

Air Management Services - APCB Meeting
October 25, 2018
(215) 504-4622
STREHLOW & ASSOCIATES, INC.
CITY OF PHILADELPHIA
PHILADELPHIA DEPARTMENT OF PUBLIC HEALTH
AIR MANAGEMENT SERVICES
APCB MEETING

Thursday, October 25, 2018
Philadelphia, Pennsylvania
TIME: 2:00 p.m.

LOCATION: Municipal Services Building
1401 John F. Kennedy Boulevard
16th Floor

HELD BEFORE: WILLIAM C. MILLER, Ph.D, PE
THOMAS V. EDWARDS, JR.
JOSEPH O. MINOTT
DR. THOMAS A. FARLEY
TERRY SOULE

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2 MR. MINOTT: I make it two o'clock. We
3 will start on time. I don't know how these
4 meetings usually start. It might good if we go
5 around and the Board introduces themselves. And
6 just go around the room and see who is here.

7 MR. SOULE: Terry Soule, Board Member.

8 MR. MINOTT: I'm Joe Minott. I'm with
9 the Clean Air Council.

10 DR. MILLER: Bill Miller, Retired Board
11 Member.

12 - - -

13 (At this time, those in attendance give
14 their names.)

15 - - -

16 MR. MINOTT: I don't think we have a
17 quorum. Are we expecting anyone else? I mean,
18 we have the best of the best here already.

19 MR. GUS: You don't have any action
20 items except for the Minutes.

21 MR. MINOTT: I guess we will have to
22 skip the Minutes and we can approve them at the
23 next board meeting. And so, we will go right to
24 Program Update.

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1 DR. SELASSIE: Okay.

2 Good afternoon, everybody. The

3 presiding Chairman Joe Minott and Board Members

4 and Gus. My name is Kass Sellassie.

5 I would like to present the AMS progress

6 for the last three months, which is from July 1

7 to September 30. The Agenda, the first and the

8 second, we don't have any quorum. Second one,

9 action on Minutes of July 26. So, I will do

10 program updates. And after me, Alice Chow she's

11 from EPA and Associate Director. And she help

12 us really a lot. And she's good in monitoring.

13 So, she will present about sensors. Maybe most

14 of you are not clear about sensors. Not a lot of

15 people are. She will answer if certified by

16 EPA, is it okay, what kind of sensors.

17 So, the next meeting will be January 24.

18 But I will ask in advance if all members at this

19 majority will attend. If not, maybe we will

20 postpone it. For now, we have January term.

21 First one is Air Quality. That air

22 quality is to tell the public. Usually, we send

23 email and website and media, too, if the air

24 quality is healthy and unhealthy. So, builds on

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1 EPA standard for six criteria pollutant, except

2 lead. They remove it. We will see from

3 hundred, which is a standard for each air

4 criteria. There is a calculation. Once it

5 passes hundred, that means unhealthy, which

6 parts exceeds. We have how many unhealthy days

7 we have and what about the other.
8 The next one is NAAQS, National Ambient
9 Air Quality Standard. In Philadelphia area, we
10 are dealing with ozone, which is containment
11 most of the time. The hazards still we deal,
12 but we are good. Can be 2.5 a little bit, but
13 still we are good. State implementation plans
14 for attainment. We are dealing with ozone, EPA
15 updates, laboratory, PA DEP updates, AMS
16 updates, outreach, of course we have outreach
17 and regulatory services.
18 So, the air quality. This summer, which
19 is summer time for the past three months I
20 report, we note that ozone is the main concern.
21 So, we have 6 days of unhealthy days, which is 6
22 percent; then we have 52 days, which is good
23 which is 57 percent; and 34 days is moderate,
24 which is 37 percent. So, Philadelphia is

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1 marginal in attainment for the 2008 zone
2 standards. Still we are there. We have the
3 design value for 2016 to 2018, which is a little
4 bit higher, maybe temperature, maybe some down
5 wind because from upwind states, a lot of
6 emission we got unless we don't do something.
7 Still, it is difficult for us to attain the
8 ozone standards. Maybe EPA tell how they going
9 to do it. That is a problem.
10 So specifically, we have the northeast
11 airport area. The sources we found, but I am
12 sure that air may be from highway manufacture
13 parts, still airport area, highway industrial or
14 maybe lot of air pollution from somewhere New
15 Jersey or other states, maybe upstate. So that
16 we will look in the future with Alice Chow and
17 her group. So, we need another one for that era
18 and how it works. That is what you're going to
19 do. The northeast is, if you see 79 parts per
20 billion for ozone, which is highest always.
21 The National Ambient Air Quality

22 Standards July 3, court returned ozone
23 litigation to the active docket. Which means
24 they put it on for ambience until the new
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1 administration and his group, which is Andrew
2 Miller, acting EPA Administrator. He mentioned
3 that he want to refute that one. Maybe he
4 needed time. That is still, he was acting
5 Deputy Administrator in the past, but Court gave
6 him time.

7 So, they come back on August 1, 2018.
8 EPA tells Court it will not pursue revision of
9 ozone, 2015 Ozone Standard. So, they send to
10 the Justice Department. They let them know.
11 The 2015 ozone standards, looks like that way.
12 He is the one who decide it. The problem here
13 is because some petitioners saw a challenge to
14 2015. You heard about the incorporation which
15 is in coal industry and EPA. So, votes submit
16 to the Court. And the Court says -- we don't
17 know what they say. But now a lot of states,
18 cities and environmental agencies have initiated
19 people and themselves to go to DC and tell to
20 review again ozone 2015. Will let you know in
21 the future are killing our planet and other
22 stuff.

