last years, California has created a series of laws and initiatives that form a comprehensive multi-pronged adverse protect and restore the health of California's coast. Within this context, I think you'll see why the time is now for this board to act to address the problems with once-through cooling technology on a statewide level.

I'd like to touch on a couple of these initiatives, then I'll give the microphone to my colleague, Ben, to discuss other issues.

The first is the California Coastal Protection Act. This act sets a broad and stringent mandate for protecting marine resources along the coast of California. Section 330230 of the Act imposes an unqualified requirement to use the coastal environment in a way that sustains ecological health. It says, I quote,

"Marine resources shall be maintained, enhanced, and, where feasible, restored. Special protection shall be given to areas and species of special biological or economic significance. Uses of the marine environment

shall be carried out in a way that, in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific and education purposes."

Now Ben will talk a little bit more about economic considerations in just a minute, but you see that there's a, there's a strong mandate here. They give no exceptions for cost considerations on an individual plant by plant basis.

Additionally, Section 30231 of the Coastal Act specifically requires minimization of adverse environmental impacts caused by, for instance, wastewater discharges and entrainment, the primary harmful effects of once-through cooling power plant technology.

Now, this mandate is enforced in part, we go to the last section, 30413, which authorizes the Coastal Commission to submit to the California Energy Commission an analysis of any proposed power plant's conformity to environmental standards contained in the Coastal Act. With, with certain exceptions, the Warren-Alquist Act in turn requires the California Energy Commission to include in its decision on the projects specific provisions deemed necessary by the Coastal Commission to bring any proposed

power plant projects into conformity with the requirements of the Coastal Act.

Now, the California Legislature wouldn't have include such an enforcement mechanism had it not intended to ensure that California's power plants were brought into compliance with a strict, with the strict environmental requirements set forth in the Coastal Act.

You also have, as others have mentioned here, the Marine Life Protection Act, put forward in 1999. You know, this is another way the California Legislature has demonstrated on a statewide basis its concern with a commitment to California's coastal health. And it specifically provides for expansion of, of California's marine protection areas, but more generally indicates a clear statewide mandate to protect in a comprehensive way the marine resources of California's coast.

Now, Section 2853 of the MLPA lays out broad goals for everything, and I won't go through all of those. But the first one says to protect the natural diversity and abundance of marine life and the structure, function, and integrity of marine eco-systems. You can't do this on a piecemeal basis. You have to take a comprehensive approach, and that includes looking at the effects of once-through cooling.

Now, of course, there's also the California Marine

Life Protection Act initiative which the Governor and the, the departments have promulgated around the state to enforce this. And then, of course, there's the California Ocean Protection Act put forward in 2004, which has established the Ocean Protection Council which, as we discussed earlier here, just last Friday announced its intention to look at the effects of once-through cooling.

So it really makes no sense within all of this context for this board not to take some sort of statewide action on the effects of once-through cooling. And I'll turn it over to my colleague Ben now, to talk about some of the economic (inaudible).

SPEAKER: You've got about three minutes. I think both of you, (inaudible).

MR. ROTTENBORN: Sure, sure. I'll be as quick as possible.

SPEAKER: Okay, good.

MR. ROTTENBORN: First of all, my name is Ben Rottenborn. I'm, along with my colleague, Rhett. here from the Stanford Environmental Law Clinic. And we're here to stress one major point to the board.

Not only does the Clean Water Act allow states to adopt their own standards that are more stringent than Section 316(b), but the California law already explicitly grants this board the authority to enact restrictions on

once-through cooling that are stricter than 316 and that will make California a national leader in power plant technologies.

More specifically, I'd like to address the Porter (inaudible) Act and the, how Section 316(b) of the Clean Water Act does not allow this board to consider site specific economic factors.

The Power (inaudible) Water Quality Control Act addresses once-through cooling specifically. Section 13142.5 of the act stipulates that for each new and expanded power plant that uses seawater for cooling shall use the best available technology feasible to minimize the intake and mortality of all forms of marine life. This language grants authority to the board that is independent of the Clean Water Act strictures under 316(b). Not only does the (inaudible) act give the board the authority to use 316 as a floor upon which to build stronger cooling standards, but it requires the board to focus specifically on the adverse effects of once-through cooling as opposed to other environmental harms.

Section 13142.5 mandates that power plants use, as I said, the best available technologies to minimize the intake and mortality of marine life. This sharply defined directive is targeted specifically at impingement and entrainment harms, and is much more specific than Section

316, which merely requires technology to minimize environmental impact generally.

This distinction is important because harm to marine life from once-through cooling is the most well-defined and, indeed, the most direct harm associated with coastal power plants, and the only harm on which this board should focus.

