MEETING

STATE OF CALIFORNIA

CALIFORNIA INTEGRATED WASTE MANAGEMENT BOARD

MARKET DEVELOPMENT COMMITTEE

Board Room

8800 Cal Center Drive

Sacramento, California

Thursday, November 4, 1993

9:00 a.m.

Janet H. Nicol
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APPEARANCES

COMMITTEE MEMBERS PRESENT:

Paul Relis, Committee Chairman
Wesley Chesbro
Jesse Huff

STAFF PRESENT:

Sharon Waddell, Committee Secretary
Edward Boisson
Ralph E. Chandler, Executive Director
Robert Conheim, Chief Legal Counsel
Rennie Eckstrom
Kristina Loquist
Christy Porter
Edgar Rojas
Pat Schiavo

PUBLIC SPEAKERS:

Marlene Demery, County of Santa Barbara
Stephen Grealy, City of San Diego
Aziz Shiralipour, Community Environmental Council
Heidi Whitman, County of Santa Barbara

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PROCEEDINGS

COMMITTEE CHAIRMAN RELIS: I'm going to call to order this meeting.

Ms. Waddell, would you call the roll, please.

COMMITTEE SECRETARY WADDELL: Board Members Chesbro.

COMMITTEE MEMBER CHESBRO: Here.

COMMITTEE SECRETARY WADDELL: Huff.

COMMITTEE CHAIRMAN RELIS: He should be here shortly.

COMMITTEE SECRETARY WADDELL: Chairman Relis.

COMMITTEE CHAIRMAN RELIS: Here.

Because we have a very full day today and following the committee meeting we have a workshop that we'll go through the afternoon, I want to get this meeting started.

And we'll take the items for the committee meeting out of order. I'd like to move, until Mr. Huff gets here, to Item 4, which is a presentation of revised draft emerging market development options, since this is an information item, and then we'll come back to our regular order.

One other matter to note, the board at 10:00 o'clock, the full board, will convene to take up the emergency fire regulations as a result of the Malibu fire. We have action to take here. That should be a relatively

brief action. But we will formally come together as the board promptly at 10:00 a.m.

Pat.

MR. SCHIAVO: Pat Schiavo. With me is Kristina Loquist. We represent the Planning and Analysis Office of the Board.

Back early summer, late spring, we presented you results of a compilation of reports that was summarized in one major work effort that we put together.

We eventually sent this summer report out on July 29th to over 150 entities. Eventually it reached 250 different entities.

We requested that comments be submitted back to us by September 15th. However, we did receive some comments that people didn't have enough time to review the report, so we informally extended that October 15th, which was the last possible date that we could have incorporated any of their comments in order to make it in time for this meeting.

So again this is an informational item. There's no committee action required.

Kristina is going to let you know a little bit about what went into incorporating the comments.

MS. LOQUIST: Hi. I just wanted to let you know about the process that was used to revise the summary and the manufacturer responsibility reports.

We received six sets of written comments from different parties. We reviewed their comments and incorporated them when appropriate into the report. So wha we have done is basically revised them.

There were no substantive revisions. Everything was pretty minor, and we did incorporate quite a bit of the comments we did receive.

And basically we just wanted to let you know that there had been comments received and revisions made and there's no action required.

COMMITTEE CHAIRMAN RELIS: Is that the full exte of it?

MR. SCHIAVO: That's the full extent. You have, in the compendium you received you have all the comments that we received.

MS. LOQUIST: It's in Attachment 3 to the agenda item, is photocopies of the comments.

That's pretty much it.

COMMITTEE CHAIRMAN RELIS: Well, then we will ju excuse you now and then hold because the rest of the items are voting items and I'd like Mr. Huff to be here for then

We'll take a couple of minute recess. You can c whatever you like for the next few minutes.

(Thereupon a short recess was taken.)

COMMITTEE CHAIRMAN RELIS: I'm going to call us

back to order and we'll take another couple of items.

I would like to take up, because of a voting problem we're going to have without a quorum here without three members, we're going to have to postpone Item 1 further. So I'd like to take up consideration under Item 3 of the final designation of the Southern Alameda recycling market development zone.

Who from staff will -- Christy.

MS. PORTER: Good morning. In March and April of this year the board conditionally designated five recycling market development zones and this morning I'd like to discuss final designation for one of those, the Southern Alameda County zone, which encompasses the City of Fremont and the City of Union City.

And as you mentioned, there will be some loans considered later in the meeting and a couple of those loans are from their particular zone.

This zone was given conditional designation because it hadn't completed its CEQA requirements in March and April. And because of the pending loans the zone administrator decided to go ahead and get the documents in.

They have filed with us a notice of exemption that they had filed with their county clerk.

