

2784 1 STATE OF NEW MEXICO ENVIRONMENTAL IMPROVEMENT BOARD 2 3 No. EIB 21-27(R) 4 IN THE MATTER OF PROPOSED NEW REGULATION, 20.2.50 NMAC - Oil and Gas Sector - 5 Ozone Precursor Pollutants 6 7 8 9 10 TRANSCRIPT OF PROCEEDINGS 11 12 BE IT REMEMBERED that on the 30th day of 13 September, 2021, this matter came on for hearing before 14 FELICIA ORTH, Hearing Officer, virtually through Cisco 15 Webex Meetings video conferencing, at the hour of 8:30 16 a.m. 17 18 Volume 9 19 20 21 REPORTED BY: CHERYL ARREGUIN, RPR New Mexico CCR No. 21 22 Albuquerque Court Reporting Service, LLC 3150 Carlisle Boulevard, Northeast 23 Suite 104 Albuquerque, New Mexico 87110 24 (505) 806-1202 abqcrs@gmail.com 25	2786 1 A P P E A R A N C E S (Continued) 2 For the New Mexico Oil and Gas Association: 3 ERIC L. HISER BRANDON CURTIS 4 Jordan Hiser & Joy, PLC 5080 N. 40th Street 5 Suite 245 Phoenix, Arizona 85024 6 (480) 505-3900 ehiser@jhjlawyers.com 7 bcurtis@jhjlawyers.com 8 DALVA L. MOELLENBERG Gallagher & Kennedy, PA 9 1239 Paseo de Peralta Santa Fe, New Mexico 87501 10 (505) 982-9523 dlm@gknet.com 11 12 For Conservation Voters New Mexico, Dine C.A.R.E., Earthworks, Natural Resources Defense Council, San Juan 13 Citizens Alliance, Sierra Club, and 350 New Mexico ("Clean Air Advocates"): 14 15 TANNIS FOX Attorney at Law Western Environmental Law Center 16 409 East Palace Avenue #2 17 Santa Fe, New Mexico 87501 (505) 629-0732 fox@westernlaw.org 18 DAVID R. BAAKE Baake Law LLC 19 2131 North Main Street Las Cruces, New Mexico 88001 20 (575) 343-2782 david@baakelaw.com 21 22 23 24 25
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1 E X H I B I T S 2 ADMITTED 3 NOTE: No exhibits are attached physically to this 4 transcript. They can be found online at 5 www.env.nm.gov/opf/docketed-matters/ 6 "CLEAN AIR ADVOCATES": 7 CAA 27. Daniel Orozco PhD curriculum vitae 2972 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25	2797 2799 1 we're concerned about confusion, that's not the 2 objection. 3 The objection is that testimony related to 4 methane, methane emissions, methane emission reductions, 5 the health effects of methane emissions are not relevant 6 in this proceeding. 7 And, Madam Hearing Officer, I assume we don't 8 have to define relevance, but what we're dealing with 9 here is in this -- the provisions the Department -- or 10 the rules the Department has proposed, including the 11 plan the Department proposed, is -- is submitted 12 pursuant to what's now codified as Section 74-2-5.C of 13 the Air Quality Control Act, and what it says, at least 14 in part, is that if the Board determines that emissions 15 from sources within the Board's jurisdiction, and here's 16 the operable terms, cause or contribute to ozone 17 concentrations in excess of 95 percent of the primary 18 National Ambient Air Quality Standard for ozone, 19 promulgated pursuant to the federal Clean Air Act, the 20 Board, quote, shall adopt a plan, including rules, to 21 control emissions of oxides of nitrogen and volatile 22 organic compounds to provide for attainment and 23 maintenance of the standard. 24 That's -- that's what we're here to do, is 25 look at rules, and the Board's job is to adopt a plan,

2800 1 including rules, to provide for attainment and 2 maintenance of the ozone standard. 3 The same carries out in the -- in the Board's 4 notice. The Board's notice of this action talks 5 about -- talks about the section of the statute which in 6 the -- in the notice says requires the Board adopt a 7 plan, including regulations, to ensure the attainment 8 and maintenance of the National Ambient Air Quality 9 Standard for ozone within areas of the state that have 10 monitored ozone concentrations that exceed 95 percent of 11 the NAAQS. 12 So the hearing is limited to ozone, it's 13 limited to ozone precursors in this case, NOx and VOCs, 14 and it's limited to a plan to attain or maintain the 15 ozone NAAQS. It's not -- we're not here to consider the 16 propriety of emissions of methane, the impacts of 17 methane, control of methane. If the Board wishes to 18 consider those, there's a process by statute to do that. 19 Also, we're concerned that -- that without 20 notice as to the methane and methane emissions being 21 subject to this hearing entities or individuals that are 22 subject to the rule would not have had notice as to the 23 Board's consideration of those rules, and therefore 24 they're being deprived due process as provided by the 25 statute.	2802 1 are not related to attainment or maintenance of the 2 ozone standard. The ozone standard and the levels at 3 which it's set are not at issue in this proceeding. 4 It's only how you get there. That's the issue and only 5 in those counties that exceed 95 percent of the NAAQS. 6 So the harm is that it's evidence which is 7 outside the scope of the proceeding. Not suggesting the 8 evidence is wrong or there are ways in which to address 9 that, but I think the harm is that this hearing is -- 10 you're not just inviting the Board to look at issues, 11 but I fail to see how co-benefits relates to whether the 12 ozone standard is going to be attained or maintained. 13 HEARING OFFICER ORTH: All right. Thank you 14 for that. 15 Ms. Paranhos? 16 MS. PARANHOS: Thank you so much, Madam 17 Hearing Officer. 18 So I think in addition to what I said 19 yesterday, I'm happy to go over that again, just with 20 respect to the Board's authority to consider 21 co-benefits, I think it's quite clear that the Board 22 does have authority to consider co-benefits. 23 So if you look at New Mexico Statutes 24 74-1-9.B.(1), which is part of the Department's cited 25 statutory authority for this rulemaking, that particular
2801 1 But our objection as to admissibility goes to 2 how methane emissions and control of methane and the 3 impacts of methane are relevant to attainment and 4 maintenance of the National Ambient Air Quality Standard 5 for ozone. We believe they're not. They're outside -- 6 as I read the notice, they're outside the scope of the 7 notice, and therefore are irrelevant in this proceeding, 8 and therefore should not be admitted. 9 That's all, Madam Hearing Officer. 10 I think you're muted still. 11 And you're still muted. 12 HEARING OFFICER ORTH: Okay. Thank you. I 13 need to slam more coffee. 14 So I'll invite Ms. Paranhos to put her 15 argument on the record again. 16 And I'm sorry, Ms. Paranhos, to ask you to 17 repeat that, although the majority of the documents and 18 testimony objected to were EDF's, but -- 19 But let me ask, Mr. Rose, while I -- while I 20 have you. Ms. Paranhos yesterday mentioned briefly 21 co-benefits, and I guess I'm wondering if -- if, in 22 fact, EDF, for example, isn't trying to sneak a methane 23 limit into the final rule, what the harm is in 24 discussing co-benefits. 25 MR. ROSE: Madam Hearing Officer, co-benefits	2803 1 provision provides that the Board, quote, shall give the 2 weight it deems appropriate to all relevant facts and 3 circumstances presented at the public hearing, end 4 quote, including but not limited to, quote, the 5 character and degree of injury to or interference with 6 health, welfare, animal and plant life, property and the 7 environment, and, two, public interest, including the 8 social, economic and cultural effects of environmental 9 degradation. 10 So what I would argue is that I think we've 11 heard many members of the public, as well as expert 12 witnesses, testify that there are clearly impacts to 13 health, welfare, animal and plant life, property and the 14 environment due to the emissions of co-pollutants such 15 as methane and also hazardous air pollutants that are 16 co-emitted with volatile organic compounds. 17 If you have natural gas emissions, you have 18 methane, VOCs and those particular types of VOCs that 19 the EPA classifies as hazardous air pollutants which 20 includes benzene. 21 So it really does seem highly relevant and 22 entirely appropriate for this Board to consider the 23 co-benefits that will accrue to the climate and 24 environment and the health of New Mexicans by reducing 25 ozone precursor emissions.

2804 1 And as I said yesterday, I feel like we have 2 been very clear that we are only asking the Board to 3 adopt requirements that directly control VOCs. The 4 basis for the requirements that either we are proposing 5 or that we are supporting that the Department has 6 proposed are primarily intended to reduce volatile 7 organic compounds, and the basis for those requirements 8 are the reductions of VOCs in terms of the relationship 9 between the compliance cost to implement the control 10 technologies and the reductions of VOCs. 11 The additional information we have provided on 12 methane and on hazardous air pollutants is with respect 13 to the co-benefits that would accrue by promulgation of 14 VOC control requirements in order to help attain the 15 ozone National Ambient Air Quality Standards. 16 HEARING OFFICER ORTH: All right. Thank you 17 very much, Ms. Paranhos. 18 Let me go back to Clean Air Advocates. 19 Ms. Fox? 20 MS. FOX: Mr. Baake is doing this argument. 21 HEARING OFFICER ORTH: Thank you. 22 Mr. Baake. 23 MR. BAAKE: Good morning, Madam Hearing 24 Officer. 25 I'm having trouble with my camera again. So	2806 1 today is that it's really standard practice for 2 environmental agencies to consider harm caused by 3 methane when regulating VOCs and vice versa. And the 4 reason is -- is the simple technical fact that in 5 this -- in this industry methane and VOCs are just two 6 different constituents of natural gas. So the emissions 7 are inextricably connected, and it's sort of impossible 8 to have one without the other. 9 But for example, when EPA adopted VOC 10 regulations in the oil and gas industry in 2012, it 11 included extensive discussion of the methane co-benefit 12 in all of the regulatory documents there, and so it 13 would be -- it would actually be a break from standard 14 environmental practice to just sort of turn a blind eye 15 to those co-benefits, whether those co-benefits are from 16 methane or from hazardous air pollutants like benzene. 17 Let's see. 18 One final point that I would make is that we 19 heard Dr. Thompson testify that methane does contribute 20 to background levels of ozone over a slightly longer 21 period of time than -- than VOCs react, and by 22 contributing to -- to increased temperature and climate 23 change, increased temperatures also increase the rate at 24 which ozone forms. So methane contributes indirectly in 25 that way.
2805 1 I'll just do it -- I'll just speak, if that's all right, 2 and I'll try and figure that out -- 3 HEARING OFFICER ORTH: That's fine. 4 MR. BAAKE: -- later. 5 So I -- you know, we certainly agree with 6 Ms. Paranhos. I think the main point is that the 7 statutory language here clearly authorizes the Board, as 8 she noted, to give such weight as deemed appropriate to 9 all the facts and circumstances, which include the 10 character and degree of injury to health, welfare, 11 et cetera. 12 I wanted to make a few additional points. 13 One is that regarding this notice issue, in 14 the statement of reasons that the Department submitted 15 to the Board in May, the third sentence says as a 16 co-benefit of reducing emissions of volatile organic 17 compounds, Part 50 would also reduce emissions of the 18 potent greenhouse gas methane. 19 So I do think that parties have been aware 20 since the petition was filed that that co-benefit was of 21 interest to the Department, and -- and it certainly has 22 been something that has been -- and is relevant to this 23 proceeding. 24 Another point that I think Ms. Paranhos made 25 yesterday that I'd like to -- I didn't hear her make	2807 1 So I think the science is also just a little 2 bit -- to suggest that methane is completely irrelevant 3 to the ozone problem, I think, is not scientifically 4 correct either. I think the main point is -- again to 5 go back to the language, under the Air Quality Control 6 Act the Board certainly is entitled to consider all the 7 facts and circumstances which would include co-benefits, 8 and this is certainly an important co-benefit. 9 And that's all I have. Thank you. 10 HEARING OFFICER ORTH: Thank you, Mr. Baake. 11 Let's see. Maybe we could go to Professor 12 Pacyniak before we go to Ms. Katz. 13 Professor? 14 MR. PACYNIK: Thank you. 15 Can you hear me okay? 16 HEARING OFFICER ORTH: Yes. 17 MR. PACYNIK: Great. 18 And I just wanted to add on to what 19 Ms. Paranhos and Mr. Baake have said. 20 And I'll just point out that Mr. Rose has said 21 that the issue in this before the Board is how to get to 22 control -- control of ozone precursors to prevent 23 exceedance of the NAAQS. And we totally agree. 24 However, as Ms. Paranhos pointed out, that question is 25 one where there are a number of different factors that

2808 1 the Board has a statutory duty to consider. 2 And I'll add it's not just in 74-1, but those 3 same factors are noted in 74-2-5.F, which is also 4 included in the statement of reasons and in the proposed 5 regulations that were included in the notice and 6 petitions -- and petition. And those factors that the 7 Board is required to consider include, as Ms. Paranhos 8 has said, character and degree of injury to public 9 health, welfare, also the public interest. 10 And so in considering all of these different 11 factors, the Board is looking at those factors to 12 determine how to get to that control of ozone and what 13 type of regulation to -- to use to prevent ozone 14 precursors. 15 And so in doing that we would argue that the 16 Board has a duty to consider co-benefits along with all 17 of the various costs that they are also required to 18 consider and that no one has objected to, a very broad 19 and large -- many different types of costs that have 20 been discussed, and so the Board has a duty to consider 21 in addition to those costs co-benefits, and I would add 22 to also consider whether the Board -- whether the 23 proposed controls will protect all people equally, 24 especially from ozone, but also if there are other 25 co-benefits that those controls provide to see whether	2810 1 MR. DE SAILLAN: All right. I will turn off 2 my video. 3 Is that working any better? 4 HEARING OFFICER ORTH: Yes, it is. 5 MR. DE SAILLAN: Okay. Thank you, Madam 6 Hearing Officer. 7 I agree with everybody -- everything that's 8 been said so far by Ms. Paranhos and Mr. Baake and 9 Professor Pacyniak. 10 I just want to make one point that I made the 11 other day, and Professor Pacyniak hit on it a little 12 bit, and that is in particular the testimony of 13 Mr. Dunham, who testified on behalf of NMOGA, 14 testified -- he testified about the negative 15 consequences in his view of this rule, and he talked 16 about things like lost jobs and lost revenue for the 17 state, which are equally if not more tangential to the 18 issue of reducing ozone in certain counties in the 19 state. 20 And nobody objected to that testimony or to 21 his report, and again without commenting on the quality 22 of the evidence, I think it's generally the sort of 23 thing that the Commission -- or this Board is entitled 24 to hear and should consider. 25 But the flip side of that is that the Board
2809 1 those co-benefits are equally distributed. 2 Finally, I'll just add that I do believe Rhino 3 Environmental Services is applicable here, the New 4 Mexico Supreme Court case that was discussed. The court 5 there said that the Secretary of the Department erred 6 for having too narrow of a focus on technical issues in 7 that Solid Waste Act permitting case and pointed to two 8 factors in the statute that led to that conclusion. 9 The first factor was the statutory purpose to 10 protect public health and welfare. That same statutory 11 purpose is here. 12 And the second factor was that the statute 13 called for robust public engagement procedures and that 14 the public was raising these concerns. That factor is 15 here, as well, and as Ms. Paranhos pointed out, the 16 public has raised many of these concerns, as well. 17 Thank you. 18 HEARING OFFICER ORTH: Thank you very much, 19 Professor. 20 Mr. de Saillan? 21 MR. DE SAILLAN: Thank you, Madam Hearing 22 Officer. 23 Can you hear me okay? 24 HEARING OFFICER ORTH: I'm sorry. It sounds 25 like you're coming through water.	2811 1 should also have the opportunity to hear and to consider 2 the co-benefits of this rule, such as reduction in 3 emissions of methane, which is a potent greenhouse gas 4 and something that we very much need to be dealing with. 5 So that's -- that's all I have to say. 6 Thank you very much, Madam Hearing Officer. 7 HEARING OFFICER ORTH: Thank you. 8 Ms. Katz, anything to add? 9 MS. KATZ: Thank you, Madam Hearing Officer. 10 Just briefly. 11 The Department agrees with many of the 12 arguments that have been made by the counsel for the 13 environmental NGOs. I think it's -- the co-benefits are 14 clearly important and worthy of considering by the Board 15 and -- and that these -- it's very clear that these 16 exhibits are not irrelevant and shouldn't be entirely 17 excluded. And Mr. Rose's reading of this -- the notice 18 and just focusing on that is far too restrictive. 19 So we think that the Board absolutely can 20 consider all of that information. 21 HEARING OFFICER ORTH: All right. Thank you, 22 Ms. Katz. 23 Mr. Hiser. 24 MR. HISER: Madam Hearing Officer, I think one 25 thing which we do need to be careful of is that the

2812 1 current New Mexico law and the regulations of the 2 Department do not classify methane as precursor for 3 ozone, and that until such time as there is a change in 4 that law, representations to the Board that it is are 5 probably not appropriate, given that there's been no 6 proposal to change that aspect of the regulation. 7 So that would need to be included only in the 8 area of co-benefit and not, I think, put under the side 9 of a direct benefit because it's not consistent with 10 current New Mexico law. 11 HEARING OFFICER ORTH: Thank you, Mr. Hiser. 12 Mr. Rose, I'll give you the last word. 13 MR. ROSE: Thank you, Madam Hearing Officer. 14 Again reminding the Hearing Officer that 15 we're -- we're operating under a provision of the 16 statute which obligates the Board to adopt rules to 17 attain and maintain the ozone primary ambient air 18 quality standard. 19 To the extent to which the parties think that 20 the Board should consider methane emissions, limit 21 methane emissions, be concerned about the impacts from 22 methane, we read the statute is that the Board has 23 authority to consider those, but only if a rule is 24 proposed under 74-2-5.D, which authorizes the Board to 25 adopt standards of performance for sources and emissions	2814 1 occurred and that the Board's job was to adopt rules to 2 assure that the standard was met, but no more stringent 3 than what the standards are met. 4 And it seems to me that what the parties are 5 asking this Board to do, in essence, would be to ignore 6 the PNM case and adopt rules that are more stringent 7 than necessary or relate to impacts that are not 8 addressed by or covered by the standard. 9 The remedy the court said is either the 10 standard should be amended or another standard adopted, 11 but that the Board doesn't have the authority without 12 going through those processes to adopt rules more 13 stringent than necessary to attain the standard. 14 I believe that's what the parties are asking 15 this Board to do, and that to the extent to which those 16 parties think it's appropriate for the Board to 17 consider, the proper way to go about it is to propose a 18 rule under 74-2-5.D, let the Board decide whether it's 19 appropriate to go to hearing, and then give proper 20 notice so that all of those persons who might be 21 impacted by the rule can participate. 22 Thank you, Madam Hearing Officer. 23 That concludes my presentation. 24 HEARING OFFICER ORTH: All right. Thank you. 25 I see Ms. Paranhos on the screen and Ms. Katz.
2813 1 standards for hazardous air pollutants. 2 And so if that's what the parties wish to do, 3 there's a process to do it. They should go to the 4 Board, ask for a rulemaking and ask for the Board to 5 schedule a rulemaking to consider that. 6 As to the notice provisions, the concern isn't 7 whether my client had notice, but whether there are 8 parties that would be subject to these provisions that 9 would not by the Board's notice know that they are the 10 subject of this hearing, and therefore had no 11 opportunity to decide whether to be included or excluded 12 from the hearing. So I think you're disenfranchising a 13 number of potential entities, people who would be 14 subject to these rules without necessarily knowing that 15 methane would be considered. 16 I'd also point out, and I alluded to this in 17 my opening statement, that early on in clean air -- in 18 administering the Air Quality Control Act, the Court of 19 Appeals had the -- looked at the question of whether 20 this Board had the authority to adopt rules more 21 stringent than necessary to attain ambient air quality 22 standards. 23 And in 1976 in the PNM case, that's at 89 New 24 Mexico 223, the court said no, that the standard defined 25 the levels at which injury to health and the environment	2815 1 We do need to wrap this up, unless you have something 2 you just must say here. 3 No. Okay. 4 So thank you. 5 I think, Mr. Rose -- I believe this evidence 6 and testimony is admissible for all of the reasons that 7 have been given by the Department and the environmental 8 advocates. I think -- I guess my -- my immediate 9 reaction to your statement that this -- what may go 10 beyond the exact rule crafted is that a lot of what's 11 being discussed as a co-benefit is inextricable. I'm 12 not sure how you extricate some of what we've been 13 talking about from the rule that's been crafted. 14 So I'm going to say that they are admissible 15 and admitted. And I understand you're going to be 16 making your arguments to the Board otherwise in your 17 posthearing submittal, and we'll let the Board and 18 Ms. Soloria make their considerations at the beginning 19 of deliberations, as I understand it. 20 So thank you very much for being on early this 21 morning. I did want to have this discussion because I 22 didn't want to underestimate the entirety of your -- of 23 your objections. 24 MR. ROSE: Madam Hearing Officer, if you 25 would, just to make sure that the record is complete,

2816 1 we -- if you would make these objections as continuing 2 objections to that evidence so I don't have to object on 3 each introduction, I would appreciate it. 4 HEARING OFFICER ORTH: Thank you for asking, 5 and absolutely. I think that's a good way not to 6 clutter the record. So you definitely have a continuing 7 objection. Thank you very much. 8 All right. We have three minutes before we 9 ask for public comment. I'll just go off the record 10 briefly here. 11 (Proceedings in recess from 8:57 a.m. to 12 9:01 a.m.) 13 HEARING OFFICER ORTH: Let's prepare to begin, 14 please. 15 We have reached day nine of the hearing in -- 16 MR. HISER: You're muted, Madam Hearing 17 Officer. 18 HEARING OFFICER ORTH: It doesn't say that I'm 19 muted. 20 (Simultaneous discussion.) 21 MS. KATZ: I hear you, Madam Hearing Officer. 22 HEARING OFFICER ORTH: All righty. 23 We have reached day nine of the Environmental 24 Improvement Board hearing in EIB 21-27. It's a 25 rulemaking relating to ozone precursors.	2818 1 DONNA CRAWFORD 2 having been first duly sworn or affirmed, gave 3 public comment as follows: 4 PUBLIC COMMENT 5 HEARING OFFICER ORTH: I'm going to start your 6 five minutes now. 7 MS. CRAWFORD: Okay. Thank you. 8 I'm from Los Lunas, and I would like to make 9 public comments. 10 I was just wondering when anybody is going to 11 say thank you to the oil and gas industry that has 12 provided us all with our flourishing lifestyles. If it 13 wasn't for the oil and gas industry, it would be like 14 living in a third world country. 15 Nobody wants the oil and gas industry to spew 16 venting and flaring into the air, including -- including 17 the oil and gas industry. But using top-down costly 18 regulations will result in many operators being put out 19 of business and hurt our state's economy. 20 The industry itself is sharing best practices 21 to reduce leakage and waste and has been successful in 22 recapturing methane. Between 1990 and 2017, methane 23 emissions from natural gas dropped 14 percent thanks to 24 the industry-led efforts even with production increasing 25 by 50 percent.
2817 1 We take public comment every day at 9:00, 1:00 2 and 5:00. This morning the speakers I have who reached 3 out to the Board administrator are Donna Crawford, Karen 4 Smith, Vicki Gottlieb, Duane Chili Yazzie, Celerah 5 Hewes, Andrea Romero and John Gorman. 6 If you are on the platform and did not have an 7 e-mail exchange with Pam, please reach out through chat, 8 and I will call on you after I've called on these other 9 folks. 10 Public comment is taken under oath, is taken 11 by audio, not video, and is limited to five minutes. 12 Let me start with Ms. Crawford. 13 Ms. Crawford, I've unmuted you. 14 Can you hear me? 15 MS. CRAWFORD: Yes. 16 Can you hear me? 17 HEARING OFFICER ORTH: Yes. Thank you. 18 If you would please spell your name. 19 MS. CRAWFORD: Donna, D-O-N-N-A, Crawford, 20 C-R-A-W-F-O-R-D. 21 HEARING OFFICER ORTH: Thank you. 22 And raise your right hand. 23 Do you swear or affirm to tell the truth? 24 MS. CRAWFORD: Yes. 25	2819 1 A big part of the problem for the industry is 2 limited pipeline access and infrastructure. The federal 3 policy of shuttering existing pipelines and banning new 4 ones is not helping. Instead of punishing the oil and 5 gas industry, the state and federal government should be 6 helping the industry that keeps our power and lights on 7 and everything else in our lives. 8 California has discovered that they cannot 9 keep the lights on without natural gas and are in the 10 process of building five new gas plants. But here we 11 have New Mexico Environmental Department under the 12 direction of Lujan Grisham trying their best to shut 13 down our natural gas plants. It makes no sense 14 whatsoever. 15 The underlying theme of the crackdown on 16 flaring and venting is just another nudge to kill the 17 oil and gas industry as per Lujan Grisham's Energy 18 Transition Act and the Green New Deal. 19 I guess that's about all I have to say. 20 And thank you very much for allowing public 21 comment. 22 HEARING OFFICER ORTH: Thank you, 23 Ms. Crawford. 24 Go now to Karen Smith. Let's see here. 25 Ms. Smith, I've unmuted you.

2820 1 Can you hear me? 2 MS. SMITH: I can. 3 Can you hear me? 4 HEARING OFFICER ORTH: Yes. 5 If you would spell your name for the record, 6 please. 7 MS. SMITH: K-A-R-E-N, last name Smith, 8 S-M-I-T-H. 9 HEARING OFFICER ORTH: Thank you. 10 And raise your right hand. 11 Do you swear or affirm to tell the truth? 12 MS. SMITH: I do. 13 HEARING OFFICER ORTH: Thank you. 14 KAREN SMITH 15 having been first duly sworn or affirmed, gave 16 public comment as follows: 17 PUBLIC COMMENT 18 HEARING OFFICER ORTH: I'm going to start your 19 five minutes now. 20 MS. SMITH: First I'd like to thank the 21 Members of the Environmental Improvement Board for 22 holding this hearing and allowing public comment. 23 I'm Karen Smith, and I'm a member of First 24 Congregational Church in Albuquerque, which is a Green 25 Justice church that believes we have a moral	2822 1 One, require more frequent inspections to find 2 and fix leaks. 3 Two, require that operators control pollution 4 during the completion or redevelopment of an oil well or 5 gas well. 6 Three, require inspection and retrofitting of 7 pneumatic controllers, the second largest source of oil 8 and gas methane emissions in New Mexico. 9 I recognize that some oil and gas companies 10 have made commitments to reduce methane emissions, but 11 they represent only a fraction of the industry. We need 12 uniform standards and technologies. We should be 13 leaders in taking strong action to protect our citizens 14 and to meet our climate goals. 15 Thank you. 16 HEARING OFFICER ORTH: Thank you, Ms. Smith. 17 Move to Vicki Gottlieb. 18 Ms. Gottlieb, I've unmuted you. 19 Can you hear me? 20 MS. GOTTLIEB: I can hear you. 21 Can you hear me? 22 HEARING OFFICER ORTH: Yes, very clearly. 23 Thank you. 24 If you would spell your name, please, for the 25 transcript.
2821 1 responsibility to care for sacred creation. I live in 2 Rio Rancho. 3 Since moving to New Mexico in 2019, I have 4 been dismayed to learn that our state has some of the 5 worst methane pollution in the country, released through 6 venting, flaring and leaks. Methane is a powerful 7 greenhouse gas that is 84 times more potent than carbon 8 dioxide in the short-term, and this leads to both air 9 pollution and climate change. 10 As a person of faith, I believe we have a 11 responsibility to care for our neighbors, especially the 12 most vulnerable, like children and those in rural and 13 tribal communities. A disproportionate member of our 14 energy-producing regions are in regions that are 15 populated by these vulnerable communities. This leads 16 to many health problems, such as asthma, emphysema and 17 heart disease. 18 I support the proposal put forward by the 19 Environmental Department to cut VOCs and methane 20 released by the oil and gas industry, and this seems 21 like a strong and common sense proposal to protect our 22 air and climate, and I believe most New Mexicans support 23 it, as well. 24 I would also suggest these improvements to 25 strengthen the proposal.	2823 1 MS. GOTTLIEB: Vicki, V-I-C-K-I, Gottlieb, 2 G-O-T-T-L-I-E-as-in-every-B-as-in-boy. 3 HEARING OFFICER ORTH: Thank you. 4 And raise your right hand. 5 Do you swear or affirm to tell the truth? 6 MS. GOTTLIEB: I do. 7 HEARING OFFICER ORTH: Thank you. 8 VICKI GOTTLIEB 9 having been first duly sworn or affirmed, gave 10 public comment as follows: 11 PUBLIC COMMENT 12 HEARING OFFICER ORTH: I'll start your five 13 minutes now. 14 MS. GOTTLIEB: My name is Vicki Gottlieb. I'm 15 72 and have lived in Placitas since 2007 and New Mexico 16 since 1970, including Rio Arriba, Santa Fe, Chaves and 17 Bernalillo Counties. Over that time I've witnessed the 18 lamentable and more often preventible degradation of our 19 air quality. 20 Thank you for accepting my testimony on the 21 ozone precursor rule. 22 I support Governor Michelle Lujan Grisham's 23 call to lead the nation with more stringent oil and gas 24 pollution rules. To achieve that goal, the 25 Environmental Improvement Board must strengthen the New

2824 1 Mexico Environmental Department's proposed ozone 2 precursor rule to protect those living closest to 3 development. 4 I've lived in two of the five counties where 5 our two energy-producing regions are among the nation's 6 most polluted, Eddy, Lea, San Juan, Rio Arriba and 7 Chaves Counties are home to 97 percent of the state's 8 oil and gas wells, which are all at risk of violating 9 federal ozone standards of 70 parts per billion. 10 Oil and gas pollution impacts all New Mexicans 11 and possibly beyond, as we now know that smoke from 12 California fires has negatively affected air quality 13 here and even reached the East Coast. The jet stream 14 and local winds know no mercy. 15 As we all become increasingly vulnerable, the 16 air, water and health of rural communities, tribal 17 communities, children, the elderly and those with severe 18 allergies, like me, are especially at risk. More than 19 130,000 New Mexicans live within a half mile of oil and 20 gas development, the majority of whom are Native 21 Americans who face disproportionate impacts from climate 22 change and air pollution. 23 Leaks due to equipment malfunctions and lack 24 of maintenance account for 70 percent of the oil and gas 25 industry's emissions statewide. Placitas has two	2826 1 Go, then, to Duane Chili Yazzie. 2 Hello, this is Felicia. 3 Can you hear me? 4 Mr. Yazzie? 5 MR. YAZZIE: Good morning. 6 HEARING OFFICER ORTH: Good morning. 7 If you would please spell your name for the 8 record. 9 MR. YAZZIE: C-H-I-L-I Y-A-Z-Z-I-E. 10 HEARING OFFICER ORTH: Thank you very much. 11 If you -- hold on one second. If you would 12 raise your right hand. 13 Do you swear or affirm to tell the truth? 14 MR. YAZZIE: Of course. 15 HEARING OFFICER ORTH: Thank you. 16 DUANE CHILE YAZZIE 17 having been first duly sworn or affirmed, gave 18 public comment as follows: 19 PUBLIC COMMENT 20 HEARING OFFICER ORTH: And just keep your 21 voice up for the transcript. 22 I'll start your five minutes. 23 MR. YAZZIE: Thank you. 24 I am here in Shiprock, in the northwest corner 25 of the state. And I have lived here all of my life.
2825 1 significant older vulnerable pipelines which may put us 2 at risk for other methane and VOC incidents. 3 I have three requests today. 4 One, it is critically important that the leak 5 inspection program proposed by NMED in July be adopted 6 and that the final rule is strengthened to protect 7 frontline communities by requiring more frequent 8 inspections to find and fix leaks. 9 Two, the final rule must be strengthened to 10 ensure New Mexico incorporates leading approaches to 11 address pollution during well completions. It should 12 require operators to capture or combust emissions during 13 completions, including the initial flowback stage, as 14 the State of Colorado now requires. 15 Three, the final rules should strengthen 16 pollution-cutting measures on pneumatic controllers, the 17 second largest source of oil and gas methane pollution 18 in New Mexico. NMED should require companies to inspect 19 gas-powered pneumatics for malfunctions and leaks, as 20 Colorado has done, as well as accelerate the timeline 21 for operators to retrofit equipment with zero bleed or 22 zero emission pneumatic controllers. 23 Thank you for your time. 24 HEARING OFFICER ORTH: Thank you very much, 25 Ms. Gottlieb.	2827 1 I, first of all, appreciate the opportunity to 2 give my comment here this morning. 3 I want to make a -- a brief personal 4 reflection in that I am a grandpa 10 times over and a 5 great grandpa two times. I remember in my childhood 6 here in Shiprock the vast open areas out to our famous 7 Shiprock rock was covered with flowers, all manner of 8 flowers, all colors, purple, green, orange. And today 9 it's just brown. It's just brown with -- with no -- no 10 flower, flowery vegetation. It's only tumbleweeds. 11 And the -- the prolonged drought that we are 12 in began perhaps 20 years ago. So in my lifetime in the 13 space of 30 years, we have come from a time when we 14 could see flowers across our open areas, when we had 15 times of dependable and -- and plentiful moisture, rains 16 and snows. We don't have that today. And it's -- it's 17 a very simple conclusion, that the extractive industry 18 is the culprit in making this drastic change in our 19 environment. 20 As a grandpa, as a grandfather, I am so 21 desperately concerned for the future of my grandchildren 22 into the future. What kind of world, what kind of 23 environment do we leave them? 24 I appreciate Governor Lujan Grisham and her 25 administration to take these initiatives to change the

2828 1 rules with the ozone, the ozone rules, the methane 2 rules. Yes, it is clear that -- that the -- that this 3 industry provides a great measure of revenue, and -- and 4 we see that the gas -- oil and gas industry, the 5 politicians, the bureaucrats who support this type of 6 development have their eye only on the bottom line at 7 the bank. But is that worth jeopardizing the future of 8 our grandchildren? 9 The only thing that I can say to you, all 10 those within hearing distance, is what will your 11 grandchildren say about you and their future, 50 years 12 from now, hundred years from now, as they reflect back 13 on you as their great grandparents, what did you do to 14 preserve or either destroy their environment. 15 I leave that with you, and I appreciate this 16 opportunity. Thank you. 17 HEARING OFFICER ORTH: Thank you, Mr. Chili 18 Yazzie. 19 I go now to Ms. Celerah Hewes. 20 Ms. Hewes, can you hear me? 21 MS. HEWES: Yes, I can. 22 Can you hear me? 23 HEARING OFFICER ORTH: Yes, I can, very 24 clearly. 25 Would you spell your name, please.	2830 1 support firm regulations that cut pollution and methane 2 to protect our communities. 3 I was born and raised in New Mexico, and I've 4 lived around the state from Corrales to Roswell, and 5 when I decided to have a family, New Mexico was where I 6 wanted to raise a child. But today I'm deeply concerned 7 that the home that my daughter grew up in will be very 8 different than the one I did due to the public health 9 and climate impacts we are experiencing. 10 These climate impacts are made worse by 11 methane, a powerful greenhouse gas pollutant responsible 12 for a quarter of man-made global warming pollution that 13 we are experiencing. We all know that climate change is 14 greatly impacting New Mexico and the Southwest with 15 drought and longer, more intense wildfire seasons, and 16 increased heat waves that threaten health of New Mexico 17 families. 18 Rising heat and climate impacts are now a way 19 of life for our children. Just this past summer there 20 were days my daughter's summer camp could not go outside 21 because the air was dirty from smoke and particulate 22 matter caused by wildfires. On other days just playing 23 outside would result in heat stroke. 24 Seeing my healthy eight-year-old in pain from 25 playing outdoors breaks my heart. While summer used to
2829 1 MS. HEWES: First name Celerah, C-E-L-E-R-A-H, 2 last name H-E-W-E-S. 3 HEARING OFFICER ORTH: Thank you very much. 4 If you would raise your right hand. 5 Do you swear or affirm to tell the truth? 6 MS. HEWES: Yes, I do. 7 HEARING OFFICER ORTH: Thank you. 8 CELERAH HEWES 9 having been first duly sworn or affirmed, gave 10 public comment as follows: 11 PUBLIC COMMENT 12 HEARING OFFICER ORTH: I'll start your five 13 minutes now. 14 MS. HEWES: Thank you so much. And thank you 15 for the opportunity to speak today and to listen to so 16 many people from around the community. 17 My name is Celerah Hewes, and I live in 18 Albuquerque, New Mexico. 19 I am one of the over 17,000 Moms Clean Air 20 Force members in the state who are concerned about the 21 health impacts of climate change on our children and who 22 support Governor Michelle Lujan Grisham's call for 23 nation-leading oil and gas pollution rules. To achieve 24 that goal, the environment improvement Board must 25 strengthen the NMED proposed ozone precursor rules and	2831 1 be a time to be active and be outside, our children now 2 have to spend large portions of the time inside because 3 the air outside is just too dangerous to breathe. We 4 have to make a change now before this becomes a new 5 normal. 6 When climate impacts like heat and drought are 7 of concern to residents in our most populated areas like 8 Albuquerque, they're also greatly affecting communities 9 in oil and gas regions. San Juan County, home to our 10 infamous methane hot spot, is a perfect example. 11 According to analysis by the Environmental Defense Fund, 12 nearly 9,000 children under the age of five and over 13 78 percent of young kids in San Juan County live within 14 a mile of an active oil or gas well. 15 Leaks due to equipment malfunction and lack of 16 maintenance account for 70 percent of the oil and gas 17 industry's methane emissions statewide. Without strong 18 action, the state could see twice as many dangerous heat 19 days and a 70 percent increase in drought severity. 20 That will take an increasing toll on the health of our 21 communities around the state. 22 I would like to thank NMED for putting forward 23 a strong proposal, including the recent support of the 24 proximity proposal. But we ask EIB to adopt the 25 following changes to protect our communities and address

2832 1 major sources of pollution. 2 Prioritizing environmental justice and 3 frontline communities is imperative as they have 4 historically shouldered an outside burden from impacts 5 of air pollution and the climate crisis. So we should 6 first protect those living closest to development by 7 requiring more frequent inspections to find and fix 8 leaks. 9 Second, we can ensure strong requirements for 10 operators to control pollution during the completion of 11 an oil and gas well, as well as when they redevelop 12 existing wells. This is a common sense requirement we 13 have seen our neighbors in Colorado require. 14 Finally, we should strengthen requirements to 15 cut pollution from pneumatic controllers that are used 16 in oil and gas production. These devices are the second 17 largest source of oil and gas methane emissions in New 18 Mexico. 19 Right now New Mexico, my home, has an 20 opportunity to lead on ozone rules that protect our 21 children, our communities and help combat climate 22 change. We owe it to our children to take that 23 opportunity. 24 Thank you so much for your time today. 25 HEARING OFFICER ORTH: Thank you very much,	2834 1 to Pam Jones, the Board administrator. We will accept 2 written public comment through tomorrow. So thank you, 3 all, for that. 4 It's 9:24. We will return to the technical 5 case. 6 Board Members, this morning we did have a 7 discussion about the admissibility of the 8 Department's -- some of the Department's exhibits and 9 exhibits offered by a number of the environmental 10 groups. I believed they were admissible. As I 11 understand it, IPANM and perhaps NMOGA will take this up 12 with you in their posthearing submittals. But I 13 believed they were admissible and have either admitted 14 them or will admit them on proffer. 15 So I believe this morning we were going to 16 start with one of the witnesses, actually, whose 17 testimony was subject to that objection, Ms. Hill. 18 Ms. Fox and Ms. Hill? Is this where we're 19 starting? 20 MS. FOX: Yes, Madam Hearing Officer. Thank 21 you. 22 And just preliminary to that, I had just sent 23 an e-mail around to counsel about the availability of 24 one of our surrebuttal witnesses, Daniel Orozco, and I 25 wanted to alert you to that, that he is available -- his
2833 1 Ms. Hewes. 2 We'll go now to Andrea Romero. 3 Adam, Angela, Anthony, Antoinette, Armando. 4 Let me see. Caller Number 4, I'm unmuting 5 you. 6 Who is this, please? 7 Caller 4? 8 No. 9 All right. Let me go to John Gorman. 10 Let's see. John -- I don't see John Gorman. 11 And let me go to April Perkins. 12 I don't see April Perkins. 13 I'll try Caller Number 4 one more time. 14 Caller 4, can you hear me? 15 CALL-IN USER 4: (Unintelligible and/or 16 inaudible). 17 HEARING OFFICER ORTH: Hello? 18 Hello, is this Ms. Perkins? 19 Or Ms. Romero? 20 Oh, gosh. All right. 21 If anyone who signed up wasn't able to 22 communicate this morning, I'm happy to accept their 23 public comment at any other public comment session today 24 at 1:00 and 5:00, tomorrow at 9:00, 1:00 and 5:00. You 25 can also put any comment you have in writing and send it	2835 1 testimony is surrebuttal on engines. It will be very 2 short. And he is available after the lunch hour if he 3 can be squeezed in. 4 HEARING OFFICER ORTH: All righty. Thank you. 5 We can plan that. 6 MS. FOX: Okay. 7 And then one -- 8 HEARING OFFICER ORTH: I'm sorry? 9 MS. FOX: I'm sorry. 10 Then one other point, and that is that Mr. -- 11 Dr. McCabe is coming back to testify on storage vessels, 12 and he's available today and tomorrow before 2:15. 13 HEARING OFFICER ORTH: All right. Thank you. 14 MS. FOX: So I only mention this because the 15 time is getting short and I just want to make sure we 16 can get our witnesses in. 17 HEARING OFFICER ORTH: And you may have to 18 remind us of that, and I saw some other e-mails about 19 witness availability. Please -- please keep reminding 20 us. 21 Thank you. 22 MS. FOX: Good morning -- oh, Members of the 23 Board, Ms. -- what we're going to be talking about today 24 with Ms. Lee Ann Hill is public health impacts, and her 25 resume -- of VOCs primarily, and her resume is

2836 1 Exhibit -- Clean Air Advocates Exhibit 24, and her full 2 direct testimony is Clean Air Advocates Exhibit 25. 3 Please state your name. 4 MS. HILL: Lee Ann Hill. 5 MS. FOX: And where are you employed? 6 HEARING OFFICER ORTH: Hold on. 7 Ms. Hill, if you would please raise your right 8 hand. 9 MS. FOX: Sorry. 10 HEARING OFFICER ORTH: Do you swear or affirm 11 to tell the truth? 12 MS. HILL: I do. 13 HEARING OFFICER ORTH: Thank you. 14 Go ahead, Ms. Fox. 15 MS. FOX: Thank you. 16 LEE ANN HILL 17 (Relating to Topic Order 27) 18 having been first duly sworn or affirmed, was 19 examined and testified as follows: 20 DIRECT EXAMINATION 21 BY MS. FOX: 22 Q. Where are you employed? 23 A. I'm a senior scientist at Physicians, 24 Scientists and Engineers for Healthy Energy, or PSE for 25 short. PSE is a nonprofit research institute dedicated	2838 1 Q. Please summarize the opinions that you've 2 provided in your written testimony. 3 A. Yes, of course. 4 First, air pollutants hazardous to human 5 health, the environment and the climate, including 6 greenhouse gases, hazardous air pollutants and criteria 7 air pollutants are emitted from upstream oil and gas 8 facilities. 9 Second, air pollutants emitted from oil and 10 gas facilities may contribute to the secondary formation 11 of air pollutants that pose risk to human health and the 12 environment, including ground-level ozone. 13 Third, there is a reasonable degree of 14 scientific certainty that living in close proximity to 15 oil and gas facilities results in increased health risks 16 from elevated air pollution levels and that these health 17 risks are increasingly attenuated further from these 18 operations. The public health risks and impacts 19 associated with air pollutant emissions from oil and gas 20 facilities that go unaddressed would be 21 disproportionately experienced by people who live, work 22 and go to school near oil and gas facilities. 23 And fourth and finally, emissions reductions 24 strategies should focus on sites close to human 25 populations. The increased frequency of LDAR
2837 1 to supplying evidence-based information on the public 2 health, environmental equity and climate dimensions of 3 energy production and use. 4 Q. What's your educational background? 5 A. I hold a master of public health in 6 environmental health sciences from University of 7 California Berkeley and a bachelor of science in 8 environmental science from Ithaca College. 9 Q. Describe your work experience briefly. 10 A. I lead PSE's work on the environmental health 11 dimensions of oil and gas development. Much of my work 12 has focused on examining the peer-reviewed literature on 13 oil and gas development and human health, air quality, 14 water quality, and waste management. My publications 15 include studies on chemical use associated with oil and 16 gas development and the air quality and human health 17 implications of oil and gas development. 18 Q. Is Clean Air Advocates Exhibit 24 an accurate 19 copy of your CV? 20 A. Yes. 21 Q. And you provided rebuttal testimony on behalf 22 of Clean Air Advocates which is Exhibit 25. 23 Is that testimony accurate, to the best of 24 your knowledge? 25 A. Yes.	2839 1 inspections within 1,000 feet of occupied areas such as 2 homes, schools and businesses as proposed by Clean Air 3 Advocates is a targeted strategy to increase public 4 health protections, which I strongly support. 5 Q. Which air pollutants are emitted from oil and 6 gas facilities? 7 A. Multiple air pollutants are emitted from oil 8 and gas facilities and are associated with adverse 9 impacts on human health and the environment. Broadly, 10 these pollutants include greenhouse gases such as 11 methane, VOCs and criteria air pollutants. Methane, the 12 primary component of natural gas, is a potent greenhouse 13 gas that captures 86 times more heat than carbon dioxide 14 over the 20-year time horizon. 15 Many VOCs are hazardous air pollutants, or 16 HAPs, and a recent review found that 61 HAPs were 17 measured near upstream oil and gas sites or investigated 18 from secondary data sources of upstream oil and gas 19 sites. The five HAPs most frequently detected near 20 upstream oil and gas sites in that study were benzene, 21 toluene, ethylbenzene, xylenes and n-hexane. 22 Criteria air pollutants are six federally 23 designated pollutants that cause adverse impacts to 24 human health and the environment, and the primary 25 criteria air pollutants directly emitted from oil and

2840 1 gas facilities are particulate matter and nitrogen 2 oxides, or NOx. 3 Q. Would you please describe the risks and 4 impacts to public health from exposure to VOCs. 5 A. Emissions of health-damaging VOCs associated 6 with oil and gas facilities present well understood 7 health hazards. I'll briefly discuss five common VOCs 8 from oil and gas operations and their associated 9 effects. 10 Benzene is a known human carcinogen for which 11 there is no safe level of exposure. Acute or short-term 12 inhalation exposure to benzene is associated with 13 neurological effects and eye, skin and respiratory tract 14 irritation. Chronic or long-term inhalation exposure to 15 benzene is associated with noncancer blood effects, such 16 as aplastic anemia where the body does not produce 17 enough new blood cells. 18 Toluene primarily impacts the central nervous 19 system as a result of acute and chronic exposures. 20 Chronic exposure to toluene is also associated with 21 dizziness and irritation of the upper respiratory tract 22 and eyes. 23 Acute inhalation exposure to ethylbenzene can 24 result in adverse respiratory effects, eye irritation 25 and neurological effects. Chronic exposure to	2842 1 preexisting respiratory problems. 2 Q. Do the impacts to public health from VOCs, NOx 3 and ground-level ozone increase the more a person is 4 exposed to these pollutants? 5 A. Yes. Chronic or long-term exposure may result 6 in longer lasting or more severe public health impacts. 7 Q. Are people who live, work or go to school near 8 oil and gas operations at greater risk from exposure to 9 air pollutants associated with oil and gas activities? 10 A. Yes. Populations in close proximity to oil 11 and gas development may be disproportionately exposed to 12 associated health-damaging air pollutant emissions, and 13 therefore populations in close proximity to oil and gas 14 facilities may also experience increased health risks 15 associated with exposure to air pollutants emitted from 16 these facilities. 17 Q. What are those increased risks and impacts? 18 A. I detail many studies in my written testimony. 19 Here I'll note three peer-reviewed studies that estimate 20 health risk associated with hazardous air pollutant 21 concentrations by various distances from upstream oil 22 and gas sites. 23 A 2012 study found that noncancer health risks 24 associated with subchronic exposures and cancer risks 25 were greater for residents living within a half mile, or
2841 1 ethylbenzene has been noted for adverse effects on the 2 liver, kidney and endocrine system. 3 Acute inhalation to exposure to xylenes can 4 result in irritation of the eyes, nose, throat and 5 neurological effects. Chronic inhalation exposure to 6 xylenes results primarily in adverse central nervous 7 system effects. 8 And finally, acute inhalation exposure to 9 hexane results in adverse impacts to the central nervous 10 system. Chronic inhalation exposure to hexane results 11 in more severe neurological effects, including numbness 12 in the extremities, muscular weakness and blurred 13 vision. 14 Q. What are the public health risks of 15 ground-level ozone? 16 A. Ground-level ozone is a respiratory irritant. 17 It can cause the muscles and airways to constrict. And 18 exposure to ozone can result in coughing and sore throat 19 and can inflame and damage the airways. As such, 20 ground-level ozone can exacerbate existing respiratory 21 conditions, increase susceptibility to infection and 22 increase the frequency of asthma attacks. Adverse 23 respiratory health effects from exposure to ground-level 24 ozone have been observed in healthy adults, but are more 25 severe among sensitive subgroups, including those with	2843 1 2,640 feet, from oil and gas wells for respiratory, 2 neurological and blood target organ system effects as 3 compared to residents that live further away. 4 A 2018 study found that lifetime excess cancer 5 risks exceeded the EPA de minimus threshold, or one case 6 per million individuals, out to 5,249 feet, almost one 7 mile, and that lifetime excess cancer risk clearly 8 increases with proximity to oil and gas development. 9 Within 500 feet the study found potential for noncancer 10 adverse health effects associated with acute exposures 11 to benzene and alkanes for neurological, blood and 12 developmental target organ systems. 13 A 2019 study clearly demonstrates that cancer 14 risks and noncancer health risks associated with acute, 15 subchronic and chronic exposures are reduced as distance 16 from oil and gas sites increases. The study found 17 potential for noncancer adverse health effects 18 associated with acute exposures to certain VOCs, 19 including benzene, for respiratory, nervous and 20 hematologic target organ systems. These results applied 21 to the highest exposed hypothetical individuals and were 22 found to persist out to 2,000 feet for benzene exposure 23 and for neurological and hematological effects. 24 And in addition to these air quality health 25 risk assessment studies, the body of epidemiological