As an example of how the Porter (inaudible) Act differs from Section 316, consider that during the permitting phase the power plant operator might assert, for example, that dry cooling technologies have adverse environmental impacts in the form of visibility and land use issues. But because the Porter (inaudible) Act does not allow for consideration of those effects, they must be thought of as secondary to the effects that once-through cooling would have on aquatic environments surrounding the plant. And this way, California law demands much stricter scrutiny of entrainment and impingement harms caused by a plant's cooling than does Section 316.

I'll move on to the second issue that I'd like to discuss, which is how Section 316(b) does not allow for site specific cost considerations, for four reasons. The first reason is that Congress explicitly disallowed such consideration by not including language in Section 316 that it included in other parts of the Clean Water Act that

allows for economic considerations. There is no reference to economic factors or cost considerations on a site by site basis in any of the language under the Clean Water Act. The second -- or under Section 316(b), I'm sorry.

The second reason is that even if economic considerations are allowable under Section 316, EPA already too, these economic factors into account when it wrote its Section 316 performance standards, which were based on closed cycle cooling technologies, and there's no room for individual plant permitting decisions that involve individual site specific cost considerations.

The third reason is that these exceptions, the exceptions to 316(b) that allow for site specific cooling are being challenged in court, and it was wise for California to hold off on allowing site specific cost considerations until the U.S. Court of Appeals resolves this matter.

And the final and fourth reason is that New York law explicitly prohibits site specific economic considerations, and California should take this opportunity to join New York as a national leader in preventing unlawful site specific inquiries.

And finally, if the Board does intend to look at site specific economic factors, it should do so only in rare circumstances, such as a circumstance under which using best

available technology is simply physically infeasible.

To conclude, the Board must take care not to let economic considerations influence it to allow coastal power, power plants to use public resources essentially for free. The Board should, however, take advantage of the broad power that it has under the (inaudible) act and other California statutes to reduce the harmful effects of once-through cooling in the state of California.

Thank you for your time and consideration.

SPEAKER: Thank you.

We have a group presentation now. Do you know where (inaudible), or do I call them the way you gave them to me?

I'm going to start the group with the Santa Monica Baykeeper, Heal the Bay, et al.

MR. PALMER: I think it was --

SPEAKER: Keep it to five minutes, if you would. Appreciate it.

MR. PALMER: Sure. Do my best. Get this up on the screen here.

SPEAKER: Would you give your name and (inaudible).

SPEAKER: I'm not going to call them now. They can just come up.

MR. PALMER: Okay. I think I understand. I'm

Dana Palmer, I'm a staff attorney with Santa Monica Baykeeper, and I think I know two gentlemen who we'll be making employment offers to right after the workshop.

And thank you for allowing us to do a joint environmental consolidated presentation from a few (inaudible) groups, including Voices of the Wetlands, the Environmental Health Coalition, and Heal the Bay. Together, our organizations span California's coastline.

We also join together today with our colleagues from the Bay Area, Communities for a Better Environment and Bay View Hunter's Point Community Advocates. You should have received written comments from them earlier this week. We join them in their call for you to host an additional workshop in San Francisco in the evening hours, where the interested citizens of that region might share their concerns with you as well.

First of all, I want to thank you, thank you for reaching out to address these issues. We know it's fairly discretionary and we, we really appreciate your hosting a workshop on the topic. Thank you to the State Board staff, already over-tasked and over-worked. Thank you to the Energy Commission staff for coming down here for your very good presentation. Thank you to EPA for being here.

Now, to help you with formulating California's policy, our presentation will outline our vision, then a

general overview of the important issues. We'll illustrate some of, some of the past examples from around the state where the process is not done so well, and we'll conclude with some elements of potential state and policy, and we also intend on giving you written comments within two weeks from this meeting.

Let's start at the very top. Let's just take a step back and look at the context of ocean issues in California. The Governor says that the ocean is a place that we're duty-bound to protect today, tomorrow, and forever. There's an even better quote there on the screen. We turn to the California Ocean Action Plan which should be guiding every state agency here. The Action Plan has as one of its principal goals to increase the abundance and diversity of aquatic life in California's ocean bays, estuaries and coastal wetlands.

Part of our message here today repeats what you've already heard, which is please work with other agencies. The Energy Commission has flown down here and is willing to help you out. The Coastal Commission has, too. The Ocean Protection Council, as you heard last Friday, approved a motion to study once-through cooling. They called it a natural fit for the council. I think there's a great opportunity here for you guys to be working with other sister agencies.

Secondly, learn from other states. There are a variety of states that have already made more progress than we have on these issues, New York, in particular. Let me give you a quick look at New York's policy here.

New York requires that plants consider all feasible options based on physical considerations alone. That means that they would have to consider (inaudible) cooling. They would have to consider cold cycle wet cooling. They give you a justification for why it is not valid. New York doesn't let them get away with just a line that says these technologies are not feasible, period. New York requires the permittee to explore cold cycle cooling at each facility, as I said. New York seeks to impose the higher end of the performance standard ranges.