Because the zone has complied with the CEQA requirements I'd like to recommend that the committee

forward this to the board for final designation of the Southern Alameda County zone.

COMMITTEE CHAIRMAN RELIS: Is there any discussion?

COMMITTEE MEMBER CHESBRO: I will move the item.

COMMITTEE CHAIRMAN RELIS: Mr. Huff, are you ready?

COMMITTEE MEMBER HUFF: I'm ready to vote.

COMMITTEE CHAIRMAN RELIS: So the item has been moved.

Call the roll.

COMMITTEE SECRETARY WADDELL: Board Members Chesbro.

COMMITTEE MEMBER CHESBRO: Aye.

COMMITTEE SECRETARY WADDELL: Huff.

COMMITTEE MEMBER HUFF: Aye.

COMMITTEE SECRETARY WADDELL: Chairman Relis.

COMMITTEE CHAIRMAN RELIS: Aye.

Okay. We'll go back to Item No. 1 on the agenda which is consideration of approval of recycling market development zone loans. And the one item here has been pulled for further staff clarification, the Riverside County, the Log World, related to some further clarificat on whether this is clearly recycling under the board's purview or is it a borderline transformation and we have

some difference of opinion, apparently, staff, that we'd like to sort out. So that item has been pulled.

I am going to have to abstain on the EcoPave, which is related to Cyclean, which I have received legal counsel advice to abstain on, because even though I don't have a direct interest in that company, indirectly I want to avoid any appearance of possible conflict there. So I will abstain on that item.

And thus that would be, the items we would be considering then would be the first five loans with the exception of the Riverside County Log World.

MR. BOISSON: Good morning. As you indicated we will be presenting five loans for your approval today.

I'd like to take a real quick step back and just by way of summary mention that four of the loans we're considering today -- excuse me, three now, were submitted in September in the fourth cycle of the board's first year of lending in the RMDZ loan program.

Quick summary, after one full year of accepting applications, assuming the five on the table today are approved by the board, we will have approved 20 loans this year for a total of $7.7 million in board money, leveraging an additional 12.2 million of private capital, creating approximately 300 jobs and with a maximum capacity throughput of 600,000 tons per year through these companies,

ranging from collection and processing and end use. That's just by way of summary.

The loans we have on the table today, the five loans, again two of them are returning. They have been previously approved by the board. They are returning due to technical revisions in their financial credit structure.

The five loans total $1.9 million, have a combined throughput of 226 tons per year, and will create 62 jobs approximately.

What I'd like to do is briefly summarize the loans and then just say a couple very quick words to review, to recap the approval process that we've gone through with them.

First one is McCoy Sanitary Services in the Oakland Berkeley RMDZ. This company washes and reuses industrial plastic bags and their loan amount is $60,000.

Second one --

COMMITTEE MEMBER CHESBRO: Can I say something about that?

I think it's significant that that is a reuse related business relative to our waste prevention or source reduction priorities. So we haven't found a lot of those kinds of activities and it's nice that we are finding some that are in need of the money to promote the top item on the hierarchy.

MR. BOISSON: I think staff would agree with that sentiment as well.

Next one is a company called Fiberwood Incorporated of Sacramento, is start-up cellulose insulation and hydroseeding mulch company which uses waste paper, mixed grades, and their loan is for $150,000.

Next one, going into the new applications now, Commercial Filter Recycling in Fremont recycles oil filters and recovers both the paper and the metal and the oil components. Their loan is for $250,000.

EcoPave California of Long Beach recycles asphalt pavement. Their loan is for 200,000.

And finally, Tri-Ced Community Recycling of Fremont is a nonprofit recycling collection and processing center. And their loan is for $600,000.

I want to just very briefly recap the approval process these loans have gone through. The way we work it is four times a year we have deadlines to receive applications. Staff conduct an initial review for eligibility and completeness. The criteria, as you know, have been very broad, have been interpreted broadly over the last year. We have had a lot of discussion about collection facilities, et cetera, and I wanted to just point that out that we are reviewing those criteria, and we'll be bringing those back in December.

And then the loans are brought before this committee for review primarily of the policy issues surrounding the types of business, et cetera, and then forwarded to the board.

And that completes my presentation.

COMMITTEE CHAIRMAN RELIS: Mr. Huff.

COMMITTEE MEMBER HUFF: Yeah. Well, I know the item has been pulled, but I had a question about Log world, and it relates not so much as to whether this is transformation or not. I mean, one could certainly make the argument that this is decentralized incineration.

However, my question goes beyond that and that is even though -- even if we weren't to give a loan here there raises another question and that is I assume that the raw materials that are going into this product are separated at some point from the waste stream or perhaps at the curbside.

COMMITTEE CHAIRMAN RELIS: Correct.

