

ZOOM0001_TrLR

- 0:00:13 Ata Saedi: My name is [indistinct] and I live in Pony Ridge subdivision in Tualatin. I am a close neighbor of Grimm's for the past 20 years. I am the President of CASE organization. For those who are not familiar with CASE, Case stands for "Clean Air Safe Environment."
- 0:00:36 I just wanted to thank Metro for facilitating this meeting and for taking a leap in solving the dust and odor problem, which has negatively impacted our lives for a long time. We are expecting that number one, number two, and number three priorities for all agencies be given to resume, regain, and maintain Grimm's neighbors' quality of life.
- 0:01:09 We are eager to hear GMT, his presentation, tonight -- and the proposed activities. Thank you, Jim, for your comprehensive report -- which truly validates our complaints and suffering for all of these years. Thank you to the agencies and the community members that are here tonight.
- 0:01:41 All we are asking for is for Grimm's to modernize its operation so as to eliminate dust and odor beyond its property boundaries. Our neighborhoods deserve the clean air.
- 0:01:59 Beyond that, let's focus on future and GMT's proposal solution and we are very much anticipating that Mr. Grimm is going to accept one of these options. Thank you [indistinct] for your hard work. Thanks.
- [applause]
- 0:02:24 Brett Hamilton: Good evening. My name is Brett Hamilton, with Oregon Air. We are a proponent of residents who are impacted by the odors from Grimm's. Tonight is a milestone for all of the people who have been working on these issues for years.
- 0:02:37 The new report by Green Mountain Technology acknowledges the impact that Grimm's is having on our community and it provides solid data and an objective look at the problem. This report is proof that we do not need to choose between compost and clean air. We can have both.
- 0:02:57 In 2013, Grimm's was processing about 32,000 tons of material per year. Now they are doing about 67,000 tons per year. That's more than double. And these numbers correspond with the increase in odors. Thankfully, Green Mountain Technology has a scientific and technical understanding of modern composting systems -- combined with the expertise on how to design and manage and operate them properly.
- 0:03:23 This knowledge will be key, as we all move forward towards a solution that protects our air quality while also allowing Grimm's to continue providing a valuable service for our community, our region, and our planet. Our air is a shared resource and we all deserve to breathe clean air. Oregon Air is dedicated to local air quality and we look forward to participating in this process as Grimm's makes the transition into the era of aerobic composting. For more information, please visit our website -- oregonair.org. Thank you.
- 0:04:06 Rob Nathan: Good evening, folks. My name is Rob Nathan. I'm a staff member here at Metro. I work on Hila's team and I want to start off by thanking everyone in the room today for

showing up and being engaged in this activity, and thank CASE and Oregon Air for leading those advocacy efforts.

- 0:04:26 We recognize this, as Metro, as an important learning opportunity for us as an agency. So when folks like yourselves take that extra time to show up and engage and ask for what they need we take that attention as an opportunity to think about how we can improve as an agency to serve the communities within our purview. And I think this process has been incredibly educational for us, as an agency -- that informs the way we're going to continue to license compost facilities around the region. And so, thank you both for being here. Thanks for hosting us here today, CASE and Oregon Air.
- 0:05:06 I'm going to go through and give you all a run of the show a little bit and let you know what we're going to be doing. And then we'll hand it over to Hila. So, right after this we're going to move into a few introductions. Hila's going to explain who is in the room and how we got here today. And the purpose of today is to hear from Green Mountain Technologies -- which is a consulting firm that we hired to -- as an objective source, objective and educated source of information, to inform both us and the facility of best practices that can increase some of our regulation and decrease some of the nuisance on community.
- 0:05:49 After that -- so we're going to get a presentation from Green Mountain. And then -- it's going to be 40 minutes -- and I encourage everyone in the room to not interrupt their presentation. It's actually a timed presentation. So we can make sure we get all of you out of here. And we're going to have plenty of time for Q&A after that presentation. We're going to have about 40 minutes of Q&A and I'm going to explain how that's going to work. I hope everyone who is here who may or may not want to ask a question has received a comment or question card from the front desk. If not, we have more up front. We want to make sure we're capturing everyone's comments or questions as you give them so that we can record them and remember what was being said today because that also informs our decisions on the best way to serve you.
- 0:06:35 We're going to give final questions at 7:45. And I'm going to be really stern about that so we can be respectful of folks' time. And then we'll have some closing statements and we'll move on. I want to make sure folks know the bathrooms are right up here, if you go out the lobby and take a right and then you're going to take another right. They're kind of behind the sound stage. We also have emergency exits on both sides.
- 0:07:02 We're going to be doing some audio recording as well. But that will not be public. Correct? That's just for us. Okay. And then we're also going to be taking some photos and you'll see Faith walking around here taking photos. So without further ado I'll hand it over to Hila.
- Man: Why is the recording not going to be public?
- 0:07:28 Hila Ritter: We'll get to that in the Q&A. Thank you. So, hi everyone. My name's Hila. I am with Metro and I first of all want to thank you again. I know we've all said it a lot but really it does mean a lot to us that you've all taken the time to be here so we appreciate that. Just to give a little bit of context to make sure that everyone is on the same page, and to remind everyone that Grimm's Fuel Company operates a yard debris compost facility. They operate under the authority of a Metro license as well as other authorizations, other organization authorizations.

- 0:08:04 Composting is an important part of our region's waste reductions efforts. So the Grimm's license was up for renewal last year, and through our public engagement process we realized that the status quo is no longer sustainable. And as part of the information that we got back we decided to go forward with hiring a contractor to do the assessment that Rob discussed. And Green Mountain Technologies is here tonight to present their findings and their recommendations.
- 0:08:36 So the report itself is very technical and very complex and so that's why it's important to us to have them here, to be able to walk us all through it together. So with us tonight in the room we also have several other government organizations. We've got the Oregon Department of Environmental Quality. We have Clean Water Services. We have the City of Tualatin and various representatives with the city, as well as Metro. We're all here to answer your questions -- but again, as a reminder, this is the opportunity to be asking Green Mountain Technologies questions about their report and their findings and recommendations.
- 0:09:13 And their -- as Rob said -- their presentation is timed, so we're going to ask to hold questions until the end and we have dedicated time to have questions and comments and answers at that time. And just want to make sure I hit all my points. And you'll hear from me again at the very end. I will be coming back up to help facilitate the question and answer a little bit, and then I'll also talk about next steps for Metro going forward now that we have the report in hand.
- 0:09:47 Man: Can you answer his question about the -- why it's not in public available [indistinct]
- Man: [indistinct]
- 0:09:57 Hila Ritter: Sure. I mean if you want. If you want to publicize it, that's fine. And we can have a -- we're open to suggestions on that. We hadn't intended on publicizing it. We did that with the last public meeting. We had a transcript on that was available on our website. And we're open to feedback on that, so thank you for sharing that.
- Jeff Gage: Hello. Hello. Can you hear me now?
- People: Yes.
- Jeff Gage: All right. I like to talk loud. My name is Jeff Gage. I am the Project Manager for Green Mountain Technologies and that means I know how to run these things like this.
- 0:10:41 So, Green Mountain Technologies has me as their Senior Systems Designer and I'm the Project Manager for the contract that was [indistinct] by Metro, providing the compost assessment, the recommendations for Grimm's, and also just understanding what's going on with the neighborhoods. I'd like to introduce our team who has come with us.
- 0:11:09 Working hard since mid- January of this year. Michael Bryant Brown -- he's our hands-on company President and he made it down for our first visit in January. Some of you might have met him. Tamara Thomas, over here, is with Terra Source. She's the company owner. Her engineering company has specialized in compost facility permitting and odor control,

odor management, for over 20 years. Tamara and her husband a close colleague for all of those years working with Washington Organic Recycling Council with me and dozens of large-scale composting projects together.

- 0:11:46 Many of which had to improve their odor footprint. And finally, we needed to provide additional specific expertise and this is Kent Norville. Told you it was time. Ken is with Air Sciences Incorporated and he'll be assisting us. Thank you very much for being here and so we can engage in this. So we have a lot to cover tonight. Here's our approach. Our outline is also on the board back here. And we'd like -- so you can keep track of where we are in the presentation.
- 0:12:24 Just to be sure we can finish and don't keep you up all night I am encouraging by Metro's approach to this problem and response that we have had from the neighbors and Grimm's Fuel itself. You guys have been very good. And I'm very grateful to have all of us here together so we can actually address these issues [indistinct]. This is an overview of what we found in the document within our report and what we'll be covering this evening. Grimm's Fuel has been a local recycling, landscaping materials provider for over 40 years and their services are needed by the community.
- 0:12:59 Odors from the large static pile composting system are excessive and impact nearby residences. Forced aeration compost technology would dramatically reduce odor impacts. Land use and regulatory codes could be better coordinated with the [indistinct] rapid remediation efforts. It sounds like everyone would like to see.
- 0:13:27 I want you to know the conclusions right up front. First and foremost we believe Grimm's really does need to address the odors being produced from the active composting piles. Second, we know the most significant and effective way to address those odors is have Grimm's Fuel improve their active composting technology to assure that aerobic composting conditions exist throughout the initial composting process. Third, the GMT team has identified four alternative composting methods and have proven these to be viable methods to resolve the odor problems effectively.
- 0:13:59 We do not believe in the existing method of active composting are viable for this location and do not consider a no action alternative. There are other recommendations we have concerning some minor composting techniques and management details that as a whole will improve the odors significantly. We've developed four alternative composting systems. Each one provides forced aeration using blowers to push air or pull air from the piles continuously to keep the piles fully aerobic.
- 0:14:36 The piles are all limited to fourteen feet height to reduce compaction and to distribute the air more evenly. The air moving out of the piles is treated with an engineered bio-filter and/or bio-covers to treat the odor emissions for reductions in the range of 60-95%. And the designs include leaving the compost unmoved for the first 20 days.
- 0:15:00 So that the active composting period is past its maximum decomposition before disturbance and to provide high oxygen levels will dramatically increase the composting efficiency that allows for faster movement of compost through the process. This also allows for significant reduction of volumes of material in active composting piles. Tamara, would you please talk about what compost means?