2844 1 literature strongly supports that geographic proximity 2 to active oil and gas development is an important risk 3 factor for a variety of adverse health outcomes, 4 including respiratory and cardiovascular outcomes, 5 cardiovascular disease indicators, childhood cancer, 6 hospitalizations and adverse birth outcomes. 7 Q. Ms. Hill, yesterday NMOGA modified its LDAR 8 proposal, and it's now proposing to conduct quarterly 9 LDAR inspections and weekly AVO inspections at oil and 10 gas facilities located within 1,000 feet of occupied 11 areas. Putting that new proposal aside, NMOGA continues 12 to propose less frequent LDAR at other oil and gas 13 facilities. 14 What is your response to NMOGA's proposals to 15 reduce their frequency of LDAR inspections from what 16 NMED has proposed? 17 A. I do not support the reduction in frequency of 18 LDAR inspections. Increased frequency of LDAR 19 inspections can reduce air pollutant emissions from 20 fugitive leaks and loss of containment incidents at oil 21 and gas facilities, and therefore increased frequency of 22 LDAR inspections can decrease health risks and adverse 23 health impacts associated with the release of 24 health-damaging air pollutants from these facilities. 25 Q. You're familiar with Clean Air Advocates' LDAR	2846 1 inspections for oil and gas facilities within 1,000 feet 2 of occupied areas. Targeted emissions reduction 3 strategies should focus on sites close to human 4 populations, and the increased frequency of LDAR 5 inspections within 1,000 feet of occupied areas is 6 absolutely a targeted strategy to increase public health 7 protections. 8 It's also clear from EDF's analysis that 9 impacts including localized air pollution are 10 experienced by subpopulations that face compounding 11 vulnerabilities and socioeconomic burdens, and every 12 effort should be made to reduce air pollution exposures 13 and associated health impacts. 14 Q. And finally, Ms. Hill, what impact would 15 proposed industry proposals that would result in a 16 reduction in frequency of LDAR inspections than what 17 Clean Air Advocates have proposed have on people who 18 live, work and go to school close to oil and gas 19 facilities? 20 A. A decrease in the frequency of LDAR 21 inspections would allow fugitive leaks to go undetected 22 and would result in emissions of health-damaging air 23 pollutants that go unmeasured, unprevented and 24 unmitigated. These public health risks and impacts 25 would be disproportionately experienced by people who
2845 1 proximity proposal that would require oil and gas 2 facilities located within 1,000 feet of occupied areas 3 to conduct more frequent LDAR inspections? 4 A. Yes. 5 Q. And you've reviewed EDF's testimony from 6 Hillary Hull, estimating the number of people who would 7 be impacted by this proposal? 8 A. Yes. EDF's analysis found that the proposal 9 would impact 3,365, or 7.7 percent, of the well sites 10 covered by NMED's proposed rule and would increase 11 emissions reductions at those sites by 73 percent. 12 Additionally, EDF also estimated that over 13 35,000 New Mexicans live within 1,000 feet of a well 14 site regulated under NMED's proposed rule, and these 15 35,000 New Mexicans include young children, seniors, 16 low-income households and persons of color. They also 17 include persons with medical conditions that could be 18 exacerbated by additional air pollution. 19 Ms. Hull provided these statistics yesterday 20 afternoon in her testimony. 21 Q. What is your opinion of the impact the LDAR 22 proximity proposal would have on those living, working 23 and going to school near oil and gas facilities? 24 A. So based on the estimated emissions 25 reductions, I support the increased frequency in LDAR	2847 1 live, work and go to school near oil and gas facilities. 2 MS. FOX: Thank you very much, Ms. Hill, for 3 your testimony. 4 Madam Hearing Officer, I believe all Clean Air 5 Advocates' exhibits have already been admitted into 6 evidence, and Ms. Hill stands for cross-examination and 7 questions from the Board. 8 HEARING OFFICER ORTH: Thank you very much, 9 Ms. Fox and Ms. Hill. 10 If you're a party counsel, please turn on your 11 camera if you have questions of Ms. Hill. 12 Not seeing anything. 13 Ms. Fox. 14 Oops. Mr. Hiser. 15 MR. HISER: Madam Hearing Officer, I do have 16 just a couple questions for Ms. Hill if that's okay with 17 you. 18 MS. HILL: Sure. 19 CROSS-EXAMINATION 20 BY MR. HISER: 21 Q. Ms. Hill, my name is Eric Hiser, and I 22 represent the New Mexico Oil and Gas Association. 23 And I believe that you testified that the 24 adverse health consequences that you found tend to occur 25 with greater effect closer to the well site and that

2848 1 those effects tend to diminish as one moves away; is 2 that correct? You said it was -- there were greater 3 adverse effects at 500 feet and then somewhat less 4 effects if you were like 1,000 or 2,000 feet. Was that 5 the substance of your testimony? 6 A. Yes. Just to clarify, it would be noncancer 7 health risks and cancer risks that would diminish the 8 further you go from oil and gas sites. Yes. 9 Q. Okay. 10 Is it your understanding that ozone is formed 11 from an atmospheric chemistry reaction between nitrogen 12 oxides and volatile organic chemicals? So it's a 13 secondary pollutant and not a direct pollutant? 14 A. Yes. 15 Q. And would the reaction -- would that 16 atmospheric reaction have occurred any substantial 17 effect within that range of 500 feet to, say, 2,000 feet 18 from a particular well site? 19 A. That's a great question, and I have not 20 personally evaluated ozone formation given particular 21 distances from oil and gas sites. The noncancer and 22 cancer health risks that I alluded to previously were 23 focused on the hazardous air pollutant fraction, so 24 focused on VOCs in particular and not focused on ozone. 25 Q. So you'd agree that it seems likely those are	2850 1 information today. At this point I don't have any other 2 questions. 3 HEARING OFFICER ORTH: Thank you. 4 Vice-Chair Trujillo Davis. 5 VICE-CHAIR TRUJILLO DAVIS: Yes. I just have 6 one question. 7 I was wondering -- we've heard a lot of 8 testimony throughout this hearing about the health 9 effects, and a lot of studies were referenced. 10 I'm just curious if any studies have been done 11 on oil field workers themselves? 12 MS. HILL: I did not review any occupational 13 exposure studies as part of the scope of my testimony. 14 It mainly focused on public health or population health 15 and not occupational health. 16 VICE-CHAIR TRUJILLO DAVIS: Oh, okay. 17 Thank you, Ms. Hill. I appreciate the 18 testimony and the information. 19 HEARING OFFICER ORTH: Thank you. 20 Member Cates? 21 MEMBER CATES: Yeah. Just a couple of quick 22 questions. 23 Thanks for the testimony. 24 So when you talk about facilities in general, 25 do you mean upstream, and then do you also mean
2849 1 from the direct pollutants emitted from the well site, 2 is what you've been seeing? 3 A. Yes. The noncancer and -- the noncancer 4 health risks and cancer risks are associated with the 5 hazardous air pollutant fraction, and in those studies 6 ozone was not evaluated. 7 MR. HISER: I really appreciate your 8 clarification. Thank you very much. 9 HEARING OFFICER ORTH: All right. Thank you, 10 Mr. Hiser. 11 Any other party representatives with questions 12 of Ms. Hill? 13 No. 14 I'll turn, then, to the Board for their 15 questions. 16 If you're an attendee on this platform and 17 would have a question, please reach out through the 18 chat, which is enabled for everyone. 19 EXAMINATION 20 BY THE BOARD: 21 HEARING OFFICER ORTH: Madam Chair, do you 22 have questions of Ms. Hill? 23 CHAIR SUINA: Good morning, Madam Hearing 24 Officer. 25 And thank you for your testimony and	2851 1 midstream? That is, are you talking about production 2 sites and pipelines, and, you know, if not, could you, 3 you know, make that distinction? 4 MS. HILL: Yes, absolutely. So the studies 5 that I reviewed focus on upstream oil and gas 6 development. In the most -- in most cases this is 7 classified as well sites. So I would say that's the 8 majority of the sources considered, as opposed to 9 further like midstream sources or gathering and 10 distribution pipelines. 11 MEMBER CATES: So you didn't really look at 12 pipelines. 13 MS. HILL: Right. 14 MEMBER CATES: So it's -- it would be beyond 15 the scope of your work to say that pipelines also pose 16 similar threats or to make any kind of assertion like 17 that? 18 MS. HILL: I did not evaluate the emissions 19 from pipelines as part of my scope of work. 20 MEMBER CATES: Okay. 21 And so you mentioned -- you had some numbers 22 regarding how many people in New Mexico are most 23 directly are -- affected are on the frontline, frontline 24 communities. 25 Did you do a breakdown comparing, say, San

2852 1 Juan Basin communities to Permian Basin communities, and 2 did you come away with an impression of which of those 3 two communities is most affected or is most vulnerable 4 to the kind of thing that you worry about in your 5 testimony? 6 MS. HILL: It's a great question. 7 So in my testimony I do reference work by 8 Ms. Hull, and that analysis, the demographic analysis 9 was performed by her. So I -- I'm unable to answer that 10 question. 11 MEMBER CATES: Yeah. 12 So also in your testimony you went into some 13 detail about, you know, 2,540 feet is, you know, a half 14 mile, is the -- people within that range are still very 15 vulnerable to, say, NOx emissions, and then people within 16 a mile are in higher risk for abnormal rates of cancer, 17 but I think -- I think I'm kind of summing you up here 18 accurately. 19 Is -- so my question is is there a safe 20 distance to live and, you know, to exist -- what's 21 the -- what's the safe distance if you want to not worry 22 about public health concerns? What's a safe distance to 23 live from a wellhead? 24 MS. HILL: It's a -- it's a great question. 25 And I do in my testimony provide, you know,	2854 1 Member Bitzer? 2 MEMBER BITZER: Dang. Make me want to not 3 inhale. That's some serious list of nasties you've got 4 in that criteria emission category. 5 I threw this out yesterday, and the person 6 testifying didn't have any -- any context for it, but 7 we -- you know, we tend to have prevailing winds, as was 8 demonstrated in one of the videos -- one of the 9 satellite photos yesterday. There's a direction the 10 stuff generally blows. 11 And so a circle -- a 1,000-foot circle has got 12 3.14 million square feet in it, but it's equidistant if 13 you're in the middle of that circle and heading one way. 14 It seems to me the criteria emissions pollutants are 15 going to go a lot further that way, but you'd be better 16 off living 300 feet upwind than 2,000 feet downwind. 17 Has anyone ever done sort of an oval type 18 mapping rather than the CEP, this circle error probable, 19 type of thing that you're aware of? 20 MS. HILL: It's a great question. 21 And, you know, taking into account prevailing 22 winds may be more of like a site-specific -- might 23 require more site-specific assessments. 24 There is one study that I do cite in my 25 testimony. It's a health outcome study or an
2853 1 all of the available peer-reviewed studies that perform 2 air quality health risk assessments, of which there are 3 only three, and the furthest distance that they evaluate 4 is out to about one mile in any of those studies. 5 Two of the studies focus on more narrow 6 distances, granularly around 2,000 feet. And so there 7 have been -- there have been instances where there are 8 increased health risks observed beyond -- beyond 1,000 9 feet and out to 2,000 feet, for example. 10 The question around safe distance is -- I 11 would want some additional context, because here we're 12 only talking about air pollution, and there are a lot of 13 other stressors associated with oil and gas development 14 that can contribute to health risks, psychosocial 15 stress, noise, light pollution and other factors that 16 we're not primarily addressing here. 17 So the question around safe distance from air 18 pollution, I would say there's evidence beyond 1,000 19 feet that shows there is elevated risks from air 20 pollution, but that there are also other stressors that 21 can influence health outcomes. 22 MEMBER CATES: Yeah. Okay. Thanks for the 23 testimony. 24 That's all I have. Thanks. 25 HEARING OFFICER ORTH: Thank you.	2855 1 epidemiological study. It is based in California, and 2 it looks at measured lung -- lung function among 3 individuals that live near active and idle oil and gas 4 sites in South Los Angeles, and they look out to about 5 1,000 meters. And what they did find for active sites 6 and for folks living downwind of those sites, that the 7 reductions in lung function were greater than for folks 8 that live, say, upwind of those sites. So there are -- 9 there is that differentiation from the air pollution or 10 respiratory pathway. 11 That being said, I think, you know, the shape 12 you choose when drawing a buffer distance is 13 ultimately -- it can be a science policy question. It 14 may be easier to draw a concentric circle as opposed to 15 trying to adapt to prevailing winds which again are 16 site-specific when you're thinking of a policy context. 17 MEMBER BITZER: I want the advocates to start 18 thinking about an app, you know, maybe we could have 19 some sort of automated assessment tool. 20 Anyway, that's my only question. Thank you. 21 MS. HILL: Sure. 22 HEARING OFFICER ORTH: Thank you. 23 I remember going to a talk at the Santa Fe 24 Institute about the development of an app like that, 25 Member Bitzer.

2856 1 Let's see. Member Garcia. 2 MEMBER GARCIA: Yes. Thank you, Madam Hearing 3 Officer. 4 And thank you for your testimony. 5 Just a clarifying question. 6 These studies were done in New Mexico or in 7 other places such as Texas near oil and gas operations? 8 MS. HILL: Yeah. That's a great question. 9 The three air quality health risk assessments 10 that I cited were all conducted in Colorado. To my 11 knowledge, that's the extent of the peer-reviewed 12 literature that's able to look at health risks by 13 distance with an air pollution focus. 14 MEMBER GARCIA: You know, in New Mexico, in 15 the San Juan area in particular, there's also concern 16 about exposure to abandoned uranium mines and tailings, 17 and I would imagine that would compound health effects. 18 Do you look at compounding effects of other 19 area hazards? Is that one of the things that was looked 20 at? 21 MS. HILL: Most of the studies that are 22 included in my testimony have actually done their best 23 to design a methodology so that they are singularly 24 focused on oil and gas development, so that they remove 25 additional explanatory or confounding factors, so that	2858 1 was living within 1,000 feet of the facility? 2 MS. HILL: There are some general statements I 3 can make about maybe some similarities and differences 4 in exposure. When you say, you know, an oil field 5 worker might be out at sites intermittently, there is 6 evidence in the peer-reviewed literature that there are 7 intermittent or episodic spikes in air pollution 8 emissions particularly related to specific activities at 9 the site, and although a worker isn't, say, there 24 10 hours a day at one site, they may be performing 11 activities that might be putting them at greater risk of 12 exposure to those emissions depending on what the work 13 tasks are. 14 And then for people in the general community, 15 you may typically think that only chronic exposures are 16 relevant, but really, as I presented in my testimony, 17 there are a lot of different health outcomes tied to 18 acute exposure as well as chronic exposures. And so the 19 folks that are living near these communities -- living 20 near these sites also may be experiencing those 21 intermittent episodic spikes over short periods, and 22 there are -- there are absolutely health effects that 23 occur from -- from those short-term exposures to these 24 hazardous air pollutants that are also precursors to 25 ozone.
2857 1 when they are observing associations they can more 2 definitively state that the tie is to the source related 3 to oil -- upstream oil and gas sites, typically wells. 4 And so for the -- for the most part they don't take into 5 account, you know, other factors. 6 That being said, based on my public health 7 background, I would say, you know, it's very important 8 to understand what the additional environmental burden 9 is in a community and in places where there are 10 compounding burdens. So whether they be socioeconomic 11 burdens or environmental burdens, efforts should be made 12 to reduce those burdens as much as possible, to 13 influence greater health outcomes. 14 MEMBER GARCIA: Okay. Thank you. That's all 15 my questions. 16 Thank you very much. 17 HEARING OFFICER ORTH: Thank you. 18 Member Honker? 19 MEMBER HONKER: Yes. 20 Thanks for your testimony. 21 Just one question as a follow-up to Vice-Chair 22 Trujillo Davis' question. 23 Could you compare the health risks in a 24 general sense between an oil field worker who would be 25 at the site on an intermittent basis versus somebody who	2859 1 MEMBER HONKER: Okay. Thanks very much. 2 That's very helpful. 3 HEARING OFFICER ORTH: Thank you, Ms. Hill and 4 Member Honker. 5 Ms. Fox, does any of that prompt redirect for 6 you? 7 MS. FOX: No, Madam Hearing Officer. 8 HEARING OFFICER ORTH: All right. 9 Thank you very much for your testimony, 10 Ms. Hill. 11 MS. HILL: Thank you. 12 HEARING OFFICER ORTH: And thank you, Ms. Fox. 13 So do I understand from the e-mail exchanges 14 we had last night around the remaining topics, Ms. Katz, 15 that we will be moving to the liquids unloading? 16 MS. KATZ: Madam Hearing Officer, I believe 17 that we said that we would be starting with storage 18 vessels. 19 HEARING OFFICER ORTH: Ah. Okay. Very sorry. 20 MS. KATZ: No. That's all right. 21 HEARING OFFICER ORTH: Let's take a 10-minute 22 break, please, and come back at -- well, a 14-minute 23 break, come back at 10 after 10:00, and we'll begin with 24 storage vessels. 25 Thank you.

2860 1 (Proceedings in recess from 9:56 a.m. to 2 10:10 a.m.) 3 HEARING OFFICER ORTH: Let's come back from 4 the break, please. 5 We are back after a short break, and I believe 6 at this point we go to storage vessels. 7 Ms. Katz. 8 MS. KATZ: Thank you, Madam Hearing Officer. 9 And I guess I just want to check and make sure 10 that -- because we were going to -- I know we were going 11 to close out -- we were going to try to wrap some things 12 up and close out engines, but my understanding is that 13 we only have one last engines witness and -- and he's 14 not currently available until this afternoon. So I just 15 wanted to make sure that that's correct. 16 HEARING OFFICER ORTH: Let me ask if anyone 17 has other information there. 18 MR. BAAKE: Madam Hearing Officer, that's 19 correct. It will -- it will be very short, and our 20 witness will be going on -- be available after -- this 21 afternoon. 22 HEARING OFFICER ORTH: Thank you very much. 23 MS. KATZ: Okay. Thank you. 24 Okay. So this is -- the Department calls back 25 Ms. Bisbey-Kuehn and Mr. Palmer.	2862 1 VOC emissions. Storage vessels may be installed as a 2 single unit or in a group of similar or identical 3 vessels, commonly referred to as a tank battery. 4 Crude oil contains many light hydrocarbons in 5 solution in the reservoir, and when brought to the 6 surface, many of those dissolved lighter hydrocarbons, 7 as well as water, are removed through a series of 8 separators. 9 Crude oil can be passed through a two-phase 10 separator where the associated gas is removed and any 11 oil and water remain together or a three-phase separator 12 where the associated gas is removed and then the oil and 13 water are also separated. The remaining oil is then 14 directed to a storage vessel where it is stored before 15 being transported off-site, and much of the remaining 16 hydrocarbon gases in the oil are released as vapors in 17 the -- in the storage vessels. 18 VOC emissions can occur from three different 19 types of sources, and they're a function of flashing, 20 emissions, breathing and working losses. 21 Flashing losses occur when liquid with 22 entrained hydrocarbons are transferred from a vessel 23 with a higher pressure to a lower pressure, allowing 24 entrained gases to be vaporized or flash. 25 Breathing losses are the release of gas
2861 1 ELIZABETH BISBEY-KUEHN and BRIAN PALMER 2 (Relating to Topic Order 34) 3 having been first duly sworn or affirmed, were 4 examined and testified as follows: 5 DIRECT EXAMINATION 6 BY MS. KATZ: 7 MS. KATZ: This is -- this testimony pertains 8 to Section 20.2.50.123 of the rule, storage vessels. 9 The testimony -- the written testimony appears in NMED 10 Exhibit 32 on page 138 and NMED rebuttal Exhibit 1 11 beginning on page 90. 12 And this testimony has already been adopted by 13 the witnesses, and I don't believe there are any 14 corrections that need to be made. 15 So, Ms. Kuehn, can you please discuss the 16 equipment that is the subject of this section of the 17 rule? 18 MS. BISBEY-KUEHN: Yes. 19 Good morning, everyone. 20 We're here this morning to discuss 21 Section 123, storage vessels. 22 Storage vessels are used throughout the oil 23 and gas sector for storing hydrocarbon liquids in 24 produced water. They're used in production, gathering, 25 processing and disposal and are significant sources of	2863 1 associated with temperature fluctuations and the 2 expansion and contraction of stored fluids resulting 3 from increased or decreased pressures associated with 4 environmental and weather-related fluctuations. 5 And finally, working losses occur when vapors 6 are displaced due to the emptying and the filling of a 7 storage vessel. 8 And so it's these three different separate 9 types of emissions combined that contribute to the 10 overall emission profile of a -- of a storage vessel. 11 MS. KATZ: And, Ms. Kuehn, can you discuss 12 what options there are for controlling emissions for -- 13 from storage tanks? 14 MS. BISBEY-KUEHN: Yes. The methods to reduce 15 VOC emissions from storage vessels or tanks, which we're 16 using interchangeably and can be used interchangeably, 17 owners and operators may route emissions from the 18 storage vessel through an enclosed system to a process 19 where those emissions are recycled or recovered, for 20 example, by installing a vapor recovery unit that 21 recovers vapors from the storage vessel, for reuse in 22 the process or for beneficial use of the gas on site, or 23 they may route those emissions from a storage vessel to 24 a combustion device. 25 And we also heard testimony from other parties

2864 1 that there are additional types of controls available 2 that we'll speak to later on. 3 MS. KATZ: Thank you. 4 And I guess we've skipped over what we've 5 normally done, which was to give the overview of the 6 emission standard. So I'll have Ms. Kuehn do that when 7 we get to the actual rule language. 8 Mr. Palmer, can you discuss what the estimated 9 emission reductions and costs are for this part of the 10 rule? 11 MR. PALMER: Sure. The estimated overall 12 emission reductions from storage tanks are 7,739 tons 13 per year of allowable VOC. The reductions are achieved 14 at an estimated cost effectiveness of \$2,695 per ton of 15 VOC use being combustors to control emissions. And this 16 cost effectiveness was based on the 2016 CTG and the use 17 of a combustor control, and also includes costs for tank 18 retrofits to include a closed vent system. 19 MS. KATZ: And -- sorry. Mr. Palmer, do you 20 have any discussion of where -- the basis for the rule 21 provisions -- 22 MR. PALMER: Sure. Yeah. The rule provisions 23 parallel those. They're similar to -- they're similar 24 control requirements as in the NSPS and also Colorado 25 Rule 7, and I also believe Pennsylvania General Permits.	2866 1 rule. 2 MS. KATZ: Thank you. 3 And, Ms. Kuehn, can you please discuss the 4 applicability and emissions standards that apply to 5 storage vessels under the rule and how those have 6 been -- the revisions that have been made to those 7 standards? 8 MS. BISBEY-KUEHN: Yeah. Yes, I will. 9 Similar to the other regulatory -- or -- 10 excuse me -- the other sections that we reviewed, we 11 have the applicability section which identifies the 12 types of storage vessels that are subject to this 13 section. So new storage vessels with a potential to 14 emit equal to or greater than two tons per year are 15 subject to this rule, and existing storage vessels with 16 a potential to emit equal to or greater than three tons 17 per year are subject to this rule. 18 So there's a different applicability threshold 19 for new and existing storage vessels. 20 The addition of the second sentence was a 21 request also made by industry stakeholders to clarify 22 that when storage vessels are manifolded together, those 23 emissions may be routed either to an individual storage 24 vessel or to storage vessels that are routed together, 25 and that the PTE may be determined by averaging the
2865 1 MS. KATZ: Okay. Thank you. 2 And, Ms. Kuehn, can you please discuss the 3 definitions in Section 7 of the rule that are related to 4 the storage tank provisions and any revisions that were 5 made to those? 6 MS. BISBEY-KUEHN: Yes. The first definition 7 is the definition of a storage vessel. We received 8 requests from stakeholders to strike the language 9 referring to a process vessel, such as a surge control 10 vessel or bottom receiver or knockout vessel. The 11 Department agreed to strike those. Those are not 12 intended to be covered as storage vessels, and that is 13 consistent with the federal New Source Performance 14 Standard Quad Oa. 15 We also received a comment to add in a psi 16 equivalent pressure, and so that was added in response 17 to comments. 18 NMOGA -- in terms of commencement of 19 operation, that definition we -- the Department received 20 requests regarding that definition, as well, to strike 21 the final language of the -- the sentence, "but no later 22 than the end of well completion operation," and the 23 Department did not agree to that -- that edit. This 24 definition was taken from the Colorado Reg 7, and we 25 are -- we are aligning those two definitions for this	2867 1 emissions across the total number of storage vessels. 2 So the emission standards, which are outlined 3 in Paragraph B, establish the emission reduction 4 requirements. Existing storage vessels again with a PTE 5 greater than three tons per year shall reduce emissions 6 of VOC by at least 95 percent according to the following 7 schedule. 8 We agreed -- it was requested that we have a 9 staggered timeline or deadline for existing storage 10 vessels. The Department agreed that given the -- the 11 universe of storage vessels that this will affect, that 12 a staggered compliance timeline or deadline is 13 appropriate for existing storage vessels. So we have 14 structured deadlines similar to what we have done for 15 engines and turbines. 16 By January 1st, 2024, owners or operators must 17 ensure at least 35 percent of the company's existing 18 storage vessels are controlled; and then again by 19 January 1st, 2026, at least an additional 35 percent of 20 the company's existing storage vessels must be 21 controlled; and then by January 1st, 2028, the remaining 22 existing storage vessels are required to be controlled. 23 We did in our original filed version of the 24 rule back in May have a separate distinctive requirement 25 for existing vessels that were -- had a PTE greater than

2868 1 10, and we had a higher control reduction requirement, 2 and we have struck that requirement because that was -- 3 it was not clear, and it's not I don't think technically 4 feasible to meet that kind of emission reduction. And 5 so we have rewritten this -- this part to have the same 6 reduction efficiency requirement for both new and 7 existing storage vessels. 8 So the new Paragraph (2) identifies the 9 requirement for new storage vessels. Again those are 10 storage vessels with a potential to emit greater than 11 two tons per year shall reduce their VOC emissions by at 12 least 95 percent per year. And again we've -- and 13 throughout this rule if a combustion control device is 14 used, the combustion device shall have a minimum design 15 combustion efficiency of 98 percent. And we have made 16 that edit throughout the rule, as you probably have 17 noticed. 18 Paragraph (4) is the equivalent requirement 19 that we -- that we struck. 20 Paragraph -- the new Paragraph (3) is an off 21 ramp for those storage vessels that have actual annual 22 VOC emissions less than two tons per year. So if -- if 23 a tank has actual VOC emissions less than two, they are 24 no longer subject to the emission standards of this 25 part.	2870 1 part, to comply with those specific control device 2 operational requirements in Section 115. 3 Paragraph C discusses the monitoring 4 requirements for storage vessels. On a monthly basis 5 they are required to calculate or estimate the -- or 6 monitor directly the total monthly liquid throughput and 7 also the upstream separator pressure if the storage 8 vessel is directly downstream of a separator. That was 9 an important clarification that it -- we are only 10 seeking to know the upstream separator pressure if it is 11 directly upstream of -- of a tank. 12 There's a -- there's a clause also provided 13 that when a storage vessel is loaded less frequently 14 than monthly, that those two monitoring events shall be 15 conducted when or before the storage vessel is unloaded. 16 Owners and operators are also required to 17 conduct an AVO inspection on a weekly basis. And again 18 if the storage vessel is unloaded less frequently, then 19 the AVO inspection shall be conducted before the storage 20 vessel is unloaded. The owner or operator is required 21 to inspect -- actually inspect the monthly -- the vessel 22 on a monthly basis to ensure compliance with the 23 requirements of this part and to ensure the vessel does 24 not have a leak. 25 Paragraph C.(4) requires also the date and
2869 1 As an alternative, Paragraph (4) allows owners 2 and operators to shut in the well as an alternative to 3 complying with the control requirements by the 4 applicable date. There is a sunset clause included in 5 this regulation -- in this provision that the owner or 6 operator shall not resume production from the well until 7 the control device is installed and operational. 8 The new Paragraph (5) discusses a requirement 9 to have a pressure relief -- I'm sorry -- a thief hatch 10 automatically close after it is opened due to an 11 overpressuring event. We had received comments from 12 stakeholders about requesting some modifications to that 13 language which we agreed with. The intent of this 14 provision is that any pressure relief valve installed 15 must automatically close once the vessel overpressure is 16 relieved. 17 And so that has been clearly stated in that 18 last sentence, and that's the -- that's the intent of 19 this section. 20 And then the paragraph -- previous Paragraph 21 (8) has been deleted. That was the requirement to 22 install an equipment monitoring tag. 23 And then Paragraph (6), new Paragraph (6), 24 requires owners and operators that are using a control 25 device to comply with the emission standards of this	2871 1 time stamp of the -- of the event. 2 Paragraph (5) is again referencing the 3 monitoring requirements that are applicable to that 4 specific control device being used to comply with the 5 emission standards in this part within Section 115. 6 And Paragraph C.(6) is referring to the 7 general monitoring requirements of Section 112. 8 Paragraph D contains the recordkeeping 9 requirements of -- of the monitoring events that are 10 outlined in Paragraph C. On a monthly basis they shall 11 maintain a record for each vessel of the identification 12 number, the monthly liquid throughput, the average 13 separator pressure, and then a calculation of the actual 14 emissions of VOC emissions and the controlled and 15 uncontrolled VOC emissions in ton per year, also the 16 make, type, model and ID of any control device used. 17 There is also a requirement in Paragraph D.(2) 18 to record the liquid throughput and verify that by 19 either a data liquid level measurement, a data delivery 20 receipt from the purchaser of the hydrocarbon liquid, 21 the actual metered value of hydrocarbon liquid sent 22 downstream, or some other type of proof of transfer. 23 The owner or operator shall also make a record 24 of the inspections that are required under the 25 monitoring, and those include a record of the date and

2872 1 time and a time stamp in GPS of the location of the 2 inspection, the person conducting the inspection, and a 3 description of any problems observed and corrective 4 action taken. 5 Paragraph (4) again refers to the 6 recordkeeping requirements of control devices used as 7 required in Section 115. 8 And the Paragraph D.(5) refers to the general 9 recordkeeping requirements of the general provisions 10 that are found in 112. 11 And then similarly for reporting requirements, 12 we are referencing those general reporting requirements 13 for 115 and 112. There are no specific reporting 14 requirements for storage vessels to this -- under this 15 section. 16 And that concludes this section. 17 MS. KATZ: Thank you, Ms. Kuehn. 18 And that concludes the summary of the 19 Department's prefiled testimony on storage vessels. 20 HEARING OFFICER ORTH: Thank you very much, 21 Ms. Kuehn, Mr. Palmer, Ms. Katz. 22 If you're a party and have questions of the 23 Department panel, please turn on your camera. 24 Oh, I see Mr. Rose. 25 Mr. Rose.	2874 1 stringent in that it requires existing storage vessels 2 to be subject to this part. So we're bringing in a 3 significant number of storage vessels that have never 4 had requirements to control those emissions. And Ka, Kb 5 are -- those are largely targeted towards floating roof 6 tank requirements, and Quad 0 and Quad 0a again only -- 7 only cover new units or existing units. 8 So anything, I think, after August, 2012 would 9 have been covered under Quad 0, and anything over 10 September, 2020 -- I'm sorry -- September, 2016 would be 11 covered under 20 -- under Quad 0a. 12 MR. ROSE: Thank you. 13 And I just have a couple questions about the 14 cost figures, and perhaps Mr. Palmer is the right person 15 to ask. 16 You identified a cost figure in cost per ton, 17 and I'm trying to figure out, was that based on 18 reductions that would be attained through the 19 Department's initial proposal, or has that been updated 20 to include now the revised proposal that 21 Ms. Bisbey-Kuehn alluded to earlier? 22 MR. PALMER: That is based on the cost per ton 23 estimates in the 2016 CTG, and those then were scaled 24 up. And so -- and then we applied those to the 25 estimated emission reductions we would get in
2873 1 MR. ROSE: Thank you, Madam Hearing Officer. 2 CROSS-EXAMINATION 3 BY MR. ROSE: 4 MR. ROSE: And either Ms. Kuehn or Mr. Palmer 5 can answer. I'll let them decide who the most 6 appropriate person is. 7 In discussing the proposed requirements for 8 storage vessels, I think both of you alluded to NSPS 9 requirements that may be applicable. 10 Could you identify those NSPS requirements 11 that apply to storage tanks? 12 MS. BISBEY-KUEHN: Yes. There's Quad 0 and 13 Quad 0 and -- which was superseded by Quad 0a, and those 14 require new storage vessels with a PTE greater than six 15 tons per year to control emissions by 95 percent. 16 MR. ROSE: And are any of these units that 17 we're talking about subject to this hearing subject, for 18 example, to Subpart K or Ka or Kb? 19 MS. BISBEY-KUEHN: There -- yes. There are -- 20 may -- there may be tanks subject to K, Ka and Kb, as 21 well. 22 MR. ROSE: And would you characterize the 23 requirements you're proposing as being more stringent 24 than those requirements, either K, Ka or Kb or Quad 0a? 25 MS. BISBEY-KUEHN: This section is more	2875 1 allowables. 2 MR. ROSE: And I guess my question was the 3 allowables as the rule -- 4 MR. PALMER: As -- 5 MR. ROSE: -- proposed initially or as the 6 rule is being revised. 7 MR. PALMER: As the rule is being revised. So 8 we removed from our spreadsheet -- cost spreadsheet 9 those tanks that were between two and three tons per 10 year of allowables. So we just changed the filtering. 11 MR. ROSE: And in -- 12 (Simultaneous discussion.) 13 MR. PALMER: Based on that we estimated the 14 average cost per ton of the VOC allowables that were 15 reduced. 16 MR. ROSE: And in terms -- 17 (Simultaneous discussion.) 18 MR. ROSE: Excuse me. Go ahead. 19 MR. PALMER: Just one more clarification. 20 We also changed the percent reduction to 95 21 from 98 that we had for the larger tanks. So those are 22 the two changes in the spreadsheet. 23 MR. ROSE: Okay. 24 And that's -- that's addressed in, I think, 25 both the presentation today and in your testimony? I

2876 1 think that's been submitted, correct? 2 MR. PALMER: I believe so. 3 MR. ROSE: And I think I've asked you before. 4 My understanding is you -- not you personally, but you 5 were responsible for providing the Department's modeling 6 experts with the emissions inventory that was modeled. 7 Do you know whether the -- 8 MR. PALMER: Let me clarify that? 9 MR. ROSE: Sure. Go ahead. 10 MR. PALMER: I was -- we were not responsible 11 for providing the modeling inventory. We were 12 responsible for estimating what we thought the emission 13 reductions would be. 14 MR. ROSE: Okay. 15 And do you know whether those -- the emission 16 reductions we're talking about in the revised proposal 17 today were evaluated as part of that modeling analysis? 18 MR. PALMER: No. The modeling was not updated 19 for the changes in the September 16th version of the 20 rule. 21 MR. ROSE: Thank you, Madam Hearing Officer. 22 I have no further questions. 23 HEARING OFFICER ORTH: Thank you, Mr. Rose. 24 Mr. Hiser, I think I saw you turn on your 25 camera. There you are.	2878 1 increase the cost of the recycling and recovery option? 2 MS. BISBEY-KUEHN: It would. And -- but it 3 would also increase the capture and recycling of the 4 vapors during any VRU downtime. And so we -- the reason 5 for that is we have vapor recovery units that -- that 6 are operational on very limited amounts of time, and so 7 the redundancy requirement was meant to cover those VRUs 8 that are cooperating less than 95 percent of the time. 9 And so -- that's all. 10 MR. HISER: So did I understand correctly that 11 the redundancy requirement is to ensure we meet the 12 95 percent requirement, but if you're able to meet that 13 with a single VRU, you don't have to have a redundant 14 VRU? 15 MS. BISBEY-KUEHN: That's not exactly what the 16 requirement says. It says you must meet at least 17 95 percent and then use the VRU as a backup when your 18 first in line VRU goes down for maintenance. 19 MR. HISER: Okay. 20 And then in the Rebuttal Exhibit 1, where 21 it's, I believe, both you and Mr. Palmer -- and this is 22 probably a Mr. Palmer question. In page 91, Mr. Rose 23 just asked you some questions about the cost for that. 24 And I was wondering, Mr. Palmer, if the 13,779 25 that you listed as the ton for a two ton per year
2877 1 MR. HISER: Thank you. Yeah. I have just a 2 couple questions. 3 CROSS-EXAMINATION 4 BY MR. HISER: 5 MR. HISER: Ms. Kuehn, in your direct 6 testimony on page 140, in control options for storage 7 vessels -- and I'll give you a moment because I see 8 you're hunting for it. 9 You talked about some of the advantages of 10 recycling or recovery options; is that correct? 11 MS. BISBEY-KUEHN: Yes. 12 MR. HISER: And that's really talking probably 13 in most cases about a vapor recovery unit; is that 14 correct? 15 MS. BISBEY-KUEHN: Yes. 16 MR. HISER: Did you evaluate as part of your 17 consideration of this the impacts of the Department's 18 other proposal in Section 115 that requires that instead 19 of a single VRU you have to have two, and how that might 20 impact this beneficial recycling and recovery option 21 that you speak to here in page 140 of your testimony? 22 MS. BISBEY-KUEHN: We did not specifically 23 evaluate that -- a redundancy impacting the ability to 24 recycle vapors. 25 MR. HISER: So would that redundancy tend to	2879 1 tank -- is that the two ton per year tank, or was that 2 the three ton per year tank value? If you could just 3 clarify that. 4 MR. PALMER: It says on my testimony \$13,779 5 per ton for a two ton per year tank. 6 MR. HISER: Did you -- do you have the value 7 that you got using the three ton per year tank available 8 that you could share? 9 That would be the current threshold the 10 Department's proposing. 11 MR. PALMER: Let me look here, sir. 12 So in the -- in the cost spreadsheet from the 13 CTG, which we have as Exhibit 100, there is a tab called 14 Cost Factors, and it shows -- this is from the CTG, and 15 so it shows a two ton per year, four ton per year, six 16 ton per year, so increments of two. So there's actually 17 not a value there for three. There's a value for two 18 which is \$13,779, there's a value for four which is 19 \$6,890 -- 20 (Simultaneous discussion.) 21 MR. HISER: What was the value for four? 22 MR. PALMER: \$6,890. 23 MR. HISER: And so you'd expect that three 24 would then be someplace between the 6,890 and the 25 13,970?

2880 1 MR. PALMER: I would expect that to be true. 2 MR. HISER: Okay. 3 Does the cost -- did you evaluate whether the 4 cost estimate varies depending on whether it's a single 5 tank that we're controlling or if it's a multiple tank 6 battery that we're controlling? 7 MR. PALMER: We estimated our costs including 8 retrofit factor for tanks. It was a cost per tank. So 9 we applied that retrofit factor for each tank. 10 MR. HISER: Okay. 11 Then on page 92 of your rebuttal exhibit, this 12 question probably going to Ms. Kuehn, on line 18 of this 13 page, Ms. Kuehn, you say that NMOGA proposed to exempt 14 sources to other federal emission standards from the 15 requirements of this section, NMED does not agree with 16 this proposal. 17 I think subsequent to this testimony we had a 18 discussion about the discovery of floating roof tanks 19 and that for those floating roof tanks you are 20 current -- the Department's current view is that they 21 are looking at NSPS Subpart Kb for those floating roof 22 tanks; is that correct? 23 MS. BISBEY-KUEHN: We have not agreed that Kb 24 is an -- is an equivalent reduction to what Part 50 25 proposes to control. So I'm -- I'm unsure about the	2882 1 tank and a floating roof tank and what was done? 2 MR. PALMER: Let me look at something here, if 3 you can give me a minute or two. 4 MR. HISER: Yes, certainly. 5 And -- 6 MR. PALMER: I'm just -- 7 MS. KATZ: Mr. Hiser, I'm just wondering if 8 you -- if you could -- if there -- you're referring to 9 some discussion of that issue, if you can maybe point 10 out where that was or when that occurred. 11 MR. HISER: Well, there was a comment 12 certainly that NMOGA had made about using Kb, and then 13 in this testimony -- and I'm trying to remember -- when 14 we were talking about the definition of tank batteries, 15 Mr. Curtis reminds me that the question had come up 16 about the floating roof tanks. 17 And my goal here is really not to derail the 18 hearing on this issue, but just to make sure that we're 19 all thinking about them, because they're a little bit 20 different in how they're structured and controlled. And 21 the Department's done a lot of work, which I think is 22 very appropriate for fixed roof tanks and there's a lot 23 of testimony on that. The question is about this other 24 sort of universe. 25 And I see Mr. Palmer is looking like maybe
2881 1 question. 2 MR. HISER: Okay. I guess that in the earlier 3 discussion of this issue we -- there had been a question 4 about the control factors and whether or not the 5 controls that were proposed here are appropriate for 6 floating roof tanks because of the differences between 7 how they're constructed and availability of vapor 8 space and routing to combustors. And it had been 9 proposed that maybe those would continue to be regulated 10 under the Part Kb which has specific provisions for 11 floating roof tank controls. 12 And I was just curious whether this statement 13 that you're making here, because it predated that prior 14 discussion, was meant to be read in light of your 15 subsequent discussion in this hearing. 16 MS. BISBEY-KUEHN: So that was the first time 17 that that issue has been brought up. I don't believe 18 that anybody -- any party provided any testimony that Kb 19 should be considered equivalent or an effective means of 20 controlling emissions for those -- those issues. 21 MR. HISER: Mr. Palmer, then, if I can turn, 22 then, to just this question about a Kb tank. 23 When you conducted the technical evaluation, 24 do you know if the example controls that were used 25 included the technical differences between a fixed roof	2883 1 he's found something? 2 MR. PALMER: Yeah. Let me -- what I'm trying 3 to do is just refresh my memory on exactly how we 4 handled Kb and Ka tanks and how many we have in our 5 data. 6 MR. HISER: Okay. 7 MR. PALMER: Okay. So I'm just -- 8 MR. HISER: And if you -- if it's agreeable to 9 you, Mr. Palmer, I think most of my other questions are 10 for Ms. Kuehn. Maybe I'll touch with her while -- and 11 that will give you time to look at what you're looking 12 at, and then I'll come back to you on the Kb question. 13 Does that seem acceptable to everyone? 14 MR. PALMER: That's fine with me. 15 MR. HISER: Okay. Thank you. 16 Ms. Kuehn, I had, I think, one question for 17 you. 18 There was a proposal, I think, from the 19 Commercial Disposal Group relating to supplemental fuel 20 where the emissions from the tank are not sufficient to 21 support the control device by itself, at least if it's a 22 combustion control device. 23 Do you tend to agree that where we would be 24 adding significant emissions from the supplemental fuel 25 requirements, that that may be an appropriate case to

2884 1 take an alternative approach? 2 MS. BISBEY-KUEHN: It may be. There's -- so 3 first, we didn't receive any emissions data on those 4 tanks, and we didn't receive any Btu content about those 5 tanks' vapors. So we weren't able to evaluate either 6 request because we didn't receive any data about those 7 two pieces of information. 8 We have an applicability threshold for 9 existing tanks of three tons per year. That should 10 handle those low-emitting tanks if they are 11 low-emitting. We also have an off ramp of two tons per 12 year for uncontrolled or for actual VOC emissions. And 13 so if those low-emitting tanks are emitting less than 14 that amount, there is a clear off ramp from the rule for 15 those requirements. 16 In addition, we've had other parties tell us 17 that there are alternative control devices that can be 18 employed on these tanks that are not combustion based. 19 And so instead of writing in another waiver for a 20 control device via this rule, we've kept the control 21 device agnostic and given owners and operators 22 flexibility in the type of control device that they 23 would need to employ. 24 MR. HISER: Thank you for that explanation of 25 the Department's thinking on this issue. It's helpful	2886 1 How familiar are you with a floating roof 2 tank? 3 Because I don't want to ask you questions if 4 you're not very familiar with them. 5 MR. PALMER: I've had some experience with 6 those working on other NESHAP tangentially. It was not 7 a direct thing. I was estimating costs and emission 8 reductions and impacts for another rule, miscellaneous 9 surface coating, but -- and then I was conferring with 10 some of my colleagues who were working on organic liquid 11 distribution and also miscellaneous organic chemical 12 manufacturing rules. 13 So I understand the principle, that you have a 14 floating roof on top of a liquid and that prevents 15 evaporation and eliminates a head space, that sort of 16 thing -- 17 MR. HISER: Okay. 18 And what -- 19 (Simultaneous discussion.) 20 MR. PALMER: -- exterior floating roofs. So 21 yeah. 22 MR. HISER: Let me ask my question, and then 23 you can tell us whether you feel qualified to answer it 24 or not, and that would be fine with me. 25 And the question is that where I have a
2885 1 for us. 2 Mr. Palmer, that did not quite -- take quite 3 as long as I thought it might. So I'm back -- 4 MR. PALMER: I'm good. I'm good. 5 So I'm looking at our data here, and so we -- 6 of 2,000 tanks or so that were in our final reduction 7 cost tab. And this goes back to the June 2nd 8 spreadsheet that we provided. There are about 37 tanks 9 that are marked Kb, being subject to Subpart Kb, and we 10 primarily looked at whether or not they had an add-on 11 control device. 12 And these are all -- the 37 that I'm looking 13 at are all marked uncontrolled or blank for control 14 device. So I don't think we took into account floating 15 roofs. 16 So there's 37 in the data, there's -- it looks 17 like, oh, about 30 or so of those we assigned a cost and 18 emission reduction to. But there's -- you know, it's 37 19 out of 2,000. But because they were marked 20 uncontrolled, we included them in the cost of emission 21 reduction. 22 So I don't know if that answers your question 23 or not. 24 MR. HISER: That's very helpful. Thank you, 25 Mr. Palmer.	2887 1 floating roof, and I think particularly for an external 2 floating roof, would it not be very difficult to develop 3 an effective closed vent system for that type of unit to 4 route to a control device, which is sort of the model 5 that would you agree is how the Department looked at how 6 we would handle most of the tanks covered by this 7 rulemaking? 8 MR. PALMER: I'm going to defer on that, but I 9 think it would be easy to determine whether or not 10 those -- those vent systems and add-on controls are an 11 appropriate control device, just basically looking at 12 the control device literature. I think there's a lot 13 out there we can refer to that and not have to rely on 14 my spur-of-the-moment testimony at this time. 15 MR. HISER: Very fair. Mr. Palmer, I 16 appreciate your -- your responses to that. 17 Ms. Kuehn, as well, your clarifications and 18 help in interpreting the rule. 19 I have no further questions. 20 HEARING OFFICER ORTH: Thank you, Mr. Hiser. 21 Is there any other party with questions? 22 Please turn on your camera. 23 No? 24 I will turn then to questions from the Board. 25 While I'm doing that, if you're an attendee on

2888 1 this platform with a question, please reach out through 2 chat. 3 EXAMINATION 4 BY THE BOARD: 5 HEARING OFFICER ORTH: Vice-Chair Trujillo 6 Davis, do you have any questions? 7 VICE-CHAIR TRUJILLO DAVIS: Yes. 8 And I'm just curious. Are we at the point 9 where I can ask questions of -- am I just asking 10 questions of Ms. Kuehn or -- 11 HEARING OFFICER ORTH: Both Ms. Kuehn and 12 Mr. Palmer. 13 VICE-CHAIR TRUJILLO DAVIS: Okay. Great. 14 Thank you. 15 Let's see here. I do have a few -- a couple 16 of questions, just trying to sort through my notes here. 17 What -- oh. Is the NMED going to be -- 18 there's a lot of talk about inspections of -- throughout 19 this hearing, but I was looking at the part of the rule 20 where it was discussing inspections of tanks 21 specifically. 22 Does the Department have a form that they're 23 looking at? Is there an outline of what that inspection 24 should entail? 25 MS. BISBEY-KUEHN: Madam Vice-Chair, there's	2890 1 tanks? 2 MS. BISBEY-KUEHN: I would imagine it's -- 3 Madam Vice-Chair, I would imagine it's very small. 4 VICE-CHAIR TRUJILLO DAVIS: Okay. 5 MS. BISBEY-KUEHN: A very small number have 6 floating roof tanks. Those are for larger tank 7 batteries that -- and there are specific exemptions in 8 that rule for pressure and for -- and for volumetric 9 capacity. And so I haven't seen those employed in the 10 upstream sector, but maybe Mr. Palmer can add to that. 11 MR. PALMER: Am I still on? Yeah. 12 I'm looking at the tank data that we actually 13 have in the equipment -- the equipment spreadsheet, and 14 a lot of those are under the agency interest type, which 15 is a facility type description. A lot of those are oil 16 and gas tank battery bulk fuel storage. Some of them 17 are production. But it looks like about half are bulk 18 fuel storage oil and gas tank battery. 19 So that's -- and some of them are companies 20 listed as marketing. It's possible that some of them 21 are fuel storage rather than oil and gas production. 22 So -- although some of them the -- a lot of them -- I'm 23 looking at the SI description, and a lot of it is crude 24 oil storage, condensate storage. So -- 25 VICE-CHAIR TRUJILLO DAVIS: So I'm just --
2889 1 not a specific checklist, for instance, for owners and 2 operators to use. It's an AVO inspection. So they 3 would be, I imagine, you know, surveilling the unit for 4 audiovisual, olfactory instances. And then for the 5 actual inspection, the monthly inspection, they're 6 actually inspecting the tank for leaks. 7 VICE-CHAIR TRUJILLO DAVIS: Okay. 8 So at this point you're leaving it up to the 9 operators to determine what that inspection should look 10 like as far as on paper and the specifics in that 11 inspection? 12 MS. BISBEY-KUEHN: Yeah. That's right. We 13 haven't specified other than that you conduct an AVO and 14 you conduct an inspection for leaks. Beyond that it's 15 not specified. 16 VICE-CHAIR TRUJILLO DAVIS: Okay. 17 And Section 123, is it applicable to both -- 18 I'm assuming it is, but is it applicable to both 19 production and disposal facilities? 20 MS. BISBEY-KUEHN: It currently -- yes. It 21 is. 22 VICE-CHAIR TRUJILLO DAVIS: And what 23 percentage of the facilities -- I'm going to return back 24 to the floating roof tanks. What percentage of 25 production facilities are you seeing with floating roof	2891 1 sort out in my head here. 2 Of those facilities how many of them would be 3 under your Title V program, and would the facility 4 apply -- would both of these rules apply to a facility 5 that would also be in Title V? 6 MR. PALMER: I'm looking at -- there are not a 7 lot of them under Title V. These -- well -- yeah. 8 These are the ones that were in -- for which we 9 estimated costs. So there may be some that are already 10 controlled and regulated that are under Title V. 11 MS. BISBEY-KUEHN: Madam Chair, we can do that 12 review, we can do that analysis of our permitting 13 database and find out what portion of tanks are subject 14 to Kb and subject to Title V. 15 VICE-CHAIR TRUJILLO DAVIS: Yeah. I think 16 that would be really helpful in trying to kind of sort 17 out some of this information for us. So thank you. I 18 would appreciate that. 19 And I don't have any more questions. 20 MR. HISER: Madam Hearing -- or Madam Hearing 21 Officer? 22 HEARING OFFICER ORTH: Mr. Hiser. 23 MR. HISER: The ones that I was specifically 24 asking about, if that's helpful for the Board, tend to 25 be located either at the crude oil transport sector, so