COMMITTEE MEMBER HUFF: And thus not going into the landfill and thus not being counted as it goes across the gate as disposal.

How do we as a board make sure that people are not getting credit as diversion activities, which are not creditable as diversion under the law? We're going to have to institute a system to track every sheet of newsprint; aren't we?

COMMITTEE CHAIRMAN RELIS: You raised a point that came up actually this morning right -- and why I pulled the item was to not -- you're speaking to an issue which it is separated under our present counting system. You're right. It will not -- it will appear as diversion.

COMMITTEE MEMBER HUFF: But it isn't.

COMMITTEE CHAIRMAN RELIS: Well --

COMMITTEE MEMBER HUFF: Perhaps.

COMMITTEE CHAIRMAN RELIS: We're going to have some more discussion on that.

COMMITTEE MEMBER HUFF: If it isn't diversion then we're going to have to track it and make sure that people don't get credit as diversion for this activity. We're going to have to inventory all the newspaper.

COMMITTEE CHAIRMAN RELIS: I don't think we're going to send out parties to monitor all this, but we'll devise, we'll have to be cognizant of that fact if nothing else.

COMMITTEE MEMBER HUFF: Okay.

COMMITTEE CHAIRMAN RELIS: Is there any further discussion on these items?

COMMITTEE MEMBER HUFF: Do you have any thoughts on this, Mr. Chesbro?

COMMITTEE MEMBER CHESBRO: I do, but I think we'll be discussing it and working it out by asking the various

knowledgeable staff people, including the counsel, to examine the issue and try to figure out what the solution is.

My only question, or actually it's a comment, and I don't want to specify any loan, but I've expressed reservations in the past and I won't express them again about too much emphasis on the loan program on collection and processing as opposed to manufacturing.

There is no easy solution to that, just as there's probably no easy solution to figuring out how to deal with the Log World issue.

But we are going to have upcoming priorities, loan priorities, which will give us the opportunity potentially to address both issues. And so that's the point to deal with them. But I want to again express some reservation about it.

The problem, of course, is that it's not that easy to define, draw distinct lines between collection, processing, and manufacturing. That's going to be the dilemma that we're going to try to wrestle with when we go through the upcoming criteria discussion.

But at this point I'm prepared to support the list. As it is listed I will move it with the exception of the Log World loan.

COMMITTEE CHAIRMAN RELIS: Mr. Chesbro, I wonder

if I could ask you to separate out EcoPave.

COMMITTEE MEMBER CHESBRO: I will move the McCoy Sanitary, Fiberwood Incorporated, Commercial Filter Recycling, and Tri-Ced Community Recycling loans.

COMMITTEE MEMBER HUFF: I'll second.

COMMITTEE CHAIRMAN RELIS: Okay. So we'll call the roll on that.

COMMITTEE SECRETARY WADDELL: Board Members Chesbro.

COMMITTEE MEMBER CHESBRO: Aye.

COMMITTEE SECRETARY WADDELL: Huff.

COMMITTEE MEMBER HUFF: Aye.

COMMITTEE SECRETARY WADDELL: Chairman Relis.

COMMITTEE CHAIRMAN RELIS: Aye.

There will be a separate --

COMMITTEE MEMBER CHESBRO: Oh, yeah. Move the EcoPave loan.

COMMITTEE CHAIRMAN RELIS: Okay.

COMMITTEE MEMBER HUFF: I'll second.

COMMITTEE CHAIRMAN RELIS: Call the roll.

COMMITTEE SECRETARY WADDELL: Board Members Chesbro.

COMMITTEE MEMBER CHESBRO: Aye.

COMMITTEE SECRETARY WADDELL: Huff.

COMMITTEE MEMBER HUFF: Aye.

COMMITTEE SECRETARY WADDELL: Chairman Relis.

COMMITTEE CHAIRMAN RELIS: Abstain for the aforementioned reasons.

COMMITTEE MEMBER CHESBRO: I suppose we'll place the others, except for the EcoPave --

COMMITTEE CHAIRMAN RELIS: Put that on consent.

COMMITTEE MEMBER HUFF: Absolutely.

COMMITTEE CHAIRMAN RELIS: On consent.

And that brings us to, let's see, Item 5, status report on Santa Barbara County Compost Markets Research.

Who from staff is here to speak to that item? Not here? Travel problems?

Well, any open discussion items for the moment? Otherwise we will -- we're not going to start our workshop so we're going to have to take a break.

COMMITTEE MEMBER HUFF: Take a break.

COMMITTEE CHAIRMAN RELIS: If they don't get here soon --

COMMITTEE MEMBER CHESBRO: We have a rough schedule. We work for ten minutes and then we take another break. We start late, we work for ten minutes and we take a break.

(Thereupon a short recess was taken.)

