STAFF WORKSHOP
STATE OF CALIFORNIA
CALIFORNIA INTEGRATED WASTE MANAGEMENT BOARD
GLASS MARKET DEVELOPMENT

--o0o--

COPY

BOARD ROOM

8800 CAL CENTER DRIVE

SACRAMENTO, CALIFORNIA

--o0o--

THURSDAY, AUGUST 20, 1992

11:00 A.M.

--o0o--

Vicki L. Medeiros, C.S.R.
License No. 7871

A P P E A R A N C E S

CHAIRMAN:

JOHN D. SMITH
Branch Chief
Markets Development Branch

LIN LINDERT
Project Manager
Markets Development Branch

PANELISTS:

Roger Bassett, Sonoma Valley Community Recycling Center

Bob Doty, Spv. Material and Research Engineer, CalTrans

Ron Greenberg, Manager, Safety and Environment,
Manville-Schuler International

Mike Henebury, Circo Recyclers

Gary Liss, CRRA Executive Director

Kirsten Ritchie, Executive Director,
Western States Glass Recycling Program

Eugene Tseng, Consultant

I N D E X

--oOo--

	Page
Proceedings	1
Remarks by Chairman Smith	1
Question No. 1	2
Question No. 2	34
Luncheon recess	51
Afternoon Session	52
Question No. 3	52
Question No. 4	63
Question No. 5	84
Question No. 6	118
Adjournment	134
Certificate of Reporter	135

--oOo--

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

2 --o0o--

3 CHAIRMAN SMITH: Before getting into the specific
4 questions that we are going to begin asking the panel to
5 respond to, I would like to say a bit about where we're
6 going from here.

7 We started with the Market Status Report. We're
8 having this Workshop to get meaningful input from all
9 perspectives. From that, the comments on the draft report,
10 the written comments and the information obtained from the
11 Workshop, we are then going to prepare a detailed action
12 plan for establishing secure markets for glass.

13 That action plan will include some very detailed
14 actions that will be started immediately to ensure that
15 we're going to have the markets for the materials that are
16 now being collected by local jurisdictions to meet their
17 twenty-five and fifty percent goals.

18 In addition, we're on a broader basis, we are in
19 the process of developing a comprehensive plan for market
20 development. That will include programs for all
21 materials. We will include short-term activities that need
22 to be implemented immediately, as well as the long-term
23 fixes, so that we have a coordinated and comprehensive
24 approach to market development.

25 With that, I would like to turn to the panel, and

1 I think we can start with Roger, in going over the first
2 catch question that we have provided.
3 These questions are on the back of the Notice.
4 Roger, the first question that we are asking the panelists,
5 what are the greatest barriers for expanding use of
6 secondary materials by existing recycled product
7 manufacturers?
8 MR. BASSETT: I sort of reworded that to
9 expanding reuse, because these questions really are
10 oriented to recycling.
11 The greatest barrier, basically, is lack of life
12 cycle accountability. As Gary mentioned, aluminum and
13 plastic are essentially subsidized, they are power
14 subsidies.
15 Many packaging materials are subsidized because
16 the manufacturer is not responsible ultimately for the life
17 cycle of the product. Perhaps we should copy what Germany
18 is doing for all packaging, not just glass.
19 I handed away my handout.
20 CHAIRMAN SMITH: Let me tell you the second part
21 of the question.
22 How could these barriers best be overcome, and,
23 again, you're focusing on areas to reuse.
24 MR. BASSETT: One thing that would help quite a
25 bit is either to have a bottle bill, such that it allows

one return to the stores, like the most successful bottle bill states, and also that requires in-state bottlers this life cycle accountability, distributors of out-of-state containers and importers of containers, respectively, to be responsible for the containers life cycle.

The reason I say this is, the way Lutz-Wynhart got into the bottle reuse program with their single-use bottles was through the Oregon bottle bill, which mandated that distributors, only, there, have to take back their materials from the store.

Lutz realized that they had to haul them anyway since they distribute in Oregon and three other states. They could save money if they would wash the bottles, and, in fact, they have for years now.

CHAIRMAN SMITH: Anything else?

MR. BASSETT: No.

CHAIRMAN SMITH: Okay. Turning to the next panelist, do you have any input on that question?

MR. DOTY: The only thing that I have is a rather generic observation that will probably be pertinent to all of the Workshop you hold, and that is overcoming a reluctance to change.

I can assure you that in the profession that I am a part of, civil engineering, that is definitely there, and in the opinion of many dominates or predominates.

However, I think it's a fact that has to be dealt with. How best to deal with it is a very good question for which I don't have a real good answer.

One of the things that we in the engineering profession, particularly as associated with road building deal with routinely, is what problem or problems we're currently trying to solve will this help us solve. To do that, the person that is approaching us with a new material or new process, or whatever, can best get our attention if they can provide us with this sort of input.

To do so, they have to be able to speak our language to a certain extent. In the headquarters lab that I am a part of, what we're talking about is a language that consists of test data, ideally related to performance, but at least having come from testing in a laboratory.

Reluctance to change, an ever-present problem. I think it's applicable here, too.

CHAIRMAN SMITH: This Board has a role working with the public and state agencies to turn around the attitude about buying recycled materials, so we have a program to keep working at that.

Ron, do you have some perspective on this question?

I also wanted to ask you, can cullet used in fiberglass be used for other uses besides just insulation?

1 MR. GREENBERG: Not right off hand.

2 Basically, my familiarity is with the fiberglass
3 industry. I know other insulations like ceramic or foam
4 wouldn't have any kind of a position for glass or recycled
5 glass.

6 I think that in terms of the fiberglass industry
7 the biggest barrier is a consistent, steady supply of the
8 raw material. We have problems in terms of -- I don't know
9 if anybody is going to be able to see this.

10 Both of those glass plugs were made from glass
11 that contained recycled material. The problem that we run
12 into is that the secondary material, the cullet, as we buy
13 it, is oftentimes contaminated, and the color will often
14 run from the very green on my left to the very dark shade
15 that is on my right.

16 This poses tremendous problems with respect to
17 process equipment. We basically read temperature by
18 color.

19 Equipment that is set up to see specifically the
20 green glass that is on my left doesn't understand what is
21 going on when it sees the darker glass that's on my right.
22 It can send the entire process into a tailspin that often
23 takes hours to correct.

24 Product consistency, in terms of the raw material
25 that we receive would improve our ability to produce a

1 product, we end up oftentimes not realizing that there is a
2 product until it ends up in the warehouse, and then we have
3 to go back and pull all that material out and dispose of
4 it.
5 By trying to divert one stream from the landfill,
6 we end up subsequently with another that is virtually
7 useless and ends up in the landfill.
8 Lead levels that we find in the cullet that we
9 receive posed a problem that our industry had never faced
10 before. All of the raw materials in the glass that we
11 produced prior to using curbside cullet did not contain any
12 lead.
13 Lead was not a problem in terms of occupational
14 exposure, or in terms of emissions from our melting
15 process. With the use of the curbside cullet, we see
16 levels of lead in our facility, and we also have levels of
17 lead as an emission.
18 None of these levels exceed any regulatory limits
19 at this point, but, especially in California, regulatory
20 limits drop faster than the glass would fall of that ledge.
21 Here we have a perfectly viable product that
22 didn't have any detrimental materials in it to start with,
23 and what we have actually done is added them.
24 Even though the legislation that we're working
25 under to provide the use of secondary product specifically

1 said that there would be no non-magnetic metals in the raw
2 material, we are finding levels of lead and selenium both.
3 A sister plant of ours, not located in
4 California, was using mirror glass as part of their raw
5 materials. In a recent rebuild that they did of their
6 melting furnace they were able to recover something in
7 excess of $50 worth of silver that produced heat sinks and
8 ate through the refractory that protects the melter shell.
9 Metal is definitely -- the non-magnetic metals
10 are definitely a problem for us.
11 The recycled glass is far more dustier than our
12 finished product or any of the other raw materials that we
13 use to make our product. The dust levels create havoc in
14 terms of trying to produce a consistent product.
15 The dust seems to be higher concentration of the
16 things we don't want, like paper and plastic, lead. The
17 dust the very, very undesirable.
18 We also have discovered during the winter months
19 that cullet we receive is not dry, if the moisture content
20 is high, we end up with an obnoxious odor that we have
21 never experienced before. There really isn't any way that
22 you can assess a dollar value to neighborhood complaints,
23 but I think they are worth a lot of money.
24 The less people that I have to talk to about why
25 does it smell funny there, it's a lot better. People can't

1 separate the fact that there has got to be something bad if
2 they can smell it. It's an area that we were never
3 involved in before, and I would really like to get away
4 from it again.
5 Those are the major barriers that I see in using
6 the secondary materials.
7 CHAIRMAN SMITH: Are you working with glass
8 processors to improve the quality of the material?
9 MR. GREENBERG: We hope we are.
10 CHAIRMAN SMITH: We might have to ask the glass
11 processors.
12 MR. HENEBURY: We are working in those areas, and
13 that is some of the barriers now.
14 Fiberglass, glass and -- recycled glass in
15 fiberglass is a new thing. Manville has been testing this
16 material now. We're beyond the testing point, but I don't
17 believe we've been running this material yet for a year.
18 There have been barriers and pitfalls and heights
19 and an enormous array of other things, like odor, which we
20 didn't construe as ever being a problem. As every problem
21 does occur, my attitude, and most of the people at Manville
22 that we work with and some of the other fiberglass people,
23 is that we are both committed to making a quality product
24 that is going to work; one, for the industry; and, two, for
25 the processor, and have a viable end to a mixed material

1 screen.

2 The attitude between the processor and the

3 fiberglass industry is, yes, we have a problem. How do we

4 overcome it? Let's figure out and construe a way that we

5 can change this.

6 As we are doing this, better equipment is being

7 designed on our half. In California, unfortunately, the

8 wit and wisdom of a lot of our corporate officers, they

9 thought it never rained in California.

10 That's where we got into a moisture problem. We

11 are now purchasing a dryer, which I think will solve that

12 problem.

13 Metals, again, lead is the major problem there.

14 I don't believe selenium is coming from glass. I would be

15 quite shocked if it was.

16 Lead does come from the wine bottles. We know

17 that. We are looking for ways to alter our processing that

18 will diminish the amount of lead in there.

19 Will we ever get all of the lead out? Probably

20 not until all of the lead is off the glass.

21 Quality of the incoming product is always a

22 concern. Ceramic in large amounts could hurt the

23 fiberglass industry, will hurt the glass container

24 industry.

25 Visionware, I would imagine, would hurt the

1 fiberglass industry. That will hurt the glass container
2 industry.
3 Those are all areas where we try to work with
4 recyclers and curbsides, and possibly a little more public
5 awareness by DOC or this Board itself would help in some of
6 those areas.
7 Markets for excess material in LA. We have the
8 luxury again of having a strong market here in Northern
9 California.
10 Gary mentioned Gallo. That's one of the
11 reasons. The fiberglass industry is another one of the
12 reasons, as well as we can run all three colors here in
13 Northern California at certain times of the year.
14 Southern California they may run green in one
15 tank for a month or two. They generate a lot more glass in
16 Southern California because of the amount of people down
17 there. Green is a major problem down there.
18 It gets trucked to Northern California at a great
19 expense, which is not cost-effective to the glass industry,
20 but they continue to take this material because they want
21 to do their share as far as being good Samaritans,
22 recycling companies do their part.
23 Mixed material is basically dead down there.
24 There is a lot of mixed generated and no where for it to go
25 at this point. Trying to come up with markets besides

1 shipping it to Mexico, which is what a lot of our
2 competitors think is the answer for that material.
3 I don't think that is the answer because
4 basically the outcome of that is going to be California
5 glass plants closing.
6 MR. LISS: John, can I follow-up on Mike and Ron's
7 points?
8 As far as processing, one of the key questions I
9 think is in differentiating between commercial and
10 residential sources. In the past, I know Circo has had a
11 lot of experience with the insulation market prior to the
12 minimum content legislation being adopted.
13 Was part of the problem in the past meeting the
14 standards of Owens-Corning in Santa Clara having to do with
15 the mixing together of residential and commercial
16 processing, and do we need to make improvements in the
17 differentiating the sources of the glass?
18 Because clearly the commercial glass is much more
19 contaminated than residential glass, as my understanding.
20 MR. HENEBURY: It depends on which commerical. If
21 you're talking about the bar and restaurant material, then
22 that is contaminated.
23 But something that we might get from say
24 Coca-Cola or Pepsi is actually some of the highest material
25 that you can have. Unfortunately, somebody like Pepsi or

1 Coke is penalized in some way.

2 Sometimes it's hard for them to understand why

3 they are getting this price, and then you have a curbside

4 who gets a commingled rate and a processing fee and a scrap

5 rate, they want to know why is this curbside getting $50 a

6 ton more than I am, but my glass is cleaner?

7 It's kind of a double-edged sword there.

8 Corning's problems a long time ago, basically,

9 were due to when 20/20 basically went into effect, glass

10 prices shot through the roof. It was an artificial price.

11 If you don't know that, I'm here to tell you that

12 it was an artificial price. At that time, Circo looked at

13 it, you can make X-amount of dollars to recycle in

14 fiberglass, which at that point wasn't a whole lot.

15 There was no funding by the government. It was

16 something that we had done basically on our own, or you can

17 make $90 to $100 a ton to recycle with the glass industry,

18 it was basically a dollar-and-cents issue.

19 The material that we could offer Corning at that

20 time was a low-end material that happened to be bar and

21 restaurant and some really ratty plate and stuff like that.

22 It was a parting of the ways.

23 Now Corning, what they choose to do is use mixed

24 material and plate, and they blend them themselves. The

25 mixed material -- we're talking maybe ten to probably

1 twelve years ago when Corning originally tried to use
2 recycled products.
3 The material from a curbside has drastically
4 improved in quality since ten to twelve years ago. When you
5 were left with a residue of mixed glass, it was some really
6 ratty mixed glass.
7 The curbside material that we see now, there is
8 an understanding going back to maybe five, six, seven years
9 ago when we were all getting our loads rejected, whether it
10 be mixed or even color sorted at that time, that even
11 though you may have a low-end product for say a curbside,
12 having it be mixed, the end result of having been rejected
13 or not used would cost more than getting five or zero
14 dollars a ton for that material.
15 Quality plays a big deal in that.
16 MR. LISS: Particularly quality from the bar and
17 restaurant programs is a particular niche that I am
18 familiar with that was a particular concern, and that
19 having been associated with the early work with
20 Owens-Corning and being blown out by the economics of 20/20
21 is the combination of effects that today we could countere
22 through addressing other containers relative to 20/20 and
23 through additional financing of processing facilities.
24 One of the improvements in that that I would like
25 to suggest is also maintaining competition in processing

1 activities is something that CRRA certainly has strongly
2 encouraged in a variety of realms.
3 We are very concerned with the latest movement in
4 the last couple of years to consolidation within the
5 industry. In our Agenda for the 90's, we talked about the
6 horizontal and vertical integration of the industries, and
7 we are particularly concerned about recent developments in
8 processors squeezing out other processors in a vertical
9 integration of the industry, which is probably legal
10 because the glass industry got a little-known exemption
11 from anti-trust law about two years ago, as my
12 understanding, but the effect of that is just beginning to
13 happen in the market place today.
14 Revisiting either the anti-trust provisions or
15 the economic underpinnings under which this is going on is
16 something that I think needs more scrutiny to ensure that
17 there is either competition or the processing capabilities
18 through a vertically integrated industry are meeting the
19 needs of the collectors in the field.
20 MR. HENEBURY: I would like to say something on
21 that.
22 I think there is competition out there now. I
23 think, yes, there are less processors. One of the reasons
24 being that there are less processors is because we were all
25 out there on the line basically on our own, and a lot of

1 the processors here in this state actually closed.

2 The one's that were strong enough to survive, and

3 luckily, in my instance, Circo did, are the people that are

4 left now.

5 The glass industry, in my estimation, the glass

6 industry has done a wonderful job in trying to promote

7 recycling, stay afloat, keep market share, plus be a

8 processor.

9 Basically what you're seeing from the glass

10 industry now is they are going to do what they do best.

11 They are going to make bottles and try to protect their

12 market share and stay even keel. I think that's what they

13 should do.

14 The processor should be exactly that, the

15 processor and supply that material to the end user, and

16 there should be a division there, in my estimation.

17 CHAIRMAN SMITH: Mike, can I ask you a question,

18 what are the end uses for your green color mixes?

19 MR. HENEBURY: Right now, all of our three color

20 goes to the fiberglass industry.

21 We do sell some to Gallo. Gallo has an

22 interesting concept which will continue to work until

23 minimum contents probably go too high.

24 Gallo has the largest -- Kirsten could probably

25 help me on this one.

1 I believe they have the largest glass plant as
2 far as furnaces here in California. They have five
3 furnaces. Four of them are what they call flint glass,
4 what they call flint.
5 What OI and Gallo may call flint are two
6 different things. Gallo's flint, if you ever see one of
7 their clear bottles, has a green tint to it, a severe green
8 tint. It's not green, but it has a tint, which would which
9 would not be on a quality standpoint to anchor or to OI
10 flint clear glass.
11 What they do is they do add a little bit of mixed
12 glass to that material, and that tends to work for them
13 now. They will only be able to use a certain percentage in
14 that.
15 They are using mixed glass in a green tank and
16 are having some success grinding it down to a very fine
17 mesh, basically the same mesh we use for the fiberglass
18 industry.
19 They are having some success from what we hear
20 from a ceramic standpoint. That's always been the
21 catch-all for the OI's and Anchor's of the world that if
22 you're going to use mixed glass and you're going to use
23 that in a green tank, one of the green vessels that they
24 produce is a champagne bottle, highly carbonated product
25 goes in there.