Now, these ranges are actually part of the current challenge in the Second Circuit. We don't know how that will turn out. But New York has already said regardless of how that turns out, we're seeking to impose the higher end of those ranges. That means 95 percent reduction in impingement, and 90 percent reduction in entrainment. New York does not, flat out does not consider restoration plans as an appropriate or acceptable (inaudible) alternative for any facility, new or existing. And New York is not considering the so-called site specific alternative EPA determinations in the Phase 2 rule. So look at your sister

states, especially New York, who's right out there in front on this issue.

The final recommendation, and I know I don't have to tell you this, but keep an eye on your mission. Your mission is to preserve, enhance and restore the quality of California's water resources. I, I included this because I've had some talks with some regional board staff members across the state, and I get the sense that they want to promote the Energy Commission mission. And it's not their job. We all use electricity, we all, we all are partly to blame for this issue, but keep your eye on the ball, water quality.

Here's our vision. We want to phase out once-through cooling as soon as possible. We think the pictures say a thousand words there. I hope it doesn't come out of my time. While recent investments by the energy companies of hundreds and millions of dollars in combustion technology have been commendable, because they help reduce electricity more efficiently, they help reduce air emissions, this is no excuse for continuing the use of what anyone with any appreciation for the march of technological process would consider caveman cooling.

While we appreciate the engineering challenges of implementing the latest technologies, this is what engineers are born to do. They love a puzzle. They love something

challenging, and no one ever said that progress was going to be easy. Also, another contextual point the Energy Commission said before. Since 1966, 95 percent of plants licensed have used alternative cooling methods. It's high time for the remaining plants to take this step toward the future.

Just let me say a few words about interpreting the Phase 2 regulation. Obviously, we want you guys to go beyond the Phase 2. We see it as a floor. EPA said this morning that you can go beyond that floor, and we think you should. We feel the California coast deserves it. You're right to point out the difficulties in the calculation baseline, and we urge you to study the language in the rule. We urge you to study the language in the proposed rule and the notice of data (inaudible), and together, those three options can give you a pretty good sense where the calculation baseline should be.

We agree that we should give credit for technology, like the locking caps that are in place at, at certain plants like El Segundo and Scattergood. And we urge you to pay attention to a very tricky part of the baseline, which would be operational baseline. We believe that the operation -- operational baseline should be determined by how plants have actually been operation, not by -- we've heard strange arguments that we don't know where they come

from. You know, a plant operating at max capacity 24/7 forever and ever, these plants weren't designed that way. They can't, they can't function that way, and that's wholly a fiction of -- there's going to be a tricky issue in the operational baseline for you guys.

Think twice about the site specific (inaudible) exception, and reach some performance standards, because those are subject to the federal lawsuit. And overall, we want you to pay a role in helping ensure consistency. It seems like we definitely agree with Ms. Damron and Mr. Kay on that point. They want consistency. We want consistency. The fellow in (inaudible), we all know that. Our view of the Phase 2 regulation at the end of the day is what should be in your mind is what justifies a departure from closed cycle performance standards. The, the performance rates and the regulation were clearly adopted with closed cycle in mind, and I think that should be the driving question, the repeated question in your minds and regional board staff time, et cetera.

Ask the hard questions, find things. If technology is not feasible, challenge them to prove it to you. When they say it costs too much, challenge them to prove it to you. We, we have nothing to hide. We want them to be able to just document what, what they say. And really, to date they haven't had to do that. But shift the

burden to the plant. They're the ones with the data. They're the ones who can make the case. Ask them to do it. Use of California's water is a privilege, not a right.

I think I've probably had my five minutes, but let me just -- well, let me just have you look at this slide, and then we'll continue with a presentation from the next speaker.

MS. ABRAMSON: Good morning. My name is Sarah Abramson, and I'm (inaudible) of Heal the Bay. Thanks for taking the time to hear our comments today.

I'm going to speak on two topics today, resource economics and biological considerations associated with once-through cooling.

In the case of the way California's coastal resources (inaudible) once-through cooling, the benefits outweigh the cost. California has the largest ocean economy in the nation. As you interpret 316(b), (inaudible) the whole California's history of environmental value and actually by ensuring all the costs and benefits associated with the coastal environments. Every party has a -- and make sure that every (inaudible) given confidence and (inaudible) of consideration.

There are many non-market and market values, both direct and indirect, associated with our coastal resources, including commercial fishing, recreational (inaudible)

tourism, recreational boating. (Inaudible) whale-watching and (inaudible) and eco-system. The national ocean economic (inaudible) for 2005 estimates that in 2000, the gross state produce for coastal tourism and recreational (inaudible) was over $12 million. Clearly, coastal resources are a high value to California, and it is imperative that all of the appropriate non-market and market values are calculated and considered for an industry-related economic analysis.