COMMITTEE CHAIRMAN RELIS: I'm going to adjourn the Markets Committee, or recess it rather, to bring

together the full board.

(Thereupon the committee meeting was recessed. A full board meeting was held, which was transcribed separately.)

COMMITTEE CHAIRMAN RELIS: We'll call to order the Market Development Committee meeting and we're going -- we are running a bit behind now, but I understand the Santa Barbara contingent is here now and we would like to move immediately into your somewhat abbreviated presentation now.

So who will be leading this discussion from staff?

MS. ECKSTROM: I'm Rennie Eckstrom, senior waste management engineer here at the board.

Just a 30-second, and you can time me on this, introduction. The board has a contract with the County of Santa Barbara, because as you are well aware, the success of composting facilities does depend on the marketability of that compost.

So the board in 1992 entered into a contract with Santa Barbara County for compost research that we will then use to spread to the local agencies and the County of Santa Barbara will use in the design of their South Coast Integrated Diversion Facility.

Also speaking today are representatives from the county. We have Heidi Whitman, who is the solid waste planning manager for the County's Public Works Department.

She will talk about the markets assessment findings that they have made.

Also speaking will be Aziz Shiralipour, the lead scientist for the Community Environmental Council, who has conducted the field tests.

And also Marlene Demery, who is the director of Public Works, who will talk about the significance of the findings.

First up will be Edgar Rojas, who is a waste management engineer here at the board, who will discuss the contract products, what has been submitted to the board so far.

Edgar.

Was that 30 seconds?

MR. ROJAS: Good morning. I will be using overhead projectors for my presentation.

First I will discuss the overall structure of the project.

The project is composed of three research elements, the collection system evaluation, the solid waste processing and technology assessment, and the compost markets.

All of the information gathered from these three research elements will be used directly in the design of the South Coast Integrated Diversion Facility. This facility

will have the capability to produce over a thousand tons per day of mixed solid waste and source-separated materials to recover recyclables and produce compost.

The leader of the collection system evaluation is Roy F. Weston. As a consultant Weston has the responsibility to evaluate the existing collection systems in Santa Barbara County. Weston also helps the County in selecting up to five different collection systems for evaluation purposes.

The total cost of this research project is about $46,000.

The leader of this solid waste processing and composting technology assessment is the Integrated Recycling Incorporated, IRI. The objective of this research is to provide a review of up to ten alternative technologies for solid waste processing and composting. The information gathered by IRI will be used by the County to develop a request for proposal for the solid waste integrated diversion facility.

In this information will be also useful for developing a technology tool which can be used to rank the technologies once the proposals are submitted to the County.

The total cost of this research is about $98,000, and Procter & Gamble provided $100,000 grant.

Finally, we have the three-year compost markets

research where the board plays an integral role as one of the funding sources. The total cost of this research is $315,000.

The leader of this compost markets research is the Community Environmental Council, CEC.

This research and education institution has is responsibility for coordinating and scheduling all of the aspects of this project.

To assist in this coordination two groups were formed, the markets advisory development group and the project research group.

The market advisory development group includes the County, the County Agricultural Commission, Caltrans, the Soil Conservation Service, and other organizations.

The PRG includes our board, the County, IRI, CEC and the Procter & Gamble Company.

The primary goal of this compost markets research is to resolve uncertainties surrounding the marketability of compost produced by the SCIDF. The emphasis of this research is to evaluate the market capacity in Santa Barbara area based on the standards and costs.

This research will provide a compost markets area, compost markets map of the area of Santa Barbara, and it will also provide technical data regarding the performance of a variety of compost products under varying condition and

for multiple purposes.

It will also provide recommendations as to the needed regulatory framework and a standard development for supporting composting.

The funding sources are these: the board will provide $150,000, Procter & Gamble 135,000, and PEW Charitable Trust, 150,000. Total cost, $350,000.

These are the tasks supported by the board in the interagency agreement with the Santa Barbara County.

First is the workplan development, literature review, local market identification, field test design, and laboratory analysis.

Finally we have here some of the most important findings of literature review from the markets point of view.

Although availability and cost are important factors in the development of compost markets, literature suggests that compost product quality may be the decisive factor in market development.

The agricultural industry is the largest potential user of compost products. However, transportation costs greatly reduce the potential size of this market.

Horticultural uses represents large potential markets for composted products. According to study conducted by Battelle Institute in 1992 the potential market

demand for horticultural use exceeds 11 million tons in the United States a year.

When the potential is obviously great, the penetration rate of the silviculture market will be slow and dependent upon field tests that demonstrate the benefits to the forests and the absence of adverse impact on the environment.

Compost applications for forest regeneration represents the largest potential demand for compost in forest applications.

