

**OROVILLE DAM CITIZENS ADVISORY COMMISSION**  
**Meeting on 02/21/2020**

1 STATE OF CALIFORNIA

2 OROVILLE DAM CITIZENS ADVISORY COMMISSION MEETING

3 FRIDAY FEBRUARY 21, 2020

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

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6 MR. CROWFOOT: Thank you all for being here  
7 today. This is the third meeting of the Oroville Dam  
8 Citizens Advisory Commission. I'm seeing some familiar  
9 faces in the audience today, but for those who are here  
10 for the first time, this is a body created through state  
11 law, thanks to the leadership of Mr. Gallagher, Mr.  
12 Nielsen, and our legislature. And that law,  
13 essentially, has created this body of local leaders, as  
14 well as folks from the state government. And we are  
15 specifically focused on ensuring information's provided  
16 from local community; from state government, Department  
17 of Water Resources, my -- our Agency, the Natural  
18 Resources Agency; and to ensure that we can actually  
19 receive information from local leaders to really  
20 strengthen our relationship.

21 My name is Wade Crowfoot, and I serve as the  
22 secretary of the Natural Resources Agency. I thought  
23 what we would to start is just to have our members of  
24 the commission to once again introduce themselves to  
25 really -- we know each other now, but certainly the

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<p>1 folks here today. So why don't I start on my right with 2 Karla Nemeth. 3 MS. NEMETH: Good morning. Karla Nemeth, 4 director of the Department of Water Resources. 5 MR. MILLION: Lieutenant Joe Million, Yuba 6 County Sheriff's Department. 7 MR. COLLINS: Lieutenant Steve Collins with 8 Butte County Sheriff's office. 9 MR. LAMBERT: Steve Lambert, Butte County 10 Supervisor. 11 MR. LAMOUREUX: Eric Lamoreux, Deputy Director 12 of Emergency Operations, Cal OES. 13 MR. CONANT: Mat Conant, Sutter County Board 14 of Supervisors District 1. 15 MR. PITTMAN: Dave Pittman, City of Oroville 16 Councilman. 17 MS. WIDENER: Genoa Widener, Butte County 18 Supervisor's appointee. 19 MR. TEAGUE: Matt Teague, California State 20 Parks' designee for Lisa Mangat. 21 MR. GALLAGHER: James Gallagher, State 22 Assemblyman. 23 MR. CROWFOOT: Nice going. And I think we'll 24 soon be joined by Congressman LaMalfa. Very excited 25 that he'll be joining for his first meeting. To start</p>	<p>1 to flood control. 2 And then looking forward, how we can work 3 together to both optimize Oroville to protect the 4 community here, and then also continue to have it play 5 an important role in our state's water supply. So we 6 will spend a lot of time hearing from our partners at 7 the Army Corps of Engineers. I first, though, wanted to 8 ask Karla to give us an update on the request that the 9 State made to the federal government on the 10 reimbursement of costs related to the repairs that Water 11 Resources have been making on the facility in Oroville. 12 MS. NEMETH: Thank you, Secretary. Many of 13 you may be aware that Department of Water Resources -- 14 after the failure of the gated spillway and emergency 15 spillway and subsequent evacuations, the Department of 16 applied to FEMA for reimbursement for recovery effort 17 associated with that project. We did receive word from 18 FEMA just this week that the entire gated spillway is an 19 eligible expense, which is important. Our total budget 20 for the recovery effort is 1.1 billion. 21 We are now eligible for 75 percent of the 22 gated spillway expenses. We have a little bit more to 23 do associated with power lines and other aspects of the 24 recovery effort. This is important for the greater 25 community. The reimbursement by the federal government</p>
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<p>1 our meeting, let us recite the pledge of allegiance. So 2 if you'd stand. 3 (Pledge of Allegiance was recited.) 4 MR. CROWFOOT: So as I mentioned, this is our 5 third meeting. Our first meeting took place in 6 October and was really focused on creating this body, 7 discussing how we'd operate and conduct business, and 8 then starting to understand more about Oroville and the 9 role that it plays in the state's water system. At each 10 meeting we also have an opportunity to hear public 11 comment, which is very important. So we heard public at 12 that first meeting which took place in November. We 13 finalized the charter, essentially the body of rules 14 that govern how we operate. 15 And then we got a much deeper presentation 16 from the Department of Water Resources on how it 17 operates Oroville, both for flood control and water 18 supply. And that provided an opportunity for members of 19 the public to share their perspective and also ask 20 questions that technical leads at the Department of 21 Water Resources were able to answer. In our third 22 meeting today a major area of focus will be in 23 understanding the partnership that we have with the 24 Federal Army Corps of Engineers to really understand the 25 role that the Army Corps plays in Oroville as it relates</p>	<p>1 enables the department to do more sooner, if you will, 2 to make sure that our efforts to improve the safety of 3 the Oroville Dam and its pertinences is progressing. 4 And that is certainly a big part of why this commission 5 was formed, was to get us on a better footing into the 6 future after the incident in 2017, and I'm delighted to 7 report that those dollars are coming. 8 And I just want to thank everyone in the 9 community. And local leadership, who has been very 10 helpful in impressing upon the federal government around 11 the importance of the FEMA reimbursement dollars. So 12 that's some good news for all of us. 13 MR. CROWFOOT: Thanks so much, Karla. 14 Assemblymember Gallagher, as I mentioned, was one of 15 the guiding forces in the establishment of this 16 commission, so we like, at the beginning of each 17 meeting, to hear from him and Senator Nielsen on any 18 sort of opening remarks or observations since your last 19 meeting. 20 MR. GALLAGHER: Yeah, thank you, Director. 21 And this, again, it's great to have everybody back here 22 together again. You know, looking forward to some of 23 the discussion about, you know, the partnership with 24 Army Corps of Engineers. And one of the things that 25 we've been really talking about, really since -- in the,</p>

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<p>1 you know, aftermath of the Oroville Dam incident is 2 forecast-based operations and trying to work towards, 3 you know, a more modernized way of managing water, and 4 managing for a flood.</p> <p>5       You know, in the modern era, you know, we've 6 been using a manual that, you know, was first -- you 7 know, first came together and first established in the 8 1950s. And so -- and based, you know, on some of the 9 data that we had seen and understood at the time, now we 10 know a lot more. And we know that those -- that we are 11 getting actually more surges of water at different times 12 that are obviously concerning. So, you know, obviously, 13 that's -- that's a big concern is getting towards the 14 forecast-based operations and finding ways to modernize 15 that manual.</p> <p>16       And also, you know, we continue to do the work 17 with the ad hoc advisory committee regarding the 18 comprehensive needs assessment at the dam and 19 identifying infrastructure improvements that would 20 increase the safety, the overall safety, and reliability 21 of Oroville Dam. There's been some very goods 22 discussions there, and, you know, looking forward to 23 the, you know, the final outcome of that, we've got 24 some -- both the senator and I have had some very good 25 discussions in that ad hoc; some of the members are part</p>	<p>1 there's always things. But anyway, (unintelligible) so 2 we have a lot of great friends and allies in this as 3 well. So I'm going to keep it short. Basically 4 everything he just said. But I'm also pleased that, at 5 the federal level, we're able to come through even 6 stronger than I anticipated that we could do here.</p> <p>7       So, you know, I kind of had the idea it might 8 be a little lower ceiling, but in that it's going to be 9 looking like \$750 million towards the reconstruction; 10 that's pretty exciting. And so I think that gives us a 11 lot more lateral moves that we can be doing as a state, 12 for the projects that need to be continuing to get 13 rigged around the state to catch up with safety on 14 the -- a lot better projects. And also, we can remember 15 that there's a lot of local recreation that no dollars 16 are going to be freed up for to help with the original 17 promise or implications going back to the '60s; it's 18 very important that Oroville and Butte County areas.</p> <p>19       So if we can, you know, light up that 20 discussion and keep things going forward on what is 21 needed right here so that's more possible. Plus the -- 22 since we're a little more flush, we can also continue 23 talking about the upgrade to Highway 70 and Highway 99. 24 I know those are different parts, but, you know, tax 25 payers look at it all as the same pocket. Anyway, these</p>
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<p>1 of this commission as well.</p> <p>2       And obviously, our goal really being we want 3 to -- you know, it's not just the spillway, and 4 certainly there's been a lot of progress there, but we 5 want to look the at the entire complex in making sure 6 that we are where we need to be from a safety 7 standpoint, and a flood control standpoint. So with 8 that, I'm looking forward to the discussion this 9 morning. Thank you again for all the partners who 10 continue to be very much engaged in this. And I also 11 especially want to thank the director for his personal 12 engagement on this from the very beginning.</p> <p>13       And Karla Nemeth, the director of the 14 Department of Water Resources, giving their personal 15 attention. And it is my great honor to have with us 16 this morning Congressman Doug LaMalfa who I've worked 17 with for many years. I actually worked for him at one 18 time. And -- but always been very much engaged on these 19 issues; fighting for us at the federal level. And so 20 maybe that'll -- I might turn it over, if you'd like to, 21 Congressman, to address this a little bit. But looking 22 forward to this meeting. Thank you.</p> <p>23       MR. LAMALFA: Thank you, James. It's so good 24 to see you here. And you probably are better to be on 25 time than sometimes later (unintelligible.) It's always</p>	<p>1 are all things that are important to our area here. So 2 with that I'm looking forward to the discussion today, 3 and obviously very important, I think it's very 4 important.</p> <p>5       And we'll bring the heat in on the flood 6 control aspects. But also, when you -- you guys are 7 probably tired of hearing me say it, but the balance 8 between flood control and how we're going to keep our 9 lake full, you know, having newer dynamics. James was 10 talking about that as far as how we can keep the lake as 11 full of possible but with the safety factor in needing 12 to do so. So, you know, more modernized and upgraded 13 forecasting and et cetera. But we know that, and I look 14 forward to discussion. So thank you for having me and 15 Bill to come by.</p> <p>16       MR. CROWFOOT: Thank you, Congressman. And 17 thank you for your leadership and partnership in terms 18 of getting that federal reimbursement for the 19 improvement. I think we're very thankful to both FEMA 20 and to you and other leaders of the delegation for the 21 news that came through just this week that Karla just 22 summarized. Just by way of explanation, this body of 23 local leaders and state agency leaders was put together 24 as a result, of course, of the emergency that we 25 experienced over three years ago.</p>

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<p>1 And we in state government knew that we had to 2 do better in terms of explaining how this facility's 3 operated and how we're going to keep people safe in this 4 community. And then Senator Nielsen and Assemblymember 5 Gallagher, through a law change, institutionalized this 6 body to make sure that there's good information flowing, 7 and we're collectively moving forward. So we're our 8 third meeting now on that. So next in our agenda I'll 9 just give a brief update on what we achieved at this 10 last meeting. I'll note that our charter -- again, is 11 this collective set of rules that bring our -- how 12 govern ourselves -- has been finalized.</p> <p>13 We have information, including meeting agendas 14 and meeting minutes from the last meeting on our website 15 from the California Natural Resources Agency. So that 16 home page is like a one stop shop for all information on 17 this commission. I will also mention that at our last 18 meeting we discussed the \$5 million grant project for 19 sediment removal in the Feather River. And the good 20 update, I want to let everybody know that this grant 21 agreement has been signed with the Sutter Butte Flood 22 Control Agency. So progress there.</p> <p>23 And we'll continue to keep the commission 24 updated as that work moves forward. So let's shift into 25 our third item on the agenda, which is our discussion</p>	<p>1 government that the people not knowing what was going 2 on. And in this case, it was a very good example with 3 the failure of the spillway. But they have been so 4 attentive to allowing public citizens to this venue by 5 supporting the legislation that James and I worked on, 6 and then setting this up.</p> <p>7 And the secretary put in his very valuable 8 personal sometime into this. And I'll tell you, I'm 9 involved in a lot of issues; Wade is everywhere in 10 California. We were just in committee, I think it was 11 yesterday or the day before; I can't even remember. And 12 a couple things I do what to bring to your attention 13 that does warrant our attention. Though it doesn't 14 relate to Oroville Dam, it relates to the state water 15 project and about everything else that's going on; it's 16 homeless. Now, that's a very high priority. But it 17 does affect us as well.</p> <p>18 The encampments along our waterways have 19 become a problem. The degradation of our levees? Most 20 assuredly. And pollution of our waterways. And James 21 and I are working on some legislation related to that 22 right now. I know some of our local governments are 23 attending to it. But it is part and parcel of our 24 future and things that we're going to need to do in the 25 future to maintain all of this. Again, I've just been</p>
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<p>1 with the Army Corps of Engineers. And as -- as we 2 talked about at the last two meetings, we're really 3 interested in closer work together with the Army Corps 4 of Engineers to build a really strong working 5 relationship, and the congressman and the law office to 6 really understand how the facility's at Oroville can be 7 optimized to maintain public safety, to control for 8 flood, and also to supply benefit. So we're excited to 9 have Mr. Joe Forbis from the Army Corps Sacramento 10 District, water management section chief, who is one of 11 the leaders of the Army Corps in our region.</p> <p>12 And I might -- before you -- before I ask you 13 to start on your presentation, I've just welcomed 14 Senator Nielson.</p> <p>15 MR. NIELSEN: Hey, how are you?</p> <p>16 MR. CROWFOOT: I'm good. We'll -- we've got a 17 space for you right there. Senator, welcome any opening 18 thoughts you have as we jump into our third meeting of 19 this commission.</p> <p>20 MR. NIELSEN: I will catch my breath and thank 21 you. You know, folks, it's really moving for me to see 22 this. And I want to commend the secretary for his 23 attentiveness of the agency to this, and the governor as 24 well. The situation we're dealing here is very great 25 and serious. There's always been a problem in</p>	<p>1 so humbled, absolutely humbled to see the success of it. 2 Mr. Secretary, thank you very much for your personal 3 attention. And, Karla, how are you?</p> <p>4 MS. NEMETH: Good to see you.</p> <p>5 MR. NIELSEN: Karla Nemeth has been doing a 6 fine job for these folks. Thank you. I'm glad to be 7 here with you.</p> <p>8 MR. CROWFOOT: Thank you so much, Senator. So 9 Mr. Forbis is going to start with the presentation, and 10 then we'll have an opportunity for questions and answers 11 our commission. And thank you in advance, also, for 12 sticking around for public comment. So if members of 13 the community in public comment have questions for 14 Mr. Forbis of the Army Corps, he's generously offered to 15 stick around to be able to answer those as well.</p> <p>16 MR. FORBIS: Yes. Thank you, Mr. Secretary. 17 Thank you, Commission, for the invitation to come here 18 and speak about what we do at the Army Corps of 19 Engineers as it pertains to flood control operations in 20 Northern California. As I was introduced, my name is 21 Joe Forbis. I've been with the Corps of Engineers 22 coming on nine years now. I've been the chief of the 23 water management section for nearly four years. I was 24 in that position for roughly four months before 25 February 2017 occurred, so I got to know you guys very</p>