Recreational fishing is a large part of California's economy. The impacts of once-through cooling on this (inaudible) must be realize. The (inaudible) economic fisheries on the economic status of U.S. fisheries in 1996 estimates that recreational fishing contributes over 170 million to southern California's economy. This figure is backed up by the sheer number of people who participate in recreational fishing. An additional study by Noah (ph.) fisheries estimates that each year in southern California over 620,000 anglers participate in commercial and (inaudible) recreational fishing charters.

(Inaudible) Bay also has an education program that tracks the number of pier fishing anglers from the Santa Monica pier to Seal Beach. Educators with this pier outreach program have reached over 30,000 anglers in the past two and a half years fishing solely on piers in this small region. Recreational fishing is largely a coastal

activity. These anglers fish in the same coastal waters as once-through cooling (inaudible), and it's driving millions of gallons of water, fish larvae, eggs and plankton. These resources directly influence the fishing industry. The (inaudible) recreational anglers of southern California include sea bass, mackerel, tuna, (inaudible) and rockfish. Many of these same species are impinged and entrained by once-through cooling.

In addition to the economic value of California's coastal resources, the cumulative and individual impacts must be considered. As we heard from the EPA, the (inaudible) Moss Landing Marine Laboratory, (inaudible) showed all of the power plants in southern California that use once-through cooling. In so many intakes in a small region, it's difficult to understand why the cumulative impacts associated with these plants has historically been written off. The environmental impacts at these plants must be considered both on an individual (inaudible) as well as cumulatively. The 2005 CEC staff -- staff report on once-through cooling states, quote, "It is not sufficient to assess the proportional entrainment of a single intake when there are multiple intakes distributed throughout the region", end quote.

When considering the biological effects of once-through cooling, it's important to remember that seawater

itself is a habitat. It supports fishing, larvae, (inaudible) and plankton, as well as bait fish such as herring, anchovies and mackerel. Seawater also provides an important linkage to other (inaudible) and rocky (inaudible) larvae to their eventual home. Once-through cooling impacts may be particularly detrimental to species (inaudible). Entrainment and impingement of threatened and endangered species such as (inaudible), various species of abalone, and (inaudible) should be more closely monitored, and the cumulative impacts for these species should be considered. The larvae of these species may also occur in coastal waters in close proximity of these intake (inaudible).

Many people don't know about the serious impacts that these plants have on larger marine (inaudible). For instance, from 1998 to -- or, 1988, excuse me, to 1994, a period of only six years, (inaudible) took 59 California sea lions, two harvest seals, three (inaudible) and a loggerhead sea turtle. There is documented (inaudible) but other plants, as well. And these photos show it here. You can see a large sea lion that was trapped in the forebay at El Segundo's power plant. These photos were taken from helicopters of (inaudible).

So, anyway, this (inaudible) is really important, and we need to follow this more closely. The indiscriminate take of (inaudible) can no longer be tolerated. The large

volume of seawater used for once-through cooling is not just a raw ingredient for generating electricity. By driving millions of gallons of seawater, once-through cooling facilities are also driving millions of (inaudible) organisms that provide the basis for marine (inaudible) report to California's marine habitats and large protected species.

Incomplete scientific and economic analyses associated with once-through cooling are no longer acceptable. We encourage you to use your responsibility to see that future analyses are comprehensive and that they undergo adequate peer review.

I thank you for my comments, and now I'll turn it over to Rebecca Pearl.

MS. PEARL: Thanks very much for this opportunity. I'm going to speak very specifically about the South Bay Power Plant impacts.

My name is Rebecca Pearl, I'm a policy advocate for the Environmental Health Coalition. EHC is a 25 year old grass roots environmental justice organize based in the San Diego-Tijuana region. The issue of once-through cooling is an issue of great significance to us, and we urge that swift action be taken to ensure the phase-out of this destructive and, as Dana said, caveman technology.

By far the largest and most acute and devastating

impact to marine life in the south bay is the cooling system of the South Bay Power Plant. The power plant is a 65 year old generation facility that utilizes San Diego Bay, as much as 600 million gallons a day of water for the system. This water is chlorinated, dechlorinated, heated to very high temperatures, then discharged back into the bay. The intake and discharge are located in the most sensitive shallow water and mud flat habitats in San Diego Bay, and the results are devastating.

For decades, study after study have shown a range of serious impacts from this cooling system on the bay eco-system. It is well established that once-through cooling process is devastating to marine life in the shallow bays and estuaries like San Diego Bay and in the near shore zones in the ocean. These areas are the most biologically productive marine zones and absolutely the worst place to allow these impacts to continue.

Many studies, even those conducted by the power plant owners themselves, have demonstrated massive impacts to the marine life in the bay. Here's a couple of examples. I have, I've cut out a bunch of these to cut my time down.