The mine reclamation and the landfill cover demand for compost products is low. It is considered to be below half a million tons per year.

The County already submitted two drafts of the literature review to the board. Board comments are being incorporated in the final report of the literature review and will be available by the end of next week.

This concludes my presentation on the general structure of the project.

Our next speaker is Ms. Heidi Whitman, who will be talking about the findings of the markets assessment. She is a solid waste planning manager from the County of Santa Barbara.

Heidi.

MS. DEMERY: I'm not Heidi, but close enough.

We're, if anything, adaptable.

I do apologize for not being here at 9:00. We figured since we were No. 5 on the agenda we could catch the flight that got in here at 10 to 9:00. So I apologize for us not being here earlier.

I am Marlene Demery. I'm the director of Public Works for Santa Barbara County.

We're going to try to keep our comments very short so you can hear from Dr. Shiralipour, because I think his information is going to be most valuable to you.

Obviously, as Rennie and Edgar explained to you, this information that we're targeting with you today is part of a much larger study. And so most of what we're going to be talking about today has to do with the compost market research.

But the entire project that we have undertaken for the planning of the South County Integrated Diversion Facility has been very helpful in helping to design a least cost system, which I think as a public works director and have to sell the rates to both our elected officials and county constituents, the least cost system is what we really should be targeting our efforts in.

It would be a travesty if all of the impacts of 939 allowed us to recycle material and then not be able to put to good use. So marketing is absolutely a key to

success of 939.

Just to give you a few stats about Santa Barbara County.

We have a population of approximately 360,000 people. It is very largely a rural community, even though Santa Barbara has not quite that reputation.

Our agricultural industry in Santa Barbara County is approximately $400 million per year and that's a large part of our local economy. So we do have some things in our favor in terms of finding markets for compost material.

We have 700,000 acres of land under cultivation and we currently are using 149,000 tons of organic material in those agricultural lands.

Our north county is made up of most of our rural area and agricultural communities are in that area.

Our largest crops are strawberries, broccolis and we have a very large and growing vineyard industry along with flower production.

In our south county we have primarily a lot of nurseries and hothouse greenhouses.

So we do have a very big potential for using compost within the county.

And because Santa Barbara is not a very large county we are really targeting our market to Santa Barbara County because of the cost for traveling and for

transporting the material away and the fact that we will not be producing as much as some larger entities that may have the ability to ship it further distances cost effectively.

So we are really looking at what are the markets within Santa Barbara County for the material that we're producing.

The Waste Board's participation in this study has been greatly appreciated and I think will help to serve as a model for a lot of other local agencies, so we really do appreciate your assistance, both financially and technically, in coming up with a very good study that I think will be very valuable to other areas around the state.

The results are very good of our entire project, and we're not going to talk about that today, but I do want to key in on a couple of facts that I think are things that the Waste Board can help local agencies with in terms of being successful with 939.

The results of our larger study show that we have very strong -- this study actually shows that we have very strong markets for high-quality compost, but our lower quality compost markets need work. We need to really work on selling those materials and having the community feel that there is an advantage to using the material.

What we're -- basically the results of our larger study is that we should be implementing the integrated

diversion facility in phases. And we have three phases proposed. One is recyclable diversion, high-quality green waste compost phases. Those are Phase 1 and 2. And those two phases alone get Santa Barbara County at approximately 44 percent diversion. So we get fairly fairly close to 50 percent with those two phases.

And as I said we have very strong markets for high-quality compost. We feel that we'll be very successful in having all that material reused.

We do plan on implementing the third phase, which is the lower-quality compost phase, at a later date. Given the finances of the project it doesn't lend itself to being constructed all at one phase, but we do feel that that kind of delay will help us to develop those markets for the lower quality compost material. So that will give us some time to make sure that the material is going to be reused.

And the eventual addition of that third phase would add another 20 percent to our diversion, so we would be at 64 percent with our planning study results, with the implementation of the third phase.

So we appreciate your help and I'll now turn it over to Heidi Whitman to tell you a little bit more about the project and then to Dr. Shiralipour.

MS. WHITMAN: Good morning. The preliminary compost markets assessment was conducted in May to June of

this last year and it was conducted for Santa Barbara County specifically.

But the methodology could be used easily by other jurisdictions to identify their local markets for compost materials. So we feel that this is a study that is of value to many of the jurisdictions.

Our objectives were to identify the existing and potential users. And this was pretty critical. It was our first contact with many of the agricultural community. They wondered, we're in solid waste business, what could you possibly be interested in and you don't know anything about growing plants.

So it helped us to begin to establish our working relationship and also start to educate the local growers about compost products.

It's also been an education for the County as well because most of us in solid waste didn't know a whole lot about growing broccoli.