- 0:15:32 Tamara Thomas: Absolutely. Thanks, John. So the main thing to know about composting is that it's a biological process. It's caused by populations of bacteria and fungi that -- and only happens because of those microbes, as they're consuming the organic materials. To firmly plant this into your heads, I borrow from Meagan Trainor. It's all about the bugs, about the bugs, about the bugs. If you have teenagers, you get that.
- 0:16:04 Composting happens when fresh organic materials are mixed and moistened with plenty of oxygen to optimize the conditions for aerobic bacteria to thrive. The organic waste feed stocks supply complex carbons and nutrients that the bacteria can consume and then produce carbon dioxide, water, humus-based more simplified -- sorry. More simplified carbons that form the humus, which gives you the compost.
- 0:16:41 So composting bacteria also give off heat. As they cause the temperature in the pile to rise above 98.6 -- which is human body temperature -- the pathogenic bacteria, like fecal coliform and salmonella die and the thermal [indistinct] bacteria continue to break down the materials. So this is how composting should happen. However, because those bacteria are consuming oxygen in order to survive, unless plenty of oxygen is being provided the oxygen is consumed faster than it's replaced and the system goes anaerobic. I'm sorry. Here we go.
- 0:17:25 Under anaerobic conditions, different populations of bacteria take over and consume the same organic carbons and nutrients without oxygen. So, instead of mostly carbon dioxide, they produce methane, reduce sulfur and nitrogen compounds that are highly odorous and along with water they also produce organic acids. So the result of this digestion is a less optimized, [indistinct] odorous system that degrades organics less efficiently and gives off less heat, creates slightly less desirable product unless other steps are added -- such as aerating and curing.
- 0:18:09 So composters are really bacteria and fungi farmers and they're optimizing the conditions for the microbes they are raising. Jeff will talk about our investigation into Grimm's process to manage their microbes.
- 0:18:24 Jeff: Thank you, Tamara. So as said before, Grimm's Fuel currently uses a composting process that is predominantly anaerobic, meaning without oxygen. And it's been handling more volume than is usual for this method of decomposition, which initially requires patience. It requires long periods of time to stabilize into a finished product. While worst odors can exist during turning, they still exist for nearby residents, even when the weather conditions are calm and turning is not occurring.
- 0:18:57 The large stack pile composting method is normal for the industry and is thus allowed in the regulations -- but this is not appropriate for Grimm's current situation. It seems to us that the parties to this problem want to see a resolution that keeps Grimm's in operation while not impacting their neighbors. But regulations for land use and operational controls provide so much uncertainty.
- 0:19:28 If change is asked for that there is a significant risk of losing the resource that is Grimm's, for the community. Metro has used this process to document and to clarify the issues and we're here to show you what we've done. We evaluate Grimm's commercial composting steps. The receiving area, on the upper left, for unloading deliveries of yard waste, is really a god size

and is managed well. They have dependable and well-constructed processing equipment and well-maintained mobile and stationary equipment to move materials efficiently.

- 0:20:01 Grimm's uses large dozers to move prepared feed stocks with [indistinct] compaction. The concurrent grinding of fresh feed stocks and screening of finished materials at the same time is now creating a porous and consistent blend of their fresh composting [indistinct]. However, the large static pile is mostly anaerobic. It smells bad during turning and it gives off strong smells before turning. The product is currently manufactured over four to seven months.
- 0:20:31 So let's take a look at the overview of the site. Vehicles and materials flow through the available site very well. Over here in the over left here is the scale house. And the receiving area is up here in the orange. And after they unload their material, they're back out on to Cipole Road. And the materials are ground up in a first in, first out process -- which is perfect.
- 0:21:02 And then from there the large, the big stackers used to [indistinct] and reduce the energy levels by mixing in the odors from the screening operation. So fresh and finish at the same time, coming out through the screeners. And the finished product comes down here. Signal comes out. And is taken away for the finished product and up into piles one, two, and three where it sits for four to six months.
- 0:21:28 During this time, pile four is reduced scoop by scoop into the screener during grinding and the fine compost is removed from the screener and stockpiled or directly sold. The overs go into the grinding belt to be re-added to the composting mixture and when pile four is empty the oldest pile is moved out -- one, two, or three -- into section four. So we also looked over our feedstock types and volumes. We reviewed the last five years of deliveries of materials in the composting operation.
- 0:21:58 During certain months, there was a significant amount of green waste or yard debris that came into the operation. Grimm's has been able to manage that traffic flow and the grinding operations during those peak months. So let's take a look at that data. What was significant. Grimm's fuel averaged 4,161 tons per month over the past five years. They've been having seasonal flows in the late spring through fall, and the largest mound was this very last year in 2017 when the spring through summer months averaged over 6,300 tons per month.
- 0:22:37 Over five years, the tonnage has increased -- as you heard before -- at an average of 32%, from 39,608 tons in 2018 to last year's 66,636 tons. Historical satellite images that we looked at show that the footprint of the composting pile has not expanded significantly during that same time. The adaptation hasn't been in the [indistinct] from any one pile. Washington County is also growing and developing quickly.
- 0:23:13 Since Grimm's started operations in the mid-1970's the population increased by over 400,000. Last year, a burn ban was put into effect that covers the area that is serviced by Grimm's Fuel. The feedstock pressure will continue with future growth as well. As places densify there is more that is harvested and brought to composting operations. Obviously, a needed resource. Our site and community evolution is kind of shown here. 1994, when this aerial photo was taken, there's been a tremendous infilling.

- 0:23:52 Notice some of the areas outlined. I can't show you [indistinct] funny one in the middle there's a whole nother area right by the river where the townhouses are. This growth both adds nearby neighbors and increases the area from which organics are produced that need composting. The result is increasing volumes, increasing odors, and we need to go through how to go through transition [indistinct].
- 0:24:19 So, Grimm's operations extend well beyond receiving, grinding, and include bark and concrete grinding. They receive grinding compost on the left hand property. That includes bark. And concrete grinding and firewood splitting operations in the center property. And on the far east is basically wells and wetlands. All of these activities have regulatory land use oversight. Tamara? I'd like you to better describe the current regulatory status for Grimm's Fuel.
- 0:24:49 Tamara Thomas: Sure thing. So, briefly, at Grimm's compost facility the primary regulatory layers are the State of Oregon. Department of Quality, Environmental Quality issues their solid waste disposal site permit. The tri-county regional government is Metro, which issues its solid waste facilities license. Then the City of Tualatin governs land use and zoning issues and has issued Grimm's a conditional use permit on two of their five parcels. And the Tualatin Valley Fire and Rescue -- which enforces Oregon Fire Code and provides emergency response and also documents, requires emergency documents.
- 0:25:35 So as background, Grimm's Fuel Company operates on five parcels -- shown outlined in red. These parcels are not contiguous and are regulated differently with respect to land use. Only the two parcels on the left, abutting Cipole Road -- shown shaded -- are covered in their conditional use permit that allows resource recovery. That includes composting, receiving, grinding, and screening incoming solid waste materials.
- 0:26:06 All of these parcels are either general manufacturing -- which allows product storage, retail sales, and wood processing. The ML, on the right, which is also Grimm's property, is light industrial. So, in spite of control of almost 47 acres, actual composting can only occur on 11.4 acres that are also needed for access to the facility from Cipole Road and most retail sales. This limitation has implication for the pile height in the current system.
- 0:26:49 Man: I'm going to cover what the missions are, Tammy. Using confined space gas monitor, GMT went up on top of piles and found multiple emissions were higher at two feet below the surface than were at the surface -- at the compost pile. We also found carbon monoxide at higher levels near a buried concrete wall and an old concrete air flower that we call concrete relics. But because these structures provide channels to focus heat and excess drying, they can be a cause of spontaneous combustion.
- 0:27:23 Our recommendation is to remove these structures to minimize the fire hazard. Additionally, oxygen readings during all three sampling events were consistently low. Well below 10% in the two-foot deep samples. These emission results mean that the piles were predominantly anaerobic. With an aerobic layer -- about one to two foot thick, like a rind at the surface of a pipe -- we believe that the aerobic rind is partially treating the emissions from the anaerobic core.