23 Still the public cities, the states are
24 not sitting back. And they have challenged it,
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1 too. Now things are changing. June 29,
2 District Circuit rejected Delaware legal
3 challenge to ozone. We ask extension for ozone
4 for one year, but Delaware challenged. They
5 don't want because the area include Maryland,
6 New Jersey, Delaware and Pennsylvania. So, all
7 agree that they are the same. The argument is

8 if one states say no, then the EPA shouldn't
9 extend a year. But the Court rejected it.
10 Still we can't have one year. The 2008 was the
11 standard to accept.
12 July 2, this is a review of dust lead
13 hazard standards EPA propose because of the
14 children that are very susceptible for the lead.
15 So, they reduce lead from 40 microgram per feet
16 squared to 10 from floor. Of course this makes
17 sense, because children are -- most of the time
18 they spend on the floor. They can ingest
19 anything from the floor. So, they reduce from
20 40 to 10 and from window sill from 250 to 100
21 microgram per feet squared. So, that is a
22 proposal.
23 Still, they are also look for blood,
24 too. Five or less, it affects children. Lead
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1 is very toxic. Heavy metal. So, it affect
2 any -- toxic affect especially children. So,
3 still they are looking at this one. This might
4 be a new standard. We will see if they continue
5 it.
6 July 18, industry group move to
7 intervene in DC circuit litigation over
8 significant impact levels. Last time I explain
9 about this one. This is for PSD, prevention of
10 significant integration permit process. So
11 remember that air quality already we run from
12 the proposed project for PM 2.5. It's 1.2
13 microgram per; or for ozone, One part per
14 period. If it's more than that one, then we
15 have to review or maybe not allow. But it's the
16 discretion of that agency, Air Permit Agency and
17 others.
18 That is a challenge because they said it
19 is very expensive. It is unnecessary. The same
20 people, the same group. So now, it will --
21 there will not be guidelines. There might not
22 be anything. We will see how EPA will continue

23 with this one.

24 July EPA release annual air pollution

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1 trends report. That is really very interesting.

2 Since the Clean Air Act was signed in 1970, so

3 the air pollution or air quality is improved by

4 73 percent. That means also the one interesting

5 is the U.S. economy has more than tripled. I

6 don't know that it is true, but I believe that.

7 Now EPA and others deregulated a lot of

8 regulations, which brings 73 percent reduction.

9 And the economy was good, tripled. And now how

10 it affect the economy, I don't know. But for

11 the economy, for the environment for then

12 everything went up. So since then, 73 percent

13 reduction since 1970.

14 August 21, affordable clean energy rule.

15 This is a big issue now. And I want to explain

16 to the Board. So now, this proposed energy

17 replace clean power plant. How it is good,

18 maybe I will explain in a bit. Because

19 affordable clean energy, BSER, which is Best

20 System Emission Reduction, what they have is

21 efficiency improvement, nothing else. That's

22 what I saw.

23 So, efficiency improvement what they

24 said. But the Best System Emission Reduction or

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1 the technology we chooses, like, boiler fit

2 pumps, maintenance and things like that. All

3 those kind -- these already we have. Also, the

4 CPP has all this. Plus in addition to this,

5 they switch to first step from oil to natural

6 gas.

7 And the third one is, in the future to

8 expand renewable energy and fuel. That was the

9 CPP. But now they oppose that. So, the center
10 for them for the ACEs, the efficiency
11 improvement. That's what they do. That's what
12 we do have already. But how it reduce emissions
13 of greenhouse gas, I don't know.

14 Okay. This is NATA 2014 results. So,
15 the big difference is, maybe Alice can help me.
16 The big difference you see for Philadelphia
17 area. For Philadelphia, the minimum is 30 in a
18 million, and the maximum is 41. If you compare
19 the 2011, it was like 148 maximum and minimum
20 was around 40 and 50. Now, the average for
21 Philadelphia at that time 2011 was increased,
22 was 53.6. But here the average is between 30
23 and 41, which states 36.7. It is a big
24 reduction. For the nation average 2011 was 40,

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1 but now it is 31.7.

2 So, there is a reduction in toxin. But
3 this cannot -- this is just a -- this is not --
4 we cannot take as face value this data, but you
5 know we can see. If any mitigation we want,
6 Center City maybe, we have to do something or we
7 measure again maybe to be sure. And the same
8 airport area, it looks high volume, but it still
9 EPA standard is 1 to a million, was 203 million.
10 But the best is 1 in a million. That's what
11 Philadelphia want to achieve, that 1 in a
12 million.

13 Time is running. This is second one.

14 The Safer Affordable Fuel Efficiency, the SAFE.

15 This replace the CAFE, which is Corporate

16 Average Fuel Economy. That replace that one.

17 What they want -- this is what EPA suggest about

18 the Safer Affordable Fuel Efficiency. They say

19 they retain more. This is for model year, we

20 are talking 2021 to 2026. What it increases

21 mile per gallon. So go, like, 45 maybe 50.

22 That is expectation. Now, they want to stay

23 with 2020 standard. This is for passenger cars

24 and light trucks.

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1 The other stuff they say is safe vehicle
2 SAFE -- we called it CAFE that one. Maybe this
3 is SAFE. The vehicles SAFE over 500 billion. I
4 don't know how. I try to find out solution how
5 reduced because the mile per gallon if I drive
6 50 miles per gallon and 35 miles per gallon, I
7 save money. That is what I expect. But how
8 they say 500? I look around, but I couldn't
9 find anything. The other one is reduced
10 fatality by 12,000-some hundred. Still, I look
11 around a lot of us. I don't know if someone
12 knows. Maybe explain. But I couldn't find any
13 of them. You are driving, fatality, how it
14 reduce? I don't know.
15 This, I believe, maybe more would
16 increase about half a million barrels per day of
17 fuel, maybe more because mile-per-gallons reduce
18 or remain the same. And the other they say this
19 would impact the global climate. That is true
20 because more emission would be up.
21 Here are the August emission guidelines
22 for greenhouse gas. Emission from existing EGU.
23 As of August, American Meteorological Society
24 release annual state of climate report. When I
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1 was recently -- I was a student recently, it was
2 like 380/85 per unit. Now we are in 405 part
3 per million concentration of greenhouse gases.
4 And 3-inch rise to ocean to sea level. There is
5 a lot of tornadoes that effect climate change
6 and ice also melts in artic and other place.
7 And recently United Nation also announce within
8 few years there will be a big problem of global
9 warming. And I also checked satellite picture

10 from NASA. Sahara Desert come across the
11 Atlantic Ocean, come to USA. Show view of how
12 it moved from West Africa to USA.
13 So every time it affect global warming.
14 There is somewhere, Asia/Africa big problem.
15 That is why United Nations say we will update a
16 lot. That we need to take into consideration of
17 this global warning.
18 August 7, California as usual, they
19 don't have, but the same SAFE. What they
20 access, they have their own standard. So, they
21 will stick with their model year of CARE
22 emission. If manufacture don't produce, how
23 they got? I don't know. But they stick with
24 the same model from 2017 to 2025. They would