Another one of our objectives was to quantify the current use of compost and soil amendments in a 50-mile radius around the county and we found out that the current use of compost products is very low. This is to be somewhat expected because we don't currently have anyone producing consistent compost in the county.

We also wanted to identify the product

specifications that were necessary for different markets in the county, estimate the potential demand for those products, and identify barriers to market development.

We were fortunate with the design of the study. We do have a Markets advisory and Development Group, known as the MADG, and this was representatives from the agriculture and horticulture industries, the University of California Cooperative Extension, the Soil Conservation Service, Public Works and our County Ag Commissioner's office.

This group really helped us to ask the questions that the growers were interested in. And we sent our surveys by them prior to doing this assessment and it really helped us to steer it so that we get information that was valuable to both the ag community and ourselves.

We sent out the survey in May and June of 1993 and we had a 10 to 57 percent response rate, depending on the industry in which we sent it to. They were sent out to agriculture, horticulture, landscaping, mining and the public sector.

And I'll get right to it. The results showed us that we do have a significant potential market existing and there's a low current use of compost. Instead they currently use crop residues, manures and mulches.

We found what they're most interested in is

product specifications and that's one area in which the board could really help us by identifying minimum product standards. That would help us overcome some of the barriers in Santa Barbara County.

They're interested in the nutrient content of the material, the salt concentration, odor, the consistency of the material, the pH and then also color and material grade.

The respondents that replied to our survey did say that compost would improve their soil's health, water savings and crop yield, but we do need a little work on identifying -- well, showing the agricultural community and really proving to them in the field that this can improve crop vigor and yield as well.

Additionally, they were very concerned with the availability of the material. We have pretty much year-round markets for materials agriculturally. And they also need year-round availability of compost if they're going to continue to use that in their operations.

Product cost was a huge concern to the agricultural industry and mining because there are some low-cost materials available to them right now.

And product quality was very much a concern to the agricultural, landscaping, and horticulture industries.

The demand that we were able to find was anywhere from 24,000 to 125,000 tons per year and that illustrates to

us the uncertainty of the market and the need for future market development activities.

We used a very conservative estimate for our planning purposes in regards to the facility, but there is a huge potential out there and it needs to be explored further.

The cost that they're willing to pay is anywhere from a dollar to $40 a ton and it's somewhat tied to what they're used to paying. The landscaping industry is used to paying a premium for their materials such as peatmoss and barks and the ag arena is used to using things like chicken manure that is available at a very inexpensive cost.

Some of the barriers that we saw to implementing this is the cost and that's one of the reasons that we feel that our least cost market driven integrated waste management design is really important so that we can keep the cost of these materials down and make them readily available.

And the quality could really be a barrier. We really need some minimum product standards so that they're sure that what they're buying is consistent.

We also identified a couple areas where we can do additional research. We could certainly use a cost benefit analysis of manures versus compost in some of these row crops.

And some detailed product specification information. Many of the user groups know that a certain chemical works and they don't know how that relates to compost. They can't tell us, well, I need so many pounds of nitrogen per acre. So that would help.

And this is very user group specific. Strawberries, for instance, are very sensitive to salts and that's one of the things that we found they need to know that the specifications for salt are there so that their crop isn't killed one year and the fields are ruined for the next.

And then we also need some practical hands-on information relating to the large-scale compost use such as transportation and application methods and costs. The growers that we're working with are very let's wait and see, show me and then maybe we'll incorporate it.

But it really does help to have this MADG group, which is folks from the industry that are saying maybe I'll try this on my field.

Finally, this has really demonstrated to us the importance of partnerships. Our objective is solid waste diversion, of course, but the MADG members were helpful in bridging the gap between our solid waste concerns and what really is useful in the fields. And I believe the other jurisdictions have been very helpful in that as well.

I'm going let Dr. Shiralipour give you an update on what's actually happening in the field. When you see that I think that will make a big impression on you.

Thanks.

COMMITTEE MEMBER CHESBRO: May I ask you a question?

MS. WHITMAN: Sure.

COMMITTEE MEMBER CHESBRO: Do I understand that are you considering sludge in the compost? I'm curious because you're talking about replacement of manures, which have nitrogen with the essentially humus if it doesn't have sludge or some nitrogen producing material in it, so they're not really comparable unless there is something like sludge.

MS. WHITMAN: Right. Many of our field tests are being done blind. And one of the reasons that we've done that is because growers will walk out in the field and they'll say, well, this is what I want my plants to look like. But then on the flip side when they find out that some of the compost has been made with biosolids, they'll say, oh, I don't want any of that on my field.

So we are considering using biosolids. We have a real demand on the south coast to come up with a solution for biosolids. Previously they've been land applied and we're running out of room for that sort of nitrogen loading.