- 0:27:58 This explains why odors are not as bad between turnings, and is supported by research we reference in the report. These odors had a varied experience with the neighbors, which Tamara will describe.
- 0:28:09 Tamara Thomas: So Metro wanted better understanding of the community's experience of Grimm's odors. One way we investigate that experience is by looking at complaint data. Based on our compilation of complaints from 2013 to 2017, we found a total of 385 complaints representing 224 voter states. We know that people don't complain every time they smell something, so this is just an approximation. One thing we learned was how often the highest number of complaints in a month were in the fall --so clearly there is an increase in odor that is partially seasonal.
- 0:28:59 Many complaints were associated with pile turning, but not as closely correlated as you would think. The complaints would often increase a month or two before, and continue after, a turning. We think that this might be indicating that the complaints are triggered by volumes on the site, rather than simply the turning. And we know notice that the complaints were increasing in the last two years -- which also correlates, in general, with increasing volumes.
- 0:29:32 So complaint data shows us when the odors are the worst, and a little bit about its extent at a particular time -- but not so much about the actual impact on individuals in an ongoing manner. To get a better picture of individual experience and the odors, we developed a survey and selected 12 participants across a wide range of complainants, non-complainants, directions from the pile, businesses, and residencies within three miles of Grimm's.
- 0:30:01 To try and compare the survey results in some relatively objective manner, I used the FIDO method -- Frequency, Intensity, Duration, and Offensiveness. So each survey was scored to a maximum of five points. These are very broad-brush scores but they generally confirm some common sense observations. One was that only generally, and in residences closest to the pile -- the closer the home, the higher the impact score.
- 0:30:38 Also, a person who had complained generally had a higher score. A person who had not complained generally had a lower score. Businesses which had [indistinct] as residences. And the average of all of our participants -- businesses and residences -- experienced a medium impact. That's substantial. Our intent to understand the impact Grimm's is having on the community gave us a highly varied and individual picture.
- 0:31:18 People within the same neighborhood had very different experiences with the odors. However, the odors experienced by the closest and most immediately downwind neighbors is severe. As an example of the variability, I have a couple of stories. So, first off, one of our participants reported that they liked being really close to Grimm's. They bring their branches and they don't mind their odor. It's not like a dairy.
- 0:31:47 Another person was isolating himself from his friends and family because they were embarrassed to plan a get together or invite friends over. Another reported feeling like the odor was following them, because even when they went out of the area they could smell it -- because it permeated their hair. So, while Grimm's is providing an important service to the community and to the region, beyond it's impact -- in our opinion, a few unfortunate residents are being severely impacted.

- 0:32:21 Man: I'm going to talk here real quickly about the plumbing analysis that we did to give an estimate of the impacts the Grimm's is having on our facility. That is three parts of that. The first part was where we did some dilution threshold water sampling around the neighborhood to get a feeling of the impact. And then what we did -- step two -- was to use a dispersion model to calculate the amount of downwind dilution that was occurring from the edge of the pile all the way down to where the odor observation was made.
- 0:33:00 Using those two pieces of information, we then estimated what the dilution to threshold is at the top edge of the pile where it'd be coming off. Then, using that -- step three -- using that worst case pile dilution to threshold, we made an estimate then of what the impact to the neighborhood would be. So there was a three step process that we do. All right. So I'll first talk about the odor sampling. Odor sampling was conducted using a [indistinct]. The [sounds like] nasoranger has a series of calibrated, discrete dilutions that mixes odorous air with odor-free air.
- 0:33:43 There's -- for the unit we used, basically -- the dilution to threshold ratio is a measure of the number of dilutions of odor-free air to make the odor air non-detectable. The nasoranger we used had six discrete units -- 2, 4, 7, 15, 30, and 60. 60 being the most-strong odor. So, dilution to threshold of 2 is barely noticeable, one of 7 is considered a nuisance, and one of 30 and above is considered objectionable.
- 0:34:23 Okay. So, sampling was conducted over three days. The first day there was four samples made -- that was on January 31st. That was when no turning was going on. Kind of represents a typical condition. It was calm winds. Meaning that there was very low winds, the plumes would kind of meander. The other two days were done on the 7th and 8th of February, during active turning. Again, both of those days the winds were calm and inversion condition and odors were very prominent. Especially on the 7th.
- 0:35:02 During these days -- like I said, everything was calm, not calm conditions, actually pretty calm. About 20% of the time calm winds occur. So, we noted the calm conditions both by looking at weather data from Grimm's and at the airport, and they collaborated well. And during these calm conditions, plumes from the pile just can come meander, float around, and it can really present objectionable odors downwind.
- 0:35:32 So this graph here shows where we did the actual odor observations. The Grimm's facility is on the right, as the blue square there, and each dot is a location that we did an odor sample. The color-coding implicates the degree, going from 2 all the way up to a 30. We didn't have any 60's measured out there, but we did have a number on the far right -- there's two observations, a 15 and a 7 that were about two miles away from the facility.
- 0:36:05 This was early morning on the 7th. Very noticeable odor, quite a distance from the facility. So, we have a series all around the neighborhoods. During this observation it's difficult sometimes because -- there we go. So now, using those odor -- field odor measurements -- we then took a dispersion model, mimicked the atmospheric conditions, to figure out how much dilution from the pile is going on. And then we estimated back what the odor threshold would be -- at the pile.

- 0:36:51 So the first four measurements were done on the 31st. Those represent the non-turning, kind of typical conditions. We came up with pile dilution to thresholds in the range of 19-400. The rest of the days were on the 7th and 8th, and that's when active turning was going on. The pile dilutions to thresholds were much higher, in the range of 26 to almost 2,000. One thing that we do know -- that on the 8th it was difficult to find the plume so we had much lower values just because we tend to be on the sides of the plumes.
- 0:37:34 But we did a pretty good job of getting to plumes on the 7th and 8th. So using those pile -- that worst case pile for turning conditions and non-turning conditions, we made an estimate of what the impacts to the neighborhood would be. So using the 400 for the typical case and roughly 2,000 for the [indistinct] cases, we came up with four -- I'm sorry -- three circles here. The first circle is turning activities under calm, low wind conditions. And you can see that circle goes up quite a distance from Grimm's. About 2.2 miles.
- 0:38:16 You can see also on the graph there are the [indistinct] points that we had as well. Now these circles are dilutions to threshold of 30 -- which is considered objectionable. So anything within that circle is going to be objectionable. B is turning conditions under average conditions, and that's roughly a wind speed of 3.5 miles per hour. And that's like half the time the communities within that circle are going to be having impacts during those. And that goes out to about 3 miles.
- 0:38:51 And the last circle's under average conditions. And so during turning condition, or non-turning condition the circle's smaller, right around facility but it's still impacting the neighborhoods right around Grimm's. So [indistinct] the residents about 300 meters away we need about 8 dilutions from the pile to there.
- 0:39:17 So if we do that and we want to keep the dilution threshold under 10, the pile dilution threshold would have to be reduced by a factor of 18 -- meaning that pile dilution affect would need to be 80 or less. So you need to go considerable reduction in the odor of the pile is needed in order to avoid impacting the neighborhoods. So with that, thank you.
- 0:39:49 Man: Did you understand? It's not too hard. It's in the report. What I'd like to do is look at -- we've got our proposed technology. So this is what we -- an overview of it. We propose four technologies -- all of them of forced aeration instead of the turned window technology. Plus each alternative will be fully aerobic, all turning piles will be less than 14 feet and will not be turned for at least 20 days unless they are in the fill-in.
- 0:40:16 Finally, all the alternatives will have engineered bio-filters and/or bio covers to treat the odors. Windows work really well to make compost. However, they have to be turned every 3 to 7 days even to stay slightly aerobic. Composting needs a lot of area, which Grimm's Fuel does not have. Aerated stack pile systems however use electric blowers in pipes placed below the piles to push air into or pull air from those piles.
- 0:40:43 They use timers or temperature control feedback to keep the oxygen levels above 10% at all times. [indistinct] the piles treated using biological odor filters. There's two types. One you see over the surface of the pile -- that's called a bio-cover. And one, which is bio-filter, which you saw it blowing into.