2892 1 collection right before it goes into the transportation 2 pipeline, or there might be -- we're trying to run down 3 whether there's any at a central delivery point, some of 4 the very largest of those. That was where these 5 questions came from, if that helps you, Madam 6 Vice-Chair, as to why we raised concern. 7 VICE-CHAIR TRUJILLO DAVIS: Yes. And 8 actually, I understood what you were kind of alluding to 9 there, and in my experience I've seen floating roof 10 tanks on extremely large facilities. And to give 11 context here, you know, most production facilities are, 12 you know, five to eight 500-barrel tanks, whereas the 13 floating roof facilities are closer to the, you know, 14 46,000-barrel mark. So the scale is vastly different. 15 So I was trying to sort out which one of these 16 are subject to, you know, Title V and are -- or have 17 more stringent requirements, and then, you know, what 18 we've been talking about is closer to these -- these 19 smaller volumes in that sense. So that's really what I 20 was trying to sort out as far as this -- this discussion 21 was going. 22 HEARING OFFICER ORTH: Okay. Thank you for -- 23 MR. PALMER: Yeah. Okay. 24 HEARING OFFICER ORTH: Thank you, both. 25 Let's see. Member Cates?	2894 1 producers. Just thinking out loud. 2 Is there -- is there something that I'm 3 missing in -- in the 24-month intervals? 4 MS. BISBEY-KUEHN: Member Bitzer, you are 5 correct that there -- there will be supply chain issues, 6 and I think -- I'm sure the other parties will put that 7 out there. 8 There -- there are thousands and thousands of 9 tanks in the tank universe that will be subject to these 10 requirements, more so than engines, and so there will be 11 retrofit costs, ordering of control devices. There's 12 going to be competition among manufacturers to 13 manufacture those control devices in a timely basis. So 14 there are real construction and logistical challenges 15 to, I think, even probably having that infrastructure -- 16 that infrastructure available to comply with these 17 requirements. 18 I think we'll hear -- we need to put something 19 in that is achievable, a timeline that's achievable 20 given those constraints. So I think this is a 21 reasonable starting point. But I'd like to hear from 22 other stakeholders, and I'm sure they'll be presenting 23 on what alternative timelines might be appropriate. 24 MEMBER BITZER: Fair enough. I just -- I just 25 wanted to put that out there in terms of thinking a
2893 1 No. 2 Member Bitzer? 3 MEMBER CATES: No questions here. Thank you. 4 MEMBER BITZER: Real quick, I guess this is 5 for the state. At 20.2.50.123, Paragraph B, it was one 6 of your early slides, you have the schedule of dates. 7 It was January 1st, 2024, then January, '26 and then 8 January, '28 for completion of the upgrades, and I was 9 wondering if there was something magical about 24-month 10 intervals, or if we could perhaps maybe tighten that 11 schedule without a lot of unintended consequences coming 12 down, maybe go 18 months, and have B Section (1) 13 subparagraph (c) start January 1st, 2027 instead of 14 2028. 15 Just trying to imagine the scenario under 16 which we attach two years for each interval. Now, I 17 understand going -- waiting until 2024, middle of 2024 18 to launch, give the industry time to financially and 19 physically prepare and get it in -- get it done. 20 But once -- once the -- I know we're a big 21 state compared to like Colorado, in terms of demands on 22 the supply chain. We're number two, I guess, in the 23 country now. But with that kind of lead time, you know, 24 '25 and '27 seems to be the industry supplier, I guess, 25 would be ready to ramp up enough to supply New Mexico	2895 1 little outside the box, not being wedded to year 2 increments necessarily. Maybe it needs to be more than 3 24 months, you know, 30-month intervals, you know, 4 two-and-a-half years between, but -- if there's that 5 many out there. 6 But it's just -- I just want to keep an eye on 7 the prize in terms of getting this done as soon as 8 practical, fair. So thank you. 9 HEARING OFFICER ORTH: Member Garcia? 10 MEMBER GARCIA: No questions. Thank you. 11 HEARING OFFICER ORTH: Thank you. 12 Member Honker. 13 MEMBER HONKER: No questions. Thank you. 14 HEARING OFFICER ORTH: Thank you. 15 Ms. Katz -- oh, I see Mr. Janoe. 16 Mr. Janoe? 17 MR. JANOE: In anticipation of the next point, 18 Madam Hearing Officer. 19 HEARING OFFICER ORTH: Oh, all right. 20 Ms. Katz, did any of that prompt redirect for 21 you? 22 MS. KATZ: Just one quick question to address 23 Vice-Chair Trujillo Davis' questions about inspections 24 and the documentation. 25

2896 1 REDIRECT EXAMINATION 2 BY MS. KATZ: 3 MS. KATZ: Ms. Kuehn, are there recordkeeping 4 requirements in the rule that operators would have to 5 follow and that would capture the required information 6 regarding those inspections? 7 MS. BISBEY-KUEHN: Yes. 8 MS. KATZ: Okay. Thank you. 9 That's all I have. 10 HEARING OFFICER ORTH: Thank you very much, 11 Ms. Katz, Ms. Kuehn and Mr. Palmer. 12 Mr. Janoe? 13 MR. JANOE: Madam Hearing Officer, we had 14 mentioned in an e-mail earlier that Mr. Holderman is not 15 going to be available coming up here soon in the 16 afternoon. If it's all the same to Mr. Hiser and 17 Mr. Rose, we'd appreciate leading off on the industry 18 side. 19 HEARING OFFICER ORTH: All righty. I'll pause 20 for a moment in the event of some fierce objection from 21 Mr. Hiser or Mr. Rose. 22 No. 23 All right. Go ahead, Mr. Janoe. 24 MR. JANOE: Thank you, Madam Hearing Officer. 25 Mr. Holderman is here with me again today.	2898 1 resolved for coordination, an open dialogue with the 2 Department and other stakeholders, including EDF and the 3 other ENGOS. 4 For example, Oxy USA previously proposed 5 modifications that would allow for use of alternative 6 control technology for storage vessels with a PTE or 7 actual emissions list that are equal to five tons per 8 year. However, Oxy USA understands and appreciates the 9 Department's position that the definition of control 10 device with its allowance for other controlled equipment 11 or technologies approved by the Department already 12 addresses this concern. 13 Accordingly, my testimony today will focus on 14 the two remaining issues, an extended implementation 15 timeline and incorporation of storage vessel 16 measurements requirements. 17 First, as it concerns the implementation 18 timeline, more than 85 percent of Oxy USA's production 19 in New Mexico comes from 19 facilities that were built 20 after 2017 and already have storage vessels that are 21 controlled pursuant to Quad 0a requirements. 22 The remaining storage vessels affected by this 23 rule would account for only 15 percent of Oxy USA's 24 production. The emissions impact of the phased-in 25 retrofit or installation schedule on these
2897 1 His exhibits are Oxy Exhibit Number 2 and Oxy Rebuttal 2 Exhibit Number 2. 3 As with the other sections, Oxy's concerns 4 have largely been resolved in the September 16 5 submittal. We do have two points we'd like to talk 6 about in direct and rebuttal here. First, a proposed 7 revision to the implementation timeline, and then, 8 second, support for the ENGOS' proposal on vessel 9 management -- vessel measurement. 10 I will turn it over to Mr. Holderman. 11 THE REPORTER: Mr. Holderman, this is the 12 court reporter. 13 I'm just going to ask you to keep your voice 14 up for me. 15 MR. HOLDERMAN: Yes, ma'am. 16 DANNY HOLDERMAN 17 (Relating to Topic Order 34) 18 having been first duly sworn or affirmed, was 19 examined and testified as follows: 20 DIRECT EXAMINATION 21 BY MR. JANOE: 22 Q. Mr. Holderman, if you would, please, can you 23 summarize your testimony on Section 123? 24 A. Yes. Consistent with other sections, some of 25 Oxy USA's concerns with this section have already been	2899 1 lower-emitting storage vessels would be minimal, but the 2 resource demand to comply with the proposed rule's time 3 frames would be significant. 4 In light of these concerns, Oxy USA proposes a 5 phase-in schedule that aligns with the engine retrofit 6 schedule that would allow operators to prioritize 7 additional emissions controls at higher production 8 facilities while still accomplishing the Department's 9 emissions reduction goals. 10 The Department established a phase-in schedule 11 for existing storage vessels in its September 16th 12 proposal that would begin in 2024. While we appreciate 13 the Department's extension, we continue to believe that 14 our proposed phase-in which begins in 2025 is more 15 appropriate. 16 As I noted in my prior testimony, and as 17 Ms. Kuehn just noted, the new equipment retrofits 18 required by these rules are substantial and subject to 19 significant supply chains challenges. Steel shortages, 20 component shortages, lack of skilled manufacturing 21 labor, limited manufacturing capacity, lack of skilled 22 installers, supply chain issues and growing demand for 23 similar equipment in other states all limit operators' 24 abilities to timely meet the retrofit and installation 25 requirements of these rules.

2900 1 At this point there's simply not enough 2 manufacturers, technicians and laborers to meet this 3 demand in the time frame proposed. This is why Oxy USA 4 believes it is critical to provide additional phase-in 5 time that accounts for the realities of these resource 6 restrictions. Without meaningful additional relief on 7 these deadlines, Oxy USA and other operators run the 8 risk of being out of compliance for reasons that are 9 completely beyond their control. 10 Moving to the second topic as noted in my 11 rebuttal technical testimony, Oxy USA supports the 12 addition of the new storage vessel measurement 13 requirements section to the rule, as advocated by EDF, 14 Clean Air Advocates and NAVA. This new section would 15 require use of a storage vessel measurement system and 16 establishes related operation, inspection and training 17 requirements. 18 Oxy USA believes this addition is reasonable 19 and helps to further emission -- reduce emission -- 20 sorry -- helps to further emission reductions goals, 21 also why Oxy USA believes the proposed new section is 22 workable for Oxy USA's New Mexico operations. I can't 23 say whether this is feasible for other operators in the 24 state. I'm only speaking to Oxy USA's individual 25 position.	2902 1 Member Bitzer? 2 MEMBER BITZER: You two did a lousy job of 3 stalling for Suina, just for the record. 4 No. I have no questions. Thank you. 5 HEARING OFFICER ORTH: Thank you. 6 Member Garcia. 7 MEMBER GARCIA: No questions. Thank you. 8 HEARING OFFICER ORTH: And Member Honker. 9 MEMBER HONKER: No questions. Thank you. 10 HEARING OFFICER ORTH: Wow. All right, 11 Mr. Holderman. You got off easy this time. 12 MR. HOLDERMAN: Thank you. 13 HEARING OFFICER ORTH: Thank you very much for 14 your testimony. 15 Let's see. I think at this point we would 16 turn to NMOGA. As I understand it, Mr. Smitherman is 17 not available today, but I did panelize Mr. Meyer. 18 Is that where we're going, Mr. Hiser? 19 MR. HISER: Yes. It would be Mr. Meyer. 20 HEARING OFFICER ORTH: All right. 21 If you will join us -- there he is. 22 Please go ahead. 23 MR. HISER: I'm sorry. I hit the wrong 24 button. 25
2901 1 MR. JANOE: Thank you. 2 With that we would submit Mr. Holderman for 3 cross-examination. 4 HEARING OFFICER ORTH: Thank you very much, 5 Mr. Holderman and Mr. Janoe. 6 If you're a party with questions, please turn 7 on your camera. 8 Not seeing anyone. 9 We'll turn then to questions from the Board. 10 While I'm doing that, if you're an attendee on 11 the platform with a question, please reach out through 12 chat. 13 Vice-Chair Trujillo Davis. 14 VICE-CHAIR TRUJILLO DAVIS: I don't know if 15 I'm liking this Member Suina not going first deal here. 16 HEARING OFFICER ORTH: She says she'll be back 17 in about three minutes. 18 VICE-CHAIR TRUJILLO DAVIS: Oh, I'm just 19 giving her a hard time here. 20 But no. I don't have any questions right now. 21 Thank you. 22 HEARING OFFICER ORTH: All right. Thank you. 23 Member Cates? 24 MEMBER CATES: No questions. Thank you. 25 HEARING OFFICER ORTH: Thank you.	2903 1 ADAM MEYER 2 (Relating to Topic Order 34) 3 having been first duly sworn or affirmed, was 4 examined and testified as follows: 5 DIRECT EXAMINATION 6 BY MR. HISER: 7 Q. Welcome, Mr. Meyer. 8 You've been previously sworn in this matter; 9 is that correct? 10 A. That's correct. 11 Q. You've adopted your testimony already? 12 A. Yes, sir. 13 Q. Do you have any corrections to the testimony 14 on storage vessels? 15 A. No, sir. 16 Q. Okay. 17 Your exhibits are found, for the Board's 18 benefit, in NMOGA Exhibit A2 for direct and NMOGA 19 Exhibit 42 for rebuttal. And so if Board Members would 20 like to follow along, that would be appropriate. 21 Did you prepare a summary of your direct and 22 rebuttal testimony? 23 A. Yes, I did. 24 Q. Would you like to share screen? 25 A. Absolutely.

2904 1 MR. HISER: And, Madam Hearing Officer, I 2 think he asked you that already, correct? 3 Yes. She says you're ready. Yeah. 4 MR. MEYER: I got it. 5 Can everyone see that? 6 MR. HISER: Yes. You can make it a little bit 7 bigger. 8 MR. MEYER: Sure. 9 MR. HISER: Perfect. 10 MR. MEYER: Okay. 11 Q. (BY MR. HISER) Mr. Meyer, what are you going 12 to be speaking to today? 13 A. So today I'm going to be speaking towards the 14 Valor report, direct testimony regarding storage 15 vessels. By association, obviously, control devices and 16 hydrocarbon loadout got rolled into that same report so 17 there may be some crossover here and there. 18 Q. But basically your point is that in addition 19 to the storage vessel we also have to route the 20 emissions to the control device, and so -- 21 A. Right. Yes. Exactly. 22 Q. All right. Very good. 23 Why don't we move on and see what you have to 24 say. 25 A. Okay.	2906 1 So -- 2 Q. So -- 3 A. Go ahead, Mr. Hiser. 4 Q. So you're going to now go through sort of how 5 the costs were developed for combined tank and control 6 system; is that correct? 7 A. Correct, correct. As the rule was, it's all 8 encompassing, you know, the capture of vapors during 9 truck loadout to control devices, as well as to storage 10 tanks, and they all kind of get rolled into one. 11 So a little bit about closed vent system 12 analysis for storage tanks is that it can be much more 13 costly than most people think. I think in the ERG cost 14 estimate sheet there was an assumption of like one 15 combustor for a tank and then that could be used for 16 many tanks, that same combustor, for a battery of 17 multiple tanks. 18 That assumption is sometimes not true. 19 Because at the end -- the ultimate goal, and this is 20 bullet point two, is that store -- what we're trying to 21 do is design or evaluate these closed vent systems so to 22 prevent tank pressures from reaching a leak point of 23 thief hatches or relief devices. So in order to prevent 24 that, there's a lot of things we have to consider. 25 There's some common terms that are being --
2905 1 So the Valor effort was to evaluate these 2 various sections of the rule a couple months ago and to 3 do -- basically the end goal was to provide a cost 4 estimate for -- for that impact of the rule. In kind of 5 a high level, what we did was we used again a lot of the 6 ERG cost estimation, which was great, and made the 7 adjustments where it was necessary based on our 8 experience. 9 So we took numbers that were associated with 10 that study and extrapolated out using reports from the 11 Greenhouse Gas Reporting Program of what other tanks 12 could be out there that maybe were not in the ERG 13 summary. And the next step was to apply our expertise 14 in storage vessel closed vent system analysis and come 15 up with a cost estimate for those affected facilities. 16 And then the last thing we did was to offer up 17 on an alternative rule applicability that may be a good 18 compromise between, you know, the two sides here. So I 19 thought it would be prudent to first go through a little 20 bit of a background on closed vent system analysis. 21 And I apologize ahead of time in this -- in 22 this presentation. I use the term "closed vent system" 23 and "vapor control system" kind of synonymously. So 24 you'll see CVS, and you'll see VCS. They're one and the 25 same.	2907 1 that are used in this context. PPIVFR, which stands for 2 peak potential instantaneous vapor flow rate. So that 3 is a momentary flow rate of vapors that are either 4 created by or enter into the tank system. So I think as 5 NMED had pointed out before, there are flash vapors and 6 working vapors and thermal breathing vapors. 7 Another big point is available head space, as 8 we call it, in the tanks. A tank that is completely 9 full, if you can imagine, has no vapor space. If I 10 throw just a little bit of gas into that, it has a 11 propensity for the pressure to go up pretty quickly. 12 So the point that I -- we were making in our 13 Valor memo was to illustrate that, but say that 14 potentially single standalone tanks in New Mexico could 15 be hardest hit from these rules because they don't have 16 a lot of head space to absorb flash vapors. 17 And so with those two things considered -- and 18 there's other factors to consider, of course, but with 19 those two main points, it almost becomes a balancing act 20 of modifying the upstream facility to reduce or raise 21 into the tanks or to add additional capacity of the 22 closed vent system and associated control device. And 23 also -- I don't have this in here, but tank level 24 control becomes very critical. 25 So what we were -- you know, when you -- when

2908 1 you evaluate these, there's -- the requirement is to do 2 a closed vent system analysis. And it's been loosely 3 defined. However, if we look to more recent consent 4 decrees on the subject, there's kind of been this 5 precedent set of that you have to evaluate the adequacy 6 of the CVS by assuming that all nonprecluded tank inputs 7 operate simultaneously. 8 So what nonprecluded means is any input that 9 can at any time go open and flow liquids or vapors into 10 the tank, you have to assume that it does, along the 11 same time that all the other inputs go in. This is a -- 12 it's kind of an improbable event, again another 13 hundred-year flood type situation. But what it can do 14 is create the need at least on paper -- the need for a 15 larger capacity control device or vapor control system 16 that you really don't need. 17 So on this next slide here, I'm trying to 18 illustrate that problem. So this is a tank battery 19 where we had to simulate all the inputs to the tank 20 system that could, although unlikely, could go -- flow 21 liquids or vapors into the tank simultaneously. We had 22 to assume that they did so at time zero. 23 And so you see this huge pressure spike. This 24 is modeled. Right? This is not reality. This is a 25 huge pressure spike that is a probably very unlikely	2910 1 anticipated range of operations? 2 A. Yeah. I do -- I do hear that, and that gives 3 me encouragement. You know, that reasonable range of 4 operations is -- you know, what is reasonable to you may 5 be different to me. So I -- although it's encouraging, 6 I feel like I've heard that before, so to speak. If 7 that makes sense. 8 Q. And then let's talk, then, about the adverse 9 consequence. Let's say that we've decided that we want 10 to use this instantaneous rate which is shown in that 11 initial spike. 12 What is the impact on the environment of 13 sizing the control device for that point versus to, say, 14 maybe the second bar up above that intermediate spike 15 that we see? 16 A. Sure. The impacts is that you have oversized 17 control devices that you're required to keep on a 18 large -- let's just say a large combustor -- on the site 19 because the theoretical model tells you you need to. 20 But then in practice, you know, operations, that 21 combustor is not flowing nearly that peak amount, and 22 you have turndown issues, so that you're going to have 23 efficiency issues at the low end of the pressure range. 24 Q. Isn't there -- 25 (Simultaneous discussion.)
2909 1 event in the life of this battery. 2 So then you have this post-time zero, this 3 time where the pressure is actually modeled to be very 4 low, because this is more realistic to operations. 5 Right? I wasn't modeling these other inputs going on 6 and on and on continuously. 7 So what this results in -- in summary of this 8 is that it could result in a larger capacity control 9 device than would have otherwise be thought, just 10 because of a precedent set in recent negotiations. 11 Q. Before you move on, Mr. Meyer, let's leave 12 that slide up and talk about that. 13 So your testimony basically is that you 14 believe that we should be designing tanks for some place 15 that's lower than this initial giant spike that you're 16 showing, that your testimony is basically is unlikely to 17 ever occur, but instead we should be designing to cover 18 that second highest spike with some margin of safety, 19 and that would be a more appropriate way to design? 20 A. Absolutely, yes. And I think there needs to 21 be more of a focus on likely events, not peak, all 22 improbable events. 23 Q. Now, were you here during the prior testimony 24 by Ms. Kuehn from the Air Quality Bureau where she spoke 25 about the Department looking to the sort of reasonably	2911 1 Q. -- Mr. Meyer, to resolve that? One would be 2 to turn down the combustor, and the second would be to 3 burn additional fuel in order to make up the Btu 4 deficit? 5 A. Yes. You could add -- you know, you could add 6 more gas to your tank system to make it up or to your -- 7 to the inlet of the combustor, but you basically have to 8 try to cover that range of operations better. You know, 9 ultimately what it means is that if you have normal 10 operations, you're actually creating more emissions from 11 unburnt, you know, hydrocarbon vapors, because 12 99 percent of the operation is operating as you see 13 below in the very low range. 14 I think this has been acknowledged in other 15 negotiations because they have -- it's been brought up 16 having a -- the concept of peak -- not peak -- potential 17 minimum vapor flow rate. So you have to also size for 18 that. Well, the minimum is zero. Right? There could 19 be no vapors going to the flare or combustor, which 20 means you would have an infinite turndown, which is 21 going to be nearly impossible. 22 Q. Okay. 23 Let's reset our focus here. 24 A. Sure. 25 Q. Your testimony as you're making it today is

2912 1 that you believe that that reasonable range should 2 accommodate the likely foreseeable peak to minimize 3 potential excess emissions from having to add 4 supplemental fuel or from inefficiencies that result 5 from having a too large control device. 6 A. Right. There's middle -- there's middle 7 grounds for sure. 8 Q. Okay. 9 Why don't we move to the next slide. 10 A. Okay. 11 So with that in mind, that there is a 12 potential for oversizing of equipment, there are 13 instances where you actually do need bigger equipment 14 than is usually -- than is reasonably thought to be 15 needed. You know, again a lot of times if you have 16 tanks with low vapor space, head space, you do need a 17 larger combustor, you know, many times. 18 So based on our experience, you know, there's 19 a kind of a size of combustor that we think is generally 20 appropriate or that -- as a minimum. So it's a larger 21 combustor than you would think, and so with that comes a 22 whole bunch of other additional costs associated with 23 that larger combustor or control device. 24 So, you know, things that have to be added to 25 the facility include like concrete pads or foundations	2914 1 vessels completely. So it's not just the combustor or 2 even a bigger combustor. It's -- you have to maybe 3 replace your tank in order to comply. 4 Q. And is that -- 5 A. So -- sorry. 6 Q. Is that a greater problem with the single tank 7 battery where you have very little head space and you 8 can't share head space between multiple facility -- or 9 multiple tanks? 10 A. Yes, yes. So the single standalone in our 11 assessment was the hardest hit by the rules, or will be, 12 unless there is some sort of carveout to it. And I 13 think I've heard testimony about smaller operators and, 14 you know, local communities depending on them. And, you 15 know, the sites that are of the single tanks will 16 probably -- probably will not be cost effective for them 17 to continue. 18 That's just my opinion. 19 Q. Okay. 20 Did you hear the testimony from Mr. Holderman, 21 the representative of Oxy USA? He was, I think, right 22 before you? 23 A. Yes. I -- I caught bits and pieces of it. 24 Yes. 25 Q. And he discussed some concerns he had about
2913 1 for the control devices. And, you know, burner 2 management systems, although they're kind of 3 traditionally provided in the costs, there may be a 4 requirement to have redundant BMS or redundant pilot 5 systems. 6 There's a lot of piping and flame arresters 7 and a lot of different equipment, solar backup, to keep 8 these things running. And some instances you need to do 9 some fuel gas -- you need to do some gas conditioning. 10 And one of the things that I brought up in the 11 Valor memo was this potential that, you know, for a lot 12 of these smaller facilities or older facilities, you 13 know, the tanks may have a -- may be rated for something 14 much lower -- lower in pressure so that they can't 15 actually handle a lot of vapors without relieving out of 16 the thief hatch. 17 So a traditional API 12F tank is rated for 18 16 ounces of pressure. There are some tanks that are 19 eight ounces, and some of the older ones are four ounce 20 rating, and then there's others that are just stamped as 21 ATM, meaning atmospheric. Those latter two, they really 22 can't handle a lot of pressure before they have to 23 relieve out of their relief devices. 24 So for the applicability of this rule, there 25 are costs associated with replacing those storage	2915 1 supply chain issues and availability of materials for 2 these tanks installations. 3 Do you have any similar concerns? 4 A. Oh, yes. Yeah, absolutely. Just steel in 5 general is hard to come by. So there is a -- there will 6 be -- if -- if people have to replace tanks as a result 7 of this rule, there -- there will be a timeline issue, 8 for sure. 9 Q. And are you generally sympathetic, then, to 10 the suggestions of Mr. Holderman that some sort of 11 implementation schedule is appropriate? 12 A. Yes. Yes. Being more explicit, yeah. 13 Q. Why don't we move on. 14 A. Okay. 15 So there was a lot of cost information and 16 details in the -- in the Valor report, but at the end of 17 it, if you consider the rules in its entirety, 18 hydrocarbon liquid -- hydrocarbon vapor capture during 19 truck loadout, potential for larger combustor or control 20 device, replacing of tanks, all these things added up, 21 you could have a significant cost associated with 22 especially the smaller tank, single standalone tank 23 batteries. 24 Here's just a summary that was at the end of 25 applicability of the two tons per year for existing

2916 1 storage vessels. I understand that this has been 2 superseded by a newer red-line. 3 And so the last part that Valor did was to 4 kind of offer up a happy medium here, and so what we had 5 proposed was a six tons per year threshold. And when 6 you -- when we did the math, again using ERG's data as a 7 baseline, you know, we concluded that we can -- you can 8 have a significant reduction in VOCs, but for a much 9 cheaper price tag to the industry. 10 And I would go as far to say that, you know, 11 maybe something to consider is, yes, it's six tons per 12 year, but possibly have a whole carveout for single 13 standalone tank batteries and make their applicability a 14 little higher. 15 Q. And basically your point on that slide is to 16 show that depending where you sit it there may be a much 17 greater cost reduction than there is a loss in VOC 18 reduction? 19 A. Yeah. I think there will be a tipping point 20 or a point of diminishing returns, I'd say. 21 Q. Okay. 22 Please continue. 23 A. The remainder of these is regarding the 24 rebuttal, so clarifications. 25 This came down to, you know, why adding the	2918 1 And our -- what we wanted to kind of put out 2 is we believe that, you know, auto gauging for new 3 storage vessels, newly procured storage vessels for new 4 facilities, we completely support that, but we -- we 5 wanted to put a little asterisk on that to say, you 6 know, what if you're modifying an existing tank battery 7 and adding that -- a new storage tank, or replacing one. 8 The require -- there should not be a 9 requirement to have auto gauging for that replacement 10 tank, because it would -- in our opinion, it would 11 create some confusion between, you know, truckers where 12 they may have to say should I manually gauge that tank, 13 but this one I'm not allowed to. And it just seemed 14 like an operational nightmare to us. 15 So we were -- anyway, it was our opinion to 16 actually specifically have a carveout for that 17 situation. 18 Q. And so our position is that NMOGA is 19 supportive for any new tank and a new storage battery 20 context, we agree with auto gauging, but we don't 21 believe it should apply to modifications of existing 22 tanks? 23 A. Correct. 24 Q. Okay. 25 And then you had, I think, a comment about our
2917 1 term "tank battery" as a definition. We believed it was 2 necessary just because it was used throughout the rules, 3 and, you know, tank battery in New Mexico may mean 4 something different in Colorado, for example. So we 5 thought that was prudent. 6 We also thought it was appropriate when it 7 came to truck vapor capture to say that vapors need to 8 be returned to the tank battery, you know, not 9 necessarily the individual tank that you're loading out 10 from. 11 Q. That's because it allows you to take advantage 12 of the combined head space and thus reduce the pressure 13 requirement? 14 A. That -- yes, that, but to me it didn't 15 matter -- it was too -- it was too explicit to say you 16 got to put the vapors directly back into the tank you're 17 loading out from. It doesn't matter where I send the 18 vapors as long as I'm controlling them. Right? 19 Q. As far as they're all manifolded together? 20 A. Correct. 21 Q. Okay. 22 A. And the last -- the last portion, which was on 23 rebuttal for auto gauging, there was the thought of 24 adding -- or requiring level transmitters or other kind 25 of auto gauging to -- you know, to all tanks.	2919 1 concern about some of how the language read as it 2 related to maintenance practices? Could you explain 3 that concern? 4 A. I'm sorry. In what -- what context? 5 Q. The last bullet point. 6 A. The last one? Okay. 7 Yeah. The last bullet point is that there was 8 parts in the rule where it could be interpreted that 9 you're not allowed to open these thief hatches ever, and 10 I believe that we have to have that ability to perform 11 maintenance, to clean them, to maintain them, without 12 fear of ramifications. So -- 13 Q. Okay. Thank you very much for that. 14 Did you have any other topics that you wanted 15 to address? Does that complete your direct and -- 16 summary of your direct and rebuttal? 17 A. That completes my summary. 18 MR. HISER: Thank you, Mr. Meyer. 19 Madam Hearing Officer, we'll make him 20 available for questions. 21 HEARING OFFICER ORTH: Thank you. 22 And if you would shrink your screen there for 23 a moment. 24 If you're a party with questions, please turn 25 on your camera.

2920 1 I'm not seeing anyone. 2 I'll turn then to the Board for their 3 questions. 4 If you're an attendee on the platform with a 5 question, please reach out through the chat. 6 EXAMINATION 7 BY THE BOARD: 8 HEARING OFFICER ORTH: Madam Chair, do you 9 have questions of Mr. Meyer? 10 CHAIR SUINA: Thank you, Madam Hearing 11 Officer. None at this point. Thank you. 12 HEARING OFFICER ORTH: Thank you. 13 Vice-Chair Trujillo Davis. 14 VICE-CHAIR TRUJILLO DAVIS: Yes. 15 And I'm glad Phoebe's back. 16 Okay. Mr. Meyer, my question really -- you 17 were discussing the -- in slide 5, I think it is -- 6 18 maybe -- no. I'm sorry. Yes. It's definitely slide 6. 19 I apologize. Sometimes it's difficult to see 20 the slides on the -- zoomed in. 21 HEARING OFFICER ORTH: Mr. Meyer can bring it 22 up again if that would be helpful. 23 MR. MEYER: I was just about to do that. 24 VICE-CHAIR TRUJILLO DAVIS: It was the -- 25 there's a comment on there about the worst hit	2922 1 takeaway, if that makes sense. 2 VICE-CHAIR TRUJILLO DAVIS: It does, but it 3 leads me to a couple more questions. 4 I've noticed we mention thief hatches a lot, 5 but do these tanks generally have an Enardo valve on 6 them? 7 MR. MEYER: So yeah. I think -- I use the 8 term "thief hatches" because most people can relate to 9 that, but there are tons of different types of relief 10 devices that can be on tanks. An Enardo, what they call 11 an EPRV, an emergency one, right, that's green, you may 12 have seen that. Thief hatches, Enardo makes some, and 13 there's a whole bunch of other manufacturers. And 14 there's also relief devices by, you know, Morrison 15 Brothers, and -- there are all makes and models. 16 But at the end of it, what we do when we 17 analyze these facilities is we look at the one that has 18 the lowest setting, you know, this one is set at 19 16 ounces, this one is set at 14, this one is set at 10, 20 and we have to design the closed vent system and control 21 device for that 10-ounce one, because that's the one 22 that's going to go first. 23 VICE-CHAIR TRUJILLO DAVIS: Okay. 24 So the Enardo should go before the thief 25 hatch, correct?
2921 1 facilities were going to be standalone tank batteries. 2 And I'm wondering. Generally aren't those 3 standalone tank batteries dry gas wells or stripper 4 wells? 5 MR. MEYER: Excellent question. 6 And this is -- that is the common 7 misconception. Right? Is that because they're lower 8 producing, if you were to totalize their emissions 9 throughout the year, yes, they're a lower contributor. 10 Right? However, it's because in my world we look at 11 preventing overpressurization of the tanks to where a 12 thief hatch is open. 13 So say there's a facility with a separator, 14 just a separator and a single tank. When that 15 separator -- it may not produce at all, maybe a half a 16 barrel a day, but during that one time a day, where the 17 separator dumps from the dump valve, the amount of 18 liquids or the flash vapors overwhelm that tank, and it 19 relieves out of its thief hatch. 20 So the one thing to take away is just because 21 a facility is low producing does not mean it -- it's, 22 you know, not going to vent, you know. Sometimes it is. 23 Right? And we found cases where that's the case -- you 24 know, where that's true. But production is not the same 25 as flow rate, instantaneous flow rate. That's the	2923 1 MR. MEYER: There -- well, so there's a lot 2 of -- depending on what engineer you talk to, they 3 set -- some set them that way, some set them the other 4 way, where the thief hatch goes first and then the 5 Enardo, as you call it, the -- 6 VICE-CHAIR TRUJILLO DAVIS: EPRV? 7 MR. MEYER: The emergency one. We'll call it 8 that. The emergency relief valve goes second. I'm 9 of -- when I design them, I design for the emergency one 10 to go first, and not the thief hatch, because I know how 11 finicky the thief hatches can be. 12 VICE-CHAIR TRUJILLO DAVIS: Okay. 13 But my original train of thought on asking you 14 about these single standalone batteries, isn't -- I 15 believe there is a cutoff -- or a carveout in the rule 16 for them with the -- and let me pull the rule back up 17 here. I have so many tabs open at this point in this 18 hearing. 19 That there are two that exist, one for how 20 many times it's unloaded and -- and I apologize. Now 21 I'm -- now that I'm looking at it, I'm finding it 22 difficult to find them -- 23 MR. MEYER: I think you're referring to the 24 truck vapor capture being required only for a tank 25 battery that has had X number, 12 or 13 loadouts in a

2924 1 time period? Is that a year, I want to say? 2 VICE-CHAIR TRUJILLO DAVIS: I think it says a 3 month, if it's only unloaded more than once a month, or 4 less -- less frequently than monthly. 5 MR. MEYER: Right. 6 VICE-CHAIR TRUJILLO DAVIS: And then I know 7 that there was another provision for dry gas wells that 8 was less than two tons per year. So -- 9 MR. MEYER: That's -- 10 (Simultaneous discussion.) 11 VICE-CHAIR TRUJILLO DAVIS: -- less than two 12 tons per year, I'm thinking? 13 MR. MEYER: That's the applicability. Yeah. 14 So the -- so let's look at the truck loadout one first. 15 So hauling once a month. Right? You know, 16 you still -- that is an added cost, right, to add that 17 line and the vapor balance line. And -- well, actually, 18 before I say that, let me -- let me say that these 19 cost -- the cost estimates I'm presenting here were from 20 the first draft, not what has been modified since. 21 Right? So that 12 loadouts, this cost estimate was 22 before that. Right? 23 But anyway, but let's just put the truck vapor 24 capture system aside, because let's -- you know, in 25 theory you could easily remove -- now, with the new	2926 1 And then the last question I had was on the 2 spikes that you were showing on slide 5. 3 MR. MEYER: Sure. 4 VICE-CHAIR TRUJILLO DAVIS: And let me pull 5 that back up. Or you've got it up. There you go. 6 MR. MEYER: Yeah. 7 VICE-CHAIR TRUJILLO DAVIS: So the spike -- 8 the first spike -- and again I have a little hard time 9 seeing the detail in your graph. So that's really what 10 I'm asking about. 11 MR. MEYER: My apologies. 12 VICE-CHAIR TRUJILLO DAVIS: Is that coming on 13 when you bring a well on, that first bit of heavy flow 14 that comes at the beginning of a well being turned on? 15 MR. MEYER: No. This is a by-product of -- 16 you know, it's very difficult to do a theoretical 17 dynamic model. That's what you're looking at right now. 18 And you've got to kind of start at some time. Right? 19 And so we just pick an arbitrary time in -- in the life 20 of the facility, or usually it's how is a facility being 21 operated right now. 22 But when I model it, I have to model as if -- 23 if I have a main separator that's flowing, and flowing 24 to the tanks, but say I have a gas scrubber that's over 25 there, it has a dump valve, and then over there is a
2925 1 rule -- the new red-lines, we don't -- you know, we 2 could actually vapor balance now. You know, before it 3 was you had to send the vapors to another combustor. 4 And also, the, you know, water -- we don't 5 have to capture water truck vapors now per the new 6 red-line, the 9/16 version. So that's a huge -- you 7 know, that's a huge win. 8 But still at the -- for the small single tank 9 batteries, you know, it all comes down to that head 10 space. I don't have enough head space to absorb a lot 11 of flash. So usually the debate becomes, you know, you 12 can change trim sizes on valves, like make valves 13 smaller that are flowing into it, or you make your 14 closed vapor capture system bigger. 15 We've even gone down the route of adding a 16 whole other stage of separation between the facility and 17 the tank to dampen out any pressure spikes in that 18 single tank. 19 So there -- the modifications -- from our 20 opinion and what we know and have seen, the 21 modifications may be greatly disproportional for a 22 single tank battery right now, even -- even with the new 23 three tons per year applicability. 24 VICE-CHAIR TRUJILLO DAVIS: Okay. That kind 25 of clears up what you -- some of that testimony for me.	2927 1 pneumatic pump, and over there is some other piece of 2 equipment, all of which could -- or, you know, are piped 3 into the tanks. From a modeling perspective we have to 4 assume that they all dump at once. 5 That's what that initial spike represents, is 6 this idea that you have to -- you know, the precedent 7 being set in these consent decrees, and you have to 8 model as if they all go off together, at time zero. And 9 that's where the -- what this spike in this graph 10 represents. 11 But if I model that I start all the valves to 12 open at time zero, and then the remaining of this graph, 13 they're just kind of going on their own, you know, in 14 the model, it's unlikely that they will ever sync up 15 again, to dump all at the same time. You know, there's 16 a second spike you see here, you know, the little lower 17 one, around 4 -- around 5 ounces. 18 VICE-CHAIR TRUJILLO DAVIS: Um-hum. 19 MR. MEYER: That may be a spike from a 20 miscellaneous gas scrubber, if it dumps to the tank. 21 VICE-CHAIR TRUJILLO DAVIS: Do you model for a 22 hung up valve? 23 MR. MEYER: Say again? I'm sorry? 24 VICE-CHAIR TRUJILLO DAVIS: Do you model for a 25 valve that's been hung up?

2928 1 MR. MEYER: No. We tend to not model failures 2 and malfunctions, because in that case that's what the 3 hatches and relief devices on the tanks are for. 4 They're there to prevent a tank explosion due to a 5 gas -- what we call a gas blowby event. So these -- 6 these models are never run with malfunction considered. 7 VICE-CHAIR TRUJILLO DAVIS: Okay. 8 And are all these engineered to dump at the 9 same time, like you were saying in that first initial 10 spike? Are these devices engineered to do that? 11 MR. MEYER: There -- it becomes a discussion 12 of what's the probability of that happening. It's very 13 improbable that they will. However, the precedent set 14 in other -- in recent consent decrees is that you have 15 to model as if they do. 16 VICE-CHAIR TRUJILLO DAVIS: Okay. 17 Okay. Thank you for answering my questions. 18 I don't have any -- 19 MR. MEYER: Welcome. 20 HEARING OFFICER ORTH: Thank you, Madam Chair. 21 Member Cates? 22 MEMBER CATES: No questions here. Thank you. 23 HEARING OFFICER ORTH: Thank you. 24 Member Bitzer? 25 MEMBER BITZER: No questions. Thanks.	2930 1 HEARING OFFICER ORTH: Thank you, Mr. Hiser. 2 Thank you, Mr. Meyer, for your testimony. 3 Let's -- well, let's see. It's 11:46. We are 4 close to needing a break. We're also close to lunch. 5 Let me ask Ms. Katz -- oh. Actually -- first let me 6 confirm with Mr. Rose. 7 Mr. Rose, it wasn't clear to me whether we'd 8 be hearing from Mr. Davis or Mr. Brown. 9 MR. ROSE: Madam Hearing Officer, with respect 10 to the storage vessels, I don't believe that Mr. Davis 11 actually testified on those. I think his direct and 12 rebuttal go to loadouts and other equipment, but not the 13 tanks. 14 And as to Mr. Brown, as I indicated before, 15 his testimony was related to general requirements in 16 Section 112, that's the recordkeeping and reporting, and 17 that section is referenced in this one. So I guess his 18 testimony goes to this to some extent, but it's 19 addressed in his comments on Section 112 as they apply. 20 So we were -- we had not intended to offer any 21 additional testimony on this item. 22 HEARING OFFICER ORTH: Thank you. 23 So, then, it seems we would go to Mr. Kim; is 24 that correct? 25 MS. SHPALL: That's correct.
2929 1 HEARING OFFICER ORTH: Thank you. 2 Member Garcia. 3 MEMBER GARCIA: No questions. Thank you. 4 HEARING OFFICER ORTH: And Member Honker. 5 MEMBER HONKER: No questions. Thanks. 6 HEARING OFFICER ORTH: Thank you. 7 Will there be any redirect? 8 Mr. Hiser? 9 MR. HISER: I can't get myself unmuted. 10 I guess I just have one question for Mr. Meyer 11 back on slide 6, which you spent some time on. 12 FURTHER DIRECT EXAMINATION 13 BY MR. HISER: 14 Q. At the bottom of this slide, there's a 15 comment, and I just want to make sure that -- you've 16 talked there about a single standalone tank battery, but 17 what you're really talking about is a single tank which 18 is the only tank in a tank battery; is that correct? 19 A. Correct, yep. It's just sitting out on the 20 facility by itself. Yep. 21 Q. All right. That was my only question, was to 22 make sure it was clear what you meant by that term. 23 A. Got you. 24 MR. HISER: Nothing else, Madam Hearing 25 Officer.	2931 1 This is Casey Shpall. 2 HEARING OFFICER ORTH: Oh, thank you, 3 Ms. Shpall. 4 All right. Do we have Mr. Kim on the 5 platform? 6 MR. KIM: Yes, you do. 7 HEARING OFFICER ORTH: Oh, terrific. 8 Shall we do that before a short lunch break? 9 MS. SHPALL: That would be fine. 10 HEARING OFFICER ORTH: All right. 11 I see you're on the screen, Mr. Kim. Hello. 12 And, Ms. Shpall, you can be on camera or not 13 depending on your bandwidth. 14 MS. SHPALL: Okay. 15 IL KIM 16 (Relating to Topic Order 34) 17 having been first duly sworn or affirmed, was 18 examined and testified as follows: 19 DIRECT EXAMINATION 20 BY MS. SHPALL: 21 MS. SHPALL: Mr. Kim has previously testified, 22 and so he's been sworn in. His testimony is under 23 Appendix A for direct and Appendix A for rebuttal for 24 the Commercial Disposal Group. 25 Q. And, Mr. Kim, the Department has developed a

2932 1 definition of storage vessel under Section 20.2.5.7RR. 2 Do you agree with that definition, or do you 3 have a recommendation for that definition? 4 A. Yes, I do. 5 But before I start, can I get sharing 6 capabilities so I can share my screen for some of our 7 PowerPoint slides? 8 Thank you. 9 And is that coming up for everybody? 10 Q. It is. 11 A. Awesome. 12 Yes. The group agrees with the definition of 13 storage vessel and simply recommends adding numbers to 14 the list of the types of vessels not included in the 15 definition for ease of understanding, as shown in this 16 slide. 17 As you can see on the slide, starting with "A 18 storage vessel does not include (1) a vessel that is 19 skid-mounted or permanently attached to a mobile source 20 and located at the site for less than 180 consecutive 21 days, such as a truck or railcar, (2) a process vessel 22 such as a surge control vessel, bottom receiver, or 23 knockout vessel, or (3) a pressure vessel designed to 24 operate in excess of 204.9 kilopascals without emissions 25 to the atmosphere."	2934 1 these tanks are not the same as from a well site. The 2 vapors are highly diluted and have high moisture 3 content. Thus, supplemental fuel is needed for 4 combustion. 5 Cimarron -- a Cimarron letter discussing the 6 need for supplemental fuel at streams with high moisture 7 content are attached in my -- are attached as Attachment 8 D in my direct testimony. The slide 2 is the letter 9 which was given to us by Cimarron. It shows that the 10 type of vapors in our processes with high moisture 11 content, they would require about 1,200 Btu per standard 12 cubic feet for 95 percent combustion efficiency. 13 This does vary on a case-by-case basis, and 14 this would be something we would end up doing sampling 15 with and then seeing where -- how much supplemental fuel 16 would need to be added to the combustor for a combustion 17 efficiency of 95 percent. 18 And these modifications are costly and may not 19 result in any VOC reductions. In total, the capital 20 costs could be over \$500,000 per site with an annual 21 operation and maintenance cost of \$40,000. The 22 calculated cost to control VOCs in dollars per ton would 23 be roughly \$28,657.85 per ton of VOC controlled. 24 A detailed cost estimate of economic impacts 25 of this section of proposed rules as applied to the
2933 1 And the reason for the request is just ease of 2 understanding. 3 Q. Thank you. 4 What comments do you have regarding the 5 applicability section of 123A? 6 A. As stated in my direct testimony, Section 123 7 imposes emission control requirements in relation to 8 storage vessels which are technically infeasible where 9 the use of supplemental fuel is required. The group is 10 concerned that facilities with very low emissions can 11 end up increasing total VOC and NOx emissions with the 12 use of supplemental fuel in order to combust the vapors. 13 As we have emphasized throughout our 14 testimony, both written and oral, due to low hydrocarbon 15 concentrations in the vapor stream, our group's 16 facilities are not already controlled like E&P 17 facilities and therefore would require significant 18 modification to achieve capture and combustion 19 efficiencies for both storage tanks and hydrocarbon 20 liquid loadout. 21 I'll move to slide 2. 22 In addition, it is important to understand 23 that the low Btu content and high moisture content of 24 the vapors from which tank -- the tank would not be able 25 to combust without supplemental fuel. The vapors from	2935 1 group's facilities is attached to my direct testimony as 2 Attachment E. 3 Q. Mr. Kim, do you suggest a different approach 4 to regulating storage vessels where the use of air 5 pollution control equipment would not be technically 6 feasible? 7 A. The group supports NMED's language from its 8 latest proposal on September 16th, 2021, regarding the 9 applicability of the requirements of Section 20.2.50.123 10 NMED to new storage vessels with an uncontrolled PTE 11 equal to or greater than two tons per year of VOCs and 12 existing storage vessels with a PTE equal to or greater 13 than three tons per year of VOC with one exception. 14 Based on NMED's comments during the hearing, 15 we are asking the Board to consider a modification to 16 our rebuttal testimony to move a statement from our new 17 section -- or from our new Section B.(9) to Section A. 18 Q. And do you have specific suggestions for 19 transferring that section into Section A? 20 A. Yes. We are proposing that one of the 21 following provisions be added to Section 123A as a 22 second paragraph. We have given two options. We are 23 more in favor of option one, but have decided to put up 24 both options for a representation of what could possibly 25 be.