1 If you have ceramic or a weak point in that
2 bottle, you're opening yourself up for explosions on the
3 line as well as on the shelf. Gallo believes that with
4 grinding that material down, including if there was a piece
5 of ceramic in there, that you're lessening that blow.
6 We have talked to a lot of engineers at OI and
7 Anchor and Ker, and you name them, and they are deferring
8 opinions on that story, whether that works or doesn't work.
9 The glass industry is looking at Gallo. They
10 will take more looks to see if their thoughts are true.
11 MR. LISS: John, can I follow-up with Mike and
12 Kirsten on the question of color and the difference in
13 flint between OB and Gallo?
14 How important is color? Who is calling the shots
15 on color?
16 Is it the beverage retailers? Is it Madison
17 Avenue still? Why is color so important?
18 Years ago clear glass for beer was unheard of,
19 and today one or two people have picked up a bottle of
20 clear glass with beer in it. How sacrosanct is that in the
21 era of green marketing and environmental precedent?
22 Are we beyond that issue? Can we get beyond
23 color and go somewhere?
24 MS. RITCHIE: Relative to the color issue in
25 Gallo versus, let's say flint that Owens or Anchor

1 produces, Gallo calls its own shots, they have that luxury.
2 It's a vertically integrated company. They make
3 their own wine. They make their own bottles. They put
4 their own product in their own bottles. They tell their
5 marketing department this is what we have to sell, this is
6 what we want to sell.
7 I hear the standard joke between the two brothers
8 who run the companies. One guy is responsible for making
9 more wine than the other can sell, and the other one is
10 responsible for selling more wine than his brother can
11 make.
12 They are vertically integrated. They have that
13 luxury.
14 The other glass companies aren't. They make a
15 product to specifications of their customers.
16 Who calls the shots from the customers
17 perspective? A lot of that has to do with the product that
18 is actually being contained.
19 In the case of, let's say, wine, typically you
20 have a red wine that comes in green for a very specific
21 reason. Green protects the product, the red wine, from the
22 damaging effects of ultraviolet light, which will degrade
23 the wine.
24 Red wine is typically stored for a long period of
25 time and needs to be contained in a dark, in a vessel that

1 is going to protect it from degradation by light.
2 In the case of beer being brown, basically the
3 same thing. Typically beer for centuries has always come in
4 brown, again, to protect it from the impact of light.
5 Often, it was not refrigerated. It was stored
6 outside or stored in cupboards where it was exposed to
7 light. It's a protection of the product.
8 The reason that you see some beers now coming in
9 flint is because that shelf-life issue is not there in
10 certain markets. Corona sells its beer, bottles it in
11 Mexico, ships it up to California and expects it to be sold
12 and drunk in the period of a couple of weeks.
13 They do not need a couple of years of life
14 anymore. Wherein, beers coming in from Europe, they do not
15 know how long it's going to take for them to get on the
16 shelves, how long it's going to be before they are actually
17 sold, how long they are going to have to be stored
18 unrefrigerated, therefore they may still need to have the
19 color for protection.
20 Green versus brown in the beer bottles, that is
21 purely a Madison-Fifth Avenue marketing call. People have
22 associated, because premium red wines have always come in
23 green, and that is seen as a premium product, people
24 associate for the most part beverage containers in green as
25 being premium products. That is what sets them apart from

1 the brown beer bottles, and that's an advertising issue.
2 Relative to flint, flint primarily is used to
3 sell food products. People like to see the food that they
4 are buying, be it salad dressing or baby food.
5 The packagers of baby food have extremely strict
6 quality standards. There have been studies after studies
7 showing people are not going to buy baby applesauce in a
8 bottle that has a brown tinge to it or a light green tinge
9 to it. They are not going to buy Best Foods Mayonnaise in a
10 green bottle.
11 They want to see the product. They want to see it
12 clear. That's what flint provides.
13 MR. LISS: Who has determined that?
14 MS. RITCHIE: That's a combination of the people
15 producing the product and the advertising industry.
16 MR. LISS: Those are recent advertising studies
17 done in the green marketing era?
18 MS. RITCHIE: These are long-term advertising
19 studies.
20 My personal take is the advertising industry in
21 many cases has done what I'll call a disservice to the
22 glass industry. There is a lot of very misleading
23 advertising out there relative to all the other packaging
24 types that we compete with. I'll be showing you that
25 shortly.

1 Relative to the glass industry, per se,
2 standardly the companies have said we can put --
3 Madison-Fifth Avenue or the advertising industry has said
4 we have three choices. We have clear. We have green. We
5 have brown. They will do their marketing surveys on those
6 types.
7 Food products, consumer preference choice is to
8 put food products in clear. There was a recent study, for
9 example, by Packaging Magazine on the colors. People want
10 to see that.
11 MR. BASSETT: This does change.
12 Five years ago, dead leaf green, virtually there
13 were one or two wineries were using it in this country.
14 Forty years ago, all the brewers in San Francisco
15 bottled in clear bottles. I know because I have a
16 collection of the bottles.
17 The color issue perhaps is maybe it's advertising
18 people hoping to get a contract or something or trying to
19 distinguish --
20 MS. RITCHIE: The design innovation of the
21 packaging industry keeps it alive.
22 The reality is that a glass container is a
23 package like all the other packages out there. We have to
24 be innovative. We have to work with -- I mean our customers
25 want us to be innovative so that they can put a new twist

1 on their product that they put out in the market.

2 Things coming in now from Wales, for example,

3 there is a beautiful cobalt blue bottle that is bringing in

4 mineral water from Wales. It's a stunning bottle.

5 It's a nightmare from a glass recycling

6 perspective. I know a lot of art glass artists who would

7 love to get their hands on that bottle.

8 The question is, do we throw that in with the

9 mixed pile, or do we separate it? Dead leaf, you talked

10 about, there is another issue where, again, it was

11 perceived, Chardonnay, it was used primarily for

12 Chardonnay.

13 Chardonnay is perceived as being a premium wine.

14 That's part of the reason that maybe they wanted to move it

15 from flint to green, but it also has a longer shelf-life

16 than the regular, like your Sauvignon Blancs and your

17 Chablis, so it needs some additional protection.

18 It's a combination of providing product

19 innovation that catches the consumer's eye, as well as, in

20 some cases, there are really legitimate shelf-life

21 protection issues.

22 MR. LISS: Kirsten, how about this as a design

23 innovation?

24 You're talking about beautiful blue. I think this

25 is a beautiful green. Show of hands, how many people think

1 this is a nice looking green.

2 We have just done a scientific study here of

3 everyone who is involved in an unbiased way in this

4 industry, publicly noticed to the State of California,

5 through the official publication mechanisms of the Waste

6 Management Board.

7 We have scientifically proven that at a least a

8 majority of the people in California who care about this

9 issue like this color green and want more of it.

10 Richard, do you have any products made out of

11 this ecoglass?

12 Can you tell us why the ecoglass works at the

13 Mike?

14 MR. GIRKMAN: Richard Girkman, with RW Beck. I

15 have brought four pieces with me, the gold fish that Gary

16 has, a piece of plate glass, which we have -- these are all

17 out of the same furnace at the same time, a tumbler, which

18 we made a dozen of, and, one of my favorite products, will

19 be a glass block, decorative building block material that

20 comes from the same glass.

21 This is glass from curbside recycling program

22 after the green, brown and clear has been pulled off to the

23 maximun level. We took about a hundred pounds.

24 We washed it, and cleaned it, and then melted it

25 in a small art furnace in San Jose, at San Jose State

1 University, then made these various products from that.
2 It's three color mix leftover. It is the residue
3 glass. We sorted through it and pulled out the
4 contaminants, which was easy to do on a hundred pound
5 load.
6 It would obviously be a different situation in a
7 large scale operation. We were taking truly the waste
8 glass to see what it would come out like.
9 As Gary said, I think it's a very attractive
10 color. We have been trying to work with some of the
11 wineries.
12 In addition to the leaf green now coming in
13 several of the wineries, and Madera Glass has a furnace
14 that allows them to special color glass, so Preston Winery,
15 for example, they are putting some in a gray glass product
16 because it's supposed to look smokey and matches the label
17 and the name. We could do this glass for wine bottles, no
18 problem.
19 The wine industry, particularly in a specific
20 label of a wine, could use this glass. Building materials,
21 glass block is decorative and was used a lot in the late
22 50's and early 60's, and it's now back again.
23 I do not know how many of you have seen it, but
24 in San Jose, many of the new buildings are adding the
25 building block glass.

1 CHAIRMAN SMITH: Thank you.

2 MR. BASSETT: There are strawberry perserves that
3 I buy that in packaged in glass about this color. The
4 color of the container never deterred me from buying it.

5 CHAIRMAN SMITH: Gary, go over your responses to
6 question one so that we can get in two before lunch.

7 MR. LISS: Briefly, the high points, we have
8 talked about the issues, the sub subsidies for aluminum and
9 plastic.

10 One key facet in glass, because of the national
11 energy policy and transportation policy subsidizing the
12 transportation system has enabled people to go into a
13 one-way glass distribution system where in the past they
14 were restricted by teh transportation cost to produce and
15 use glass in a local region, which is why the returnables
16 worked in the 50's.

17 There is a whole variety of subsidies that
18 impact, and how we address those. The regulation of 2020
19 fundamentally is a major problem that needs to be
20 addressed. We should not let the theoretical benefits of
21 the 20/20 system and actual benefits of the system drive
22 out the glass industry in California.

23 Recyclers in the 20/20 system need to be made
24 whole for the cost of setting up the system that was
25 established there. There are serious questions as to what

1 is convenience, what is the 20/20 system, and how does that
2 relate to the mandates. Those need to be changed and made
3 a part of the marketing situation.
4 Color is a major bearer that I hammer on, and we
5 have talked about that. Permits and citing the systems.
6 Even expansion of an existing operation in today's
7 operation requires massive permitting activity. We need to
8 provide assistance at a local, federal and regional level.
9 The Madison Avenue issue, green market, we need
10 to harness, do not do fact surveys like we did. See what
11 the consumers respond to if they are given a real choice.
12 The administrative burden to the recycling
13 industry is enormous under the 20/20 system and has to be
14 alleviated. The commercial, the bar and restaurant issue
15 is going to come on strong in 1993 and for the next couple
16 of years.
17 We need to be clear, if you're looking at waste
18 diversion, getting it out of the landfill and putting it
19 into road base. If your assumption is you want value
20 added, you need a system of collection, a processing
21 system, that leads to the market place to figure what the
22 market is long-term.
23 Along the way, you may need to use glass in roads
24 as a transition, but not huge gluts of glass to diminish
25 the value of glass. We need to be careful to

1 differentiate.

2 MS. LINDERT: I would like to say one thing about

3 the contamination in bars and restaurants, one processor

4 has set up a collection cite for bars and restaurants and

5 trained the people at the bars and restaurants to

6 appropriately discard the materials. It's working out

7 successfully and adding value to the materials he can

8 sell.

9 Some people are looking at the issue and solving

10 the problem.

11 CHAIRMAN SMITH: Eugene.

12 MR. TSENG: From a scientist's standpoint and

13 product innovator's, the original research is trying to

14 develop products from recycled glass, trying to get the

15 glass clean enough and not having the impurities that you

16 cannot control, but what the innovators have done is

17 develop products that you can utilize the impurities in the

18 feed stock, for example.

19 Many of the products that I have shown are made

20 from glass that is recovered from automated recycling

21 facilities. It has ten percent metal and ceramic and

22 plastics and things. Trying to design the products and

23 having the flexibility in the feed stock, you're able to

24 make products that can be utilized in the market.

25 From the scientific standpoint, we are trying to

1 gear the approach differently. Rather than trying for the
2 highest quality materials we're looking at the feed stock
3 that nobody wants, materials that can be used for cullet
4 and cannot be used for road base material, trying to gear
5 the materials that we were trying to develop, what Gary
6 stressed, the higher value added materials, we think that's
7 the ultimate goal, is to have the value added, not just the
8 fringe products like ash trays and things like that, but a
9 part of the mainstream, like construction, not competing
10 against rock. It's used a filler, but lightweight and
11 expanded, higher value added products, and looking at
12 marketes large enough to absorb regional quantities.
13 If we're producing the materials from the waste
14 stream, the quantities are huge. One of the problems in the
15 past developing the pilot plant scale projects was that
16 there was not a consistent supply of glass. It's
17 sufficiently dirty enough to use now.
18 One of the other things that we have to worry
19 about is that you do not want to put an existing industry
20 out of business. You find a market that can absorb it, but
21 without it is stable. If you size the plant properly, you
22 can grow with the cycle.
23 The emphasis is going to be on the value added
24 products, highest and best use for the glass.
25 MS. RITCHIE: Basically, last year, putting

1 everything in perspective, of the 600,000 tons of cullet,
2 there are a lot of garbage companies that would put it in
3 the landfill.
4 We have a couple of issues with it. It has to be
5 comparable to virgin material. It's extremely important to
6 us. We have to have a consistent supply in the colors.
7 There are times when some of the plants are running green
8 bottles and use green flint. In the time when it's clear,
9 we need clear bottles and clear cullet.
10 I'm going to talk more about the quality issue
11 later in response to question four. Cost has to be in line
12 with the virgin supply.
13 We are in a competitive business. The price of
14 the product is tied in many ways to the price we pay for
15 the virgin material. We cannot pay more for the material
16 than virgin. We want to be allowed to sell the containers
17 competitively.
18 I'll do show-and-tell to give an example. I went
19 to the grocery store at ten o'clock in preparation for
20 this. I went down to the juice section to give you an idea
21 of what it is that we are faced with.
22 I focused on cranberry juice. This would be the
23 container I would choose, Cran-Rasberry.. Great for Ocean
24 Spray. This contains at least fifteen percent minimum
25 content.

1 Okay. We now have Ocean Spray in PET, no base
2 cap, no minimum content. Now we have it in all plastic.
3 Paper board, aseptic packaging, aluminum and
4 steel. This is unknown, unmarked.
5 It's actually a Squeeze-it, Rocking Red Punch.
6 It's unknown. Very interesting, there's a recyclable logo,
7 just for the box, nothing on the containers.
8 Here we have a foil pouch. Then as I read the
9 box last night, it was interesting, it has the recycle logo
10 on it, and fun for away from home package, for a picnic,
11 biking or any outdoor activity. They are easy to use and
12 easy to throw away.
13 Of course, the box with the foil pouches inside
14 has the logo, but I did not notice anything about
15 recycling.
16 This is what we're competing against. If you look
17 at the products, with the exception of the aluminum, the
18 virgin material is a very limited supply in the United
19 States. This is the only one that has any significant
20 recycling on a national level.
21 We recycle glass, and we are the only one with
22 minimum content laws. Is that really fair? We're doing
23 it. You put it in law, and we're required to have to deal
24 with an expensive administrative burden.
25 I got a call asking if we have minimum content

1 laws, and after I gave the response, the reply was a, thank
2 God, we recommend that our people put their stuff in
3 plastic. That's what we have to deal with.
4 The second part of the question, how can the
5 barriers be overcome, the first one I say is that we can
6 use a whole lot more of recycled glass if we can sell more
7 of our product.
8 We can sell more of our product if we can compete
9 more fairly with all these other products out there on the
10 market. You need to create a true level playing field out
11 there, or even an uneven playing field to get people to buy
12 what can be recycled or even to buy refillables.
13 If you really want people to refill, move higher
14 up the hierarchy, you have to have incentive for the
15 companies and consumers to do that, and that can be done
16 legislatively.
17 The other things, how to increase the quality.
18 That's basically education. There is no reason someone is
19 putting a ceramic mug into their curbside bin.
20 Education and improved processing. We are
21 benefitting from that. We do have a number of processors in
22 California. We have actually have five different companies
23 that process in California. They are doing real well, and
24 they are also constantly improving their processing and
25 adding on new equipment.

1 We need to increase the quantity of material, the
2 quantity of glass. We do that by, one, getting more people
3 to buy glass, by, two, educating people.
4 We're finding people are putting out a lot of
5 their beverage containers. They are getting media blitz on
6 that.
7 We want the flint containers. The flint
8 containers are salad dressing, baby food, tomato sauce,
9 pickles, mayonnaise jars. It takes a little effort to
10 rinse them out. Rinse them out, stick them in the
11 container, and then you produce flint glass that has a much
12 better market across the United States.
13 The other thing, I think you really need to
14 institute across the board, across the cities, across all
15 locales, comprehensive curbside recycling tied with
16 variable can rates. You have to do it in such a way, you
17 need to be a stickler for detail, you need to say these are
18 the materials that we accept for curbside.
19 You can put as many of those materials as you
20 want in curbside, and for the variable can rate all the
21 other garbage goes in. If somebody, which has no recycle
22 market in their curbside container for recycling, you take
23 it out and put it in the trash can, and you say, hey, you
24 have to pay for this as garbage because we can't recycle
25 that material.