The most recent study of entrainment impacts, and this was funded by -- conducted by the discharger, demonstrated very significant entrainment of larval stages of three species of (inaudible), anchovies, silver sides,

(inaudible) and mudsuckers. These losses were reported to be between 13 percent of the adult anchovy population to losses of 50 percent for larval populations of the same species. The regional water board, the Department of Fish and Game, and the National Marine Fishery Service, have all determined that these impacts are significant.

Secondly, the number of fish loss was estimated at over 385,000 individuals. Ninety-three percent of the fish impinged were anchovies. While the discharger dismissed this as an insignificant -- as insignificant because anchovies are not a commercially or recreationally caught fish, they missed the point entirely. The anchovies are critically important species in the food (inaudible) for south, South San Diego Bay. The anchovy and the silverside are key prey species for all the fish-eating (inaudible) in San Diego Bay. This includes endangered, threatened and sensitive species that live and nest in the bay. These species are also significant prey fish for other fish. The impacts to the bay fishery are unquantified.

In a recent permit renewal, the local regional water control board staff found that (inaudible) have been degraded due to once-through cooling water. Among other impacts, the regional board also found that because of the power plant discharge, up to 104 acres of the critical (inaudible) habitat has been precluded in the south bay.

This habitat is important as turtle foraging and fish habitat. An independent assessment by the -- by Pisces Conservation in July of 2004 reaffirmed the significant impacts of the cooling system on the bay fishery and marine life, and I'll be submitting this report for the record.

Our own local marine ecology expert, Dr. Richard Ford, Professor Emeritus of Biology of San Diego State University, reported in April of 2003 that the thermal impacts of the power plant discharges had adverse effects in several major groups of (inaudible) by reducing the number and the diversity of species. I also have this report for the record.

Many species of fish depend on the shallow water habitat for a portion of their reproductive cycle. One impact that is seldom discussed in the case of South Bay is the impacts to the juvenile halibut nursery in South San Diego Bay. The California halibut is important to the ecology and fisheries of southern California. It appears that temperature turbulence and sediment characteristics are important factors determining whether juvenile halibut will settle in an area or not.

A list of impacts from just this one cooling system goes on and on, including the impacts of the heat, chlorination, and zinc and copper through the pipes. Recirculation and rechlorination of the discharge of the

water, reproduction and growth (inaudible) and more. All of these impacts are well documented in numerous studies. We are also submitting into the record the San Diego Bay Council's report called "Deadly Power", that collated much of this data on the South Bay Power Plant in 2003, and I also put copies out here for the audience.

Looking at other plants elsewhere in the region, consider the recent fish kill due to entrainment into the (inaudible) cooling system reported in the North County Times on August 22nd. More than five tons of anchovies were wiped out in a single event in the cooling system there. This power plant process 2.5 million gallons a day of water, of (inaudible) water. We also have this for the record.

The cumulative impacts that those cooling systems statewide are having impact of huge proportions. The June 20, 2005 staff report issued by the CEC states that cumulative impacts of impingement at southern California coastal power plants may be as high as 30 percent of the fish caught in the southern California recreational facility -- fisheries, excuse me.

Technology is readily available, like dry cooling, that can eliminate this impact altogether. Dry cooling technology has been easily incorporated in many other facilities across the country, including one proposed plant that is ten miles from the South Bay Power Plant. All new

plants should be required to implement dry cooling technology, and old plants that intend to remain operational for five more years should be required to retrofit this technology.

We urge the state board in the strongest possible terms to develop and implement an aggressive policy to rid the state of this destructive technology and allow us to take this major step toward restoration of our marine ecology and fisheries. We strongly support the state rule for 316(b). Thank you very much.

MS. SIVAS: Good morning -- I guess we're afternoon. Good afternoon. So I'll try to speak quickly here. I'm Deborah Sivas, and I'm the director of the Environmental Law Clinic at Stanford Law School. We have been involved with a number of the groups up and down the state, Voices of the Wetlands, Santa Monica Baykeeper, and others, on a variety of permitting issues around coastal power plants, in particular in connection with Section 316(b).

So what I'd like to do very quickly today is just share a little bit of our experience, having gone through or being in the middle of some of those permitting processes, in particular two central coast power plants, Moss Landing and Morro Bay. We believe that there are some important lessons from these two plants that should inform the board's

efforts going forward.

Quickly, three issues I'd like to address. One is the use of restoration or mitigation measures in lieu of best technology. The second is the application of a site specific benefit cost analysis to exempt generating units from the, the general performance (inaudible). And three, an issue I haven't heard too much about here today, is the, what we believe is a gaping regulatory loophole around the -- around allowing for brand-new generating units to be classified as existing units and regulated under less stringent standards.