2936 1 Option one, "Storage vessels are not subject 2 to Section 123B where the use of air pollution control 3 technology would be technically infeasible for reasons 4 including but not limited to the inability to operate 5 without supplemental fuel. The Department can request 6 information at any time regarding the owner's or 7 operator's infeasibility calculations," or "Storage 8 vessels for which vapors do not meet minimum Btu values 9 for the combustion device based on manufacturer 10 specifications, are not subject to 123B." 11 With either of these changes, we would no 12 longer propose our addition of Section 123B.(9). This 13 language would apply to storage vessels with very low 14 hydrocarbon concentrations where there are technical 15 difficulties associated with bringing in supplemental 16 fuel to operate the control devices. 17 Q. Do you have any other concerns with this 18 section? 19 A. No. 20 MS. SHPALL: Thank you. 21 Mr. Kim is now available for cross. 22 HEARING OFFICER ORTH: Thank you very much, 23 Ms. Shpall and Mr. Kim. 24 Let me ask you to minimize your screen for 25 just a moment.	2938 1 MR. KIM: Casey, you're muted. 2 MS. SHPALL: What I was saying is yes -- can 3 you hear me? 4 MR. KIM: Yep. 5 MS. SHPALL: Okay. 6 The provisions that we had were just in a 7 different subsection of what we proposed, but the 8 concept was in a previous iteration that we submitted 9 with our testimony in the direct and the rebuttal. 10 CHAIR SUINA: Okay. Thank you for that 11 clarification. Appreciate it. Thank you, Mr. Kim. 12 Madam Hearing Officer, that's the only 13 question I have. 14 HEARING OFFICER ORTH: Thank you. 15 Vice-Chair Trujillo Davis? 16 VICE-CHAIR TRUJILLO DAVIS: Yes. 17 Thank you, Mr. Kim. I just have one question. 18 What kind of supplemental fuel would you have 19 to purchase? 20 MR. KIM: Yes. So this would be brought in, 21 delivered as a tank rental, and it would be propane, 22 which is the most readily available fuel source for 23 combustion that we would be able to receive in the 24 field. 25 But including with just the purchase of the
2937 1 Thank you. 2 If you're a party with questions of Mr. Kim, 3 please turn on your camera. 4 Not seeing anyone. 5 Turn to the Board for their questions. 6 While I'm doing that, if you're an attendee on 7 this platform, please reach out through chat with any 8 questions. 9 EXAMINATION 10 BY THE BOARD: 11 HEARING OFFICER ORTH: Madam Chair. 12 CHAIR SUINA: Thank you, Madam Hearing 13 Officer. 14 And thank you, Mr. Kim, for your presentation 15 and going through the evolution of the latest language 16 in your -- and also the presentation of your -- your 17 last recommendation. 18 I just wanted to have a quick question in 19 terms of processes. 20 So this language was already shared with the 21 New Mexico Environmental Department as part of this 22 proceeding; is that correct? 23 MR. KIM: Casey, can you verify? 24 But I believe we have. 25 (Simultaneous discussion.)	2939 1 supplemental fuel would be, you know, the controls for 2 that supplemental fuel, the fuel tank and then the 3 delivery once that tank has been emptied for more 4 supplemental fuel to be added to the facility. That 5 supplemental fuel would also be used to keep the pilot 6 light lit in the combustor, as well. 7 VICE-CHAIR TRUJILLO DAVIS: And as I 8 understand it, the moisture content of the -- of the 9 dead oil that you were referencing, it fluctuates; is 10 that correct? 11 MR. KIM: Yes. It does fluctuate. You know, 12 what we've seen with sampling is because of our oil has 13 been separated from a water stream, any of the per se 14 working, breathing and very little flashing losses that 15 would be considered that vapor do -- does tend to have 16 higher moisture content and less Btus than you would see 17 at a standard E&P type facility. 18 VICE-CHAIR TRUJILLO DAVIS: Okay. 19 I guess what I was wondering is would propane 20 consistently allow you to achieve the combustion rates 21 you are seeking? 22 MR. KIM: Yes. The propane would. The 23 difference would be the amount of propane needed based 24 on our -- our vapor in the tanks being routed to the 25 combustion device. So that is going to be the

2940 1 difference. And that has to be done on a basis -- or a 2 site-by-site calculation. But yes. You could flood 3 essentially any stream with dry propane to get it up to 4 the combustion efficiencies that you would need. 5 VICE-CHAIR TRUJILLO DAVIS: Would that take 6 continuous monitoring, or would that just be a -- you 7 know, a regular inspection to make sure you're getting 8 your combustion rates? 9 MR. KIM: So that would -- I think it would 10 all depend. Again it's going to be a 11 facility-by-facility type basis. But you could 12 essentially design for worst case scenario, and any time 13 that there is a -- per se a dump or a flow of vapor to 14 the combustor, then you would just do worst case 15 scenario, and essentially it would be considered 16 flooding the system with propane to get that combustion 17 up to the 95 percent, as well as to have a smokeless 18 combustor. 19 VICE-CHAIR TRUJILLO DAVIS: So I didn't think 20 of this until now, but it sounds like you could end up 21 burning more fuel -- or more supplemental fuel than you 22 may -- may have intended to? 23 MR. KIM: Correct. And -- and that's just 24 because of the slight changing nature of what's being 25 sent to the combustor. And we've touched on this	2942 1 for these kind of facilities that you're talking about? 2 MR. KIM: So the PTE is calculated very 3 similarly as an E&P site, but what it fails to do is to 4 actually calculate or give evidence that the vapor 5 streams are actually high enough in Btu and low enough 6 in moisture content to be able to combust it effectively 7 without having to add supplemental fuel or add other 8 pieces of equipment that -- to get that waste gas or 9 vapor into a combustible state. 10 And so two tons per year at our facility 11 essentially would look very different than two tons per 12 year at a -- at an E&P site. 13 MEMBER HONKER: Okay. 14 And I think Mr. -- well, second question for 15 me. I, too, said I only had one, but -- I think it was 16 Mr. Meyer tossed out the idea of a six ton per year 17 threshold rather than two tons per year. 18 Would that favorably impact your facilities? 19 MR. KIM: I do not believe it would actually 20 favorably impact our facilities from the stance of being 21 able to combust our vapors. You know, we're not worried 22 really about having a two ton versus a five ton versus a 23 10 ton, but we're more concerned with the fact that we 24 actually just can't combust all our vapors -- 25 MEMBER HONKER: Right.
2941 1 subject in our direct testimony and our rebuttal, just 2 that, you know, supplemental fuel would need to be added 3 in our circumstances to control storage tanks and 4 hydrocarbon liquid. 5 VICE-CHAIR TRUJILLO DAVIS: Thank you. 6 And I apologize for asking more than one 7 question, because I -- (unintelligible and/or 8 inaudible). 9 MR. KIM: It's all good. 10 VICE-CHAIR TRUJILLO DAVIS: But I -- thank 11 you. 12 MR. KIM: Thank you. 13 HEARING OFFICER ORTH: Thank you, Madam 14 Vice-Chair. 15 Member Cates? 16 MEMBER CATES: No questions here. Thank you. 17 HEARING OFFICER ORTH: Thank you. 18 Member Bitzer? 19 MEMBER BITZER: No questions. Thanks. 20 HEARING OFFICER ORTH: Member Garcia. 21 MEMBER GARCIA: No questions. Thank you. 22 HEARING OFFICER ORTH: And Member Honker. 23 MEMBER HONKER: Yes. One question. 24 And you may have covered this, and I may have 25 missed it, but how does the potential to emit calculate	2943 1 MR. KIM: -- without having that supplemental 2 fuel on site. 3 MEMBER HONKER: Okay. Understood. 4 Thank you. That's all I have. 5 HEARING OFFICER ORTH: All right. Thank you 6 very much, Mr. Honker. 7 So let's see. It's a little bit after noon. 8 What I'd like to do is to confirm the order of the 9 upcoming witnesses. 10 And thank you, Mr. Kim and Ms. Shpall. 11 MS. SHPALL: Thank you. 12 MR. KIM: Thank you. 13 HEARING OFFICER ORTH: So we don't have the 14 EDF witness we would otherwise hear from, I think, at 15 this point. We'll have him tomorrow. 16 Do I understand, Ms. Fox, we'll be going to 17 Mr. McCabe? 18 MR. BAAKE: Madam Hearing Officer, David Baake 19 here. 20 We are prepared to put on Dr. McCabe. We also 21 have Dr. Orozco who is -- has about eight minutes on 22 engines that we would like to take out of order if at 23 all possible. 24 HEARING OFFICER ORTH: Okay. 25 Is he on the platform right now?

2944 1 MR. BAAKE: I don't believe he is on right 2 now. We were thinking right after lunch, but I could 3 call him if need be. 4 Were you thinking of doing Dr. McCabe right 5 now? We might be able to do that. 6 HEARING OFFICER ORTH: No. I'm just wondering 7 the best use of our time. I don't -- I don't have a 8 preference one way or another. 9 Let me hear from Ms. Katz. 10 MS. KATZ: I would think if there was a 11 witness that had a very short presentation, that we 12 could do that now and get it over with. But it sounds 13 like there might be availability issues. 14 HEARING OFFICER ORTH: All right. 15 So, Mr. Baake, if you have a short witness, 16 I'd love to do that. 17 MR. BAAKE: Thank you. 18 Let me give him a call right now and see if we 19 can get him on now. 20 HEARING OFFICER ORTH: Thank you. 21 MS. GUTIERREZ: Madam Hearing Officer, may I 22 raise a logistical or procedural issue? 23 HEARING OFFICER ORTH: Yes. 24 MS. GUTIERREZ: So I think we're about to go 25 into Clean Air Advocates' engines and turbines	2946 1 perhaps, you know, consistent with prior rulings, if 2 anything, Clean Air Advocates should be limited to a 3 proffer on Exhibit 28. 4 HEARING OFFICER ORTH: Let me ask Mr. Baake. 5 Perhaps -- and we could certainly take Mr. Orozco after 6 public comment at 1:00, for example, if that's 7 consistent with his availability, but perhaps we could 8 spend the next few moments on this objection from Kinder 9 Morgan. 10 And I believe there may be other parties who 11 join this objection. 12 MR. HISER: Yes. We would have a similar 13 concern, Madam Hearing Officer. 14 HEARING OFFICER ORTH: All right. That was 15 Mr. Hiser. 16 Anyone else joining the objection? 17 MS. KATZ: As would the Department. If there 18 were -- if the testimony pertains only to changes that 19 were made in the September 16th version that was filed, 20 that would potentially be, I think, acceptable for 21 surrebuttal. But if it's anything beyond that, I would 22 think -- and then, yes, the extensive exhibit, it 23 doesn't seem to comport with the procedural 24 requirements. 25 HEARING OFFICER ORTH: Thank you.
2945 1 surrebuttal, if that is what I understand; is that 2 right? 3 HEARING OFFICER ORTH: I do understand that if 4 it's Mr. Orozco. If it's Dr. McCabe -- 5 MS. FOX: That's correct. 6 HEARING OFFICER ORTH: Okay. 7 MS. GUTIERREZ: Thank you. 8 So I -- and I figure I would raise this here 9 so we can use this time. 10 But Kinder Morgan would like to enter an 11 objection to Clean Air Advocates' proposed Exhibit 28. 12 They did not offer direct or rebuttal testimony on the 13 topic of engines and turbines, and while we recognize 14 that they characterize this as surrebuttal, this is a 15 90-page report that was served on the parties, I think, 16 at 10:30 last night. 17 So I think it's worth noting, you know, that 18 the language that they're surrebutting was filed 19 September 7th and 16th, so there was ample time for 20 Clean Air Advocates to notify the parties of this 21 significant technical testimony and a new witness. 22 And overall, you know, this filing feels 23 inconsistent with the approach to manage this hearing to 24 avoid unfair surprises, and it's not reasonable to ask 25 all of us to review this in that time frame. So	2947 1 Mr. Rose? 2 MR. ROSE: Yes. IPANM would join in the 3 objection, as well. 4 HEARING OFFICER ORTH: All right. 5 And Mr. Swift. 6 MR. SWIFT: Yes, Madam Hearing Officer. The 7 Gas Compressor Association will also join in the 8 objection. 9 HEARING OFFICER ORTH: Thank you. 10 Mr. Baake, you've heard the essence of the 11 objection, and I certainly would agree with any 12 distinction that was made between what was submitted 13 perhaps in response to the Department's Exhibit 23, 14 namely its final rule proposal. So I certainly 15 understand the drive to do that. 16 But if you would please respond to the 17 objection as to all of the other material. 18 MR. BAAKE: Yes. So thank you, Madam Hearing 19 Officer. 20 And I -- we do recognize this is an unusual 21 position for us to be in. However, I do think that the 22 record shows that the Department in its surrebuttal made 23 very extensive, very substantive changes to this 24 provision, and though -- you know, we were fine with the 25 provision going into the rule which is why we didn't

2948 1 submit direct, and, you know, having seen these changes, 2 we do have some concerns. 3 With that said, I do think when the parties 4 hear the testimony it's going to be similar to what the 5 National Park Service had to say. It's not going to be 6 as -- you know, as extensive as some might be worried 7 about. We did want to provide that because Dr. -- that 8 document because Dr. Orozco will reference it. 9 But I don't think -- you know, I think that 10 perhaps once his testimony is heard and it's understood, 11 that the focus really is -- of his testimony really is 12 on changes that were made, saying we don't like this 13 change that was made in rebuttal, we would like to go 14 back to what was in direct. When it's seen in the 15 context of the testimony, I think that may allay some of 16 the concerns about unfair surprise. 17 We're not trying to write a new rule that's 18 different from what the Department had introduced 19 originally. 20 HEARING OFFICER ORTH: All right. 21 Ms. Katz -- and I -- Ms. Gutierrez, I'll ask 22 for your opinion, as well. 23 Let me ask if you were to draw a distinction 24 along the lines of a proffer, what would that 25 distinction be in these 90 pages?	2950 1 But chat with Dr. Orozco to identify those portions that 2 relate, as Ms. Katz described, to either a change in the 3 September 16th Exhibit 23 or to something that actually 4 does represent surrebuttal. 5 MR. BAAKE: Certainly, Madam Hearing Officer. 6 And I would sort of push back on the idea that 7 there's extensive stuff that's not relevant. It seems 8 to me that almost every standard was changed in this 9 rebuttal. So the extent there's, you know, discussion 10 of these different engines, I think, it all could, you 11 know -- but we (unintelligible and/or inaudible). 12 HEARING OFFICER ORTH: All right. And I would 13 certainly accept a proffer as I did with NMOGA, 14 certainly accept a proffer of all of it that is not -- 15 that is not clearly admissible. 16 So thank you, all, for that. 17 We've reached 12:14. Let's come back at 1:00 18 for public comment and see where we go from there. 19 (Proceedings in recess from 12:14 p.m. to 20 1:00 p.m.) 21 HEARING OFFICER ORTH: Let's come back from 22 the break, please. 23 Good afternoon. 24 We are back after a lunch break. We have 25 reached the 1:00 p.m. public comment session in EIB
2949 1 I'll confess I haven't read them myself yet. 2 MS. KATZ: I think that first the -- Mr. Baake 3 would need to specifically identify the particular 4 change that he -- they are referring to, and then I 5 still believe that that exhibit would not be 6 appropriate. 7 And so Mr. Orozco could -- or Dr. Orozco could 8 testify simply based on -- he could present his 9 testimony if it's solely based on something that was 10 changed either in the September 16th draft or if they're 11 saying it's something that the Department changed in 12 response in its surrebuttal to the engine -- in the oral 13 testimony on the engines provisions. 14 HEARING OFFICER ORTH: All right. Thank you. 15 Ms. Gutierrez, anything to add there? 16 MS. GUTIERREZ: I would just echo what 17 Ms. Katz shared. It is a significant and lengthy 18 document to have to parse, you know, what applies to 19 where. It's just not feasible in the next, you know, 20 lunch hour. 21 HEARING OFFICER ORTH: All right. Thank you. 22 Mr. Baake, let me ask if it is possible for 23 you to chat with Dr. Orozco on the lunch hour -- and I 24 now have -- don't know what his cutoff time is this 25 afternoon. It doesn't have to be right after lunch.	2951 1 21-27. We have several folks who reached out to the 2 Board administrator to offer comment. 3 If you are on the platform and did not reach 4 out to the administrator by e-mail, that's fine. I 5 encourage you to reach out through the chat, and I would 6 be happy to take your comment. If you have any trouble 7 with the chat function, please contact the administrator 8 at (505) 660-4305. 9 The public comment is taken under oath 10 pursuant to the Board rules, is taken by audio, not 11 video, and is limited to five minutes. 12 The speakers I'll call on first are Jerry 13 McHugh, Junior, Khalsa Saraswati, Genie Stevens, Liz 14 Stefanics, Holly Steinberg and Antoinette Reyes. 15 Let me start with Mr. McHugh. 16 Hold on here. 17 All right. Mr. McHugh, I have unmuted you. 18 Can you hear me? 19 MR. MC HUGH: Yes, I can. 20 HEARING OFFICER ORTH: Oh, good. I can hear 21 you. 22 If you would please spell your name for the 23 transcript. 24 MR. MC HUGH: It's J-E-R-R-Y, last name 25 M-C-capital-H-U-G-H, comma, Junior, J-R.

2952 1 HEARING OFFICER ORTH: Thank you. 2 If you would raise your right hand. 3 Do you swear or affirm to tell the truth? 4 MR. MC HUGH: I do. 5 HEARING OFFICER ORTH: Thank you very much. 6 JERRY MC HUGH, JR. 7 having been first duly sworn or affirmed, gave 8 public comment as follows: 9 PUBLIC COMMENT 10 HEARING OFFICER ORTH: I'll start your five 11 minutes now. 12 MR. MC HUGH: Okay. Thanks. 13 Well, thank you for the opportunity, Felicia, 14 and for the listening people. 15 My name is Jerry McHugh, Junior. I own and 16 operate San Juan Resources, a New Mexico corporation 17 since 1990. And I have been in oil and gas for my 18 entire career. 19 After having worked in Farmington for Dugan 20 Production and Jerome McHugh, Senior in the 1980s, I 21 formed my own company in 1990 with operations in the San 22 Juan Basin. We operate 40 wells, have nonop interests 23 in several hundred and have exploration and drilling 24 projects. You might say that oil and gas is in my 25 blood, because I've relished these opportunities to	2954 1 technological know-how, and take on risks to grow and 2 drill production. 3 As long-time New Mexico Permian producers can 4 attest this -- how has this worked with long-term leases 5 and marginal wells eventually proving up sizeable 6 horizontal drilling projects with advanced technologies 7 to get the Permian to what it is today? 8 Highly stringent, overregulated, over-the-top 9 methane rules, the state will quench that innovative 10 spirit and technology-driven advances in future drilling 11 and production growth. Long term this will be 12 devastating to the state's economy. Would the Permian 13 production in New Mexico be what it is today had there 14 been huge, excessive regulations 10, 15 years ago? No. 15 It would not be the Permian that it is today. 16 Prior to the recent proposal for the EIB, New 17 Mexico independents had worked with the New Mexico 18 Environmental Department and the Oil Conservation 19 Division through the methane advisory committee to 20 cobble an agreement where marginal wells would be exempt 21 from methane regulations. 22 When our company does cost/benefit analyses, 23 it doesn't make sense to spend excessively on a gas well 24 that, A, leaks measurable -- negligible amounts, or 25 minute amounts; B, that costs exorbitant amount to
2953 1 explore for and produce oil and gas. It's not for 2 everybody as the risks and challenges are formidable. 3 Most of San Juan's production are marginal gas 4 wells where production averages less than 60 Mcf of gas 5 per day. We're able to operate cost efficiently and 6 effectively, being more profitable when gas prices are 7 above \$3.50 per Mcf. We don't choose the price we sell 8 our natural gas and oil production. We are price takers 9 at the mercy of markets. 10 For the past 40 years I have been positive 11 about the oil and gas industry and continue to have that 12 optimism for our natural gas and oil prospects in New 13 Mexico. 14 Marginal wells, and I'll talk about them a bit 15 here, are usually held by independents, holding acreage 16 for further development, deeper, newer technologies and 17 developing concepts for increasing production. The 18 Mancos gas and oil drilling in the San Juan are 19 excellent examples of small companies producing marginal 20 wells, thus holding leasehold acreage for development. 21 With new technologies these wells could not 22 have been drilled 20 or 30 years ago, maybe not even 10 23 years ago. But as the knowledge and technologies 24 advance, these marginally held leases become more viable 25 as independents utilize new science, engineering,	2955 1 mitigate, making the well largely uneconomic; and C, 2 takes away valuable marginal production from the state 3 severance taxes, shrinking state revenues. 4 Do not put excessive, over-the-top regulations 5 onto already struggling marginal natural gas wells or 6 oil wells as this will quench those leases which could 7 yield additional oil and natural gas, like the next 8 Permian or the next San Juan Mancos. 9 All of American modern conveniences in life 10 are attributable to the abundance of affordable, 11 reliable, plentiful energy, primarily natural gas and 12 oil, which we've enjoyed for more than 150 years. We 13 wouldn't be the country we are today without the rule of 14 law and free enterprise which gives risk takers like me 15 the ability to explore for and produce natural gas and 16 oil. 17 How many of us have seen the billboard that 18 says "If you can read this, then thank a teacher"? But 19 let's look at this from an American energy perspective. 20 If you value driving your car to the store for food or 21 other items or you value turning up your thermostat for 22 heat in the winter or hot showers or you value your 23 handheld computer and the things in cloud storage or you 24 value traveling across the state or other parts of the 25 US or the world, then thank a natural gas and oil

2956 1 producer. 2 I really appreciate this opportunity to share 3 with you today. That's my testimony. I'm Jerry McHugh, 4 Junior with San Juan Resources. Thanks, Felicia, and 5 thank you for all that listen. 6 Bye-bye. Have a great day. 7 HEARING OFFICER ORTH: Thank you very much, 8 Mr. McHugh. 9 Go now to Saraswati Khalsa. And if I am 10 mispronouncing your name, please correct me. 11 Hello? Can you hear me? 12 MS. KHALSA: Hi. 13 I'm sorry, I can't figure out how to use the 14 video. 15 HEARING OFFICER ORTH: Video is not available. 16 If you would, please, spell your name. 17 MS. KHALSA: Sure. My name is Saraswati, all 18 one word, S-A-R-A-S-W-A-T-I, and my last name is Khalsa, 19 K-H-A-L-S-A. 20 HEARING OFFICER ORTH: Thank you. 21 If you would raise your right hand. 22 Do you swear or affirm to tell the truth? 23 MS. KHALSA: Yes, I do. 24 HEARING OFFICER ORTH: Thank you. 25	2958 1 nation-leading methane emissions rules, but all too 2 often kowtowing to NMOGA and the oil and gas companies 3 and lobbyists who clearly feel confident that they have 4 the government in their pockets. 5 As Greta would say, nation-leading emissions 6 rules, blah, blah, blah. Those words mean nothing at 7 all until and unless our government regulations have 8 real teeth and are strictly enforced, until and unless 9 those of you with decision-making power stop listening 10 to the companies profiting off the destruction of our 11 children's future, their very lives, and use your power 12 for change, until and unless emissions start decreasing 13 in a meaningful way. 14 And that will only happen if you have the 15 courage to mandate frequent LDAR inspections and 16 fast-track the installation of zero bleed and zero 17 emission pneumatic controllers for all oil and gas 18 wells, no matter the size or how marginal they are. 19 Leaking methane is not only a threat to all of 20 humanity, but ozone precursors affect the health of the 21 many New Mexicans who live in close proximity to oil and 22 gas wells. They are so often our Native American 23 neighbors, especially in the San Juan Basin. The 24 Department owes a maximum duty of care to those on 25 Indian lands, because, remember, every single oil or gas
2957 1 SARASWATI KHALSA 2 having been first duly sworn or affirmed, gave 3 public comment as follows: 4 PUBLIC COMMENT 5 HEARING OFFICER ORTH: I'll start your five 6 minutes now. 7 MS. KHALSA: Thank you. 8 Good afternoon, and thank you for the 9 opportunity to provide comment. 10 My name is Saraswati Khalsa. I live in 11 Espanola. But I'm speaking today on behalf of New 12 Energy Economy and also as the mother of three children, 13 three children who will live with the consequences of 14 the decisions that you make. 15 If we do not adopt the most stringent leak 16 detection and repair rules, if we ignore the science, 17 ignore the pleas of the public, ignore the fact that 18 70 percent of the oil and gas industry's methane 19 emissions in New Mexico stem from these leaks, by my 20 calculation, that's at least 700,000 metric tons, my 21 children and all the children in New Mexico and beyond 22 will suffer the consequences. 23 New Mexico's current administration likes to 24 talk a big talk on climate action, trumpeting far and 25 wide that they are committed to enacting, quote,	2959 1 well, every pipeline, every compressor station and 2 processing plant, every one of those oil company assets, 3 they stand on lands that were the home of the first 4 people. 5 We can already feel our climate changing. We 6 feel the excessive heat. We breathe in the wildfire 7 smoke. We see the dried up rivers. Will we wait until 8 the fields can no longer produce enough food for our 9 children before we act? I hope you will not. 10 Unlike most of us, you have the power and the 11 responsibility to make meaningful change. I hope for 12 the sake of my children and all the children of New 13 Mexico that you will use that power for more than lip 14 service and you will enact the most stringent leak 15 detection and repair rules. 16 Thank you again for this opportunity. 17 HEARING OFFICER ORTH: Thank you, Ms. Khalsa. 18 Go to Genie Stevens next. Let's see. I 19 believe I saw her. 20 I've unmuted you. 21 Can you hear me? 22 MS. STEVENS: Yep. 23 Can you hear me? 24 HEARING OFFICER ORTH: Yes, I can. 25 If you would spell your name for the

2960 1 transcript, please. 2 MS. STEVENS: My name is Genie Stevens, it's 3 G-E-N-I-E, S-like-Sam-T-like-Tom-E-V-like-Victor-E-N-S. 4 HEARING OFFICER ORTH: Thank you. 5 If you would raise your right hand. 6 Do you swear or affirm to tell the truth? 7 MS. STEVENS: I do swear to tell the truth. 8 HEARING OFFICER ORTH: Thank you. 9 GENIE STEVENS 10 having been first duly sworn or affirmed, gave 11 public comment as follows: 12 PUBLIC COMMENT 13 HEARING OFFICER ORTH: I'll start your five 14 minutes now. 15 MS. STEVENS: Thank you. 16 Hello. 17 And my gratitude to the Environmental 18 Improvement Board for providing an opportunity for me to 19 testify at this hearing. 20 My name is Genie Stevens. I'm the director of 21 climate education with the Rio Grande Chapter of the 22 Sierra Club, and I run a science -- climate science arts 23 and advocacy program founded by kids called The Global 24 Warming Express in public schools throughout New Mexico 25 for fourth through sixth graders.	2962 1 children are fed up. If I could miss school today to 2 talk with you, I would, because I don't want to watch 3 our future go to waste. 4 Another student said we care about our future 5 and our kids' future and our grandkids' future. We 6 don't want our lives to be destroyed, and we want a 7 healthy world. Remember you are our representatives and 8 not representatives of the oil and gas companies that 9 are ruining our lives. 10 And finally, a final student said the earth is 11 very fragile. We have so many problems, including 12 extinction of plants and animals and air and water 13 pollution. It's unthinkable that people are still 14 refusing to stop the leaking of methane. It's hard to 15 understand. There's a disconnect somewhere. 16 In the midst of political and economic 17 wrangling, I implore you all to pause and remember the 18 children. 19 Thank you very much for allowing my testimony. 20 HEARING OFFICER ORTH: Thank you, Ms. Stevens. 21 Senator Stefanics, I've unmuted you. 22 Can you hear me? 23 MS. STEFANICS: Yes, I can. 24 HEARING OFFICER ORTH: Oh, good. Your voice 25 is nice and clear.
2961 1 Now in its ninth year, the program gives 2 children access to environmental education and teaches 3 them how to become civically engaged citizens. The last 4 time the New Mexico legislature went into session, 500 5 Global Warming Expressers attended to listen and to give 6 testimony. 7 Our children are disproportionately impacted 8 by pollution from oil and gas operations, including 9 ozone-forming toxins that worsen respiratory diseases 10 and trigger asthma attacks. Ozone or smog can also 11 worsen emphysema and cause heart disease. 12 We at The Global Warming Express, or the GWE, 13 usually let the kids do the talking, but they're all in 14 school right now, so they can't attend this hearing. I 15 asked some of our Global Warming Express students ages 16 10 to 13 from various parts of New Mexico for their 17 thoughts about this hearing on ozone and methane levels 18 in the air. Their replies reflect their intense concern 19 for the bigger picture, their future. Here are some of 20 their responses. 21 Leaders of New Mexico, you have power, you can 22 make laws happen. What on earth are you grown-ups 23 doing? We need your support. There are ways we can 24 slow down and stop the climate crisis. Please stop 25 taking profits from oil and gas corporations. We	2963 1 Would you spell your name for the transcript, 2 please. 3 MS. STEFANICS: Yes. Elizabeth, 4 E-L-I-Z-A-B-E-T-H, middle name Liz, last name Stefanics, 5 S-T-E-F-A-N-I-C-S. 6 HEARING OFFICER ORTH: Thank you. 7 And if you would raise your right hand. 8 Do you swear or affirm to tell the truth? 9 MS. STEFANICS: I do. 10 HEARING OFFICER ORTH: Thank you. 11 ELIZABETH STEFANICS 12 having been first duly sworn or affirmed, gave 13 public comment as follows: 14 PUBLIC COMMENT 15 HEARING OFFICER ORTH: I'll start your five 16 minutes now. 17 MS. STEFANICS: Thank you. 18 It's a pleasure to be with you all this 19 afternoon. 20 I'm speaking as the State Senator from 21 District 39, which is parts of six counties, and I am 22 trying to speak here today to represent my constituents. 23 I have a lot of knowledge about the energy 24 field, and I realize that the fossil fuels needs to be 25 in existence with our renewable energy for the

2964 1 foreseeable future. But while we continue to do that, 2 let's protect not only the environment, but let's really 3 protect the people who live close to the working 4 establishments for the fossil fuels. 5 Now, most of my district is rural, and I would 6 say that many of the people in my district don't have 7 the opportunity to really come to the legislature to 8 speak, to get on a computer to speak, because the 9 Internet services in many parts of my district are 10 nonexistent. When the children have to go to school, 11 the parents drive them to a hot spot, you know, the 12 libraries or Walmart. 13 But today what I want to talk about is those 14 individuals who live close to a site. While I was a 15 County Commissioner, we dealt with many renewable 16 energies. We dealt with oil and gas prohibitions, we 17 dealt with wind, we dealt with solar. And I myself live 18 in a rural area. 19 One of the things we try to do is we try to 20 put science behind our decisions on how far away the 21 production could occur in order not to harm individuals. 22 Even when we were going to go into areas where we would 23 do any kind of -- I'm losing the word for exploding 24 materials -- but whether it was gravel or whether it was 25 fracking, we wanted to make sure that we were doing it	2966 1 HEARING OFFICER ORTH: Thank you. 2 And if you would raise your right hand. 3 Do you swear or affirm to tell the truth? 4 MS. STEINBERG: I do. 5 HEARING OFFICER ORTH: Thank you. 6 HOLLY STEINBERG 7 having been first duly sworn or affirmed, gave 8 public comment as follows: 9 PUBLIC COMMENT 10 HEARING OFFICER ORTH: I'll start your five 11 minutes now. 12 MS. STEINBERG: Thank you very much. 13 I live in Albuquerque, and I believe we have 14 an obligation to our future children. I also believe we 15 can do that while still supporting the industries that 16 support our state. 17 I think the intention of making improvements 18 in how we capture and utilize our natural resources is 19 very important, and to think that those who support the 20 oil and gas industry also don't support the environment, 21 that's shortsighted. When we are making improvements in 22 the process, we have to be mindful of a fine line we 23 need to walk to pay attention to the economic factors as 24 well as the long-term benefits of our future 25 generations.
2965 1 in such a way that we were not harming the surrounding 2 communities, that the air quality and that the water 3 quality would remain. 4 So one of the things I would recommend is that 5 there be frequent inspections, that we protect those 6 individuals within a certain circumference, whether it's 7 a half a mile or a mile, and I probably -- we probably 8 could not accommodate the mile anymore, and that we do 9 some sampling of air and water in advance in order to 10 acknowledge whether or not there is harm made later on 11 during production. 12 I believe that's all I need to say today, and 13 I appreciate all the work of the EIB. 14 Thank you. And have a great afternoon. 15 HEARING OFFICER ORTH: Thank you very much, 16 Senator. 17 Go to Holly Steinberg. 18 Ms. Steinberg, can you hear me? 19 MS. STEINBERG: Yes, I can hear you. 20 Can you hear me? 21 HEARING OFFICER ORTH: Yes, I can. 22 If you would spell your name for the record, 23 please. 24 MS. STEINBERG: Holly, H-O-L-L-Y, Steinberg, 25 S-T-E-I-N-B-E-R-G.	2967 1 So our state spends on the -- depends on the 2 production from the oil and gas industry, to the tune of 3 about \$1.3 billion. This accounts for over a third of 4 our state's budget. Those monies go towards schools, 5 infrastructure, health care and public safety. 6 So many of our oil and gas producers are 7 smaller producers in the state, and there are 35 8 proposed new requirements that can be very crippling to 9 the smaller producers. Even though there are businesses 10 that are excluded, that produce 250,000 gross revenue, 11 they don't -- they don't have to participate, but that 12 still does not take into consideration the small 13 producers who might have more gross revenue net, but the 14 costs would be crippling if they would have to comply 15 with those 35 regulations that are proposed. 16 One area that is of specific concern to me is 17 the impact of recycling the produced water from the oil 18 and gas operations. Right now they use the recycled 19 water, but this new proposed rule does not take into 20 consideration that rule, and so it would allow 21 freshwater to be used for that, which I believe is 22 wasteful. 23 If we're going to be flexible in implementing 24 our new administrative requirements that are being 25 proposed in this rule, this would allow businesses to

2968 1 continue to work toward improving, but by doing it 2 through sharing best practices and implementing 3 improvements that would make a more practical approach 4 as opposed to a cookie cutter approach, making every 5 single company comply exactly the same. 6 If we do this in stages and we consider 7 improvements that are being made, I think that's a much 8 more feasible approach to making improvements that I 9 think is the intention of this -- of this ruling. 10 So bottom line, I think any time we're in the 11 process of making changes for any business, you have to 12 continue to prove our processes, but not do it at the 13 detriment of the greater good, and the people that will 14 pay for this ends up being the citizens and the business 15 of our state. I think it's more feasible to take a 16 staggered approach, a slightly less aggressive approach, 17 and one that's a little bit more informed. 18 Thank you so much for your time and your 19 consideration. 20 HEARING OFFICER ORTH: Thank you, 21 Ms. Steinberg. 22 We go next to Antoinette Reyes. Let's see 23 here. 24 Ms. Reyes, I've unmuted you. 25 Can you hear me?	2970 1 closest to development. Much of my family has been 2 impacted by the disproportionate impacts of extractive 3 industries. These industries tend to drive up the cost 4 of living in areas while only bringing low-wage service 5 jobs outside of industry, creating a wider income gap. 6 Aside from displacing people by income, the 7 high wages offered by industry come with numerous health 8 and safety risks. My hope is that these rules will 9 lessen the burden these risks have on workers, our 10 children, our elders and residents that live in impacted 11 communities. 12 I also want to thank the Department for 13 accepting the proposal to include increased inspections 14 based on proximity. This proposal will help strengthen 15 the rule. And I hope the Board adopts other proposals 16 to protect New Mexicans such as the proposals around 17 completions and zero bleed pneumatics. 18 Thank you. 19 HEARING OFFICER ORTH: Thank you very much, 20 Ms. Reyes. 21 Let's see. Mr. Sonntag reached out, asking 22 that I look for Melanie Lahey. 23 I'm sorry. I don't see Ms. Lahey on the 24 platform, and I don't have any unidentified callers. 25 Mr. Sonntag, if you would please let Ms. Lahey
2969 1 MS. REYES: Yes. 2 HEARING OFFICER ORTH: Oh, good. You're 3 coming through nice and clear. 4 Would you spell your name for the transcript, 5 please. 6 MS. REYES: Antoinette, A-N-T-O-I-N-E-T-T-E, 7 Reyes, R-E-Y-E-S. 8 HEARING OFFICER ORTH: Thank you. 9 And raise your right hand. 10 Do you swear or affirm to tell the truth? 11 MS. REYES: Yes. 12 HEARING OFFICER ORTH: Thank you. 13 ANTOINETTE REYES 14 having been first duly sworn or affirmed, gave 15 public comment as follows: 16 PUBLIC COMMENT 17 HEARING OFFICER ORTH: I'll start your five 18 minutes now. 19 MS. REYES: Hello. 20 I am speaking on behalf of myself today as a 21 15th generation New Mexican and a mother of two in 22 Southern New Mexico. 23 Thank you for considering my comment today. 24 I fully support the proposed ozone precursor 25 rules and their goal of protecting those that live	2971 1 know that she can submit her public writing in -- her 2 public comment in writing to Pamela Jones or join us 3 tomorrow at 9:00, 1:00 or 5:00 or even today at 5:00. 4 So thank you, all, for participating in public 5 comment today. 6 And at this point we will return to the 7 technical case. 8 Mr. Baake, are we -- are we going to 9 Dr. Orozco, or will that wait? 10 MR. BAAKE: Yeah. We'll go ahead with 11 Dr. Orozco. I believe he should be on and perhaps even 12 already made a panelist. 13 MR. OROZCO: Yeah. I'm here. 14 Can you hear me? 15 MR. BAAKE: Oh, yes. There you are, 16 Dr. Orozco. 17 Madam Hearing Officer, in light of the 18 discussion we had before lunch, I think we will go ahead 19 and withdraw Exhibit 28. It's information we wanted 20 to -- it's largely a summary of statutes and regulations 21 which you could take administrative notice anyway if we 22 want to do that. We'll go ahead and withdraw that. 23 I don't think there were any objections to Dr. 24 Orozco (unintelligible and/or inaudible). 25 THE REPORTER: Mr. Baake, I'm sorry. You're

2972 1 cutting in and out for me. Could you please repeat. 2 MR. BAAKE: Yes. From the beginning? 3 THE REPORTER: Please. Sorry. 4 MR. BAAKE: Sorry. 5 Madam Hearing Officer, in light of the 6 discussion we had before lunch, I think we will withdraw 7 Exhibit 28, which is largely a summary of statutes and 8 regulations that we think we can introduce by 9 administrative notice. 10 I don't believe there were any objections to 11 Exhibit 27, which is Dr. Orozco's CV. 12 HEARING OFFICER ORTH: Let me pause for a 13 moment in the event a party wishes to lodge an 14 objection. 15 I'm not seeing anyone. 16 Exhibit 27 is admitted. 17 (Exhibit CAA 27 admitted into evidence.) 18 HEARING OFFICER ORTH: And, Dr. Orozco, I 19 believe I need to swear you. 20 Would you raise your right -- oh, first spell 21 your name. 22 Now you're unmuted. Please spell your name. 23 MR. OROZCO: Sure. My name is Daniel Orozco, 24 Daniel is the starred spelling for Daniel, and last name 25 is O-R-O-Z-C-O.	2974 1 I work as research assistant at the University 2 of Maryland. I then work in the Air and Radiation 3 Management Association at the Maryland Department of the 4 Environment. And I currently work at the National Parks 5 Conservation Association as the senior clean air and 6 climate analyst. 7 Q. And National Parks Conservation Association is 8 part of the Clean Air Advocates coalition, correct? 9 A. Yes. That's correct. 10 Q. Clean Air Advocates Exhibit 27 is an accurate 11 copy of your CV? 12 A. Yes. 13 Q. Dr. Orozco, can you please summarize your 14 testimony. 15 A. Sure. The purpose of my comment today is to 16 explain why Clean Air Advocates oppose certain changes 17 that NMED made to the engines and turbines provisions as 18 part of its rebuttal testimony on September 7, 2021. 19 Engines and turbines are by far the largest source of NOx 20 from the oil and gas industry. 21 As we heard earlier in the hearing, ozone 22 formation in New Mexico is often NOx limited. 23 Accordingly, reducing NOx from engines and turbines is an 24 important strategy for reducing ozone levels in New 25 Mexico. We are particularly concerned about two aspects
2973 1 HEARING OFFICER ORTH: Thank you. 2 And raise your right hand. 3 Do you swear or affirm to tell the truth? 4 MR. OROZCO: I do. 5 HEARING OFFICER ORTH: Thank you. 6 Mr. Baake. 7 MR. BAAKE: Thank you, Madam Hearing Officer. 8 DANIEL OROZCO 9 (Relating to Topic Order 24) 10 having been first duly sworn or affirmed, was 11 examined and testified as follows: 12 DIRECT EXAMINATION 13 BY MR. BAAKE: 14 Q. Dr. Orozco, what is your educational 15 background? 16 A. I'm a physics engineer by training, and I also 17 completed a master's degree and a doctoral degree in 18 atmospheric physics at the University of Maryland, 19 Baltimore County. 20 Q. And what is your work background? 21 A. For more than 12 years, my research and work 22 has focused on the study of chemical and optical 23 properties of air pollutants, development of 24 instrumentation to analyze pollution, as well as the 25 study of sources and impacts of air pollution.	2975 1 of the revised proposal. 2 First, the proposal will delete the prior 3 requirement that engines or turbines installed after the 4 effective date of the rule make the emission standards 5 applicable to new equipment. 6 MR. HISER: Madam Hearing Officer? 7 HEARING OFFICER ORTH: Mr. Hiser? 8 MR. HISER: The changes that were made were 9 advocated by NMOGA in its direct, and the appropriate 10 time to respond to NMOGA's arguments that those changes 11 should be made would have been in rebuttal, not in 12 surrebuttal for the first time. 13 MR. BAAKE: Madam Hearing Officer, we are 14 providing surrebuttal to changes that the Department -- 15 the Department adopted. 16 HEARING OFFICER ORTH: That was my 17 understanding, as well. 18 MR. BAAKE: He didn't provide any testimony 19 before because we agreed with the prior proposal. 20 HEARING OFFICER ORTH: Yeah. That was my 21 understanding. 22 Please go ahead. 23 And, Dr. Orozco, if you would, please, speak 24 slowly. 25 MR. OROZCO: Sure.

2976 1 We are concerned that these provisions might 2 make New Mexico a dumping ground for old, high-pollution 3 equipment that is no longer allowed in other states. 4 There is no reason an operator constructing a new 5 modified -- new or modified facility in a high-ozone 6 area of New Mexico cannot use a state-of-the-art 7 equipment. 8 Second, we believe that the standards for 9 existing four-stroke lean-burn engines in particular are 10 not protective enough. Last year Colorado adopted a 11 standard of 1.2 grams of NOx per horsepower-hour for 12 these engines. The Colorado Air Pollution Control 13 Division found these standards to be cost effective and 14 achievable. 15 While NMED has adopted an appropriately 16 stringent emission limit for larger four-stroke 17 lean-burn engines, those with a rated horsepower of 18 1,775, its emission limit for medium size four-stroke 19 lean-burn engines with a rating horsepower between 1,000 20 and 1,775, is too low. NMED's revised standard is 2 21 grams of NOx per horsepower-hour, which is 40 percent 22 higher than the Colorado standard applicable to these 23 same engines. 24 MR. BAAKE: Thank you, Dr. Orozco. 25 Q. Are there any other jurisdictions that have	2978 1 A. Can you repeat? I'm sorry? I didn't hear 2 that. 3 Q. Are Clean Air Advocates objecting to the 4 proposed standard for carbon monoxide? 5 A. No. 6 Q. Okay. Thank you. 7 Did you see any evidence in the record as to 8 why this stricter standard for existing four-stroke 9 lean-burn engines was appropriate here? 10 A. No. I reviewed the other parties' submissions 11 and did not see any justification as to why the higher 12 limit of 2.0 grams of NOx per horsepower-hour was 13 proposed here. In fact, the analysis submitted by NMOGA 14 stated that some retrofitted legacy engines can 15 currently meet 0.8 grams per horsepower-hour NOx, but 16 that the cost to bring the emissions rate at these units 17 down to 0.5 will be excessive. 18 The -- that analysis for that stated that most 19 state regulatory agencies recognize the challenges for 20 engines made prior to 2007 to meet 1.0 grams per 21 horsepower-hour emissions levels. There is no 22 discussion of why these engines cannot meet a standard 23 of 1.2 grams of NOx per horsepower-hour consistent with 24 what is required in Colorado. 25 NMED's discussion did not explain the decision
2977 1 adopted emission standards for these existing 2 four-stroke lean-burn engines that are more stringent 3 than the ones the Department has proposed here? 4 A. Yes. Many other states and -- or local air 5 agencies have adopted more stringent regulations for 6 existing engines. For example, Texas has adopted a 7 standard of 0.7 gram per horse -- grams per 8 horsepower-hour for existing lean-burn engines within 9 the Dallas-Fort Worth ozone nonattainment area. Those 10 standards can be found at 30 Texas Administrative Code 11 Section 117.2110. 12 Pennsylvania's standard for these engines when 13 installed at new or modified facilities is 0.5 grams per 14 horsepower-hour. 15 In addition, many air districts in California 16 have even tighter NOx emissions limits with some 17 requiring emissions as low as 0.15 grams per 18 horsepower-hour. 19 Q. Thank you, Dr. Orozco. 20 And I just wanted to clarify. When you're 21 talking about these standards, we're only talking about 22 NOx, or NOx, correct? 23 A. Yeah. That's correct. 24 Q. And we -- are Clean Air Advocates objecting to 25 standards for carbon monoxide, for example?	2979 1 to use a 2.0 gram standard either. NMED provided a 2 table showing that 100 percent of the medium size 3 existing four-stroke lean-burn engines tested in Ohio 4 were emitting at rates less than 2.0 grams per 5 horsepower-hour. That suggests that the limit is not 6 nearly as stringent enough. 7 Notably, the rule contains numerous 8 flexibilities to allow operators to continue using 9 engines that do not meet the Department's emission 10 standards. For example, operators can reduce the annual 11 hours of operation, can submit an Alternative Compliance 12 Plan that averages emissions across the operator's 13 entire fleet of engines, and can seek exemptions for 14 particular engines that cannot meet the standard in a 15 cost effective manner. 16 Including all of these alternative compliance 17 mechanisms while setting the standard at a level that 18 all of the subject engines can meet is inappropriate, 19 because it means that operators will not be required to 20 implement cost-effective controls at all of their 21 engines. 22 Q. Thank you, Dr. Orozco. 23 Do you have anything else to add? 24 A. Just to summarize my testimony, we 25 respectfully request that the Board, first, include the

2980 1 language originally proposed by the Department that will 2 apply the most stringent emission standards to engines 3 and turbines that are installed after the effective date 4 of the rule; and second, adopt emission standard for 5 existing four-stroke lean-burn engines that are at least 6 as protective as those adopted last year in Colorado. 7 Thank you. 8 MR. BAAKE: Thank you, Dr. Orozco. 9 With that we will make Dr. Orozco available 10 for cross-examination. 11 HEARING OFFICER ORTH: Thank you very much, 12 Mr. Baake and Dr. Orozco. 13 If you are a party with questions, please turn 14 on your camera. 15 I see Ms. Gutierrez. 16 MS. GUTIERREZ: Thank you, Madam Hearing 17 Officer. 18 CROSS-EXAMINATION 19 BY MS. GUTIERREZ: 20 Q. Dr. Orozco, it's nice to meet you. 21 My name is Ana Gutierrez with Hogan Lovells, 22 and I'm here on behalf of Kinder Morgan. 23 I have just one, I think, clarification 24 question for you. 25 You referenced that in California they may	2982 1 CROSS-EXAMINATION 2 BY MR. PACYNIAK: 3 Q. Dr. Orozco, my name is Gabe Pacyniak. I 4 represent the Center for Civic Policy and NAVA Education 5 Project. 6 I just have a couple of questions for you, and 7 thank you for your testimony. 8 Could you clarify, prior to the September 16th 9 proposal, what was the -- the Department's proposal for 10 four-stroke lean-burn engines, and how did -- how did 11 the Department's proposal compare with Colorado's new 12 standards? 13 A. That is, I believe, in Table 1, Table 2 -- 1 14 and 2 of the Section 113. 15 So can you repeat the question? Specifically 16 the four-stroke lean-burn, right? 17 Q. Yes. So I thought I heard you say that -- 18 recommend the Department adopt standards that were at 19 least as stringent as Colorado's. 20 Was that correct? 21 A. Yeah, which is 1.2 grams of NOx per 22 horsepower-hour. 23 Q. And -- and what were the standards due -- are 24 you aware of what the standards were that were proposed 25 by the Department prior to the September 16th revision?
2981 1 have adopted a lower NOx limit than is being proposed by 2 the Department here for four-stroke lean-burn engines; 3 is that right? 4 A. Right. 5 Q. And are you also aware -- and I think what I 6 heard you say is you referenced the limit that equates 7 to about 0.15 grams per horsepower-hour, correct? 8 A. Correct. 9 Q. And are you also aware that that limit does 10 not apply to lean-burn engines used for gas compression 11 or those used -- those engines of limited use operations 12 or engines that are waste gas -- that are waste gas 13 fuel? 14 A. No. I'm not particularly aware of that, but 15 I -- my understanding is that apply for four-stroke 16 lean-burn engines, as well. 17 Q. Thank you. I appreciate that. 18 And I have no further questions for you. 19 HEARING OFFICER ORTH: Thank you. 20 I see Professor Pacyniak. 21 MR. PACYNIAK: Thank you, Madam Hearing 22 Officer. 23 24 25	2983 1 A. It was 0.5 grams per horsepower-hour, but it 2 was -- it didn't specify the specific rated horsepower. 3 Q. And so in the September 16th revision, is your 4 testimony that the standards became weaker? 5 A. Yeah. 6 Q. I see. 7 And so was -- would the pre-September 16th 8 standards meet your recommendation for being at least as 9 protective as Colorado's standards? 10 A. Yes. 11 Q. So if I understand correctly, you're just 12 asking the Department go back to what they had 13 previously introduced? 14 A. No. We are not necessarily asking them to go 15 back to what they introduced. There is -- there is not 16 a direct comparison between what it was originally 17 proposed and what it's now, because again the rated 18 horsepower is different. So what we are proposing is 19 that they adopt -- for that same size of engines, to 20 adopt the Colorado standard, which is 1.2 grams per 21 horsepower-hour. 22 MR. PACYNIAK: Thank you. I appreciate that. 23 I have no further questions. 24 HEARING OFFICER ORTH: Thank you, Professor 25 Pacyniak.