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<p>1 well very quickly.</p> <p>2           And so just give you a quick little background</p> <p>3 of why I'm here today is that -- what my team does is</p> <p>4 we're involved in the oversight of flood control</p> <p>5 operations within our district boundaries. So I'm going</p> <p>6 to go a little bit into, like, what Sacramento District</p> <p>7 looks like, how we fit in the bigger picture, what our</p> <p>8 roles and authorities are, and, like, why we do what we</p> <p>9 do, what our purpose is here. Then I'll shift into</p> <p>10 something that were mentioned already this morning about</p> <p>11 the water control manuals, what they are, how you go</p> <p>12 about updating them. And then diving into an example of</p> <p>13 a recent one we've updated for Folsom Dam, which I think</p> <p>14 is a really good template or example to look at for here</p> <p>15 at Oroville.</p> <p>16           There's a lot of similarities and some lessons</p> <p>17 learned that we can gain from the experience that we had</p> <p>18 in updating Folsom's water control manual. And then</p> <p>19 lastly, I have a few slides just talking about the</p> <p>20 forecasting form for operations program. I believe it's</p> <p>21 been talked about here before, so I think some of you</p> <p>22 are familiar, but I'll just give you a recent update on</p> <p>23 the progress there. And I welcome questions from the</p> <p>24 commission, of course, so if you need to interrupt while</p> <p>25 I'm talking and ask me something to clarify something,</p>	<p>1 operated by other entities, like DWR with Oroville. We</p> <p>2 call those, those are termed as Section 7 dams.</p> <p>3           I'll -- in this slide upcoming I'll show you</p> <p>4 why that is. But you can see that two-thirds of the</p> <p>5 reservoirs that we are involved in the flood operations</p> <p>6 for aren't owned or operated directly by the Corps of</p> <p>7 Engineers, it's done by others, per the rules that the</p> <p>8 Corps of Engineers, at one time or another, have</p> <p>9 established. And so just to give you a sense of the</p> <p>10 range of size of the reservoirs that we track here, the</p> <p>11 largest one within our footprint, within our district,</p> <p>12 is Shasta, a little more than four-and-a-half million</p> <p>13 acre-feet [sic.] Oroville, actually, is the second</p> <p>14 largest and one that's local, a little more than</p> <p>15 three-and-a-half million acre-feet. They can range in</p> <p>16 size all the way down to just a little over 3,000</p> <p>17 acre-feet.</p> <p>18           One of the reservoirs in Utah that's owned and</p> <p>19 operated by the City of Utah there, one of their</p> <p>20 municipalities, it's only 3,000 thousand acre-feet,</p> <p>21 which you can see has probably different impacts than</p> <p>22 what would be done here to reservoirs like Shasta or</p> <p>23 Oroville. So there's a wide variety or a lot of</p> <p>24 regional differences, differences between the watersheds</p> <p>25 and what's needed, and what's provided by those</p>
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<p>1 please do so.</p> <p>2           I want to make sure that the information I'm</p> <p>3 sharing comes across as clearly as possible, and no</p> <p>4 one's left wondering what the heck Joe is talking about.</p> <p>5           MR. CROWFOOT: Good. So if you have questions</p> <p>6 or want some clarification, just raise a hand or, per</p> <p>7 his invitation, just butt in.</p> <p>8           MR. FORBIS: Yes. Yes, thank you. So to</p> <p>9 start off, let me get this oriented correctly. The</p> <p>10 Corps of Engineer is divided up into different</p> <p>11 divisions, like, kind of regions, and we are located in</p> <p>12 the South Pacific Division. So I have a map here that I</p> <p>13 wanted to show, like, what makes up our division. The</p> <p>14 one that's in the pink-red color, that is the Sacramento</p> <p>15 District. So you can see we're located in Sacramento,</p> <p>16 but it extends pretty far out to the east to cover more</p> <p>17 than just part of California.</p> <p>18           And in terms of land mass, we're one of the</p> <p>19 bigger ones in our agency. And to show you exactly how</p> <p>20 that comes about for the -- like, which reservoirs we</p> <p>21 have authority of within terms of their operations.</p> <p>22 There -- within the Sacramento District, there are 45</p> <p>23 reservoirs that have a valve (unintelligible) flood</p> <p>24 control purpose; 14 of them are owned and operated by</p> <p>25 the Corps of Engineers. The remaining 31 are owned and</p>	<p>1 reservoirs. So it's not a one-size-fits-all kind of</p> <p>2 thing that we deal with within our district. I also</p> <p>3 wanted to touch on that it's -- the job that we perform</p> <p>4 with the Corps of Engineers in Sacramento in terms of</p> <p>5 water management isn't done in a vacuum, and it's not</p> <p>6 done just ourselves.</p> <p>7           We rely on the partnerships that we have with</p> <p>8 multiple different group or entities in order to do so</p> <p>9 effectively. It can be with irrigation districts, flood</p> <p>10 control districts, federal water masters have a</p> <p>11 significant role in -- for some of the projects that we</p> <p>12 manage. And, of course, other government agencies like</p> <p>13 DWR or the bureau proclamation. We have to work</p> <p>14 together in order to to do the best job possible in</p> <p>15 balancing not just the flood operations, but also the</p> <p>16 other purposes that those reservoirs and dams fulfill.</p> <p>17 There's more -- a lot of these reservoirs, actually most</p> <p>18 of them, are more than just flood control projects; they</p> <p>19 have other purposes, as you're aware of.</p> <p>20           The state water project that supplies water</p> <p>21 for irrigation, water supply, hydro power, recreation;</p> <p>22 it's a balance that has to be set. In different times</p> <p>23 of year, different purposes take precedent, but we need</p> <p>24 to be -- keep all of those purposes in mind whenever</p> <p>25 you're trying to make the best decisions on what to</p>

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<p>1 release and when from those projects. So I mentioned 2 before that the dams or the reservoirs that aren't owned 3 or operated by the Corps of Engineers, but we have a 4 role and authority in their operations board called the 5 Section 7 dams or Section 7 projects. 6 That's ties to, or that's because of the 1944 7 Flood Control Act, where, in Section 7, it specifies -- 8 at the time I think they called them secretary -- 9 referred to as Secretary of War. But it's essentially 10 the -- it's been delegated down to the chief of engineer 11 of the Army Corps of Engineers, the responsibility to 12 prescribe the flood control operations and regulations 13 for projects that, one, have an authorized flood control 14 purpose, and two, either wholly or in part, where the 15 construction was funded using federal funds. So those 16 two things have to be true in order for the Corps of 17 Engineers, through this authority, to have any sort of 18 role in prescribing how that project will be operated 19 for flood control purposes. 20 So there could be other projects that have the 21 flood control purpose, but if it wasn't funded through 22 federal funds, then we won't be required to prescribe 23 direct relations in that scenario. So to tie it to 24 Oroville specifically, there's a contract and agreement 25 that was -- that was established in the early '60s that</p>	<p>1 (unintelligible) like Oroville, establishing set of 2 rules that are to be followed and then coordinated 3 between your two agencies and the execution of those 4 rules. So depending on the project, the location, a lot 5 of factors; the size of that flood control space may 6 vary throughout the year for different reasons. But 7 it's just that space that the Corps of Engineers has 8 the -- that implements their authority. Above that 9 space, we designate that the surcharge pool where 10 that -- that's the space between, typically, the top of 11 what you would consider a 100 percent full, or gross 12 pool, all the way to the top of the dam. And in that 13 space, when operation decisions are being made, dam 14 safety is the paramount of motivation for the decision 15 making, because they're getting close to the top. 16 Most dams are not designed to flow over the 17 top. Some are. Some thin, concrete arch dams are, but 18 for the most part, dams are not designed that way. So 19 actually, the responsibility of operations in that 20 surcharge zone is the dam owner and operator because 21 they're the ones -- they're they party responsible for 22 the dam safety of the projects it doesn't mean that the 23 Corps hasn't established guidance or rules to follow to 24 manage that effectively, but the ultimate decision is 25 still left with the dam owner and operator. So how that</p>
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<p>1 said, for 22 percent of the construction cost of 2 Oroville -- up to \$85 million -- for that cost up to 3 750,000 acre-feet of space will be provided at Oroville 4 for flood control purposes. So it -- it -- it's -- I 5 mean the contract's several pages, and it goes into more 6 detail about how that's executed, but essentially, those 7 funds contributed to the construction, in a sense, 8 bought that amount of space to be used for flood control 9 operations. 10 So before I go too far into the weeds and the 11 details of reservoir operations -- and especially into 12 the Folsom example -- I wanted to make sure that we were 13 all on the same page on, like, what I'm talking about 14 and how the water behind the dam translates into these 15 different storage zones or pools. So here I have a 16 graph where it just shows a very simplified dam on the 17 left. And the space behind the dam is broken up into 18 these different zones; the bottom one, water 19 conservation, water supply pool. I think you all are 20 fairly familiar with what that water can used for, and 21 what it's used for, especially at Oroville. 22 Above that is a flood control pool, or a flood 23 control zone. That, it's just that zone that the Corps 24 of Engineers regulates, either at our own dams by 25 prescribing the release schedules ourselves, or at a</p>	<p>1 translates -- oh, yes, Senator? 2 MR. NIELSEN: On that point -- 3 MR. FORBIS: Yes. 4 MR. NIELSEN: I just call it the term -- my 5 old term -- the "flood control reserve" that -- 6 MR. FORBIS: Yes. 7 (Simultaneous cross-talk.) 8 MR. NIELSEN: -- placing in 1964 or whenever 9 that was effective; is that viable reservation? 10 Meaning, no other diversion can come from that amount of 11 water. I think we said what? 750,000 acre-feet, that 12 that's got to remain there stationary for flood control 13 at all times to reserve space? 14 MR. FORBIS: Not at all times. Specific to 15 Oroville, the amount that is required varies throughout 16 the year, and I can show you visually in a couple slides 17 here. It varies based on, not just time of year -- 18 because we all know that different times of year there's 19 a greater risk of more rain, more water -- but it also 20 varies based on essentially a parameter that is used 21 to -- as a proxy for identifying how wet the watershed 22 is. So the wetter the watershed is, the more that 23 future rain will turn directly into runoff and their 24 inflow into the reservoir. 25 So depending on how dry the ground is, or wet</p>