So the sanitation agency managers have been

another group that's been working with us on this project and we are considering it.

But what we'd like to stress with the integrated diversion facility is that we would be able to make a variety of products for these certain markets and it would be market driven and we wouldn't just take everything we have and dump it.

COMMITTEE MEMBER CHESBRO: Am I correct in assuming that unless you do something with the biosolids that it wouldn't be a replacement for materials like manures that the farmers are now using?

MS. WHITMAN: Yes. For some of the products.

COMMITTEE MEMBER CHESBRO: Thank you.

COMMITTEE CHAIRMAN RELIS: Thank you.

MS. ECKSTROM: We're having just a little bit of difficulty with the slide projector.

COMMITTEE CHAIRMAN RELIS: I think you should be prepared to go ahead without the slides. We don't have time to play around.

DR. SHIRALIPOUR: I'll just briefly mention what are the results. I'll get to my talk quickly since we are short of time.

If the 50 percent diversion goal is achieved and the organic portion of the waste is converted into compost it is estimated that five to six million tons of compost

would be produced in California every year.

Now this raises some questions including will the market capacity in California be sufficient to utilize this quantity of compost?

The second question is what is the compost market capacity, what is the potential capacity of the market?

And the third question is if the supply is more than the demand what are the strategies to develop markets for the compost products?

According to Battelle's study, the potential market demand for California is approximately 15 million tons a year. This is three times as much as potential demand. So supply is 15 million tons and demand is -- I'm sorry. I made a mistake. Demand is 15 million tons and supply is, the potential supply could be five to six million tons.

Considering that the use of compost today is low in California, it's approximately two percent of the potential supply, we have a market development challenge rather than a market outlet and we have to find some strategies and successful steps to develop market for the composted product.

We identified the following as successful steps in producing and developing market for composted products.

First step is conduct market assessment, which

Heidi went over and described how we did it.

And then the second step is build a market for compost product by showing the benefits of compost applications and the values associated with these benefits.

For example, on the left column you see the benefits which include increase in water holding capacity and the value is water conservation; or increase cation exchange capacity, which its value is saving in fertilizer; or improve plant growth response and that way you'll increase the yield. And that's the value. Or improve plant vigor, which will give you stronger plant with deeper root penetration and eventually more yields and better water absorption. And finally there is suppression of soil borne diseases, which can, the value could be pesticide conservation.

Now these are the benefits which can be demonstrated and when the farmers, when the users see the benefits we will establish markets for the compost.

However, there are some pessimists that this might not be enough for them. So what we need to do, we need to let them know that the application of compost is safe for human health, safety and the environment.

To do that we have to do chemical analysis and that's another step and that's very important, especially for the skeptics.

The third thing that we need to do is just to have more compost field test in a large field in demonstration in field size and to show the users and the regulators the advantage of compost application.

And this project has completed these steps and we got good results actually. In terms of benefits we got about 7 to 28 percent saving in water conservation. This depends on type of compost, since we used six types of compost, and also soil types and rates of compost application.

However, this is a great saving especially in dry region of California, which water is expensive.

Then we increase -- our experiment showed that yield of both lettuce and broccoli increased tremendously. With lettuce we got 39 to 58 increase in yield. With broccoli heads we got two, three hundred percent increase. In other words, broccoli heads were produced about a week earlier when they were compost treated and at the time of harvest the heads, compost treated broccoli heads, were two to three times larger than the control and even fertilizer treated plots. So it definitely increased the yield.

We also compared the use of fertilizer against compost. In all cases compost, all six times actually, compost was superior to fertilizer application, which was about 30 to 60 pounds of nitrogen per acre, which is a

conventional quantity that is being used.

However, combination of fertilizer and compost with most compost types did not increase the yield. In other words, the fertilizer didn't give us additional growth or increasing yield.

However, in certain type of compost, like yard waste compost, which were low in nutrient, addition of fertilizer did increase the yield. So it depends on the type of compost. The addition of fertilizer makes it varies.

We are also comparing the cost of fertilizer application against the compost application and also analyze what is the difference in terms of dollar value when we use compost, when we use fertilizer against the compost application.

So I will show you, if the projector is ready, I'll show you the results of the experiment. Okay. If not, please take my word that whatever I said was true and it was astonishing even to me.

What we learned from these experiments, number one is that the results are agreeable with the other research that were done in other parts of the country. But our research had the advantage of using six types of compost, whereas the other projects used maybe one or two composts. This way we could compare the heavier of the different

composts. Like what I said, for instance, addition of nitrogen to source separated or organic did not increase the yield when we added compost, but with green waste it did.

So this was good, especially for the people who think that compost must come from green sources and that's clean and that gives us the best results.

Our water saving was different with a different type of compost.