1 That's how you educate people that next time they
2 will buy the container of glass and have a nice Thermos
3 that they will send the kids to school with.
4 Cost, we pay a good price for cullet, a good
5 price for material. With the expection of aluminum, I think
6 we're the highest price per ton material around.
7 The reality is that some people will be able to
8 make money giving glass to us and some people won't.
9 That's just a reality.
10 What do we do about that? I think there are a
11 number of things.
12 First of all, I think we have to do something
13 nationally and state about transportation rates, about
14 movement of the recycling materials going back to market.
15 We need to look at how the garbage bills are structured and
16 incorporating the fact that collection of materials,
17 processing, making them ready to be reused has a cost
18 associated with it, and the consumer in buying those
19 particular materials has to pay part of that price, and the
20 garbage bills are a good way of doing that.
21 Considering landfill surcharges, which ties into
22 the issue of true cost of landfilling. It still galls me
23 when I go to certain parts of California and I see free
24 disposal. We all know it's not free.
25 People are driven by cost. If they can have the

1 whole range of cost laid out for them, and they really
2 know, I can take my bottles, it's not going to cost me
3 anything to dump them off at the recycling center, or I can
4 drive down the road and pay twenty-five bucks a ton to dump
5 at the landfill. I'm going to clean it up and take it to
6 the recycling center.
7 There is the general fund, which there isn't one
8 right now in California, but that is something to consider
9 in terms of providing some kind of tax incentive. Those
10 are some of my ideas.
11 If anyone is thirsty --
12 CHAIRMAN SMITH: The second question that we are
13 on, which Kirsten started with, what are the greatest
14 barriers for substituting materials for virgin feed stock
15 by existing virgin products manufacturers? How could these
16 barriers be best overcome?
17 Eugene, why don't we just sweep around this way.
18 MR. TSENG: The barriers that have been faced by
19 these types of construction and new type of construction
20 products, were primarily the tradition problem, resistance
21 to changed.
22 In developing these products, the inventors and
23 the other people who would have to do the marketing of
24 these products would up to like the building construction
25 trade associations. It's a very conservative organization

1 that is very reluctant to change.

2 There are other things, and maybe it's not the

3 fault of tradition, but it's also on the part of the

4 scientific community. They like to develop things in a

5 vacuum. They like to sit in their labs and just play.

6 It's very difficult, because if you're going to

7 be developing products, you have to understand where it's

8 going to be sold and how it's going to be used.

9 One of the things that I really want product

10 innovators to do is as you develop the products themselves

11 have, work in a cooperative mode with industry and

12 government. If they are part of the process, they will

13 know something like this is coming down, and they will be

14 able to accept that more.

15 The perfect example, one of the products that we

16 were able to make at the university was this lightly-formed

17 glass aggregate, like little glass balls, and we actually

18 put it into lightweight blocks. Your traditional

19 lightweight block can weigh forty to fifty pounds each.

20 These are eight-by-eight-by-sixteen blocks.

21 We are able to make these blocks down to

22 twenty-five to thirty pounds with over thirty better

23 insulation value for heat transfer.

24 We went to talk to an industry group about

25 supporting the use of the new lightweight construction

1 material, and in the presentation the engineers said this
2 would save a lot of time because you would be able to lay a
3 lot of blocks in a day.
4 The response from the industry was, you mean a
5 person could lay a lot more blocks much faster, right?
6 Yes.
7 It means fewer people at work?
8 Yes.
9 Then we're not going to support this material.
10 Those are the types of problems that the
11 engineers in product development never see. In order to get
12 them to use more materials, get them to start working with
13 the end-user from the beginning to find the benefits of
14 these products.
15 CHAIRMAN SMITH: That's a good point.
16 Gary.
17 MR. LISS: A new issue that we have not covered
18 as part of that is the financing issue, financing for the
19 product innovators in recycling, the small businesses and
20 nonprofit recyclers.
21 These are the types of companies that have been
22 on the cutting edge of recycling for many years. Their key
23 impediment to expanding in recycling is access to capital
24 and not having the financial wherewithal to pursue new
25 business ventures.

1 When you talk about these types of business
2 ventures, access to capital for the large guys is very
3 difficult because there is no collateral, nothing proven
4 about it. When you talk in terms of banking, given the
5 state of our banking industry in this country, they are
6 very sensitive about having collateral, understandably.
7 A market development bond issue that would
8 provide financing support for small businesses, nonprofits
9 as an emphasis for those lacking access to capital other
10 than those getting it through the stock market that has
11 been soring and contributed to major growth in the waste
12 industry, so access to capital for small business,
13 nonprofits, for the virgin industries to convert to the use
14 of recycled materials for recycled manufacturers to expand
15 their capacity for the incremental cost of doing business
16 in California.
17 In our state recycling policy, CRRA in 1988 said
18 one of the most important things was recognizing that other
19 states may not have as high environmental standards as
20 California, and we have a choice. We can go lower in
21 standards to attract the industries to compete with the
22 other cities, other states or nations, or we can help fund
23 the incremental cost of doing business in California.
24 CRRA advocates the latter. We say that any public
25 financing should not be for the total project cost but

1 rather we should leverage our resources and provide funding
2 for the environmental standards, meeting the environmental
3 standards, the clean-up controls, eliminating some of the
4 contamination, air emissions, water emissions and even the
5 residue emissions.
6 One of the major problems in the MacMillian
7 Bloedel paper here in West Sacramento is the consumption of
8 space in the local landfill by the residue of that
9 facility. If mitigation cost of these new projects,
10 expanding the existing mini-manufacturers, or substituting
11 virgin manufacturers, those incremental costs of doing
12 business in California are what we need to focus on in
13 terms of access to capital.
14 That's a critical priority that we need to begin
15 to understand and work towards providing some local and
16 state funding for.
17 CHAIRMAN SMITH: Good comments, Gary.
18 Mike.
19 MR. HENEBURY: I see the greatest barrier as a
20 processor is going to be cost of producing product and
21 paying for a product to the actual cost that you have for
22 virgin material.
23 Kirsten talked about they have basically a batch
24 cost of raw materials. If I sell her material at $90 a ton
25 and her batch cost is $60 a ton, it's not in her best

1 interest to use that material.

2 The same would go for Eugene's product. That

3 bullet-proof light pole is an excellent idea, but if it

4 costs twice the amount of the other virgin product, it's

5 not going to work.

6 The same in the fiberglass industry and any

7 industry that that we're trying to market material to. We

8 were here basically patting Gallo on the back, yes, they

9 have helped in a mixed product; but before shaking their

10 hands and patting them on the back, they do not buy any

11 color sorted glass, which is a higher dollar item. They

12 went out of that after the mixed market on a total cost

13 thing.

14 Before market development, before the glass

15 industry could regain some of their processing fee money

16 back, Gallo bought zero tons, zero, because they would have

17 to pay what at that point was the going rate for the

18 glass. It comes down to a dollar-and-cents for whatever

19 product you're going to put it into.

20 MR. GREENBERG: I can't help but echo some of the

21 same comments from Kirsten and Mike.

22 Cost factor is definitely a critical issue. When

23 you're talking about a product that replaces some of the

24 relatively less expensive products that make up the batch

25 material, soda ash and sand, you cannot afford to go out

1 and spend a whole lot of money on the recycled product.
2 On the other hand, we're asking the recycler to
3 go through a lot of extra trouble to make sure that the
4 quality of the product he is providing is indeed high.
5 It's kind of a double-edged sword. We're making
6 it very difficult on the provider of the raw material, but
7 yet we cannot afford to pay for it. We don't want to pay
8 for it.
9 But because it's been legislated that we use it,
10 we're put between a rock and hard spot, so to speak, and
11 we're trying to make the best out of a not real good
12 situation.
13 As long as the cost can compete with the raw
14 materials, as long as the transportation is reasonable, we
15 can continue to use the cullet. We do derive benefit from
16 it in terms of reduced electrical usage. It's a lot easier
17 for us to take cullet and turn it into glass than it is to
18 melt raw materials and turn it into glass.
19 Eventually reach a point where the cost of the
20 cullet and transportation exceeds any benefit that you
21 might derive, then it's a lose-lose situation, and we
22 cannot come out.
23 CHAIRMAN SMITH: Thank you.
24 MR. DOTY: Obviously with regard to the highway
25 construction, rehabilitation and maintenance cost is very

1 much a factor. It has been mentioned several times already
2 this morning, so I don't think anything further needs to be
3 said with regard to that.
4 A couple of other items that we encounter, as we
5 start looking at the substitution of cullet for some of the
6 aggregate for some of our operations, is there an effect on
7 the equipment that is used, asphalt concrete plant, the
8 equipment used to crush aggregate. If there is an effect,
9 what is it?
10 Is there per chance more wear? Is there
11 generation of more dust than otherwise would be the case?
12 This needs to be determined and taken into
13 account. Directly or indirectly, obviously it's going to
14 have it an effect with regard to cost.
15 Environmental effects with regard to EPA, if the
16 glass that is in the aggregate base is abraded into small
17 particles and eventually finds its way into the groundwater
18 and the into people, obviously there is going to be
19 concern, just using that as an example.
20 I don't know of anybody who contends that that is
21 a reasonable possibility, but it's an example of what I'm
22 talking about.
23 OSHA, worker safety, is there any effect now that
24 we're substituting something such as glass for aggregate on
25 the people who are involved with the manufacture of this

1 mixture that now contains some glass along with the
2 aggregate.
3 Availability, if you have just got a relatively
4 small number of locations within California wherein glass
5 is available, it's obviously going to limit the
6 marketability of the glass as a substitute for aggregate
7 when you look at the state as a whole.
8 Lack of performance data, when we're now talking
9 about the mixtures that include the cullet. This then
10 forces us to put more reliance on the specifications that
11 have been developed for these materials without any cullet
12 having been present. A lot of materials engineers get
13 uncomfortable when they find themselves in that sort of a
14 position.
15 It's a factor that we encounter within my
16 industry when looking at the incorporation of solid wastes
17 as substitutes for virgin material.
18 MR. BASSETT: What I said in answer to the first
19 question applies to the second, that's life cycle
20 accountability, and requiring the producers to be
21 responsible in taking the containers back.
22 A lot of what is happening is a manufacturers'
23 fear of public perception, that public won't buy something
24 in a refilled bottle. This is especially true in the wine
25 industry.

1 Gallo sort of disproved that by going to this
2 Coca-Cola green bottle, basically, I think they have
3 helped. It's a very effective way going to, quote, "an off
4 color" that helped do away with that.
5 I think we need to, somehow someone, this Board,
6 or someone -- what will be useful is an economic analysis
7 to show the bottlers how it would be to their economic
8 advantage to reuse containers, and also helping them to see
9 or fund some model programs so that they can see one's that
10 work.
11 One thing that would really help would be if we
12 could, Lutz-Wynhart has being trying to come into the State
13 of California since December of 1990, but unfortunately the
14 DOC regulations have, until this year, prohibited it
15 absolutely, because you could not have a reusable bottle in
16 the system.
17 Now there is perhaps a chance they could come in.
18 They are willing to come in, at least in Northern
19 California where we can afford to do it, and they will pay
20 us $167 a ton for that glass, not $30 or $40, or whatever
21 amber is going for at the current time.
22 I had another point but I can't recall it.
23 CHAIRMAN SMITH: I would like to now open the
24 first two questions for public input.
25 Is there anyone out there that would like to

1 provide some input on the first two questions?

2 Is everybody hungry?

3 MR. HUSTON: I have a couple of questions.

4 Good morning, I'm Bill Huston. I'm on the staff

5 of the Waste Board as well.

6 I have a couple of questions that I would like to

7 ask the panelists.

8 First, to Roger, my sense is that reusing bottles

9 requires additional sorting. No longer do you just sort

10 for amber, green and clear, but now you have to sort for

11 size, manufacturer, for shape and other things.

12 What sort of added cost or barriers, you have

13 obviously been doing this, how can we make that more

14 practical, or what have you found to make that work?

15 MR. BASSETT: One of the more practical ways for

16 it to happen, basically it worked in this country for quite

17 awhile. In 1964, 85 percent of the beverages came in

18 refillable bottles. They were sorted at the grocery

19 stores, and picked up by the distributors and back hauled

20 in the empty trucks.

21 MR. HUSTON: I worked in a grocery store as a

22 kid, and I remember sorting those disgusting bottles.

23 MR. BASSETT: There are other systems. In

24 France -- Peter Heylin is here from Encore.

25 I may have garbled this, but my understanding is

1 that they have set up wine-bottle-shaped igloos. They
2 collect them at the curb. They have passed a law mandating
3 wine bottles can be refilled.
4 MR. HEYLIN: The EC has mandated it.
5 We're doing it now at Encore.
6 I'm Peter Heylin from Encore. We are the state's
7 only bottle-washing operation that I know of. We're the
8 first of a new generation of twenty-first century bottle
9 washers.
10 Sorting can be done optically, which is a system
11 that Encore is now looking at suppliers to find the proper
12 equipment. We were pretty much blindsided by the bottle
13 bill, and our volume dropped dramatically.
14 Now that our price has come back in and become
15 competitive, we're up to pre-bottle bill operating levels.
16 It takes technology to do what you're asking. The
17 sorting does not need to be done anywhere but the
18 manufacturing or processing level.
19 We have just put in a $50,000 machine that takes
20 the foil off the top of wine bottles automatically.
21 Something we used to ask recyclers like Roger to do. We no
22 longer ask it. We no longer deduct for the price of the
23 bottle because of that. We don't care. It can be in
24 there.
25 Our optical sorting system sorts shape and

1 color. If you had the bucks in the Department, our French
2 partner, we are half French, process every wine bottle that
3 comes from the city of Paris in an operation that uses
4 twenty-yard debris boxes, and rotating metal fingers and
5 everything else that you can possibly imagine, and I think
6 that they have twelve employees to do that a shift.
7 It's pretty remarkable. It's all real high tech
8 but certainly very capable with modern computers and modern
9 optical equipment.
10 MR. LISS: Standardization of containers back in
11 the 70's we fought for adamantly, like minimum content, if
12 there was to be a push for refillables, returnables, we
13 should also join that with the standardization of
14 containers because that is again one of those Madison
15 Avenue efforts.
16 MR. BASSETT: I believe Sweden or Norway is
17 standardizing containers for next year.
18 MS. RITCHIE: I would put two cents in here from
19 the container industry perspective.
20 We make the refillable containers. We're the
21 one's who can do it. We want to do that.
22 As you saw in the slides that Lin showed earlier,
23 our market, our total volume production has remained
24 steady, our market has decreased rather dramatically.
25 We can produce the refillable container. We will

1 produce the refillable container.

2 But the reality is that we are a volume based

3 business. The more refillable containers we make, the less

4 we can increase our market share. The less number

5 containers that we make, the less profit we show, and then

6 our shareholders aren't very happy with us.

7 There are a number of ways that through the

8 legislative process government can act to encourage

9 refillable containers and at the same time benefit the

10 industry that makes those containers.

11 For example, one idea that we have is with

12 minimum content, in the reporting of minimum content, give

13 us extra credit for minimum content used for making

14 refillable bottles.

15 Help us on advertising, working with the

16 advertising industry, working with consumers to get them to

17 want to use refillable containers so that we can go to our

18 customers and say, the people want this, and we can make

19 those containers for you.

20 Do not persue refillables exclusively in the

21 glass business and let everyone else take away the other

22 markets that we have. That's one area that we're very

23 concerned about.

24 MR. LISS: I don't think anyone is suggesting

25 solely refillables.

1 The issue is like Roger started with, the
2 Washington experience, where you have it done on a
3 competitive basis, forty percent of the market share.
4 MR. BASSETT: Since the surpluses that we have
5 are green and brown, and those are the beverages that wine
6 and beer bottles historically have markets.
7 Since 1975 wineries in the Valley of the Moon
8 washed bottles. The last one to stop was the Valley of the
9 Moon Winery itself.
10 MR. HUSTON: Thank you. Thank you all.
11 Ron mentioned that there was a problem of getting
12 different color mixes or a mix that resulted in a different
13 color.
14 I would imagine that requires some temperature
15 adjustments of the furnaces or whatever the equipment is
16 that makes the fiberglass, and it's sensitive to the color
17 and there are temperature variations that are associated
18 with that.
19 Mike mentioned that Gallo uses three color in
20 their bottles. Has Gallo be able to overcome the furnace
21 temperature problem? Or is it not as sensitive for the
22 bottles?
23 MR. GREENBERG: Making glass bottles and
24 fiberglass are two different things. The things that affect
25 us probably wouldn't affect a container.