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<p>1 the ground is, the ground can either soak it up, or it 2 can't soak up anymore and it can run off. A so there's 3 few different things at Oroville that they did; how 4 empty the flood (unintelligible) Oroville's supposed to 5 be. And during summer months, Oroville can be 100 6 percent full because the risk of rain, and 7 (unintelligible) are so low. So it's not a stationary 8 750,000, it's a maximum that -- 9 MR. NIELSEN: That figures in the protocols 10 for the operation of the dam -- 11 MR. FORBIS: Yes. 12 MR. NIELSEN: -- would that the not be 13 correct? 14 MR. FORBIS: Yes, yes. Absolutely. 15 MR. PITTMAN: Quick question I have here. 16 When you're talking about this specific reservoir -- 17 MR. FORBIS: Yes. 18 MR. PITTMAN: -- does the Army Corps have any 19 other control of flood ops upstream, the reservoirs 20 before that? 21 MR. FORBIS: No, sir. No. Just at Oroville. 22 MR. PITTMAN: Just at Oroville? 23 MR. FORBIS: Right. Just at Oroville. 24 MR. PITTMAN: Thank you. 25 MR. CONANT: Here's one other quick question.</p>	<p>1 were just talking about in terms of how the reservoir's 2 divided up in these different zones into the reservoir 3 operation rules and the graphical representation of 4 that, is what's shown on this slide here. So that red 5 trapezoid kind of in the middle of that diagram, that 6 just represents simply, like, how much flood control 7 space may be required based off of certain dates and 8 other parameters. Every dam has its own criteria for 9 how much space is require and when. 10 And then above that space, as I mentioned 11 before, there's a separate diagram that aids in the 12 operation when the storage of Oroville is at -- is above 13 the flood control pool and the gross pool in the 14 surcharge zone. This emergency spillway release diagram 15 has different criteria that, if these things are true, 16 release this much water. And when you're in that 17 zone -- and that's in that diagram, where those sets of 18 rules are in play -- flood control operations is no 19 longer the main concern; your concern about whether or 20 not the dam can hold back all the water that's coming. 21 And so most of the releases that would be 22 required if that diagram's in use are going to be above 23 what we normally see; and it's in order to maintain the 24 integrity of the dam safety at Oroville. So it, like, 25 shifts the context of what's driving the decision</p>
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<p>1 MR. FORBIS: Yes. Go ahead. 2 MR. CONANT: I just want to make sure I 3 understand it. The 750,000 acres only -- is only 4 pertaining during flood event periods, and can never 5 exceed that number, no matter what the pool of water is 6 in the runoff in the (unintelligible); correct? 7 MR. FORBIS: If I understand your question 8 correctly, the most that would ever be required for 9 flood control operations, per the rules in the water 10 control manual, is 750,000 acre-feet. 11 MR. CONANT: Okay. That's what I thought. 12 MR. FORBIS: Yup. And during the winter 13 months, it could be as low as 375, so half that. And 14 that would be dependent upon on how dry or wet the 15 watershed. So if we're coming out of five years of 16 drought, then it's very likely that the minimum required 17 during the winter months is what would be in play. But 18 if we've had October, November, December of rain upon 19 rain upon rain, it's likely that the watershed is 20 saturated, and therefore, it could be that 750,000 21 acre-feet may be required. 22 MR. CONANT: Thank you. 23 MR. FORBIS: Yes. Sure. So to translate 24 that -- these are great questions, because these are 25 moving into the next few slides. To translate what we</p>	<p>1 making. Yes, sir? 2 MR. LAMALFA: Do you have a current figure on 3 what river capacity is; maximum flow taken into account, 4 the silt and the other material that got into the river, 5 however much may or may not have been removed? What is 6 its maximum capacity, anywhere from here to south to 7 Yuba and Sutter, that you could push without negatively 8 affecting any community at any time; just take into 9 account river dam outflow? 10 MR. FORBIS: Good question. So we are 11 still -- we are still using the number of the 100 -- I 12 think it's the 150 is what's -- is what the maximum -- 13 150,000 CFS coming from the dam. 14 MR. LAMALFA: I think it was 160 in my mind, 15 but I could be -- 16 MR. FORBIS: I'd have to -- I actually have 17 the diagram on the next slide, so we can actually check. 18 So it's either 150 or 160. I think it's 150, and I 19 think we went up to 160 in the past one time, I think, 20 around '97, I believe. But we're still using that dam 21 (unintelligible) capacity. And the Feather, up to where 22 it meets the confluence of the Yuba in which you have 23 objective flows of 300,000 CFS at that location. And 24 then, I think, when the Bear River comes in, it's about 25 320,000 CFS. But in addition to what you mentioned, I</p>

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<p>1 know there's also been setback and the work that's been 2 done.</p> <p>3           And so part of the FIRO effort, which I'll 4 talk about in a little but, and also updating the flood 5 control manual. It's the verification that these 6 downstream objective flows are still viable. Because 7 these were established, as Senator Gallagher mentioned, 8 back in the '60s and '70s. So it's likely -- it's 9 likely different in some form or another. I don't know 10 to what degree, but it's likely a little bit different.</p> <p>11           MR. LAMALFA: If you don't mind, is there 12 anybody else on the panel that would have a concern to 13 that number? Especially from Big South, Yuba, Sutter. 14 Mat? Anybody? Is there a -- is there a number that 15 would make you -- is that number too high? What do you 16 think about that?</p> <p>17           MR. CONVANT: You know, a lot of it depends 18 upon what releases are in the shaft. But because the 19 higher this release is, and this the higher Shasta is, 20 and the higher the (unintelligible) on the Bear is, you 21 know, that could be 43. If you only have 20, and you're 22 releasing 43, that's what happened in '86. Of course, 23 we all know what happened then, too; a lot of things 24 flooded. So, you know, when you got a -- somehow we 25 need a -- I don't know how we get this number to be --</p>	<p>1           I think this is a fantastic conversation for 2 the public to also understand with us that, in a 3 relationship, flows that are coming in from different 4 watersheds. It's a very dynamic system, it's a big 5 system, and it's going to take everybody to get us on a 6 path into the future where we're protecting the public 7 no matter what watershed you're living in. Thank you.</p> <p>8           MR. FORBIS: Yes. Great point.</p> <p>9           MR. GALLAGHER: I was just going to say, yeah, 10 historically 150 has been that number. And that's kind 11 of -- that's what, I think, a lot of people consider 12 capacity at what the levees can handle downstream. Now, 13 when you're at 150, there's going to be a lot flood 14 planning going on, levee districts are going to be 15 sandbagged heavy. I mean, it gets really hairy. I 16 think it was in '85 we went to 150 and we had a break. 17 And then, in '97, we had to actually go to 160, it was 18 the first time it went over that number, which is, you 19 know -- typically you're supposed to stay at 150, but 20 they went over. I was going to ask you, how often have 21 we ever been in the actual emergency surcharge 22 situation, historically? Have we operated in that?</p> <p>23           MR. FORBIS: I'd have to check and -- like, 24 I'd have to check and see if the -- the decision making 25 around going up to 160, to see if that was following the</p>
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<p>1 we're all talking to each other and making sure it's a 2 doable number.</p> <p>3           MR. FORBIS: And what helps is our 4 coordination with DWR and the realtime operations is 5 that, we have, at all of our projects, a list of ongoing 6 project concerns and considerations that, maybe the 7 rules say this, but here's something you need to know, 8 like, this landowner's property gets flooded at this 9 level. Now, maybe that's not the driving force for your 10 decision making, but it's important to know that. If 11 it's safe to keep something at a lower level, as in your 12 operational decisions, that you can do so without 13 causing these more peripheral nuisances of the problems 14 along the downstream areas. Yes?</p> <p>15           MS. NEMETH: I'd like to add, if I could, this 16 is great conversation to be having. And the department 17 has a lot of history working with the local flood 18 control districts, our partners at the Corps; we've got 19 a very good working relationship. It's going to be 20 essential to draw on that working relationship to turn 21 our attention to the future and come to some agreed upon 22 understanding what about we expect in future hydrology, 23 and establish plans that accommodate all the different 24 responsibilities from the local, state, and federal 25 level on multiple different watersheds.</p>	<p>1 rules of that emergency spillway release diagram or not. 2 Because under the slide I have up right now, is under -- 3 like, for normal flood operations, this is what we call 4 the flood control diagram, the water control diagram; it 5 doesn't prescribe anything more than 150 in this case. 6 And so if the other diagram, which is this one -- I 7 won't go into what all this means.</p> <p>8           This is pretty complicated and a little but 9 convoluted, especially in a venue like this. But it 10 would be this diagram that, if you're following by the 11 letter, that would dictate at least more than 150. So 12 if in '97, if it didn't come into play there, and it was 13 done based on other factors, then that leads me to 14 believe that we've never made decisions based off of the 15 rules on this graphic. But that would require more 16 investigation on my part.</p> <p>17           MR. CROWFOOT: Could you go back a slide and 18 just let us know what we're looking at?</p> <p>19           MR. FORBIS: Yes. So you may have seen a 20 version of this diagram before. What I did -- this is 21 the water control diagram. So this dictates what 22 release and what operational decisions would be made at 23 Oroville when the amount of storage at Oroville is more 24 than what's allowed per flood control rules. And what I 25 did was, I highlighted the area in which that flood</p>



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1 control space requirement could vary. So depending on,  
2 like I said, what -- what -- depending on how wet the  
3 watershed is, and the time of year, the amount of flood  
4 control space being required would occur somewhere  
5 within that blue polygon.

6 Just to orient you, along the X-axis are the  
7 dates, so, like, months of the year; and then along the  
8 Y-axis is storage. So that's what we're looking at  
9 here. So if you're -- if it's really dry, like I was 10  
saying before, if we have seven years of drought, it 11 would  
likely be the storage allow -- or the flood  
12 control space required -- which is kind of the  
13 inverse -- the flood control space required would be 14  
hugging the top line of that polygon that goes down and 15  
then horizontally back up. If there's been a lot of 16 rain  
in the watershed saturated, then the flood control 17 space  
required could be all the way down to the bottom 18 of the  
outside border of that polygon, and then  
19 everything in between.

20 MR. GALLAGHER: I'd like to go back to the flood  
21 capacity which you were talking about. Even at 150, we  
22 lose two parts every time we reach that capacity;  
23 bedrock and riverbed.

24 MR. FORBIS: Okay.

25 MR. GALLAGHER: So I just want you to be aware

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1 that there -- during the spillway incident, we had over  
2 \$10 million in damage to the one part. I don't know  
3 what the flow was there; I know it was more than one  
4 150.

5 MR. FORBIS: At least from the reservoir, I  
6 think it only got a 100,000 CFS. But I don't know how  
7 that compounded downstream and where that impacted, the  
8 part that you're talking about.

9 MR. GALLAGHER: It wiped out two city parks.

10 MR. FORBIS: Okay. In Oroville?

11 MR. GALLAGHER: Yes.

12 MR. FORBIS: That is an example of something  
13 that we would want to make sure that we know and have  
14 listed in our Oroville, like, concerns and  
15 considerations; that if -- you might not be able to  
16 avoid going up to something that high because of the  
17 conditions that are present at the time. But if there  
18 is any chance that you don't have to, and you can't  
19 avoid some of this type of damage, then we might have  
20 that flexibility to not -- to avoid those sorts of  
21 situations.

22 MR. CROWFOOT: Can you remind us from the Army  
23 Corps' perspective that the reservoir conditions three  
24 years ago, when the emergency occurred? In other words,  
25 how -- you know, what was the reservoir level, what --

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1 how did it relate to the flood pool, et cetera.

2 MR. FORBIS: Sure. With those, actually -- I  
3 don't have the actual numbers with me this morning, but  
4 the pool was -- the storage at Oroville was just -- I  
5 would consider just barely into the flood control space.  
6 So it was encroached in the flood control space. The  
7 flood -- so the rules in the water control manual were  
8 dictating releases, and it was at the time of increasing  
9 the flood control release to what was appropriate. Up  
10 to, I believe, 60,000 at the time, is was the release  
11 schedule was for. It was in that process of during the  
12 increase when the initial damage in the gated spillway,  
13 the concrete chute, was observed. So it wasn't in a --  
14 from a flood control perspective, there wasn't any  
15 concern at that time if there's still a lot of space  
16 being provided in the reservoir. And releasing 60,000,  
17 I mean, it doesn't necessarily happen every year, but  
18 it's should be -- that's well within the channel  
19 capacity down the stream.

20 MR. CROWFOOT: That's helpful.

21 MR. FORBIS: Yes?

22 MS. WIDENER: I have a quick question.

23 MR. FORBIS: Yes.

24 MS. WIDENER: Does the owner have the ability  
25 to increase the flood control pool beyond what the Army

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1 can -- Corps Engineers has dictated for that month or  
2 time, and what (unintelligible)?

3 MR. FORBIS: Yes. That's a great question.  
4 So the rules in the water control manual govern a  
5 specific space in the reservoir. And so if the dam  
6 owner or operator wishes to provide more space, or make  
7 any releases that are -- while the reservoir is below  
8 the flood control space, they absolutely have all the  
9 ability and power to do so.

10 MS. WIDENER: Okay.

11 MR. FORBIS: Yes.

12 MS. WIDENER: And so even -- so you -- the  
13 Army Corps of Engineers just dictates the maximum flood  
14 pool; correct? And then -- so, like, there's that  
15 750,000 --

16 MR. FORBIS: Yes, yes.

17 MS. WIDENER: If we're in that still, but  
18 we're still under the Army Corps of Engineers' line,  
19 they can still release if they choose to?