As others have discussed, we believe that California clearly has the authority, if not indeed the legal mandate, to address each of these three issues in a way that will protect our coastal resources. So I'm going to turn quickly to restoration and mitigation measures.

As you've heard today, the Second Circuit Court of Appeals in New York has found in (inaudible) versus EPA that the use of mitigation measures is inconsistent with the (inaudible) text of the Clean Water Act. While that ruling was in connection with Phase 1 regulations, the Phase 2 regulations are under challenge in the same court. That same issue is before the same court, and with all due respect to the EPA, we actually believe that it's fairly likely the very same judges are going to rule the very same

way.

And incidentally, as this board probably knows, there's a similar issue floating around in the Court of Appeals here in the state of California with respect to the Moss Landing Power Plant. So I think (inaudible) play catch-up after the fact. The state of California is in a position to get ahead of the curve by adopting a statewide policy against the substitution of mitigation measures in lieu of technology. After all, it is a technology statute. The statute only refers to technology, and the best technology here is not to knowingly allow the damage to occur the eco-system. We know it's happening, as many of the speakers have said today. And then to hope somehow, maybe someday, decades from now, we can -- the mitigation measures will somehow offset them. The best approach, we would argue, is to use available proven economically viable technology that avoids the damage in the first place.

And just, just to tie in the Moss Landing Power Plant here, I think it provides a textbook example of what the state should not be doing with respect to these power plants. Their, their regional board allowed for two brand-new gas turbine generating units, allowed the, the facility owner to continue with once-through cooling, to install a new once-through cooling system, in return for a $7 million environmental enhancement program.

Now, that program had no sideboards to it whatsoever. No criteria for how it was going to work. It was simply a pot of money that went to an outside foundation to administer (inaudible) and to do all kinds of potentially useful uplands activities, but not necessarily related to the impacts of the power plants. One of the things, for instance, they are purchasing conservation easements. Good, good thing to do generally, but really not tied to the impacts of the power plant. And the scientists conceded there was not a shred of data or scientific analysis to show that, that that mitigation pot of money is going to produce even one (inaudible) in response to replace the, the countless, you know, trillions of organisms that, that are going to be destroyed by the power plant over the next 50 years.

Let me just skip through here. I guess our, our conclusion on this point is that that kind of policy is, is sheer lunacy here, and, and is, is taking place because these plants are able to use those as settlers, because (inaudible) this water for free. You can bet that if it was an interior power plant that had to pay market rates for the price of that water, they would not be willing to do once-through cooling. It, it's simply of fact of not having the correct market signals, but in fact subsidizing these facilities with public trust waters each year.

So we urge the board to stop that give-away of public resources, and to move to a state policy that requires, except perhaps in the most extreme circumstances, that these plants use technology and not some kind of restoration mitigation.

A second, quickly, on site specific analysis of cost and benefits. Again, this is an area where the Moss Landing Power Plant went through that process. Even though we had two, two brand-new operating units, basically concluded that, that the cost for putting on once -- putting on closed cycle cooling technology was prohibitive. And you kind of ask well, how did they come to that conclusion. Well, I'll let you draw your own, your own conclusions from that. But the (inaudible) didn't ask for any cost revenue numbers from the facility whatsoever. When questioned, basically the board said we don't think that's relevant. So they didn't look at the cost side, they didn't look at operating costs or revenues over the life of the facility.

So that's one area where the process, it seems to me it breaks down entirely. Not really a cost benefit analysis, but just an analysis based on what staff thought was reasonable or unreasonable in that particular circumstance.

On the benefit side of that calculation, I think the staff was even more troubling. As you've heard, the

Moss Landing Power Plant uses sort of (inaudible) accounting methodology to come up with a number that value benefits. But in fact, as the, as staff and the (inaudible) admitted, they did not use, they did not employ a resource economist. They did not do any kind of systematic looking at the true environmental costs or any generally accepted methodology for actually valuing those lost benefits that will be forgotten, even though this plant is going to destroy something like 30 to 40 percent of the entire biological productivity of that eco-system.

I'm trying to whip through here, but I wanted to just get you a couple of other facts. I think, as we heard Dr. Foster say today, that some of the analyses that have been suggest that the, the value of sort of restoring habitat is, he's done a calculation of $114,000 an acre. At Moss Landing, they whipped a number out of a hat, $18,000. And it made all the difference, because at $18,000 an acre, that looked like, like the, the cost of the technology was extremely expensive, and 114, or more likely 200, which are some of the numbers that were in the record, all of a sudden restoration doesn't look like such a good number.

So I think what we, what we've seen is that economic analysis has kind of been used as a invitation for manipulation of the numbers at a particular plant. And, and we, we actually encourage this board to look at a statewide

policy that would not, would not, except in the most extreme circumstances, allow regional boards to apply some kind of a reasonableness standard. In fact, if, if you're going to allow that, you should put some clear sideboards on, on how that process should be done.