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1 implement that. That's why I said August 7,
2 2018, the state/city environment group again
3 urge District Circuit to issue opinion on clean
4 power plan. That is why states and cities have
5 been.
6 DEP updates, Title V fee increase. That
7 helps to us hire more people and more programs.
8 It is good once it's implement new program. Fee
9 will increase, it helps. And if they publish
10 2015 Philadelphia and the county, five counties
11 will be non-attainment for proposal to 2015
12 remain out of Pennsylvania.
13 AMS updates. The one you pass, we had a
14 hearing 10/10. So, we respond to the hearing.
15 Most of it is work practice, people asked. So
16 everything -- the answer is there. We will
17 answer, then it will be implemented soon.
18 Air Monitor Network. This is every year
19 we provide to EPA. We discuss AMS. What the
20 monitoring location and what we are monitoring.
21 Every year we report and publish.
22 This is a Philadelphia standard. We
23 start measuring. This is the graph it looks
24 like. This is our concentration. It showed all

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1 those concentration. It shows some of them 7.5
2 up to 17.6. So downtown area is the highest and
3 also maybe nearby airport. Ment this is still
4 not final. We want to measure by season. So,
5 this is summertime we have done, but not all
6 instrument because we were in the process of --
7 but the one we had, we measured. Still we are
8 measuring hazards, like, maybe depreciation
9 data. Nitrogen dioxide, sulfur dioxide and
10 ozone. We also measure all those. We start
11 already measuring.

12 The gas we send through RTI. And we
13 also sometimes working with us. From
14 Philadelphia, from New York, and other ones too
15 are working with us.

16 AMS laboratory chemistry. We have open
17 as I said last time. We have credit, still we
18 are measuring. Even we done contract with EPA,
19 but we are still measuring the toxic refinery
20 area. It is updated real time monitor. Village
21 green, we took from EPA, not it belongs to us.
22 So, we measure sulfur dioxide, nitrogen dioxide
23 and PM and weather. It is a good place, Arch
24 and 6th. There is a lot of food stuff around.

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1 And EPA had 15. We hired one expert. We got
2 the GC from EPA. So, soon we can prevent that
3 one. That is the air toxic measure.
4 EPA technical system audit. The lab
5 continues to address issues arising from most
6 recent EPA system. We are working with Ms. Chow
7 group about that. The performance management,
8 we are working with Commissioner group, backlog
9 health hazards to help resolve. They have a lot
10 of backlogs. Discussing implementation of data,

11 that in advance to figure out all the problems
12 before they exist as threat.
13 Vision program, Ed is working on that
14 one, that program. From regulatory service
15 activity from July 1 to September 30, we have
16 150 permits; 76, air; 74 asbestos. AMS serviced
17 268 citizen complaints; 195 air and 12 asbestos,
18 61 noise. AMS also performed 1210 inspection;
19 632 air, 578 asbestos. AMS observed 46 vehicle
20 relocation issue on this citation. AMS issued
21 100 new NOV, and resolved 177. So, each group
22 is doing good because if we can't balance, we
23 can't do more, resolve more, it will accumulate.
24 It will be a lot of bad luck.

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1 Now, we have a really -- we resolved a
2 lot that we got. The NOV was 106. We will do
3 more next work. AMS collected \$185,850.
4 That is what I have taken very much.

5 Any questions?

6 MR. MINOTT: I guess I had a question on
7 the performance measurement unit and started
8 working with Air Management Services on project
9 to reduce backlog of enforcement cases.

10 Can you tell me more about that?

11 DR. SELASSIE: Yeah. That is what we
12 do is -- Naomi, her name is Naomi. She is the
13 commissioner of that QI group. That group visit
14 all the departments or divisions.

15 For example, the Health Department has
16 eleven divisions. We are one of them. So she
17 move everything. Any backlog or system or how
18 we manage, you know, all those kind of stuff,
19 she is the expert. She consult and we tell her
20 the problem.

21 For example, backlog. We have 270 NOV
22 and we couldn't resolve it for the past two
23 years, so how can we resolve those NOV's. So,
24 she give us some presentation, some idea on how
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1 to do all those kind of stuff. Maybe some
2 system using like -- we already started a new
3 system, like, directly send -- doing the
4 citizens program. Whenever there is NOV not
5 resolved, we send NOV out. Someone just collect
6 and send to that.
7 Owner or facility owner or operator, for
8 example, if they don't respond, show red flag on
9 this system. So again, we send within 15 days.
10 We program that. If the next 15 days that owner
11 not respond, then we send it to law.
12 So, that is one solution we have. If
13 she has more solution or how we have to deal, we
14 discuss it and she give us some solution. Maybe
15 this is better way. If you resolve by hundred,
16 maybe use this system, you can resolve hundred.
17 Something like that working with us. So she
18 worked last time with this group. This week,
19 with Ed group.

20 MR. MINOTT: Any other questions from
21 Board Members?

22 DR. MILLER: I have a couple of
23 questions. Under industry groups or EPA update,
24 the second topic industry groups, you
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1 mentioned -- and there is mention the phrase de
2 minimus air quality impacts. My understanding
3 is that de minimus is on per pollutant issue and
4 is statistical, in a sense.

5 DR. SELASSIE: This one, July 18?

6 DR. MILLER: Yeah. Statistically
7 whether or not a substance has --

8 DR. SELASSIE: Oh, the significant
9 impact level?

10 DR. MILLER: Right.

11 DR. SELASSIE: Right. It's PM 2.5.

12 DR. MILLER: But it doesn't take into
13 account the chemistry of the particle base.
14 DR. SELASSIE: No. The only thing --
15 what we do is -- the only thing we do is air
16 quality model. We model from that pollutions
17 whatever generator or whatever is there. Should
18 be Title V. Then once we run the air quality
19 model and any point the maximum presentation, we
20 are looking.
21 So, that maximum presentation for PM 2.5
22 is greater than 1.2 microgram permitted cue,
23 then aha. So, the industry has to do something.
24 Reduce something or some change.