1 MR. HENEBURY: The container industry, we're used
2 to hearing about the container industry in crockery and
3 whatnot, they are pussy cats compared to the fiberglass
4 guys.
5 The things that will hurt the fiberglass are as
6 little as paper. Paper can cause carbon problems for
7 fiberglass, where the glass industry wll never -- obviously
8 they don't wants large amounts of paper in there, but they
9 will not have a carbon problem from paper.
10 These are things that we learn as we go along. If
11 you have any questions on the chemical, I see two experts
12 out there, Dan Ellis, from Manville, and Rick Goddard from
13 Certainteed can answer a number of questions in that
14 department.
15 MR. GREENBERG: The difference that you see here
16 in these to colors of glass is basically what we refer to
17 as an LOI problem, LOI is lost on ignition or the amount of
18 organics that are burnt away when the glass is made. The
19 organics include paper, plastic anything.
20 MR. HENEBURY: Food and residue.
21 MR. GREENBERG: Food, residue, dirt. That's the
22 difference.
23 Sometimes this change can take place so quickly
24 that if you're pulling several thousand pounds of glass out
25 of a very small orifice, similar to a needle and seat

1 operation in a carberator, the change in viscosity of the
2 glass can drain the melter very quickly or it can actually
3 result in the melter freezing up, having to add more
4 kilowatts to increase the temperature to return the glass
5 its molten stage.
6 It's very critical and doesn't give you a whole
7 lot of, a big window for change.
8 CHAIRMAN SMITH: Thank you.
9 MR. HUSTON: A question that John asked earlier,
10 I wanted to make sure that I understand it, and you may be
11 the wrong person to ask this to, are there opportunities
12 for using recycle cullet in other fiberglass, boats, garage
13 doors, body, automobile fenders and those kinds of things.
14 MR. GREENBERG: I'm not familiar with it.
15 I know the other types of fiberglass start out
16 with a fiberglass cloth strand, that is probably even finer
17 than the fibers that we produce.
18 I would think that if there was an opportunity,
19 that they would be eve more demanding.
20 MR. HUSTON: Thank you.
21 CHAIRMAN SMITH: I would like to close this
22 morning's session, and I would like to thank the panelists
23 so far for the excellent information that they have given
24 us and insight.
25 I'm look forward to this afternoon. We should

1 come back in about an hour.

2 (Thereupon the lunch recess was taken.)

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

25

1 A F T E R N O O N S E S S I O N

2 --oOo--

3 CHAIRMAN SMITH: We have a lot of a work to do to
4 get through by four o'clock, so we will begin now.
5 We will go through the remaining questions, three
6 four, and five and then we will go to six. We will have
7 public input taken after we finish with three, four and
8 five. Then we will go to six.
9 Then, if we have extra time, we'll take up other
10 questions. So, we will begin with question three, and I
11 will identify that one now for the panelists.
12 What products or product groups presently
13 manufactured with little or no secondary materials do you
14 think have the greatest potential markets for secondary
15 materials?
16 We will start with Roger.
17 MR. BASSETT: Obviously, the historic one's of
18 beer, soda pop and wine.
19 Actually, all containers can be refilled. As I
20 mentioned previously, in Sweden or Norway, they mandate
21 that the containers be standardized to aid refilling.
22 MS. LINDERT: Food containers, too?
23 MR. BASSETT: Mayonnaise, catsup, it all can be
24 refilled.
25 Some may be harder to clean than others.

1 CHAIRMAN SMITH: Are there health problems in
2 refilling as far as meeting federal standards?
3 MR. BASSETT: In this country, there may be.
4 The litigious nature of our society, the classic
5 case of a meltstone in a Coke bottle, someone gets
6 $200,000.
7 Peter is not here, but someone in New York is
8 suing Owens, and Lord knows who else, a lot of other
9 people, because he was taking a cork out of a wine bottle
10 and a glass chip went out and hit the table, and hit the
11 floor, and he was so traumatized that it might have hit his
12 eye that he cannot work at his profession any more.
13 I don't know how we can get around problems or
14 things like that.
15 Especially with optical machines to scan
16 containers, to sort out, shift out flawed or dirty one's
17 very easily at the end of the washing line.
18 MR. DOTY: As I have said earlier, the three
19 products involved with road building wherein glass seems to
20 be a logical substitute for aggregate are aggregate base,
21 aggregate sub-base and perhaps to some extent, if you're
22 willing to take higher risk, glassphalt.
23 To give you some idea of quantities, I dug out a
24 couple of numbers with regard to the CalTrans program for
25 last year, 1991, aggregate base. We had in round numbers

1 1,345,000 cubic yards.

2 If you want to convert that to weight, multiply

3 it by about one and a half, so we're looking at roughly two

4 million tons.

5 In aggregate sub-base, the number in cubic yards

6 is 1,055,000, multiplied by one and a half to convert to

7 tons. If a relatively small portion contained a relatively

8 small portion of mixed cullet, we could gobble up a fair

9 amount of what might otherwise be going to landfill.

10 Because that seems to be to us a lower risk and

11 the quantities are relatively large, and that doesn't

12 include the other road work in California for the cities

13 and counties, that's our program for one year, we feel that

14 that is preferable from the risk assessment standpoint to

15 glassphalt.

16 Glassphalt or the incorporation of glass or the

17 substitution of glass for some of the aggregate going into

18 asphalt concrete is another approach that is there for

19 those who want to pursue it.

20 In round numbers, I did not pick those off for

21 this, but asphalt concrete tonage for CalTrans last year,

22 if I remember right, was about four and a half million tons

23 for one year, just CalTrans.

24 We are the largest single customer of asphalt in

25 the state, which suggests that we are probably the agency

1 that places the largest single amount, but we account for
2 less than half of what gets placed here in California. If
3 the cities and counties got involved, those figures could
4 go up substantially.
5 Those are the three areas that we see.
6 MR. HUSTON: Bob, you mentioned risks with
7 glassphalt. What does CalTrans see as the risks?
8 MR. DOTY: The two things that we identified in
9 the research work that we did back in the early 1970's are
10 the difficulty in getting asphalt to stick to glass.
11 It tends to strip off, particularly in the
12 presence of moisture. Because of occasionally coming up
13 against this sort of this thing with some forms of
14 aggregate, we had already learned as of that time that if
15 you lime slurry pretreat aggregate, you can drastically
16 reduce this tendency.
17 We tried that with the glass in the research
18 testing that we did, and it worked. To significantly
19 reduce any tendency of that sort, we have been and would
20 recommend lime slurry pretreatment of any glass that is
21 going to be substituted for aggregate.
22 The one other characteristic of this glassphalt
23 that was observed when a short test section was placed in
24 the Los Angeles area, again back in the early 1970's, was
25 the glare that you get off this pavement when the sun is

1 low on the horizon, early morning, late afternoon. It's
2 very noticeable.
3 It's no problem if you prohibit glassphalt in the
4 top layer, but allow its use in the lower layers.
5 Those are the two problems for which we feel
6 solutions exist.
7 MR. HUSTON: Do you have any sense of what the
8 added cost is to lime slurry to glass before you get it?
9 MR. DOTY: No, because it has not been done to my
10 knowledge anywhere.
11 It does add some cost when we occassionally have
12 that process incorporated into making conventional asphalt
13 concrete. I don't have those numbers right off the top of
14 my head. I could find out for you.
15 MR. HUSTON: Thank you.
16 CHAIRMAN SMITH: Thank you, Bob.
17 MR. GREENBERG: For this question, talking about
18 the products outside, probably the recyclers are in a
19 better position to address what other products could be
20 made.
21 CHAIRMAN SMITH: That's fine.
22 Mike, do you have anything to add on number
23 three?
24 MR. HENEBURY: We have been looking at some
25 different products.

1 The concrete industry is similar to road base and
2 aggregate in some ways. I have heard of a company in
3 Canada who is adding mixed material ground up into the
4 making of K rails. Eugene would have a greater knowledge
5 of those types of applications.
6 We're doing research in that area. We have done
7 research in the ceramic tile area. There seems to be some
8 promise. The return would be fairly good in those areas.
9 We have also looked at a thing that I think is
10 interesting is a filler in paint. Basically, it's a
11 substitute that adds scrubability to the paint and actually
12 will provide a longer life. The first results back from
13 that look promising as well.
14 CHAIRMAN SMITH: Some good ideas there.
15 Gary.
16 MR. LISS: I'm suggesting construction materials
17 as the primary focus, primarily based on work that Eugene
18 and Teledyne National did in the 1970's, which is
19 well-documented with the National Technical Information
20 Service.
21 The types of tiles that Mike has just mentioned,
22 ceramic tiles, roofing tiles and all sorts of construction
23 blocks, building blocks, high value materials make sense
24 especially if you go to the lightweight foam products in
25 order to compete on other grounds, like Eugene highlighted

1 earlier.

2 Roofing tile, it would highlight that for glass
3 in terms of roofing tile and paper in terms of asphaltic
4 roofing shingles. With the Oakland fire clearly in front
5 of us, and many hillsides clearly in front of us this week,
6 recognizing the importance of roofing material as a safety
7 hazard in California suggests a huge market demand
8 particularly tied with building codes and fire department
9 provisions, and cities throughout the state are now looking
10 at restrictions on new construction, and some retrofitting
11 requirements elsewhere.

12 If you couple the solid waste issue with land use
13 and safety issues associated with municipal powers in this
14 arena, there is tremendous potential for creating a local
15 demand for these products quickly.

16 CHAIRMAN SMITH: Very good ideas, thank you.

17 Eugene.

18 MR. TSENG: Speaking from the standpoint as an
19 engineer and not so much a marketing person, within the
20 last two years most of the inquiries from foreign companies
21 and from companies developing products in this country the
22 interest has been in ceramic-based construction products or
23 building materials.

24 They have been primarily in six major
25 catagories. The first grouping is what we call high

1 density products. These are like your bricks and tiles.
2 Traditional bricks don't use glass, but there is
3 technology in other countries that has been trying to get
4 into the United States for a number of years for making the
5 traditional red brick with glass as use as filler and a
6 flux, the glass would serve two functions.
7 Beyond the traditional red bricks there is also
8 what we call ash bricks, which is done in other countries,
9 taking other types of waste materials, like fly ash and
10 bottom ash, and creating an ash/glass brick, both permeable
11 and impermeable kind.
12 There is a tremendous amount of work done in
13 tiles, kitchen tiles, floor tiles and wall tiles,
14 decorative type or your basic straight tile, and this is
15 actually done in other countries, too. Both in tradition,
16 the clay tiles, and in your waste ash and glass tiles, too.
17 The second grouping is what we call low-density
18 building construction products. There are four types of
19 products here that I think I have been getting at least
20 once or twice a week inquiries in. There are people looking
21 to develop pilot plants.
22 First is foam glass panels. That's the
23 lightweight stuff that is porous. The way that it's made,
24 you grind up glass, and you can have up to ten percent
25 impurities in the glass, of this feed stock. You add

1 chemical yeast.

2 Just like making bread, you bake it in an oven or

3 in a kiln. After it's past the softening temperature, the

4 glass kind of melts down, and the chemical, calcium

5 carbonate or whatever foaming agent you use, produces

6 carbon dioxide, and you cool it off. You can pretty much

7 control the pour size and make large sheets for ceiling

8 tiles and wall panels.

9 The largest one's made in laboratories are about

10 two-foot-by-four-foot by four inches thick. Those are

11 called foam glass tiles.

12 The second application is a derivative, taking

13 the tiles and reforming them into lightweight roofing

14 tiles, and then perhaps adding ceramic glaze, I have

15 samples of these, by the way, to get it waterproof.

16 The third application is lightweight aggregate.

17 I'm going through two different applications. The aggregate

18 is these round balls. It's basically the foam glass,

19 pelletized by your conventional off-the-shelf pelletizing

20 equipment, and rolled into balls and heated in the oven,

21 and you get lightweight substitute for expanded shale.

22 There are two uses, lightweight structural

23 concrete, which you see as a test cylinder, and the second

24 use is your lightweight blocks.

25 Of all of the products the one that has the

1 largest market and can absorb almost all the materials is
2 the lightweight aggregate. It would not make a dent in
3 what is used now.
4 Those are the two catagories, high density and
5 low density, and the six categories.
6 MS. RITCHIE: I have a couple of quick comments
7 on this area.
8 I see that market in kind of two areas. One is
9 low value materials. I'm going to lump all the road
10 construction materials, glass being an aggregate.
11 I became aware of a project that I felt was
12 pretty interesting, it was a value added kind of aggregate
13 application where Company Canada had a lot of green glass
14 cullet that they dided to do something with.
15 They worked with the local telephone company, and
16 they used it as bedding material for the telephone conduit.
17 From the telephone company's perspective, it was very value
18 added, because the next time you have a backhoe operator
19 out there digging up the street trying to find the broken
20 sewer main, as soon as they come upon green glass, they
21 know, uh-oh, I've got to slow down. I have to be careful
22 here because I'm about to encounter some conduit.
23 That is an immediate application.
24 On the high value, to reiterate or echo what
25 everyone else is saying, the building material

1 applications, including terrazzo tile, which I haven't
2 heard mentioned here, terrazzo tile as flooring.
3 Typically they use marble chips that are embedded
4 in a light concrete layer. Glass can be used for that
5 application, but they perfer color sorted because they can
6 do more artistic things with the flooring.
7 Then, of course, there is also the art glass
8 applications, especially art glass applications being
9 pressed glass products, glass blocks. Gary was wearing
10 earlier his bolo tie, and plate glass, the glass bricks
11 glass blocks, and also your basic tableware, tumblers,
12 plates, we see a lot of that stuff coming out of Mexico,
13 sells like hot cakes.
14 We should be able to do some of that here in the
15 states. I would encourage very much, but I did not see a
16 reference to it here, but the Clean Washington Center up in
17 Seattle, they have done a lot of work.
18 They have created this glass information
19 systems. They have studied sixty different uses for glass.
20 That information is available to anybody who wants to call
21 up. They can give you an eight-page template on each
22 application, technical constraints, where the reference
23 materials are, and is it immediately applicable, is it
24 going to take a while to get there.
25 They have done a study identifying what their

target priorities are in expanding the markets. It's important that the adjoining states work together. Do not operate in a vacuum.

There are a lot of agencies that are doing different things and by collaborating and pooling resources we can maximize the taxpayers dollars.

CHAIRMAN SMITH: The Board currently is doing a fifteen state study on diversion and future potential cooperation throughout the states, and that will be finished early next year.

MR. LISS: Is Hawaii in that?

MS. RITCHIE: I know that the Clean Washington Center has just sent out a letter. California has been approached to help fund a feed stock study to prepare glass for different uses. That would be a good investment for states to join in.

CHAIRMAN SMITH: These are all very good suggestions.

The next question is number four, what are the most common and most detrimental quality related problems with using specific secondary materials?

We can start with Roger.

MR. BASSETT: I mentioned it as merely the possibility of chips or fly bottle or the pieces of ceramic, contaminants. Peter Heylin commented his

1 earlier.

2 CHAIRMAN SMITH: Bob, any others to add?

3 MR. DOTY: I have touched, as have a number of

4 other people during the workshop, on variations in

5 properties, and the value in minimizing that as far as the

6 consumer, second-time around is concerned.

7 That would be of some concern to us in road

8 building, also, contaminants, specifically glue and paper.

9 We are involved in a study with Teichert and the

10 City of Sacramento, taking a look at whether or not

11 curbside "quality," quote, unquote, is sufficient for the

12 substitution of aggregate base. It's going to be

13 interesting to see what we learn from that.

14 If this experience indicates that very little or

15 no processing is required other than collection prior to

16 the substitution, it's going to be very useful information.

17 I'm sure I can speak for the Department in

18 picking up on a couple of other remarks made this morning

19 here, looking upon what we're looking at perhaps as a way

20 of buying some time during which we will collectively

21 figure out better, higher uses for this material second

22 time around. That makes sense to me.

23 With regard to contaminants such as glue and

24 paper, quite frankly, we do not know what effect various

25 quantities of either one or both of those would have on

1 what we're looking at. We need a way to determine this.
2 Then we can establish an allowable amount of
3 contaminant. Going hand-in-glove with this sort of an
4 effort is coming up with the tests that you need to measure
5 the amount of contaminant that is in there, to see whether
6 or not it's below the upper limit that you have
7 established.
8 Removal or reduction will increase the cost to us
9 of the secondary materials, therefore, make them less
10 attractive from a pure cost standpoint as a substitute.
11 I don't see any of these as insurrmountable, but
12 they are there and will have to be addressed.
13 CHAIRMAN SMITH: Thank you, Bob.
14 Ron.
15 MR. GREENBERG: Earlier on, I touched on some of
16 the major problems that we were facing.
17 In addition, the cullet is far more abrasive and
18 causes much more wear on our processing equipment than any
19 of the raw materials that we would normally buy as virgin
20 stock for a product.
21 We are not in a position at this time where we
22 can devote specific equipment to handling cullet only, and,
23 therefore, reduce the amount, not necessarily the amount of
24 wear, but reduce where the wear is taking place.
25 Instead, we have to use the same equipment that

1 basically transports all of our raw materials. We use that
2 equipment to move the cullet from one side to the area
3 where we weigh it and put it in our furnaces.
4 Our system is a pneumatic air transport system,
5 and the cullet just absolutely raises havoc on steel pipes
6 and ceramic elbows. It has to be figured in the cost of
7 using this type of material as opposed to the virgin
8 materials.
9 Other than that the lead issue is one that bears
10 mentioning again. In talking with Mike before starting
11 back after lunch, they are doing what they can to try to
12 reduce the lead, but even with all of those things taken
13 into consideration, often times the level of lead that we
14 receive in the cullet coming into the plant, if we were put
15 into the position where we had to throw it away, it would
16 be unacceptable to be in the landfill, I'm assuming if you
17 couldn't put it in landfill, you probably couldn't put it
18 down as road base because it could not pass the TCLP for
19 lead.
20 You get into this kind of Catch-22 where it's a
21 raw material coming in as far as we're concerned, but if
22 there is a foul-up, and we end up with this material and
23 cannot get it back in the system somehow, we end up having
24 created a hazardous waste, and it's very, very expensive to
25 get rid of.