20 MR. FORBIS: Yes, yes.

21 MS. WIDENER: Okay.

22 MR. FORBIS: Because we don't govern the water  
23 in the reservoir below the flood control space. So  
24 whether releases are made for environmental reasons,  
25 hydropower, additional flood control, like, any of

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<p>1 those -- any of those reasons and more, the dam 2 owner/operator, they do not need our permission to 3 govern releases throughout the entire pool, the entire 4 reservoir.</p> <p>5 MS. WIDENER: Okay.</p> <p>6 MR. FORBIS: So yes, they -- in fact, also 7 in 2017, there's another reservoir down in the San 8 Joaquin Valley that, based off of what was forecasted to 9 come in, they worked with us and let us know that they 10 thought it was appropriate to release more than what 11 they were required to at the time because they were 12 seeing that the amount of space made available per their 13 water communal may not be enough to capture what was 14 coming in. And that sort of preemptive decision making 15 is -- especially when justified and warranted by 16 forecast information and other things -- can be very 17 appropriate.</p> <p>18 MS. WIDENER: Thank you.</p> <p>19 MR. CROWFOOT: So just to provide context for 20 this year, you know, unfortunately, from the water 21 supply perspective, we're obviously having this dry-lake 22 winter.</p> <p>23 MR. FORBIS: Yes.</p> <p>24 MR. CROWFOOT: So how would you -- I mean, if 25 the hydrology kept up the way it is, we're going, you</p>	<p>1 over when some gets too high.</p> <p>2 Since you can't really control that with 3 opening or closing gates, this type of diagram doesn't 4 exist for those projects. But Oroville, Shasta, Folsom, 5 places like that that have gated spillways, they would 6 have a diagram that looks kind of like this. So before 7 I jump into water control manuals, I wanted to at least 8 give you a brief list of the other things that the water 9 management group for the Sacramento District does. We 10 talked about overseeing flood operations. When water 11 control manuals get updated, that includes establishing 12 new rules for flood control operations; that would be 13 something that we would do. We also train dam 14 operators.</p> <p>15 Typically, that's for Corps dams, but we also 16 meet with some of our Section 7 partners that, like, 17 refresher trainings on how the water control manual gets 18 used and implemented. As you can imagine, if there's 19 several years of drought and staff turnover, they're 20 making people that have never had to make flood release 21 effort, or never even had a need to open up a water 22 control manual. So we do that with some of our partners 23 to make sure that we're all prepared before flood season 24 of what to do if the weather warrants flood control 25 releases to be made. And then last thing I wanted to</p>
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<p>1 know, dry the rest of the winter, what would that look 2 like in a year like this? What would the Army Corps -- 3 would you end up even -- would your rules control 4 because we don't even nearly hit that flood pool?</p> <p>5 MR. FORBIS: Since the rules only control when 6 the reservoir is in the flood control space, like, the 7 folks at DWR that we work the most with, they'll let us 8 know and keep us in the loop of, like, you know, "This 9 is what we're doing," but they're not, obviously, 10 required to do that. And there wouldn't be any rules of 11 ours that would dictate the decisions that they would 12 need to make, because they would be nowhere close to the 13 flood control space.</p> <p>14 MR. CROWFOOT: Got it.</p> <p>15 MR. FORBIS: So I showed this one. I just 16 want to let you know there is another graphical 17 representation of operations for the events that are 18 more rare and more significantly large than what we 19 consider being normal, that the water control diagram 20 would dictate. So it -- there are rules and guidance 21 that apply for the bottom of the flood control pool, all 22 the way up to the top of the dam. And this type of 23 diagram would only really exist at projects where there 24 is a gated spillway. Some dams have ungated spillways 25 that are just, like, a concrete sill that water flows</p>	<p>1 point out on this list was preparing deviation packages. 2 That's Corps term for when temporary modifications to 3 the normal flood control operations are being requested 4 or are necessary.</p> <p>5 It's not just coming out in an emergency, but 6 it could because we're in the middle of the drought and 7 a reservoir owner reason would like to store more water 8 than what the water control manual would normally allow. 9 There's a process that you can go through. For example, 10 for this water year alone, you are allowed to store up 11 to this much extra water in your flood control space, 12 and releases would now be dictated this way. It's a way 13 to accommodate temporary changing conditions. And it's 14 just an official Corps process, and it actually fairly 15 mimics the water control manual update process where 16 you're looking at flood risk, dam safety risk, 17 environmental impact, things like that.</p> <p>18 And if things are properly accounted for and 19 mitigated, then deviation requests are typically 20 approved, and it's done so at the South Pacific Division 21 office. So the regional office that the Sacramento 22 District falls under.</p> <p>23 MR. CROWFOOT: Question. Karla reminded me 24 that our FERC license from the Federal Energy Regulatory 25 Commission also, you know, dictates some of our</p>

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<p style="text-align: right;"><b>Page 38</b></p> <p>1 operations. What is the Army Corps' role in, like, the 2 relicensing process that FERC has authority over? 3 MR. FORBIS: Usually, it's -- it's usually 4 fairly minimal, and that's typically because, at least 5 in our experience, FERC includes language where it will 6 specifically say that refer to the regulations, like, to 7 that (unintelligible) by the Corps of Engineers. And so 8 unless there's something that's going on that would 9 inadvertently conflict with that, then, for the most 10 part, we're notifying that it's going on, but in terms 11 of operation, we're not. And since we don't have a dam 12 safety authority over projects like Oroville, we don't 13 typically have a very involved role in the FERC process. 14 But er definitely like to know what's going on in case 15 there is some sort of impact to the way we normally do 16 business, and that we would need to be aware of. 17 MR. CROWFOOT: Got it. 18 MR. FORBIS: So water control manual. So 19 we've been talking about that a lot already this 20 morning. The water control manual is book that contains 21 more than just the operating procedures and the rules; 22 it contains a lot of background information and context 23 about the project, historical facts and performance and 24 other data, description of physical components. It's 25 the handbook that DWR can have at their disposal for</p>	<p style="text-align: right;"><b>Page 40</b></p> <p>1 we get to an approved water control manual. So you 2 establish that, obviously, very early on. 3 And another thing that you establish very 4 early on is the public and state holder outreach; it's 5 something that, as you can see, it's the longest 6 duration item on this chart, and it's because through -- 7 down through stakeholders, operating partners, you want 8 to get them involved in the very beginning. In fact, 9 it's in our own Corps regulations to do so, to make sure 10 that they are sufficiently involved and informed and can 11 provide input throughout the water control manual update 12 process. At one point, like, halfway through this, it 13 might shift from the initial development of the water 14 control manual, it might shift to their role the public 15 would serve in the NEPA process, the environmental 16 impacts. 17 But involving the partners and stakeholders is 18 something that starts from the beginning, and lasts, 19 essentially, through the very end, until it gets to the 20 point where it's final review and approval. So and 21 that's extremely critical for things like this. As the 22 director mentioned, making sure that concerns are 23 captured in developing the new operations. Like, that's 24 critical. It's extremely important. Another 25 cornerstone of the work of updating the water control</p>
<p style="text-align: right;"><b>Page 39</b></p> <p>1 Oroville, and it is a document that is a Corps of 2 Engineers document. 3 So it's something that, when it needs to be 4 updated, there could be discussions on which party does 5 what work. But in the end, it's a Corps of Engineers 6 document that needs to be reviewed and approved by the 7 division commander at the division office. So you can 8 view it as, like, the flood operations bible that there 9 is for each project. So it's -- I wanted to hit a 10 caveat for the next few slides that this -- I tried to 11 put together a general, simplified chart of what the 12 water control manual update process could look like. It 13 could vary from project to project, based off of the 14 needs of updating the water control manual, what's being 15 looked for. But in general, it's at multi-year process 16 that looks at a bunch of different things, and has quite 17 a few components, and several levels of review. 18 And I wanted to point out some of our 19 highlights, some of those things. So we were just aware 20 of when the Oroville water control manual gets updated, 21 what are the different areas that are being focused on 22 through that work. So the first step is establishing a 23 plan; right? A project management plan. And so that 24 identifies schedules, who's in the project, and what are 25 they doing. To lay it out, the path forward, for how do</p>	<p style="text-align: right;"><b>Page 41</b></p> <p>1 manual, especially if the update includes reoperating a 2 facility, is establishing and assembling the appropriate 3 hydrologic data to make sure that you're using 4 everything that you know that's at your disposal, so 5 that way, when you're comparing the alternatives and 6 evaluating them, you're doing so that in -- that in a 7 way where it represents the reality as best as we can. 8 And even if there weren't the incidents in 9 2017 at Oroville, and even if there wasn't the 10 comprehensive needs assessment that was going on for the 11 (unintelligible) structural changes with Oroville, the 12 fact that the manual was last approved in 1970 indicates 13 there's decades of hydrologic data that could -- that 14 very well would update our understanding of, well, 15 what's a 200-year event look like? How -- what do those 16 flows look like? The hydrology, there's so much data 17 there that has -- that we've collected and observed 18 since it was last updated. 19 That in and of itself affords another look 20 rules to see, like, are the rules that are in place 21 still appropriate, and if they are, are they optimized? 22 So making sure that you've got hydrology that's updated 23 and -- is extremely important. And this hydrology can 24 include not just observed data, but also synthetic data, 25 forecast information. I'll have a few examples in the</p>

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<p>1 next few sides. But anything to do with water data, you 2 want to make sure you have all of it before you get 3 started in developing the alternatives. 4 MR. PITTMAN: Quick question. 5 MR. FORBIS: Yes? 6 MR. PITTMAN: Does the Corps do its own data 7 analysis or reception in the Feather River range, or 8 does it rely on DWR's state inflection? 9 MR. FORBIS: At least at the dam and upstream, 10 I do not believe that the Corps has any gauges of their 11 own. But along the Feather and Yuba, there might be 12 some. I'd have to check. But for most of our Section 7 13 partners we rely on the data collection or the data 14 collection infrastructure from those partners. 15 MR. PITTMAN: Thank you. 16 MR. FORBIS: So one of the next steps up is 17 also characterizing the existing conditions, to make 18 sure you fully understand what is it doing now. So that 19 way, whenever you're preparing potential future changes 20 of the operation, you know the increases, and hopefully 21 no decreases, in performance are. So understanding 22 existing conditions is very important. Then you go into 23 identifying well, what are the different ways that we 24 can change the operation at the project? So identifying 25 multiple alternatives, and concluding and determining</p>	<p>1 internal to the Sacramento District, one internal to the 2 Corps of Engineers, one where you get an independent 3 expert outside of the Corps of Engineers to review. 4 Like, especially depending on the -- whether it's a 5 controversial, or it's a new and improved, there's -- 6 you want that to make sure that you looked at it 7 thoroughly before you implement it into the new way of 8 doing things. 9 And then finally, there's obviously the 10 approval process where you -- the whole water package is 11 put together and given to the South Pacific Division, 12 and they make sure that all the right policies and rules 13 are followed in the review. And then, it eventually 14 gets approved by the division commander. So those are 15 the broad strokes of what would go into updating a water 16 control manual. And most of those things would occur to 17 that detail for Oroville. Now, one thing to keep in 18 mind that makes it unique at Oroville is that there's 19 also the forecasting (unintelligible) operations project 20 going on; FIRO is underway. 21 And through that effort, some of the things 22 that would normally go in that would be completely 23 confined within the water control manual of this 24 process, some of that technical work is already being 25 done as far as RND effort. And so though I was</p>
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<p>1 which one is -- would performs the best, is the next 2 logical step there. 3 In part of that, that -- it's so significant I 4 pulled it out as its own component -- is the 5 environmental effects analysis. So you're preparing 6 alternatives for rotating the water control manual, 7 typically evaluating flood control of performance, flood 8 risk management performance. But you also need to look 9 at and see what those changes could do to the 10 environment upstream and downstream throughout the whole 11 system. So that is a significant chunk of the schedule 12 for updating it, that there's the established and deeper 13 process for what type of document you create, what sort 14 of review goes into it, what sort of outreach goes into 15 it. And it needs to be done efficiently, but it usually 16 isn't done extremely quickly because you need to make 17 sure that you covered all your bases. You have to 18 create all the documentation that goes with it; the end 19 result being, of course, the water control manual. But 20 you've got to do the deeper diving, whether it's 21 environmental assessment, environmental impact studies, 22 something along those lines. 23 And then there's different want review reports 24 that are part of it as well. There's several stages of 25 review that go into updating a water control manual; one</p>	<p>1 indicating that the five-ish years might be what it 2 takes to update a water control manual, with FIRO going 3 on at the same time, we would fully expect for a 4 timeline of five years to be shorter, because you're 5 looking at same type of things that can be used for the 6 update process, and it should -- we should see some time 7 savings there. 8 Another thing that I wanted to highlight that 9 I wasn't sure if everyone knew about, but in fiscal year 10 2020, through the federal budget process, the Corps of 11 Engineers has actually received \$4 million to update a 12 water control manuals that meet a few criteria. I have 13 a screenshot here of the language. If we look at the 14 criteria of what project or projects it's been applied 15 to, when you go through each one, it really can only 16 apply to Oroville and New Bullards Bar. Which we would 17 want to update both of those at the same time anyway, 18 because they operate to the same downstream control 19 points, and it wouldn't be as effective to upgrade one 20 and not the other. 21 And that's also why the two of them -- those 22 projects -- are included in the FIRO effort as well, 23 because you want to look at the system-wide 24 multi-watershed view in terms of when you try to 25 optimize those operations. So for context we don't, at</p>