- 0:41:05 In alternative one, it's a rectangular, aerated static pile, with pipes laid on the ground. This design has 16 aeration days and/or zones. They're each 14 feet tall. They're covered with a 12-inch layer of wet, wooden composted [indistinct], which they generate every day, to treat the odors coming off the pile. This pink area shown just above the green two lines is about [indistinct] so air can be pushed and pulled from the compost piles on the north side.
- 0:41:36 And then they can compost for about 30 days. Typically, we ask for 21 days. The rectangular ASP system looks something like this. You can see the pipes on the top of the asphalt surface. The pipes have to be pulled out from underneath the pile before moving or turning the piles. It's a lot of management. Pipes can be constructed also below surface, too, protecting them from any crushing. And you don't have to move them off. And reducing handling costs. Aeration zones usually share a large blower. This alternative will have reversing air directions.
- 0:42:13 Alternative two also uses pipes on grade -- above the surface -- and is an innovative configuration using a telescoping radial stacker conveyor to easily place compost and bio-covers over the top so there are no gaps in coverage for air coming off the pile. While this arrangement reduces the handling steps, keeping operations' costs lower, equipment is more expensive than alternative one.
- 0:42:40 This is what the system looks like up close. You can see material would be coming off their large conveyor on to this shorter conveyor -- which can move automatically in a pattern, to keep the piles nice and even and to place the bio-filter over the top. The equipment is not cheap -- costing over \$350,000 in addition to the blowers and piping that are needed in alternative one and alternative two. In a capacity similar to the rectangular ASP for this site, using 16 active products. These can have pipes above grade or below grade and they don't use a bio-filter.
- 0:43:16 Alternative three is an enclosed facility that's able to capture all the emissions from the active composting stages, for up to 30 days, allowing more turning and handling in keeping the rain off the piles. If fully enclosed, there can be all treated in bio-filters and if turned once a week, it can accelerate the composting process -- to be done in as little as 20 days to finished product. This is of course a very expensive system but it's proven and exists well within suburban communities. Costs for this facility in 1999 was \$14 million.
- 0:43:52 These systems have challenges for operator disability on the inside and building costs over all, that allows operator to turn the piles without restriction and to keep moisture and [indistinct] optimized and shorten the total composting time. You can see the air going up on the left and air being sucked down on the right. You can see how effective these blower systems are for reversing flow of airflow.
- 0:44:19 Finally, alternative four is a below ground aeration system, built under a concrete pad. This is operated like an aerated static pile, using both positive and negative reverse aeration, while using both bio-covers and bio-filters. It's loaded using a wheel loader. The system is like being a closed system without the building. So, there's going to be significantly less power costs having to manage the air inside the building.

- 0:44:50 But it's limited in its turning and its going to have the same time frame as alternatives one and two. So alternative four provides an easy to operate concrete pad that's durable, provides the flexibility to move air in even direction through the piles to keep them from drying out too quickly. Blowers and pipes are coming out away from the piles to keep blowers from damaging the equipment. And this is a picture in the city of Phoenix, that's under operation as we speak.
- 0:45:22 So what do we recommend? We recommend that Grimm's and Metro DEQ and the city focus on odor remediation as the bottom line. Our specific recommendations include site improvements that can be implemented immediately -- and some others that are within three years. Build a new composting technology using forced and continuous aeration with bio-covers and bio-filters. Metro DEQ can improve and add to their regulatory tools so they can be in the neighborhood -- quantify the numbers that are out there.
- 0:46:01 And the City of Tualatin can provide land use consistency to allow better management of composting. Right now, even transitioning into any of these alternatives is going to be extremely difficult without the use of existing land. And have improved neighborhood interactions. Absolutely important. Some of the operational site improvements can be implemented immediately. To control and treat the air over the screening and grinding system --- it sounds like there's been great progress in that direction so far.
- 0:46:35 Remove those old concrete relics near the piles, to reduce the risk of spontaneous combustion. And utilize, right now, a minimum of 12 inches of bio-cover, of wet screened odors on the existing pile. We also recommend alternative four as the composting technology that will meet the project goals most effectively. In ground positive and negative variation, bio-covers and bio-filters with minimum turning will effectively reduce the odors and make a significant improvement for the neighborhood. This is not the fastest or the cheapest solution but it is the best way to affect real change without conflicting with ongoing operations.
- 0:47:16 We're recommending some improved regulatory tools for Metro DEQ. We suggest they use a [sounds like] fieldofactometer to quantify odor pollutions to threshold in the neighborhood, but also on top of the piles. It requires a different dilution factor that goes well above 80, as we have seen. But these may be used at the property line to monitor emissions, or used with additional dispersion modeling at the pile surface, or to use in the neighborhoods to confirm the odors. This will provide some objective operational controls and impacts.
- 0:47:50 We recommend other permit or license conditions that may be good options. Require option monitoring minimum of 10% of all points in the active piles. Require continuous forced aeration of a maximum curing pile height of 14 feet. And have a minimum bio-cover thickness of 12 inches over all surfaces of active and curing piles. We're not worried about the finished product piles -- they were not an odor source.
- 0:48:21 And no disturbance of piles within the first 14 days, minimum. We did say 20 -- we recommend 20 -- but 14 days is kind of the absolute minimum. Temperature and monitoring can be proven as representative to being within all locations in the piles and require compost facility operator training. And utilize an important document -- which we'll provide -- a mitigation menu, strategy menu to inform how all the different things that you do in

composting can create odors. This gives you some details on how you can control [indistinct].

0:48:55 We recommend that the Oregon Administrative Regulation OAR 340-093 should be changed to include -- to separate -- composting from anaerobic digestion. We recommend the USCC definition of composting. We also recommend that the City of Tualatin provide land use consistency within these three [indistinct] parcels, so that Grimm's can better use their property and properly manage composting activities.

0:49:26 Metro's 2009 organics report recommends that the city designates specific zoning districts where waste-related activities such as composting are permitted use. We agree. Providing such zoning designation, this area would improve numerous aspects of the current situation. We recommend long-term regulatory financial assurance as well. Regulatory elements such as permits and licenses are needed to obtain finance could be lengthened to a period that provides assurance for financing these new projects, and the needed updating in the composting technology.

0:50:06 Encouragement of long-term contracts, if possible, could help with the plans. And the community benefit of the compost [indistinct] structure could be recognized and encouraged by assisting the financing of needed updating. Just saying "We need these guys. The community needs them." And they need the financing to allow that to be updated. And we recommend to improve the neighborhood interaction. We hope this is the beginning.

0:50:33 We suggest that Grimm's goes further to engage this community via formal educational experiences during construction of the new technology -- or any stages where they feel like they would like to show you what's going on. And during multiple and regular intervals, give the community an opportunity to learn what compost is, how the technology works, and to develop these relationships for Grimm's and the improved facility.

0:50:58 In conclusion, we utilize Metro's evaluation criteria that they put into our documents, and our own we added to them to evaluate the four alternative designs, and came up with our recommendations. All the alternatives that we've provided meet the criteria to a greater or lesser extent and all were devised to greatly improve [indistinct]. All of them were. Finally, we recommend that alternative four be implemented to give Grimm's the tools necessary to provide real control over their odors in a defensible way. That is what we've got. So thank you. Are we ready?

[crosstalk]

0:51:54 Man: So, thank you, Green Mountain Technologies and [indistinct]. We really appreciate that [applause]. So, as you all see, the report was quite extensive, had a lot of really great information. I've learned a lot just in this presentation. A lot of this information is new to me and trying to figure out how to digest it myself. And you know some of this licensing stuff can be really confusing.

0:52:23 I'm still learning it myself, as well. So this is an opportunity for us to have some questions and answers. We're going to keep it to exactly 40 minutes. I ask that my runners come up for me. I've got Dwayne and Will and Stacey. Can you all raise your hands. And so we don't have

quite as many people as we did last time. However, our last meeting here we did have some folks run on. And we want to be responsive.

0:52:54 We did get some concerns and complaints from folks that felt like there wasn't enough time for everyone to get their question in. So I'm going to play bad cop, but I also want to make sure that all your voices are heard. And so we're going to have rounds. When I say it's time for more questions or comments folks will raise their hand and one of our runners will select one of you in each of their areas and then we'll go around and each of you will get to ask a question.

0:53:21 And when I say there's time for more questions, we'll do another round of raising hands and they will select. They're going to not be selecting folk who have already raised their hand in their area, unless it seems like everyone has already gotten to speak. I will be sticking to two minutes so that we can make sure that everyone gets a voice. But if we have more time through that, feel free to ask another question.

0:53:43 Again, we want to really encourage folks to learn as much as you can about the information we provided -- because that's actually going to inform the way that we share some of our licenses across our agencies and we don't necessarily have all the answers today but we have a lot of information that we need, to come up with some of those answers. I'm going to move on to asking folks who are interested in asking a question to raise your hand. Let's start with Dwayne.

0:54:24 Man: I think this is just the biggest question in the room right now, is what is Grimm's response to all this?

Woman: I'm going to jump up and address that. So, Grimm's has provided a statement that they want to share with all you folks and I was going to share it at the end but if you want it now I can bring it up right now.

Man: Before questions, that would be great.

0:54:56 Woman: Sure. And while I'm pulling that up I'll just add that all of the slides that you've seen here tonight -- including ones that are about to be coming up -- are going to be available on Metro's website and we can also provide a transcription of the meeting, because it sounds like that's wanted as well. So that's where all of this will be available, so you can have access to all the things that you've seen -- including the statement from Grimm's Fuel Company.

0:55:21 Man: Also, I forgot to remind folks -- if you do have your comment or question card feel free to hand it over to the person that gives you the mic and so that we can keep those questions.

Man: I just want to understand the reason why [indistinct] public. People in Colorado are watching us. People all across the nation are watching us. And so everything we do, in light of transparency, we need to make sure it's out there. I love what Grimm's doing. I appreciate them being there. I don't want them to go away.

0:55:48 Woman: Thank you Mr. [indistinct]. I appreciate that. Next question?

Woman: Can you read it out loud? It's very hard to see back here.

Woman: Read it out loud?