1 We have actually devoted two silos to being able
2 to address the curbside issue. We have draw off two silos
3 to have the opportunity to reblend any mistakes back in to
4 try to use the material to avoid sending it out to the
5 landfill.
6 MR. DOTY: One thing we have going for us is, of
7 course, if the concentration of lead is above the current
8 local limit in the cullet itself, the dilution effect that
9 you get when you substitute five or ten percent, at the
10 rate of five or ten percent, that would mean 90 or 95
11 percent of the mixture is aggregate, and five or ten
12 percent is cullet that contains some percentage of lead.
13 That might bring it into compliance. I don't
14 know. There is this dilution effect.
15 MR. GREENBERG: The other metal that I spoke of
16 earlier was selenium. As I understand, based on dialogue
17 with our chemists, is that the selenium is used to make the
18 clear glass clear, and that is how it ends up getting into
19 the process.
20 CHAIRMAN SMITH: Is your industry doing anything
21 to retool to help with the technological problems?
22 MR. GREENBERG: We have done everything that we
23 have short of building practically no handling systems.
24 We have devoted more time and people. Glen
25 Ellison, in the audience, has been with our Quality Control

1 Department for many years, and up to the point where we
2 used the curbside cullet, he had a full-time job.
3 Now with the curbside cullet, he has two
4 full-time jobs. It's an uphill battle. We have pulled out
5 as many stops as we can short of retooling and rebuilding
6 machinery from the ground up.
7 Most of the metal surfaces where the hot glass or
8 molten glass comes into contact with the metal surface,
9 these are very exotic metals, mellimdedum, platinum,
10 platium. They are very expensive. The machining to create
11 these metal components is very expensive.
12 The lead just absolutely wipes them out. It
13 reduces their life and increases our cost and creates a
14 problem.
15 CHAIRMAN SMITH: Thank you.
16 Mike.
17 MR. HENEBURY: I guess lead is a problem.
18 Paper is also a problem in the fiberglass
19 industry, as well as road base.
20 We sold a lot of material to the road base
21 industry, and paper, they did not mention glue but paper
22 was a problem.
23 The problem that doesn't tend to be such a
24 problem in the bottle industry such as paper was plastic. A
25 lot of the Pepsi and 7-Up, there is basically two closures,

one is aluminum which is hazardous to road base, fiberglass or the bottle industry.

Also, there is a plastic closure that leaves a ring on the bottle. That ring, once it's sliced or broken in the process can end up in bottle cullet. If it's not in great amounts, it won't cause them too many problems.

It will cause the fiberglass industry problems and will cause road base problems as well. Any lose or light debris in the material would cause road base problems.

You have the traditional ceramic in coffee cups, bricks, rocks, excessive dirt, any of those things cause the bottle industry problems. That type of material does not cause the road base industry any problems.

We do not know what it will do yet to fiberglass. Obviously they don't want anything foreign in there. The thoughts with the conversations that I have had with the industry is what could happen is a piece of ceramic tends to burn or melt at a higher temperature than glass. A stone of ceramic could clog an orifice or a spinner.

It could clog that. To the best of my knowledge it hasn't happened. We do know in mixed we get some ceramic. Well, the visionware, it's not as big a problem up north here but it's a big problem down south where

1 visionware is being mistaken for amber material.

2 Like Kirsten said earlier, in a curbside program,

3 for the people here in this room and on this panel, we know

4 the difference between coffee cups, dishes and glass.

5 When I was on vacation, I have some family in

6 Rhode Island, they had curbside. It was a new curbside.

7 One of my relatives broke a dish and said, oh, I can just

8 put this in recycling.

9 I started laughing and said told them it's not

10 the same. She says, it breaks like glass. It's the same.

11 You have to do an education thing there at home.

12 But for us there is a difference. To the layman

13 out at home there is not a difference. Visionware would be

14 the same thing. The unfortunate thing about visionware is

15 that it really does look like glass.

16 Also, for the bottle industry, mirror. That

17 would be bad for the fiberglass industry due to the silver

18 coating.

19 Window and plate glass is bad for the bottle

20 industry as it burns at a higher temperature and has a

21 different chemical composition as well.

22 CHAIRMAN SMITH: Mike, are the things being

23 looked at on the processor's end to look at the quality

24 problems?

25 MR. HENEBURY: Ceramic is always going to be an

education issue.

The only way really to get that material out -- I take that back.

There is a machine that is currently being looked at that uses optical type of devices that distinguishes between ceramic and glass. They are looking at that to do color sorting and into pieces as small as an inch.

The problem with these machines now, I have seen some of these machines operated, they operate at a rate of one to two tons per hour, which is unacceptable for a processor or cost analysis.

At this point, ceramic is done now by the eye and education and through our processing system, trying to catch all of it.

Lead and aluminum, there are ferrous and nonferrous detectors. As we speak, they become more sophisticated as time goes on.

For the bottle industry, the ferrous, nonferrous detectors are helpful and do a great job. Maybe a small portion can slip through a detector like that and causes minimal problems for the bottle industry.

For the fiberglass industry there is not anything on the market at this point. The fiberglass material and bottle glass material are two different sizes.

Bottle glass material will tend to be anywhere

1 from three-quarter to half-inch material, which is a lot
2 larger. If you add lead or aluminum or any type of metal in
3 there, it's a bigger piece.
4 Fiberglass material tends to be twelve mesh or
5 even finer material. You're looking at basically the sands
6 consistency. If you add a piece of lead in there shaved
7 off a bottle that is circulated through the system, it's a
8 small piece. There are some detectors that can detect a
9 portion of that, but you could go down to maybe a minus 200
10 mesh, which is a size close to powder.
11 What we're finding is that although the detectors
12 are state-of-the-art today, they cannot detect lead that
13 fine. We are doing some changes to our system that will
14 basically turn it to bottle cullet first, and then grind it
15 and you will two detectors on there.
16 We think that will take care of the lead problem,
17 or is a step in the right direction.
18 As far as paper, basically all you can do is
19 vacuum. It comes down to a marketing thing. Some bottlers
20 or producers of beverages have a lot of labeling and
21 packaging.
22 Someone like Corona, people believe it's great,
23 no paper, but there is cobalt in that paint that they use,
24 which causes the industry some problems as far as making
25 flint again.

1 Minimizing paper, I don't know if the painting is
2 the way to go. I would like to see the industry get away
3 from the lead enclosures and aluminum enclosures as well.
4 We have plastic. It works. I don't know why some
5 bottlers have aluminum and some plastic. It must be a
6 preference.
7 To my knowledge I don't know that there is any
8 quality issues involving those.
9 CHAIRMAN SMITH: Thank you very much.
10 Gary.
11 MR. LISS: I'm not that technical, so I'll just
12 deal on a broader level. I think the detriment to quality
13 related problems are bars and restaurants that I'm most
14 concerned with, which could be addressed through education,
15 like Lin suggested, and better sorting systems within the
16 bars and restaurants.
17 The curbside programs seems that education is
18 workable to some extent. Both of the generators and the
19 haulers in providing incentives for the haulers for the
20 individual route person to sort out any contaminants on
21 route, it's easier to see it on route rather than in the
22 batch.
23 If do you not have a sorting system on route, I
24 question the veracity of, the idea of sorting for ceramic
25 and contaminants seems to be maintained there, but there

1 needs to be a labor wage benefit for doing that.
2 Palo Alto, I think the Pasco payment system
3 should be looked at where each individual driver gets an
4 incentive, bonus for the revenues from the sale of the
5 material, on the order of three percent of the total
6 revenues that Pasco receives. The drivers split up among
7 them.
8 They have built-in incentive to have the best
9 quality materials that they get direct benefit from that.
10 All the talking to the drivers in the world will not have
11 as good an effect as giving them financial incentive when
12 they make $10 to $15 dollars an hour or less.
13 The other quality related problem that I have
14 hammered on until it breaks is the cullet mixed issue. The
15 question there is whether in this day and age we need all
16 the different colors or can allow for different gradients
17 in colors so taht the quality related problem is a
18 perception problem that could be eliminated by perceiving
19 it differently.
20 The chemical issues involved of terms of
21 deterioration of the product inside the containers, the
22 colors added in the past as UV inhibitors, there now are
23 coatings out that proposed as alternative UV inhibitors.
24 In those coatings they say they add UV inhibitors to them
25 as does the plastic industry, they add UV inhibitors into

1 mixed plastics in order to keep those mixed plastics from
2 breaking down in sunlight.
3 I'm not a chemist or engineer. Eugene can talk
4 about that. Maybe there is a UV inhibitor that could lie
5 back and do the duty and doesn't need the color, and we get
6 out of the advertising problem there.
7 Two other points, I appreciated Bob's
8 cross-referencing my comments on the low value materials as
9 a transition towards the next generation of higher value
10 added products.
11 The biggest concern that I expressed during lunch
12 to Lin that I want to get on the record is that we have to
13 be careful if, in fact, that's our plan that the policy is
14 clearly stated up front, and that investments in low value
15 infrastructure are fully understood in that context.
16 The precedent that I'm thinking of in this regard
17 is the AB 2020, convenience zone operators where we have
18 invested substantially in a level of "convenience" quote,
19 unquote, under the 20/20 system that is not the most
20 efficient way of using our funds for recycling in the State
21 of California, as some might say for many of the low volume
22 sites.
23 The convenience zone operators who are servicing
24 those sites have made a substantial investment to respond
25 to the requirements of the law and the grocers and

1 retailers in that regard. To come to the Legislature
2 saying that we need to be made whole for the investments
3 that we have made, and it's a legitimate position to take.
4 The question is, if we move toward low value
5 investment and low value infrastructure up front, how do we
6 protect against that problem? That will take some
7 thought. There are some ideas how to do that, but we do
8 not have a lot of time to go into that.
9 That's an issue that I wanted to get out on the
10 table.
11 The other thing that strikes me from Michael's
12 comments, particularly as it cascades down the row here, is
13 like in other recycle commodities there are more than the
14 homeowner may perceive as clear glass, green glass and
15 amber glass. There are more than three commodities.
16 That gets into question number six, the standard
17 industry definitions, that I may or may not be here to talk
18 to, but clearly the comments coming down this row suggest
19 that in some instances paper is a contaminant and in others
20 it isn't.
21 Historically, going in container cullet, we
22 always viewed paper as being burnt off in the glass furnace
23 at 2,000 plus degrees Fahrenheit, no problem. Leave the
24 paper labels on. Glue, no problem.
25 We're hearing if we're going to use it for

1 alternate purposes, it is a problem. So, differentiating
2 all along the way, coming with up with clear industry
3 specifications for these different market niches, I think
4 could pave the way for alternate uses clearly for different
5 types of different glass.
6 So people are not dinged when they bring in
7 something that they thought met market spec when they were
8 actually talking different language. The two flints of
9 Gallo and the others was amazing to me to hear about today.
10 Lastly, the terms of sources of information, I
11 can't underscore enough the work that Eugene Tseng, Bureau
12 of Mines, Teledyne National had done in the 70's on these
13 issues. There is a huge volume of data available that we
14 should go back and look at.
15 They did a lot of tremendous research back in the
16 early days. National Technical Information Service in DC
17 I'm sure would have a bunch of that information available.
18 Some old timers, like myself, and others in the audience
19 here, could probably give you ways of ferretting out that
20 information over time.
21 Let's not reinvent the wheel. Let's work with our
22 sister states and brother states. Let's work with the past
23 data that we have got, and let's get some of these projects
24 moving.
25 CHAIRMAN SMITH: Gary, those are all very good

1 comments.

2 Eugene, we'll turn to the mad scientist and see

3 what is coming.

4 MR. TSENG: In terms of these types of building

5 products, if the level of contamination isn't too high, the

6 process is designed to produce these materials are

7 contaminant tolerant, and they were designed to be

8 contaminant tolerant for the types of recovery processes in

9 curbside programs that existed fifteen years ago.

10 With the advances in the separation technologies

11 and advances in public education in the curbside program,

12 we do see a much higher quality raw material feed stock.

13 That has not been the problem in trying to

14 increase the use of secondary material. There still exists

15 now, although not to the same degree, that really the

16 quality perception issue from the standpoint of the

17 consumer. This is particularly true in consumer products.

18 These materials are made from materials recovered

19 from the waste or garbage stream, they have the connotation

20 of being and the perception of being not as high quality,

21 not as strong as building products made from virgin

22 materials.

23 It's not just this perception, but sometimes it

24 is actually fostered by competitive products. There were

25 companies trying to market these types of material, other

1 types of materials that were made from feed stock recovered
2 from the waste stream.
3 Once they got into the market, competitors
4 actually went out and said, do you know you're buying
5 garbage that you threw away? Companies have actually gone
6 out of business because of that.
7 Technically, when engineers design these things,
8 they never think of the marketing issues. For instance, we
9 were able to make tiles from sewage sludge.
10 Sewage sludge is basically the stuff you flush
11 down the toilet. We were actually going to make the kitchen
12 tiles that were stronger than the normal type of tiles in
13 combination with waste glass, glass recovered.
14 Because we were were using the ash from the
15 sewage sludge as a filler material and using the glass as a
16 binder, but in trying to do some test pilot marketing
17 studies, we talked about physical properties, and how
18 strong it is, how abrasion resistant it was, the one thing
19 that came across real well, well, fine, it looks like a
20 normal tile, it acts like a normal tile, but fifteen years
21 ago would you want a tile made out of you know what,
22 pooh-pooh, in your kitchen?
23 It basically boiled down to that issue.
24 Hopefully the perception is changing now. We are seeing
25 the advent of the green consumer having recycled materials

1 in the home and having the recycled steel in your beams and
2 stuff like that, is acceptable.
3 I'm kind of waiting for the day when people start
4 comparing and saying, well, I have more pooh-pooh in my
5 house than yours.
6 The education process on quality issues needs to
7 go on.
8 CHAIRMAN SMITH: Thank you.
9 Kirsten.
10 MS. RITCHIE: Following up on that, more show and
11 tell, I put in the back a new brochure put out by the Glass
12 Packaging Institute, called the "Importance of Quality in
13 Recycling Glass Bottles and Jars."
14 Please feel free to take as many copies with you.
15 I don't want to take any of that stuff back with me. It
16 will be reused, but, you know -- feel free, for those of
17 from the local government or business, feel free on all the
18 materials that we provide, you're welcome to Xerox them and
19 use them at will.
20 In the middle section, it shows what the main
21 contaminants are. We included in here three pictures
22 showing what happens when we get contaminants in the bottle
23 and why this is a problem.
24 The first one shows a ceramic stone, and you can
25 actually see the glass cracking around the stone. The

1 second one is a little aluminum BB, and the third is a
2 bubble caused by Pyrex or Visionware glass, that's your
3 ovenproof glass.
4 A little more detail on some of the main
5 contaminants, lead foil, for example, why that is a problem
6 for us. What happens with lead, and there is a law in
7 California that you're no longer allowed, the wine industry
8 basically is no longer allowed to put foils on the wine
9 bottles, so they are experimenting with other kinds of
10 foils, and I'll get into that in a minute.
11 But with the lead foil, what happens is that it
12 melts in the furnace but it sinks to the bottom, and it
13 becomes a corrosive material on the ceramic, and it eats
14 through the bottom of the furnace. We just actually had
15 the bottom of a furnace fall out back East primarily for
16 that reason. All of a sudden you have couple thousand tons
17 of molten glass floating around the bottom of your plant,
18 which is not a good situation.
19 With aluminum, unlike lead, aluminum actually
20 melts into the glass and forms those little BB's which
21 become weak points in the glass bottle. When they are
22 filled, particularly under pressure, or contain a high
23 pressure material, beverage, like carbonated beverage or
24 Champagne, that causes a weak point, a stress point, you
25 get cracking and explosions of the bottle.

1 That's particularly a concern for the bottlers
2 because that is the point in time when the most pressure is
3 exerted on the bottle.
4 Tin, which is something that a lot of the wine
5 companies around here are experimenting with to use as a
6 foil, is kind of an unknown. We think it's going to act
7 like lead. We really want people to take the whole, when
8 you -- this is something that you can tell people about
9 when they are actually getting ready to serve their bottle
10 of wine, rather than just taking the tip off the foil and
11 pulling up the cork, just take off the whole foil. Get rid
12 of it, and then just have your clear bottle. That solves a
13 lot of problems for everybody.
14 The situation with ceramic, you saw basically
15 what happens with ceramics. Ceramic breaks down, and does
16 the same thing as aluminum, basically, it becomes absorbed
17 into the glass and becomes a stone, a weak spot and can
18 break during bottling.
19 The same thing with the Pyrex. You can see the
20 bubble that is formed there.
21 Relative to color, just so you know, what happens
22 with paper. We can accommodate a fair amount of paper. It
23 does get burned up when you're melting glass at 2600 and
24 2800 degrees Fahrenheit.
25 It can, like plastic, color the glass, because it

1 contains carbon. So, we don't like a lot of it in there.
2 We can accommodate it, but we like to keep it to a minimum.
3 We have a problem also, I think it's part of the
4 20/20 where basically you can't get your redemption value
5 until you prove that that bottle was a bottle that
6 contained a beverage that was redeemable, so means you have
7 to leave the label on. That means that the label has to
8 come off during the processing, which is an expense and
9 occurs at that point of time.
10 Those kinds of things are, things are things that
11 are kind of ironic to have to deal with.
12 The other options, of course, on labeling of
13 bottles, in addition to paper and plastic, are what you
14 call the sticky, the clear acrylic labels.
15 An example of that is your Clearly Canadian, if
16 you go buy it off the shelf now. Before, that bottle used
17 to be made in Mexico and was imported into the States. At
18 that point in time, it was an acrylic, a painted on label.
19 Those colors, like the Corona, the blue in there, act as a
20 coloring agent in making new bottles.
21 What they have done up here, that bottle is now
22 made in the States, and a lot of the Canadian sold in
23 California is made up by Owens down in Oakland, and they
24 have moved to this clear plastic label which burns off in
25 the furances. It doesn't tend to color, except for the

1 small amount of carbon that it contains.