And I just want to move on to my very last point. I know the time's running. One of the issues that I think has come up, and as you've heard today, there are, as far as I know, no new coastal power plants being proposed. But a lot of these repower plants are, in fact, brand-new facilities, or at least new generating units. So the rationale for EPA to kind of (inaudible) new versus existing facilities does not really exist or apply for these facilities. And the Morro Bay facility is a perfect example.

That's a plant where they're proposing to scrape the site, build an entirely new plant. The only thing they're going to preserve is that one little intake system. They're going to run the pipes to the intake system, and by that, by doing that, the project proponent has basically manipulated itself into a, an existing facility under Phase 2 instead of a, a new facility under Phase 1. We think that California has the ability to, to put a stop to that. In fact, one of the very interesting things at Morro Bay is that it, it would be a new facility for purposes of the

discharge permit, an existing facility for purposes of a 216 analysis, and we encourage the board to look at requiring that in the state of California, that any permit that would be a new permit for other purposes under the NPDES program also be considering new facilities subject to the Phase 2 regulations that EPA has adopted previously.

So with that, I will turn it over to my colleague.

(End Tape 1, Side B. Start Tape 2, Side A.)

MS. HOECHERL: Somebody put that -- this Power Point on this computer.

My name is Heather Hoecherl. I am the Director of Science and Policy at Heal the Bay. And I'm going to make this really fast because I have a really bad cold and it's hard to talk, so you'll probably appreciate that.

First of all, I just wanted to emphasize strongly that the state can issue a policy that will clarify how 316(b) should be implemented in California, and they can do it, and you can do it in a timely manner through issuing of a statewide guidance document to the regional boards to follow. And this shouldn't disrupt the utility information gathering and studies.

I think they're meeting designs, this concern with meeting designs and the (inaudible) is really a red herring, and they should go ahead and work on a state guidance policy. Other states have done it. New York did, did it

recently, and it certainly is possible, and it's recommended.

So (inaudible) I think we urge this, you guys, the state board, to issue a policy within the next few months for the regional boards to follow before the new NPDES permits come up for some of these plants. There are a lot of them up in L.A. I think in 2006. And I, we just have a few suggestions for a couple of things that could be in the state policy, so I'm going to run through them quickly.

The first one, to require that the studies that are done vigorously assess all physically feasible technologies. And I think Dana touched on that. They can't just brush aside cold cycle cooling or dry cooling, that they really take the time to assess that. And also, the second thing, make it a priority for staff, the regional board staff, to identify local alternative cooling sources, such as reclaimed water from a wastewater facility, to use instead of the ocean water for once-through cooling if, if that is going to continue to be used at that plant in that area.

The third point, that's not up there, is for the state board to develop an approach, a required approach to require the study and consideration of cumulative impact in coastal bays and estuaries, and use the cumulative impact study to advise in issuing individual NPDES permits to the

individual plants that are in that, in that bay or estuary system.

The next thing. EPA set a range, and this sort of addresses the issue that the utilities brought up, stating that the state has to show that EPA performance standards are insufficient. Well, that's, again, another red herring. I think the state can very easily, within its own authority, as well as under the EPA regs, make a policy stating that they should regulate all of these plants at the top of the range of the performance standards. In other words, 90, 95 percent reduction in impingement and 90 percent reduction in entrainment. I think that's worthwhile, given the value of our coastal waters in the state.

Finally, the last two things. We urge the state to issue a policy stating that you will not consider site specific EPA determinations in the Phase 2 rule. And you've heard a lot about that just now from Deborah, so I'm just going to emphasize a couple of the points. That, such as site specific (inaudible) which shifts the (inaudible) focus inappropriately away from minimizing adverse environmental impacts. And also, assess the economic determinations made by the legislature in the Coastal Act and (inaudible).

And the final point is part of the policy to require independent peer review of the methodologies used in the comprehensive demonstration plans that will be submitted

by the plants. This area is quite complex. And you should also require, particularly require review of decisions of economic and technical (inaudible).

And I just wanted to say at the end, I hope that the, I want to thank the board for taking interest in this issue in the first place, and to remember and hopefully issue a stronger policy, recognizing that we have a big opportunity to uphold our history as an environmentally progressive state and moving beyond the 316(b) regulations and implementing our own (inaudible) state policy.

Thank you.

BOARD MEMBER SILVA: Thank you.

Well, that's all the cards I have. Anybody else that I missed, or -- okay, seeing none.

First of all, thank you. Before I give my comments, Jerry, did you have anything you wanted to say?

BOARD MEMBER SECUNDY: Just a couple of comments. It's honestly very refreshing to sit through one of these hearings. Pete and I had the opportunity to do this ASBS. We did it in Monterey. We're going to have a second workshop on ASBS here in southern California. And Mr. Silva and I are discussing the feasibility of having a second workshop on 316(b) in northern California, and in the evening if that's more convenient for people. We really are trying to reach out and make certain that we understand

exactly where everyone's coming from.