Woman: Yes, please.

0:56:01 Woman: Sure. At Grimm's Fuel we appreciate the efforts of Metro and its willingness to work towards a solution that will work for all of the parties involved -- Grimm's, the surrounding neighbors, and the region. We realize that as our once-rural corner of Washington County becomes increasingly urbanized, that the composting methods that served us so well over the last four years are no longer suitable. Over those four years we have made many changes to our system in order to lesson our odor impacts, and those efforts continue to this day.

0:56:29 Recently, we have proactively implemented several recommendations from Green Mountain Technologies and have begun the long process of changing our composting method to an aerated system. While that is impossible to operate a composting facility without producing some odors, we are confident that an aerated system will further lessen our impacts and we look forward to working with Metro, DEQ, and our neighbors to achieve this goal.

0:56:53 Man: Stacey, do you have a question for us?

[applause]

Man: Yeah, I have a question for Green Mountain. So you covered about two and a half to three miles. I'm five miles out. I get the smell. Your guys showed up one time when I complained, and immediately followed Mr. Grimm's to stop doing whatever they were doing, and it wasn't the turns to stop the odors. So you're manipulating your data.

0:57:29 Instead of letting things happen the way they are naturally, because if you did you would find this is happening in a lot larger area than what you've actually been looking at. I'm just really confused. If you guys were hired to figure it out, collect the data, why would you call him? Have him stop what he's doing, to manipulate the data?

0:57:51 Man: Thank you. Sir, that had not occurred.

Man: It did occur. Your representative told me it occurred. My smell went away after he called Jeff. It's nice that he's on personal names with the guy but your information is very narrow. There's a lot more going on.

Man: Sir, I appreciate your question but I want to give him an opportunity to answer.

Man: I need to address it.

[crosstalk]

0:58:26 Man: The data is indicating what we were able to identify and it was extrapolated over an area. Calling and changing of odors -- he can't change that smell. If he could change that smell, he would have done it already. That, number one, is a physical impossibility. What we

did find is that the plume moved all over the neighborhood in all different directions. We spent days chasing, trying to find that plume, and come up with numbers that we could find how strong the odors were.

- 0:58:58 And as Kent said, we could not find a plume all the time. And we drove in circles. We have evidence of all the patterns that we went around and around for those days during what was the worst odors. And we did what we needed to do to find what was going on, on some of the worst days that you guys had ever experienced. We had all the newspapers -- the same time we were doing that. And we know at night things get worse. We know that these emissions are excessive.
- 0:59:28 We understand is what we measured is only what we could find and wasn't the thousands of people in the area. We didn't have everybody's noses calibrated. We had one machine. But what we did do is we went and we looked for it and we looked hard, and we've got numbers - - which no one else has done yet. So we didn't turn off anything. There was no calls to say "make a change." It's not possible. That part is not possible.
- 1:00:00 And we did our best to try to find measurable results in the process. And people were complaining to us and we would go to those complaints so we could find the plume. And we really really appreciate every single complaint because it allows us to inform what is offensive to the people [indistinct]. It's an important thing to do timely, and be consistent. And don't exaggerate. Say "Yeah, it's stronger than I ever smelled it before." Yes, we need to know that. "Oh I can smell you."
- 1:00:00 That's good information but really the timeliness is important -- it helps everyone have good, timely information and a location. One thing we couldn't justify or look at carefully were the anonymous complaints. It doesn't help anyone understand how far things are away from where we are.
- 1:00:55 Woman: The other thing -- I just have to add something briefly to that -- and that is odor monitoring and modeling and emissions, you can burn up a very very large budget doing a lot of that. We worked within what we had and I commend Metro for doing what they did. And really, I would think that the focus would be additional monies.
- 1:01:33 You can spend a lot more and get a lot more data and go out further. But it's not going to help anything. It will tell you more about it. But it's not going to solve the problem. We felt it was important, and Metro felt that it was important, to try to get alternatives and to try to find a solution to the problem [indistinct].
- 1:01:57 Man: And to document what you have experienced. And we did see a great extent of what you did experience. And we hope you understand that we're trying to recognize that as valid. These results validate the impacts. These are big impacts.
- Man: So I'm going to move on to our next question. Will, do you have someone with a question for us?
- 1:02:24 Woman: Hi. First of all, I'm feeling optimistic after this presentation. Yay. [applause] It feels like we have arrived at a decision that it's not tolerable and something has to be done and as

you said, there's no zero -- none of the solutions is don't do anything. My question is, who gets to decide which of those options gets done? How is that decision made? And how is the enforcement of that decision -- there's a whole lot of people that have to be involved in that. How does that all come together?

Man: Great question, thank you.

1:03:18 Woman: I'm going to pull the bunny out of the hat now and just do this. So, so these are Metro's next steps. To answer your question very specifically, and then I can get into this. The two agencies with the most specific oversight at Grimm's Fuel Company are Metro and DEQ. So I can answer on Metro's behalf and then I'll hand it over to my partners over at DEQ and they can speak for their agency.

1:03:47 These are the things that Metro is going to be doing, moving forward. Let me speak to my notes here. First, we have also just received this information so we are in the process of determining what the exact license conditions are going to be, moving forward at Grimm's Fuel Company. So we are going to be determining measurable performance conditions and working in partnership with our government agencies, and then also with Grimm's Fuel Company, to understand their input and what their ideas and plans are, moving forward, as well.

1:04:28 We are going to be formulating what our proposed licensing conditions are and bringing that out to public comment in the fall. So we'll come out again and have all of that information available, to get your input and get your feedback. And that will be both a written public comment period and then we'll also host a meeting for folks to come together and talk about them. The current license expires the end of this year, so Metro is going to be issuing a new license with those new conditions before the end of this year.

1:05:07 And part of what we are in the process of figuring out is the timing for them. And so you'll see that the fire department has enacted some regulations for pile height requirements, that are detailed up there -- 40 feet by the end of the year, and 25 feet in height by April. So those are things that Metro and DEQ are also going to be in a position where we can enforce those requirements. And we'll be doing a similar approach in that it will be phased.

1:05:43 And there will be specific benchmarks that need to be met at specific times. As we figure out, I mean I think that Green Mountain Technologies has laid out a pretty good map for what those things are likely going to look like. They're going to be things like pile height requirements, aerated system requirements -- but when exactly, exactly what size and exactly what date are the things that we're going to be figuring out and bringing out to you in the fall.

Woman: [indistinct]

Woman: Hold on just a second, I can't hear you. Will's going to hand you a mic.

1:06:25 Woman: So when you say "new operating requirements" that's sort of Metro-speak for picking one of those alternatives. Because what I didn't hear you say -- I'm sorry, but I didn't hear you say how the alternative gets picked. There's four specific methodologies that have

been recommended by Green Mountain and nowhere did I hear "Here's how we're going to pick the methodology."

- 1:06:51 Woman: So the -- hold on just a moment, I'm going to pull this out here. And pass the mic, I saw a hand coming up, so I'm going to pass it --
- 1:07:01 Warren Johnson: Hi, I'm just eager to talk. I'm sorry, I apologize. I'm Warren Johnson. I'm with Metro [indistinct] at Metro. And I just want to address that. So the approach that we're looking at now, we're going to discuss, is really about setting performance expectations and letting the operator decide how to meet those performance expectations. So the idea would normally be, is all the things that you saw tonight -- we'll be able to meet those expectations.
- 1:07:28 So the operator can really decide how that would look and kind of the financing piece for that. But the key is accomplishing the things that we're trying to accomplish, based upon the information that you heard tonight. So hopefully that helps answer your questions.
- 1:07:42 Man: I'll just add to that because, you know, one of the things I mentioned when we opened up today is that this process has helped inform our licensing and regulation moving forward for other facilities as well. And what may work at one facility to meet those standards may not necessarily be what works at another. But our licensing has to be uniform for everyone. So what we're doing is shifting our standards and then we have some best practices that we've learned from Green Mountain that we can offer folks that will help them meet those standards.
- 1:08:26 Audrey O'Brien: Hello, I'm Audrey O'Brien with Oregon Department of Environmental Quality. What our approach will be is we would like to work with Metro and put out a permit modification at the same time that Metro puts out their license. And as Lauren said, typically because all the four alternatives all try to accomplish the same goal we would look to Grimm's and say "Which one do you want to pursue?"
- 1:08:53 And then the existing -- or the recommendations that the consultant has made regardless of which of the long-term alternatives are pursued, we would look to try to incorporate those immediately into our permits and hopefully the licenses. And then we would probably have timelines that are agreed upon for moving forward with the selected long-term alternative. In addition to that, we would want to work with Metro and Grimm's to verify ongoing compliance throughout this process -- as they're moving forward.
- 1:09:30 So for example, Grimm's is making significant progress in putting a bio-filter into place and we've reviewed their plans and that's part of their operations plan now, so we would want to make sure that continues to function well. And we would look for the same types of requirements that were recommended by the consultant going into their operations plan and to their permit in that they would have measure that they would achieve to make sure that they're meeting those. Sorry about my hands, I'm trying to point out in time as they're moving forward, moving forward with this.
- 1:10:09 Woman: We struggled a lot trying to cover a huge amount of material in a short amount of time. And I think we really didn't emphasize one of the things that I think is important when we look at the four alternatives. And that is that it has to be a very interactive selection

process between Grimm's and the regulatory agencies. If for no other reason that two of those alternatives are going to require some land use permitting that isn't currently in place.