2 The easiest place for us to deal with

3 contamination is at the point where it's put out for

4 recycling. That is your local homeowner, the local

5 restauranteur or the bar operator, what have you.

6 Education of that is key. You have to constantly

7 remind them, go out there, say, no, the ceramic plate is

8 not glass. Please take off the foils. No, the ovenware

9 that you stick in the oven and has all kinds of good, old,

10 baked grease on there, that is not a glass container that

11 can be recycled.

12 Maybe at some point in time there is going to be

13 industry out there that is developed that can handle those

14 materials, but for right now, the majority of the glass

15 that is recycled goes back into containers, and at this

16 point in time we need to keep that stuff out of the

17 system.

18 CHAIRMAN SMITH: Thank you, Kirsten. There's some

19 very good information there.

20 Now I would like to turn to question five. It

21 deals with the types of things that the Board and other

22 government agencies can do to promote secondary markets.

23 Specifically, the question is, what activities,

24 programs would be most effective for the Board to pursue to

25 assist secondary material market development?

1 Are new government programs needed, and at what
2 level?
3 What can industry do to aid market development?
4 MR. BASSETT: One of the best things that I can
5 see happening is right now in the State there are separate
6 agencies that deal with all the problems that we're talking
7 about, energy use, air pollution, water pollution, litter
8 control, solid waste, and if somehow they can cooperate
9 more and also perhaps agree together on targeting and
10 focusing on higher uses, ultimately. We will have to deal
11 with the problem that we have now, but I believe it's
12 transitional.
13 The other would be to help change the public
14 perception from our point of view of the advantages and
15 disadvantages of reusing containers, how valuable that will
16 be for them in all those many ways, energy and other
17 resources.
18 The last would be somehow support legislation or
19 promote legislation that will help life cycle
20 accountability from those who produce the packaging.
21 CHAIRMAN SMITH: Thank you.
22 Bob.
23 MR. DOTY: The only suggestion that came to my
24 mind was perhaps the Board considering some research to
25 determine the effect of the substitution of secondary

1 materials for virgin material on the performance on the
2 final product.
3 If this sort of thing was done, I think it would
4 be essential that the potential users of this product
5 definitely be involved in the development and research,
6 statement, RFP or whatever.
7 CHAIRMAN SMITH: That's a very good suggestion.
8 Ron.
9 MR. GREENBERG: From our standpoint, we would
10 like to see something done so that there is more glass and
11 more recyclers to enhance competition among the recyclers
12 to improve the product and keep the prices low.
13 We would like some kind of assurance that the
14 cullet will continue to be available once we start with it,
15 because the fluctuation going in and out of using cullet is
16 probably more of an upset that just staying with it and
17 trying to maintain an even keel.
18 I hear a lot about new products, building
19 materials. I see new uses for the glass cullet that may
20 indeed have greater value. I am wondering what will be the
21 incentive to continue to listen to us whine over quality
22 issues when they can sell it to somebody who is going to
23 make bricks at a considerably greater price and leave us
24 standing in the dirt trying to comply with a law that
25 doesn't provide us with any product.

1 I would also like to see something in the way of
2 incentive for using this material. We are a plant. We
3 employ over 400 people. We use more waste than we
4 generate.
5 Every truckload of insulation that leaves our
6 facility keeps a ton and a half of glass out of the
7 landfill. We have been forced to do this without any
8 incentive, no reward so to speak, not that that's probably
9 or paramount to the issue, but it seems like the people
10 that are spending the money, doing the experimenting, and
11 fighting with using the secondary product should have some
12 type of reward, some kind of incentive to continue the
13 pace.
14 CHAIRMAN SMITH: Very good Ron.
15 Mike.
16 MR. HENEBURY: I second some of Ron's ideas as
17 far as an incentive. I don't know, I'll leave that to the
18 Board or DOC to figure out what type of incentives would be
19 applicable.
20 Some type of tax incentive comes to mind first.
21 Some research maybe in some of the higher end.
22 I think we know that it's going to work in
23 fiberglass, if they get a quality product.
24 I feel real confident, I know that it works in
25 road base now. It could probably work in the glassphalt as

1 well.

2 If we're going to spend a lot of money to figure

3 out that it's going to work and cannot make money to

4 produce the product when it gets there, why waste the

5 money? Put it into something that would generate some

6 revenues, such as some of Eugene's building products.

7 An education program as far as what is a

8 contaminant, I think that it has to be a continuous

9 process. I do not think that you do a little blurb and

10 everyone knows what is going on. It has to be positive

11 reinforcement on an ongoing basis.

12 I would like to see some action on that end.

13 CHAIRMAN SMITH: Very good.

14 Gary.

15 MR. LISS: CRRA has come up with a variety of

16 recommendations in our State Recycling Policy and the

17 Agenda for the 1990's that we have widely distributed. I

18 know the Waste Board has many copies of, and I urge you to

19 look at some of the comments there.

20 To highlight some of the one's that pertain

21 directly at the State level, clearly minimum content, we

22 feel is one of the most successful market development

23 activities ever devised by man or womankind, and should be

24 fine-tuned to work effectively.

25 Each of the minimum content bills has been

1 refined more and more as it goes through. Increasely, the
2 linkage between minimum content percent recycling goals
3 percent refillability and light voluming, decreasing the
4 volume of products, not lightweighting of products, the
5 decreasing of volume of products are being linked
6 increasingly in legislation in the United States and
7 internationally.
8 I think in California we have only begun to look
9 at that in some of the recent minimum content legislation.
10 I think we're starting to look at that more and more. We
11 have a meeting this afternoon on AB-87 to discuss some of
12 those issues today with regard to the 20/20 system.
13 Minimum content is one of the most important
14 one's for the existing minimum content laws, fine-tuning
15 them, link the minimum content recycling levels,
16 refillability and the source reduction goals together in an
17 integrated waste minimization program as opposed to one
18 that doesn't provide consistent signals to the market
19 place, but one that provides incentives to those doing the
20 right thing.
21 Going beyond existing minimum content, clearly
22 with the focus on construction products that I have heard
23 here today, particularly the value added construction
24 products, seems like a good target for minimum content to
25 me. If there is some reservations out there in the

1 construction trades, I encourage the Waste Board to begin
2 dialogue immediately with those both on the management side
3 and the union side to explore some of the issues that
4 Eugene talked about earlier in his comments.
5 The construction products for the high value
6 added material seemed like good targets for new minimum
7 content legislation in the near future.
8 Next most important beyond that is probably
9 access to capital, and the need for a market development
10 bond issue, which we have endorsed the idea behind the CAW,
11 Californians Against Waste, proposal, earlier this year,
12 for a $700 million bond issue.
13 I focused comments today in support of small
14 business, nonprofits providing, getting access to capital
15 for market development activities for the incremental and
16 environmental costs, the mitigation, like we are
17 experiencing on the MacMillan Bloedel plant, trying to look
18 at the incremental cost of doing business in California,
19 helped to be financed through public funding of this
20 nature, through funding of research and development
21 projects, particularly in conjunction with universities so
22 that mad scientists like Eugene can give us the types of
23 insights that we have heard today, and for practical
24 companies, like Mike, who I did not hear being referred to
25 as mad today, though they did back in 1986, I think receive

1 CRRA Market Development Award for innovation.

2 Circo has been a long time leader in trying

3 innovative in California. Providing funding for that out

4 of the public domaine seems like appropriate use for public

5 resources. That type of bond issue should be pursued as

6 soon as possible.

7 On an interim basis, not by itself, it should be

8 coupled with other bond issues being proposed. For

9 example, if there are additional housing bond issues

10 proposed, there should be a recycling component to that

11 housing bond issue.

12 If there is a transportation bond issue proposed,

13 there should be a recycling component to that bond issue.

14 If there is an economic development, jobs, issue,

15 bond issue proposed, recycling should be part of that bond

16 issue, as eligible activities and preferably activities

17 given preferential treatment for public financing as part

18 of meeting other social goals that we have in state

19 financing if we do not get our own bond issue shortly.

20 Third, I reiterate the critical importance of

21 coordinating the 939 and 20/20 programs. Both

22 interdepartmental issues, we talked about earlier, and

23 Roger reinforced.

24 Recently, the most fundamental one is on the

25 funding side. I kept hearing everyone talk about the cost

1 of these programs, which is the cost expense side. The
2 funding side of the equation, here you have a $350 million
3 a year, 20/20 bottle bill going through for how much of the
4 waste stream? 3.7 percent of the waste stream.
5 That is interesting. You have got 939 governing
6 how many millions of dollars per year?
7 It's $3 to $5 billion a year of cash flowing
8 annually in California for garbage disposal, garbage
9 collection and disposal. $3 to $5 billion a year,
10 depending on what estimate or calculation you do.
11 Conservatively, you have got $3 to $4 billion a
12 year in cash flowing in the system. Someone has to be able
13 to figure out a better way of using that cash to accomplish
14 our goals.
15 We need to figure out how to apply the avoided
16 garbage collection and disposal cost to funding recycling
17 initiatives. We need to figure out how to make the maximum
18 efficient use of the monies going through the 20/20 system,
19 and you need to link those up.
20 One of the problems that glass industry was
21 confronting that we highlighted earlier was everyone was
22 blaming glass because they weren't cooperating in the 20/20
23 system when they were being pummeled. They were literally
24 between a rock and hard place, which is very bad for glass.
25 If you're a glass bottle, rock and hard places don't mix

1 real well.

2 I think the CRRA Position Statement that is in
3 the back of the room highlighted that what we need to do is
4 look at the incremental cost of, above the manufacturers
5 virgin material cost, to be obtained through the avoided
6 cost of waste collection and disposal, and that to me means
7 939 surcharges, whether it's state or local level, it's for
8 us collectively to figure out.

9 Local authority exists for 939 surcharges. Some
10 communities are using them more actively than others. Some
11 communities are being sued by others for using them, that
12 type of tool.

13 The coordination and integration of the 939 and
14 2020 funding sources is a critical element to this. It's
15 not that there isn't cash in the system. It's how we're
16 spending the cash that we have got. Someone has to get a
17 firm look at that.

18 Other issues, quickly, advertising, marketing,
19 retailers, revising specifications, preferential treatment,
20 green marketing issues are critically important,
21 eliminating subsidies, or provide new tax incentives.

22 One of the things at the National Recycling
23 Congress last year, this representative from the U.S.
24 Senate, talked about how in RCRA they were debating
25 different issues, someone asked, "How about giving tax

1 incentives to level the playing field compared to virgin
2 materials?"
3 His response was, "Well, it could be hundreds of
4 millions of dollars, if not billions of dollars."
5 So, someone else asked, "To level the playing
6 field is that much? Why don't you get rid of all those
7 subsidies for the virgin materials industries. If they
8 were put in place to industrialize America, we have
9 succeeded. America has become an industrial power in the
10 world."
11 We may want to put those subsidies into other
12 productive activities, both at the state level and the
13 federal level, particularly given the budget problems that
14 we're having today. Why are taxpayers subsidizing oil
15 companies when we have the budget problem that we have? I
16 don't understand that.
17 Green handling, coordinating the permit processes
18 is a very critical element that not enough is done on. The
19 people who are expert at that are the economic development
20 agencies.
21 The Waste Board needs to get the economic
22 development agencies at the local, regional, state and
23 federal levels working on this actively, providing
24 assistance, providing coordination of the environmental
25 permitting process, not necessarily one stop shopping,

1 because that would take forever and a day to ever see as a
2 reality.
3 To have an advocate explaining, coordinating
4 facilitating, communicating, letting people understand what
5 they are going to encounter before it happens so that they
6 are not surprised that it takes two years to get through
7 the hoops, bells and whistles.
8 Again, not relaxing the standards, but
9 coordinating them and providing assistance along the way to
10 have the best meeting of the minds.
11 Those are State programs CRRA has advocated for
12 many years. The local level, clearly the zone program of
13 the State is one that needs to be expanded, coordinated
14 regionally, and that doesn't mean that each application has
15 to be regional in multi-county juridiction scope, which
16 seems to be a direction coming from the Waste Board
17 currently, but rather that each individual zone could be
18 coordinated together with others so that they are not
19 competing that they actually collaborate on targetting
20 different materials and different types of industries
21 depending on local resources, local needs and feed stock
22 availability.
23 Looking at local's contributing procurement, not
24 only public procurement, but private procurement, working
25 both with residential and commercial businesses to

1 encourage the message of buying recycled materials for all
2 materials is clearly an important message that has got to
3 get out there.
4 Instead of the 2020 system promoting the
5 collection of recycled materials, they should be promoting
6 the buying of recycled materials.
7 They have had some wonderful PR in the last
8 couple of years. It's time to put the PR into the buying of
9 recycled products, not just the collection of the recycled
10 materials.
11 The green handling, economic development
12 assistance at the local level are other things that can be
13 done. Working with the local universities, trying to set up
14 a university extension service, much like we have in the
15 agricultural arena, is something that CRRA State Recycling
16 Policy called for many years ago.
17 At the federal level, I strongly encourage focuse
18 on minimum content, and not sometime in the far distant
19 future whenever people think they might get around to it,
20 but rather, immediately, have minimum content standards
21 with the types of options that I talked about earlier in
22 terms of minimum content or recycling level or
23 refillability or light volume, or source reduction of the
24 volume, not the weight, the volume of the product, as key
25 measures by which industries are held accountable at the

1 federal level to replicate what we have done at the state
2 level.
3 All those things are needed. Industry plays an
4 important role in many of these activities. I haven't
5 delineated a role there.
6 I would be happy to elaborate further, but I'm
7 taking more time than probably allocated, so I'll stop
8 there.
9 CHAIRMAN SMITH: If we have more time we will
10 come back. As usual, your list is very comprehensive and
11 thorough.
12 I would just like to say that in developing the
13 market development plan, we are putting a big focus on
14 financial incentives to get the markets going to assist in
15 in collection of those materials.
16 Now, I turn it over to Eugene.
17 MR. TSENG: I want to emphasize, as Gary has, the
18 Waste Board does have a tremendous opportunity to leverage
19 its budget by working with the private industry and also
20 academic institutions and other regulatory agencies.
21 I have five suggestions. The first one really is
22 getting the Integrated Waste Management Board to support or
23 at least coordinating R and D in innovative use of
24 secondary materials.
25 Right now there really is no major effort on R

1 and D like we have in the hazardous waste field. Municipal
2 solid waste is still much of an art, the management is
3 still much of an art rather than a science.
4 In most universities, municipal solid waste
5 management isn't even really an academic topic. It's
6 really offered through extension courses. So, I do urge
7 you to get involved with education at the university and
8 college level.
9 Good technology and good products require good
10 science. That really means very good university basics.
11 The second point is that you need to create a
12 central clearing house with technology to transfer
13 activities. The Federal EPA has done this, and it's done
14 in many other countries in the area of hazardous waste.
15 It's been quite effective.
16 What I mean by a technology clearing house, it's
17 really like a center to disseminate information to a
18 targetted audience, also to provide networking for
19 different schools and different industries so that you have
20 a source to come to and look and compile with different
21 types of technologies and processes and inventions, and it
22 makes the research efforts for people easier.
23 It also can serve as a technology transfer
24 clearing house from California out, but not only that, you
25 can also serve to get technology from outside of the

1 country and outside of the state in.

2 There exists a lot of good products and

3 technologies in other places. What I'm saying is really

4 don't reinvent the wheel but just help make the process

5 more efficient for people working in the field. This is a

6 great catalyst service to provide.

7 Three, you have to promote a cooperative

8 approach, a cooperative partnership with industry and

9 academic institutions, regulatory agencies, permitting

10 agencies on commercialization of viable, innovative

11 products and technology.

12 The EPA has also promoted this approach. We do

13 not want inventors to work in a vacuum and then spring

14 their products out on industry when they are finished. We

15 want them to be part of the process, so that you can sort

16 of play the facilitator or the moderator in helping these

17 people develop these products, so much the better.

18 One key player that needs to be brought in at the

19 very beginning is the financial institutions. They are the

20 people that ultimately will fund a lot of these projects

21 and projects.

22 The people developing the products in the

23 regulatory agencies have to understand the financial

24 constraints under what conditions that they can be funded.