Some of the not so subtle messages we got today were that the state board is a useless appendage and if we would simply sit back, relax and enjoy ourselves, the feds will take care of it all. And we could go to the barbecue and enjoy the cow. I understand that.

On the other hand, we got something to the effect of if we would just eliminate once-through cooling for all of these existing 21 power plants and ignore the economics, that would also be a happy state of affairs.

So I'm not drawing any conclusions about either statement at this point time. But I'd like to say that we did get your message loud and clear.

Secondly, for those of you that did make a presentation, and even for those of you who did not, if you have some written material that you would like to give us please make certain we get it. We do take notes, we do try to remember, but it's much easier if we have your written comments, and staff certainly needs the opportunity to go through each and every one of those.

And just, finally, two things that I found somewhat puzzling, and I am new to this area, that were not discussed today. There's no challenge that I could see to the impact on the marine organisms themselves, no challenge as to the magnitude of that. I didn't hear anyone dispute

that this is actually a very enormous problem up and down the coast of California.

And also, although there were allusions to the economic impediments and to eliminating once-through cooling, I've really not heard any numbers whatsoever as to just what the cost for a plant to be converted to dry cooling, for example, from once-through cooling, whether or not we are supposed to in some way look at the economics connected therewith.

So just some thoughts for those of you that might come to a northern California workshop. You might want to give us some information on both of those.

BOARD MEMBER SILVA: I would agree. Jerry put it very, very well in terms of the extreme views on this, and obviously there's, there could be some middle ground there. But also for, I agree, I think we should set up a meeting in northern California. Perhaps Region 2 has (inaudible) take advantage of that.

But also, following up on what Jerry said. Some of the points that I'd like to get more clarification in terms of staff presentations or other experts, is this whole, you know, how you do look at economic -- I don't know if it's benefits, but whatever the economic impact of conversion from one technology to another, how you, how you do that.

And also, this other issue that came up in terms of permitting new versus retrofit. If you could explain that a little bit better, that would help me. And also, just you talked about different types of technology, you -- maybe the differentiation between dry cooling and closed, closed cycle cooling, if there's others out there. I just want to get an idea of what they entail in terms not only of cost, but, you know, feasibility. Can you put them on the coast, what other, what other impacts -- for example, I know there's not a lot of impacts in dry cooling, you know, that might have equal impact. But it would at least give us a range of technologies, what do they entail.

And also, just we heard a lot about New York. What does New York do, and would that really apply to California. We've got this rather -- areas that were brought up. Well, you know, New York does this, Arizona does that, or does it really apply in California. There's different, different issues relating to this. So that would be helpful. And any other things that you came up with that would be helpful to us, in terms of presentations at the next meeting. Appreciate it.

What timeframe are you looking at for (inaudible)?

SPEAKER: I think as soon as possible. I mean, I think given what I've heard today and what -- the sooner the better, in the next month or two. (Inaudible.) We're

getting into the holiday cycle. Once we're past Thanksgiving, I think it's too late, so --

SPEAKER: So we're looking at probably November.

SPEAKER: November, mid-November sometime.

SPEAKER: Okay.

SPEAKER: Yeah, if we can. So staff, do you have any comments or any other thoughts?

SPEAKER: Just a couple of things. The slide that Steve brought up earlier in the day. Where we would put up any statewide policy if you decide to --

SPEAKER: That's sort of a (inaudible) point. Maybe we can get a little bit more guidance at the next workshop for that. We're tending to lean towards the thermal plan because it's the plan that covers all of the power plants, the existing plan. But it certainly could be a stand-alone document, as well.

SPEAKER: And this is the plan that has not been updated since 1975?

SPEAKER: That's correct.

SPEAKER: But, but if we, if we did work on including a policy in the thermal plan, I think, because of staff resources, we'd like to limit that work to just the 316(b) implementation and not the rest of the updated thermal plan. Just, like I said, because of staff resources.

SPEAKER: Okay. Well, thank you to all, again. It was very beneficial to me, and I know to Jerry, to get all your comments.

SPEAKER: I, I hope none of you felt terribly rushed in your presentation. We did try to get everybody through. We had said we'd end by noon and it's 25 after. I apologize for being late this morning. I will learn to leave three hours next time.

(Thereupon, the State Water Resources Control Board Division of Water Quality Workshop was concluded.)

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CERTIFICATE OF TRANSCRIBER

TITLE: Regional Water Quality Control Board Workshop

DATE: September 26, 2005

I hereby certify that the foregoing is a correct transcript from the tape recorded workshop of the above-referenced matter for the Regional Water Quality Control Board, to the best of my ability.

Lee Robb

DATE: October 19, 2005