1:10:48 And that's likely to take quite a bit of give and take and work with the city and the conditional uses zoning process. So our selected alternative four -- as well as alternative three -- both of those will require additional permit allowances on those third and fourth parcels. And, yeah, absolutely. It has to be supported by the community. It's definitely going to be an interactive approach.

1:11:30 Man: So we're going to [indistinct] more questions if folks will raise their hand. We'll start up here with Dwayne, if you want to select someone to answer a question.

Man: Out of the four alternatives that you've put up there, do you guarantee they will work?

Man: I can guarantee that if operated reasonably well as the proper composting activities should occur with the control features in place and managed correctly, that they will work. I have my professional liability insurance --

1:12:09 Man: You're aware that those bio-filters have been put in treatment plants throughout this area and woodchips have not --

Man: Okay, so the woodchips were an experiment to try to get, to see if there was results. Actually, in our looking at this we found that there was some effect from those woodchips -- just measured directly with our same equipment. So there was some, but these were not what we're recommending.

1:12:38 Man: If these people spend millions of dollars, [indistinct] hire your company to manage their construction [crosstalk].

Man: It always comes back to Grimm's Fuel. Grimm's Fuel can torpedo any design if they want to.

Man: Not if you manage it.

Man: I cannot manage compost. I live in India, sir. And it's not my property, and I have no stake in this.

1:13:06 Woman: Can you speak to the management of the process once it's in place and the learning curve and the keeping the bugs happy and all of that?

Woman: Operations is always critical, no matter what system you have. It can always be screwed up. And I'm not talking about Grimm's specifically, I'm talking about any composter and any system out there. Education is critical. Yeah. And education is critical on [indistinct] system.

1:13:55 So implementing the new system is going to require learning how that system needs to be operated and there's going to be new concepts that have to be paid attention to. It's not as easy as it sounds. There are a lot of things that can go wrong. But it can also be done very

successfully. And it is being done very successfully in a lot of places. One of our recommendations -- and I realize this is just kind of a basic level -- but is to require in Metro's permits that there be some level of facility operator training in basic composting.

1:14:43 Washington state, where we're from, has that requirement in their regulations and we think it helps a lot -- if only to set a level playing field and a language that we can all kind of talk from and understand. Because it is farming. You are trying to keep specific types of microbes alive and operating at peak optimization. I don't know if that helped any but that is critical.

Man: Stacey, do you have any questions over there?

1:15:26 Woman: Hi. I'm not from the neighborhood right now. I'm from way over in the core of Tualatin so I just want to say I'm smelling it over there. And I do not call [indistinct]. But my neighbors and I smell it pretty frequently. So it really goes far and away. But my question is -- it seems like Grimm's got to this point because other facilities were closing and a lot more material came to them and they got overwhelmed.

1:16:06 So in the future is there going to be a cap on the material they take so the can keep their facility running. I mean, is that part of the plan? To deal with the amount of material coming in? Because it really seems like that's what [indistinct].

1:16:24 Man: So, I'm going to speak to the design aspect of that -- not the regulatory aspect. When you're designing a blower system it has to be sized for the amount of material at the correct stage of biologic activity. And you really can't exceed that without stepping over that line, saying "We still got odors." So it's very important that you're able to show that, number one, it's designed for the tonnage that you're proposing to use. And then that is the tonnage you're proposing to process.

1:16:59 If you are going to expand beyond that you would need to build additional capacity into that system. So that's, that is critical. You can gain efficiencies over time. But with skill, a good engineer will design a system so it has extra days of buffering so you can get to completion, even with someone who doesn't water faithfully or, you know, the mixing wasn't done right. But bottom line is you have to have it engineered so that it matches the biological activity.

1:17:30 We understand the rates of decomposition. We understand how much air is required to supply oxygen and reduce heat within the piles. And so there's a lot of conditions that need to go in there. Some of these are incorporating that fourteen foot height because [indistinct] difficult area to pile higher than that.

Woman: Nobody stopped it before and it got out of hand. What's going to happen, you know, if they're saying "We have no place else to take this. Metro doesn't have anywhere else to go." What happens? Who looks at that and how is it regulated?

1:18:07 Man: So, currently, the license that Metro has doesn't have a capacity or limit in it. So that's something that we haven't required, we haven't set in the past. So that could be a recommendation that we come forward with this time. If you notice, the options that were provided -- all those options actually [indistinct] they would all allow a lot more to come in, using those options.

- 1:18:42 So if Grimm's were to select an option that was up there, they could clearly take even more. It's just about managing it differently. So at this point it really depends what's the option that comes up out of this process. And that will really determine how much can go in there. And if there's a limit that needs to be set, that's where we would set the limit, as part of the license commission. I won't speak for DEQ but I'm assuming that's similar to what they would do.
- 1:19:08 Woman: Can I also mention that, as Jeff said, every design has a limit and I will recommend that the license for the permits given to a compost facility should be set to the design capacity of the system.
- Man: Will, do you have a question for us? Anyone in Will's area? I'm going to move back over to Dwayne.
- 1:19:42 Man: I heard the cost of one of the solutions. What is the -- are there basic estimates for each of the alternatives?
- Man: Yes, there is. Okay. Alternative one, we looked at about 100,000 tons per year capacity. [off-mic talk] so we had for alternative one, it was \$1.3 million.
- 1:20:47 And these are estimates based on pipes on the ground and blowers. And pipes underneath the bio-filter. And it doesn't include any changes in the conveyors. And it's a round number based on the approximate size of 100,000 tons a year. Alternative two, that large donut, we looked at about \$1.9 million dollars. The main difference there would be the equipment, the additional equipment. Alternative three, we looked at -- I told you \$14 million in the report. We say \$15 million.
- 1:21:27 So the is fully enclosed. It requires a steel structure. More blowers, because you have to handle all the air inside. A lot more concrete because it can't just work on either live pavement. You actually have to have a fixed system [indistinct] put in. And then alternative four is concrete again. And that's at \$5.8 million. And again, round numbers but based on information from existing facilities that were built [indistinct].
- 1:22:00 And that, by the way, that one does not include storm water management, since it's outdoors. Number three, pretty easy, [indistinct] goes to clean storm water. Number four, the water has to be captured, managed, and re-used.
- Man: Dwayne, do you have a question for us?
- 1:22:22 Dennis Wilson: Thank you. I'm Dennis Wilson, a resident of City of Tualatin. In looking, there was a couple of observations that I thought I picked up during the presentation. One was it seems like January, February is kind of the worst time for odors in the area. And, two, 14 feet seems to be a benchmark with aeration.
- 1:22:49 This schedule that I see up here seems to guarantee that the residents are going to suffer this year just as much as they did last year in January and February. Is there an emergency measure that could be taken by either Metro, the city, whomever -- to mitigate what's going to happen again this February?

- 1:23:15 Man: I'll take the technical question that's embedded within that. Metro, those places can't actually do anything except for ask Grimm's to move forward and get something done. Technically, what they can do is implement the ones we said to be done immediately. Number one, the odors -- when they're not turning -- can be mitigated. Odors during turning? They have to be able to wait until the weather's going away from the bulk of the residents, which they've accomplished it many times in the past but not consistently.
- 1:23:52 And by putting the wet bio-covers over -- they have as a resource now -- they could implement it. It has to be maintained as a moist surface. Typically, it will maintain itself moist, especially during those times of year. The real issues I believe is that when leaves come in, no air gets through those easily. So they have to have enough bulky material to allow it to breathe somewhat, even on that [indistinct]. It will still have some odors when they're digging into it. And that's the one thing that we'll have a hard time, until there's forced aeration -- to make sure that there are not further impacts.
- 1:24:33 Can they be lessened? By closing the screening operation and bio-filtering that in. Absolutely. By putting the wet pile cover, even on the large pile, consistently and evenly -- doing it as they build it. Will help, tremendously. Will it fix it? Not yet.
- 1:24:52 Woman: I'll speak to then the regulatory side, acknowledge some of the things that have already happened on site at Grimm's fuel company. So they've installed a system to capture the air over the turning process and installed a bio-filter to filter that air, that ambient air that's coming off of both the incoming feed stock when they're grinding, and then the finished product at the end -- and treating that ambient air through that bio-filter process. So that's something that they've already put in to place.
- 1:25:25 Audrey spoke about that earlier and that's something that's been approved in their operations plan that they recently implemented. So that's something that is, in effect, that is going to be helping to mitigate the odor issues. Another thing is the removal of the relic sites, relic equipment, which they talked about a little bit. But I think that the main message that we're learning here together is that reducing the piles is going to be the number one thing that is going to lessen the impacts -- both for the odor, which is the primary thing that we've been talking about, but dust and other concerns.
- 1:26:08 With the fire department and DEQ and Metro working together, and Grimm's working hard to reduce it, to meet the fire departments requirements -- I think that we're going to be immediately seeing some big wins at the facility, just in reducing the pile size alone. And then as we're figuring out how to install these perfected systems and then figure out the learning curve, make those systems work really well.
- 1:26:37 But in order to get there, there is going to be a lot of breaking into the existing pile, which is going to cause impacts and we like to hear from folks as you're experiencing those things so that we can be in continuous communication and understanding of what's going on and we're going to get there and the first thing we're doing is reducing the pile.
- Man: Stacey, do you have any questions in your area?