25 They are a critical part of the equation.

1 Number four, we have talked a lot about a lot of
2 the institutional barriers and regulatory barriers that
3 inhibit technology transfer, generally, and the one's cited
4 most often by people trying to bring technology into the
5 United States, people trying to commercialize technology,
6 are these four:
7 They worry about product liability. There is a
8 lack of understanding of our legal and environmental
9 regulatory system.
10 The permitting as we talked about is a horrible
11 experience for everybody involved. One thing that you
12 really need to work on is the adversarial nature between
13 government and industry.
14 In most of the foreign countries, government and
15 industry work in a partnership to develop products and
16 technology, through technology parts, incubator services
17 and things like that. I recommend for you to take that
18 role.
19 Number five, the Waste Board needs to support
20 development of demonstration and scale-up facilities.
21 Generically, in what we call technology development, there
22 is money available on basic research. There is money
23 available for bench-scale experimentation.
24 There is money on the financial institution side
25 to take a proven technology and to develop, to

1 commercialize it, to build full-sized plans. But what is
2 missing in that step is the scale-up or demonstration
3 plant.
4 This is a high risk area, and there is not much
5 money for the research and development and
6 commercialization side to fill this niche. This is where
7 things lag.
8 If you can develop a program of cost sharing or a
9 partnership, EPA has done this in the hazardous waste area,
10 and you might want to take a look at some of the things
11 that they have done, it would help really speed along the
12 innovative technology development.
13 CHAIRMAN SMITH: Thank you.
14 MS. RITCHIE: I have eight recommendations.
15 The first, of course, from my perspective, is
16 that we need to improve the market for the glass
17 container. The more glass containers that we make, the
18 more recycled glass we use and the better the market is for
19 secondary glass.
20 To this end, we really need to work on creating a
21 level playing field for all container types, we are out
22 there competing fairly with aluminum, with plastics, with
23 paperboard, with steel, with aseptic packaging.
24 As Gary alluded to earlier, maybe it's a level
25 playing field, a minimum content level playing field

1 legislation that incorporates, you achieve a certain
2 recycling rate, you achieve a certain minimum content rate,
3 you achieve a certain refilling rate, or combination
4 thereof, but everybody has to be out there competing
5 fairly.
6 Number two, we need to educate consumers to
7 reduce contaminants, and also to increase the glass that is
8 put out for recycling. That is commercially, at the bars
9 and restaurants, as well as the homeowner. Get them to take
10 a little extra level of effort to rinse out their salad
11 dressing bottle and put it out for recycling.
12 Three, I really feel strongly that we should be
13 promoting comprehensive curbside recycling that is tied to
14 variable can rates. Have an incentive for people to not put
15 that material, or not buy the wrong thing in the grocery
16 store so that when they get home it can actually go into
17 the recycling bin versus the garbage bin.
18 You have to tie the two together. They do not
19 operate independently.
20 We really need, the State can and should be
21 really working to reduce freight cost for transport of the
22 recycled materials.
23 Fifth, I think we need to encourage the disposal
24 cost to reflect the true cost of landfilling, and get those
25 costs out there in the open, don't get them buried in the

1 general fund. Make sure that people know what it is that
2 they are paying for taking the stuff to the dump versus
3 taking it to the local recycling center.
4 Sixth, I think we need to work very strongly with
5 the other states, for example the Clean Washington Center
6 up in Seattle, to develop a permanent technical data base
7 source for information on secondary uses.
8 This isn't just glass secondary uses. It's
9 secondary uses for paper, for compost, for plastics, and
10 ideas, like setting up a Western Region Institute for
11 Secondary Markets, or something like that, where all the
12 states get together and they fund that.
13 It would also do research as well as they place,
14 when someone has a couple tons mixed colored glass, they
15 know they cannot sell it to anybody, make a call and say I
16 have this, what are my options, and get the information at
17 one place. They do not have to spend three years to get
18 the information.
19 Seven, very important, and we haven't really
20 touched upon this, but I think it would be a good role, a
21 good thing for the State to develop model building codes
22 and specifications for designing for and with recycling.
23 I would see that these would be things that would
24 be implemented locally, but by the State providing model
25 codes, like for example, insulation, and here is something

1 that was brought earlier, the fiberglass industry has come
2 forward, is using minimum glass to a certain percent
3 recycled content in the making of their product, but they
4 have gotten no benefit from the government for it.
5 If the government had building codes and
6 specifications that provided a way for that industry to
7 have a market advantage in selling their product, that
8 would be great for them.
9 This terrazzo tile, what is the spec that the
10 local government should put in their building codes to
11 allow the local contractor to use crushed cullet in laying
12 terrazzo tile. Roof tiles, parking lot pavement, maybe
13 glassphalt isn't the way to go for roads, but for parking
14 lots where you don't have high speeds, that maybe
15 appropriate use.
16 The other side of that is storage space, making
17 sure that there proper storage space built in any new
18 design or any new remodel that allows for the storage of
19 recyclable materials.
20 We're talking spaces in the houses, small spaces
21 for immediate set aside versus the large spaces for storage
22 until your week of collection. We're talking about bars,
23 restaurants, grocery stores, warehouses, office space.
24 Having standardized recommendations in building
25 codes and specifications at the State level that can be

1 incorporated by the locals, making their job easy, I think
2 will go a long way to really closing the loop.
3 Finally, and I have to do this, and that is to
4 have to encourage the purchase of California products
5 packaged in glass. The glass container industry is a
6 California industry.
7 We employ about 7,000 employees in the State of
8 California. We are one of the few very strong, not strong
9 but a good manufacturing base here. We make a good local
10 product.
11 California makes a lot of good products. We
12 really need to encourage people to buy those products.
13 CHAIRMAN SMITH: Those are some very good helpful
14 comments.
15 I would like to take questions from the public on
16 everything that has occurred since coming back from the
17 lunch break on questions three, four or five.
18 Any one with questions, come forward, or comments
19 are welcome.
20 MR. PAPKE: My name is Chuck Papke, with Resource
21 Management.
22 I had a few comments. Most of my comments are
23 here to last as talked about Eugene and others.
24 First I wanted to compliment the Board on the
25 report. I know they have been working on it for a while.

1 They did a very good job, I think. It covered all the
2 issues pretty well, and did not leave me much to talk
3 about, really.
4 I wanted to point out several little things that
5 come up in the questions and just point out some other
6 information. There was in discussing the use of glass in
7 glassphalt, maybe some of you do know of a lot of the usage
8 going on in the East right now.
9 New York City has been using it for years and has
10 not experienced this stripping problems that have been
11 referred to. There are other places that it's used.
12 In California there is a strip that Eugene knows
13 about, down in Fullerton, it's been there 20 years now.
14 For the first twelve or fifteen of those years, they had no
15 problems with the glassphalt down there.
16 There are a lot of other places that it's been
17 used, and those might be looked into. Syracuse, in New
18 York, has been taking the glass out of curbside program,
19 running through the local MRF and putting it back in the
20 street for about two years. That maybe something that you
21 may want to look into.
22 In the ceramic issue, I know that Gallo has been
23 working on this in California for a little while, and
24 Consumers up in Canada has been working on it for a couple
25 of years, and as far as I know, they felt they pretty well

1 had solved the ceramic problem by using the hasmatic type
2 system of crushing the cullet fine enough and getting the
3 ceramic as fine particles.
4 That is an area you might want to look into to
5 see if, in fact, ceramic is going to be as much of a
6 problem as it is today.
7 Nobody mentioned blue glass, which in our studies
8 around the country, different parts of the country, blue
9 glass is, quote, "becoming a big problem." I'm not sure
10 that it really is, but it's something that might be
11 mentioned and covered in this report. If you need more
12 information, I could help on that.
13 There was a mention of UV inhibitors, and this
14 deals with color packaging and color type. There is not a
15 whole lot of things to say about that, but I'll mention a
16 couple of things.
17 One is that Anheuser has been test marketing a
18 clear bottle in several parts of the country, and as far as
19 I know has not experienced any problems with that in their
20 market so far. Whether they are going to go ahead and
21 expand and sell their brands in brown and amber, I'm not
22 sure. That raises the question about the color and it's
23 importance in the UV inhibitors.
24 There are UV inhibitors of all sorts and types
25 that are used in container glass that has nothing to do

1 with color. However, the color, as Anheuser and some of
2 these other people will tell you, in and of itself because
3 of it's particular wave length protects certain qualities
4 of their beer.
5 There are some other issues rather than just UV
6 inhibition. That should be looked into in the issue some
7 more.
8 One other thing is that there is another product
9 out that people do not know much about in ceramic tile that
10 is commercially on the market today. The Walt Disney
11 headquarters in Florida, which is a monstrous building
12 there, has used I do not know how many thousands of feet of
13 this ceramic tiles in different colors that uses eighty to
14 ninety percent glass in that, post-consumer glass.
15 As I understand, the price that is paid for that
16 is in the container in the $20 to $30 ton range. That
17 might be looked into in this case.
18 I think one of the things that I wanted to -- we
19 work with a company who is trying to develop foam glass
20 product. One of their problems in developing it is trying
21 to raise enough money, which goes to Gary Liss's issue of
22 access to capital, to build a little pilot plant to make
23 enough product to do some testing and do some test
24 marketing with.
25 They are having a terrible time raising the money

1 to do that. They have made a little of the product already,
2 trying to do some testing on it.
3 One of the areas that the Board might look into
4 is developing some testing procedures or mechanisms so that
5 some of these products can be made on a lab basis and then
6 done some testing, and then the next step, which is the
7 next problem, is trying to get these products, even though
8 they meet the specifications in the codes, there is a lot
9 of reluctance to their use because that material in itself
10 has not been used.
11 Overcoming these regulations and specifications
12 are important. One of the big areas that would be very
13 helpful for the Board is to do what Kirsten mentioned in
14 the last was developing model specifications and get them
15 put in place on the State level, then the local levels can
16 follow once it's in place on the State level.
17 It really paves, if you will, the way for use of
18 that material and products on a local level. That's really
19 important.
20 New Jersey experienced a year and a half of
21 trying to get glass put into drainage aggregate is
22 something that would seem to be very simple, but it was a
23 very long-term process. Now that it has been adopted, there
24 is no problem of using it on a local level. I emphasize
25 that.

1 To follow-up on some of Eugene's comments about
2 the need for more research and development information and
3 that kind of information is important. Some of the
4 particular things that I was thinking about, there have
5 been a number of issues of using mixed cullet colors in
6 making more glass containers, in that the green and the
7 amber glasses mixing in certain ways, some manufacturers
8 claim cause problems with gas and bubble formation and yet
9 other container plants have been mixing these together
10 without any problem at all.
11 It would be interesting why some industries have
12 problems and some plants don't. Owens Brockway recently
13 came up with UV green blend, which was a spec, and I don't
14 know if Mike knows about it, but they are selling that on
15 the East Coast, which is an amber, green blend, that they
16 have specified it doesn't show these kinds of problems in
17 making more green bottles.
18 The paper issue, I have some questions about
19 that. I remember twenty or twenty-five years ago when I
20 was in recycling, selling glass to OI that paper was a big
21 problem for them. That was one of the contaminants that
22 you could get rejected on.
23 Paper now, interestingly, and hasn't been for a
24 long time a problem in containers. The reason being is
25 that the temperatures are so high that the carbon burns

1 off. I wonder if in the fiberglass furnaces if they are
2 experiencing the problem, if they talk to people in the
3 container industry to see how they overcome the paper,
4 carbon problem, if it is a problem. I'm not sure if it is.
5 Also, in the fiberglass industry many years ago,
6 and up until recently, some plants have been using large
7 amounts of mixed, not only mixed color but mixed kinds of
8 glass, mixed plate, bottle and color, together and having
9 no problem with it at all.
10 I think that maybe some of this a role of the
11 Board is to get, as Eugene and Kirsten talked about, some
12 kind clearing house of information and more research,
13 examples where problems have been solved in some places and
14 not yet in others and coordinate those things.
15 I back-up again, I think that some of those need,
16 or ways that the Board could play a key role in helping in
17 these market development zones providing more kinds of
18 information for businesses wanting to start a new business
19 in the area of having market business plans of a more
20 generic type for the various products helps the industries
21 decide whether or not they wanted to put in some of their
22 money into developing the products.
23 We know several examples of that, and it's
24 something that could play a key role without very much
25 money involved, not much funding, but a key role in getting

1 new businesses started in these market development zones.
2 Thank you.
3 CHAIRMAN SMITH: That was some very good
4 information.
5 By the way, Chuck, we are developing business
6 profiles for those industries interested in coming into
7 zones.
8 Any other people in the audience who would like
9 to make any comments?
10 We'll take a five-minute break after.
11 MR. GODDARD: My name is Rick Goddard, I'm with
12 the Certainteed Chowchilla facility.
13 I wanted to go over a couple of things. The Board
14 has been doing an outstanding job with the paper. That was
15 quite a piece of work that was put out. I was impressed.
16 I hope we keep getting information like that.
17 One of the things that I wanted to address was as
18 a fiberglass user and manufacturer using the bottle-type
19 glass in our product, in our melter, one thing there is a
20 chemical brick wall that basically limits the amount of
21 glass that we can use.
22 Without doing -- there is an absolute limit
23 because of our chemical differences. Some are around 50
24 percent. There is another -- right now with our typical
25 materials, we can use about 20 percent comfortably, which

1 we have been doing here for a while.

2 To go beyond that requires additional materials

3 that are processed and they are expensive in general. It's

4 a step that we need to take in order to get to the 50

5 percent point. After that, our chemistry that we want to

6 maintain will be breached.

7 When we establish limits in legislation or

8 whatever, we have to make sure that the end user can

9 accomplish it. Of course, that can be done by getting the

10 end user involved.

11 The second thing I wanted to address the paper

12 issue, since I have heard it come up a couple of times. I

13 know a lot of people have a hard time understanding why a

14 carbon material which burns in a 2,000 degree furnace is a

15 problem to the glass industry.

16 My background is in ceramic engineering. I have

17 been in furnace technology for quite a while. I'll tell you

18 the truth, I don't know why, but there is some possibility

19 where the materials that have carbon are tied up in with

20 the batch materials -- and batch melting is kind of a

21 layered approach. You get melting from above and

22 underneath, and the sandwiches that you make are still

23 dry.

24 If carbon is in there, it basically will sublime

25 to the point of carbon and oxygen, and the carbon there is

1 a very important factor in controlling our furnace. It has
2 to do with how the oxidation of all the materials occur in
3 the glass itself.
4 We put carbon in ourselves, because we recycle
5 materials from our plant that come from electocyte
6 precipitators. We get a sludge that would normally go to a
7 landfill situation, hazardous landfill, but we recycle
8 that.
9 That's carbon containing material, too. But as
10 long as we know the composition, as long as it's
11 consistent, we can work with it to a certain degree.
12 With the paper and materials that come in with
13 the purchased cullet it varies. The variation is what
14 kills us, not so much the content.
15 The content bothers us if it was a fair amount.
16 We have seen some examples of ia fair amount of carbon type
17 material.
18 Hopefully, that helps answer some of those
19 questions.
20 CHAIRMAN SMITH: It does. Thank you.
21 Anyone else?
22 MR. HEYLIN: I feel like the lone wolf. I'll give
23 it another try here.
24 One point in the draft report that I would like
25 to clear you up on, refillable bottles take more energy to

1 produce because they are thicker than regular containers,
2 that is dogma and not true.
3 MS. LINDERT: It's from the economist.
4 MR. HEYLIN: I ran the first one-way beer bottle
5 washing program in the country for General Brewing in
6 1969. We washed NR's. We did fine with breakage. The
7 breakage is actually superior with the one's coming back
8 through the waste stream than virgin, brand-new glass,
9 breakage in refilling.
10 I have washed wine bottles for seventeen years.
11 The industry has gone through three major phases of
12 lightweighting wine bottles. They are far lighter now than
13 they were in 1975. The amount of breakage is exactly the
14 same or negligible compared to 1975. It's not true about
15 the greater energy.
16 There are all kinds of other things, I keep
17 feeling that we're looking at what I would call very simply
18 explaining what the reuse industry would like to call,
19 change your name to the Integrated Waste Minimization
20 Board, and that would speak to the way I approach the
21 problem of glass recycling.
22 Glass's most competitive edge against every one
23 of its alternative products, aseptic, plastic, aluminum and
24 everything else is it's refillability, not just it's
25 recyclability, but its refillability.

1 It can absolutely, and Japan and Europe and
2 everybody else is going the way of refillability as
3 primary -- this report, not putting it down, but it seems
4 to say, well, a few micro-breweries might get away with
5 doing it.
6 I think it could be done on a massive scale, and
7 is being done in other countries on a massive scale.
8 The one thing that I would add that I don't think
9 that anyone has spoken to today, and just briefly, is he
10 mentioned that he has problems with the equipment wearing,
11 and that probably means that he has a little more of a
12 safety hazard. She mentioned infusion where stuff stuck in
13 the glass because of recycled products.
14 One of the primary reasons I think that soft
15 drink and beer bottlers dropped refillable containers was
16 because of the liability aspect.
17 If I wash a bottle and it has a broken something
18 in it, I get sued. If Owens Illinois supplies me a bottle
19 and it has a broken something in it, they get sued.
20 Somehow, not only with refilled containers, but
21 with materials containing a high percentage of recycled
22 content, there may be stones, imperfections, employee
23 liability problems that are increased, and I'm not afraid
24 of those, but I think that the Board should look at some
25 way to handle possible limitations on litigation from those

areas so that people do not feel they are going down the tube because they tried a shot at using the higher recycled content product or refillable product.

That's the only thing I haven't heard mentioned here. In our litigious society, I guess you got to mention that.

MS. LINDERT: I would just like to answer that, one littl bit, Peter.

I worked with trails at the state park system, and we worked constantly protecting private landowners from being sued because of hazard, attractive nuisance on the land. We were trying to change that.

You're up against one thing, the Bar Association. It's very difficult. I have been through this for three and a half years.