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1 DR. MILLER: The Cincinnati lab, which
2 has a lot of research done to determine things
3 like de minimus in terms of the likelihood of
4 cancer being the heavy metals --
5 DR. SELASSIE: Yeah. This is actually
6 for criteria pollutants. I don't think we
7 report on --
8 DR. MILLER: Right. On the next box you
9 had with EPA releases, you said 47 years
10 combined emissions of the six criteria have
11 declined by 73 percent while the economy has
12 more than tripled. And then seems like relating
13 to that, it says 11 million people still in the
14 area where there is --
15 DR. SELASSIE: It's 111, not 11.
16 DR. MILLER: One thing I can say is that
17 73 percent plus 111 million people, that pretty
18 well adds up to the population of the United
19 States. I don't know if it actually is or not.
20 I don't see what the comparison is.
21 DR. SELASSIE: What they do is the
22 paper, they took the trend, okay? So at some
23 point 1970 or before, the emission was high.
24 They took, like, whatever part per million safe

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1 ozone. Now if they looked, you go down like 75
2 or 80. That is the trends, so they compare.
3 But it still, it doesn't mean any air pollutant
4 like ozone, like 3,225 pounds the passage of
5 2015 still in attainment.
6 So, those kind of pounds are still in
7 attainment which means unhealthy air for ozone
8 most of the time. I don't know. U.S., most of
9 the counties, like, especially this area. There
10 are some like Pittsburgh and others who
11 particles are very high. So also, EPA is trying
12 to reduce the standard. For example, ozone in
13 2015 is reduced to 70.
14 But there are also scientist on other
15 side saying it's not good. They have to go to
16 60. That is why the scientists study is still
17 people are not good. A lot of asthma. If you
18 take asthma, lot of children has those kind of
19 asthma. Most come from air pollution.
20 Also study home care with other stuff
21 and air pollution. Look for the highest one.
22 DR. MILLER: The reason I ask is because
23 basis I did a lot research on the heavy metals
24 carcinogens, arsenic and --

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1 DR. SELASSIE: Right.
2 DR. MILLER: In looking at the timeline
3 in the 1960s, especially when the City of
4 Philadelphia -- looking just at the City of
5 Philadelphia where it contained multiple coal
6 fire in the --
7 DR. SELASSIE: Chromium, lead, all
8 these kind of things.
9 DR. MILLER: But over time, it looked to
10 me like it was going to reduce because of the
11 switching from the 1970, pretty much between the
12 first day of 1970 and the last day. Most of the

13 coal fire power plants shut down in a really
14 short period of time based on the Clean Air Act.
15 So, I guess we are getting away, even in my own
16 writings about this, I concluded that by the
17 time we got to this period now, maybe ten years
18 ago, that anything is going to improve is not
19 worrying about the carcinogen percentages.

20 DR. SELASSIE: Right.

21 DR. MILLER: But take the sulfur and
22 solid fuels out and everything else will take
23 care of itself.

24 DR. SELASSIE: That's another reason

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1 for the sulfur fuel result.

2 Yes?

3 AUDIENCE MEMBER: Actually, I think -- I

4 wanted to comment on the reduction in air

5 pollution-caused cancers in the City of

6 Philadelphia. And I want to commend you on

7 that. I am sure part of that is due to your

8 efforts to reduce air pollutants.

9 However, I think that a very large

10 constituent of current causes of air pollution

11 causing cancer in the City is not the heavy

12 metals so much as it's really the volatiles and

13 the toxics. I notice in your presentation

14 today, you didn't really talk much about what

15 the state of the toxics are in the City of

16 Philadelphia and the air. I was wondering if

17 there are efforts to look at those and to sort

18 of see trends and what efforts there are right

19 now to reduce those.

20 DR. SELASSIE: That's a good question.

21 That's why in the past now, the next proposal we

22 submit, the program service and I, next Board

23 Meeting is risk assessment. We have a schedule

24 for that one.

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1 AUDIENCE MEMBER: Good. Perfect.

2 DR. SELASSIE: We propose how we handle
3 those toxics. We don't have that -- yeah, EPA
4 has those results. And the same with NATA, the
5 ones that show the graph 2014. It is not -- the
6 Board part tell you where is the highest. But
7 based on that, is a good starting point for us
8 to incorporate that NATA value and emission
9 inventory what we have stuff like PS and
10 chemical industries.

11 So now, we are going to do both cancer
12 risk assessment and non-cancerous risk
13 assessment. That program is the next air
14 pollution report we propose. Maybe at that time
15 we will discuss it. That is a good point.

16 MR. SOULE: That 500 billion, you don't
17 know where it came from, I believe that was an
18 auto industry generated number. And it was
19 based on modifications to equipment. That's
20 why.

21 DR. SELASSIE: That is not for the
22 public, but the auto industry?

23 MR. SOULE: Yeah.

24 DR. SELASSIE: That makes sense.

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1 MR. MINOTT: Any other questions?

2 (No further questions posed.)

3 MR. MINOTT: Okay, great.

4 We will call on EPA to come up and make
5 their presentation.

6 MS. CHOW: Now for something totally
7 different.

8 Hi. I'm Alice Chow. When Kass asked me
9 to come and talk to the Board, he said I could
10 talk about anything. And without boring you to
11 death, I thought maybe a couple of things that
12 are probably in the forefront of discussions,
13 and I know AMS has a sensor study going on and

14 spent money to look at these things using
15 different kinds of sensors, I thought I would
16 focus my talk on how the discussion of the
17 national use of sensors have kind of changed
18 over the last couple of years.

19 Maybe three, four years ago you heard
20 about sensor technology and how cheap it's going
21 to be, how wonderful it's going to be, and it's
22 going to be the next best thing. And you heard
23 a lot of people wanting to use it for regulatory
24 purposes. You don't hear EPA talking about that

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1 anymore. You hear EPA talking about finding a
2 place for this if we are going to at all is for
3 non-regulatory purposes. So, I want to spend a
4 little time talking to you about -- in the past.
5 And I stole this from a presentation.

6 There was a national meeting about air
7 sensors technology and about trying to figure
8 out performance measures for these sensors this
9 summer. And one of the presenters was a guy
10 from the University of Washington. And in the
11 past, people wanted all these things for sensors
12 to do. It's got to be cheap. It's got to
13 measure everything. We can put it anywhere.

14 You know, it was going to be like the second
15 coming of Jesus because people were thinking
16 that this was going to be the way. This was
17 because our regulatory monitors are not cheap
18 and you can't move them. There are certain
19 reasons why you can't move them.