2984 1 I see Mr. Swift. 2 MR. SWIFT: Thank you, Madam Hearing Officer. 3 CROSS-EXAMINATION 4 BY MR. SWIFT: 5 Q. A couple questions for you. 6 Good afternoon, Dr. Orozco. 7 My name is Whit Swift. I'm an attorney for 8 the Gas Compressor Association, or GCA. 9 A couple follow-up questions based on your 10 testimony. 11 I believe tied to this use of the language 12 about installed in the applicability section of the New 13 Mexico -- proposed New Mexico rules, you said you were 14 concerned that New Mexico may become a dumping ground 15 for old, high-polluting equipment; is that correct? 16 A. Correct. 17 Q. Now, existing engines will be regulated under 18 the proposed rule, correct? 19 A. Yes. 20 Q. And do you consider an engine that can -- an 21 existing lean-burn engine that can meet 2 grams of NOx 22 per horsepower-hour to be old, high-polluting equipment? 23 A. Can you repeat the question, please? 24 Q. Sure. 25 So existing engines are regulated under the	2986 1 Good afternoon. 2 Thank you for your testimony, and I just want 3 to clarify in my head here. 4 So the rules that you are recommending are now 5 the Colorado standards; is that correct? 6 MR. OROZCO: Correct. 7 CHAIR SUINA: Okay. 8 And is that -- I think you referred to as 9 going back to the May rules was not necessarily apples 10 to apples because of the recent revisions; is that 11 correct? 12 MR. OROZCO: Yes, because of the distinction 13 between the size of the engines. 14 CHAIR SUINA: Okay. 15 And so the difference in the September, 2021 16 proposed rules would be an apples to apples comparison 17 or revision to -- with the Colorado rules; is that 18 correct? 19 MR. OROZCO: Correct. 20 CHAIR SUINA: Okay. 21 And I don't know in terms of logistics and 22 process here. 23 Have those rules been proposed as part of this 24 section? 25 MR. OROZCO: I'm not sure about the answer to
2985 1 proposed standard, correct? 2 A. Yep. Um-hum. 3 Q. And the proposed standard sets a limit of 4 2.0 grams of NOx per horsepower-hour for those engines, 5 correct? 6 A. Yeah. Yeah. 7 Q. Now, an engine that can meet 2 grams of NOx per 8 horsepower-hour, that's not an old, high-polluting 9 engine, is it? 10 A. No. 11 MR. SWIFT: Thank you very much. 12 No further questions for the witness. 13 HEARING OFFICER ORTH: Thank you, Mr. Swift. 14 I don't see any other parties on screen to 15 question Dr. Orozco so I'll turn to the Board for their 16 questions. 17 While I'm doing that, in the event you're an 18 attendee on this platform, please reach out through chat 19 if you have a question. 20 EXAMINATION 21 BY THE BOARD: 22 HEARING OFFICER ORTH: Madam Chair, do you 23 have questions? 24 CHAIR SUINA: Yes. Thank you, Madam Hearing 25 Officer.	2987 1 that question. 2 CHAIR SUINA: Okay. All right. 3 Well, thank you for your testimony. I 4 appreciate that. 5 MR. OROZCO: Thank you. 6 HEARING OFFICER ORTH: Madam Vice-Chair? 7 VICE-CHAIR TRUJILLO DAVIS: Yes. Thank you. 8 Ms. Suina asked my second line of questioning. 9 I'm sorry. Member Suina. So I wanted to just talk 10 about the point, Dr. Orozco, that you brought up about 11 the engines being moved and concern over old engines 12 that wouldn't meet standards. 13 And I believe in some previous testimony, and 14 I apologize because I don't remember who gave the 15 testimony, but it was mentioned that an engine had to be 16 registered when it was put into service. As it came 17 into the state, it needed to be registered when it was 18 put into service. 19 Does that satisfy your concern over that 20 issue? 21 MR. OROZCO: Well, first of all, I'd like to 22 state that maybe a suggestion for the Department is to 23 make this completely clear because it could be really 24 confusing. So clarifying that will make -- will make it 25 easier for everybody and to make sure that overall NOx

2988 1 emissions are reduced overall from any -- any source. 2 But in -- in summary, we -- we -- our concern 3 is that old engines, say, from other states are brought 4 in -- or brought in to the states for operation, and if 5 it's not clear, they may run and they may operate 6 without the most stringent emission limits. So 7 that's -- that's the main concern, that when they are 8 installed or relocated, the most stringent controls are 9 applied to those engines, which are the ones given in 10 Table 2 of Section 113. 11 VICE-CHAIR TRUJILLO DAVIS: Okay. Thank you. 12 I appreciate you clarifying that for me and for taking 13 the time to talk with us. 14 MR. OROZCO: Thank you. 15 HEARING OFFICER ORTH: Thank you. 16 Member Cates, any questions? 17 MEMBER CATES: No questions at the moment. 18 Thank you. 19 HEARING OFFICER ORTH: Thank you. 20 Member Bitzer? 21 MEMBER BITZER: No questions. Thank you. 22 HEARING OFFICER ORTH: All right. 23 Member Garcia. 24 MEMBER GARCIA: No questions. 25 Thank you for your testimony, Mr. Orozco.	2990 1 MR. LISOWSKI: Great. 2 JUSTIN LISOWSKI 3 (Relating to Topic Order 24 continued) 4 having been first duly sworn or affirmed, was 5 examined and testified further as follows: 6 DIRECT EXAMINATION 7 BY MR. HISER: 8 Q. Can you please state your name for the record? 9 A. Yes. It's Justin Lisowski, spelled 10 L-I-S-O-W-S-K-I. 11 Q. And you were previously sworn in this matter; 12 is that correct? 13 A. Yes, sir. 14 Q. And your testimony has been previously 15 adopted? 16 A. That's correct. 17 Q. And have you listened to the testimony of the 18 other parties in this hearing on engines and turbines? 19 A. Yes, I have. 20 Q. And did you hear testimony from the National 21 Park Service regarding a possible expansion of this 22 program to lower horsepower engines? 23 A. Yes, I did. 24 Q. And did they withdraw that recommendation for 25 purposes of this rulemaking?
2989 1 MR. OROZCO: Thank you for the opportunity. 2 HEARING OFFICER ORTH: Member Honker. 3 All right. Did any of that prompt redirect 4 for you, Mr. Baake? 5 MR. BAAKE: No, no redirect. Thank you very 6 much. 7 HEARING OFFICER ORTH: All right. 8 Thank you very much, Dr. Orozco and Mr. Baake. 9 Let's see. Ms. Katz. 10 MR. HISER: Madam Hearing Officer, it may be 11 appropriate for Mr. Lisowski's surrebuttal after the NPS 12 proposal before we go to the Department. 13 HEARING OFFICER ORTH: Oh. That is just fine. 14 Thank you, Mr. Hiser. 15 Thank you, Ms. Katz, for turning on your 16 camera. 17 I believe I panelized Mr. Lisowski. So we 18 should be able to see him. 19 There we are. 20 MR. HISER: All right. 21 Mr. Lisowski, are you on? 22 I am not seeing him. 23 MR. LISOWSKI: How is that? Is that better? 24 MR. HISER: I can hear you now. Oh, there you 25 are.	2991 1 A. Yes. That's correct. 2 Q. And do you support that recommendation? And 3 if so, why? 4 A. I do support that recommendation, and their 5 recommendation that was withdrawn expanded the 6 horsepower limits to a much lower and impractical limit 7 that -- for us to actually manage or maintain. It 8 was -- had some infeasible targets that provided 9 significant challenges, technical challenges, as well as 10 costs associated with these extremely low limits on a 11 pretty small horsepower range. 12 You know, for all of National Park Service's 13 recommendations below 1,000 horsepower, this argument 14 has been raised and refuted in other rulemakings, such 15 as Colorado, that, generally speaking, you can say that 16 extremely low NOx limits may be initially achieved, but 17 for various reasons, catalyst degradation, AFR drift, 18 other parameters, engine limitations, it just isn't 19 something that is a sustainable limit to propose at this 20 time. 21 Q. Did you hear this most recent testimony from 22 Dr. Orozco on behalf of National Parks Conservation 23 Association? 24 A. I did, yes. 25 Q. And do you agree with his comments on the

2992 1 achievability of lower limits for four-stroke lean-burn 2 engines? 3 A. As a broad statement, no. I don't agree with 4 those. The memo that I supplied on behalf of Valor for 5 NMOGA was really focused upon what is technically 6 achievable in this space. 7 NMED, I think, did an excellent job trying to 8 distill down, you know, what the desired limits would 9 be. You know, everyone agrees that we want to approach 10 this rule in a way that is beneficial environmentally 11 for ground-level ozone creation. But at the same time 12 we need to balance that with what is technically 13 practical within the industry. 14 And proposing NOx targets, since this is a 15 general, you know, criteria pollutant we're talking 16 about in this context -- if you propose something that's 17 not achievable, then you're not -- probably not going to 18 be achieving the intent of the goal, because you'll be 19 looking for exemptions or you'll be shifting to 20 alternative sources of -- of compression driving 21 capabilities. 22 But the -- you know, we tried to balance out 23 what was achievable in current technology, and in many 24 instances existing engines already have all those low 25 emission control technologies, as I explained to the	2994 1 Mr. Baake? 2 MR. BAAKE: Thank you, Madam Hearing Officer. 3 CROSS-EXAMINATION 4 BY MR. BAAKE: 5 Q. And thank you, Mr. -- Lisowski? 6 A. That's correct. 7 Q. Okay. 8 A couple questions. 9 I think you said that the limit we had 10 proposed of 1.2 grams of NOx per horsepower-hour is not 11 blank -- is not blanketly achievable, or something to 12 that effect? 13 A. That's correct. You put a broad blanket to 14 put on all existing engines, all existing lean-burns 15 specifically can meet 1.2, and that just isn't true. 16 Q. But doesn't the rule as recently rewritten 17 allow for averaging across engines? 18 A. There's the potential for that, yet you do 19 have to have an engine that can exceed your limit in 20 order to have that averaging. 21 Q. And there's also the ability to get relief for 22 a specific engine that cannot meet the standard; is that 23 also correct? 24 A. There's provisions within the rule for your 25 alternate emission standard, as well as your Alternative
2993 1 Board, that limits your NOx input based upon lots of 2 different engine parameters, vintages, architecture, 3 size, and such that, you know, those limits proposed by 4 Mr. Orozco is not a blanket achievable target. 5 Q. I think one of the limits he spoke to at some 6 length was a 1.2 grams per horsepower-hour. 7 Do you have any thoughts on that limit? 8 A. I do. I'm aware that that's part -- you know, 9 part of the Colorado Reg 7, and I'm not entirely savvy 10 on that rule. I know it's pretty nuanced, and there's 11 quite a bit -- quite a few caveats, as Ms. Gutierrez 12 mentioned. 13 But generally what that means is there's going 14 to be a large subset of engines in New Mexico that 15 cannot achieve that target and will need to be replaced 16 either by new horsepower or potentially electric drivers 17 which creates a different type of emission source. It's 18 not eliminating your emission source. 19 MR. HISER: Thank you. That completes all of 20 my questions. 21 Madam Hearing Officer, we'll make Mr. Lisowski 22 available for any cross. 23 HEARING OFFICER ORTH: Thank you very much, 24 Mr. Hiser and Mr. Lisowski. 25 I see Mr. Baake on screen and Ms. Devore.	2995 1 Compliance Plan. But that's not just a you can do this. 2 It does need to be reviewed, go out for public comment 3 and all those things. So it's not just a statement that 4 you just can average your emissions. It does need to go 5 through the proper approval protocols, and we're not 6 fully certain as to how that will work out. 7 Q. And I appreciate that. 8 I guess what I'd like to know is if there 9 were, you know, a small number of engines that could not 10 technically meet this standard, but you did have those 11 flexibilities, would that -- would that allay those 12 concerns? 13 A. I can't comment on that since I don't have the 14 specific -- specificity of what you're referring to. 15 Q. Yeah. I was just referring to the -- like the 16 averaging provision that's included in the NMED draft. 17 A. Are you referring to the Alternative 18 Compliance Plan? 19 Q. Yes, yes. That alternate compliance -- 20 A. Well, like I said, you know, we're not exactly 21 sure how that's going to work out with the peer reviews, 22 as well as public comments. And so conceptually it 23 might prove to have the proper off ramps, but until we 24 actually see it in practice, I can't comment on that. 25 Q. That's helpful.

2996 1 So I think that -- one other question I just 2 wanted to make sure I understood. 3 Any -- any lean-burn engine built after 2007 4 is going to be required to meet a limit of 1 gram of NOx 5 per horsepower-hour; is that correct? 6 A. Under which standard? NSPS? 7 Q. Yes, under the NSPS. 8 A. You know, I don't have the NSPS rules directly 9 in front of me on terms of what that limit is, but yes. 10 The engines are regulated by NSPS. 11 Q. Yeah. I -- because I'm looking at your 12 Valor -- your report for Valor, and I think you said, 13 you know, a challenge really comes with the pre-2007 14 engines in terms of getting below 1. -- 1.0 grams. 15 A. There's multiple categories I reference in the 16 Valor memo, one being the legacy engines, as well as, 17 you know, engines before 2007. For instance, you know, 18 a comment of some legacy engines being able to meet 19 .8 grams that Mr. Orozco referenced, and that was 20 actually referring to old legacy, large-bore engines 21 that already had extensive LEC technology installed that 22 would undergo a significant economic upgrade to get 23 beyond that .8. And so that was for a capital expense 24 argument. 25 MR. BAAKE: All right. No further questions.	2998 1 reference. It's analogous to calling an engine a 2 large-bore versus a small-bore. There's not exactly a 3 definitive number which designates large-bore versus 4 small-bore. So, you know, I don't think it does any 5 justice high-emitting versus low-emitting. 6 It wouldn't be a compliant engine if it 7 exceeded NSPS. 8 Q. And then just, I think, one last question now 9 that I'm thinking about it. 10 So as far as construction goes, so are you 11 aware of like do engines when they go -- undergo 12 construction how long it might be before they're 13 actually installed at a site? 14 A. You know, that -- that varies significantly. 15 It depends on what kind of site you're talking about. 16 For instance, at my previous company, we would set 17 multiple engines at the beginning of a -- of a tank 18 battery facility, or we would wait to see if we'd need 19 gas lift, and they would come on site six months to a 20 year later depending on what the well requirements are. 21 So I would say it varies. For large plants 22 you're likely setting the equipment earlier on, during 23 the construction phase. But it really depends. 24 MS. DEVORE: Okay. Those are my questions. 25 Thank you.
2997 1 I really appreciate it. Thanks so much. 2 MR. LISOWSKI: You're welcome. 3 HEARING OFFICER ORTH: Thank you, Mr. Baake. 4 Ms. Devore? 5 MS. DEVORE: Mr. Baake, he addressed most of 6 my questions. I just had one remaining question for 7 Mr. Lisowski. 8 CROSS-EXAMINATION 9 BY MS. DEVORE: 10 Q. I hope I'm not mangling your name. 11 Thank you for your -- 12 A. No problem. 13 Q. Thank you for your testimony. 14 So I was just curious if you would consider 2 15 grams per horsepower-hour to be a high-emitting engine 16 because of the NSPS rules at this point in time, because 17 (unintelligible and/or inaudible) -- might be sold in 18 the US for the last 10 years? 19 A. You know, I think a high-emitting engine 20 statement is kind of a, you know, general statement that 21 it really depends. You know, I think it's somewhat of a 22 subjective statement. 23 But if you have an engine emitting beyond its 24 regulated NSPS limit, you know, one could argue that it 25 is a high-emitting engine. But it depends on that	2999 1 MR. LISOWSKI: You're welcome. 2 HEARING OFFICER ORTH: Thank you very much, 3 Ms. Devore. 4 Any other parties with questions of 5 Mr. Lisowski? 6 All right. I'll move to questions from the 7 Board. 8 While I'm doing that, if you're an attendee on 9 this platform, please reach out through the chat with 10 any questions. 11 EXAMINATION 12 BY THE BOARD: 13 HEARING OFFICER ORTH: Madam Chair, any 14 questions of Mr. Lisowski? 15 CHAIR SUINA: Thank you, Madam Hearing 16 Officer. 17 Good afternoon, Mr. Lisowski. 18 Did I say it right? I'm sorry. 19 MR. LISOWSKI: You did, you nailed it. 20 CHAIR SUINA: Okay. Lisowski. 21 Thank you again for your information and what 22 you presented here today. 23 So I just want to make sure I'm -- kind of 24 wrap my head around it, as well. 25 I know you had said earlier that -- that you

3000 1 would need an engine to exceed the limit, and I think in 2 this case you were saying one, right, one -- 3 MR. LISOWSKI: (Unintelligible and/or 4 inaudible) lower than the limit. Yeah. 5 CHAIR SUINA: Yeah. In order to kind of 6 average everything out. 7 And I was just wondering, are there engines 8 available to exceed or do -- you know, better that 9 limit? 10 MR. LISOWSKI: Now, are you referring 11 specifically to the Table 2, the existing engines? 12 CHAIR SUINA: Yes. 13 MR. LISOWSKI: Yeah. So they'll be -- you 14 know, it's -- it's a tough category to work through, 15 because you're trying to make sure that you're offering 16 enough flexibility technically so that you can, you 17 know, in practice achieve these limits. And so, yeah, 18 there will be engines within that category that can 19 exceed the 2, but, you know, as a -- generally a lot of 20 those will be in that, you know, maximum 2.0 grams 21 without replacement. 22 But it really depends, because that's the 23 really hard part with existing engines, is you have the 24 entire state fleet within this category. Right? And so 25 there's going to be some winners, and there's going to	3002 1 to balance it out with what's actually possible so 2 you're not shifting it to a different type of source, 3 whether it be power plants that drive electric motors 4 or -- or whatnot. 5 CHAIR SUINA: And thank you for kind of 6 leading into my next question. 7 So I think -- and so I think you mentioned 8 there were other jurisdictions that had stricter limits, 9 and California, I think, was mentioned and -- and 10 Colorado. 11 So are they running into issues in terms of 12 meeting these new compliance -- or those amended 13 compliance limits? 14 MR. LISOWSKI: You know, I -- I can't speak to 15 the -- you know, the result of these rules, especially 16 because they're fairly new, and I don't have any 17 experience with California rules. 18 I do have personal anecdotal experience where 19 we were trying to -- we had an old legacy Ajax 20 compressor engine -- and you guys have a lot of those in 21 New Mexico. They're old legacy two-stroke engines. And 22 we needed to replace it. It was at a Title V facility. 23 And right across the street was another operator's Title 24 V facility. 25 And part of NESHAP meant that we had to do
3001 1 be some losers. And in some cases perhaps there will be 2 some opportunity to reduce, you know, on a -- on an 3 engine that's -- you know, for instance, an old legacy 4 engine that has all this LEC technology, maybe it can 5 get down to, you know, 1.8 grams, or maybe it can get 6 down to 1 gram. 7 But as a broad statement, a lot of the 8 horsepower that's in place, which is -- you know, like 9 the Caterpillar 3500, that's probably the most common in 10 service right now in gathering space, 2 grams is going 11 to be most achievable for many of those engines. 12 CHAIR SUINA: Okay. 13 And then for new engines, is that -- is that 14 level easier to meet? Just throwing that out there. 15 MR. LISOWSKI: It is. And once again it 16 depends on what type of engine we have. But for 17 instance, you know, we were supportive of that .3 grams 18 or greater than the 1,875 because there's product 19 offerings. Now, that doesn't mean that that's 20 necessarily easy target, but it is more practically 21 achievable. 22 And that's where, you know, in my -- in my 23 memo that's what I'm trying to balance, is what's -- you 24 know, trying to meet these limits. I'm in agreement 25 that, you know, this is a good rule, but you also need	3003 1 fence line monitoring to meet the NAAQS rule. Excuse 2 me. The NAAQS rule, not NESHAP. And we -- we had a kit 3 that -- offered by Ajax at the time. I don't believe 4 it's offered anymore. They've gone out of business. 5 But that lowered the NOx of that engine plus upgrade -- 6 upgraded the horsepower. 7 And we failed. We were not able to pass that 8 modeling criteria because of the -- the -- just the 9 large emitting source from this Title V facility plus 10 the operator across the street. 11 And so what we ended up doing is instead of 12 making that Ajax cleaner and getting more horsepower, 13 reducing our annual tonnage and achieving our needs, we 14 ended up setting two electric motors as a result so that 15 we didn't have to get into our air permit because it 16 would have eliminated the grandfather status. 17 And the point of that story is, you know, that 18 there are unintended consequences if you can't meet 19 these standards, not just that we'll magically meet 20 them, it's just that we'll have to find alternative ways 21 to satisfy them, and it might not be the intended 22 purpose -- the intended outcome of the rule. 23 CHAIR SUINA: Thank you for that. 24 And was that example here in New Mexico, that 25 you just --

3004 1 MR. LISOWSKI: No. That was in Colorado. 2 CHAIR SUINA: So that was in Colorado. So -- 3 MR. LISOWSKI: Yeah. That was one at a 4 facility I had worked on at one point in my career. 5 CHAIR SUINA: Okay. 6 And how long ago was that? 7 MR. LISOWSKI: That was probably in -- in the 8 20 -- 2012 to 2014 time frame. 9 CHAIR SUINA: Okay. All right. 10 Well -- and at that time were there these more 11 stricter standards at that time? 12 MR. LISOWSKI: No. Colorado was going through 13 some nonattainment challenges. So I -- you would say 14 that it was probably pretty strict, but it wasn't these 15 rules that are currently in place. 16 CHAIR SUINA: Okay. Well, thank you for that 17 information. I appreciate it. 18 MR. LISOWSKI: You bet. 19 CHAIR SUINA: Madam Hearing -- thank you, 20 Mr. Lisowski. 21 And, Madam Hearing Officer, that's all I have. 22 HEARING OFFICER ORTH: Thank you. 23 Vice-Chair Trujillo Davis. 24 VICE-CHAIR TRUJILLO DAVIS: I don't have any 25 questions.	3006 1 that -- 2 MS. KATZ: I believe, Madam Hearing Officer, 3 that we would hear from all the other witnesses that are 4 available before we go back to the Department on the 5 storage vessels. 6 HEARING OFFICER ORTH: All right. 7 Mr. Baake? 8 MR. BAAKE: Madam Hearing Officer, I 9 believe -- sorry to interrupt. 10 But I believe Dr. McCabe is ready. 11 HEARING OFFICER ORTH: Okay. 12 And I saw Ms. Gutierrez briefly. 13 Will we hear from Ms. Cooper after -- after 14 that? 15 MS. GUTIERREZ: Sorry. That was an accidental 16 video push. Apologies. 17 HEARING OFFICER ORTH: All right. Thank you. 18 MS. KATZ: And we also do have -- I believe we 19 have Mr. Kim and Ms. Cooper for CDG? Do we? 20 HEARING OFFICER ORTH: I thought we already 21 heard from Mr. Kim. Maybe -- 22 MS. KATZ: Oh, we did. You're right. Sorry. 23 I have Ms. Cooper listed as a rebuttal witness 24 that -- as having provided rebuttal testimony, but maybe 25 that -- I don't know. They would have to answer that.
3005 1 Great line of questioning, Madam -- yeah, 2 Madam Suina. 3 HEARING OFFICER ORTH: Thank you. 4 Member Cates? 5 MEMBER CATES: No questions here. Thanks. 6 HEARING OFFICER ORTH: Thank you. 7 Member Bitzer? 8 MEMBER BITZER: No questions. Thank you. 9 HEARING OFFICER ORTH: Thank you. 10 Member Garcia? 11 MEMBER GARCIA: No questions. Thank you. 12 HEARING OFFICER ORTH: And Member Honker. 13 MEMBER HONKER: No questions. Thank you. 14 HEARING OFFICER ORTH: All right. Thank you 15 very much, Mr. Lisowski. 16 Let's see if any of the Chair's questioning or 17 the other parties' questioning prompts redirect. 18 MR. HISER: No, I don't believe so. Thank 19 you, Madam Hearing Officer. 20 HEARING OFFICER ORTH: All right. Thank you, 21 Mr. Hiser and Mr. Lisowski. 22 MR. LISOWSKI: You're welcome. Thank you. 23 HEARING OFFICER ORTH: So I would like to 24 clarify. Are we going to hear from Ms. Cooper or 25 Dr. McCabe and then go back to the Department? Is	3007 1 HEARING OFFICER ORTH: All right. I'll 2 clarify after we hear from Dr. McCabe. 3 Mr. Baake? 4 And I am certain I made Dr. McCabe a panelist 5 so we should be able to see him. 6 Oh, there he is. 7 Hello, Dr. McCabe. 8 MR. MC CABB: Hello. 9 MR. BAAKE: I believe Dr. McCabe is still 10 under oath. 11 DAVID MC CABB 12 (Relating to Topic Orders 34 and 33 continued) 13 having been first duly sworn or affirmed, was 14 examined and testified further as follows: 15 DIRECT EXAMINATION 16 BY MR. BAAKE: 17 Q. Dr. McCabe, can you summarize your testimony 18 today? 19 A. Yes. I will be summarizing my direct and 20 rebuttal testimony regarding storage vessels and then 21 offering some brief surrebuttal. And I also wanted to 22 provide some information in response to questions I 23 received from the Board the first time that I testified 24 on Tuesday. 25 First, Chair Suina asked whether there had

3008 1 been a negative impact on the oil and gas industry in 2 Colorado since the state adopted the first -- the 3 nation's first methane regulations for the oil and gas 4 industry. 5 I will summarize my written rebuttal testimony 6 which showed that there had been no discernible negative 7 impact. 8 Second, several members asked for additional 9 information about the benefits that can be realized by 10 retrofitting natural gas-driven pneumatic controllers 11 that are not captured in NMED's cost analysis, and so I 12 will briefly respond to that inquiry, as well. 13 Q. Thank you, Dr. McCabe. 14 On the subject of storage vessels, NMED 15 proposes to require emission controls at any existing 16 storage vessel with a potential to emit at least two 17 tons per year of VOCs. NMOGA proposes that this 18 threshold should be increased to six tons per year. 19 Why do Clean Air Advocates oppose that change? 20 A. So several jurisdictions require control of 21 emissions from storage tanks with VOC emissions lower 22 than six tons per year. These include Colorado, with a 23 threshold of two tons per year for new and existing 24 tanks, and Pennsylvania, which has required the control 25 of all new or modified tanks with VOC emissions above	3010 1 almost word for word an amendment to Regulation 7 2 adopted by Colorado in December, 2019. And that 3 specific citation is included in my written direct 4 testimony. 5 Q. What would be the purpose of this new proposed 6 subsection? 7 A. So the new section -- subsection, sorry, would 8 reduce emissions from storage vessels installed at new 9 or modified facilities by requiring those tanks to 10 employ a storage vessel measurement system to determine 11 both the quantity and quality of liquids in -- in the 12 storage vessel. 13 Typically in order to measure the level of 14 liquid in a tank, operators open a thief hatch on top of 15 the tank to insert a gauging device, and then operators 16 also typically collect samples of the liquid in the 17 vessels through the hatch. When the hatch is opened, of 18 course, air pollutants, including methane, VOCs and 19 hazardous air pollutants, are released. Since gauging 20 is often performed quite frequently and the hatch is 21 opened every time a measurement is taken, these 22 emissions can be significant. 23 Operators can avoid these emissions by 24 employing an alternative system to measure and sample 25 the liquids in the vessel. Examples of alternative
3009 1 2.7 tons per year since back in 2013. 2 Finally, since 2012 the USEPA has required any 3 existing tank required to control emissions under 4 NSPS -- NSPS Quad 0 or NSPS Quad 0a has to retrain that 5 control until emissions drop below four tons per year. 6 When Colorado lowered its threshold for 7 control of tanks to two tons per year, the Colorado Air 8 Quality Control Commission found the control of tanks 9 emitting less than six tons per year of VOC is cost 10 effective. In fact, the commission specifically found 11 that control is cost effective even for the lowest 12 emitting tanks in that cohort, those emitting between 13 two and three tons per year of VOC. And then, of 14 course, tanks with higher emissions than that are even 15 more cost effective. 16 Therefore, it would be inappropriate to raise 17 the threshold for control of tanks from two tons to six 18 tons. 19 Q. Thank you, Dr. McCabe. 20 And could you describe the proposal the Clean 21 Air Advocates have made to include a storage vessel 22 measurement requirement in this tank provision? 23 A. Yes. Clean Air Advocates propose to add a new 24 Subsection C to this section entitled Storage vessel 25 measurement requirements. This provision would mirror	3011 1 systems include automatic tank gauging systems and lease 2 automatic custody transfer, or LACT, units. The 3 Colorado regulation requires operators to employ these 4 types of alternative systems for new or modified storage 5 vessels, and our proposal would require the same in New 6 Mexico. 7 Q. What are some of the benefits of Clean Air 8 Advocates' proposed storage vessel measurement 9 provision? 10 A. So the Clean Air Advocates' proposal reduces 11 emissions using systems that have been used for years in 12 the field at a reasonable cost to industry. And as I'll 13 describe later, it also has important safety benefits 14 which I'll discuss briefly. 15 So the Colorado Air Pollution Control Division 16 included an analysis of the storage vessel measurement 17 system regulation in the regulatory analysis that went 18 in with the -- those regulations in 2019. Using cost 19 data for automatic tank gauging systems, this analysis 20 showed that the use of a measurement system is generally 21 cost effective and the cost effectiveness will increase 22 the more often measurement occurs. 23 In general, measurement is carried out each 24 time liquid is transferred from the tank to a truck, a 25 process often referred to as loadout. If a measurement

3012 1 occurs 100 times per year, the requirement will reduce 2 VOC emissions from an 8-tank battery by 5.1 tons per 3 year, which works out to a cost of about \$3,447 per ton. 4 If measurement occurs once per day, then the requirement 5 would reduce emissions by 18.6 tons for such a tank 6 battery at a cost of \$944 per ton. 7 Colorado's -- when the Air Pollution Control 8 Division put forth this analysis, they stated that these 9 numbers were, quote, extremely conservative insofar as 10 the new and modified facilities that will be subject to 11 these requirements will likely have production at such a 12 level where loadout happens more often than even one 13 time per day. 14 In addition, the division found that -- the 15 Air Pollution Control Division found that equipment 16 costs would be lower for owners and operators who use 17 storage vessel measurement system at multiple facilities 18 and that the use of such a system would provide benefits 19 to owners and operators by increasing the accuracy of 20 measurement. And the benefits of the -- that benefit 21 was also not included in the division's cost analysis. 22 Q. And, Dr. McCabe, does the use of this type of 23 system have safety co-benefits? 24 A. Yes, it does. The National Institute of 25 Occupational Safety and Health and the Occupational	3014 1 Q. Thank you, Dr. McCabe. 2 (Unintelligible and/or inaudible) we'd also 3 like to do our surrebuttal related to tanks. 4 Dr. McCabe, did you review the rebuttal 5 testimony, this proposed -- this proposal that was 6 submitted by NMOGA witness John Smitherman? 7 A. Yes, I did. 8 Q. Can you summarize what Mr. Smitherman had to 9 say? 10 A. Yes. Mr. Smitherman notes that the Oil 11 Conservation Commission's waste rule, which was adopted 12 this year, does include a requirement to use auto 13 gauging technology at certain new storage vessels, and 14 so he suggested that NMED should not impose separate 15 requirements to those already established in order to 16 avoid conflict between agency requirements. 17 He also character -- characterized our 18 proposal as requiring the use of a lease automatic 19 custody transfer unit, a LACT unit, at all new or 20 modified tanks, apparently in addition to requiring an 21 automatic gauging system. He suggests that LACT units 22 are very expensive and infeasible at sites without 23 electric power. 24 And he also contended that the economic 25 analysis prepared to support the Colorado proposal
3013 1 Safety and Health Administration jointly issued a hazard 2 alert in February, 2016, explaining that the agencies 3 had identified health and safety risks to workers who 4 manually gauge or sample fluids on production and 5 flowback tanks from exposure to hydrocarbon gases and 6 vapors, exposure to oxygen deficient atmospheres, and 7 the potential for fires and explosions. 8 The hazard alert explained that opening tank 9 hatches, often referred to as thief hatches, can result 10 in the release of high concentrations of hydrocarbon 11 gases and vapors which can have immediate health 12 effects, including loss of consciousness and death. It 13 went on to survey nine cases between 2010 and 2014 where 14 a worker died while performing manual tank gauging. 15 The agency's recommended use of alternative 16 tank gauging and sampling procedures that enable workers 17 to monitor tank fluid levels and take samples without 18 opening the tank hatch to reduce the hazards associated 19 with the gauging, manual gauging. 20 Clean Air Advocates' propose -- proposal would 21 require exactly that at new and modified facilities, 22 including an important co-benefit in terms of 23 occupational safety at time -- at the same time it 24 reduces emissions of ozone-causing VOCs and other 25 pollutants.	3015 1 underestimates the cost of installing an auto gauging 2 system in a LACT unit. 3 Q. Dr. McCabe, do you agree that because the Oil 4 Conservation Commission adopted a rule that already 5 requires auto gauging for certain new storage tanks, 6 that NMED does not need to address this issue? 7 A. No. The OCC rule is a good start, but it is 8 not as protective as our proposal. There are two 9 important differences. 10 First, my understanding is that the OCC rule 11 only requires the auto gauging technology to be able to 12 measure the quantity, the amount of liquid in the tank. 13 Our proposal, like the Colorado precedent, requires that 14 the auto gauging technology be able to measure both the 15 quantity and the quality of the liquids, meaning that 16 operators would be able to collect a sample of the 17 liquid without opening the hatch. 18 Second, our proposal and the Colorado rule 19 expressly forbid operators from opening thief hatches to 20 gauge or sample tanks where auto gauging technology is 21 required, which the OCC rule does not do. 22 Q. And, Dr. McCabe, I think there was a 23 suggestion earlier that we might be prohibiting 24 operators from ever opening their thief hatches, but is 25 that -- is that correct?

3016 1 A. No. The intention is to simply prohibit 2 opening a thief hatch at a tank with an auto gauging 3 system for the purpose of gauging the tank or sampling 4 the liquid. 5 Q. Is Mr. Smitherman correct that our proposal 6 requires the use of a LACT unit? 7 A. No. Our proposal simply requires operators to 8 utilize a storage vessel measurement system. It doesn't 9 require a LACT. 10 Q. Thank you, Dr. McCabe. 11 We now are going to summarize the written 12 rebuttal on economic impacts, and this may go to a 13 question, I believe, from Chair Suina. 14 And can I have sharing privileges? 15 I'd like to just pull up that testimony, which 16 is Exhibit 23, Clean Air Advocates Exhibit 23. 17 I always get confused when I do this. 18 Is that -- 19 A. That's working. 20 Q. You see the chart? Okay. 21 A. Yes. 22 Q. So, Dr. McCabe, we have heard some dire 23 predictions about the potential impact of this 24 rulemaking on the oil and gas industry. 25 Do you agree that this rule will negatively	3018 1 of rig count and oil production to other states that 2 have not put in place similar protective regulations to 3 reduce oil -- I'm sorry -- reduce air pollution from 4 upstream oil and gas sites. 5 So the first thing that I just looked at, and 6 we described this a little bit, but it's sort of hard to 7 describe a graph without having it in front of us, so we 8 did -- I did discuss this a little bit on Tuesday, I 9 believe it was. This is just looking at the rig count 10 for Colorado since the beginning of 2012 and comparing 11 it to North Dakota and Oklahoma. 12 The size of the industry and the -- and the 13 quantity of natural resources vary a lot between states. 14 In North Dakota and Oklahoma, each had about 180 to 190 15 rigs back in January, 2012, while Colorado only had 77. 16 So it's most informative to look at the changes in each 17 state's rig count since the beginning of 2012. 18 Therefore, this graph shows for each state the ratio of 19 the rig count in each state to that state's average rig 20 count back in January, 2012. And then we just set 21 that -- that January 12 rig count at 100 for the 22 purposes of the graph. 23 So clearly drilling activity in Colorado has 24 tracked very closely to activity in the other two 25 states. After Colorado put its rules in effect in
3017 1 impact the industry? 2 A. No. We -- I do not agree. We can be 3 confident that these rules will not hamper the oil and 4 gas industry in New Mexico. The rules that NMED 5 proposed and the strengthened rules that we proposed 6 will require the New Mexico oil and gas industry to 7 adopt measures similar to those required in Colorado. 8 Most of those rules were put in place in rulemakings in 9 February, 2014; December, 2017; December, 2019; and 10 between December, 2020 and February, 2021. 11 Comparing the historical record of oil 12 production and drilling from Colorado to that from other 13 states, it is clear that neither oil production nor 14 drilling was hampered by the Colorado rules. 15 Excuse me. 16 The volume of production and especially the 17 count of rigs, which is an indicator of drilling 18 activity, vary tremendously over time, in response to 19 the price of oil, other economic factors, developments 20 in technology, and the evolution of production patterns 21 in the US. For example, the growth of activity in the 22 Permian in recent years has pulled investment away from 23 other states. 24 Because of these hugely influential exogenous 25 factors, it is helpful to compare Colorado's trajectory	3019 1 February, 2014, which happens to be -- it was right 2 about, yeah, where that line is, the rig count actually 3 grew in Colorado, but it did in the other states, too, 4 that did not put in place rules to reduce these 5 unnecessary emissions. 6 There are actually many, many changes in each 7 state's drilling activity, but the states move quite 8 similarly. There's simply no evidence that the drilling 9 activity in Colorado dropped in response to the rules 10 that Colorado put in place. And now, in 2021, with all 11 the sets of rules in place from all -- 2014, '17, '19 12 and 2020, the ratio of present day drilling to early 13 2012 drilling is the same or higher in Colorado as it is 14 in Oklahoma and North Dakota. 15 Oil production shows the same story. Colorado 16 there is again red. Quite simply, relative to 2012 17 Colorado has outpaced North Dakota and Oklahoma for oil 18 production despite the fact that those states don't have 19 these rules -- these rules in place. So there's simply 20 no evidence that these rules have hampered oil 21 production. 22 In summary, the evidence from drilling and 23 production statistics shows that drilling activity and 24 oil production in Colorado weren't hampered by the 25 protective rules that Colorado put in place, and given

3020 1 the similarity between the Colorado rules and the rules 2 proposed by NMED and by environmental stakeholders, we 3 can be confident that adoption of those rules will not 4 lead to dire economic consequences that some 5 stakeholders have predicted. 6 Q. And, Dr. McCabe, before we respond to the 7 questions that we had from the Board about pneumatics, 8 we did get a question from the Board about how 9 significant a producer of Colorado is. I think that 10 might be -- we could take that now. 11 A. Okay. 12 Q. Do you have that information? 13 A. Yes. For both 2019 and 2020, Colorado was the 14 number five producer of crude oil, just behind Oklahoma 15 and just ahead of Alaska. For 2020, Colorado was the 16 number nine producer of gas, just behind New Mexico, 17 which passed it that year. Colorado was number eight, 18 just ahead of New Mexico, for gas production in 2019. 19 Production of gas grew in both states in 2020, but New 20 Mexico's gas production grew faster than Colorado's. So 21 that's why it passed Colorado. 22 Q. Thank you, Dr. McCabe. 23 And our final question here. On Tuesday 24 certain Members of the Board, I believe it was Member 25 Garcia, but may have been several members asked similar	3022 1 selling the conserved gas at this price, we find that -- 2 we find that reduces the cost of the rule by \$900 per 3 ton of VOC. 4 And then regarding maintenance costs for 5 facilities that handle wet gas that is more viable to 6 condense and heavier in hydrocarbons, such as oil well 7 pads, we estimate that accounting for net maintenance 8 savings when calculating abatement costs reduces the 9 abatement costs by \$674 per ton of VOC. This net 10 savings in maintenance cost would be smaller for 11 facilities that handle drier gas, such as some gas well 12 pads and gathering stations if they handle drier gas 13 without large amounts of condensable heavier 14 hydrocarbons. 15 For well pins -- well pads handling the drier 16 gas, we estimate that accounting for net maintenance and 17 savings when calculating abatement cost reduces the 18 abatement costs by \$270 per ton of VOC. 19 MR. BAAKE: Thank you, Dr. McCabe. 20 That concludes my direct questioning of you. 21 So we will now make Dr. McCabe available for 22 cross-examination. 23 HEARING OFFICER ORTH: Thank you very much, 24 Mr. Baake and Dr. McCabe. 25 If you're a party in this action and you have
3021 1 questions, had asked whether we could provide estimates 2 of how much lower the estimated cost a pneumatic 3 retrofit program would be if the analysis took into 4 account the increased revenue that operators would 5 receive from selling conserved gas and the maintenance 6 savings that operators tend to experience when using 7 alternatives to natural gas-driven pneumatics. 8 Could you briefly provide those estimates? 9 A. Yes. So I'll provide the estimates of the 10 effect of those factors on the cost estimates for well 11 pads, just because it will be too many numbers if we try 12 to do it in too many different types of facilities. 13 NMED -- but it will give an idea of how -- of the fact 14 that these -- factoring in these -- these effects can be 15 significant. 16 So just as a reminder, NMED calculated that 17 the cost of the retrofit program that they propose for 18 well pads would be \$2,745 per ton of VOC. 19 For the first issue, which is the increased 20 revenue from the sale of conserved gas, we use the value 21 of gas -- the cost of gas that Mr. Smitherman 22 recommended during Tuesday's testimony, which was \$3.20 23 per Mcf of gas, as representative of the net value that 24 a producer might get, discounted from the Henry Hub 25 price, for example. Accounting for the revenue from	3023 1 questions of him, please turn on your camera. 2 I see Mr. Curtis, and then I see 3 Mr. de Saillan. 4 Mr. Curtis, go ahead. 5 MR. CURTIS: Thank you. 6 CROSS-EXAMINATION 7 BY MR. CURTIS: 8 Q. Good afternoon, Dr. McCabe. 9 I just have a few questions here. 10 So you testified a little bit on your storage 11 vessel measurement proposal, and I believe you said that 12 the intent of that was to not preclude opening the thief 13 hatch in all cases; is that correct? 14 A. Yes, sir. 15 Q. Okay. 16 And so as an example, if an operator needs to 17 open a tank to perform maintenance or to fix a leak, 18 open the thief hatch to do that, you think that would be 19 an appropriate step; is that correct? 20 A. Yeah. I mean, it's -- it's hard to speculate 21 about individual cases, but our intention is certainly 22 not to preclude ever opening the thief hatch. 23 Q. In cases of required maintenance to ensure the 24 continued operation of the tank or to address leaks or 25 things along those lines, you think that's appropriate

3024 1 and within the scope of what you proposed? 2 A. Yes. That's our intent. 3 Q. You spoke quite a bit about the cost per ton 4 analysis that was done for tanks at two tons per year in 5 Colorado. 6 At the time that analysis was conducted, had 7 the impacts that the worldwide pandemic and related 8 supply shortages have had on the economy -- had those 9 taken effect at that time, and was that taken into 10 account by Colorado? 11 A. No. It -- it preceded the -- preceded the 12 pandemic. 13 Q. And so if, as others have testified, the costs 14 and supply shortages associated have increased, you 15 would anticipate that to affect the cost per ton 16 effectiveness of the proposal, correct? 17 A. I -- I would expect some -- some impact on 18 cost. 19 Q. Okay. Thank you. 20 You provided a little bit of context on 21 drilling activity to suggest that the oil and gas 22 industry has not been impacted by the regulatory 23 provisions. 24 Did you provide any data on the amount of rigs 25 that have been -- I'm sorry -- the amount of wells that	3026 1 sites and considering whether that particular asset will 2 provide a return on investment? Do you recall that 3 testimony? 4 A. I'm sorry, sir. I -- I don't recall it at 5 this time. There's a lot of -- this is a voluminous 6 record. 7 Q. A lot going on. Okay. Thank you. 8 You provided some information on your cost 9 estimates of what money we would save -- that the oil 10 and gas industry would save as a result of capturing 11 additional emissions from pneumatics. 12 Can I ask what emission factor you used when 13 conducting that analysis? 14 A. Yes. That's using the NMED emissions factors. 15 Q. Okay. 16 And specifically for intermittent pneumatics, 17 what emission factor was used for that? 18 A. I believe that's the 13.5 Mcf per hour. 19 Q. And just to refresh my memory, you endorse the 20 use of 3.5 standard cubic foot per hour in the Colorado 21 rulemaking; is that correct? 22 A. Yes. We did as a conservative analysis of 23 emissions in that particular state. 24 MR. CURTIS: I don't think I have any other 25 questions.
3025 1 have been plugged and abandoned since the rules have 2 been passed? 3 A. No. That data is very challenging to work 4 with. It's very noisy data, and it's very hard to -- if 5 you look at a typical source and try to discern the 6 number of wells that have been plugged and abandoned, 7 you get negative numbers in certain years, and it's -- 8 so it's very difficult to get reliable data for 9 abandonment. 10 Q. So drilling activity doesn't really tell us 11 anything about a rule's impact on existing gas and oil 12 wells; is that correct? 13 A. I -- I don't think that's a fair statement. 14 If a company decides to make an investment in -- in 15 drilling, which is substantial, they're looking forward 16 over the anticipated life of that well and anticipating 17 that it's a worthwhile investment, and they certainly 18 are going to consider operational costs for the well and 19 the value of the well over time since many of them sell 20 wells. 21 So no. I don't -- I think that's too sweeping 22 a statement. 23 Q. And do you recall Mr. Smitherman's testimony 24 that when an oil and gas company is considering the 25 economics of the project they're looking at individual	3027 1 Thank you, Dr. McCabe. 2 MR. MC CABE: Welcome. 3 HEARING OFFICER ORTH: Thank you, Mr. Curtis. 4 Mr. de Saillan? 5 MR. DE SAILLAN: Thank you, Madam Hearing 6 Officer. 7 Can you hear me okay? 8 MR. MC CABE: Yes, sir. 9 MR. DE SAILLAN: Great. 10 CROSS-EXAMINATION 11 BY MR. DE SAILLAN: 12 Q. Good afternoon, Dr. McCabe. 13 I just have a very quick question for you. 14 Is it your understanding that the New Mexico 15 Environmental Law Center also supports the proposal to 16 require automatic gauging systems or other alternative 17 systems on tanks? 18 A. Yes, sir. 19 MR. DE SAILLAN: Thank you. 20 That's all I have. 21 HEARING OFFICER ORTH: Thank you, 22 Mr. de Saillan. 23 Any other parties with questions? 24 No? 25 I'll turn now to the Board for their

3028 1 questions. 2 If you're an attendee on this platform and 3 have a question, please reach out through the chat. 4 Madam Chair? 5 CHAIR SUINA: Good afternoon, Madam Hearing 6 Officer. 7 And thank you, Dr. McCabe, for your testimony. 8 I don't have any questions at this time. 9 HEARING OFFICER ORTH: Thank you. 10 Vice-Chair Trujillo Davis. 11 VICE-CHAIR TRUJILLO DAVIS: I don't have any 12 follow-up questions either. Thank you. 13 HEARING OFFICER ORTH: Thank you. 14 Member Cates? 15 MEMBER CATES: No questions here. Thank you. 16 HEARING OFFICER ORTH: Thank you. 17 Member Bitzer? 18 I think that was no questions. 19 Member Garcia? 20 MEMBER GARCIA: No questions. Thank you. 21 But I really appreciate the graphs showing the 22 comparison of Colorado's activity postrule. Thank you. 23 HEARING OFFICER ORTH: And Member Honker. 24 MEMBER HONKER: No questions. Thank you. 25 HEARING OFFICER ORTH: All right. Thank you.	3030 1 (Proceedings in recess from 2:40 p.m. to 2 2:55 p.m.) 3 HEARING OFFICER ORTH: Let's come back from 4 the break, please. 5 We are back after a short break. 6 And, Ms. Katz, I believe we return to the 7 Department for their surrebuttal. 8 MS. KATZ: Thank you, Madam Hearing Officer. 9 The Department will call back Ms. Kuehn and 10 Mr. Palmer for surrebuttal. 11 I'm just going to wait for Mr. Palmer if -- 12 there he is. Okay. 13 ELIZABETH BISBEY-KUEHN and BRIAN PALMER 14 (Relating to Topic Order 34 continued) 15 having been first duly sworn or affirmed, were 16 examined and testified further as follows: 17 DIRECT EXAMINATION 18 BY MS. KATZ: 19 MS. KATZ: Ms. Kuehn, regarding Oxy's request 20 for extending the compliance deadlines for existing 21 tanks to 2029, as was discussed by Mr. Holderman in his 22 testimony, upon further review of the number of affected 23 tanks, would the Department accept that -- that request? 24 MS. BISBEY-KUEHN: (Unintelligible and/or 25 inaudible) that there will be -- there will be thousands
3029 1 Mr. Baake, did any of the questioning by 2 Mr. Curtis prompt redirect? 3 MR. BAAKE: No redirect. 4 HEARING OFFICER ORTH: All right. Thank you, 5 Mr. Baake. 6 Thank you, Dr. McCabe, for your testimony. 7 Let's see. Casey Shpall did reach out through 8 chat to say that CDG has no further rebuttal on this 9 topic from either Mr. Kim or Ms. Cooper. 10 So I believe we would return to the 11 Department. If there's any disagreement on that, please 12 turn on your camera. 13 No? Okay. 14 So let's come back at five of 3:00 -- oh, 15 there's Mr. Hiser. 16 MR. HISER: Madam Hearing Officer, 17 Mr. Smitherman who is our witness on one of the issues 18 that was just touched on is not here today. So I would 19 need to just give him a brief review of what was said 20 and see if he would need to say anything. So I'll check 21 with him as soon as I can and let you know. 22 HEARING OFFICER ORTH: All righty. Thank you. 23 Ms. Katz, you're nodding your head. I take it 24 we can return at five of 3:00 with the Department. 25 Yes. Okay. Thank you.	3031 1 of existing tanks subject to this part, the Department 2 would support Oxy's original proposed compliance 3 deadlines. 4 MS. KATZ: Thank you. 5 Ms. Kuehn, can you -- can you explain the 6 Department's position regarding Clean Air Advocates' 7 request to add an automatic tank measurement system 8 requirement? 9 MS. BISBEY-KUEHN: Yes. So there were a 10 consortium of stakeholders, including EDF, the Center 11 for Civic Policy and NAVA Education Project and Clean 12 Air Advocates, that propose to require operators utilize 13 a storage vessel measurement system on new storage 14 vessels to determine the quantity of liquids in the 15 storage tanks. And this would allow thief hatches to 16 remain closed during the measurement of the tank's 17 contents, which would minimize emissions. 18 Oxy USA and NMOGA generally support this 19 requirement, and NMED agrees with the commenters that 20 the use of a storage vessel measurement system on new 21 storage vessels to determine the quantity of liquids in 22 the vessels would reduce emissions, and so NMED 23 generally accepts and supports the proposal. 24 MS. KATZ: Thank you. 25 Can you -- can you discuss CDG's request to

3032 1 exclude certain types of vessels from the definition of 2 storage vessel and what the Department's position is 3 with respect to that request? 4 MS. BISBEY-KUEHN: Yes. And I spoke to this 5 earlier in the -- in our PowerPoint presentation for 6 storage vessels. 7 CDG proposed to revise the definition of 8 storage vessel to exclude certain types of vessels, 9 including process vessels that are surge control bottom 10 receivers or knockout vessels, and the Department does 11 agree with that change, which would align with the 12 definition of storage vessel within the definition of 13 NSPS Quad Oa. 14 MS. KATZ: Thank you. 15 And has CDG provided any emissions data for 16 their storage vessels or any data justifying why it 17 would be technically infeasible to control those storage 18 vessel emissions? 19 MS. BISBEY-KUEHN: The Department did not 20 receive any emissions data regarding those specific 21 storage vessels or any data to indicate why it is 22 technically infeasible to control those emissions. CDG 23 is requesting exemptions from the rule for their storage 24 vessels, but they did not provide the information 25 establishing why those additional exemptions would be	3034 1 And so the Department agrees that the issue 2 warrants a very narrow exception if it is accompanied by 3 a record verifying the Btu of the vapor from those 4 storage vessels, which would then demonstrate that the 5 vapor is, in fact, below the thresh -- excuse me -- the 6 threshold established by manufacturers. 7 MS. KATZ: Thank you. 8 So turning -- turning to Mr. Palmer, do any 9 other state rules have similar applicability thresholds 10 for existing storage tanks as that proposed by the 11 Department? 12 MR. PALMER: Yes. Colorado -- excuse me. 13 Colorado Regulation 7 has an applicability threshold of 14 two tons per year VOC for existing storage tanks. 15 MS. KATZ: And, Mr. Palmer, if the rule were 16 to exempt tanks that were between three and six tons per 17 year -- emitted three and six tons per year, how many 18 tanks would that leave unaddressed, and what are the 19 emission -- what would the emissions from those tanks 20 be? 21 MR. PALMER: The NMED equipment data shows 22 that there are 694 tanks with allowable VOC emissions 23 between three and six tons per year, and those 694 tanks 24 account for 3,149 tons per year of VOC. 25 MS. KATZ: Thank you.
3033 1 necessary. 2 MS. KATZ: And how does the rule address 3 existing low-emitting storage vessels? 4 MS. BISBEY-KUEHN: The rule as proposed has an 5 applicability on ramp of three tons per year and 6 provides an off ramp from the requirements of the 7 section if the actual emissions are less than two tons 8 per year. So it was unclear why this applicability 9 threshold and this off ramp from the section are not 10 sufficient to address those low-emission storage 11 vessels. 12 MS. KATZ: And, Ms. Kuehn, despite those two 13 points that you have just made, observing those issues, 14 has the Department considered CDG's request to add 15 language to Section 123 that would authorize an 16 exception for those storage vessels for which vapors do 17 not meet minimum Btu values for the combustion device, 18 based on manufacturer specifications? 19 MS. BISBEY-KUEHN: Yes. It was -- we did. We 20 did review their request. The Department understands 21 the concept of the -- of the technical issue identified 22 by CDG. You know, without the data to support those 23 claims, it was -- we were not able to verify whether 24 those were appropriate or not. But we understand the 25 concept around this issue.	3035 1 And in response to the testimony that was 2 presented by Mr. Meyer on behalf of NMOGA, can the 3 Department estimate the costs for controlling a single 4 storage vessel with a combustor? 5 MR. PALMER: Yes. Since his testimony, we 6 went back and looked at our storage tank cost 7 spreadsheet, and we set up a -- set it up to estimate 8 the cost for a small storage tank. And I can walk folks 9 through that spreadsheet really quickly, if I can screen 10 share. 11 MS. KATZ: And this is -- this is the 12 spreadsheet that was submitted as NMED Exhibit 100? 13 MR. PALMER: That is correct. Yes. 14 Okay. I'm going to share. Okay. 15 Right. So this is the same spreadsheet that 16 we actually reviewed, I think, earlier in the week, 17 except that we've just set it up for a single tank 18 analysis. And actually within the sheet we took some of 19 the values from Mr. Meyer's memo that he prepared for 20 Valor and plugged them into the sheet. So these cells 21 that are highlighted in pink are the ones that we've 22 modified, using the information from Valor. 23 And so we selected for a combustor the value 24 for a 48-inch 23,000 standard cubic foot per day 25 combustor from Table 6 in his memo, and then for storage

3036 1 vessel replacement we selected the value for a 300 or 2 400 barrel tank from Table 7 in his memo and plugged 3 those into the spreadsheet. I think those are really 4 the only values we replaced. 5 And then -- so this is a total capital 6 investment. These are the annualized costs here. And 7 then we just down at the bottom calculated what the ton 8 per year -- or -- excuse me -- the cost per ton would 9 be. 10 MS. KATZ: So, Mr. Palmer, I'm going to have 11 you for the record -- you need to say what the numbers 12 are. 13 MR. PALMER: Okay. Sure. 14 All right. So we selected for a combustor 15 cost \$10,500, a total annualized cost of the combustor, 16 freight and design, auto ignitor, surveillance system, 17 combustor insulation, and the -- would be \$2,144. The 18 cost of the storage vessel is \$18,000, and the 19 annualized cost of that is \$1,535. The annual O&M cost 20 would remain at \$14,659. So that the total annual cost 21 would be \$18,377. 22 So then we calculated what the cost per ton 23 emission would be at 95 percent control. So at three 24 tons per year the cost per ton would be \$6,434 per ton. 25 At four tons per year it would be \$4,826. At six tons	3038 1 MR. PALMER: Okay. 2 MR. ROSE: Let's see if I can -- yeah. See if 3 I can -- I just can't read it. 4 MR. PALMER: I'll Zoom in for you. 5 MR. ROSE: Yeah. No. That helps. I can 6 actually see it now. 7 MS. KATZ: Eric, I believe you're not on mute. 8 MR. ROSE: It's an interesting conversation, 9 but yeah. 10 With respect to -- and I think we went through 11 it before, but I just want to make sure I understand. 12 If I look at line 6, your 2012 dollars is 18,000, 2019 13 is 10,000. 14 So is -- 15 MR. PALMER: Correct. These numbers here are 16 from the original CTG -- 17 MR. ROSE: Okay. 18 MR. PALMER: -- spreadsheet. The ones in 19 pink, these 2019 ones are the ones that we are using 20 now. 21 MR. ROSE: And that's -- it looks like you're 22 attributing that to -- is that Valor's numbers? Is that 23 what that means? 24 MR. PALMER: Correct. 25 MR. ROSE: And so if I read this correctly,
3037 1 per year it would be \$3,217. And at eight tons per year 2 it would be \$2,413. And I will stop there since all 3 those are even less. 4 MS. KATZ: It gets progressively lower as 5 the -- 6 (Simultaneous discussion.) 7 MR. PALMER: Correct, yes. At 10 tons per 8 year it's \$1,930. So -- 9 MS. KATZ: That's fine. Thank you. 10 And so I believe that's all the surrebuttal 11 questions that I have for NMED's witnesses. 12 HEARING OFFICER ORTH: Thank you very much, 13 Ms. Katz. 14 If you're a party with questions of the 15 Department panel, please turn on your camera. 16 I'm not seeing anyone. 17 Oh, there's Mr. Rose. 18 MR. ROSE: Thank you, Madam Hearing Officer. 19 CROSS-EXAMINATION 20 BY MR. ROSE: 21 MR. ROSE: I was wondering if Mr. Palmer could 22 put the spreadsheet back up. 23 MR. PALMER: Sure. 24 MR. ROSE: At the risk of alienating 25 everybody, I guess, we can talk about it.	3039 1 the price of the unit now is about half or a little more 2 than half of what it was in 2012? 3 MR. PALMER: Well, this was -- this was a 4 single tank analysis that we did using the combustor 5 sizes that he had in Table 6. 6 MR. ROSE: Okay. 7 MR. PALMER: So it's a -- it's a smaller tank, 8 it's a smaller combustor. And so we were just sort of 9 looking at, you know, what -- what would happen if you 10 plugged in some of the numbers from his -- his tables, 11 and assumed it was just for a single tank, because he 12 had said that these facilities would be -- 13 (Simultaneous discussion.) 14 MS. KATZ: It's not comparable -- Brian, it's 15 not comparable to the 2012 values -- 16 MR. PALMER: Okay. 17 MS. KATZ: -- that are in the -- 18 MR. PALMER: That's correct. 19 MS. KATZ: -- other column. 20 Right? 21 MR. PALMER: Right. It's not comparable. 22 Yeah. 23 MR. ROSE: Okay. And that's what -- that kind 24 of surprised me, seeing the numbers being that much 25 lower.