You are also up against the fact, even if you get it through, and we do have a recreation hazard protection law in California, similar to the situation, even if you get it through, people can still sue, unfortunately, and it still ties up your assets and you and your time forever, and this is the argument that the landowners gave us, and I'm sure it's the same argument they will give you.

I think it's a good point.

MR. HEYLIN: It's a little additional help.

MS. LINDERT: Right, it's a little additional

1 help, but it doesn't solve everything.

2 CHAIRMAN SMITH: Any one out there with other

3 questions?

4 MR. BASSETT: Actually, I have one further thing.

5 The tax incentive loans and grants are crucial.

6 One of the reasons that small businesses like this fail is

7 lack of infrastructure or support because they do not have

8 the experience or assets to pay for the expert help, and

9 that should be considered, some support for new business.

10 MS. LINDERT: Are you talking more informational

11 support?

12 You're not talking financial? More informational

13 such as business plans?

14 MR. BASSETT: Helping them resolve problems.

15 MS. LINDERT: Okay.

16 CHAIRMAN SMITH: We're going to take a

17 five-minute break, then we will come back and deal with

18 definition problems for glass.

19 (Thereupon a brief recess was taken.)

20 CHAIRMAN SMITH: This question will deal with

21 industry definitions for secondary materials.

22 The question is, are the standard industry

23 definitions for specific secondary materials -- it should

24 be glass --

25 Are the standard industry definitions for glass

1 secondary materials adequate, or do you think that further
2 refinement of these definitions is necessary?
3 MR. BASSETT: It's really not applicable to
4 recyclables and refillables.
5 MR. DOTY: The only comment that I would have
6 would be that specificity -- or the need for specificity is
7 obviously going to go up as the regulations proliferate.
8 So, to some extent as an outsider looking in
9 regarding a lot of the terminology, maybe there needs to be
10 a little bit more effort so that you have a hand-in-glove
11 relationship there.
12 MR. GREENBERG: I'm not really aware of any
13 problems that we have in terms of definition as they relate
14 to the color of recycled glass.
15 Our concerns probably are more adhering to things
16 that are written in the regulations, trying to get the
17 provider of the raw material or the cullet to adhere to
18 previous determined specifications.
19 That would be the only obstacle.
20 MR. HUSTON: John, may I ask a question?
21 One of the reasons that I think that this became
22 an issue in, for example for mixed paper, and this is where
23 we really came up with this question, was that sometimes
24 there is different percentages of mix.
25 It might be predominantly high grade paper and

1 there is just a little bit of newsprint in it, or it might
2 be quite a lot of corrogated and just a little bit of high
3 grade, or something like that.
4 I was wondering in the glass industry if we have
5 similar kinds of situations. Right now our only definition
6 is for three color mix.
7 Are there some specifications there that we might
8 be able to say is it needs to be predominantly green, or it
9 needs to be predominantly flint, or it needs to be
10 predominately brown.
11 What about contaminations? Obviously
12 contaminations are a different problem for you than the
13 bottle people.
14 Would there be an advantage of different
15 definitions so that when you are shopping for material you
16 could negotiate a deal and know exactly what you were going
17 to get.
18 You would know the color mix. You would know
19 what level of contaminations, what kind of contaminations
20 were in it, da-da-da-da-da.
21 I'm sort of thinking from that perspective as
22 well.
23 MR. GREENBERG: In light of that scenario, it's
24 to our advantage to know what percentages of the different
25 colors were in the three color mix.

1 Right now, three color mix could be predominately
2 any one of the three colors or an equal amount of each.
3 There is no consistency.
4 It usually seems to come in waves. Some kind of
5 a definition that would identify the percentages would
6 probably be valuable.
7 MR. HUSTON: I would like to request that if you
8 have a chance to think about this some more and have some
9 written suggestions for us of an avenue that we might
10 pursue, or some of the breakdowns that might be of value to
11 you, to send those to Lin so we can consider those.
12 CHAIRMAN SMITH: That's a good suggestion.
13 Mike.
14 MR. HENEBURY: I would like to thank you for
15 clarifying this question because I wondered how it was
16 applicable to glass.
17 I would say for the fiberglass industry, amber,
18 and Dan can probably answer this better than I can, but I
19 believe amber is a problem for the fiberglass industry. It
20 has more iron. They use iron as a coloring agent.
21 It's not iron such a free iron. But it will
22 actually hinder them in the production. I know all three,
23 Corning, Manville and Certainteed are worried about amber
24 levels in that material.
25 That's why we try to use exclusively curbside.

1 There is some bar and restaurant that goes into that which
2 tends to have higher amber in there due to the beer
3 bottles, whatnot, from the bars and restaurants.
4 Curbside on the other hand tends to be 50 percent
5 flint, maybe 30 percent green, and 20 percent of the
6 amber. That amber can be actually be lower depending on
7 what community it's coming from.
8 Those kind of issues we constantly are looking to
9 try to keep a steady flow of reasonably close the color
10 because that is important to the fiberglass industry.
11 You know you have flint, and everyone will
12 construe it's glass, and it has close to the same
13 chemistry. Well, us not being chemists, yes, that's true.
14 But to a chemist or a batch and furnace man,
15 there is a different chemistry, slightly, but a different
16 chemistry for green and for amber and for flint.
17 It's important that we try to stay consistent.
18 We do the best job as for a processor that you possibly
19 could do without actually having a chemical batch type of
20 arrangement, which a glass manufacturer or fiberglass
21 manufacturer may have, where it's premeasured amounts of
22 materials put in into a singular batch and then run or
23 melted in there case.
24 I do not know of any processor that would have
25 the capability to do that at this time.

1 In the bottle industry, flint glass is an item
2 that has not a lot of tolerance for other types of glass,
3 amber or green in there. In our specifications on
4 purchasing material, in green and amber, we do allow a ten
5 percent color change, whether it be flint or green.
6 The colored materials are more tolerant of other
7 colors. I have heard in the past that glass manufacturers
8 can at a small amount of amber to a flint tank, but would
9 not want the general public to do that because it's a
10 weighing out and a very touchy issue as far as getting too
11 much or not enough in there.
12 I have heard that they can add, and at certain
13 plants, where that chemistry allows them to do that, that
14 they can add small amounts of amber up to five percent, I
15 believe.
16 MR. DOTY: If I can elaborate just for a moment,
17 picking up on the comment with regard to paper, maybe
18 giving an example of what I was trying to say. I'm not
19 sure I said it such as anybody could understand it.
20 If regulations were adopted having to do with
21 glassphalt, the definition of glassphalt must go along with
22 that for it to make any sense.
23 If you leave the task of establishing that
24 definition of the hands of the people who are now required
25 to abide by the regulation or statute, you've got yourself

1 a very awkward situation, perhaps an unworkable situation,
2 specifically with regard to glassphalt.
3 That would leave me with the option of deciding
4 that, let's say because of the risks that I was talking
5 about earlier today, I don't want to do any more of this
6 than I have to, and I want to hold the risks as low as I
7 possibly can.
8 I'll define glassphalt as asphalt concrete in
9 which I substitute glass for one-tenth of one percent of
10 the aggregate.
11 That might technically satisfy at least one
12 interpretation of the regulation. That's the sort of thing
13 that I was talking about with regard to making sure that
14 there is sufficient degree of specificity that goes along
15 with any regulations that are adopted.
16 CHAIRMAN SMITH: Good.
17 MR. TSENG: Just a suggestion.
18 When you start putting together standard industry
19 definitions, you need to really check around the state. I
20 think industry up North uses different definitions than
21 industry down South.
22 We found that with definitions for mixed paper,
23 waste paper. We also find this for glass.
24 CHAIRMAN SMITH: That's a good point.
25 MS. RITCHIE: From my perspective, anything

1 glass, we benefit from. If it's clear, green or brown, or
2 maybe some are blue and white, the cullet, it's not like
3 number six OMP and number twelve something else, PET or PVC
4 or HDPE.
5 I think that the issue that we're really getting
6 here is when there comes a time that cullet is specified in
7 building code, be it specification or new regulation, the
8 use of the material is specified, that we are going to have
9 to be very, very careful on quantifying what it is that we
10 are particularly after in that particular regulation.
11 If there is a regulation that is adopted to say
12 glass, cullet shall be used in a certain number of CalTrans
13 projects as the part of glassphalt, then you have to say
14 what color are you talking about? Mixed color cullet,
15 color separated material, and specifying to what degree, or
16 ten percent will be acceptable, one percent will not be
17 acceptable.
18 Unlike a lot of the other commodities that you're
19 dealing with, it's having to pay that extra level of
20 attention when you talk about developing through the
21 regulatory or legislative process new markets for materials
22 or market development strategies for the cullet that you
23 have to pay close attention at that point in time as to
24 what the language actually says.
25 MR. DOTY: If I could pick up on that for a

1 moment, also.

2 Just trying to be a good citizen, I'm choosing

3 when I recycle glass from my household not to put it out in

4 a bin but to take it to a nearby parking lot where there

5 are a couple of these dome-type containers. One of them is

6 white, and it says clear glass. That's the only thing I'm

7 supposed to throw through the hole.

8 The other one is green, in this case, and that's

9 where the other glass goes. If there appears to be a

10 slight tint to the glass, is that color? Or is that

11 clear?

12 Based on what I have heard today, I think I might

13 have been part of the problem. I have been presuming that

14 if in my subjective judgment on that particular day the

15 lighting being what it is, if there is a little tint, but

16 only a little, very subjective term, but only a little

17 tint, generally I throw that in the bin for clear glass.

18 If there is a little more tint, it goes in the

19 other one. Now I don't know what to do.

20 CHAIRMAN SMITH: You have pointed out a

21 significant problem about the public needing to be

22 educated, and that has to be part of this action plan.

23 MS. RITCHIE: If I could address that quickly.

24 That's something that we're constantly working

25 on. When there is a new product that comes on the market,

1 for example, the case of the Clearly Canadian, we're really
2 stressing with the companies, and they're working with
3 their suppliers as to what percentage of the different
4 colors they can have in the mix.
5 For example, Owens now does allow a certain
6 percent, a certain percent of their flint or their clear
7 load can be Clearly Canadian.
8 But it really depends upon who your processor is
9 marketing to, and that's why the education and making sure
10 that the message gets down the line as to what can and
11 can't be accepted.
12 What happens in that situation, depending upon
13 who services those igloos, who they sell their glass to,
14 they have to make sure that they are providing that kind of
15 glass.
16 What they should be doing, if they sell to Circo,
17 and Circo sells to Owens, and Owens can take Clearly
18 Canadian flint, then there should probably be some kind of
19 indication on that igloo saying "Clearly Canadian bottles
20 can be put in this flint container."
21 That makes it real easy, so you don't have to
22 say, "Oh, my goodness."
23 Chances are you have a better idea of what that
24 product was than the cullet.
25 CHAIRMAN SMITH: One thing that I thought of

through labeling, to know which bin, like the plastic industry.

If people spend the time to read the code know where to throw it. We should do some work like that with glass, especially as more and more types come out.

Okay. Now, I would like to turn this discussion over to the public for any input on this last question, and any of the other questions, any additional questions that you have about the report.

Any of you out there that would like to provide helpful comments, we welcome them.

MR. TSENG: I have a question.

Page 63 on the glossary, the last one, you have glass and ceramic in prens, are you trying to define ceramics? You know there is a material called glass ceramic that is crystal and glass.

MS. LINDERT: I took that from the DOC report, Alternative Cullet Uses. They had some definitions in there of different types of glass.

MR. TSENG: They are referring to glass ceramic, and you should have a separate definition for ceramics. It's entirely different.

MS. LINDERT: I would need to know exactly what that definition is.

MR. TSENG: I'll send it to you.

MS. LINDERT: I'm not an engineer.

MR. TSENG: I'll give you a nontechnical definition.

MS. LINDERT: That's the type of glass that I'm talking about here.

I would appreciate any comments on my report by the end of next week, by Friday. I have only received one set of comments, and most of them were really not very substantive. They were mostly in agreement, which was very nice. I appreciate them.

But somebody called and went through it page by page and it was very helpful. It was a consultant. They were mostly in agreement with what I had to say, except they found a few small errors that I had, and I caught those, too.

I would appreciate input because otherwise it's going the way that it is. Thank you.

MS. RITCHIE: How are you going to incorporate the information that came out here and from the floor?

MS. LINDERT: I think it's going to be incorporated into our action plan. The report will not be all that much changed right now.

It will be incorporated as an addendum in the action plan that will go before the Board in October.

MS. RITCHIE: The reason that I ask that, there

1 were some specific recommendations made here that are not
2 in the report, and I don't want those to get lost.
3 If the report goes out first, people will
4 concentrate on those recommendations, and if the action
5 plan follows with other things, people will wonder.
6 CHAIRMAN SMITH: I can answer that for you.
7 What we're looking at in terms of modifying this
8 report, we're looking at the written comments and
9 information that we have received from the workshop. Then
10 when the document is published, it will be a combination of
11 this status report and the refined recommendations, so that
12 the recommendations will not be lost.
13 Any other comments?
14 MR. HUSTON: I have a request, I guess of the
15 industry, and of Kirsten, would you folks be willing to
16 work with us to identify either a niche market or do some
17 consumer awareness or focus groups or something to see what
18 the acceptance of ecoglass might be for beverage containers
19 or food containers or something like that?
20 Seeing if there is acceptance on the part of
21 consumers for ecoglass, non-clear glass.
22 MS. RITCHIE: Some of it is already going on.
23 Richard is not here now, but he has been working
24 with the wine industry.
25 The situation with ecoglass, first of all, I

1 wanted to make you aware of certain things. Gallo Glass is
2 using probably 50 percent three color mix and making its
3 green containers. That's pretty good ecoglass.
4 A lot of the green bottles that you're seeing out
5 there, the red wine bottles, contain about 70 to 80 percent
6 post-consumer cullet, of which a good chunk of that can
7 also be mixed color glass.
8 I think from our perspective we would be
9 interested in working with you and testing some consumer
10 information or consumer focus groups on the acceptability
11 of ecoglass and see how they like it.
12 The market right now, the niche that that serves,
13 basically I see ecoglass being used to replace the green
14 wine bottle and perhaps the green beer bottle, and that
15 already is a very, very strong recycle content market for
16 us.
17 MR. HUSTON: Thank you.
18 MR. GREENBERG: I have another comment, as long
19 as we are on the page with the appendix, page 63, the
20 fiberglass definition as it's used in the appendix could
21 possibly be misleading.
22 None of the four fiberglass plants that you
23 referenced are in the R or continuous filament business.
24 The Fiberglass Content Act in effect in California doesn't
25 mention the yarn or woven product.

It's pretty specific in building insulation.

MS. LINDERT: Can you give me a better definition?

MR. GREENBERG: Everything up to yarn and woven fabrics is fine.

MS. LINDERT: Cut out in yarn and woven fabrics.

MR. GREENBERG: Right, combined into bats, blankets for building insulation.

Some is used for duct board as well, but it's a small percentage.

MS. LINDERT: Okay.

MR. GREENBERG: I can see how that may have been misleading.

Someone said earlier about other uses for boats. The two kinds of fiberglass are really as different as night and day. They are not akin to each other.

MS. LINDERT: I took this out of the dictionary.

CHAIRMAN SMITH: Does the panel or public have any other questions?

MR. HENEBURY: I have one.

I keep hearing reference to four fiberglass plants in California. I know of three.

I think the fourth is a Manville plant in LA, and I don't think they can use recycle products.

MR. GREENBERG: They cannot.

1 MR. HENEBURY: It's a different type of product.
2 MS. LINDERT: Okay. I'll call them.
3 CHAIRMAN SMITH: Any other questions?
4 Then I think it's time to close. I thought that
5 this was a very good workshop.
6 I come as a novice in understanding glass, and I
7 come away understanding all aspects of it. I think it
8 helped very much by having the panelists that the staff
9 selected.
10 We covered the cross-section of interest. Also,
11 by the fact that staff did a very good job on the
12 background in the report. We got some very helpful
13 comments from the audience.
14 To reiterate, what we're going to do next is
15 prepare a detailed action plan. We're going to try to
16 identify the necessary immediate and long-term actions to
17 create a stable market for recycling of glass in
18 California.
19 That workshop will occur at our October 8, Market
20 Development Committee meeting. Looking longer term, we're
21 looking at folding this information in the detailed action
22 plan into a comprehensive market development plan, that
23 we're hoping to complete by the end of this year.
24 I really would like to thank the panelists and
25 staff for the good work that they have done, and the

interested people out there from the public.

I will close with that, unless there are any questions.

Thank you.

(Thereupon the workshop was adjourned at 3:40 p.m.)

--o0o--

1 CERTIFICATE OF SHORTHAND REPORTER

2

3 I, VICKI L. MEDEIROS, a Certified Shorthand
4 Reporter of the State of California, do hereby certify:
5 That I am a disinterested person herein; that the
6 foregoing hearing was reported in shorthand by me, Vicki L.
7 Medeiros, a Certified Shorthand Reporter of the State of
8 California, and thereafter transcribed into typewriting.
9 I further certify that I am not of counsel or
10 attorney for any of the parties to said hearing nor in any
11 way interested in the outcome of said hearing.
12 IN WITNESS WHEREOF, I have hereunto set my hand
13 this twenty-fourth day of September, 1992.
14
15
16
17 Vicki Medeiros
18 VICKI L. MEDEIROS
Certified Shorthand Reporter
19 License No. 7871
20
21
22
23
24
25