I'm not going to go through all the results, because I'm short of time, but I'll just briefly mention what we got tells us that market can be built and is being built for compost.

Good example is when we had these experiments conducted in the land the owner came to me and when he saw the difference between compost application and fertilizer he said, Aziz, I want to use compost for the next season, where can I get it, where can I get compost? So I told him where.

But the thing that are necessary to know about compost since it's a early stage and it's actually in infancy, we have to know the compost. We have to teach the users. We have to teach the -- have the users and also extension people who could use the users. We should have classes. We should have advertisement to show the advantage of the compost application and also correct usage of compost application. And because if it's being used or misused, I

should say, it can cause some disaster for this industry.

So number one we could develop market if we have the knowledge of the compost and we have the right steps for to show the advantage of the compost.

Secondly, for the pessimist we should show that it's safe.

And then another thing that is very important and it needs consideration maybe by this board too is the long-term effect of compost, both on land, on plants. We really don't know what's going to happen to land, especially some of the farmers who are hesitant to use compost come and say that, look, when fertilizer came to this country we all were excited but now we know that extensive use of fertilizer might cause a detrimental effect on soil. What about compost? We don't know, because we haven't done it for several years. It's new. We need long-term effects of compost effect both on soil and plant, at least five years.

These are the needs and also the teaching and having workshops and training extension people even, because they don't know much about compost. We need to teach the compost producers. The facilities that produce compost usually are unaware of the biology of the composting and they don't use, they don't produce good compost.

So these are the things that we need to consider in compost market development.

Thank you very much.

COMMITTEE CHAIRMAN RELIS: Thank you.

Due to the little time we have left, I'm just going to ask if there are any questions from committee members, before just very briefly opening it up to anyone in the audience who wants to say anything. But we only have a few minutes now.

So if there are no comments from committee members is there anyone in the audience?

MR. GREALY: My name is Stephen Grealy, S-t-e-p-h-e-n G-r-e-a-l-y, with City of San Diego.

I would just like to reinforce the comments that Dr. Aziz has made about the need for additional research for composting.

In San Diego we're currently developing and we have a contract for building a 300,000 ton per year composting facility, and market research that's being done by Dr. Aziz is going to be very useful for us as well.

We also have a very large horticulture industry down there as well as field agricultural industry and those sort of connections really need to be explored and strengthened, not only for our facility but I believe that's also the case statewide as we all start producing more and more compost.

And convincing the farmers is one of the biggest

things is going to be showing them the quality, the benefits from well-balanced field studies such as the study that's being done in Santa Barbara and not letting them getting their information from the mistakes that are being made by composting facilities, large composting facilities around the country.

That's all I have to say. Thank you.

COMMITTEE CHAIRMAN RELIS: Thank you very much.

Any other comments?

Okay. Well, I would like to thank everyone from Santa Barbara County and the CEC and the other participants in this study for coming up here and sharing it with us at this point.

You're probably aware that there's a great deal of discussion going on at the board now about compost, both in the Market Development Committee and in the Permits and Enforcement Committee, concerning our forthcoming regulations related to mixed waste and co-composting.

So as much information as we can receive at this time and particularly in this committee on your markets suggestions are paramount importance.

So we look forward to a condensed, I guess, set of recommendations that you could make to us. And I'm sure you'll be working with the staff closely in completing the contract and in the final reporting there.

So at this point we'll conclude, unless there's any discussion items, the Market Committee meeting.

And we will take a break, but before we do I'd like to see how many people are here for the discussion, the workshop? If you can raise your hands. So we're trying to see if we can break the room down into a workshop format different than this one.

What's the read from staff on the feasibility of that?

FROM THE AUDIENCE: Limited.

COMMITTEE CHAIRMAN RELIS: Looks like we'll have to keep the room --

FROM THE AUDIENCE: There's at least ten more people outside.

COMMITTEE CHAIRMAN RELIS: Looks like we'll need to keep the room as it is. This will not be quite as interactive then as we would hope, but that's the way it will be because of the numbers.

So we'll take a five minute recess and then convene, we'll convene at 11:00.

(Thereupon the Market Development Committee meeting was adjourned at 10:50 a.m.)

CERTIFICATE OF SHORTHAND REPORTER

I, JANET H. NICOL, a Certified Shorthand Reporter of the State of California, do hereby certify that I am a disinterested person herein; that I reported the foregoing meeting in shorthand writing; that I thereafter caused my shorthand writing to be transcribed into typewriting.

I further certify that I am not of counsel or attorney for any of the parties to said meeting, or in any way interested in the outcome of said meeting.

IN WITNESS WHEREOF, I have hereunto set my hand this 30th day of November 1993.

Janet H. Nicol
Certified Shorthand Reporter
License Number 9764