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<p>1 the Corps of Engineers, especially the Sacramento 2 District, we don't really ever receive money to update 3 water control manuals. Like, it's something that we ask 4 for year after year, but it's something that's never 5 been -- well, I won't say never, but it rarely gets 6 given.</p> <p>7 So to not only to get funding, but to get 8 funding to this degree, to do something in Northern 9 California is something that we're really excited about. 10 Now, it's going to be a unique challenge to where we're 11 balancing the RND FIRO effort at the same time updating 12 the water control manual. Usually, you'd want one to 13 happen before the other. So it will require some 14 careful planning and establishing a schedule and 15 delineation of roles and duties. But if it's done 16 right, then we should be able to see time savings there. 17 Yes, sir.</p> <p>18 MR. NIELSEN: Is the 4 million adequate? Is 19 it getting there timely and where it needs to be?</p> <p>20 MR. FORBIS: 4 million would -- based of what 21 changes we expect to see structurally at both projects, 22 and with FIRO going on, the \$4 million is likely not 23 enough to cover the entire total. But that's heavily 24 dependent upon how much our partners like Yuba Water 25 Agency and DWR take on some of the trichinal work</p>	<p>1 MR. NIELSEN: If you need any help on that.</p> <p>2 MR. FORBIS: And I think it wouldn't be so 3 much as a lose-it situation as maybe a not being able to 4 manage expectations appropriately of what the 4 million 5 will -- how far that will get us. I think we would 6 still be able to use it, but if the 4 million was 7 provided with the intent of, we expect it to be used by 8 the end of September, it's on us at the Corps of 9 Engineers to make sure that we communicate, "It could be 10 used better if you give us more time." And so that's -- 11 that's the improvement we've got from headquarters, and 12 so that's the path we've moving forward. I'll try to -- 13 I know that I've used up a lot of your time, so I 14 apologize.</p> <p>15 I'll try to go through the Folsom example that 16 I have as efficiently as possible. This is a picture of 17 the new spillway there. As I mentioned earlier, this is 18 a really good case study for us for -- us before with 19 Oroville, because it has a lot of the same types of 20 components and aspects between the two of. Like, where 21 it's located regionally, how reliable the forecasts are, 22 the capability of what can be released from the 23 projects. So it's a really good thing that we have 24 recently updated this.</p> <p>25 This water control manual was updated and</p>
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<p>1 themselves and figuring out how best to optimize the 2 funding that we received. Because this was intended to 3 be just for this fiscal year initially. Now, what we're 4 pushing for at the district level is to spread that out 5 beyond this fiscal year because we can use that money 6 more intelligently if we have more time to do it.</p> <p>7 MR. NIELSEN: You have the latitude to extend 8 the funding to extend the time? Does it have to be used 9 in the time?</p> <p>10 MR. FORBIS: The direction I've been given is 11 that as long as we have a plan established for when we 12 want to use it, there is the (unintelligible) that we 13 can use it beyond the end of this fiscal year. 14 Carry-over funding is a concept that we're looking to 15 carry over money from fiscal year to fiscal year. And 16 that is typically allowed as long as you're showing that 17 you're doing so responsibility.</p> <p>18</p> <p>19</p> <p>20 MR. NIELSEN: Yeah, and I wouldn't want you to 21 get caught in a use-it-or-lose-it situation.</p> <p>22 MR. FORBIS: Right.</p> <p>23 MR. NIELSEN: So please keep our office 24 abreast of that.</p> <p>25 MR. FORBIS: Absolutely.</p>	<p>1 finally approved in June of 2019, so really not that 2 long ago. So we've got some very pertinent and timely 3 lessons learned that we can use. This is me -- one of 4 my favorites that I like to show because what -- what it 5 really is indicating -- you don't really need to know 6 much about what the numbers, but just blue and black 7 rainfall variability is greater. And so if you look at 8 the eastern half of the United States, the rainfall from 9 year to year is vary fairly consistent.</p> <p>10 As we all know out here in California, you can 11 swing from the worst of drought years to the worst of 12 flood years back to back. It create a challenge for how 13 do you operate reservoirs responsibly and smartly. And 14 one of the main drivings forces, and part of what is 15 the -- of which has been developed in the FIRO project 16 is the weather (unintelligible) atmospheric triggers and 17 how our ability and desire to improve our ability to 18 forecast these phenomenon is what could result in more 19 reliable forecast, and therefore, smarter decisions 20 being made about what space is required for reservoirs, 21 and what water needs to be released and when.</p> <p>22 So I am by no means a weatherman, so I won't 23 bore you with the details that -- I'll let the Weather 24 Service talk about that if you want to invite them. But 25 it's essentially one of the -- this is one of the main</p>

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<p style="text-align: right;"><b>Page 50</b></p> <p>1 driving phenomenon for creating rain and snowpack in our 2 state. So that's helpful to be aware of. The watershed 3 for the American River, it's a fairly steep watershed, 4 so whenever rain falls, it gets to Folsom Dam very 5 quickly. It has the potential for heavy rain and snow, 6 and it also has winter snow pack. So I think you're 7 able to pick up on some similarities between the 8 American River and Feather River.</p> <p>9 Quick things to be aware of, Folsom Dam is not 10 quite a million acre-feet when it's completely full. 11 It's required to have up to 600,000 acre-feet of flood 12 control space there. So a majority of its entire volume 13 maybe required for flood control purposes. And it has 14 different ways to release water, the newest one being 15 the auxillary spillway, which we call the JFP, which 16 stands for Joint Federal Project. It introduced 17 additional release capacity at a lower elevation so you 18 can release more water sooner from the reservoir, which 19 is helpful for being able to respond to changing 20 forecasts. So that's an important feature for making 21 forecast-based operations at this location work.</p> <p>22 So I'm going to show that when Folsom Dam was 23 authorized in 1944, it was designed to provide what was 24 thought to be a 500-year level of protection. And then 25 a few years later, along the American River, there was a</p>	<p style="text-align: right;"><b>Page 52</b></p> <p>1 with the operation of with the operation. Yes, sir? 2 MR. LAMALFA: Just two words: Auburn Dam. 3 MR. FORBIS: I've heard of that, sir. So to 4 highlight a couple of the problems with the existing dam 5 is that we're finding more and more that the 400,000 6 acre-feet that was required as part of the Folsom water 7 control manual wasn't enough to provide the level of 8 protection that was intended. It couldn't pass the 9 probable maxing flood -- or the PMF -- without 10 overtopping. And even though the maximum downstream 11 objective flow is 115,000 CFS on the American River, the 12 flood control space would have to be 30 percent occupied 13 before you could actually physically release that from 14 the dam. So you had to be fairly full before you had 15 enough head to push that much water out. So if more was 16 required when Folsom was emptier, you physically 17 couldn't do it.</p> <p>18 And so how do you address these things? So a 19 few different solutions were proposed, and it was 20 determined that building an auxillary spillway, adding 21 more flood control space, and looking to see if 22 forecasting operation framework would be appropriate, 23 was determined to be the path to pursue. And actually, 24 in the language in (unintelligible) 1999, it actually 25 said, "Look at the forecasting," the new and improved</p>
<p style="text-align: right;"><b>Page 51</b></p> <p>1 record flood. 1956, which was the year that it was 2 built, there's another record flood. Yes, yes. In a 3 matter of hours it filled up. And then, in 1964, 4 another record flood, so just eight years later. So the 5 updated understanding of the level of protection Folsom 6 provides was reduced down to 120-year flood that it 7 could capture.</p> <p>8 Then, when 1986 came around, new analysis came 9 was performed, and it was determined actually, it's just 10 60-year protection that it can provide. And so that's 11 nothing changing to, like, the degradation of its 12 capabilities, it's just upping the understanding of the 13 hydrology of the watershed. We're realizing, oh, it's 14 not doing what we thought it was supposed to do. And 15 then, of course, in '97, another record flood. So 16 here's a graphic of when -- or here's a chart I put 17 together of the year when it was constructed and what 18 the larger events were though to be up till that point, 19 and then the larger events that occurred afterwards. So 20 six large events in terms of peak annual inflow, a 21 natural runoff.</p> <p>22 The six largest events in its history occurred 23 after it was built. So what was thought to be known 24 when it was designed as the largest things we would see 25 were not seen yet. So it obviously proved to an issue</p>	<p style="text-align: right;"><b>Page 53</b></p> <p>1 forecasting capability from the Weather Service, "and 2 see if you can use that in the operations." It actually 3 dictated how much flood control space would be required.</p> <p>4 So I think we all recognize that if you know 5 what's going to come, you can make smarter decisions; so 6 the better forecasting you have, the better off you'll 7 be. But this all forecasting uncertainty. You never 8 really know exactly what's going to happen. So if you 9 are basing your decisions off of a forecast and more 10 comes in that what was originally thought, you likely 11 didn't release enough before the event got there, and 12 you're increasing the flood risk. Or, if more was 13 forecasted then what actually occurred, you may have 14 released more than what you intended to, and then that's 15 impacting water supply.</p> <p>16 So we know those are the ends of spectrum. So 17 what's the responsible way to optimize that? So we 18 looked at several alternatives, one of which includes 19 the forecast-based approach; the other ones did not. 20 And the team that worked on it wasn't going into it 21 expecting forecast that the forecast-based approach 22 would necessarily out perform the others as well it did. 23 But not only for flood control purposes, but also for 24 water supply that the forecast-based operation 25 alternative performed the best. And I'll go into a</p>

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<p>1 little bit of why that is. And I think you guys are 2 already picking up on that, of why that would be. 3         So this is what the water control diagram of 4 Folsom looks like. It has a trapezoid diagram kind of 5 like what Folsom has, except with one main difference; 6 it's got a release schedule that's based off of 7 forecasting inflow, and it's got a ramp and 8 (unintelligible) included. So a lot of the same 9 components that the Oroville water diagram has. But if 10 you look at that trapezoidal diagram in more detail -- I 11 have it covered up with this other chart here -- but 12 that square there, where it says, "Variable flood 13 control reserve," the amount the flood control space 14 required at Folsom is solely based on the forecasted 15 inflow that's coming into the reservoir across a few 16 durations, between, like, one and five days. 17         You're looking at the inflow that's expected 18 to come in over the next day, over the next two days, up 19 to the next five days. And depending on which of those 20 inflows results in the more conservative operation, 21 that's what dictates how much space you need. It 22 required the Weather Service to improve their modeling 23 capabilities and their functionality in order for them 24 to produce forecasts of this nature, up to four times a 25 day -- of this type of forecast, which they weren't able</p>	<p>1 thing to say: That this type of forecast produced four 2 times a day wasn't something the Weather Service could 3 do when we started, and it was something they were able 4 to do, and are currently doing when we're done. And I 5 think with Oroville, we would want to look at something 6 like this as a potential alternative to see if that 7 could produce and maximize the benefits of the projects 8 in a similar way that it has at Folsom. Just as one of 9 the opportunities there. That is an example of one of 10 the products that it has on the forecast. 11         This is for Lake Mendocino, that was the first 12 location. It's got a whole bunch of potential 13 hydrographs, and that could occur 68 of them, in fact. 14 And you're using that statistical analyses to your 15 benefit of making smart decisions at the dam. That's 16 more visuals of what I was talking about. I think where 17 I want to skip to -- there's a robustness testing to 18 make sure that -- like, what if the weather forecast 19 were early or late? What if were wrong? Like, how bad 20 would that be for the performance at Folsom? I wanted 21 to highlight one thing that I think is helpful for you 22 guys in the room. 23         There's a sensitivity analysis done on what if 24 was forecasted was so great that you weren't able to 25 get -- you released all this water, and you weren't able</p>
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<p>1 to do before we started it. 2         So it required not just technical analysis 3 savviness to figure out that this is good, but you 4 also -- but different partners had to do something that 5 they hadn't had to do before in order to make this work. 6 So it was a heavy lift for all involved. So I won't 7 spend a lot of time on this, because it's getting a 8 little bit in the weeds, but essentially, the type of 9 forecast that is being used at Folsom and has been shown 10 to be really productive and beneficial is this ensemble 11 forecast project where you're using historical 12 climatological data, current forecast skill to produce 13 probabilities of certain volumes occurring. So what's 14 the likelihood of -- what's the 25 percent chance of 15 inflows above this occurring, coming into the reservoir? 16 And so you can adjust your conservatism or 17 aggressiveness based off of what probabilities you think 18 are appropriate for the operation there. I'm trying to 19 synthesize it without making your eyes gloss over. 20         MR. CROWFOOT: Joe, just a little bit of a 21 time check. I want to make sure we get to the end of 22 your presentation as it relates to this watershed. So 23 just a note. 24         MR. FORBIS: Yes. I think I've got a couple 25 of minutes. I'll at least end on this part with one</p>	<p>1 to get back to where you started before the event 2 happened. That analysis was done for Folsom, and it was 3 figured out that for these different types of 4 hydrographs that, essentially, for -- you have -- the 5 forecast would have to be for forecasting a hundred-year 6 event, and you would only get a two-year event in order 7 for you to not get back where you started. 8         And the forecasts are always wrong to some 9 degree; they're never that wrong. Like, to forecast a 10 100-year (unintelligible) like, one of the biggest ones 11 you've ever seen, and to actually have something that 12 you see all the time come, like, there's never that big 13 of a discrepancy. So that really put those real 14 concerns with the water supply performance at ease that 15 basing stuff off the forecast isn't going to lose you 16 water. And we just get the benefit from that from being 17 on the west coast, with the intelligence and skill of 18 the River Forecast Center out here in California, and 19 the fact that atmospheric rivers are a driving force. 20         Like, we get to benefit from having reliable 21 forecasts that they're never that wrong. Other parts of 22 the country, they might be. They could be that wrong in 23 certain areas. But at least here, in California, 24 forecasts aren't not that wrong. 25         MR. NIELSEN: I have a question.</p>