20 So, they want everything to -- they were
21 hoping, put it this way, for these air sensors
22 to be developed so it could be used in a
23 multitude of uses: Community sensors, personal
24 monitoring, all these type of things. And that

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1 was -- I would say three, four years ago, that
2 was what most people wanted sensors to be. What
3 we have really because ORD has done a lot of
4 verification testing on sensors that's been out
5 there. Every summer they pick a couple. I
6 would say about a half dozen and they analyze it
7 and they field test it and they compare it.
8 What we are finding is the manufacturers promise
9 a lot of things. And they overpromise a lot of
10 thing.

11 And what we are finding is a lot of the
12 sensors, and I'm not saying all because we do
13 have a handful of sensors that have become
14 federal equivalent methods. And I will explain
15 that. A lot of the sensors have low accuracy.
16 They have drift. They have bias problems. They
17 have calibration that needs to be done in the
18 field and a lot of maintenance needs to be done
19 on these sensors.

20 When we stick an FRM, a federal
21 reference monitor out there, we do a QA. We do
22 look at it in a much higher level. And we call
23 it the gold standard than what these sensors are
24 built to be done. So therefore, I think you see
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1 EPA kind of not really even talking about the
2 capability of these sensors anymore as
3 regulatory. They look at it as non-regulatory
4 at this point. And I will explain.
5 As I mentioned, ORD had this in June, a
6 three-day -- I don't even know. Did anybody in
7 AMS go to this conference? No?
8 They had a workshop on deliberating
9 performance targets for air quality sensors. I
10 gave you a website. All the papers that were
11 presented there are on this website. And
12 essentially, what they were hoping to do in this
13 workshop was to figure out whether or not they
14 could even come up with non-regulatory sensors

15 performance measures for -- in this workshop.
16 Figure out whether or not different sensors
17 could be used for different things, different
18 applications, considering adoption of
19 performance targets for non-regulatory purposes,
20 coming up with material approach.

21 What we are finding is United States has
22 a binary approach in terms of certifications of
23 monitors. It either meets it, the FRM
24 requirements or it doesn't. That's it. There
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1 is nothing in between. Okay. What we are
2 finding in other countries in the EU is that
3 they have their regulatory requirements, and
4 then they have non-regulatory requirements. So,
5 they will say something like, if your R-square
6 is 0.25 and below, maybe you can use this sensor
7 for this. If your R-square statistical, if it
8 gets higher and higher and higher, you get to do
9 more things in your community for your personal
10 exposure. Things like that.

11 You see them coming up with protocols
12 and methodologies that manufacturers can strive
13 to attain. We don't have that. That is what we
14 are finding out from this kind of a workshop.
15 That we are very different because we -- it
16 either meets our gold standard or it doesn't.
17 You can't use sensors. Because if it doesn't
18 meet that gold standard, we can't use it to say,
19 okay, we need to put a monitor here because it
20 just -- that's not how our system is developed.
21 So some of the takeaway messages, and I
22 encourage you to go to that website to look at a
23 lot of papers that were presented. Because
24 although it's for PM mainly, there was ozone
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1 discussions in there. There were people from
2 Hong Kong, from Spain, from all these different
3 places talking about what they did, how they
4 came up with performance measures and what are
5 the tradeoffs. So right now, as I said before,
6 our certification system is either yes or no.
7 Your method either meets it or not. We don't
8 have a tiered system for non-regulatory
9 monitoring.

10 So right now, there are lots of
11 different performance targets or none at all for
12 manufacturers. They just tell you this thing
13 can do this. And then when EPA tests it, they
14 realize, eh, not really. So because they don't
15 have a standardized testing protocol or
16 recommended performance measures, this is
17 something that maybe ORD would be interested in
18 developing. And this came out of this workshop
19 that they want to figure out whether or not they
20 can verify manufactured testing protocols. They
21 want to figure out whether or not, you know --
22 with that, can we share results with other
23 people, other manufacturers, third party,
24 independent audits, things like that.

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1 Through these three days, one of the
2 things we realized is we still have a far way to
3 go to establish something like that even if we
4 want to or we can. But right now, we are not
5 there. We are not there because other countries
6 are ahead of us. Their regulatory system is
7 different from us. They are able to sit there
8 and say, we are fine. You can do this for your
9 neighborhood. You can do this for your school.
10 We don't have that. We don't have any sort of
11 standardized protocols for that.

12 So, okay. So going back, I really think
13 if people are interested in what the current
14 discussions are about air quality sensors, you
15 need to go and look at this. Because you see a

16 lot of people confused about something as simple
17 as the definition of portable. Is it handheld
18 or is it a 200-pound system that has, you
19 know -- that I know Maryland put in because they
20 bought it from Denmark and it has a SO2 FEM in
21 there. They stuck it up there. Two hundred
22 pounds is portable, but you better have a post
23 to be able to hoist that thing up there.

24 It's also -- the portable handheld
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1 things that people are saying are wonderful or
2 little things that you put on your tie, walk
3 around to see what you're exposed to, they're
4 not there. The quality is not there. Will that
5 help -- I'm not saying sensors are bad. Sensors
6 have a use here that I think people haven't
7 really considered. It can change people's
8 behavior patterns. If you are -- if you have
9 got a sensor in your house and you are vacuuming
10 and your PM 2.5 machine is pegging, then you
11 know there's dust in the air. If you are
12 cooking or if you are lighting incense, don't
13 light the incense.

14 It changes your behavior and how you
15 would live your life really because most people
16 don't understand that. But in terms of doing
17 that versus what we do in monitoring, those are
18 two very different things.

19 Let me kind of explain. One of the
20 things that -- despite all of that, one of the
21 things that we are participating in, is the
22 RESES Program, which is Regional Sustainability
23 and Environmental Sciences. Region 3 was one of
24 five regions that was selected for the Regional
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1 Sensor Loan Program. It's a two-year program in

2 which ORD is actually building us sensors. And
3 right now, they are going to build us for Region
4 3 PM 2.5 sensor in a box. And we are going
5 to -- we have been working with AMS on this as
6 well as PADA. We are going to try to see if we
7 can't stick this box with this PM 2.5 sensor
8 either near the ports and/or one of the SEPTA
9 bus depots.

10 We are going to stick it there for two
11 weeks at a time. Our role in the region is go
12 out there, make sure it's got safety as well as
13 security. Stick it there, let it do its
14 business. Two weeks later we come out, we take
15 it back, we ship it out back to ORD. We put
16 another box in there.