3040 1 Your total capital investment is 43,000? 2 That's based on 2019 dollars. 3 MR. PALMER: Correct. 4 MR. ROSE: And annualized costs, I think, 5 is -- and then correct me -- is based on financing that 6 capital investment over a period of time? And I think 7 you assumed an interest rate, looks like, at 8 3-and-a-quarter percent -- 9 MR. PALMER: Correct. 10 MR. ROSE: -- which these -- 11 (Simultaneous discussion.) 12 MR. PALMER: There's two annualized costs 13 here. 14 MR. ROSE: Okay. 15 MR. PALMER: There's -- this one is these 16 values here, and then this one is this value here for 17 the tank. 18 MR. ROSE: And I guess the question I had, 19 does this assume that the company that's actually 20 installing the unit would finance the proposal over a 21 period of time? 22 MR. PALMER: It does. It does. 23 MR. ROSE: And do you know whether or not 24 that's the way in which these oil and gas companies 25 finance these kinds of replacements?	3042 1 combustor in lieu of the 10,500 and what difference does 2 that make? 3 MR. PALMER: 18,081 -- I'm sorry. 4 MR. HISER: See that you've got a pink line on 5 row G7, cell G7? 6 MR. PALMER: This one? 7 MR. HISER: Yeah. 8 That's the high volume which we would probably 9 use for that type of small head space. That's a -- 10 MR. PALMER: I -- so -- 11 MR. HISER: That would be 18,881. Not that 12 \$700 probably makes that much difference. 13 MR. PALMER: Well, I was -- I was pulling the 14 \$8,100 up of -- 15 MR. HISER: Okay. 16 MR. PALMER: -- from his table. 17 MR. HISER: Okay. 18 MR. PALMER: But here are your numbers now. 19 MR. HISER: Okay. 20 Madam Hearing Officer, would it be possible, 21 and Ms. Katz, to have this produced as an exhibit so we 22 could take a look at it? 23 MS. KATZ: Absolutely. 24 HEARING OFFICER ORTH: Thank you. 25 MR. PALMER: This is -- and again this is just
3041 1 MR. PALMER: I am not certain about that. 2 MR. ROSE: Okay. 3 Thank you, Madam Hearing Officer. 4 I have no further questions. 5 HEARING OFFICER ORTH: Thank you, Mr. Rose. 6 Did I see Mr. Hiser on screen? 7 MR. HISER: You did. 8 CROSS-EXAMINATION 9 BY MR. HISER: 10 MR. HISER: Mr. Palmer, when you were putting 11 this together, why did you choose the standard combustor 12 for a single tank which has the very limited head space 13 and thus requires a larger volume flow in order to avoid 14 popping the thief hatch or pressure relief valve? 15 MR. PALMER: I can't answer that question. It 16 looks like it was a reasonable cost, but perhaps I 17 misinterpreted the data. So -- 18 MR. HISER: What would happen -- 19 MR. PALMER: I'd be interested to hear what 20 Mr. Meyer would say. 21 MR. HISER: Oh, we could certainly bring back 22 Mr. Meyer to speak to that particular issue on your 23 spreadsheet if that -- if you would like. 24 But I might suggest maybe that the 18,881 25 value that you show there which is for the high volume	3043 1 the same spreadsheet that we've been using and that I 2 think Mr. Meyer actually manipulated, as well. So it's 3 our Exhibit 100. 4 MR. HISER: 100? Okay. 5 MR. PALMER: Yeah. So -- 6 MR. HISER: Great. 7 MR. PALMER: Hopefully user-friendly. 8 MR. CURTIS: Can I ask a quick question? 9 Sorry. 10 CROSS-EXAMINATION 11 BY MR. CURTIS: 12 MR. CURTIS: I just want to clarify something 13 for -- for myself. 14 So in your rebuttal testimony I seem to 15 remember a figure of around 13,000 per ton for a two ton 16 per year tank, and that was the basis for adjusting to 17 the three ton per year threshold for those tanks. 18 Can you just help us understand what the 19 difference is and why it's looking so different now that 20 we've increased the costs? 21 MR. PALMER: That was for two tons per year 22 which we did not include in here. That's from the CTG, 23 the two ton per year value. 24 MR. CURTIS: So I believe before you said 25 there was a spread between the four ton and the two ton

3044 1 of something like 9 to 13? So you -- 2 MR. PALMER: Well, it's -- the cost per ton 3 was linear, assuming that the combustor cost was fixed. 4 And so here's the original. I re -- redisplayed it. So 5 it's 13,020 -- 60 -- 13,260 and 6,630. So this is just 6 twice that. 7 MR. CURTIS: At the risk of asking stupid 8 questions on the record, I'm going to ask anyway. 9 My understanding of Adam's -- Mr. Meyer's 10 testimony was that the costs would increase. And so 11 what -- going down to your table below, how are we going 12 from -- how are we going down from your original number? 13 So for example, in cell B35. 14 MR. PALMER: We were assuming a smaller system 15 for a smaller single tank. But perhaps -- 16 (Simultaneous discussion.) 17 MR. CURTIS: I'm just trying to understand 18 the -- the comparison here. 19 MR. PALMER: One big issue was that Mr. -- 20 that we couldn't quite understand was that Mr. Meyer had 21 included a high retrofit cost for the tank, storage 22 vessel retrofit of \$70,000, whereas he also had on there 23 a tank replacement. And so we said, well, why retrofit 24 the tank when you can replace it for less? So that's 25 what's going on here. And perhaps we misinterpreted	3046 1 questions. 2 I don't see anyone else. 3 I will turn then to the Board for questions. 4 While I'm doing that, if you're an attendee on 5 this platform with a question, please reach out through 6 the chat. 7 EXAMINATION 8 BY THE BOARD: 9 HEARING OFFICER ORTH: Madam Chair? 10 CHAIR SUINA: Thank you, Madam Hearing 11 Officer. 12 From the discussion I heard, it sounds like 13 we'll have more discussion on this spreadsheet. So I'll 14 wait to have my questions after that further discussion. 15 Thank you. 16 HEARING OFFICER ORTH: All right. Thank you. 17 Vice-Chair Trujillo Davis. 18 VICE-CHAIR TRUJILLO DAVIS: I'm in agreeance. 19 I think there will be more discussion once we get a 20 chance to look at that a little bit further. 21 But I also want to note that I appreciate you 22 putting the numbers together for the single tank example 23 just to kind of expand on that argument for us. So 24 thank you very much. 25 HEARING OFFICER ORTH: Thank you.
3045 1 his -- what he meant by tank replacement versus tank 2 retrofit. 3 MR. CURTIS: I -- I'm certainly not an expert 4 on this. I'm just trying to understand my very visceral 5 reaction that if we are trying to account for increased 6 costs that Mr. Meyer has projected, that we wouldn't see 7 a dramatic reduction in cost per ton, and so I'm trying 8 to understand why that's happening. 9 MR. PALMER: What we were trying to look at 10 was a single tank situation that Mr. Meyer -- the 11 smaller single tank situations which he seemed to imply 12 represented a lot of the low-emitting tanks. 13 MS. KATZ: And, Brian, that's what this is 14 doing. This is showing that. It's attempting to show 15 that single tank situation, which is why it's not 16 comparable to what we had in that original spreadsheet. 17 Right? 18 MR. PALMER: Yes. 19 MR. CURTIS: Okay. Well, we would appreciate 20 the opportunity to review it. 21 Thanks for answering those questions. 22 MR. PALMER: Sure. 23 HEARING OFFICER ORTH: Thank you. 24 If you would stop screen sharing for just a 25 moment, I'll see if there are any other parties with	3047 1 Member Cates? 2 Member Bitzer? 3 MEMBER BITZER: No. I have no questions. 4 Thank you. 5 HEARING OFFICER ORTH: Thank you. 6 Member Garcia? 7 MEMBER GARCIA: One quick question for 8 clarification. This might be for Ms. Kuehn. 9 You were saying you agreed about the use of a 10 storage measurement system for new storage tanks. 11 Is that the same as auto gauge? 12 MS. BISBEY-KUEHN: That is correct. 13 MEMBER GARCIA: Okay. Thank you. 14 HEARING OFFICER ORTH: Thank you. 15 And Member Honker. 16 MEMBER HONKER: No questions. Thank you. 17 HEARING OFFICER ORTH: All right. Thank you. 18 Ms. Katz, any follow-up? 19 MS. KATZ: No. No, Madam Hearing Officer, no 20 follow-up. 21 HEARING OFFICER ORTH: All right. Thank you, 22 Ms. Kuehn and Mr. Palmer. 23 Let -- oh, Mr. Rose. 24 MR. ROSE: Yes, Madam Hearing Officer. 25 I -- yesterday we discussed a case in the

3048 1 Court of Appeals that we didn't have the citation for, 2 which I now have, and I failed to recall that in fact 3 you were one of the -- represented one of the parties in 4 the litigation. That's a SouthWest Organizing Project 5 case. And I have the cite just in case folks wanted to 6 look at it. It's at 482 Pacific 3rd 1273, that's 2020. 7 And Ms. Katz was -- I think, filed an amicus, as did I. 8 So that was the court case I was referring to. 9 I just wanted to make it clear for the record. 10 HEARING OFFICER ORTH: Thank you very much. 11 Is there anything further on this topic? 12 Subject to Mr. Hiser's question of 13 Mr. Smitherman. 14 MR. HISER: Yeah. We've got Mr. Smitherman's 15 testimony, and if the -- if you will indulge us, we are 16 going to have Mr. Meyer take a brief look at what 17 Mr. Palmer just presented, and we might have just a 18 direct response on a couple of those line items, just to 19 what the difference of interpretation was. 20 HEARING OFFICER ORTH: All right. 21 Is it time, then, to move to pig receiving and 22 launching -- pig launching and receiving? 23 MS. KATZ: Yes. That is -- works for the 24 Department, if it works for others. 25 MR. HISER: It should work for NMOGA.	3050 1 covers pig launching and receiving operations. 2 As we heard several times over the last two 3 weeks, natural gas passing through gathering pipelines 4 contains volatile organic compounds. And changes in 5 temperature and pressure may result in development of 6 natural gas condensates in a liquid phase in the 7 pipeline, and those condensates can accumulate in 8 low-elevation segments of the gathering pipelines, 9 impeding the flow of natural gas. 10 To maintain gas flow, operators insert a 11 device called a pig into the pipeline which is swept 12 along the pipeline by the pressure of the existing gas 13 flow. Condensate formed in the pipeline is pushed in 14 front of the pig until it reaches a receiver. The pig 15 is then isolated in a pipeline segment, and condensate 16 and liquids are drained out of the pipeline. The pig is 17 then reinserted and swept along the next segment. 18 And emissions occur at the pig launcher and 19 receiver when the pipeline is opened to insert or 20 extract the pig. And emissions from pigging operations 21 depend on factors such as the launcher or receiver 22 volume, pipeline pressure, the amount of liquid trapped 23 in the pig receiver barrel prior to depressurization, 24 the frequency of pigging, and the gas composition. 25 MS. KATZ: And can you discuss the actions
3049 1 MS. KATZ: I just need a moment here. Sorry. 2 And the Department will be calling Ms. Kuehn 3 and Mr. Palmer again. 4 ELIZABETH BISBEY-KUEHN and BRIAN PALMER 5 (Relating to Topic Order 32) 6 having been first duly sworn or affirmed, were 7 examined and testified as follows: 8 DIRECT EXAMINATION 9 BY MS. KATZ: 10 MS. KATZ: This -- this section -- this 11 testimony relates to Section 20.2.50.121, pig launching 12 and receiving. The Department's testimony -- written 13 testimony appears at NMED Exhibit 32 beginning on page 14 116 and NMED Rebuttal Exhibit 1 beginning on page 79. 15 And the witnesses have adopted this testimony 16 already, and I don't believe there are any corrections 17 that need to be made. 18 So if Ms. Kuehn can have sharing privileges to 19 share the PowerPoint. 20 Ms. Kuehn, if you would begin with discussing 21 the equipment and processes that are the subject of this 22 section of the rule. 23 MS. BISBEY-KUEHN: Yes. Thank you. 24 Good afternoon, Members of the Board. 25 Today we'll be discussing Section 121, which	3051 1 that are available for controlling emissions from pig 2 launching and receiving? 3 MS. BISBEY-KUEHN: Yes. There are a number of 4 control options to control emissions, including process 5 modifications, add-on controls, such as a flare, 6 enclosed combustor or thermal oxidizer, or by using a 7 vapor recovery unit to collect the vapors and route them 8 back into the process. 9 And process modifications identified by EPA to 10 minimize emissions during these events include 11 installing pig ball valves, receiver barrel design, 12 installing these in pig ramps, routing the high-pressure 13 systems to lower-pressure lines, barrel pump-down 14 systems, and enhanced liquid containment. 15 MS. KATZ: Thank you. 16 And can you -- and can you summarize the 17 emission standards in the rule that -- the requirements 18 for pig launching and receiving? 19 MS. BISBEY-KUEHN: Yes. So owners and 20 operators of affected facilities required to comply -- 21 are required to comply with best management practices 22 and emission limits. Owners and operators of pigging 23 operations with a potential to emit equal to or greater 24 than one ton per year of VOC are required to capture and 25 reduce VOC emissions by at least 95 percent. Owners and

3052 1 operators must employ best management practices and 2 equipment modifications during pigging operations to 3 prevent or reduce emissions. 4 MS. KATZ: Thank you. 5 And turning to Mr. Palmer. 6 Mr. Palmer, can you discuss the basis for the 7 proposed requirements in Section 121 and the estimated 8 emissions reductions and costs? 9 MR. PALMER: Yes, I can. The proposed 10 requirements for pig launching and receiving are based 11 on Pennsylvania General Permits 5 and 5A, Ohio's General 12 Permit 21.1, and also EPA guidance on pig launching and 13 receiving. 14 The Pennsylvania General Permits requires best 15 management practices for all pigging operations and 16 95 percent control of emissions from pigging operations 17 with emissions equal to or above 2.7 ton per year of VOC 18 after the application of best management practices. 19 Ohio General Permit 21.1 limits VOCs emissions 20 from each discrete pig launcher or receiver to less than 21 .27 tons per month, averaged over a rolling 12-month 22 period, which is equivalent to less than 3.24 tons per 23 year. The Ohio General Permits require the use of an 24 add-on control device to control emissions if needed to 25 comply with the VOC emission limitations.	3054 1 stakeholder comments? 2 MS. BISBEY-KUEHN: Yes. So before you is the 3 proposed Section 121. It follows the similar framework 4 for other sections. 5 We have applicability in Paragraph A. We 6 received comments from NMOGA, Kinder Morgan and CDG. 7 They propose provisions that would apply to individual 8 pig launching and receiver -- receivers with a PTE equal 9 to or greater than one ton per year. The stakeholders, 10 NMOGA in particular, also proposed requirements only 11 apply to pig launchers and receivers located within the 12 property boundary. 13 The listed facilities in CDG further requested 14 revisions specifying that those be under common 15 ownership and control at those facilities. 16 And NMED reviewed the basis for those 17 proposals and agreed with those revisions for the 18 reasons outlined in their direct and rebuttal testimony. 19 Paragraph B identifies the emission standards 20 and requirements for pig launcher and receiver 21 operations. Paragraph (1) establishes that owners and 22 operators of affected pigging and launching and 23 receiving operations must comply with the requirement 24 within two years of the effective date of this part. 25 The -- NMOGA requested an extension to the
3053 1 And then the EPA Guidance provides best 2 management practices recommended in EPA's fact sheet 3 number 505, which is entitled Recover Gas from Pipeline 4 Pigging Operations. 5 Okay. For the pigging facilities identified 6 in the NMED equipment inventory, the NMED estimates an 7 overall emission reduction of 22.9 tons of allowable VOC 8 as a result of the rule. However, the NMED equipment 9 inventory does not list all pigging facilities. So 10 greater emission reductions are expected as a result of 11 the rule. 12 Also, comparably in the emissions inventory, 13 pigging operations are not a -- I believe, a separate 14 line item under a separate source category code, and so 15 the pigging operations emissions in the inventory are 16 probably accounted for as fugitive emissions. 17 Implementation costs of a skid-mounted flare 18 are estimated to be \$21,000 with operating costs of 19 about \$3,000 per year. And this is from values 20 calculated by the USEPA in the Gas STAR Program's fact 21 sheet for installing flares, and that's from 2011. 22 MS. KATZ: Thank you, Mr. Palmer. 23 And, Ms. Kuehn, can you walk through the 24 provisions of the rule and summarize those that discuss 25 the revisions that the Department made based on	3055 1 compliance deadline of three years but did not justify 2 that -- that request, and -- but the Department did 3 agree that a two-year timeline to comply was 4 appropriate. 5 We've also amended this section to state that 6 if a combustion control device is used, that the 7 combustion device have a minimum design combustion 8 efficiency of 98 percent. 9 Paragraph B.(2) through D outline the emission 10 requirements or the best practice management practices. 11 I won't go into a great -- great detail on these 12 requirements. I'll speak to them briefly. 13 They're required to employ best management 14 practices to minimize the liquid present in the chambers 15 and to minimize those emissions before they have an 16 opportunity to be vented to the atmosphere. They're 17 required to employ a method to reduce or prevent 18 emissions, such as installing a liquid ramp or drain, 19 routing high-pressure chamber to a low-pressure line or 20 vessel or use of a ball valve type of chamber or using 21 multiple chambers. 22 They're also required to recover and dispose 23 of liquid in a manner that minimizes emissions to the 24 extent practicable. And to ensure material collected is 25 done in a manner compliant with state law.

3056 1 Paragraph B.(3) has an off ramp for the 2 requirements of this rule, if the individual pipeline 3 pig launching and receiving operation has actual annual 4 VOC emissions of less than one ton per year. 5 And the Paragraph B.(4) requires owners and 6 operators using a control device to comply with this 7 section to comply with the control device requirements 8 that are established in Section 115. 9 The monitoring requirements again outline the 10 type of monitoring that must be conducted to determine 11 compliance with the emission standards of this part. 12 One agreement that the Department has made was 13 to strike the monitoring of the type and volume of 14 liquid cleared. We did not think that was necessary to 15 monitor that specific parameter. 16 We do require the owner or operator of an 17 affected facility to inspect the equipment for leaks 18 using either an AVO, a Reference Method 21 or optical 19 gas imaging on either a monthly basis if those 20 operations at a site occur on a monthly basis or more or 21 prior to the commencement of an operation less frequent 22 than monthly. 23 So these modifications were made also by NMOGA 24 and Kinder Morgan, and the Department agreed that an AVO 25 is an appropriate screening tool to check for -- for	3058 1 monitoring, and to document the type of control device 2 and its make and model, and to comply with the generic, 3 general recordkeeping provisions of 112. 4 We did not receive any comments on Paragraph 5 E. 6 That concludes this overview of our direct and 7 rebuttal. 8 MS. KATZ: Thank you, Ms. Kuehn. 9 That's all the Department has at this time. 10 HEARING OFFICER ORTH: All right. Thank you 11 very much, Ms. Kuehn and Mr. Palmer, Ms. Katz. 12 Are there any parties -- excuse me -- any 13 parties with questions of the Department panel? 14 I'm not seeing any screens. 15 I'll go to the Board for their questions. 16 While I'm doing that, please reach out through 17 the chat if you're an attendee with a question. 18 EXAMINATION 19 BY THE BOARD: 20 HEARING OFFICER ORTH: Madam Chair? 21 CHAIR SUINA: Thank you, Madam Hearing 22 Officer. No questions at this time. Thank you. 23 HEARING OFFICER ORTH: Thank you. 24 Vice-Chair Trujillo Davis? 25 VICE-CHAIR TRUJILLO DAVIS: Yes. Just a
3057 1 those leaks. And agreed that the monitoring frequency 2 should be staggered to account for those facilities that 3 have less frequent pigging activities. 4 Paragraph C.(2) requires that the monitoring 5 be performed using the methodologies outlined in 116 as 6 applicable and at the frequency required as outlined in 7 C.(1) above. Again Section 116 are the leak detection 8 and repair requirements under a different part of the 9 rule. 10 And then Paragraphs (3) and (4) again point to 11 both the control device monitoring requirements that are 12 established in Section 115 and then the general 13 monitoring requirements that are found in the general 14 provisions of Section 112. 15 Paragraph D outlines the recordkeeping 16 requirements. These ensure that information is recorded 17 in order to determine compliance with the monitoring as 18 outlined by Paragraph C. 19 So the recordkeeping requirements are for 20 owners and operators subject to this section to identify 21 the location, date and time of the pigging event, to 22 utilize data to estimate the actual emissions to the 23 atmosphere and document that information that was used 24 to estimate the potential to emit, and to record the 25 date and time of any monitoring and the results of the	3059 1 couple to clarify. I -- and I fully admit here I 2 only -- I know just enough about pigging to get myself 3 in trouble. So I'm really just looking for some 4 clarification on things. 5 So I know pig launchers and pig receivers can 6 be located on and off facilities. I know there's plenty 7 of them out in the middle of pastures somewhere. 8 So is the Department proposing that pig 9 launchers and receivers located on a location have 10 permanently installed equipment? And then pig launchers 11 and receivers that are located off of location could 12 have like a temporary equipment used when they're -- 13 those events are occurring? Like -- 14 MS. BISBEY-KUEHN: Thank you, Vice-Chair 15 Trujillo Davis. 16 As -- so this section of the rule would only 17 apply to within the property boundary of a -- of an 18 existing facility. And so the remote location would not 19 be subject to this -- to this section, unless it was 20 located within the property boundary of an existing 21 site, and those are, you know, tank batteries, well 22 sites, gas plants, compressor stations. 23 VICE-CHAIR TRUJILLO DAVIS: Okay. Thank you 24 for clarifying that for me. I appreciate it. 25 I don't have any more questions.

3060 1 HEARING OFFICER ORTH: Thank you. 2 Member Cates? 3 MEMBER CATES: No questions here. Thank you. 4 HEARING OFFICER ORTH: Member Bitzer? 5 MEMBER BITZER: I know a lot about pigging 6 out, but I have no questions. Thank you. 7 HEARING OFFICER ORTH: Thank you. 8 Member Garcia? 9 MEMBER GARCIA: No questions. Thank you. 10 HEARING OFFICER ORTH: Thank you. 11 And Member Honker. 12 MEMBER HONKER: Just one. 13 And I'm looking at Section B.(3), I think. 14 It's the exemption for the -- the requirement cease to 15 apply if the annual VOC emissions of the launcher or 16 receiver operation are less than one ton per year. 17 I'm just curious how that is calculated. 18 MS. BISBEY-KUEHN: Thank you, Member Bitzer. 19 That would be calculated by estimating the 20 length of the pipeline and then the quantity of natural 21 gas, the concentration of VOC within the gas, and then 22 the expected venting of that emission stream to the 23 atmosphere. 24 MEMBER HONKER: Okay. Thanks. 25 HEARING OFFICER ORTH: Thank you.	3062 1 Q. Ms. Nolting, I believe this is your last 2 presentation before the Board, but for one last -- for 3 good measure, can you please introduce yourself for the 4 record. 5 A. Yes. I am Leslie Nolting. I'm an EHS manager 6 for Kinder Morgan, focused on air permitting and 7 compliance. 8 Q. And did you submit written direct technical 9 testimony at Exhibit 8 regarding pig launching and 10 receiving? 11 A. Yes, I did. 12 Q. Do you have any changes to that testimony? 13 And if not, do you adopt it in full? 14 A. I don't have any changes to that testimony, 15 and I do adopt it in full. 16 Q. Thank you. 17 And could you please summarize for the Board 18 and the parties your testimony regarding pig launching 19 and receiving? 20 A. Yes. 21 Good afternoon, Madam Chair and Members of the 22 Board. 23 I had originally planned to discuss the topics 24 shown on this screen. However, because the Department 25 has incorporated changes to the proposed rules that
3061 1 Any follow-up, Ms. Katz? 2 MS. KATZ: No, nothing from me. Thank you. 3 HEARING OFFICER ORTH: All right. Thank you 4 very much, Ms. Kuehn, Mr. Palmer and Ms. Katz. 5 I believe we turn now to Ms. Nolting and 6 Kinder Morgan. 7 Is that true, Ms. Gutierrez? 8 MS. GUTIERREZ: We are prepared to present. 9 HEARING OFFICER ORTH: Thank you. 10 LESLIE NOLTING 11 (Relating to Topic Order 32) 12 having been first duly sworn or affirmed, was 13 examined and testified as follows: 14 DIRECT EXAMINATION 15 BY MS. GUTIERREZ: 16 MS. GUTIERREZ: May I please have screen 17 sharing permissions? 18 Thank you. 19 Good afternoon. 20 For the record, my name is Ana Gutierrez with 21 Hogan Lovells on behalf of Kinder Morgan. 22 This testimony is going to relate to Kinder 23 Morgan direct technical testimony, Exhibit 8, which I 24 believe is in the record, and we confirmed there are no 25 revisions.	3063 1 address our concerns, I'll limit my testimony to 2 expressing Kinder Morgan's support for the Department's 3 September 16th draft language. 4 Specifically, the Department has revised 5 Paragraph C.(1) to make clear that sites that conduct 6 pig launching and receiving operations less frequently 7 than once a month, monitoring will be tied to the 8 frequency of the pig launching and receiving activities 9 themselves. 10 This addresses our concern that the rules may 11 have required monthly monitoring at pigging sites, which 12 would not have made sense in the context of our 13 operations, because we conduct pigging operations very 14 infrequently. 15 With that, Mr. Brindley and myself are 16 available for questions from the Board or other parties. 17 HEARING OFFICER ORTH: Thank you very much, 18 Ms. Nolting. 19 If you're a party, please turn on your camera 20 to question Ms. Nolting or Mr. Brindley. 21 I'm not seeing anyone. 22 I'll turn to the Board. 23 If you're an attendee and have a question, 24 please reach out through chat. 25

3064 1 EXAMINATION 2 BY THE BOARD: 3 HEARING OFFICER ORTH: Madam Chair. 4 CHAIR SUINA: Thank you, Madam Hearing 5 Officer. 6 And thank you, Ms. Nolting, for your 7 testimony, over these last few days, as well. 8 I have no questions at this time. Thank you. 9 HEARING OFFICER ORTH: Thank you. 10 Vice-Chair Trujillo Davis? 11 VICE-CHAIR TRUJILLO DAVIS: Yes. Just one. 12 I'm curious. How often do you conduct pigging 13 operations? 14 MS. NOLTING: It -- it depends. I think for 15 our typical sites in New Mexico, it's around once per 16 year. We just don't get a lot of liquids in our -- in 17 our lines. Right? So we just don't have to do it as 18 often. 19 VICE-CHAIR TRUJILLO DAVIS: Yeah. That's kind 20 of what I was thinking, that there was a standard of how 21 much liquids could be in the gas as it came from the 22 operator and entered your system, so to kind of cut down 23 on those liquids? Was I -- okay. 24 MS. NOLTING: Yeah. That's correct. Yeah. 25 We have kind of tariff specifications that we -- that	3066 1 is Chris Colclasure. 2 Mr. Jones is a witness for the Commercial 3 Disposal Group, not the -- not the GCA. 4 HEARING OFFICER ORTH: I'm very sorry. Yes. 5 MR. COLCLASURE: He is available. We are not 6 seeking any additional changes to the Department's 7 September 16th version of the regulation. We do 8 appreciate the changes that the Department has made. As 9 a formality, we think we need to adopt Mr. Jones' 10 written testimony so it is part of the record. 11 Can we do that just based on no objections 12 from the parties, or do you need him to come on screen, 13 I can ask him the questions to admit it? 14 HEARING OFFICER ORTH: Yeah. I'm sorry. The 15 Board's rules require that all testimony be taken under 16 oath. So I do need him to adopt it under oath. 17 Remind me his first name, please. 18 MR. COLCLASURE: Greg Jones. 19 HEARING OFFICER ORTH: Greg. All right. I'm 20 about to panelize him. 21 It's not letting me panelize him. Hmm. 22 He may have to sign back on. The button is 23 gray. It's not letting me do it. 24 MR. COLCLASURE: Would he have audio 25 capability? That may be enough.
3065 1 our gas has to meet before it even comes into our lines. 2 So yeah. 3 VICE-CHAIR TRUJILLO DAVIS: Okay. Thank you 4 for that. I appreciate it. 5 No more questions. 6 HEARING OFFICER ORTH: Thank you. 7 Member Cates? 8 MEMBER CATES: No questions. Thank you. 9 HEARING OFFICER ORTH: Thank you. 10 Member Bitzer? 11 MEMBER BITZER: No questions. Thank you. 12 HEARING OFFICER ORTH: Member Garcia. 13 MEMBER GARCIA: No questions. Thank you. 14 HEARING OFFICER ORTH: And Member Honker. 15 MEMBER HONKER: No questions. Thank you. 16 HEARING OFFICER ORTH: All right. Thank you. 17 Any follow-up, Ms. Gutierrez? 18 MS. GUTIERREZ: None from me. Thank you. 19 Thank you very much. 20 HEARING OFFICER ORTH: All right. Thank you, 21 Ms. Gutierrez and Ms. Nolting and Mr. Brindley for being 22 available. 23 Do we move now to GCA witness Jones? Is that 24 what I understand? 25 MR. COLCLASURE: Madam Hearing Officer, this	3067 1 HEARING OFFICER ORTH: Oh. I'll unmute him. 2 Thank you for that. 3 Mr. Jones, can you hear me? 4 MR. JONES: Yes, ma'am. 5 HEARING OFFICER ORTH: Terrific. I can hear 6 you, as well. 7 Have I already sworn you in? 8 MR. JONES: No, ma'am. 9 HEARING OFFICER ORTH: Okay. 10 If you would, please, raise your right hand. 11 Do you swear or affirm to tell the truth? 12 MR. JONES: Yes, ma'am. 13 HEARING OFFICER ORTH: Thank you. 14 Go ahead, Mr. Colclasure. 15 GREG JONES 16 (Relating to Topic Order 32) 17 having been first duly sworn or affirmed, was 18 examined and testified as follows: 19 DIRECT EXAMINATION 20 BY MR. COLCLASURE: 21 Q. Mr. Jones, can you state your name and 22 employer? 23 A. Yes. My name is Greg Jones, G-R-E-G 24 J-O-N-E-S. I am currently an air compliance specialist 25 for 3 Bear Delaware Operating.

3068 1 Q. Did you submit written direct and rebuttal 2 testimony in this case? 3 A. Yes, sir, I did. 4 Q. And is your testimony attached to the 5 Commercial Disposal Group's notice of intent to present 6 direct testimony as Exhibit E and notice of intent to 7 present direct rebuttal -- excuse me -- rebuttal 8 testimony as Exhibit D? 9 A. Yes, sir, it is. 10 Q. Do you have any changes to your written 11 testimony? 12 A. No, sir, I do not. 13 Q. If I asked you the same questions today, would 14 you give the same answers today? 15 A. Yes, sir. 16 Q. Would you like to adopt your written testimony 17 as your testimony in this hearing? 18 A. Yes, sir. 19 MR. COLCLASURE: And, Madam Hearing Officer, 20 unless any parties are going to seek any revisions to 21 the Department's latest draft, I don't think Mr. Jones 22 needs to testify, but we can make him available for 23 cross-examination based on his written testimony and 24 available for questions from the Board. 25 HEARING OFFICER ORTH: Thank you very much.	3070 1 MEMBER HONKER: No questions. 2 HEARING OFFICER ORTH: Thank you. 3 Thank you very much, Mr. Jones, and 4 Mr. Colclasure. 5 MR. COLCLASURE: Thank you, Madam Hearing 6 Officer. 7 MR. JONES: Thank you. 8 MR. COLCLASURE: I think I actually neglected 9 to say that we ask the Board to adopt his written 10 testimony in the hearing, just to put that on the 11 record. We are moving it into adoption in the record. 12 HEARING OFFICER ORTH: All right. Thank you. 13 It's admitted. 14 MR. COLCLASURE: Thank you. 15 HEARING OFFICER ORTH: All right. Do we move, 16 then, to Ms. Textor and then back to the Department? Is 17 that a correct read of the plan here? 18 Mr. Curtis? 19 MR. CURTIS: I believe so, yes. 20 HEARING OFFICER ORTH: All right. I panelized 21 Ms. Textor. 22 MR. CURTIS: Excellent. Thank you very much. 23 24 25
3069 1 No. I don't think he needs to go through it. Thank you 2 for offering. 3 Let me ask any parties with questions of 4 Mr. Jones to turn on their camera. 5 I don't see anyone. 6 I'll turn to the Board. 7 If you're an attendee with a question, please 8 reach out through the chat. 9 Madam Chair. 10 CHAIR SUINA: Thank you, Madam Hearing 11 Officer. No questions at this time. Thank you. 12 HEARING OFFICER ORTH: Thank you. 13 Vice-Chair? 14 VICE-CHAIR TRUJILLO DAVIS: No questions. 15 Thank you very much. 16 HEARING OFFICER ORTH: Thank you. 17 Member Cates? 18 MEMBER CATES: No questions. Thank you. 19 HEARING OFFICER ORTH: Thank you. 20 Member Bitzer? 21 MEMBER BITZER: No questions. 22 HEARING OFFICER ORTH: Thank you. 23 Member Garcia. 24 MEMBER GARCIA: No questions. Thank you. 25 HEARING OFFICER ORTH: And Member Honker.	3071 1 MARISE TEXTOR 2 (Relating to Topic Order 32) 3 having been first duly sworn or affirmed, was 4 examined and testified as follows: 5 DIRECT EXAMINATION 6 BY MR. CURTIS: 7 Q. Good afternoon, Ms. Textor. 8 Are you there with us? 9 A. Yes, I am. 10 Can you hear me? 11 Q. Yes, very well. Thank you. 12 Could we please give Ms. Textor screen sharing 13 capabilities? 14 Ms. Textor, can you please state your name for 15 the record? 16 A. Yes. It's Marise Textor. 17 Q. What has been your involvement in the 18 proceeding? 19 A. I was asked by NMOGA to testify regarding 20 glycol dehydrates and pig launching and receiving. 21 Q. And you have previously testified and adopted 22 your testimony in this matter, correct? 23 A. Yes. 24 Q. Excellent. 25 Well, we just wanted to run through a few of

3072 1 the points that you wanted to cover on pigging and 2 launching. If you could share your screen, and we'll 3 begin. 4 As you heard Ms. Kuehn and the other parties 5 testify, many of the changes that were advocated by 6 NMOGA previously have been adopted, and so to the extent 7 we can to expedite the hearing, we'll rely on those 8 statements that have been made to reflect those changes. 9 But let's go ahead and start on slide 4, I 10 believe. 11 A. Oops. There we go. I'm sorry. I've got the 12 wrong one up. 13 Q. Oh, that's okay. 14 A. Give me another second. 15 Okay. Now I have the right one up. Go back 16 to full screen. There we go. 17 Okay. Thank you. I'm sorry. 18 Q. Excellent. 19 Let's go ahead and please share your testimony 20 as it relates to this slide. 21 A. Yes. So we believe that pig launching and 22 receiving should be deleted entirely from the rule. And 23 EPA did not include controlling emissions from pig 24 launching and receiving in several different rules and 25 documents.	3074 1 A. -- low quantity emissions -- yes? 2 Q. If I could interrupt just for a moment. 3 The latest changes that Mr. -- Ms. Kuehn 4 testified to in terms of the applicability language of 5 the rule, is it correct that those concerns have been 6 addressed with those changes, or are we seeking further 7 revision? 8 A. So the changes do the on site pigging only, 9 but those on site could still be relatively remote and 10 not have the full infrastructure. For example, there 11 might not be an on site combustion device to route these 12 to. So that might be needed to be brought in as a 13 portable device. 14 Q. Thank you for clarifying. 15 A. So it addresses this in part, but not fully, I 16 don't believe. 17 Q. Okay. 18 A. So these are relatively low quantity 19 emissions, and controlling them they would likely be 20 routed to a combustion device of some kind that would 21 increase NOx emissions, and that would be directionally 22 the wrong thing to do in New Mexico with its 23 NOx-sensitive ozone regime, as we heard several days ago 24 in the testimony of -- I forget his last name, but Ralph 25 from Ramboll on behalf of NMED, and -- and then Dennis
3073 1 The first one is the Control Techniques 2 Guidelines that were issued in 2016 in the Obama 3 administration which recommends control techniques for 4 significant sources of ozone in ozone nonattainment 5 areas. So this would not be a control that would be 6 required under the -- under those Control Techniques 7 Guidelines. 8 Secondly, EPA proposed a Federal 9 Implementation Plan for oil and gas sources on the U&O 10 tribal reservation in the Uintah Basin ozone 11 nonattainment area in 2020. They've not finalized that 12 rule yet, but the proposal does not include controls for 13 pig launching and receiving. Of course, the final rule 14 would not include controls that would be more stringent 15 than the proposal. 16 And then lastly, pig launching and receiving 17 controls have not been included in the New Source 18 Performance Standards for crude oil and natural gas 19 facilities, the Quad 0 and Quad 0a rules. 20 So we also believe that NMED has not fully 21 vetted the challenges of controlling these emissions in 22 New Mexico with remote sites that often lack 23 infrastructure. 24 And then these are relatively -- 25 Q. Ms. Textor --	3075 1 from Alpine on behalf of NMOGA. 2 Also, the applicability threshold of one ton 3 per year is substantially lower than the threshold in 4 the Pennsylvania and Ohio rules that this was based on. 5 Those are three or approximately three tons per year. 6 And furthermore, the Pennsylvania rule does not include 7 liquid pigging operations which the NMOGA proposal does 8 include. 9 And then lastly, the NMED cost estimate 10 significantly underestimates the cost to control the 11 emissions. The cost that was presented by the 12 Department a few moments ago is from a 2011 paper that 13 is out of date. We obtained a current cost estimate 14 from one vendor for a portable flare, and it was three 15 times higher than the cost estimate in that 2011 paper. 16 Also, the NMED written testimony provided -- 17 it represented those costs as a best management 18 practice, but that's not how it's defined in that EPA 19 paper. The EPA paper really identifies a more isolated 20 situation where that particular control scheme could be 21 used. 22 And in particular, it talks about 23 describing -- it describes routing the pigging emissions 24 to a low-pressure storage tank and then controlling the 25 tank emissions, and it relies on additional equipment,

3076 1 including a compressor, a pump and gathering lines, 2 which may not be available at the site, and would 3 provide -- that would further increase the cost. 4 And then lastly, in the absence of 5 electricity, if the site is remote and does not have 6 electricity, engines would be needed to drive the 7 compressor and the pump, which would emit more 8 ozone-forming NOx. 9 So for all of those reasons, we believe that 10 pig launching and receiving should be deleted entirely 11 from the rule. 12 Q. Thank you, Ms. Textor. 13 Can we proceed to slide 8? 14 A. Yes. 15 Q. As we're passing through that, I'll note that 16 those are many of the changes that we proposed and that 17 NMED has adopted. We appreciate that. 18 Go ahead and proceed with this -- it appears 19 that NMOGA would request additional time to implement 20 this rule if it is retained; is that correct? 21 A. Yes. That's correct. The rule in its current 22 version from the Department provides two years for 23 compliance, and NMOGA requests that that be increased to 24 three years. 25 There's a lot of things that have to be done	3078 1 depressures, you know, that's what would create the need 2 for the supplemental fuel. 3 The addition of supplemental fuel poses 4 several problems. It increases the cost which was not 5 accounted for in the Department's cost evaluation. It 6 would increase VOC emissions because of the combustion 7 efficiency of the supplemental fuel. It would increase 8 NOx emissions that are directionally the wrong way to go 9 due to the need to combust the supplemental fuel. 10 And it's possible, considering the small 11 amount of emissions being controlled, that there would 12 actually be no benefit to air quality at all, or even an 13 increase in ozone, considering the NOx emissions and 14 added VOC emissions. 15 So we request that the controls not be 16 required if the situation requires installing -- 17 requires including supplemental fuel. 18 Q. Thank you, Ms. Textor. 19 Let's proceed to slide 10. 20 MS. KATZ: And can I just -- on that slide, I 21 just have to say that the -- that -- I don't believe 22 that that language was proposed before, and -- 23 MR. CURTIS: That's correct. 24 MS. KATZ: -- we're seeing that for the first 25 time, and it could have been proposed before. So --
3077 1 in the time frame between a final rule and when 2 compliance could actually occur. So there may be 3 capital investment at many of the locations, and capital 4 investment would require folding it into budgeting and 5 funding mechanisms, detailed engineering design, 6 management of change, procuring equipment, contracting 7 to install the equipment, construction, developing 8 procedures, conducting training, and finally startup. 9 And even if the site is going to rely on a 10 portable combustion device, many of those steps would be 11 needed. And then all of that will have to be done 12 concurrent with implementing other requirements of the 13 rule and competing with ongoing labor and supply chain 14 restrictions that have resulted in the wake of COVID-19. 15 Q. Thank you. 16 Let's proceed to slide 9. 17 A. Okay. NMOGA also requests that the emission 18 standards not require installing controls if 19 supplemental fuel would be needed to achieve 20 destruction. So these are fairly short duration and 21 variable emissions, because you're depressuring a small 22 volume of equipment to the control device, and so 23 supplemental fuel would be needed in some cases. 24 And with this being a small volume of 25 equipment and then that flow rate dwindling off as it	3079 1 MR. CURTIS: That's correct. We've included 2 our rebuttal and surrebuttal in one for economy of time, 3 and so your observations is valid. 4 MS. KATZ: And what is this surrebuttal to? 5 MR. CURTIS: To the revisions made on 6 September 7th. 7 MS. KATZ: Okay. Can you identify -- could 8 you identify how that proposal is actually surrebuttal 9 and wasn't -- couldn't have been proposed before? 10 MR. CURTIS: I think it's upon further 11 reflection in light of the changes that have been made 12 on the September 7th. We continue to evaluate the 13 proposal, and we've identified additional ways to 14 improve it. 15 MS. KATZ: Okay. Well, I will just note that 16 the Department hasn't seen that before. 17 Q. (BY MR. CURTIS) Go ahead and proceed, 18 Ms. Textor. 19 A. Okay. And then we also request that any 20 portable control devices that are needed to comply with 21 the pigging launching and receiving requirements do not 22 have to meet the requirements in Section 115 for control 23 devices. 24 So portable devices may not have all of the 25 monitoring capability that can be installed on fixed

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1 MS. TEXTOR: That may be the case, or maybe
2 they have other equipment that is not rental.

3 VICE-CHAIR TRUJILLO DAVIS: Okay. I was just
4 trying to understand if there had been any comparison
5 costs between the cost of a pigging event now, today,
6 without the rule, and then the cost of a pigging event
7 at -- if this rule were to come into effect with these
8 standards.

9 MS. TEXTOR: I believe the cost if these rules
10 came -- became standard, these proposed rules became
11 final, would be incremental to existing cost.

12 VICE-CHAIR TRUJILLO DAVIS: Okay. Thank you
13 for your testimony. I think that there's a lot of
14 valuable points in here for consideration. So thank
15 you.

16 HEARING OFFICER ORTH: Member Cates?

17 MS. TEXTOR: Thank you.

18 MEMBER CATES: No questions. Thank you.

19 HEARING OFFICER ORTH: Member Bitzer?

20 No questions? All right.

21 Member Garcia?

22 MEMBER GARCIA: No questions. Thank you.

23 HEARING OFFICER ORTH: And Member Honker.

24 MEMBER HONKER: No questions. Thank you.

25 HEARING OFFICER ORTH: All right. Thank you.

3083

1 MEMBER BITZER: Madam Chair, I missed the
2 button.

3 No questions.

4 HEARING OFFICER ORTH: That's all right.
5 Thank you.

6 Any -- any follow-up, Mr. Curtis?

7 MR. CURTIS: No, Madam Hearing Officer. Thank
8 you.

9 HEARING OFFICER ORTH: All right. Thank you.

10 Thank you, Ms. Textor and Mr. Curtis.

11 Ms. Katz, do we go back to the Department?

12 We don't have Mr. Smitherman so --

13 MS. KATZ: I believe so.

14 And I guess I would just ask that since we
15 just saw these new proposals, that the Department have
16 the opportunity to review those and to potentially
17 put -- respond at a different time to those.