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<p>1 MR. FORBIS: Oh, sure.</p> <p>2 MR. NIELSEN: I don't want to take too much of</p> <p>3 your time on the thing here. But I think looking at the</p> <p>4 dynamics of snowpack melts are -- just in my, you</p> <p>5 know -- I've seen it in the past (unintelligible) -- it</p> <p>6 looks like a couple of years ago -- I forget which water</p> <p>7 years it is now -- but there was a great, great concern</p> <p>8 on snowpack melt being a factor in raising the lake</p> <p>9 really quickly. And, you know, some years when there's</p> <p>10 a lot going on, I'm watching the C-Deck owners more</p> <p>11 often than I'm looking at Twitter.</p> <p>12 MR. FORBIS: Sure.</p> <p>13 MR. NIELSEN: When the snow is going over, I</p> <p>14 was in New York City getting it every, you know, few</p> <p>15 minutes. So I think there was a lot of fear snowpack --</p> <p>16 and, again, I forget which water year it was -- and it</p> <p>17 never really turned into a lot; you know, the peaks,</p> <p>18 inflows. I would say that the worse days, or the</p> <p>19 biggest days, 30,000 CFS inflows, and that's pretty</p> <p>20 manageable.</p> <p>21 MR. FORBIS: Yes.</p> <p>22 MR. NIELSEN: So for water discharge to be</p> <p>23 happening at a time when you're getting into that March</p> <p>24 period era where you're not going to have a lot more</p> <p>25 opportunity to fill the lake, then that's where I would</p>	<p>1 got Shasta, you got Bear River out west, and then you</p> <p>2 have -- when you all the way down, going into</p> <p>3 Sacramento, you got all the problems with the American</p> <p>4 River and Folsom and all that. So has anybody looked at</p> <p>5 actually big, key flood event issues, trying to figure</p> <p>6 how to -- or maybe earlier view flood data and, you</p> <p>7 know, (unintelligible) water -- water analysis of the</p> <p>8 inflows, estimated inflow, because of the snowpack melt</p> <p>9 and/or rain effects.</p> <p>10 MR. FORBIS: Yes. The group that does that</p> <p>11 within the Sacramento District isn't the -- we're on,</p> <p>12 operation, like, the realtime operations implementation</p> <p>13 side. So I think what you're describing is more of a --</p> <p>14 is like a feasibility study, or some sort of a study,</p> <p>15 like, a system why watershed management study. And I</p> <p>16 know that there's been some in the past for different</p> <p>17 regions in California, and I know that there's current</p> <p>18 talks for looking at other parts of the state where</p> <p>19 you're looking at multiple reservoirs at once. So I</p> <p>20 know that work is down, but when (unintelligible) the</p> <p>21 water control manual, you typically don't go to that</p> <p>22 extent.</p> <p>23 The scheduling cost get blown out of the water</p> <p>24 if you do, like, an extremely detailed look at, like,</p> <p>25 nine reservoirs at the same time. But there is a</p>
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<p>1 want to see what, you know, we can talk about later on</p> <p>2 as to how we can better predict snowpack. I mean, this</p> <p>3 year we don't have anything to worry about.</p> <p>4 MR. FORBIS: Right.</p> <p>5 MR. NIELSEN: But in a big snowpack year,</p> <p>6 looking back on old data on that, you know, I mean, the</p> <p>7 scariest CFS inflows was 150,000.</p> <p>8 MR. FORBIS: Exactly. And I think for</p> <p>9 projects like Folsom and Oroville where they have the</p> <p>10 outlet capacity, and the downstream channel capacity to</p> <p>11 where -- that the timeline that snowmelt occurs is so</p> <p>12 much more, like it did for the rain flood events, that</p> <p>13 even the high inflow from a snowpack is something that,</p> <p>14 in general, for these types of projects, are more easily</p> <p>15 managed than what you're saying, like the 175, 200,000</p> <p>16 CFS inflows that occur within the day-and-a-half kind of</p> <p>17 a thing. That's something that, for projects as large</p> <p>18 as Oroville, would be more of a concern of how you best</p> <p>19 manage that.</p> <p>20 MR. NIELSEN: Thanks.</p> <p>21 MR. CONANT: Quick question. So we've seen a</p> <p>22 lot of data about the individual dam operation, but has</p> <p>23 the Army Corps done any work on how one dam affects the</p> <p>24 other dams which affects another dam until you got the</p> <p>25 water (unintelligible), you got Oroville out here, you</p>	<p>1 mechanism where that is looked at. It's just, usually,</p> <p>2 we're a part of the team, we're not the ones driving</p> <p>3 those sorts of projects. So I'd have to defer to some</p> <p>4 of my colleagues to better answer what's been done, and</p> <p>5 what's looking at being done in the future.</p> <p>6 MR. CONANT: Thank you.</p> <p>7 MR. FORBIS: I think I can probably forego</p> <p>8 some of the FIRO slides. I'm at the end, so I think</p> <p>9 it's important I at least cover this last one for water</p> <p>10 manual update. Some lessons learned that we found</p> <p>11 through this several year process of updating the water</p> <p>12 control manual -- and probably a lot of it's</p> <p>13 (unintelligible) we had -- but we had several project</p> <p>14 managers throughout the course of that update. And it</p> <p>15 definitely created some challenges to shift from one to</p> <p>16 the other to maintain consistency throughout the</p> <p>17 multi-year projects. So if at all possible, maintaining</p> <p>18 consistency in key leadership roles, it would be really</p> <p>19 valuable in updating the water control manual for</p> <p>20 Oroville. Another one that we saw that -- what we did</p> <p>21 that worked out the most: Keeping the lines of</p> <p>22 communication open with stakeholders.</p> <p>23 There were task force meetings, stakeholder</p> <p>24 meetings, set up and maintained throughout the entire</p> <p>25 process. And it helped get everybody on the same page.</p>



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<p>1 With Folsom it was entities like the Bureau of 2 Reclamation, SACA, DWR, there are several partners that 3 had different concerns at different times, and if you 4 weren't meeting at a regular basis, your ability to 5 address those concerns was significantly impacted. So 6 the fact that that was done was really helpful. We also 7 worked with the Weather Service to develop comprehensive 8 hydrologic data sets, including forecast information 9 that was used to verify the forecast-based operation 10 would be appropriate.</p> <p>11 Another thing that we noticed is ensuring that 12 the language in the water controlling on the graph, and 13 the modeling stayed consistent throughout. There are -- 14 at different stages one got ahead of the other, and 15 didn't realize that, "Oh, this model isn't 16 (unintelligible) this new sentence that we added into 17 the operation," or, "Oh, model's doing this, but we 18 didn't add that to the diagram, we should add that." 19 Those little hiccups just slowed us down at different 20 times. So making sure that you're consistently keeping 21 those consistent throughout the whole process is 22 important.</p> <p>23 And then lastly, making sure that you identify 24 and appropriately narrow scope for the NEPA process. 25 What we did for Folsom, we weren't sure what had to be</p>	<p>1 needed to focus on to get on the same page, DWR, Yuba 2 Water, and the Corps were kind of already all on the 3 same page and have been that way for a while in terms of 4 flood operation. So it's having that already in place 5 should really benefit us as we move forward in 6 implementing these lessons learned. Some of them might 7 not even apply to the same degree as they did for 8 Folsom.</p> <p>9 MR. GALLAGHER: Okay. So you're thinking that 10 maybe five years is a realistic timeframe for having a 11 new manual?</p> <p>12 MR. FORBIS: That was a number that I 13 estimated assuming no FIRO stuff started from scratch 14 for just a reservoir X --</p> <p>15 MR. GALLAGHER: So you're thinking it could be 16 even faster?</p> <p>17 MR. FORBIS: Yes. We don't have any schedules 18 set yet that identify, like, a water control manual 19 update would be completed by this date. But with FIRO 20 in place, it should expedite --</p> <p>21 MR. GALLAGHER: I mean, Folsom took, like, ten 22 years or more; right?</p> <p>23 MR. FORBIS: More. Yeah.</p> <p>24 MR. GALLAGHER: I mean, five or less, I mean, 25 that's, certainly something I think we want to hear.</p>
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<p>1 looked at so we kind of looked at everything. And then, 2 when we got further down in the process, we realized, 3 "Oh, we didn't need to look at this part over here; it 4 doesn't play a role." But by that time we had spent 5 time and funding looking at that. So making sure that 6 you don't jump the gun and start doing the environmental 7 impacts too early on to where you end up creating more 8 work for yourself.</p> <p>9 That was one of the things that we learned 10 that. And for projects like Oroville water manual 11 update, we would be able to more smartly discern which 12 areas to focus on, and when we should focus on them. So 13 I think with that, I think I just have --</p> <p>14 MR. LAMALFA: (Unintelligible).</p> <p>15 MR. FORBIS: Oh, I'm sorry. Go ahead.</p> <p>16 MR. GALLAGHER: Just some quick questions 17 here. One, you identified those things you learned. Do 18 you feel like we are addressing those as we embark on 19 the Oroville water control manual?</p> <p>20 MR. FORBIS: I do. I think what also helps is 21 that the establishment of the forecast coordinator 22 operations program has really facilitated the working 23 relationships that our agencies have. That we worked so 24 well already that any of the hiccups that we ran into 25 for Folsom where there maybe were some time that we</p>	<p>1 MR. FORBIS: And just to clarify, our goal 2 would be to have an updated water control manual 3 approved for Oroville and Yuba before any final 4 construction is completed at those projects. I know 5 that Yuba Water is pursuing a secondary spillway at 6 their facility, and I --</p> <p>7 MR. GALLAGHER: We may be doing that at 8 Oroville.</p> <p>9 MR. FORBIS: And it may occur at Oroville, 10 too. And we would want to make sure the new rules are 11 in place before the functionality of this potentially 12 new structures can be used.</p> <p>13 MR. GALLAGHER: Okay. So you're wanting to do 14 that before there's any of those infrastructure projects 15 started?</p> <p>16 MR. FORBIS: Before they're completed.</p> <p>17 MR. GALLAGHER: Before they're completed.</p> <p>18 MR. FORBIS: We had that hope for Folsom, and 19 we were about, I think, 18 months behind. So where the 20 manual wasn't officially approved until the spillway was 21 completed. It was, like, October 2017 the spillway 22 done, and June 2019 the manual was done.</p> <p>23 MR. GALLAGHER: Right.</p> <p>24 MR. FORBIS: And we would like to close that 25 gap.</p>