- 1:27:11 Man: Thanks. Jeff, just a few moments ago you had mentioned the water treatment in option number four. And I just want to go a little bit more about -- it's on the bottom of page 61 -- but you mentioned that a lychee treatment and storage is not included in your estimate and that a lychee pond might be required. Could you explain what the lychees are and what's a lychee pond and the whole process of why that might be needed and why it's not included in the cost.
- 1:27:48 Man: Quickly, lychee is any water that percolates through solid waste. In the general term. Water that percolates through organic material produces stuff that is brown in color. It has a lot of oxygen demand. If it's let to sit and stagnate, it smells bad. And, you don't want to discharge it into storm water. So you have to have a capture and reuse system to allow it to evaporate it through the process. Composting is a very thirsty process. The existing pad, existing location, has a storm water system already built in.
- 1:28:25 And it's currently being managed. And the new site does not have that system in place and needs something that will be engineered to manage whatever water flow is exposed and needs to be collected and treated. And all of ours -- we've looked at 80 as kind of a baseline for being able to manage the material. It's dirty water that we do not want to have going to our fishing streams because it will, actually, it eats up all the oxygen before the fish get it. It would actually hurt fish.
- 1:29:09 Woman: But it's very useful to use back into the process. It's very useful for --
- Man: It's not dangerous, unless it's [indistinct].
- Man: Will, do you have any questions in your section?
- Man: So will there be predetermined consequences for Grimm's Fuel by not meeting required regulations before permitting is allowed for them to go forward? That's a question probably for City of Tualatin, DEQ, and Metro.
- 1:29:47 Warren: So I'll speak for Metro. We have a process. For enforcement actions, we have a process that we go through for any regulation just in a general sense. We don't predetermine -- generally, we don't predetermine a facility "if you do this, this is what's going to happen to you." So the idea is there's due process, just as any other legal process would be. We identify an issue. We try to figure out the best way to get compliance with that issue, whether that is technical assistance or whether that needs to be something that's through enforcement action -- whether there's penalties, whether there's suspension of authorities.
- 1:30:33 There's a long list of things that could happen. And it really depends on what the issue is and what we've already done to try to correct that issue. So in the case of a license commission, for example -- if the license commission says "this is what has to happen by this date" -- that is an action that that does not get done, we can take enforcement action to make that thing happen. So it really depends on what that is.
- 1:31:02 So if it's a matter of something that's a benchmark, we have the option, we have a different process -- and again, it's a due process -- so there is an opportunity for we issue something,

there's an opportunity for that person to contest that action. There's a legal process involved. But we have a progressive approach, generally.

Man: Sorry. Warren, just to help provide clarity, can you explain what some of those progressive actions are, a little bit more.

1:31:31 Warren: Generally, we start off at a very low level, whereas we go out and talk to the operator and say "You didn't do this. Can you do this?" and they can do it at that time. Or it's a matter of not understanding the requirements so then the operator and the inspector act as a technical assistance visit and explain what needs to be done, how it needs to be done, in order to get into compliance.

1:31:54 And if that still doesn't work then we also have a next option of we issue a notice of violation. And the notice of violation will set parameters of "you must correct this by this date, otherwise we will take further action." Further action can include penalties. We can issue penalties, \$500 per day, per violation. Up to that amount. We can also suspend authorities. We can revoke licenses.

1:32:17 We can take further actions, depending on what the level of the violation is and how we've tried to get there. So there's a progressive approach, but there is a legal process. And obviously we want to try to get compliance as quickly as possible, and we try whatever avenue we can to get there without having to take the most expensive approach, if possible.

Man: Thank you Warren.

1:32:50 Woman: So, DEQ has regulations in place that identify categories of violations and so we would follow those categories in evaluating compliance and we have our enforcement guides which directs us how to follow through those categories. And they're pretty set, identified violations. So for example, "Are you in compliance with the regulations?" "Are you in compliance with the permit?"

1:33:19 And depending on the answer, there's different violations and different paths that DEQ would follow to identify the violation and require compliance, or we turn to compliance. We do use a progressive approach to some extent. We will provide compliance assistance and technical assistance where we identify something that appears to be a concern but is not yet moved into the violation status.

1:33:47 Once it become a violation, our process becomes more clearly identified. We would progress through a warning letter to a pre-enforcement notice to a penalty order. And throughout the whole process we would be working with the facility to return to compliance and get back into compliance.

Man: Are there any other agencies that want to respond to that? Okay, Stacey, do you have a question for us?

1:34:21 Man: Yes, this is [indistinct] alternatives. I'm assuming that the costs that you ran off were the capital one-time front-end costs to establish [indistinct]. Do you have estimates also for the ongoing costs for each of the alternatives?

- 1:34:47 Man: Right now, operationally, Grimm's is a fairly efficient operation with the large equipment moves the material once, then twice, and then it's picked up by an excavator into their established grinding screen. This would take about one more step and instead of using that more efficient dozer, typically they would be using loaders -- which would increase their operating costs somewhat. There's power costs and the power costs are not insignificant.
- 1:35:21 We're talking in the range of \$5,000 a month, in power costs, just for the blowers. These are real costs. It takes real work to get the air in the piles. But beyond that, it's not significantly different. Some of the largest costs are in screening and grinding -- which they do very efficiently now. So it is one more movement. Each movement takes a certain amount per cubic yard. It's more, but not substantially above, what they currently experience.
- Man: Will, do you have a question for us?
- 1:36:04 Linda Moholt.: Good evening, I'm Linda Moholt. I'm the CEO for the Tualatin Chamber of Commerce and a 30-year resident in Tualatin, and a wonderful fan of Grimm's fuel for a lot of reasons. But basically they got to where they are today because a region in our community needed someone to process this waste, so that it didn't go into another spring. And I'm incredible grateful that we're at a [indistinct] of uses and needs.
- 1:36:38 And so now Grimm's needs to come up with new alternatives. Do we have a funding mechanism to help support this family-owned business to make it equitable? And you might have already covered. I'm sorry, I got here a little bit late. But I worry about the family owned business and how can one business take on this sizable -- I think incredibly sizable debt -- even though they want to do the right thing.
- Man: We're going to let Roy Brower, our Solid Waster Director, respond to that.
- 1:37:11 Roy Brower: It's a good question. It's a timely question. Metro's been thinking about this for a long time. In fact, we initiated a new program called the Innovation and Investment Program, which is a grant program to stimulate recycling and help fulfill -- helping some of these companies that need or have great ideas or need to just invest in existing infrastructure. Right now we have about \$3 million available per year. We're going through our very first cycle.
- 1:37:54 Last week, the first round of applications were due. We didn't know if we were going to get any applications. We ended up getting 67 applications, and over \$14 million in requests for funding. So we think there's a need and we're going to be looking at that as we go forward. But we are trying, we've recognized that as well and we hope to be able to satisfy at least some of that need. And I know DEQ also has grant programs. I don't know if you want to say anything.
- 1:38:36 Woman: DEQ has an annual grants program and it was just announced for this most recent -- or, our new cycle for this next year. And we have set aside \$500,000 and it's open to local governments, nonprofits and schools this year to apply. And those types of organizations can partner with for-profit organizations to apply for grants. And we have criteria and information on our website if anyone's interested in it.

- 1:39:09 We also -- DEQ is part of a regional solutions team that the governor has asked state agencies to create and the purpose of that regional solutions team is for state agencies to work with communities to promote economic development that is then able to meet all of the regulatory requirements of those state agencies, and that's certainly something that could be evaluated through our regional solutions team for this region, is Grimm's and the needs for Grimm's and compost facilities and how to make sure that they're economically viable.
- 1:39:51 Man: Thank you. I know I said that we'd go a hard stop. It's 7:45. I want to let y'all know I'm going to extend that a little bit, because we did go into next steps. But we do have some closing statements we want to have time for as well. So, Dwayne, do you have anyone in your section's got a question for us?
- 1:40:19 Susan: Hi. My name's Susan and I'm from Angel Haven [indistinct]. What I'm wondering is, with all those different approaches that they have for them to get rid of the smell for us -- with all of the increasing urban invasion out in this area, and if the compost increases also -- are we going to be fighting this again in three to five years or are we just going to continue to fight it forever? That's what it feels like for me -- because if that increases, their piles are going to go up. I mean, I don't see a solution as far as them leaving here, but --
- 1:41:01 Man: So I can speak for many facilities that I've number one built, managed and operated, with an aeration system. I've been doing this about 28 years now. We have facilities which have neighbors closer than yours, that are operating for the last 20 years and they have occasional odors -- but no like what you're experiencing. The quality of the odor you're experiencing is pretty severe. The characteristic is severed.
- 1:41:35 You have other odors in the area, which are considered pleasant to some -- like bark. We're heading the odors towards that direction. So, yes, it's going to be recognizable compost odor. It's not going to be anything like what you're experiencing now. We don't really consider what's going on right now as active aerobic composting. And I would encourage you to go to any of the sites that have aeration systems on them. There are some in the region.
- 1:42:06 And go visit. And go look for yourself so you understand what it is we're talking about. It is much improved. No matter what, the character will be improved. Number two with the abilities both bio-covers and bio-filters -- that has the ability to get at least 50%. Typically, bio-filters and bio-covers can go well over 80-90% odor emission reduction -- including that better quality odor, actually reducing that better quality odor, by again that much.
- 1:42:39 Woman: But if the composting increases --
- Man: Correct.
- Woman: -- then piles are going to be bigger again, so are they going to increase their size? Or is there something that they can do? Do you know what I'm saying?
- Woman: I think what John is trying to say is that yes, the volumes can increase in a completely aerated system with bio-covers and bio-filters, even though you do increase the

volume if you're increasing it within the design system it will still be dramatically improved. There will have to be a limit. I mean, no one facility --

1:43:33 Man: Can handle everything.