18 HEARING OFFICER ORTH: Yes.

19 MS. KATZ: Thank you.

20 HEARING OFFICER ORTH: I will always support
21 that sort of thing.

22 I see Ms. Kuehn on the screen.

23 MS. KATZ: Thank you.

24 I don't know if Mr. Palmer is available. Give
25 him a minute.

3084 1 MR. PALMER: I'm here. 2 MS. KATZ: All right. 3 ELIZABETH BISBEY-KUEHN and BRIAN PALMER 4 (Relating to Topic Order 32 continued) 5 having been first duly sworn or affirmed, were 6 examined and testified as follows: 7 DIRECT EXAMINATION 8 BY MS. KATZ: 9 MS. KATZ: Ms. Kuehn, does the -- does the 10 rule prescribe the type of control device that must be 11 used? 12 MS. BISBEY-KUEHN: No. The rule does not 13 prescribe the specific type of control device that must 14 be used. It provides a suite of options. 15 MS. KATZ: Okay. 16 Mr. Palmer, do other states require emissions 17 reductions associated with pig launching and receiving? 18 MR. PALMER: Yes. As described in my direct 19 and rebuttal testimony, these states require control -- 20 controls and emission reductions from pigging. 21 Pennsylvania's GP-5A is applicable to sources 22 located at unconventional natural gas well sites and 23 remote pigging stations. And Pennsylvania's GP-5 is 24 applicable to sources located at natural gas compression 25 stations, processing plants and also transmission	3086 1 VOC emission limits. And we included this in our 2 Exhibit 86 at page 4. 3 MS. KATZ: Thank you. 4 And has -- and has Colorado also recently 5 proposed regulations for pigging operations? 6 MR. PALMER: Actually, they have not. 7 However, they are including pig launching in their -- in 8 their emission inventories that facilities are required 9 to complete. 10 MS. KATZ: Okay. 11 Ms. Kuehn, has Colorado proposed -- recently 12 proposed regulations for pig launching and receiving? 13 MS. BISBEY-KUEHN: Yes. 14 MS. KATZ: Ms. Kuehn, did NMOGA request the 15 one ton per year threshold? 16 MS. BISBEY-KUEHN: Yes. 17 MS. KATZ: And did the Department, in fact, 18 accept most of the industry parties' requested revisions 19 in order to address their specific concerns? 20 MS. BISBEY-KUEHN: Yes. 21 MS. KATZ: Okay. Thank you. 22 That is all I have. 23 HEARING OFFICER ORTH: All right. Thank you 24 very much. 25 Let's see here.
3085 1 stations. The best management practices required in the 2 Pennsylvania General Permits are required for all 3 pigging operations. 4 The same best management practices are also 5 recommended in EPA's fact sheet number 505, and also a 6 September, 2019 EPA Enforcement Alert, which was EPA 7 Publication Number 325-F-19-001, which we submitted as 8 NMED Exhibit 88. 9 The VOC emission limits in Pennsylvania GP-5 10 and GP-5A apply to pigging operations that still have 11 emissions equal to or greater than 2.7 tons per year 12 after employing best management practices. The 13 Pennsylvania emission limit requires the owner or 14 operator to control -- to control VOC emissions from all 15 pigging operations by at least 95 percent with a control 16 device. And we submitted this as NMED Exhibit 37 and 17 38. 18 Ohio has similar emission limits for pigging 19 operations in its General Permits. Both General Permits 20 limit VOC emissions from one discrete pig launcher or 21 receiver to less than .27 tons per month averaged over 22 the rolling 12-month period. And as I stated earlier, 23 that's equivalent to 3.24 tons per year. And the Ohio 24 General Permits require the use of add-on control device 25 to control the emissions if needed to comply with those	3087 1 Ms. Witherspoon, have you joined us on screen 2 to ask questions of the Department on this topic? 3 Oops. I'm trying to unmute her, but it's not 4 letting me. She may be having trouble connecting. 5 Let me ask if there are any other parties with 6 questions of the Department panel, please turn on your 7 screen. 8 No. 9 I'll turn then to the Board for their 10 questions. 11 If you're an attendee on this platform, please 12 reach out through the chat with any questions. 13 EXAMINATION 14 BY THE BOARD: 15 HEARING OFFICER ORTH: Madam Chair? 16 CHAIR SUINA: Thank you, Madam Hearing 17 Officer. 18 And thank you, Ms. Kuehn and Mr. Palmer. 19 So just so I'm clear that we'll continue -- 20 the Department will continue to look at some of the 21 latest information we heard today and then continue to 22 do an analysis or some due diligence regarding some 23 of -- and respond to some of those proposals; is that 24 correct? 25 MS. BISBEY-KUEHN: Yes, Chair Suina. Yes.

3088 1 The Department will do that. 2 CHAIR SUINA: Okay. All right. 3 Thank you. That's all I have for now. 4 HEARING OFFICER ORTH: Thank you. 5 Vice-Chair Trujillo Davis? 6 VICE-CHAIR TRUJILLO DAVIS: I don't have any 7 more questions at this time. Thank you. 8 HEARING OFFICER ORTH: Okay. Thank you. 9 Member Cates? 10 MEMBER CATES: No questions here. Thank you. 11 HEARING OFFICER ORTH: Member Bitzer? 12 MEMBER BITZER: No questions. Thank you. 13 HEARING OFFICER ORTH: Thank you. 14 Member Garcia? 15 MEMBER GARCIA: No questions. Thank you. 16 HEARING OFFICER ORTH: And Member Honker. 17 MEMBER HONKER: No questions. Thank you. 18 HEARING OFFICER ORTH: So we're very nearly 19 finished with another topic, some of which are just -- 20 MS. KATZ: Can I just do -- I'm sorry. 21 HEARING OFFICER ORTH: Ms. Katz. Sorry. 22 MS. KATZ: That's great. 23 Can I -- I just had one quick follow-up, I'm 24 sorry, for Ms. Kuehn. 25	3090 1 HEARING OFFICER ORTH: All right. Thank you, 2 Ms. Katz, Ms. Kuehn, Mr. Palmer. 3 I think -- let me see if I can get to 4 Ms. Witherspoon. She appeared briefly. I had panelized 5 her when she reconnected. 6 Ms. Witherspoon, can you hear me? 7 MS. WITHERSPOON: I can. 8 HEARING OFFICER ORTH: Great. 9 Were you joining us for pig launching and 10 receiving or for another topic? 11 MS. WITHERSPOON: I was just joining because I 12 haven't been around for a while. 13 HEARING OFFICER ORTH: All right. 14 MS. WITHERSPOON: And then my -- then my 15 computer locked up. 16 HEARING OFFICER ORTH: Okay. I'm glad -- I'm 17 glad you're on the platform. Thank you. 18 And I believe, then, that we move to well 19 workovers. 20 Is that true, Ms. Katz? 21 MS. KATZ: Yes, I believe so. If the other 22 parties are good with that, we can go to that, or to 23 either that or natural gas well liquid unloading. But 24 I'm fine to go with well workovers. So I guess maybe 25 ask other parties.
3089 1 FURTHER DIRECT EXAMINATION 2 BY MS. KATZ: 3 MS. KATZ: Ms. Kuehn, regarding Chair Suina's 4 question to you, the -- will the Department follow up on 5 the new proposals that we've just seen from NMOGA? 6 MS. BISBEY-KUEHN: Yes. We will -- and that 7 will be limited to only those new items that were -- 8 that were brought up. 9 MS. KATZ: And do we stand on our existing 10 testimony relating to the previous issues that were 11 raised in the prefiled testimony? 12 MS. BISBEY-KUEHN: Yes, we do. 13 MS. KATZ: Thank you. 14 MR. CURTIS: I did -- this is Mr. Curtis. 15 I did just want to clarify one thing. Those 16 changes are reflected in NMOGA Exhibit 47 that we 17 submitted on September 7th. And so just for the 18 Department's reference, you can see those in that 19 document. 20 Thank you. 21 HEARING OFFICER ORTH: Thank you. 22 MS. KATZ: It would be helpful if you would 23 point that out in the testimony when that's filed. 24 Otherwise we don't know. 25 MR. CURTIS: Thank you.	3091 1 HEARING OFFICER ORTH: All right. Is there 2 anyone who has a preference otherwise? Just turn on 3 your camera. 4 I think we're on well workovers now, Ms. Katz. 5 We have a little less -- oh, there's Mr. Hiser. 6 MR. HISER: I was wondering if you wanted to 7 sneak in Mr. Meyer's just brief discussion of that one 8 spreadsheet and the disagreement on the one line, if 9 that would make sense before we get a whole new topic, 10 assuming that's okay with Ms. Katz. 11 MS. KATZ: That's fine with me. That makes 12 sense. 13 MR. HISER: All right. 14 HEARING OFFICER ORTH: Thank you. 15 MR. HISER: Mr. Meyer should be available on 16 the panel site. 17 MR. MEYER: Can you hear me? 18 MR. HISER: Yes. Welcome back, Mr. Meyer. 19 MR. MEYER: Thank you. 20 MR. HISER: Madam Hearing Officer, if you 21 could share the screen. 22 She says you should be able to share, 23 Mr. Meyer. 24 MR. MEYER: Okay. 25

3092 1 ADAM MEYER 2 (Relating to Topic Order 34 continued) 3 having been first duly sworn or affirmed, was 4 examined and testified further as follows: 5 DIRECT EXAMINATION 6 BY MR. HISER: 7 Q. So this is essentially the spreadsheet that we 8 saw earlier from Mr. Palmer, correct? 9 A. Correct. 10 Q. And so it reflects in the column C the 18,100 11 which is the Valor estimate for the combustor, and then 12 you have a -- there was a discussion about what was 13 included in the area that was previously called storage 14 vessel retrofit, and then Mr. Palmer said we were 15 replacing the tank, and so we understood he used the 16 tank replacement cost. 17 Did you go back into the EPA CTG and review 18 what the CTG said was covered by the storage vessel 19 retrofit? 20 A. I did. And what it said was that the storage 21 vessel retrofit, as they called it, that -- in 2012 22 year, the 68,000, was associated with new piping, new 23 headers, basically to bring the tank vapors to the 24 control device. 25 Q. So that's the air pollution control piping	3094 1 Q. And so if you make those substitutions to put 2 back into this -- the cost of the piping, what does that 3 show in the dollar per ton costs? 4 A. So that going down to the three tons per year, 5 we're at just over \$9,000. 6 Q. Okay. 7 With that, I think -- I know that you did a 8 little bit of work, but I think that's what the impact 9 would be, but I think that's beyond the scope really 10 of -- 11 A. Yeah. 12 Q. -- what the Department testified to. 13 And so I thank you for that clarification, 14 would make you available to the Department if they have 15 any questions or to the Board, or any of the other 16 parties, as well. 17 Thank you, Madam Hearing Officer. 18 HEARING OFFICER ORTH: Thank you, Mr. Hiser 19 and Mr. Meyer. 20 If you are a party with questions, please turn 21 on your screen. Let's see here. 22 I'm not seeing anyone. 23 MS. KATZ: The Department just thanks 24 Mr. Meyer for his clarification. 25 HEARING OFFICER ORTH: Oh, okay. Thank you,
3093 1 basically that would be required. 2 A. Right. Which makes sense, because the 3 installation of that, even though it is just pipe, you 4 have to support it, you have to, you know, bring in 5 crews and cranes possibly to lift it in place, that type 6 of thing. 7 Q. And so I know that you've added a value here 8 which reflects 101,736. 9 Is that the value from the 2012 expanded to 10 2019 and then to which you've added the cost of a new 11 tank and its installation? 12 A. Correct. I added the 18,000 which was in my 13 original direct testimony for the tank itself. Of 14 course, that cost has gone up recently since then, 15 honestly. But then the 15,000 is actually installation 16 of the tank. You can get a bigger crane, right, and the 17 crews associated with that. 18 One point of clarification, Mr. Hiser, was 19 that the 18,100 value is for a 60-inch combustor, which 20 actually, believe it or not, flows less than a 48-inch 21 high-volume. The cost of a 48-inch high-volume is 22 29,000. So I count this in here because it is on the 23 low end, it is -- you know, there may be sites that can 24 get away with the 60. So it seemed like a reasonable 25 number.	3095 1 Ms. Katz. 2 Well, I will go to the Board, then. 3 And while I'm doing that, if you're an 4 attendee on this platform with a question, please reach 5 out through chat. 6 Madam Chair. 7 CHAIR SUINA: Yes, Madam Hearing Officer. 8 I also echo Ms. Katz' comment and thank you 9 for the clarification, Mr. Meyer. 10 I have no further questions. 11 HEARING OFFICER ORTH: Thank you. 12 Vice-Chair? 13 VICE-CHAIR TRUJILLO DAVIS: I don't have any 14 questions either. 15 And I appreciate everybody contributing to our 16 questions and getting them answered, and I realize it's 17 a big lift from everybody. So thank you very much. 18 HEARING OFFICER ORTH: Thank you. 19 Member Cates? 20 MEMBER CATES: Yeah. So do I. So thank you. 21 And no questions here. Thank you. 22 HEARING OFFICER ORTH: Thank you. 23 Member Bitzer? 24 MEMBER BITZER: No questions. Thank you. 25 HEARING OFFICER ORTH: Thank you.

3096 1 Member Garcia? 2 MEMBER GARCIA: No questions. Thank you. 3 HEARING OFFICER ORTH: And Member Honker. 4 All right. No questions. 5 Thank you very much, Mr. Hiser and Mr. Meyer. 6 MR. MEYER: Thank you. 7 HEARING OFFICER ORTH: We have about 20 8 minutes before I would take a break before the five 9 o'clock public comment. 10 Ms. Katz, can we do a little bit of the well 11 workovers? 12 MS. KATZ: Yes, we certainly can. I think we 13 can get the Department's piece in for sure. 14 I don't know -- I'm not exactly sure -- yeah. 15 We'd have to ask -- I believe that IPANM has -- or 16 maybe -- yeah. 17 MR. HISER: We did. This is an IPANM lead 18 item and not a NMOGA lead item. 19 MS. KATZ: Yes. So I guess I would ask for 20 Mr. Rose to weigh in on timing. 21 MR. ROSE: Timing is fine. Our witness is 22 available any time from here until the end -- the end of 23 the day. So we're in good shape. 24 MS. KATZ: Okay. 25 And we -- and we don't have Mr. Smitherman so	3098 1 stimulation of an existing well for restoring, 2 prolonging or enhancing the production of hydrocarbons. 3 They're performed on completed wells that have produced 4 reservoir fluids, water, oil, and/or natural gas. And 5 these wells have to be prepared before the workover 6 operations can begin. 7 If the well is still producing or has 8 pressure, the well needs to be blown down or vented 9 before it is safe to remove the tubing head and install 10 the blowout preventers. The well pressure can be 11 decreased by venting to the atmosphere or by opening the 12 casing to the sales line or the suction of a well site 13 compressor. 14 Workovers are typically of short duration, 15 that only last a few days or weeks at the most. After 16 the well is prepared, blown down and the blowout 17 preventer installed, the workover operations can begin. 18 For the safety of the workers, the well is usually 19 allowed to vent to atmosphere via a tank for the 20 duration of the workover. Since these operations are 21 typically performed during daylight hours, the well is 22 shut in or returned to the sales line at the end of the 23 day. 24 MS. KATZ: Can you discuss what the control 25 options are for controlling emissions from well
3097 1 it's the same issue. We'll have to follow up with that 2 tomorrow. Okay. 3 ELIZABETH BISBEY-KUEHN and BRIAN PALMER 4 (Relating to Topic Order 35) 5 having been first duly sworn or affirmed, were 6 examined and testified as follows: 7 DIRECT EXAMINATION 8 BY MS. KATZ: 9 MS. KATZ: This is again Ms. Kuehn and 10 Mr. Palmer. This is -- relates to Section 20.2.50.124 11 of the rule, covering well workovers. The testimony 12 related to this section is in NMED Exhibit 32 beginning 13 on page 148 and NMED Rebuttal Exhibit 1 beginning on 14 page 96. 15 The witnesses have adopted the testimony, and 16 there are no corrections. 17 So I will ask Ms. Kuehn to please provide an 18 overview of the operations that are covered by this 19 section of the rule. 20 MS. BISBEY-KUEHN: Yes. Good afternoon, 21 everyone. 22 We're discussing Section 124, as Ms. Katz 23 indicated. 24 The repair or stimulation of an existing 25 well -- or well workovers are required for the repair or	3099 1 workovers? 2 MS. BISBEY-KUEHN: Yes. Best management 3 practices are the best means of reducing emissions 4 during well workovers. These include reducing the 5 wellhead pressure before blowdown to minimize the volume 6 of natural gas vented, monitoring manual venting at the 7 well until the venting is complete, and routing natural 8 gas to the sales line when possible. 9 MS. KATZ: And can you discuss the emission 10 standards that are proposed in this section of the rule 11 for well workovers? 12 MS. BISBEY-KUEHN: Yes. The owner or operator 13 of an oil or gas well must use the following best 14 management practices during a workover event to minimize 15 emissions consistent with the well site condition and 16 good engineering practices: These include reducing 17 wellhead pressure before the blowdown to minimize the 18 volume of gas vented, monitoring the manual venting at 19 the well until the venting is complete, and routing 20 natural gas to the sales line if possible. 21 MS. KATZ: Can you summarize the requirements 22 of the rule? 23 MS. BISBEY-KUEHN: Yes. During a well 24 workover, the owners or operators must monitor wellhead 25 pressure, the natural gas venting flow rate, and elapsed

3100 1 time in order to calculate the volume and mass of VOC 2 vented during the workover event. The owner or operator 3 must record the identification, the location, date, and 4 pressure, and flow rate, the duration of the event, and 5 the best management practices used, and the VOC 6 emissions that are released. 7 If venting cannot be avoided, the operator 8 must notify residents located within a quarter mile of 9 the well at least three days before the workover event 10 by certified mail or by other means of notice if that 11 notification can be documented. And when a workover is 12 required due to routine or emergency situations to 13 restore production due to a malfunction or upset, the 14 owner or operator must notify residents within 15 one-quarter mile at least 24 hours before the event. 16 And in addition, the owner or operator must 17 comply with the general requirements of Section 112. 18 MS. KATZ: Thank you. 19 And, Mr. Palmer, can you please discuss the 20 basis for the proposed requirements and the estimated 21 emissions reductions and costs? 22 MR. PALMER: Sure. The basis for the proposed 23 requirements for workover operations are Colorado 24 Regulation 7 and also Wyoming's Permitting Guidance. 25 Colorado Regulation 7 requires owners and	3102 1 conducting well workover operations, but it does not 2 require the use of emission control devices. It is 3 expected that these practices will require personnel to 4 manage the well during the workover operation, but no 5 capital costs are anticipated. 6 So the costs associated with well workover 7 best management practices are expected to be minimal as 8 personnel will already be on site conducting the well 9 workover and any additional training may be incorporated 10 into existing personnel training programs. 11 MS. KATZ: Thank you. 12 And, Ms. Kuehn, can you briefly go through the 13 rule language and the revisions that were made based on 14 stakeholder comments. 15 MS. BISBEY-KUEHN: Yes. As within other 16 sections, we're following the same framework for 17 requirements. The applicability sections identify what 18 workovers are subject to this part. The emission 19 standards identify the best management practices that 20 must be followed. And this is a -- this rule or this 21 section of the rule is -- relies on best management 22 practices to minimize emissions. 23 We did hear from stakeholders that they wanted 24 the insertion of good operational practices, which we 25 added, in addition to good engineering practices. The
3101 1 operators to use best management practices to minimize 2 emissions associated with downhole -- downhole well 3 maintenance, as well as well liquids unloading, well 4 plugging -- and well plugging unless emitting is 5 necessary for safety reasons. It also requires 6 operators to be on site and to minimize those emissions 7 during the workover event to the maximum extent 8 practicable. 9 Wyoming's Permitting Guidance requires 10 minimizing emissions to the extent practicable during 11 manual and automated blowdown and venting episodes 12 associated with liquids unloading, wellbore 13 depressurization in preparation for maintenance or 14 repair, and other well operations. The guidance also 15 requires personnel to remain on site to ensure minimal 16 gas venting occurs and requires that operators estimate 17 VOC emissions from well workovers. 18 As far as estimated emission reductions and 19 cost estimates, emission estimates for workover 20 operations are not currently available in the modeling 21 emissions inventory or found in the NMED equipment data. 22 Therefore, we do not have an estimate of emission 23 reductions for well workovers. 24 As far as costs, the rule is proposing certain 25 best management practices that must be used when	3103 1 emission standards section requires, of course, those 2 BMPs before you -- to reduce emissions. 3 The monitoring requirements identify the type 4 of monitoring that must be performed. I've all -- I've 5 gone through those requirements in detail so I won't 6 restate those. The owner or operator is required to 7 calculate the estimated volume of mass -- and mass of 8 VOC vented during a workover event. That was a 9 requested change that the Department agreed -- agreed 10 to. 11 The recordkeeping requirements identify what 12 records must be kept to demonstrate compliance with the 13 emission standards, and recordkeeping of the specific 14 monitoring that's required. We've added a -- we've made 15 a number of changes to these that did not change the 16 scope or intent of the rule, but addressed comments that 17 we received that we thought were -- were legitimate. 18 So again we're having recording of the date 19 the workover was performed, the wellhead pressure flow 20 rate of the gas to the extent feasible, the duration of 21 venting to the atmosphere, a description of the best 22 management practices used to minimize VOC emissions, 23 then a calculation of the estimated VOC emissions based 24 on the duration, volume, gas composition, and also 25 recording the method of notification that was provided

3104 1 to the public, and a proof that notification was made. 2 The reporting requirements outline the notices 3 that we've required to be made to the public for a well 4 workover event. So those are -- that's specifically 5 called out in Paragraph E.(2). 6 If it is not feasible to prevent VOC emissions 7 from being emitted to the atmosphere from a workover 8 event, the owner or operator shall provide notice by 9 certified mail or other effective means so long as the 10 notice can be documented to all residents located within 11 a quarter mile of the well of the planned workover event 12 at least three days before the workover event. 13 And we've -- we received a request to add in a 14 provision for those workovers that are responding to 15 upset or malfunction event, and so that is outlined in 16 Paragraph (3). That requires if the workover is needed 17 for routine or emergency maintenance to restore 18 production due to malfunction or upset, that the owner 19 or operator shall notify residents within a quarter mile 20 at least 24 hours before the workover event. 21 That -- that was the last slide on that. 22 There is -- yeah. That was the last slide on that, on 23 that section. 24 MS. KATZ: Thank you. 25 And that's concludes the Department's	3106 1 HEARING OFFICER ORTH: And Member Honker. 2 MEMBER HONKER: No questions. Thank you. 3 HEARING OFFICER ORTH: All right. Thank you. 4 Thank you very much, Ms. Katz, Ms. Kuehn and 5 Mr. Palmer. 6 I know that we go to IPANM to hear from 7 Mr. Davis. Mr. Janoe did reach out in the chat that 8 Mr. Holderman has some brief surrebuttal, but he's not 9 available right now. So he'll be presenting a little 10 bit tomorrow when he presents on flowback. 11 Let's see. Mr. Rose, I do want to take a 12 break within the next, you know, five minutes or so. 13 MR. ROSE: My -- Mr. Davis' testimony may not 14 take that long, and I suspect there won't be many 15 questions, but I can't predict how that may end. But we 16 can certainly try to get this done. 17 HEARING OFFICER ORTH: All righty. Let's go 18 for it. 19 MR. ROSE: I believe he's on the platform 20 somewhere. 21 MR. DAVIS: I am here. 22 Can you hear me? 23 MR. ROSE: I can hear you, and I can actually 24 see you, too. 25
3105 1 presentation of the summary of its direct and rebuttal 2 on well workovers. 3 HEARING OFFICER ORTH: All right. Thank you. 4 Let me ask any party with a question to turn 5 on their camera. 6 I'm not seeing anyone. 7 I'll turn to the Board. 8 If you're an attendee with a question, please 9 reach out through chat. 10 Madam Chair? 11 CHAIR SUINA: Thank you, Madam Hearing 12 Officer. 13 I don't have any questions at this point. 14 HEARING OFFICER ORTH: Thank you. 15 Vice-Chair Trujillo Davis? 16 VICE-CHAIR TRUJILLO DAVIS: I don't have any 17 questions either. Thank you. 18 HEARING OFFICER ORTH: Thank you. 19 Member Cates? 20 MEMBER CATES: No questions here. Thanks. 21 HEARING OFFICER ORTH: Member Bitzer? 22 MEMBER BITZER: No questions. Thank you. 23 HEARING OFFICER ORTH: Thank you. 24 Member Garcia? 25 MEMBER GARCIA: No questions. Thank you.	3107 1 RYAN DAVIS 2 (Relating to Topic Order 35) 3 having been first duly sworn or affirmed, was 4 examined and testified as follows: 5 DIRECT EXAMINATION 6 BY MR. ROSE: 7 Q. Mr. Davis, your testimony has been previously 8 admitted as -- I believe it's IPANM Exhibit 2 and 9 Exhibit 10. 10 Could you briefly summarize your direct and 11 rebuttal testimony on well workovers? 12 A. Yes, sir, Mr. Rose. 13 I believe that Ms. Kuehn did a really good job 14 of talking through what the well workover purpose is, as 15 well as the emission source related to well workovers. 16 So I wasn't going to go into any more detail there. I 17 would say that's provided in my prefiled written direct 18 and rebuttal. 19 Ms. Kuehn also did a very good job of 20 outlining the changes that were made based on 21 stakeholder input, and I would like to thank the 22 Department for those changes. I'd say they address the 23 majority of our concerns regarding well workover 24 operations. 25 The one place that we are -- we still have

3108 1 some concerns on, and this is provided in my testimony, 2 the Department moved to separate the workover operations 3 into what I would say are two categories, kind of the 4 planned workovers, which would be your recompletions, 5 your restimulation type work. This is something that we 6 have to get regulatory approval to move forward with. 7 And going forward with some type of 8 notification there wouldn't really cause much of a delay 9 in terms of performing that workover. So we do -- we do 10 appreciate that new clarification in terms of the two 11 categories. However, we still have some concerns 12 regarding just administrative burden in terms of the 13 notification that's required on the routine workovers. 14 We have -- and this is speaking for -- for 15 Merrion, the company that I work for. We have several 16 wells that are in somewhat densely populated areas. 17 Most of these wells were there first. Housing 18 developments have encroached on these -- these well 19 sites. And just have some concerns about the 20 administrative burden of doing that notification of all 21 residents within a quarter -- quarter mile. In some 22 instances that could be upwards of 150 residents. 23 And then the recordkeeping that's associated 24 with, you know, doing the notification, getting 25 confirmation of that notification, and building the	3110 1 I'm not seeing anyone. 2 I'll turn to the Board. 3 If you're an attendee with a question, please 4 reach out through the chat. 5 Madam Chair? 6 CHAIR SUINA: Thank you, Madam Hearing 7 Officer. 8 And I appreciate you sharing those concerns, 9 Mr. Davis, but at this time I don't have any additional 10 questions. 11 HEARING OFFICER ORTH: Thank you. 12 Vice-Chair Trujillo Davis? 13 VICE-CHAIR TRUJILLO DAVIS: I don't have any 14 additional questions either. Thank you. 15 HEARING OFFICER ORTH: Thank you. 16 Member Cates? 17 MEMBER CATES: No questions here. Thank you. 18 HEARING OFFICER ORTH: Member Bitzer? 19 MEMBER BITZER: No questions. Thank you. 20 HEARING OFFICER ORTH: Thank you. 21 Member Garcia? 22 MEMBER GARCIA: No questions. Thank you. 23 HEARING OFFICER ORTH: And Member Honker. 24 MEMBER HONKER: No questions. Thank you. 25 HEARING OFFICER ORTH: All right. Thank you,
3109 1 record for each routine well workover that we perform in 2 these areas. 3 So that's really the only issue that we have 4 that's outstanding with well worker -- workovers at this 5 point. 6 Q. Do you have any recommendations for the Board 7 with respect to your remaining issues? 8 A. You know, I think there's a couple things. 9 I would say it's -- it's standard practice for 10 most operators to notify the adjacent residents. We 11 usually put up signs at the entrance of the well sites 12 with, you know, notification that we are working on that 13 well. 14 The quarter mile again just in these urban 15 settings is -- seems like it encompasses a lot of 16 residents for notification purposes. So maybe consider 17 bringing that notification buffer down to something 18 that's a little more reasonable in terms of the number 19 of residents that must be notified. 20 MR. ROSE: Thank you, Mr. Davis. 21 I have no further questions of this witness. 22 HEARING OFFICER ORTH: Thank you very much, 23 Mr. Rose and Mr. Davis. 24 If there's any party with a question, please 25 turn on your camera.	3111 1 all, very much, Mr. Rose and Mr. Davis. 2 Let's break until 5:00. We'll return for 3 public comment. 4 Thank you. 5 (Proceedings in recess from 4:43 p.m. to 6 5:00 p.m.) 7 HEARING OFFICER ORTH: Let's come back from 8 the break, please. 9 We are in day nine of the hearing in EIB 21-27 10 and have reached the five o'clock public comment period. 11 Several of you have reached out to the Board 12 administrator, Pam Jones, and I will call on you 13 expressly, Anni and Athena Hanna, Catherine Brijalba, 14 Sandra West, April Perkins and Jim Williams. 15 If you're on the platform and did not reach 16 out to the administrator, I am still happy to accept 17 your comment. Simply reach out through the chat with 18 your name. Chat is enabled for everyone. 19 Comment, like all testimony before the Board, 20 is taken under oath. It is received by audio, not 21 video, and it is limited to five minutes. 22 So let me look for Anni and Athena Hanna. 23 I'm not seeing the Hannas. 24 Catherine Brijalba. Let me look -- oh, there, 25 Ms. Brijalba.

3112 1 Ms. Brijalba, I've unmuted you. 2 Can you hear me? 3 Ms. Brijalba? 4 She may have stepped away. 5 Okay. Ms. Brijalba? 6 No. All right. 7 Let me move to Sandra West. 8 I'm not seeing Sandra West. 9 I'm striking out here. 10 Let me look to April Perkins. 11 I'm not seeing April Perkins. 12 And let me look for Jim Williams. 13 No, I'm not seeing Jim Williams either. 14 And I don't see anyone reaching out through 15 the chat. 16 I will try Ms. Brijalba -- oh, there's Anni 17 Hanna. 18 Ms. Hanna, I've unmuted you. 19 Can you hear me? 20 MS. HANNA: Yes, I can. 21 HEARING OFFICER ORTH: All right. Thank you. 22 Would you spell your name, please. 23 MS. HANNA: Yes. Anni spelled A-N-N-I, Hanna, 24 H-A-N-N-A. 25 HEARING OFFICER ORTH: Thank you.	3114 1 protect those living closest to development. It's a 2 huge number. 130,000 New Mexicans live within a half 3 mile of oil and gas development. 4 As a mother, I ask you why are we not doing 5 everything for these families to protect their air, to 6 protect children from asthma. We want the strongest 7 rules possible to protect frontline communities who are 8 often indigenous and people of color. Health and 9 well-being should always come first. 10 As you know and as you are aware, we can see a 11 methane cloud over New Mexico from outer space. NASA 12 has seen that. And I think we can do much better in New 13 Mexico. We need to see the global implications of New 14 Mexico's methane leaks on the climate crisis. 15 And methane is a greenhouse gas that's 16 84 percent more potent greenhouse gas than carbon 17 dioxide in a 20-year time frame, and we cannot afford to 18 leave methane fueling the climate crisis for the next 10 19 years. Our methane emissions could trigger catastrophic 20 tipping points, such as massive arctic ice melting from 21 which there is no recovery. 22 As a mom, I find it hard to sleep at night, 23 already seeing the effects of climate change this summer 24 from extreme weather events, wildfire and permanent 25 drought in the Southwest.
3113 1 And if you would raise your right hand. 2 Do you swear or affirm to tell the truth? 3 MS. HANNA: I do. 4 ANNI HANNA 5 having been first duly sworn or affirmed, gave 6 public comment as follows: 7 PUBLIC COMMENT 8 HEARING OFFICER ORTH: All right. I'm going 9 to start your five minutes now. 10 MS. HANNA: Hi. 11 My name is Anni, and I'm a mom, and I'm very 12 concerned about climate change and my children having a 13 future. 14 And thank you for the opportunity to comment 15 today. 16 I live in Albuquerque, and I'm a teacher and a 17 photographer, and I love going out to explore our 18 beautiful New Mexico landscapes. And I want my 19 grandchildren to still be able to have a flowing Rio 20 Grande River, through healthy bosques and healthy 21 forests in the Sandias. And this means we must solve 22 climate by drawing down carbon emission dioxides now. 23 And this is why I'm asking the Environmental 24 Improvement Board to strengthen the New Mexico 25 Environment Department's proposed ozone rules, to	3115 1 Thank you. You have the power to enact the 2 strongest rules possible and to help curb emissions. 3 And thank you for taking actions to protect the next 4 generation. 5 Thank you. 6 HEARING OFFICER ORTH: Thank you very much -- 7 oh, I'm sorry. 8 Were you done? 9 MS. HANNA: I am done. And my daughter also 10 has something, but she can sign in herself with a raised 11 hand. 12 HEARING OFFICER ORTH: Well, okay. Or if 13 you'd like to put her on right now, yes. 14 If you -- 15 MS. HANNA: Yes. 16 HEARING OFFICER ORTH: -- would raise your 17 hand. 18 Do you swear or affirm to tell the truth? 19 MISS HANNA: I do. 20 HEARING OFFICER ORTH: Thank you very much. 21 22 23 24 25

3116 1 ATHENA HANNA 2 having been first duly sworn or affirmed, gave 3 public comment as follows: 4 PUBLIC COMMENT 5 HEARING OFFICER ORTH: Athena is a lovely 6 name. 7 MISS HANNA: Thank you. 8 Hi. 9 My name is Athena, and I'm 10 years old. 10 Every kid deserves clean air to -- air to -- 11 clean air to breathe. This is why I'm asking the 12 Environmental Improvement Board to strengthen the New 13 Mexico Environment Department's proposed ozone rules. 14 I went down to Carlsbad with my family and saw 15 oil and gas drilling sites. After just one hour, the -- 16 of being there, my throat burned, and my eyes stung. In 17 Artesia, the oil refinery, I could smell the strong 18 smell of chemicals in the air. I can only imagine how 19 hard it is for kids who live next to the oil and gas 20 pollution every day. Their throats must burn every 21 single day. 22 I've met a family member who lives next to oil 23 and gas fracking south of Carlsbad, New Mexico. Their 24 daughter is my age, but she is frequently -- has 25 nosebleeds and headaches. How is that fair? Why would	3118 1 HEARING OFFICER ORTH: Thank you very much. 2 If you would raise your right hand. 3 Do you swear or affirm to tell the truth? 4 MS. BRIJALBA: Yes, I do. 5 HEARING OFFICER ORTH: Thank you. 6 CATHERINE BRIJALBA 7 having been first duly sworn or affirmed, gave 8 public comment as follows: 9 PUBLIC COMMENT 10 HEARING OFFICER ORTH: I'll start your five 11 minutes now. 12 MS. BRIJALBA: Yes. 13 The oil and gas industry is so important to 14 families in the southeastern corner of New Mexico for 15 the funding of our public schools. Growing up -- excuse 16 me. Growing up a daughter of somebody who worked in the 17 oil and gas industry at an early age, I learned how 18 important it was for our family that this industry 19 continue. I see how the fluctuation of the industry has 20 impacted not only families, but our local school 21 districts and our -- and how we rely on the funds 22 generated to keep our day-to-day operations going. 23 My mother, who is an educator, has been an 24 educator for 30 years, and myself going on 10 years of 25 teaching. I know that I have been able to provide my
3117 1 we allow this to happen to children? Why are we not 2 making sure they have the healthiest places to live and 3 play? I want all kids to be healthy and safe from 4 pollution in New Mexico. I also want the strictest 5 rules to help protect our earth. 6 I often talk about this, but when the ice caps 7 melt, there is no going back. You can't refreeze ice 8 caps. So we need to do everything we can today to stop 9 methane and carbon dioxide emissions before this 10 happens. Please do the right thing for children in New 11 Mexico and for our earth. 12 Thank you. 13 HEARING OFFICER ORTH: Thank you very much, 14 Miss Hanna. And thank you to your mother. 15 Let me go back to Catherine Brijalba. 16 Ms. Brijalba, can you hear me? 17 MS. BRIJALBA: Yes, ma'am, I can. 18 Can you hear me? 19 HEARING OFFICER ORTH: Yes. 20 MS. BRIJALBA: Okay. 21 HEARING OFFICER ORTH: That's terrific. 22 If you would please spell your name. 23 MS. BRIJALBA: Yes. My last name is Brijalba, 24 B-R-I-J-A-L-B-as-in-boy-A, and my first name is 25 Catherine, C-A-T-H-E-R-I-N-E.	3119 1 students in Lea County what they need due to the oil and 2 gas industry. 3 I know that we rely on other industries and 4 other funding to help provide for our students, but for 5 families in our Lea County area, this industry is very, 6 very important, not only for maintaining facilities, 7 infrastructures, being able to provide the latest 8 technology, being able to recruit and retain 9 professional -- and staff, as well as provide 10 professional development for our schools and our 11 communities. It is just so hard with -- without the 12 funding of the oil and gas industry. 13 We understand that there is -- that many 14 people may not see things this way, but having been 15 raised in this industry, not only in West Texas, but now 16 calling New Mexico my home, this industry is so 17 important, and I understand that most of our state, even 18 though many people may not agree, it's the southeastern, 19 the southern part of the state that actually funds even 20 the northern part of our state. 21 And so without this industry, our state would 22 definitely struggle, and our families would definitely 23 not see the educational opportunities for their 24 children. 25 Thank you so much.

3120 1 HEARING OFFICER ORTH: Thank you, 2 Ms. Brijalba. 3 Let's see. Let me look again for Sandra West, 4 just go through the list again. 5 Oh, I see Ms. West. 6 Ms. West, can you hear me? 7 MS. WEST: I can. 8 HEARING OFFICER ORTH: All right. 9 If you would please spell your name for the 10 transcript. 11 MS. WEST: S-A-N-D-R-A W-E-S-T. 12 HEARING OFFICER ORTH: Thank you. 13 And raise your right hand. 14 Do you swear or affirm to tell the truth? 15 MS. WEST: I do. 16 HEARING OFFICER ORTH: Thank you. 17 SANDRA WEST 18 having been first duly sworn or affirmed, gave 19 public comment as follows: 20 PUBLIC COMMENT 21 HEARING OFFICER ORTH: I'll start your five 22 minutes now. 23 MS. WEST: Thank you. 24 I'd like to start by thanking the Board for 25 the opportunity to provide comment.	3122 1 impacts of climate change, and I understand the urgency 2 and potential for this Board to play a key role. 3 I'm happy to actually have this moment to say 4 thank you to the NMED for already joining the proximity 5 proposal to require more frequent inspections to find 6 and fix leaks. So thank you so much. It is a great 7 step. And I think there are more -- or two other key 8 steps that I'd like to request. 9 And I'd like to request them because if you 10 strengthen these rules, you're laying the foundation for 11 our future where NASA's next methane map of the region 12 will be used to show the drastic improvement from the 13 methane cloud that was covering about 2,500 square miles 14 in 2014. 15 It will be a future where New Mexico's methane 16 pollution was reduced by up to a million metric tons per 17 year, the current estimate, and the equivalent of up to 18 22 coal-fired power plants or 28 million vehicles. It 19 will be a future more equitable and environmentally 20 just, for those most impacted are often historically 21 disadvantaged communities. 22 So how do we get there? Two key things. And 23 I know they've probably been spoken before, but I'm 24 going to say them again because I also support them. 25 To set a strong operator requirement to
3121 1 I, too, am in support of Governor Michelle 2 Lujan Grisham's call for nation-leading oil and gas 3 pollution rules. Thus, I am also here to urge you to 4 strengthen the NMED's proposed ozone precursor rules to 5 protect those living closest to the development. 6 A lot of the stats you've already heard so I 7 don't have to repeat those as much. You understand that 8 there are a lot of people living near that space, and by 9 strengthening the rules we'll also reduce our greenhouse 10 gas emissions and help reduce the severity of climate 11 change for all of us that we -- that live on this rock 12 called earth, including those of us in New Mexico. 13 So I was born and raised in New Mexico, and I 14 really love this state. I am lucky enough to be able to 15 say that I don't have a story with asthma. I did not 16 grow up within the half-mile range of oil and gas 17 development, and I am lucky to not be one of the 18 statistics of emergency room visits for children with 19 respiratory issues, statistics that are strongly 20 correlated to industries that generate air pollutants 21 and, yes, strongly correlated to oil and gas activities. 22 As a New Mexican, I also want to be proud of 23 the efforts our residents and government, this Board 24 included, are taking to build a (unintelligible and/or 25 inaudible) future for our state. I study the potential	3123 1 control pollution during the completion of an oil and 2 gas well, as well as during redevelopment of an existing 3 well. 4 And the second one, to strengthen requirements 5 to cut pollution from pneumatic controllers that are 6 used in oil and gas production, the second largest 7 source of oil and gas methane emissions in New Mexico. 8 I also agree that NMED should require 9 companies to inspect pneumatics for leaks and accelerate 10 the timeline to retrofit and improve the equipment. 11 On behalf of all who are and may be impacted, 12 please heed this request. 13 Thank you for listening. 14 HEARING OFFICER ORTH: Thank you, Ms. West. 15 I just looked again for Mr. Williams and don't 16 see him. 17 Let me look again for Ms. Perkins. 18 Oh, I have one caller. 19 Is this you, Ms. Perkins? 20 MS. PERKINS: Yes. This is April Perkins. 21 HEARING OFFICER ORTH: Hello. 22 If you would spell your name for the 23 transcript. 24 MS. PERKINS: A-P-R-I-L P-E-R-K-I-N-S. 25 HEARING OFFICER ORTH: All right.

3124 1 If you would raise your right hand. 2 Do you swear or affirm to tell the truth? 3 MS. PERKINS: I affirm to tell the truth. 4 HEARING OFFICER ORTH: Thank you. 5 APRIL PERKINS 6 having been first duly sworn or affirmed, gave 7 public comment as follows: 8 PUBLIC COMMENT 9 HEARING OFFICER ORTH: I'm going to start your 10 five minutes now. 11 MS. PERKINS: Okay. So I was a little late. 12 What is it I am -- you would like me to 13 discuss? 14 I know this is about oil and gas. I read 15 something about asthma. 16 HEARING OFFICER ORTH: So this is a rulemaking 17 hearing meant to address ozone precursor air pollutants. 18 If you have a comment on the proposed rules, this is the 19 time to offer it. 20 MS. PERKINS: Oh, okay. 21 I don't know what the proposed rule is. I 22 just personally suffer from asthma, and, you know, 23 anything that would make it easier, you know, to breathe 24 would always be nice. And it would be nice to have some 25 attention taken away from oil and gas because I feel	3126 1 I'm just looking. We still have natural gas well 2 liquids unloading, but -- 3 MR. HISER: Maybe that was what we were doing. 4 Did -- was Lou going to do -- Lou has the lead 5 for industry. 6 MS. KATZ: On that one? Yeah. 7 MR. ROSE: And our witness is available. He 8 has a child care-related duty this evening that may take 9 him away for a while, but I think he's available now 10 when we get to that. 11 HEARING OFFICER ORTH: All right. Well, this 12 is a good time as far as I'm concerned. 13 MS. KATZ: Yes. Let's -- it is for us, as 14 well. So -- so we can move to that section. Let me 15 just pull that up. 16 MR. HISER: Madam Hearing Officer? 17 Do you anticipate doing another section after 18 that one? And if so, which one? 19 And we'll -- so we have people available if 20 needed. 21 HEARING OFFICER ORTH: I'm -- I'm happy to do 22 whatever makes the most sense based on the widest 23 witness availability. 24 Ms. Katz, do you -- do you have -- do you have 25 a preference here?
3125 1 there's so much attention given to those people. So it 2 would be nice to have some attention given to the rest 3 of us. 4 So that's my comment. 5 HEARING OFFICER ORTH: Thank you very much, 6 Ms. Perkins. 7 MS. PERKINS: Thank you. 8 HEARING OFFICER ORTH: All right. Let me look 9 one more time for Mr. Williams. 10 No. Okay. 11 And I don't have anyone else reaching out 12 through the chat to offer public comment. 13 Ms. Witherspoon is with us. 14 Let me ask you if you -- no, I guess not. Oh, 15 yes. 16 Ms. Witherspoon? 17 I'm wondering if you wanted to offer your 18 comment this evening. We have just one more day in 19 the -- in the hearing. 20 Are you with us? 21 I have her on the platform, but she may not be 22 able to -- she may have stepped away. 23 All right. Ms. Katz, are we going to produced 24 water management units? 25 MS. KATZ: We still also have -- let's see.	3127 1 MS. KATZ: So I believe after this we would 2 just -- well, we would have produced water management 3 units, and then -- and then there's the environmental 4 NGOs' proposal related to well completions. So -- 5 MR. HISER: Our experts on that are not 6 available today, but they're available tomorrow. 7 MS. KATZ: Right. 8 So we could -- we could get through -- 9 potentially get through produced water management units 10 tonight if all of the other -- you know, and I know that 11 CDG has witnesses for the -- that section. So I guess 12 Mr. Colclasure might speak to that. 13 MR. COLCLASURE: CDG's witness is available 14 for PWMUS tonight. 15 HEARING OFFICER ORTH: Terrific. 16 MR. HISER: And we're trying to see if ours is 17 for that. 18 HEARING OFFICER ORTH: All right. Thank you, 19 Mr. Hiser. 20 Let's hit -- let's hit this topic. 21 MS. KATZ: Okay. 22 23 24 25

3128 1 ELIZABETH BISBEY-KUEHN and BRIAN PALMER 2 (Relating to Topic Order 28) 3 having been first duly sworn or affirmed, were 4 examined and testified as follows: 5 DIRECT EXAMINATION 6 BY MS. KATZ: 7 MS. KATZ: So this is -- this testimony 8 relates to -- is Section 20.2.50.117 of the rule, 9 natural gas well liquids unloading. The testimony on 10 this section appears in NMED Exhibit 32 beginning at 11 page 91 and NMED Rebuttal Exhibit 1 beginning at page 12 68. 13 And testimony has been adopted, and there are 14 no corrections. So I will have Ms. Kuehn and Mr. Palmer 15 testify. 16 And, Ms. Kuehn, if you could please summarize 17 the operations that are the subject of this section of 18 the rule. 19 MS. BISBEY-KUEHN: Yes. 20 Good evening, Members of the Board. 21 We're discussing Section 117 today, which 22 covers natural gas well liquids unloading. 23 Liquids unloading is used to remove fluids 24 that are in the wellbore of a natural gas well, and 25 managing liquid buildup is fundamental to maintaining	3130 1 Velocity strings are -- involve installing a 2 smaller diameter tubing string in the well that 3 increases velocity at a given production rate which 4 drags liquids to the wellbore and prevents liquid 5 loading. 6 Surfactants and foaming agents are also used 7 at the bottom of the well. They create foam with 8 specific gravity which enables liquids to be carried up 9 the wellbore at lower velocities. 10 Eventually a well will reach a point where the 11 reservoir energy is not sufficient to remove liquids. 12 And there is both manual and automated liquid unloading 13 that can be employed to address liquid loading. Common 14 methods are the use of a plunger lift, which consists of 15 a plunger that is dropped down the wellbore when the gas 16 pressure declines. That -- that plunger then has a 17 valve that allows gas and liquids to -- to rise up 18 through the -- the wellbore. That valves then closes, 19 and the plunger is lifted up, and the liquids are 20 expelled. 21 It also includes the use of artificial lift or 22 a pump, and it includes installing wellhead compression. 23 MS. KATZ: And, Ms. Kuehn, can you discuss the 24 emissions from natural gas well liquid unloading and the 25 options for controlling those emissions from those
3129 1 production, avoiding early abandonment of wells, and 2 maximizing resource gas recovery. 3 Wells and reservoirs follow a continuum of 4 flow regimes in their economic life as the reservoir 5 depletes, production declines, wellbore velocity goes 6 down, and liquid loading begins to occur in the 7 wellbore. Liquid loading begins when the gas velocity 8 is not sufficient to lift the liquids to the surface. 9 New wells typically have sufficient production 10 rates and flowing velocity so that liquids loading is 11 not an issue. As the reservoir depletes, production 12 rates and velocities decline. Eventually liquids 13 loading begins to be an issue that needs to be 14 addressed. And the time at which liquids loading occurs 15 varies from well to well based on reservoir 16 characteristics. 17 The following techniques can be used to 18 individually or in combination manage liquids and 19 maintain production: 20 Intermitting, which is shutting in the well so 21 that the well is restarted at the production rate and 22 velocity such that when the well is restarted the 23 production rate and the velocity are higher and the well 24 can unload the liquids through normal production route 25 to sales.	3131 1 operations? 2 MS. BISBEY-KUEHN: Yes. VOC emissions occur 3 when the well is vented to the atmosphere to unload the 4 fluid or when the liquids are unloaded through 5 atmospheric tanks, and then the tanks vent to the 6 atmosphere. 7 To reduce VOC emissions and the waste of gas 8 during manual or nonautomated liquids unloading 9 activities, operators can monitor the manual liquids 10 unloading events on site within close proximity to the 11 well or via remote telemetry to ensure that the well 12 returns to normal production operation as soon as 13 possible. 14 MS. KATZ: Thank you. 15 And turning to Mr. Palmer, can you discuss the 16 basis for the rule requirements for natural gas well 17 liquid unloading and the estimated emissions reductions 18 and costs. 19 MR. PALMER: Um-hum. Yes. The proposed 20 requirements are based on Colorado Regulation 7, 21 Pennsylvania General Permits 5 and 5A and also Wyoming 22 Permitting Guidance. 23 Under Colorado Regulation 7, owners and 24 operators are required to first use any means of 25 creating differential pressure to attempt to unload the

3132 1 liquids from the well without venting, and then 2 otherwise to use best management practices to minimize 3 hydrocarbon emissions when venting to the atmosphere. 4 The owner and operator is also required to be present on 5 site during any planned well liquids unloading and to 6 estimate emissions from the event. 7 Under Pennsylvania General Permits, the 8 requirements are similar to the Colorado rule, except 9 that control or recovery and/or reuse of emissions is 10 required where it is safe to do so. 11 Under the Wyoming Permitting Guidance, it 12 requires that owners and operators minimize VOC 13 emissions to the extent practicable during manual and 14 automated blowdown/venting episodes. And personnel are 15 also required to remain on site to ensure minimal gas 16 venting and to estimate emissions from the event. 17 And I think the on site stuff probably -- I 18 think in those permits it generally applies to a manual 19 liquids unloading. 20 Go to the next one. Thank you. 21 We estimated emission reductions of 4,272 tons 22 per year of VOC for installing plunger lifts at wells 23 where they are not presently in use. We don't have any 24 estimates available to quantify the reductions expected 25 from implementation of the proposed best management	3134 1 liquid unloading that don't result -- don't result in 2 venting are not subject to this part. And that third 3 added sentence establishes the compliance timeline for 4 owners and operators to comply with this part. And 5 we've given two years from the effective date of this 6 part to comply with the emission standards. 7 Paragraph B outlines the emission standards 8 that are required of an owner or operator subject to 9 this section. 10 Paragraph B.(1) establishes a requirement to 11 use best management practices during the life of the 12 well to avoid the need for venting of natural gas 13 associated with liquid unloading. 14 Paragraph (2) identifies the types of best 15 management practices that must be used during venting 16 associated with liquid unloading to minimize emissions 17 to the atmosphere. And those include -- excuse me -- 18 reducing wellhead pressure before the blowdown or 19 venting to atmosphere, monitoring manual venting 20 associated with liquid unloading in close proximity to 21 the well or via remote telemetry. And Paragraph (c) 22 requires the closing of vents to the atmosphere and 23 returning the well to normal production operation as 24 soon as practicable. 25 Paragraph B.(3) establishes the methodologies
3133 1 practices. 2 Costs for installing plunger lifts including 3 the capital costs of \$20,000 and operating costs of 4 \$2,400 are based on data from a report completed by ICF 5 International called Economic Analysis of Methane 6 Emission Reduction Potential from Natural Gas Systems, 7 and that was from 2016. 8 MS. KATZ: Thank you. 9 And, Ms. Kuehn, can you walk through the rules 10 and summarize the provisions and discuss the revisions 11 that were made based on stakeholder comments. 12 MS. BISBEY-KUEHN: Yes. Again following the 13 same framework as all the other sections that we've 14 looked at. We received comments from numerous industry 15 stakeholders requesting clarification on compliance 16 deadlines, requesting revisions that specify when liquid 17 unloading operations -- or which liquid unloading 18 operations are subject to the requirements of this 19 section. 20 We have largely agreed with many of the 21 comments that requested those necessary clarifying 22 revisions. 23 Paragraph A was revised to specify that only 24 those operations resulting in venting of natural gas are 25 subject. The second statement that clarifies that	3135 1 in addition to the best management practices that owners 2 and operators must employ to reduce emissions. Those 3 include use of plunger lift, use of artificial lift, use 4 of a control device, use of an automated control system 5 or other control if approved by the Department. And we 6 are not specifying which methodologies need to be 7 employed. We've left this technology neutral to allow 8 for other -- all other technologies to have an on ramp 9 into this section. 10 We struck the requirement to install an 11 equipment monitoring tag on the -- on the -- on the 12 well. 13 Paragraph C outlines the monitoring 14 requirements. Those include monitoring certain 15 parameters during venting, including the wellhead 16 pressure, the flow rate of the vented gas, the duration 17 of the venting. And then we require owners and 18 operators to calculate the volume and mass of VOC 19 emitted during a venting event. 20 And Paragraph (3) was struck that related to 21 the equipment monitoring tag. New Paragraph (3) 22 references the general monitoring requirements of the 23 general provisions, Subsection 112. 24 The recordkeeping requirements include 25 identifying the unique identification number and the

3136 1 location of the well, the date of the unloading event, 2 record of the wellhead pressure and the flow rate of the 3 vented gas. Again if it's not feasible, we're allowing 4 the use of a maximum potential flow rate to be used in 5 the calculation, the duration of the venting to the 6 storage vessel, tank battery or atmosphere, and a 7 description of the best management practices used to 8 minimize venting before and during a liquid unloading 9 event. 10 We require the documentation of the type of 11 control device or technique used to control VOC 12 emissions during the unloading event, and then a 13 calculation of the VOC emissions vented during the 14 liquid unloading event based on the duration, the 15 calculated volume and composition of the gas. 16 And then the other two again are just general 17 references to the general provisions of Section 112. 18 And this concludes this PowerPoint. 19 MS. KATZ: Thank you. 20 And that is the -- that is all the 21 Department's summary on its direct and rebuttal prefiled 22 testimony. 23 HEARING OFFICER ORTH: Thank you. 24 If you're a party with questions on this 25 topic, please turn on your screen.	3138 1 Any other parties with questions, turn on your 2 camera. 3 No? 4 In that case, I will go to questions from the 5 Board. 6 While I'm doing that, if you're an attendee 7 and have a question, please reach out through chat. 8 Madam Chair? 9 CHAIR SUINA: Thank you, Madam Hearing 10 Officer. 11 I have no questions at this time. 12 HEARING OFFICER ORTH: Thank you. 13 I believe the Vice-Chair had to step away for 14 a few minutes. 15 Member Cates. 16 MEMBER CATES: Thank you. No comments or no 17 questions. 18 HEARING OFFICER ORTH: Thank you. 19 Member Bitzer? 20 MEMBER BITZER: No questions. Thank you. 21 HEARING OFFICER ORTH: Thank you. 22 Member Garcia? 23 MEMBER GARCIA: No questions. Thank you. 24 HEARING OFFICER ORTH: And Member Honker. 25 MEMBER HONKER: No questions.
3137 1 I see Mr. Hiser. 2 CROSS-EXAMINATION 3 BY MR. HISER: 4 MR. HISER: Good evening, Ms. Kuehn. 5 I just had two questions to help understand 6 how the Department is looking at administering this 7 program, and they have to go with the -- I believe it's 8 the emission standards, which are B.(3), which talks 9 about the methodologies, and there's a list of ones that 10 are available. 11 Is it your intention that the operator would 12 use any one or more of those technologies? 13 MS. BISBEY-KUEHN: That is correct. 14 MR. HISER: And then you talk about additional 15 technologies that may be approved by the Department, 16 which we strongly support. 17 Would you envision that some of those 18 approvals might become generic so that they would be 19 available to any operator without having to repetitively 20 come to the Department for individual approval? 21 MS. BISBEY-KUEHN: Yes. 22 MR. HISER: Thank you. 23 Those are really my very pragmatic questions. 24 Thank you. 25 HEARING OFFICER ORTH: Thank you, Mr. Hiser.	3139 1 HEARING OFFICER ORTH: All right. Thank you. 2 Anything further, Ms. Katz? 3 MS. KATZ: No, nothing more from me. Thank 4 you, Ms. -- Madam Hearing Officer. 5 HEARING OFFICER ORTH: All right. 6 So we're going now to IPANM's witness? Is 7 that what we're doing? 8 MS. KATZ: I believe so. 9 MR. ROSE: And Mr. Davis, I think, is on the 10 platform somewhere. 11 HEARING OFFICER ORTH: I see him. 12 MR. DAVIS: I am here. 13 MR. ROSE: I haven't seen him yet. 14 There you are. Welcome back. 15 RYAN DAVIS 16 (Relating to Topic Order 28) 17 having been first duly sworn or affirmed, was 18 examined and testified as follows: 19 DIRECT EXAMINATION 20 BY MR. ROSE: 21 MR. ROSE: Mr. Davis -- and again Mr. Davis' 22 direct testimony is IPANM Exhibit 2, and his rebuttal 23 testimony is IPANM Exhibit 10, and the proposed changes 24 from IPANM to the Department's original proposal is 25 IPANM Exhibit 1.