17 What ORD is doing is they want -- a lot
18 of people want to have loaners. You know,
19 schools, kids they want to say, I want to know
20 what my community is being exposed to. We want
21 to do this to see the efficacy of something like
22 this. Does it break? Who is going to fix it?
23 That kind of stuff. It's basic logistics to say
24 what is it measuring? AMS has monitors

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1 everywhere. How is it if we stuck it in a
2 located site, you know? Is it coming up with
3 close data results. Those are types of things
4 we are going to be doing.

5 What's happening right now is we got the
6 grant with ORD this year. ORD is building the
7 stuff. We are hoping to deploy it some time in
8 early 2019, and leave it in the field for about
9 six months to ten months and then look at the
10 data. And look to see in our region whether or
11 not everybody has been talking about ports
12 couldn't put a real PM 2.5 monitor there. Now
13 we are going to see if we can actually gather
14 data using an ORD PM 2.5 sensor. That is what
15 we are going to do.

16 So, I think communities would welcome

17 something like that. If we can actually make
18 this into a real loaner program, then
19 communities can -- I don't know if they rent or
20 I don't know how the process would be, but they
21 could have this. They could put it at their
22 school for however -- whatever the length of
23 time. There ought to be some type of reciprocal
24 analysis that either EPA or AMS or somebody that

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1 can do this, look at the data, tell them if it's
2 a problem and then we move on. And that's kind
3 of like where ORD is heading with this RESES.
4 Other regions other than Region 3 are
5 specifically going to the schools, going into
6 the communities and say, let's get you to do
7 this for us. We decided not to do that right
8 now. We decided that we would do this. We
9 would be the legs for ORD. And we want to
10 actually look at spots that are of concern in
11 Philadelphia. And ports has always been
12 something that is of concern. And we were very
13 interested in some of those bus depots that, you
14 know, SEPTA has.

15 But we are working with people to find,
16 you know, good spots. And these were two
17 sites -- two types of sites that we felt we
18 would like to try to get some data for. So,
19 that is a sensor study that, hopefully, we would
20 be, you know, getting some good information from
21 that.

22 First of all, is there any questions?

23 MR. SOULE: Are these sensors

24 continuously recording?

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1 MS. CHOW: Yes. They are going to run
2 for two weeks. Here is the downside. When you

3 run for two weeks, you don't know what the peaks
4 are, okay? Like PM 2.5 it's daily, right? We
5 would know daily. So, you're going to have an
6 average that won't give you -- it won't give you
7 the peaks and lows. That's the only downside,
8 the tradeoff for something like this.
9 But we have never done this before, so
10 we don't really know what would happen. Is it
11 going to be always high when the buses are
12 idling? We don't know. This is really our way
13 of trying to say, okay, what is it? What is the
14 baseline of this, all the trucks going by, you
15 know.

16 MR. MINOTT: I have a bunch of comments,
17 but I want you to finish your presentation.

18 MS. CHOW: Oh, okay.

19 AUDIENCE MEMBER: Have you discussed
20 with other areas at EPA how they will use this
21 data in their regulatory process?

22 MS. CHOW: This is not regulatory. No.
23 No. No.

24 AUDIENCE MEMBER: I understand. But the
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1 data, I'm guessing, it will be viewed as --

2 MS. CHOW: It will be published as a
3 research paper.

4 AUDIENCE MEMBER: Okay.

5 MS. CHOW: It will not be used for
6 regulatory purposes.

7 AUDIENCE MEMBER: But it will be viewed
8 by people as credible?

9 MS. CHOW: Oh, sure.

10 AUDIENCE MEMBER: Right.

11 MS. CHOW: I mean, they have their
12 protocols. They have, you know, their sampling
13 plans. All this, we are doing s just like a
14 regular special study. But this is not for
15 regulatory purposes. This is strictly for
16 research purposes. And it's regulatory if we
17 had something that lasted three years. We don't

18 have anything that lasted three years. We can't
19 do a design value at a site like that.
20 So, that's why it can't ever be
21 regulatory.

22 AUDIENCE MEMBER: Do you know where the
23 port plan --

24 MS. CHOW: We don't know that yet.

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1 Carolyn Gross Davis is my point of contact for
2 this particular project. Right now we are
3 having calls with ORD to just kind of talk about
4 logistics. What are you building? What are you
5 giving to us? When is it going to be available?
6 And then, you know, we have to talk to
7 you guys to say, where do you think we can put
8 it. Because we're not just going to go into a
9 community and say we are going to stick this box
10 here. We want to work with AMS and say, where
11 do you think is a good place for us to try this.

12 DR. MILLER: I have two short ones.

13 When you say that Region 3 is going to
14 do it differently than the other regions --

15 MS. CHOW: Because everybody does it
16 differently. I am giving you the range.

17 DR. MILLER: You're not saying that the
18 other regions are doing it this way?

19 MS. CHOW: No, no. Some of them are
20 just going into it.

21 DR. MILLER: But are you going to try to
22 track, like, across region situations where you
23 would compare, let's say, the same process but
24 different regions do it by different methods?

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1 Like, give it to a school as opposed to run it
2 for the school. Things like that.

3 MS. CHOW: There is going to be a range

4 of those because we have five regions with five
5 different types of ideas, if you will. One of
6 the things that we didn't want to throw
7 different variables into things because we
8 wanted to say, okay, this is the proper way of
9 doing this. And we establish a protocol for
10 that. So that when it's ready to go, we would
11 have something to hand to somebody to say if you
12 want to do this, these are the steps you have to
13 do, okay, as opposed to saying, we are just
14 going to give this to the school and let them
15 deal with it.

16 And I don't know what other regions are
17 going to do because we are trying to kind of
18 step through this in a research, if you will, a
19 way that we can reproduce this when we are ready
20 to hand this off to the community, to the
21 school, to whomever might want to do this.

22 DR. MILLER: The other thing is that, in
23 the beginning of your presentation, you talked
24 about the difficulty of relating measurements

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1 from one place to another, from one contaminant,
2 one pollutant to another. And it takes me back
3 to the end of the '60s just before the Clean Air
4 Act where in Philadelphia, here in Philadelphia,
5 we had a device that was measuring oxidant. And
6 it was a nice big box. And I jokingly, but it
7 was pretty much true, that if you didn't have an
8 engineer sitting on that box, you couldn't run
9 it.