Woman: -- can handle everything. And so as whatever the designed system -- whatever the capacity of that system is, that will have to be the limit. And even if they reach that capacity they'll simply have to divert materials to another facility, or just say no and things will end up in a landfill. We'll hope that that doesn't happen. But there are limits to every facility and every design.

1:44:09 But an aerated system -- the key is really air. It's really the oxygen and the aerobic management of the system.

Man: So we're going to move to our last two questions. Stacey, do you have a question in your hand?

1:44:26 Man: Thank you. I think this is kind of important. But from the beginning this has kind of been a very tense debate for the past couple of years for the residents, for Grimm's, for John and his family, and employees and everybody. Is there anything -- this all comes down to business and money. Is there anything that DEQ or any of these agencies that have levied fines, or are planning on levying fines, can do to either mitigate those fines or have those fines go into a fund that will allow the community and all of us have a solution.

1:45:03 So the \$10,000 that was just recently levied against them -- can that \$10,000 go towards the new facility? Can these funds be put to good use, not just a financial burden on the Grimm's. He's going to have to be able to go to a bank and show that he has got the permits and he can get the money to do this. If he has debts because of what we're doing, because of this process, and he has to owe money because of this process -- that's going to make it harder for him to move forward with these solutions. Is there a way that we can mitigate those fines in the interim?

1:45:43 Woman: DEQ's penalties include an option for the receiver to identify supplemental environmental project that can be used to reduce up to 80% of the penalty cost. That project cannot benefit the penalty receiver. It can't be used to get back into the compliance for the violation that occurred. It can be generally used for something that benefits the community, so that's certainly an option.

1:46:24 Woman: And then I'll just reiterate what Warren spoke to earlier, which is that we have a progressive process. It doesn't start with a fine or a penalty of any kind. It starts with technical assistance and moves through the process, with penalties being sort of the final step in the process.

1:46:51 Woman: Can I also offer just a slight offset from that. And that is, there are a number of different ways to benefit a business, besides giving them money -- which is always good. But we do have a couple of sections that talk about other ways that this process can be more incentivized to Grimm's. The consistency of land use would make their land more valuable as

well as improving the ability of them to manage the compost in a more efficient and aerated way.

1:47:38 So that's a big one. If we could work with the city and figure out some way to get them approvals to use, to manage solid waste, on all five of their parcels -- that's a big incentive. And it also would look very good to banks that they're trying to get loans from to come up with all of this money to implement one of these systems.

Man: It becomes collateral.

1:48:09 Woman: To a certain extent, yeah. Exactly. So and then there are a couple of other suggestions and they have to do with long-term contracts and establishing long-term permits. In Washington State, a lot of our permits only last one year. That's very difficult for a bank to look at a facility and say "Well, in another year you might have your permit yanked."

1:48:37 If you can work with a facility and establish a manner of setting permits for 5 years, for instance, that makes financing easier and more vital. Long-term contracts -- I don't know exactly how they work in Oregon, but encouraging long term contracts for waste handling for municipalities is another way of incentivizing a company to make it worth investing the kind of money we're talking about.

1:49:21 Man: It also would help with the financing as well.

Woman: Correct.

Man: I'm going to move us on to [indistinct] one last question. Is there anyone in Will's section who wants to ask us a question? Do we have any other questions before we move to final statements? Or did you have a question to -- all right.

1:49:40 Man: Some of these alternatives -- say, for example, alternative one, insists that the design uses negative aeration during the first 20 days of composting and treats the collected air, [indistinct], bio-filter [indistinct]. The pile is then turned and re-watered. When you say "turn" is that the same as turning a pile?

1:50:20 Man: Yes.

Man: Which means that still we have the odor same thing.

Man: No. That's -- so the process is for the first 20 days not being disturbed. It dries out. Continuously. When you're providing air it pulls away moisture and the composting actually starts stopping and you can have real problems with the material just not turning into the finished product.

1:50:46 So you actually need to turn and re-water. And at that 20 days you're not going to have anything that smells much different than a nice, quality, finished product. So what we're saying is that first -- in theory, they said 7-10 days and that's what we've measured in the scientific journals as the highest odor production time when you have an aerobic managed system.

- 1:51:12 So we're getting well beyond that 7-10 days and going out to 20 days -- minimum of 14. So that when that pile is turning you will not have any impacts like what you have right now, at all -- and that I can guarantee and put my professional license on.
- Man: Thank you.
- Man: So, thank you all for your questions and answers. We're going to move on to some final statements. Hila?
- 1:51:39 Hila Ritter: So, I just want to call everyone's attention to this final bullet, that has the website there with the shortcut for facility complaints. So we have just launched this webform -- that's where this will take you, is to a webform for us to receive complaints. As we've all talked about already here that complaints are helpful to us especially when they're reported in a timely fashion.
- 1:52:03 We have open communication with the facility operators and are able to quickly identify what's going on and ask them questions, especially when things come in a timely way. So the flip side of that is that Metro has to be timely in our receipt of that information and what we are currently doing is the receipts are coming -- these reports are coming in directly to myself and to Dwayne, which has worked okay.
- 1:52:33 But there are times when Dwayne and I are both out of the office at the same time. And that means that the good and helpful information that you are trying to share with us isn't being received. And so we've created this webform. The information is going to go to an inbox that Dwayne and I still have access to and we're going to be carefully monitoring. And there's going to be additional eyes on it as well. So we're going to continue to respond in a similar way that we've done before, where we will email you a response.
- 1:53:05 But the benefit of this is going to be the timeliness that I just spoke of. But it's also going to improve things on the behind the scenes for us -- for our tracking and our streamline our processes a little bit more. And give us the up front, give us the kind of information that's most helpful to us and to the facility operators. So this is new. So as you start to use it, I welcome your feedback and appreciate that you already spent so much time, sharing your experiences with us, and thank you for continuing to do that going forward.
- 1:53:44 I hope this is a useful tool for all of us to be using together. You can continue to talk to Dwayne and myself directly -- we welcome that as well - but this is really the mechanism that's going to be hopefully most effective for responding to complaints going forward. And then let me just check my time. I'd like to invite Ted and Brett to come back up -- or maybe Dan -- to bid us farewell. So, thank you.
- 1:54:15 Man: So I'd like to thank Metro for hosting this process, and for having the courage to dig into this problem and find solutions. Thank you to Green Mountain Technologies for this report. I appreciate the way that you combine theory and practice together with science, the finance, and operations into a cohesive whole. Thank you to Grimm's for working with Green Mountain Technology to address the needs of our community. And thank you to DEQ and Tualatin Valley Fire and Rescue for taking a fresh look at your rules and regulations.

1:54:47 Enforcement plays a key part in this process by providing incentives and clarity regarding what is at stake. I want to thank all of my fellow citizens, neighbors, and CASE, and all of the people who have been working tirelessly to advocate for clean air and the [indistinct]. Thank you to everyone for coming tonight, to learn about composting and to look towards a future where composting and clean air co-exist side by side.

1:55:13 Dan Harvey: My name is Dan Harvey. I am a CIO board member for River Park Citizen Involvement Organization. And I am a board member of CASE. So it's been a privilege for me to see the activity of concerned citizens of Tualatin and beyond, the activity of our organizations to collaborate, to come to a solution to help a great family business in our community. So tonight I'm a glass half full kind of guy. I hope everyone is too.

1:55:58 Kind of makes me want to go back and get some education on science, take some biology classes and chemistry classes, business classes. But I think we're on the right track. I think that Grimm's is at an understanding point, that they are going to be a good neighbor and do composting right. Thank you everyone for coming out tonight. Thank you for commitment for a number of years to get where we are today. Thanks.

[applause]

1:56:32 Man: So, thanks everyone for your engagement today. I know we may not have gotten everyone's questions, or if you were intimidated to make a comment or a question we do still have comment cards. You can submit those on your way out. We appreciate you coming. And don't forget this website address that Hila shared with you. We want to continue to be responsive to your concerns. Thank you.

[applause]

[crosstalk]

[end of file]