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<p>1 MR. GALLAGHER: It's the public's set of 2 (unintelligible.) Folsom actually did a full, complete 3 additional auxillary spillway. 4 MR. FORBIS: Yes. 5 MR. GALLAGHER: In that project. 6 MR. FORBIS: Right. 7 MR. GALLAGHER: And so the manual took that 8 into account. 9 MR. FORBIS: Yes. Exactly. 10 MR. GALLAGHER: So in the five-year timeframe, 11 you said, you know, the 4 million gives it what you need 12 right now. Also assuming that DWR and the other 13 partners can provide technical, you know -- contributes 14 some technical information, maybe just to the 15 department. Like, do we feel like we have -- with the 4 16 million that's set aside for this fiscal year, and 17 assuming that we keep getting, you know, continual 18 support there, do you think we can keep the timeline 19 that you guys have the bandwidth to keep that going? 20 Does that make sense? 21 MS. NEMETH: So I think we've identified 22 probably an additional 4 million would be required to do 23 this at the pace we would like to do it. And so those 24 are conversations we're having internally with the 25 secretary within the administration about how best to</p>	<p>1 expeditiously as possible? What are the resources from 2 the federal government versus the State? But this a the 3 priority of ours, which is, you know, doing this work. 4 You know, safety, flood control, and water supply; let's 5 figure out how to optimize all three. 6 MR. GALLAGHER: Yeah, I mean, I think that 7 everybody's on the same page and want to see this done 8 right, but try and do it, you know, as expeditiously as 9 possible; right? And then so certainly we all want to 10 work together to make -- and you've got lessons learned, 11 you know, from doing is this at Folsom, so I think we 12 can bring that all together, that's all very promising. 13 MR. CROWFOOT: And if I might suggest, maybe 14 we have a check-in, you know, on a quarterly basis where 15 we have the leadership, Army Corps, DWR, our agency. So 16 for you all, you can hold us accountable for continuing 17 to move forward, make sure that there's enough 18 stakeholder operations, et cetera. I like that because 19 it's enforcing penchant for us to keep our eye on the 20 ball. 21 MR. GALLAGHER: Yeah. Absolutely. And then 22 one quick thing on FIRO, I didn't see on there that, as 23 we're moving forward, we also should include the flood 24 control agencies, Trillia (phonetic) and Sutter Butte 25 Flood Control agencies. I don't know if they've been</p>
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<p>1 support that. I think certainly we were very supportive 2 the Corps language. And, you know, thank you to 3 Congressman LaMalfa and Senator Feinstein was very 4 helpful in securing that appropriation. And I think you 5 can look to us to be doing that again to make sure that 6 we've got the dollars needed to get this done in a 7 timely manner. 8 MR. GALLAGHER: Do we need more money, like, 9 from the State to help do this? Or are we looking maybe 10 for additional money from the federal government? 11 Obviously, they are putting 4 million in this fiscal 12 year. 13 MS. NEMETH: Right. 14 MR. GALLAGHER: Is that something we should 15 maybe be talking about in our budget committee hearings, 16 Senator Nielson and I? 17 MR. CROWFOOT: Well, I'll say we want to move 18 this process forward as fast as appropriate. In other 19 words, as fast as possible. But also, doing this 20 takeover outreach that we need to -- 21 MR. GALLAGHER: Right. 22 MR. CONANT: And I know you do, too. So we 23 should have that conversation. Maybe start it as an 24 offline conversation around what are the resources we 25 need to keep this project contract and move it as</p>	<p>1 officially incorporated into that group, but they would 2 be similar to, you know, (unintelligible) on the Folsom 3 project. 4 MR. FORBIS: Good point. So one point of 5 clarification there. Though Folsom uses forecast-based 6 operations, it wasn't part of this FIRO program. 7 Folsom's approach was to use what we have to the best 8 that we can. And FIRO is how can we improve what we 9 have, and then later on down the line use the better 10 stuff, for lack of a better word. So the FIRO group is 11 more focused on research and development of the 12 forecasting capabilities and the forecasting product. 13 What can be done to make that better? And then once 14 that becomes better, how can that be use operationally? 15 And so with the Folsom update (unintelligible) was 16 absolutely and rightfully included in those task force 17 meetings. But if we had done a similar thing for, like, 18 a FIRO approach where you're doing a lot of R&amp;D sort of 19 analysis, the parties might have been slightly different 20 between the two efforts. 21 MR. GALLAGHER: I just meant more so just for 22 the water control update. 23 MR. FORBIS: Yes. Absolutely. They would be 24 reimbursed for that. Absolutely. 25 MR. CROWFOOT: So when we would be -- and I</p>

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<p>1 ask this of out people, too -- when would we be able to 2 look at that sort of (unintelligible) chart that 3 schedules out the different pieces of the water control 4 manual update and FIRO, and then understand when it's 5 going to take place? Is that your last bullet about 6 developing the final work plan? 7 MR. FORBIS: Actually, no. That work plan is 8 specific just to the FIRO effort, not the water control 9 manual update. And I think you're highlighting one of 10 challenges that we're going to face is that we have two 11 separate efforts looking at the same things but, like, 12 still different. But a lot of the same people are 13 working on both. So this -- specifically talking about 14 when the work plan outline, the technical work that's 15 going to be done, as part of the FIRO R&amp;D project. 16 In terms of creating an Oroville-specific 17 water control manual update schedule, we have our first, 18 I guess, interagency meeting with DWR and the Corps 19 scheduled for next month to talk about the tasks that 20 we've identified that we can do, and who should do what 21 to really use the federal -- the \$4 million federally 22 provided as smartly as possible. And that would likely 23 include Yuba Water taking on some of the tasks of what 24 would go into an update, and DWR taking on some of the 25 tasks going through the update.</p>	<p>1 until it was approved." So no, we're not precluded from 2 using the knowledge that we gain and the potential 3 benefits that would come from that before. 4 MR. CROWFOOT: Well, that's very helpful. 5 Maybe move to the last slide and turn on the lights. 6 Mr. Forbis gave a really good presentation. We want to 7 open it up to any commission members, and then I think I 8 want to take public comment a bit out of order, so we do 9 public comment now. 10 MR. FORBIS: Sure. 11 MR. CONANT: And we can sort of tally up any 12 questions that members of the public can offer you to be 13 able to answer too. 14 MR. FORBIS: Absolutely. 15 MR. CONANT: But before we do that, commission 16 members, any questions of Mr. Forbis? 17 MS. WIDENER: DWR's yearly flood operation 18 plan, is that made by DWR, and it's just based off of 19 the manual from Army Corps of Engineers? 20 MR. FORBIS: Yes. I'm not even sure of the 21 exact tile, but the one that includes the enhanced flood 22 pool in it, yes that was developed by DWR. And once 23 developed, they coordinated with us and allowed us time 24 to review and provide any comments or feedback. But as 25 we talked about before, as we got to -- since that was</p>
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<p>1 So we have a meeting scheduled, coming up for 2 next month for that. I don't have a good guess of when 3 the update is scheduled, but it would come following 4 that at some point. 5 MR. NIELSEN: Real quick. If it's looking 6 like it's a three or four, five years process, but you 7 find elements that you would say, "Hey, this could be 8 really helpful in the operation," are you precluded from 9 using new bits to add to the manual, or do you have to 10 use the old manual and then get all the new and improved 11 in order to make any running changes? 12 MR. FORBIS: That's a great question. No, we 13 would use the -- our deviation process to implement 14 temporary changes that would benefit the various 15 purposes. And that's, in fact, what we did for Folsom 16 is, while we're still waiting for manual to be 17 officially approved, we did deviations to the water 18 control manual for Folsom that were essentially the 19 draft water control manual that we were currently 20 updating. 21 So we were using the operations in the 22 yet-to-be-approved manual before it was approved because 23 we were looking at it just at this several month or 24 one-year window. "Yes, it's appropriate for this year," 25 or "Yes, it's appropriate for these next four months,</p>	<p>1 in the conservation space, the changes were in that 2 region and not in the flood control space, they had all 3 the authority they needed to implement the things that 4 they so chose. 5 MR. PITTMAN: Mr. Forbis, I appreciate your 6 presentation; it's really informative. I have a 7 question about your visions in terms of your Corps area. 8 MR. FORBIS: Sure. 9 MR. PITTMAN: In most of your drainages, do 10 you have one point of flood control, or do you have 11 multiple points throughout drainage? 12 MR. FORBIS: I guess it kind of depends on how 13 you're dividing up the drainages. The two -- we have 14 four primary California watersheds that we kind of 15 organize; the Sacramento, the San Joaquin, the Tulare 16 Lake bed, and then Tuolumne River, and each of those 17 contain multiple reservoirs. Like, the San Joaquin, for 18 example, there's all these stem sloughs and 19 (unintelligible) San Joaquin main stem. Like, all those 20 feed into the San Joaquin and eventually go down through 21 for analysis and so there's typically -- there's usually 22 one reservoir per one of those major river systems that 23 has flood control purposes for which there's a water 24 control manual for. 25 MR. PITTMAN: Well, the point of my question</p>

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<p>1 is, the Feather River system, upstream from Lake 2 Oroville, has a lot of dams and a lot of facilities that 3 are exceeding 100 years old. 4 MR. FORBIS: Okay. 5 MR. PITTMAN: So my thought pattern is, as the 6 Corps has been in partnership with this project, my 7 wonder is, as those projects have to be redone, rebuilt, 8 whatever, is there a possibility the Corps might be 9 interested in partnerships for flood control upstream? 10 MR. FORBIS: I think there's a possibility. I 11 know I've attended one meeting where the -- not 12 specifically the Feather River, but that one meeting 13 where the discussion of future federal interests in 14 infrastructure changes at dams in various watersheds 15 came up. So I know that's a question that can be asked, 16 and it's usually -- I'm not as familiar with the process 17 of what comes from there, but I know those conversation 18 occur and have specific entities or people are 19 interested in pursuing that. I could find appropriate 20 point of contact at our office to flush out those 21 details, because, unfortunately, I'm not the right guy. 22 MR. PITTMAN: Well, I appreciate your answer 23 because I see Folsom as an example of getting the lower 24 exit of the pool. It may be an example to use as many 25 other reservoirs, maybe (unintelligible) we have that</p>	<p>1 agency's typically comfortable with. And so we're 2 pushing the bounds a little bit out here in California. 3 It's exciting work for us. And especially knowing that 4 it's resulting in better performance from these projects 5 so they can do a better job than what they've typically 6 done. So I'm happy to come back and share any progress 7 we've made. 8 MR. CROWFOOT: Thanks so much. 9 MR. FORBIS: Thank you. 10 MR. CONANT: Those who want to make comment, 11 you can fill out a speaker card, or you can also just 12 come up. But I will take the one card I have received 13 already, which is Hellen Dennis. And would ask you to 14 come forward, if you would, Helen. And what we do, as 15 you know, Helen, is try to ask each of the public 16 commenters to keep their comments focused so we can hear 17 from everybody. And then if you have specific questions 18 that we can answer or Army Corps can answer, please feel 19 free identify those. Welcome. 20 MS. DENNIS: Thank you very much. As part of 21 the community, I'm more interested in what's happening 22 for the citizens, for us as a public. I don't want to 23 know everything about water, I just want to be kept safe 24 from it. I don't want Lake Oroville to only be for 25 boaters and fisherman. I want it to be for regular</p>
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<p>1 discussion. But that makes a lot of sense for all the 2 other reservoirs. I mean, Feather draining is huge, as 3 we all know, and so is the Sacramento River drainage. 4 But if you can get it in all the other pools, it might 5 help the reservation. So I appreciate your 6 conversation. 7 MR. FORBIS: Absolutely. Yeah, sure. 8 MR. CROWFOOT: Thank you, Mr. Forbis. 9 MR. FORBIS: Thank you. Thanks for the 10 invitation. 11 MR. CROWFOOT: Have a seat. 12 MR. FORBIS: Okay. 13 MR. CROWFOOT: And just one request as you do, 14 which is this body is, you know, formalized moving 15 forward and we meet on a quarterly basis. So would be 16 great if you or a colleague from time to time could come 17 and update us on this process. Obviously, we have 18 director of Department of Water Resources, but really 19 appreciate your engagement. There was a lot of interest 20 in having you come, and hopefully we can just stay 21 looped as a commission to your process. 22 MR. FORBIS: Absolutely. I'm happy to share. 23 This sort of work with FIRO and (unintelligible) 24 operation, that's brand new for the Corps of Engineers 25 as an agency. So it's on the forefront of what our</p>	<p>1 family members who want to go, say, swim, or who want to 2 go camping, who want to see the wildlife. And I don't 3 see that happening. I see only boating, boating, and 4 boating going on at the lake. 5 Specifically, I've been up to Loafer Creek, 6 the dam, the spillway, over to the other side where the 7 boating is; I don't see a lot of activity going on for 8 the common citizen who doesn't have the money to own the 9 boat, or maybe isn't interested in having a boat or 10 going out on the lake, but just wanting to enjoy the 11 lake from the shore. I'm seeing taking down more and 12 more trees, more wildlife is being chased away of all 13 the equipment and explosions and everything that are 14 going on. When I come to these meetings, I want to here 15 about Oroville. 16 I do understand that Folsom is important to 17 what is happening in Oroville, but I really want to hear 18 about what's going on right now in Oroville in and at 19 the dam, and at the surrounding waterways. And that's 20 my comment. Also, another thing I read was that on one 21 of these sheets (unintelligible) about Oroville is that 22 the Department of Water Resources, DWR, owns and 23 operates the Oroville Dam facility. I believe they get 24 licensed -- which, last time I heard, they were still 25 trying to get the license. And I was opposed to it</p>