10 Now this is -- but what happened was
11 they said, okay, we will use ozone as a
12 representative of this other -- this large class
13 of oxidants. So that was a -- of course, they
14 had a way they could represent the total effect
15 based on what ozone is as opposed to having to
16 measure all of it. I mean, every time you think
17 you have all the possible oxidants, you can make
18 another one. Put something else together. So,

19 that --

20 MS. CHOW: Right. And I think in part,
21 just remember, this is a loaner pod program.

22 DR. MILLER: Right.

23 MS. CHOW: What they are going to give
24 us is going to be similar to what's in that
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1 village green box. The village green box
2 required you guys to go and service it, to
3 maintain it and operate it. This baby is going
4 to say, we are going put it here. Nobody touch
5 it for two weeks.

6 DR. MILLER: I'm just saying,
7 historically, we have been through this.

8 MS. CHOW: And the good part is as the
9 technology improves and -- I like to think of it
10 as some ORD scientist is sitting in this garage
11 putting this stuff together. But that's how it
12 starts is, like, they build these prototypes and
13 then they go out there and they make us test it.
14 This is our way of trying to do that
15 now. Whether or not it's more simplistic,
16 whether or not it's giving up accuracy and
17 precision. I don't know enough about that
18 component to say is this workable. The
19 important thing is, I want to know if they
20 actually have established a program like this
21 and asking the regions to run this program for
22 various communities, I want to know that I know
23 what's going on with how people are handling it.
24 What happens if they drop it? What

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1 happens -- you know, some very basic things.
2 Because there was a loan program in Region 2,
3 like, three years ago. And it was a major,
4 major catastrophe because ORD sent the sensor to

5 Region 2. Region 2 was going to give it to
6 school children. When Region 2 opened the box,
7 they were all in pieces. They spent months
8 building the thing back together again.
9 So, we tried different methods to make
10 it accessible for people but this is yet another
11 way of them trying to test it out and say, would
12 it work if we did this. So, we will see.

13 MR. MINOTT: I have a whole bunch of
14 comments.

15 MS. CHOW: Do you want me to finish
16 first?

17 MR. MINOTT: No. I have got to go at
18 this point. I don't know where you got -- I was
19 not at the conference. But as someone that does
20 use sensors and works with community and is not
21 government, because most community people don't
22 trust government, I can tell you that our
23 sensors we co-locate ahead of time, so we know
24 how accurate they are. We monitor them. We
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1 train the communities to use them and to get
2 real time information. And I have never in all
3 of the groups I have worked with, I have never
4 heard any of them talk about regulatory level.

5 MS. CHOW: Good. I can share with you
6 that Maryland had a completely different
7 experience from you. Where hundreds of
8 thousands of dollars went to grants where
9 community people built the stuff, let the stuff
10 come out, looked at it and everything failed.

11 So, as you can see --

12 MR. MINOTT: How did it fail? That's
13 what I don't understand.

14 MS. CHOW: It didn't measure what it was
15 supposed to measure.

16 MR. MINOTT: It didn't get any readings
17 or the readings --

18 MS. CHOW: The readings were all screwed
19 up.

20 DR. MILLER: Is this because of the
21 competence of somebody somewhere?
22 MS. CHOW: People were thinking what if
23 we had the community build it, it would be
24 cheaper. And so, you have a range of those
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1 types of experiences.

2 MR. MINOTT: Ours cost about 150 to 200
3 dollars. We placed them in the homes of
4 community members. I think that when there is a
5 fire at the scrapyard, we were there. Our
6 monitors picked up the increase in -- that's how
7 we always taught the community. What this will
8 tell you is whether you have a problem or not.
9 And if you have a problem --

10 MS. CHOW: Right.

11 MR. MINOTT: -- then you can go to Air
12 Management Services or, you know, an agency like
13 that that you trust and say, listen, we have a
14 problem here. You need to come and monitor it.

15 MS. CHOW: I have no problem with that.
16 I think there is an education component that's
17 lost for most people. Is that when we put out
18 the village green bench -- and I'm overstaying
19 my time. When we put out the village green
20 bench, people would call us and say, oh, my God,
21 it doubled in the last minute that I've been
22 standing here, the PM. And I go, what was it?
23 It went from three to six.

24 And you're like, you know what the
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1 standard is, you know, for 24-hour standard.
2 And I'm like, well, what do you think caused it?
3 Is there some vehicle parked nearby? They go,
4 well, the landscaping truck came by and idling
5 there.

6 So, I think people are interested
7 absolutely. I think from fundamentally what's
8 lost, and I hope people will help to educate
9 people, is to understand what the data means.
10 And EPA is not good at explaining to people
11 short-term data meaning. And we talk about data
12 in terms of years. They're talking about, I got
13 five-minute data for you. And I go, I don't
14 know what to do with five minute data. That's
15 the problem.

16 MR. MINOTT: I agree. What we find is
17 if we do enough monitoring, you know, we can
18 find that problem. And then it's a matter of
19 kicking it up to Air Management Service.
20 Couple things. One is, you're always
21 going to have a problem with community trust.
22 And so if, you know, government says here is
23 something to monitor and it shows nothing,
24 community is not going to believe it.

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1 MS. CHOW: Right. I mean, we do deal
2 with that every day.

3 MR. MINOTT: The other thing is, if you
4 work with community groups that are willing to
5 be trained or work with groups like the Clean
6 Air Council that might be more trusted by
7 community, we do a pretty good job of
8 explaining, you know, what this can do and what
9 this can't do.

10 MS. CHOW: Absolutely. That's why I
11 think really the discussions now when you hear
12 from the headquarters, they're talking really
13 non-regulatory. How do we make that available
14 and maybe have some sense of a system and of
15 protocols for people to understand.
16 You can use this for personal exposure.
17 You can use this for community exposure. That
18 kind of a tiered thing as opposed to you can't
19 use this at all because it doesn't meet
20 regulatory requirements.

21 MR. MINOTT: It was never meant to.
22 MS. CHOW: Exactly. What had happened
23 was maybe about three or four year ago, people
24 were really looking for that to say, that would
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1 be great. You know, then they come to realize,
2 wait a minute, I have to sit here with this
3 thing for three years to get a design value.
4 So, I think people are going away from
5 that and realizing, there is a role for this.
6 We have to figure out how to help people figure
7 out what the proper role is. I think that is
8 what I'm hearing from the ORD workshop is that
9 there has to be a performance measurement type
10 of protocol we can set up where manufacturers
11 can certify that stuff. And maybe EPA can
12 verify, you know, that kind of stuff.
13 And that's where I am hearing that kind
14 of talk.