3140 1 Q. Mr. Davis, could you summarize your direct and 2 rebuttal testimony on this matter? 3 A. Yes, sir. Again I think Ms. Kuehn gave a very 4 good overview of the need for liquids unloading and -- 5 and the reason that we have liquid -- liquid unloading 6 events occur, and I -- I would just point the Board to 7 my written direct for more detail on kind of the life 8 cycle of a well and not go through that at this point. 9 But what I -- what I do want to just highlight 10 there, there's -- there's something that Ms. Kuehn said, 11 you know, regarding the velocity of the gas, you know, 12 the -- we refer to this as the critical velocity or the 13 critical rate. So the critical velocity is the point in 14 which a liquid droplet is suspended in gas flow. Any 15 flow below that critical rate leads to a cumulation of 16 liquids in the wellbore. 17 And so the thing I want to note there is the 18 critical rate is dependent upon the flowing pressure as 19 well as the differential pressure. So the primary 20 purpose behind manual liquids unloading or liquids 21 unloading is maximizing that differential pressure to 22 ensure that we can purge the liquids out of the 23 wellbore. 24 The other thing that I wanted to note 25 regarding liquids unloading is this is something that's	3142 1 exception of the use of the control device. And I 2 wanted to spend a little time talking about the control 3 device. 4 As I mentioned before, the primary objective 5 with manual liquids unloading is maximizing the 6 differential pressure. And I think it's worth noting at 7 this point that manual liquids unloading is really the 8 last resort. This being a natural gas well, we want to 9 try to maximize the production that we put to sales. So 10 we will try every effort to get this well to unload 11 without having to perform manual liquids unloading, but 12 this is a last resort before we have to bring a -- a 13 swabbing unit out to location. 14 And just for the Board's information, swabbing 15 would be where we actually come -- come out, we would 16 open the tubing, we'd run in with a mechanical device to 17 actually remove those liquids from the well. So when I 18 say last resort, swabbing would be the last last resort, 19 but manual liquids unloading is the last intervention 20 prior to mechanical intervention. 21 So with that, one of the -- the concerns that 22 we have with the use of a control is this would impede 23 our ability to maximize that differential pressure. 24 If we go back and look at how manual liquids 25 unloadings are performed, the flow from the well is
3141 1 carried out on gas wells. The primary commodity that 2 we're -- we're producing here is natural gas, and we're 3 removing the liquids that are impeding the flow of 4 natural gas. So I think that's an important designation 5 here. 6 So to jump in to the rule itself, I was really 7 just going to focus on the things where we -- we haven't 8 found complete resolution. I would start off by saying 9 that IPANM is very supportive of the use of best 10 management practices that are listed in Paragraph (1) 11 and (2) under Subsection B. 12 Paragraph (1) covers the best management 13 practices that are carried out by an operator during the 14 life of the well. 15 And then the best management practices that 16 are listed in Paragraph (2) are the best management 17 practices that are carried out during the manual liquids 18 unloading activities, and those reduce the emissions 19 associated with natural gas -- or natural gas liquid 20 unloading events. We believe these are the most 21 effective measures to reducing emissions from the manual 22 liquids unloading. 23 The methodologies that are listed under 24 Paragraph (3) are primarily best management practices 25 that would occur over the life of the well, with the	3143 1 directed to a storage tank, and the reason for this is 2 we're purging liquids out of the wellbore, and we need 3 that vessel to capture those liquids. So we'll direct 4 the flow to the storage tank to purge the liquids. 5 And as we've talked on storage tanks, you 6 know, these storage vessels, you know, may have a 7 four-ounce, eight-ounce, up to 16-ounce operating 8 pressure, but not a lot of room there to operate a 9 control device. So we have significant concerns with 10 the use of a control device, because in this instance it 11 poses a safety concern by putting a control device on 12 that storage tank. 13 The other thing that I'd like to point out 14 here that -- that was in my testimony is artificial -- 15 the application of artificial lift is an engineered 16 solution for gas well deliquification, and is 17 implemented based on individual well characteristics and 18 well site parameters. 19 So, you know, this isn't a one size fits all. 20 We -- we apply artificial lift based on the 21 gas-to-liquid ratio, pressures, equipment that's 22 available on the site. And one of the things that's 23 worth mentioning, as well, is the misapplication of 24 artificial lift, and plunger lift in particular can lead 25 to more manual liquids unloading, and ultimately

3144 1 emissions from liquids unloading events. 2 In my rebuttal testimony, I highlighted the 3 Department's reference to the EPA greenhouse gas 4 reporting data that indicated 97 percent of the gas 5 wells in the Permian and the San Juan that require 6 manual liquids unloading currently employ plunger lift. 7 And I think this is, you know, an important thing to 8 note, because the large majority of the wells in the 9 state that require manual liquids unloading already have 10 plunger lift installed. 11 As I stated previously, IPANM believes the 12 application of artificial lift is -- including plunger 13 lift, is captured under Paragraph (1), which is -- 14 reads -- reads that the owner or operator of a natural 15 gas well shall use best management practices during the 16 life of the well to avoid the need for natural gas 17 venting associated with liquids unloading. 18 And I say this, you know, pointing back to the 19 greenhouse gas reporting data, showing that 97 percent 20 of the gas wells in the state that require manual 21 liquids unloading currently have plunger lift and you -- 22 being utilized. And to me this indicates that, you 23 know, plunger lift installation is not the end all be 24 all cure for the emissions associated with liquids 25 unloading.	3146 1 maximum potential flow, I think, will overstate these 2 emissions. One of the reasons that we're performing a 3 manual liquid unloading event is the fact that that well 4 is not capable of flowing at its maximum potential. And 5 so we would like to see that be revised to be just an 6 estimation of that flow rate based on pressures and 7 tubing size. 8 And I think that's all I have, Mr. Rose. 9 MR. ROSE: Madam Hearing Officer, I have no 10 further questions of this witness. 11 HEARING OFFICER ORTH: Thank you very much, 12 Mr. Rose and Mr. Davis. 13 If you're a party with a question, please turn 14 on your camera. 15 Not seeing anyone. 16 I'll turn to the Board for questions. 17 If you're an attendee with a question, please 18 reach out through the chat. 19 EXAMINATION 20 BY THE BOARD: 21 HEARING OFFICER ORTH: Madam Chair? 22 CHAIR SUINA: Thank you, Madam Hearing 23 Officer. 24 And thank you again, Mr. Davis, for your 25 testimony.
3145 1 So IPANM originally proposed to strike 2 Paragraph (3) all together, as we felt like this was 3 covered under Paragraph (1). I would mention that if 4 the Department feels strongly about listing those 5 methodologies out of Paragraph (3), that I feel like 6 they're more appropriate to be listed under Paragraph 7 (1), as -- as these are measures that an operator takes 8 through the life of the well and not necessarily 9 something that's employed as a control strategy for 10 manual liquids unloading. 11 That, for the most part, covers the emission 12 standards and where we -- we still think there are -- 13 there are room for improvement in the current proposal. 14 The Department did make a lot of good changes, and I 15 want to thank the Department for that. 16 One place that, you know, I feel like we 17 didn't get the change that we were looking for is under 18 the recordkeeping section, (1)(d). This is the 19 recordkeeping requirements for manual liquids unloading, 20 and (1)(d) is the requirement to keep a record of the 21 flow rate to the extent that it's feasible. And if not 22 feasible, the owner or operator shall use the maximum 23 potential flow in the emissions calculations. 24 We had originally asked that that be 25 referenced as the estimated flow rate. Using the	3147 1 Just so I'm -- I'm clear again, so I think you 2 were referring to the language under B.(3) as the -- 3 the -- employ the methodologies to reduce emissions 4 during venting associated with a liquid unloading event. 5 So I just wanted to make sure I heard right or I 6 understand. 7 So were you in your testimony a few minutes 8 ago recommending that this language if it's kept in the 9 proposed rule, that it be relocated under Section A? Is 10 that what I heard? 11 MR. DAVIS: No. It would be still under 12 Section B, but under Paragraph (1). 13 CHAIR SUINA: Oh, okay. 14 MR. DAVIS: I feel like those are -- are best 15 management practices that are carried out during the 16 life of the well. 17 CHAIR SUINA: Okay. 18 And again has that been -- just verifying with 19 me, has that been shared with the Department in a 20 proposal so far, or is it just in the verbal testimony? 21 MR. DAVIS: Just in the verbal. As I have 22 stated, we just originally felt like that was already 23 captured under Paragraph (1), and so we had proposed to 24 strike Paragraph (3) in its entirety. 25 CHAIR SUINA: Okay.

3148 1 I think that's all I have for right now. 2 Thank you, Mr. Davis. 3 MR. DAVIS: Thank you. 4 HEARING OFFICER ORTH: Thank you. 5 Vice-Chair Trujillo Davis? 6 VICE-CHAIR TRUJILLO DAVIS: I don't have any 7 questions at this time. 8 Thank you, Mr. Davis. 9 HEARING OFFICER ORTH: Thank you. 10 Member Cates? 11 MEMBER CATES: No questions here. Thank you. 12 HEARING OFFICER ORTH: Member Bitzer? 13 MEMBER BITZER: No questions. Thank you. 14 HEARING OFFICER ORTH: And Member Garcia? 15 MEMBER GARCIA: Yes. I do have a question. 16 Mr. Davis, you mentioned that what Chair Suina 17 mentioned was part B.(3), those items were already best 18 management practices? Did I hear you say that? 19 MR. DAVIS: They would be the methodologies or 20 best management practices that operators take during the 21 life of the well. I think those two are kind of 22 interchangeable there to some degree. 23 MEMBER GARCIA: Okay. 24 So then I think I heard you say that using -- 25 the use of a control device could be a safety hazard.	3150 1 Mr. Smitherman on this topic, as well, but it will be 2 tomorrow. 3 Ms. Katz, will there be any follow-up from the 4 Department, or would you wait until after 5 Mr. Smitherman? 6 MS. KATZ: I think I'll do some follow-up just 7 now because I think it will be easier for the Board to 8 have it done right away, after Mr. Davis. 9 HEARING OFFICER ORTH: Terrific. 10 MS. KATZ: All right. 11 ELIZABETH BISBEY-KUEHN 12 (Relating to Topic Order 28 continued) 13 having been first duly sworn or affirmed, was 14 examined and testified further as follows: 15 DIRECT EXAMINATION 16 BY MS. KATZ: 17 MS. KATZ: So I have Ms. Kuehn back up here. 18 Q. Ms. Kuehn, regarding Mr. Davis' suggestions 19 that the list of methodologies in Paragraph B.(3) be 20 moved to Paragraph B.(1), would the Department agree to 21 that revision? 22 A. Yes. 23 Q. Okay. 24 And then with regard to the recordkeeping 25 requirement in Paragraph D.(1)(d), would the Department
3149 1 So I'm trying to reconcile those two statements. 2 MR. DAVIS: So we would recommend not listing 3 the use of a control device, because we don't think that 4 that's a technically feasible option for controlling 5 emissions. But if -- if the Department feels that it's 6 necessary to list out plunger lift and artificial lift, 7 as well as the automated control system, that that would 8 be more appropriate under Paragraph (1). 9 MEMBER GARCIA: But you still feel like the 10 use of a control device could be a safety issue. 11 MR. DAVIS: Yes, ma'am. 12 MEMBER GARCIA: Okay. 13 Thank you. That's all. Thank you. 14 MR. DAVIS: Um-hum. 15 HEARING OFFICER ORTH: Thank you. 16 Member Honker? 17 MEMBER HONKER: I have no questions. Thank 18 you. 19 HEARING OFFICER ORTH: All right. Thank you. 20 Mr. Rose, does any of this prompt redirect? 21 MR. ROSE: No, Madam Hearing Officer. 22 HEARING OFFICER ORTH: All right. Thank you 23 very much, Mr. Davis and Mr. Rose. 24 MR. ROSE: Thank you. 25 HEARING OFFICER ORTH: We will hear from	3151 1 agree to allow the use of estimated flow rate instead of 2 the maximum potential flow rate? 3 A. Yes. 4 MS. KATZ: Okay. Thank you. 5 That's all I have. 6 HEARING OFFICER ORTH: Thank you, Ms. Kuehn 7 and Ms. Katz. 8 If you're a party with a question, please turn 9 on your camera. 10 Mr. Hiser. 11 MR. HISER: I was just going to let you know, 12 Madam Hearing Officer, that NMOGA probably will not -- 13 Mr. Smitherman will not be speaking to this issue. So 14 you can cross NMOGA off the list for this issue. 15 HEARING OFFICER ORTH: Thank you very much. 16 If you're a party with a question, please turn 17 on your camera. 18 No? 19 I'll go to the Board, then. 20 While I'm doing that, if you're an attendee 21 with a question, reach out through chat. 22 Madam Chair? 23 CHAIR SUINA: Madam Hearing Officer, again 24 just appreciate the collaboration as we move through 25 these rules. Thank you, and no further questions.

3152 1 HEARING OFFICER ORTH: Thank you. 2 Vice-Chair Trujillo Davis? 3 VICE-CHAIR TRUJILLO DAVIS: I don't have any 4 questions at this time. Thank you. 5 HEARING OFFICER ORTH: Thank you. 6 Member Cates? 7 He may have stepped away. 8 Member Bitzer? 9 MEMBER BITZER: I have no questions. Thank 10 you. 11 HEARING OFFICER ORTH: Thank you. 12 Member Garcia? 13 MEMBER GARCIA: No questions. 14 HEARING OFFICER ORTH: And Member Honker. 15 MEMBER HONKER: No questions. Thank you. 16 HEARING OFFICER ORTH: Thank you very much. 17 Thank you, Ms. Katz and Ms. Kuehn. 18 Ms. Katz, would you agree with me that if we 19 went as far as we could on produced water management 20 units with the witnesses we have available, that we 21 would be confident of finishing tomorrow without a 22 midnight session? 23 MS. KATZ: I would definitely agree with that, 24 Madam Hearing Officer. 25 HEARING OFFICER ORTH: Terrific.	3154 1 And we're discussing produced water management 2 units tonight, which -- one second -- which is 3 Section 126, and is -- also there are some specific 4 definitions in Part 50 that I'll refer to later. 5 The majority of oil- and gas-bearing 6 formations also contain naturally occurring water, often 7 referred to as formation or connate water. When oil or 8 gas is extracted, this produced water is also extracted 9 as a by-product. The actual amount of produced water 10 varies widely depending on the location or stage in the 11 lifetime of a particular well. 12 In addition to reflecting the chemical makeup 13 of the geologic formation from which it is extracted, 14 produced water will also contain suspended solids, 15 dissolved solids, varying amounts of oil residues and 16 organic -- organics containing VOCs, and various 17 chemicals used in the production process. 18 Produced water from gas production typically 19 has higher contents of low molecular-weight aromatic 20 hydrocarbons, such as benzene, toluene, ethylbenzene and 21 xylene, than produced water from oil formations. 22 Conventional oil and gas developments 23 typically produce around seven to 10 barrels of water 24 for every barrel of crude oil produced. And 25 unconventional oil and gas developments -- produced
3153 1 Let's go to produced -- produced water 2 management units. 3 MS. KATZ: Just give me a second to get set up 4 here and for my witnesses to get on screen. 5 ELIZABETH BISBEY-KUEHN and BRIAN PALMER 6 (Relating to Topic Order 36) 7 having been first duly sworn or affirmed, were 8 examined and testified as follows: 9 DIRECT EXAMINATION OF ELIZABETH BISBEY-KUEHN 10 BY MS. KATZ: 11 MS. KATZ: And this testimony will relate to 12 Section 20.2.50.126 of the rule, produced water 13 management units. This testimony appears in NMED 14 Exhibit 32 beginning at page 152 and NMED Rebuttal 15 Exhibit 1 beginning at page 99. 16 Oh, I guess Mr. Palmer isn't on this 17 particular presentation, but we will -- he'll be 18 available if need be. 19 All right. And Ms. Kuehn has adopted her 20 testimony, and there are no corrections on this section. 21 Q. So, Ms. Kuehn, can you please summarize the -- 22 the equipment process -- or process that is the subject 23 of this section of the rule. 24 MS. BISBEY-KUEHN: Yes. 25 Good evening, Members of the Board.	3155 1 water from most unconventional resources, besides coal 2 bed methane, is minimal due to tighter reservoir 3 formations. Producers commonly import water to these 4 operations for on site use in drilling, fracturing and 5 production. 6 Q. And can you discuss the control options for 7 controlling emissions from produced water management 8 units? 9 A. Yes. The VOC emissions from produced water 10 management units can be reduced by treating the produced 11 water to remove hydrocarbons before the water enters the 12 recycling facility or impoundment. The emissions are 13 reduced when produced water is processed through 14 separators and storage vessels, which separates the 15 hydrocarbons from the produced water prior to sending to 16 a produced water management unit. 17 Q. And can you review the provisions of the rule 18 regarding produced water management units and the 19 revisions that were made based on the stakeholder input. 20 A. Yes. And let me just state that there is not 21 a great deal of data in the inventory. In fact, there 22 is very, very little data from the inventory on the 23 amount of emissions produced by these types of 24 facilities. We have application -- we have 25 registrations for several of these types of facilities,

3156 1 and their potential to emit a VOC varies widely, 2 anywhere from low amounts of VOC to -- to up to 50 to 60 3 tons of VOC emissions. 4 The primary purpose of this section is to 5 utilize best management practices to minimize those 6 volatile organic compounds from these types of 7 facilities. We've made several revisions based on 8 stakeholder feedback on the original proposal. 9 We think that this new -- these new 10 requirements will provide good data for us to understand 11 the type and quantity of emissions from these types of 12 facilities. It's also the smallest -- it's the -- it's 13 the -- not the smallest, but it's the most limited kind 14 of section that we have also in this section. So it's 15 only -- it's going to go pretty fast here as I'm walking 16 through the requirements. 17 So the applicability is outlined in Paragraph 18 A. It requires produced water management units, which 19 are specifically defined in this part, to meet the 20 requirements of this section within 180 days after the 21 effective date of this part. 22 Paragraph B identifies the emission standards 23 that must be followed, and they -- those require owners 24 and operators to use best management practices and good 25 operational or engineering practices to minimize	3158 1 will require the owners and operators to sample the PWMU 2 to determine the VOC content of -- of that liquid. And 3 then there is a reference to comply with the general 4 provisions of Section 112. 5 The recordkeeping requirements in Paragraph D 6 require the owner or operator to document the 7 identification number, the location, the best management 8 practices and good operational or engineering practices 9 employed to minimize emissions, the protocol that was 10 developed, and the results of any sampling conducted in 11 accordance with the protocol, and then a record of the 12 annual total VOC emissions from each unit. 13 And then the remaining requirements refer 14 again to sub -- to Section 112. 15 And this concludes an overview of our direct 16 and rebuttal testimony on produced water management 17 units. 18 Q. And not quite, because it looks like we left 19 out the definition associated with this. 20 A. Yeah. And I was -- I can speak to those. 21 Q. Yes. I was just going to ask you to go ahead 22 and cover those. We didn't include this slide. So 23 apologies for that. 24 A. Yes. So produced water management unit is 25 defined in Section 7 as a recycling facility or a
3157 1 emissions of VOCs from produced water management units. 2 There's also a prohibition against the -- the dumping of 3 any untreated produced water to a produced water 4 management unit without first processing and treating 5 the produced water in a separator and/or storage vessel 6 to minimize entrained hydrocarbons. 7 Paragraph C outlines the monitoring 8 requirements. These require the owner or operator to 9 develop a protocol to calculate the VOC emissions from 10 each PWMU. The protocol shall include the produced 11 water throughput monitoring, semiannual sampling and 12 analysis of the liquid composition, hydrocarbon 13 measurement method, identifying representative sample 14 size, and then requirements for chain of custody of 15 that -- of that sample. 16 The monitoring requirements also include the 17 owner or operator to calculate the monthly VOC emissions 18 in tons from each unit with the first month of emission 19 calculations beginning within 180 days of the effective 20 date of this part. They require the monitoring on a 21 monthly basis of the good -- of the best management or 22 good operational or engineering practices implemented to 23 reduce the emissions, to demonstrate their 24 effectiveness. 25 And upon written request by the Department, we	3159 1 permanent pit or pond that is a natural typographical -- 2 topographical depression, man-made excavation, or diked 3 area formed primarily of earthen materials, or man-made 4 materials, which is designed to accumulate produced 5 water and has a design storage capacity equal to or 6 greater than 50,000 barrels. 7 Recycling facility means a stationary or 8 portable facility used exclusively for the treatment, 9 reuse or recycling of produced water and does not 10 include oil field equipment such as separators, heater 11 treaters and scrubbers in which produced water may be 12 used. 13 Q. And can you also cover just the definition of 14 produced water, because that is also in the definitions 15 section. 16 A. I will. Yes. Produced water means a liquid 17 that is an incidental byproduct from well completion and 18 the production of oil and gas. 19 Q. And does the red-line that was submitted at 20 NMED Rebuttal Exhibit 23 indicate that there were a few 21 revisions that were made to those definitions based on 22 stakeholder input? 23 A. That's correct. 24 MS. KATZ: Okay. Thank you. 25 That is then, I believe, the Department's

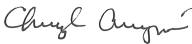
3160 1 presentation of its direct and rebuttal on produced 2 water management units. 3 HEARING OFFICER ORTH: Thank you very much, 4 Ms. Katz and Ms. Kuehn. 5 If you're a party with a question of 6 Ms. Kuehn, please turn on your camera. 7 Mr. de Saillan. 8 MR. DE SAILLAN: Thank you, Madam Hearing 9 Officer. 10 Can you hear me okay? 11 CROSS-EXAMINATION OF ELIZABETH BISBEY-KUEHN: 12 BY MR. DE SAILLAN: 13 Q. Good evening, Ms. Kuehn. 14 Just for the record, my name is Charles de 15 Saillan, and I'm an attorney representing the New Mexico 16 Environmental Law Center. 17 And I just have a couple of questions for you 18 regarding best management practices. 19 I was wondering if you could sort of list what 20 some of those best management practices are for -- for 21 produced water management units. 22 A. They are separate -- using separators and 23 storage vessels to -- to separate the oil from the 24 produced water prior to dumping. But we will have some 25 surrebuttal testimony on the specific use of the term	3162 1 Did I see Mr. Hiser? 2 MR. HISER: Madam Hearing Officer, I think, 3 actually, Mr. de Saillan and the answer just answered my 4 question. So I'm good. Thank you. 5 HEARING OFFICER ORTH: Thank you. 6 I don't see any other party on screen. 7 I'll turn to the Board for their questions. 8 If you're an attendee with a question, reach 9 out through chat. 10 EXAMINATION 11 BY THE BOARD: 12 HEARING OFFICER ORTH: Madam Chair? 13 CHAIR SUINA: Yes, Madam Hearing Officer. I 14 just have a quick follow-up to Mr. de Saillan's 15 questions. 16 So is there also going to be some additional 17 language changes -- I think you referred to it as part 18 of your testimony -- to clarify some of the confusion; 19 is that correct? 20 MS. BISBEY-KUEHN: Madam Chair, yes, that is 21 correct. 22 CHAIR SUINA: Okay. 23 All right. Thank you so much. I just wanted 24 to make sure I was clear on that. Thank you. 25 HEARING OFFICER ORTH: Vice-Chair Trujillo
3161 1 "dumping," and we are prepared to substitute that with 2 another term. 3 So I will say that it's -- it's processing the 4 produced water through the use of a separator or -- or a 5 storage vessel in order to separate the hydrocarbons 6 from the produced water prior to it being processed in 7 the produced water management unit. 8 Q. Okay. 9 And is that -- is that specified in the 10 regulation somewhere? 11 A. There's a prohibition against -- I don't want 12 to use the term "dumping," but there's a prohibition 13 against processing that produced water without it first 14 being processed via a separator or a storage vessel. 15 Q. Okay. 16 So then it's clear in the regulations as you 17 interpret them that when you use the term "best 18 management practices" it's clear what that means, and 19 therefore the regulation will be readily enforceable. 20 MS. KATZ: And I would just direct you to 21 Subparagraph B.(2) that contains that specific language. 22 MR. DE SAILLAN: Okay. Very good. 23 That's all the questions I have. Thank you 24 very much. 25 HEARING OFFICER ORTH: All right. Thank you.	3163 1 Davis? 2 VICE-CHAIR TRUJILLO DAVIS: Yes. Thank you. 3 I'm wondering, the definition for produced 4 water management unit includes impoundments, or ponds. 5 Does that include ponds used for treatment for 6 hydraulic fracturing later? 7 MS. BISBEY-KUEHN: It would potentially if it 8 was -- I'm sorry. Madam Vice-Chair, yes. It may if it 9 exceeded that capacity. 10 VICE-CHAIR TRUJILLO DAVIS: Okay. 11 So I guess what I'm really wondering about is 12 the NMED and OCD have worked really, really hard over 13 the last few years to put in stipulations in other rules 14 to encourage produced water recycling and water 15 management. And I'm concerned that this could 16 potentially harm those efforts and we would then turn to 17 using more freshwater sources. 18 So I'm not really sure what my question is. 19 It's more I'm expressing my concern for that, and maybe 20 I'm not reading the rule exactly right. 21 MS. BISBEY-KUEHN: Madam Chair, yes, 22 Vice-Chair. We are acutely aware of the need to not 23 disincentivize the use of freshwater instead of produced 24 water in fracturing of wells. And so we have tailored 25 this requirement to prohibit the use of -- or the

3164 1 treat -- the acceptance of that material without it 2 first being separated and handled through a storage 3 vessel, which should reduce those hydrocarbons and not 4 disincentivize the use of -- of freshwater. 5 VICE-CHAIR TRUJILLO DAVIS: Okay. I think I 6 understand what -- how you structured that. 7 So thank you. I don't have any more questions 8 at this time. 9 HEARING OFFICER ORTH: Thank you. 10 Member Cates? 11 Member Bitzer? 12 MEMBER BITZER: No questions at this time. 13 Thank you. 14 HEARING OFFICER ORTH: Thank you. 15 Member Garcia? 16 MEMBER GARCIA: No questions. Thank you. 17 HEARING OFFICER ORTH: And Member Honker. 18 MEMBER HONKER: I would just echo Vice-Chair 19 Trujillo Davis' concern with not disincentivizing 20 recycling of produced water. 21 No questions. Thank you. 22 HEARING OFFICER ORTH: Thank you, Member 23 Honker. 24 Ms. Katz, any follow-up? 25 MS. KATZ: Just one quick follow-up.	3166 1 MR. CURTIS: Yes. Ken Nichols. 2 HEARING OFFICER ORTH: Okay. So he's no 3 longer a panelist. Oh, I see him back in the attendees. 4 I'll make him a panelist again. 5 Mr. Nichols, can you hear me? 6 MR. NICHOLS: There we go. 7 Can you hear me now? 8 HEARING OFFICER ORTH: Yes. And you're also 9 welcome to turn on your video if you have bandwidth. 10 MR. NICHOLS: All right. 11 I apologize. I'm multitasking here. 12 HEARING OFFICER ORTH: All right. 13 If you would spell your name for the 14 transcript, please. 15 MR. NICHOLS: K-E-N N-I-C-H-O-L-S. 16 HEARING OFFICER ORTH: And I think I need to 17 swear you, right? 18 MR. NICHOLS: Yes. 19 HEARING OFFICER ORTH: If you would raise your 20 right hand. 21 Do you swear or affirm to tell the truth? 22 MR. NICHOLS: I do. 23 HEARING OFFICER ORTH: Thank you very much. 24 Go ahead, Mr. Curtis. 25 MR. CURTIS: Thank you very much.
3165 1 REDIRECT EXAMINATION OF ELIZABETH BISBEY-KUEHN 2 BY MS. KATZ: 3 Q. Ms. Kuehn, did the Department work closely 4 with the Oil Conservation Division in developing the 5 rule language related to produced water management units 6 as well as with the interested stakeholders to address 7 the concerns raised by Vice-Chair Trujillo Davis and 8 Member Honker regarding disincentivizing the use of 9 recycled water? 10 A. Yes. 11 MS. KATZ: Thank you. 12 That's all that I have. 13 HEARING OFFICER ORTH: Thank you, Ms. Katz and 14 Ms. Kuehn. 15 I believe at this point we go to NMOGA and 16 Mr. Nichols. 17 I did make Mr. Nichols a panelist a little bit 18 ago. 19 Mr. Curtis? 20 MR. CURTIS: Thank you, Madam Hearing Officer. 21 Mr. Nichols, are you with us? 22 Do you still see him on the platform, Madam 23 Hearing Officer? 24 HEARING OFFICER ORTH: Let me see here. 25 It was Ken, right?	3167 1 KEN NICHOLS 2 (Relating to Topic Order 36) 3 having been first duly sworn or affirmed, was 4 examined and testified as follows: 5 DIRECT EXAMINATION 6 BY MR. CURTIS: 7 Q. Good evening, Mr. Nichols. 8 Can you tell us -- the Board a little bit 9 about your involvement in this proceeding? 10 A. Yes. I've been asked to talk a little bit 11 about produced water recycling operations and the 12 potential impact of the proposed rule to those 13 operations. 14 Q. And is NMOGA Exhibit 33, which is previously 15 admitted, an accurate copy of your resume? 16 A. Yes. 17 Q. And can you please just briefly state your 18 qualifications as they relate to your participation in 19 this hearing? 20 A. Yes. I went to school at University of 21 Illinois, studying civil engineering, focused on 22 water -- water resources, environmental engineering. 23 I am now a professional engineer in Texas and 24 a Class D water operator, and I'm serving as a regional 25 water team lead for Tetra Tech and also as geologic

3168 1 carbon sequestration lead. 2 I have over 24 years of experience with most 3 of that related to water management and a significant 4 part of that related to water management for oil and 5 gas. 6 Q. Thank you. 7 And is Exhibit A5 and 44 -- do they reflect 8 your direct and rebuttal testimony filed in this matter? 9 A. Yes. 10 Q. And do you have any changes to that testimony 11 as filed? 12 A. No. 13 Q. I believe we have prepared a presentation to 14 share with the Board. 15 A. Yes. 16 Q. Based on the testimony that's been offered 17 thus far, I think many of the issues that we had planned 18 to share have been addressed and covered very well by 19 the other parties. 20 So, Ken, if it would be all right, I'd like to 21 ask you just a question or two, and then I'd like you to 22 display the last slide of your presentation and just 23 talk a little bit about some of your recommendations 24 based on the September 7th language that the Department 25 provided, September 7th and then September 16th.	3170 1 Q. And it will allow the continued recycling of 2 produced water? 3 A. Yes, I believe so. 4 Q. Excellent. 5 If you wouldn't mind, if we can share your 6 very last slide. I believe you had some recommendations 7 based on the language that was filed on September 16. 8 A. Yes. Let me see here. I'll share -- let's 9 see if this shows up. 10 Okay. Can you see my screen? 11 Q. Yes, sir. 12 A. I -- when I was looking through the proposed 13 language, I just had a couple minor comments. 14 The first one as shown on the screen, I 15 thought that the use of the term "best" as far as 16 management practices might be subjective, and would 17 suggest that we use an industry standard practice or 18 something similar, just to provide some flexibility for 19 operators to apply technologies to their specific 20 situation. 21 Q. And did you hear the testimony of Ms. Kuehn 22 earlier that more or less the requirements outlined in 23 B.(2) to use a -- to treat the produced water in a 24 separator and/or storage vessel would be consistent with 25 the use of best management practices?
3169 1 So can you just talk briefly a little bit 2 about the importance of reuse of produced water and how 3 that interplays with the rule that we're looking at 4 today? 5 A. Yes. Especially, I think, in Southeast New 6 Mexico it's critically important that we recycle as much 7 water as practical. I think it's important that we made 8 significant progress in the last several years, 9 recycling a larger and larger percent of the water 10 that's used. And I think if we put too many 11 restrictions on that, we could reduce the amount that's 12 recycled in the future. 13 Q. Thank you. 14 And do you believe that the Department's 15 current proposal to not allow dumping of untreated 16 produced water to a produced water management unit 17 without first processing and treating the produced water 18 in a separator and/or storage vessel to minimize 19 entrained hydrocarbons addresses that concern and 20 provides a good balance of allowing recycling of 21 produced water and reduced emissions? 22 A. Yes. I think if -- if the water can be 23 processed in some way prior to being stored in the 24 produced water pond, that should have a significantly 25 positive effect on potential emissions.	3171 1 A. Yeah. I think there's a variety of different 2 ways of treating the water, but I think if we can go 3 through some preliminary treatment like that, that that 4 should have a good -- good impact on potential 5 emissions. 6 Q. Thank you. 7 Can you speak a little bit to your second 8 recommendation there and what the basis for that is? 9 A. Yes. The other thing I noted, using the word 10 "minimize" related to the entrained hydrocarbons I 11 thought might be a little bit difficult to -- to 12 actually measure, you know, as far as how we would 13 actually minimize the concentrations. It might be 14 better to just use appropriate technology for the 15 purpose of removing entrained hydrocarbons. That would 16 eliminate the potential of trying to hit a zero target 17 or something that might be impractical. 18 Q. Thank you, Mr. Nichols, for sharing that 19 testimony. 20 Did you have anything to add to your testimony 21 up to this point? 22 A. No, I don't believe so. 23 MR. CURTIS: With that, Madam Hearing Officer, 24 I would make Mr. Nichols available for any other 25 questions.

3172 1 HEARING OFFICER ORTH: Thank you very much. 2 If you're a party with a question, please turn 3 on your camera. 4 I don't see anyone. 5 I'll go to the Board. 6 While I'm going to the Board, if you're an 7 attendee with a question, please reach out through the 8 chat. 9 Madam Chair? 10 CHAIR SUINA: I don't have any questions at 11 this time. Thank you, Madam Hearing Officer. 12 HEARING OFFICER ORTH: Thank you. 13 Vice-Chair Trujillo Davis. 14 VICE-CHAIR TRUJILLO DAVIS: I don't have any 15 questions either. 16 Thank you for your testimony, Mr. Nichols. 17 HEARING OFFICER ORTH: Thank you. 18 Member Cates? 19 Member Bitzer? 20 MEMBER BITZER: No questions. Thank you. 21 HEARING OFFICER ORTH: Member Garcia? 22 MEMBER GARCIA: No questions. Thank you. 23 HEARING OFFICER ORTH: And Member Honker. 24 MEMBER HONKER: No questions. Thank you. 25 HEARING OFFICER ORTH: Thank you.	3174 1 MS. COOPER: Okay. I will speak up. Sorry 2 about that. 3 HEARING OFFICER ORTH: Thank you. 4 Q. (BY MS. SHPALL) And, Ms. Cooper, the 5 Department made some revisions to Section 126 and 6 various definitions in Section 7. 7 What's your opinion about the revised rebuttal 8 regulation, and do you have any recommended changes to 9 the most recent draft of those regulations? 10 A. Yeah. Overall we really appreciate the 11 Department's efforts they've taken in listening to and 12 engaging with stakeholders on modifications to this 13 section and the regulation as a whole. 14 We agree with the current language in 15 Section 7, the definitions DD, HH and II that were 16 brought up by the Department earlier, and change -- the 17 changes to Section 126 with two minor requests. We have 18 shared these requests with the Department and appreciate 19 the Department's willingness to consider our first point 20 already in their testimony. 21 First, in Section 126B.(2), the term "dumping" 22 is used when discussing the transfer of produced water 23 into a produced water management unit. The term 24 "dumping" suggests the water is being spilled or 25 released into the environment. Operators of produced
3173 1 Thank you very much, Mr. Nichols, for your 2 testimony. 3 And, Mr. Curtis, I believe at this point we go 4 to Ms. Campsie or Ms. Cooper; is that correct? 5 MS. SHPALL: Yes. Ms. Cooper. 6 HEARING OFFICER ORTH: I see you, Ms. Shpall, 7 and I see -- okay. And I see Ms. Cooper. 8 Please go ahead. 9 MS. SHPALL: Excellent. 10 JILL COOPER 11 (Relating to Topic Order 36) 12 having been first duly sworn or affirmed, was 13 examined and testified as follows: 14 DIRECT EXAMINATION 15 BY MS. SHPALL: 16 MS. SHPALL: So Ms. Cooper's testimony has 17 been introduced into the record, her direct Appendix C, 18 her rebuttal Appendix E. 19 Q. Ms. Cooper, please state your name and 20 employer and position for the record. 21 A. Jill Cooper. I'm a senior principal at 22 Geosyntec Consultants. 23 HEARING OFFICER ORTH: It's hard to hear you, 24 Ms. Cooper. 25 Can you --	3175 1 water management units are not doing anything like that. 2 We would recommend using a more common 3 industry term such as "transfer." This change clarifies 4 the rule and aligns the language of the regulation with 5 the term commonly used when managing produced water. 6 The second minor change request we have is in 7 Section 126C.(1). We ask that the term "sample" be 8 added before the phrase "and chain of custody 9 requirements." The rule as drafted could be misread as 10 a requirement to keep a chain of custody for every 11 gallon in the produced water management unit. 12 We understand the Department intends for 13 operators to keep a chain of custody for water samples 14 which is consistent with industry practice. 15 Thank you very much. 16 Q. Ms. Cooper, do you have anything else you'd 17 like to add about this section of the regulation? 18 A. Other than we thank the Department's 19 cooperation in working with us. Thank you. 20 MS. SHPALL: Thank you. 21 Ms. Cooper is available for cross-examination. 22 HEARING OFFICER ORTH: Thank you very much, 23 Ms. Shpall and Ms. Cooper. 24 If you're a party with a question, please turn 25 on your camera.

3176 1 I don't see anyone. 2 I'll go to the Board then for their questions. 3 If you're an attendee with a question, please 4 reach out through the chat. 5 Madam Chair, any questions? 6 CHAIR SUINA: Thank you for your testimony, 7 Ms. Cooper, and for those clarifications. 8 At this point I don't have any other 9 questions. 10 HEARING OFFICER ORTH: Thank you. 11 Vice-Chair Trujillo Davis? 12 VICE-CHAIR TRUJILLO DAVIS: I echo those 13 sentiments, and I don't have any other questions. Thank 14 you. 15 HEARING OFFICER ORTH: All right. Thank you. 16 Member Bitzer? 17 MEMBER BITZER: Pretty straightforward. No 18 questions. Thank you. 19 HEARING OFFICER ORTH: Member Garcia? 20 MEMBER GARCIA: No questions. Thank you. 21 HEARING OFFICER ORTH: And Member Honker. 22 MEMBER HONKER: No questions. Thank you. 23 HEARING OFFICER ORTH: Thank you. 24 Thank you very much again, Ms. Cooper and 25 Ms. Shpall.	3178 1 Turn to the Board. 2 EXAMINATION 3 BY THE BOARD: 4 HEARING OFFICER ORTH: Madam Chair? 5 CHAIR SUINA: Thank you, Madam Hearing 6 Officer. 7 Just so I'm clear, so the recommendations by 8 Ms. Cooper is the -- were those already addressed? 9 Sorry if I missed it. It's been a long day. 10 Thank you. 11 MS. BISBEY-KUEHN: (Nods head.) 12 MS. KATZ: I didn't ask that, and I should 13 have. I'm sorry. I meant to ask. 14 Do you also accept the recommendations 15 proposed by Ms. Cooper? 16 MS. BISBEY-KUEHN: Yes, we do. 17 CHAIR SUINA: Thank you, Madam Hearing 18 Officer. 19 And thank you for that clarification, 20 Ms. Katz. 21 And thank you, Ms. Kuehn, as well. 22 MS. KATZ: It's been a long two weeks. 23 CHAIR SUINA: It's been a long day. Yeah. 24 HEARING OFFICER ORTH: Thank you. 25 Vice-Chair Trujillo Davis?
3177 1 MS. SHPALL: Thank you. 2 MS. COOPER: Thank you. 3 HEARING OFFICER ORTH: Ms. Katz? I believe 4 we're going to hear a little more from the Department at 5 this point, right? 6 MS. KATZ: Yes. I will bring Ms. Kuehn back 7 up. 8 ELIZABETH BISBEY-KUEHN 9 (Relating to Topic Order 36 continued) 10 having been first duly sworn or affirmed, was 11 examined and testified further as follows: 12 DIRECT EXAMINATION 13 BY MS. KATZ: 14 Q. And, Ms. Kuehn, what is the Department's 15 response to the suggestions that were proposed and shown 16 by Mr. Nichols in his testimony? 17 A. Those are acceptable changes to the -- to the 18 proposal. 19 MS. KATZ: Okay. Thank you. 20 And I believe that's all we have at this point 21 in response. 22 HEARING OFFICER ORTH: Thank you very much, 23 Ms. Katz and Ms. Kuehn. 24 Again if you're a party with a question, 25 please turn on your camera.	3179 1 VICE-CHAIR TRUJILLO DAVIS: No. I'm good. 2 Thank you. 3 HEARING OFFICER ORTH: All right. 4 Member Bitzer? 5 MEMBER BITZER: Ditto. Good, as well. Thank 6 you. 7 HEARING OFFICER ORTH: Thank you. 8 Member Garcia. 9 She said no questions. 10 And Member Honker. 11 MEMBER HONKER: Just thanks to the Department 12 and the other stakeholders for working together so well. 13 No questions. 14 HEARING OFFICER ORTH: Thank you so much. 15 Thank you, Ms. Katz and Ms. Kuehn, again. 16 So I'm delighted that we got to this point 17 where we feel confident that we'll finish tomorrow on 18 this rulemaking hearing. 19 Let me encourage all counsel to review those 20 places where we know we have some witnesses to go back 21 to. I know we'll be hearing on a couple of topics from 22 Mr. Alexander and Mr. Smitherman in particular. That's 23 not a complete list. And also, please if you would 24 review those exhibits that you want to make sure are in 25 the record if they haven't already been admitted.

3180 1 And is there anything else we can do this 2 evening? 3 Remember, also, counsel, one more thing. 4 Sorry. We will have a discussion about the posthearing 5 process. I don't accept verbal closing arguments. So 6 if you have closing argument to make, I'm going to ask 7 you to put that in writing. But that's not how we're 8 going to end this hearing. 9 Ms. Katz, anything else to mention before we 10 tackle our last day? 11 MS. KATZ: I don't believe so. I mean, maybe 12 perhaps if the other counsel are able to just send 13 around their understanding of what we still have left, I 14 am not quite keeping track of that at the moment 15 anymore. So that could be helpful. 16 HEARING OFFICER ORTH: All right. Thank you 17 for that. I have some notes, but they may not be 18 complete. 19 Mr. Hiser? 20 MR. HISER: Yes. 21 I was wondering, Ms. Katz, whether we wanted 22 to put into the record Mr. -- Mr. Palmer's and 23 Mr. Meyer's one-page spreadsheets on that cost 24 calculation just so that that was more readily 25 accessible.	3182 1 STATE OF NEW MEXICO) 2) ss. 3 COUNTY OF BERNALILLO) 4 5 6 I, CHERYL ARREGUIN, the officer before whom the 7 foregoing proceedings was taken, do hereby certify that 8 I personally recorded the proceedings by machine 9 shorthand; that said transcript is a true record of the 10 proceedings; that I am neither attorney nor counsel for, 11 nor related to or employed by any of the parties to the 12 action in which this proceeding is taken, and that I am 13 not a relative or employee of any attorney or counsel 14 employed by the parties hereto or financially interested 15 in the action. 16 17  18 NOTARY PUBLIC 19 CCR License Number: 21 20 Expires: 12/31/2021 21 22 My Commission Expires: 12/12/23 23 24 25
3181 1 MS. KATZ: Yes. I think we should, and so I 2 am -- I can send our -- Mr. Palmer's version out this 3 evening. 4 MR. HISER: We'll circulate it, as well, and 5 move it tomorrow, unless there's, you know, any 6 objections from someone. Thank you. 7 MS. KATZ: Sounds good. 8 HEARING OFFICER ORTH: Anything else from 9 anyone else? 10 No? Terrific. 11 Well, let's start with public comment at 9:00, 12 then. 13 Thank you, all. 14 Have a good evening. 15 (Proceedings adjourned at 6:28 p.m.) 16 17 18 19 20 21 22 23 24 25	

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2873:15 2875:20 2878:8 2878:12 2878:17 2934:12 2934:17 2940:17 3036:23 3051:25 3052:16 3085:15 96 3097:14 969-2808 2788:6 97 2824:7 3144:4 3144:19 98 2868:15 2875:21 3055:8 982-3873 2789:6 982-9523 2786:10 988-9126 2788:15 99 2911:12 3153:15				
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