15 MR. MINOTT: Maybe, maybe not. I guess
16 the point I was trying to make is, yes, it has
17 to be accurate. We can co-locate with an Air
18 Management Services, you know, sort of see how
19 accurate it is. But it's really a tool that the
20 community can use to say, oh, I think we have a
21 problem here. This is what the monitors show.

22 MS. CHOW: Right.

23 MR. MINOTT: We're not saying that the
24 monitor is a hundred percent accurate. You
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1 know, that they meet EPA standards. But we
2 think there is a problem. Then they go to Kass
3 and say, Kass, we think there's a problem. You
4 know, we would like you to monitor.
5 I think that's where the community
6 empowerment comes from.

7 MS. CHOW: Yeah.

8 AUDIENCE MEMBER: It's a screening test.

9 DR. SELASSIE: I think that kind of
10 stuff also make problems in the community and
11 AMS or EPA or other. But the good thing what I
12 see is as Joe said, if they monitor show high,
13 what we do is so someone from community or
14 council or wherever, they call us. So then
15 something around the time will send inspector.
16 So, that helps, you know, for us to go to there
17 to verify what is there.

18 Otherwise, for example, let me tell you,
19 last time we bought some sensors used by solar
20 system, but was measuring good. But some
21 limitations there is. If the temperature is
22 high, the sensor just jump.

23 MS. CHOW: If there is relative
24 humidity, the sensor will jump.

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1 DR. SELASSIE: Thank you. That's the
2 point. The sensor didn't work, relative
3 community sensor. Now they figure out, oh,
4 sorry. That is a problem. This is a company.
5 We return it back. We supposed to buy, like,
6 20, 40 where each one was around 5,000.
7 Expensive one. Very expensive.

8 MS. CHOW: That's what you find when you
9 go to --

10 DR. SELASSIE: Related community
11 sensors wasn't there. Something like 1,000
12 microgram per meter cue. I said what. Then to
13 figure out you created. Temperature, you know,
14 that's the problem with that.

15 MS. CHOW: You will find that in all
16 sorts of different manufactured products.
17 That's all they were saying in general time.
18 You know, be careful what you ask for because
19 sometimes you're going to pay more money and you
20 don't need it. You don't need some of this
21 stuff.

22 So, it requires the buyer to say this is
23 what I want to use it for, and then you find the
24 right match that -- you actually find the right
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1 sensor for your use. And that's what is not
2 really there at this point.
3 Anyway, this is something we are
4 planning to do, the RESES Project. We have been
5 in touch with AMS. And I know Carolyn had
6 talked to Dennis. I know Dennis is retiring, so
7 we will need to have another contact person at
8 AMS. But their -- I just wanted people here to
9 know that that's something that we are hoping to
10 do and hoping we would get good results from
11 people.
12 One other thing I wanted to share with
13 you, and this is what I am going to end with, is
14 people always asks EPA are you going to have a
15 fumigation mat. We are not going to have a
16 fumigation mat. However, MARAMA, the
17 MidAtlantic Regional Air Management Association,
18 had a workshop this summer. What they reported
19 out is that they formed a regional work group
20 that worked from March to August. And these
21 were the states. And they shared their
22 experience on how to deal with fumigation
23 sources, whether permitting, controls,
24 enforcement, things like that.

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1 And there were good practices that they
2 shared. And I am giving you the MARAMA Air
3 Toxics Workshop Fumigation presentation that was
4 done at that workshop in August.
5 And so, when I saw it, I just thought it
6 was very, very cool. And I have a hard copy
7 actually. So, they have findings and they have

8 really cool stuff where they talk about the
9 three types of pollutants that these states deal
10 with, which was methobromide, sulfuryl flouride
11 and phosphine. And they have tables of summary
12 of all the information that they gathered from
13 these states and what they do with these.
14 Whether it's -- is there a regulation? Is there
15 a threshold? Do they have boundary buffers? Is
16 there a screening process? Permitting? The
17 types of products fumigation is working on, the
18 kind of things you consider in a fumigation
19 permit.

20 Did you know AMS participated?

21 DR. SELLASSIE: Yes.

22 MS. CHOW: Good. There is -- New Jersey
23 came up with a screening tool. This is really
24 good to share. And I wanted you guys, if you
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1 haven't seen the products, you go here and you
2 can download and look at the types of questions
3 they looked at. New Jersey was a big pretty
4 presenter. I know North Carolina did a
5 presentation, too.

6 So, the MidAtlantic states did do a nice
7 job in pulling together all the information they
8 had for fumigation products. And explained how
9 it worked and explained how most of it is run by
10 the Department of Agriculture, how long you
11 fumigate for, all this kind of stuff. The
12 products you fumigate, they all have different
13 requirements. So, even though this is not an
14 EPA product, I wanted to at least let you guys
15 know that this is a very cool thing that they
16 shared with us at their Air Toxics Workshop.
17 And when you guys are ready to do more, this is
18 a good resource to have.

19 And I will leave this with you guys.

20 That's all I have.

21 MR. MINOTT: Any other questions?

22 (No further questions posed.)

23 MR. MINOTT: Okay. So, I think that
24 brings us to the end of Agenda.
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1 Any New Business?
2 I guess the only new business that I
3 would be interested in is the Mayor and I guess
4 the City of Philadelphia in general have come up
5 with an ambitious plan in terms of how we are
6 going to reduce our carbon emissions. I don't
7 know if there is a role for the Air Pollution
8 Control Board in looking at regulations that
9 would help that or not. But, that's something
10 that I would ask you to look into and see if
11 there is a role for us. And if there is, let's
12 get cracking on it.
13 And I guess that's it. So the next
14 meeting is on January 24, 2019. Hopefully, you
15 all have in your calendar, so we have a quorum
16 and we can actually adopt two sets of Minutes.
17 That would be very exciting. And if no other
18 comments, I call this -- I guess I need a
19 motion.

20 MR. SOULE: Motion.

21 DR. MILLER: Second.

22 MR. MINOTT: Okay. There we go.

23 Thank you very much.

24 (Meeting adjourned at 3:17 p.m.)

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I, hereby certify that the proceedings and
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