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<b>Page 78</b>	<p>1 because of the way they had been if the past. But that 2 thing I'm commenting on: Why are they making statements 3 if they own it? 4 MR. CROWFOOT: Thank you so much, Hellen. Just 5 on the topic of recreation, this commission and its 6 members can identify any topics we want to make sure to 7 address in future commission meetings. So if there's an 8 interest in diving into recreation, both challenges and 9 opportunities, we can certainly do that. Just a 10 quick -- let's turn Helen's last point into a question, 11 which is: Does DWR own the dam? And maybe a couple 12 sentences on relicensing. 13 MS. NEMETH: Sure. DWR and state water 14 project is the owner of the dam. And that means that we 15 acquired the land and financed the construction, so we 16 are, in fact, the owner-operator. And we have a water 17 right to the water that we store in Oroville Dam. And 18 that is essentially, as you know, it provides water to 19 the Californians in the bay Area, all the way down 20 through Southern California throughout the central 21 valley. So we are, in fact, the dam owner and operator. 22 The state water project has 25 other dams throughout 23 California in which it is the owner and operator. So 24 it's a very familiar role for the state water project. 25 On the relicensing, we do, as many of you in this room</p>	<b>Page 80</b>	<p>1 MR. JERRY: First of all, I would like to 2 thank the director for follow-up on my concerns about 3 the Palermo tunnel. Dave Sarkisian and I had a 4 half-hour meeting prior this meeting here discussing 5 some concerns of mine, and he presented some conclusions 6 of his. And I'm going to discuss that here when this is 7 over with, with Senator Gallagher about the Palermo 8 tunnel. Okay? And I'll comment on that in a minute. 9 But getting back to the Corps of Engineers' 10 presentation. Very, very complicated, very convoluted. 11 Like an air traffic control tower taking care of Delta 12 and American Airlines and all these different airlines 13 coming into a central area, controlling the flow. I 14 kind of think the same analogy would be for PJE, 15 (Unintelligible), water coming into Oroville, south-end 16 water coming in from the dams up there, Shasta; all 17 going into a common Sacramento River, going into the Bay 18 Area. 19 And handling all those concerns with 20 saturation of the watershed, releases from concerns, 21 maybe a radio gate (Unintelligible) like at the Folsom. 22 All these different concerns, and now we're talking 23 about -- what I'm hearing here is an update of some 24 flood control manual. Now, realizing that it takes 25 people to read and comprehend and understand a manual as</p>
<b>Page 79</b>	<p>1 know, that the relicensing was completed in, I think, it 2 was 2006. 3 We received the final environmental permit, it 4 was a biological opinion from the National Marine 5 Fisheries service in 2016. And we await final approval 6 from the Federal Energy Regulatory Commission to 7 actually activate that license. Until that time, we 8 deal on an annual basis with a temporary license. 9 There's a lot of recreational benefits that are part of 10 our new license, particularly ones that are in what's 11 called the FERC boundary of the facility. To the extent 12 that there are other recreational projects that the 13 department has committed to that's outside of that 14 boundary, we have accelerated those -- particularly 15 since the Oroville spillway failure -- as the way to do 16 everything that we can to more immediately enhance 17 recreational opportunities, understanding that some were 18 lost during that incident. 19 That continues to be a work-in-progress. We 20 are very focused on getting the license so that we can 21 start to do all the projects that we've committed to 22 doing, now 14 years ago. So it's a huge priority for 23 the department to do that. 24 MR. CROWFOOT: Thanks so much, Karla. Other 25 members of the public that care to share perspective?</p>	<b>Page 81</b>	<p>1 a guidance, I would just hope -- and maybe you can 2 clarify this -- is there somebody that has algorithms 3 once these manuals are compiled? The analysis is made 4 for each one of these dams, reservoirs, releases; what 5 they can hold, what they can't hold, what the weather is 6 at the time, what the saturation is at the time. 7 Is there an algorithm of some sort going into 8 a centralized computer to where you have people there 9 that are manning the control tower with all this stuff 10 coming in? Is that existing now, or is it proposed, and 11 who's doing it? 12 MR. CROWFOOT: Really good question. Let me 13 just ask -- I'm going to ask Mr. Forbis. I have a 14 partial answer. But if you would, if you could just 15 finish up and identify if you have other questions too, 16 and then we'll answer them in -- 17 MR. JERRY: Well, I have concerns of different 18 (Unintelligible) concerns of (unintelligible) canal. So 19 if you want to focus on what the Corps of Engineers 20 presentation was to get that question, that I'm sure the 21 gentlemen over here from Sutter County asked a similar 22 one, along with this gentleman here, about all this 23 coordination of these different dams and reservoirs 24 agencies -- 25 MR. CROWFOOT: Yeah.</p>

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<p>1 MR. JERRY: Everybody is at the throttle and 2 the control, but is somebody controlling them? 3 MR. CROWFOOT: Joe, maybe you could talk a 4 little bit about the flood operation center and the 5 partnership between DWR and the Army Corps. 6 MR. FORBIS: Yeah, absolutely. That's the 7 first thing that came to mind. Thank you, sir, for your 8 question and comment. So there currently exists with 9 DWR, the joint operations center, which is a facility in 10 Sacramento that has the Weather Service, the Bureau of 11 Reclamation, and DWR located in one facility. And 12 within that is the flood operation center where the 13 release -- the proposed releases from all these 14 reservoirs are shared and submitted and incorporated 15 into the Weather Service's stream flow forecasts. 16 So you can see the impacts of future releases 17 at various downstream gauges and control points. During 18 this time of year, we have a video conference call or 19 meeting at least one a week during the flood season 20 where we get together, look at the upcoming weather, 21 share our plans for releases, and coordinate and ensure 22 that all the information is known by all parties so that 23 way, the forecast provided by the Weather Service are 24 up-to-date and show realistic results of what would 25 happen when these release changes, if any are scheduled,</p>	<p>1 authority for the flood control operations within our 2 district. 3 MR. JERRY: Not your district. In the -- 4 MR. CROWFOOT: Let me ask Karla just -- and I 5 don't mean to cut you off -- just to directly answer the 6 question. I'll tell you that, from my perspective, I am 7 confident that we have a flood operation center that 8 integrates gaits all of this realtime data with each of 9 these agencies, and then ultimately, on our system, the 10 buck stops with our director of DWR and her team. One 11 of the suggestions at our first meeting was to actually 12 offer a tour of the flood operation center to this 13 commission, and I'd like to ask our organizers to put 14 that to the top of list. 15 And maybe before we get out of the winter 16 season, offer that to this group, because I think it's 17 really informative to see. It does feel a little bit 18 like mission control at NASA, so I want to reassure that 19 they are. But, Karla, and the question of, sort of, who 20 is the decision maker as it relates to the State owned 21 and operated facilities and flood control? 22 MS. NEMETH: So every entity that owns its 23 facilities makes decisions about how to operate them. 24 But all the controls for flood control are approved by 25 the Corps. So we're making a decision on the lever, but</p>
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<p>1 are making. Since that's a DWR, like, facilitated 2 in-house function, I don't know the entire history with 3 it, but I know we've been a party to that for a very 4 long time. 5 And there's been the subgroup with the -- 6 another term for you -- the Forecasted Coordinated 7 Operations Group that has been in place for over ten 8 years, specifically for the Yuba and Feather watersheds 9 with the Corps of Engineers. And that has quarterly 10 meetings where we meet and discuss the goings on of the 11 different projects, and also have a shared, like, 12 modeling tool that can show if releases are coming from 13 these different locations, what does that mean at these 14 downstream points? 15 MR. JERRY: But is there a general in charge 16 of all this operation? You got the Navy, you got the 17 Air Force and all this; and your corps being a federal 18 plan to keep them from flooding out. And you've got all 19 these different outfits that are making progress. Some 20 are. You know, keep it simplistic. I don't care about 21 all this other stuff. I want it simplistic. Is this 22 going to somebody that is a decision maker that has 23 algorithms and a computer coming up with all these 24 variabilities to make a decision? 25 MR. FORBIS: The Corps of Engineers has the</p>	<p>1 it's all approved by the Corps. 2 MR. JERRY: Yeah, but do you have control over 3 PTE (phonetic) that's coming into your lake from Lake 4 Almanor? Suddenly they say, "We got a horrendous amount 5 of water coming up here," and you're sitting here, based 6 upon, you know, Ponderosa and the works with a certain 7 amount coming in, and suddenly they say, "We have a 8 problem here." 9 MS. NEMETH: We are absolutely incorporating 10 all these inputs into our decision making. 11 MR. JERRY: Then you have Shasta up there with 12 their releases. Okay. Now, I want to get to the other 13 thing that I'm up here for; that's the Pulermo tunnel. 14 I mentioned that Dave Sarkisian and I had a meeting a 15 while ago. I have grave concerns about the Pulermo 16 tunnel. Take into consideration that this is a 17 2,430-foot tunnel going through Oroville Dam, releasing 18 its contents just above the access road going into the 19 underground power plant. And should that break up 20 there, it's going to flood right into the underground 21 power plant. Once you lose that, you don't have that 22 almost 17,000 CFS stability to release water, because 23 the power plant will be flooded. And then the only 24 other way you can release water is the spillway because 25 of the river valve outlet would be unusable at all.</p>

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<p>1           So now you've got a situation where you're</p> <p>2 filling a whole reservoir up with nobody to control it</p> <p>3 until it gets to 813, which is where the radio gate</p> <p>4 controls are. And all this jeopardy is only to provide</p> <p>5 Feather River -- or South Feather Water Agency, I call</p> <p>6 it Old WID -- with 40 CFS of water. And I could jump</p> <p>7 over the ditch that's 40 CFS full of water. So the</p> <p>8 whole concern is to take care of those people when they</p> <p>9 have a situation where they could open a valve on an</p> <p>10 existing pin stock up there now and recover their 40</p> <p>11 CFS.</p> <p>12           Or, for that matter, DWR can go down on the</p> <p>13 river and put a pump and pick it up 200 feet and put 40</p> <p>14 CFS in that canal to continue their operations. I</p> <p>15 mentioned to Mr. Sarkisian there that a legal</p> <p>16 requirement -- and I brought this up in that meeting</p> <p>17 with you. I have a copy of that, of which he has a copy</p> <p>18 of it. Going back to the 1960s to read about the</p> <p>19 conditions that water resources had to put those</p> <p>20 facilities in and guaranteed them the water. So they</p> <p>21 give you several options to be able to maintain that 40</p> <p>22 CFS.</p> <p>23           Having that tunnel there through the dam, in</p> <p>24 my feeble estimation, is jeopardizing that whole side of</p> <p>25 the dam up there should it go out. You're looking at</p>	<p>1 opportunity to connect directly with Department of Water</p> <p>2 Resources. Can we just ask somebody at Department of</p> <p>3 Water Resources, just for the purposes of our</p> <p>4 commission, just come up in about two minutes, at least</p> <p>5 just give us -- so we're all understand what the Pulermo</p> <p>6 tunnel is from DWR's prospective, and an update on</p> <p>7 addressing this gentlemen's concerns. Yeah, great.</p> <p>8           MR. JERRY: Do you want know me to stand here,</p> <p>9 or do you want me to sit down?</p> <p>10           MR. CROWFOOT: Please have a seat. Thank you.</p> <p>11           MR. JERRY: Thank you.</p> <p>12           MR. CRADDOCK: Good morning, commission. Ted</p> <p>13 Craddock, acting deputy director of the state water</p> <p>14 project. And, Jerry, good to see you today, and really</p> <p>15 glad that we were able to have our chief dam and safety</p> <p>16 engineer David Sarkisian connect with Jerry. So to your</p> <p>17 question, Secretary, I'll just give a very brief</p> <p>18 description of the facility. And then if we want to</p> <p>19 talk in more detail, maybe this is something the</p> <p>20 commission would be interested in a future presentation</p> <p>21 on. It's a -- the facility is a small tunnel that's</p> <p>22 located below the dam, and it was bored through the</p> <p>23 bedrock underneath the dam. It's a facility that</p> <p>24 includes a concrete-lined tunnel for about halfway, and</p> <p>25 then a tunnel plus, so a concrete plug in the tunnel,</p>
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<p>1 150 PSI. You're looking at 300 foot of head over the</p> <p>2 top of the inlet. You're looking at a situation if you</p> <p>3 had to shut that facility down, you have to set the</p> <p>4 (Unintelligible) down 300 feet, pick up the stock log,</p> <p>5 pull the pins out of the side gate, and lower it down to</p> <p>6 shut it off. You're looking at a facility that's 60</p> <p>7 years old.</p> <p>8           Okay. Right now, according to Mr. Sarkisian,</p> <p>9 they have looked into it, and it looks good for the next</p> <p>10 20, 30 years maybe. But how long is that facility going</p> <p>11 to be up there? 100, 200 years? Somewhere in the</p> <p>12 meantime, you're going to have to go in there and do</p> <p>13 something to that; the valves that rust or the whole</p> <p>14 (Unintelligible), you know, the whole settling of the</p> <p>15 dam itself. Creating pressure on that 6-foot diameter</p> <p>16 tunnel, sometime, sooner or later, you're going to have</p> <p>17 to go in there and do a considerable amount of</p> <p>18 maintenance.</p> <p>19           And I don't know how you would be able to send</p> <p>20 a diver down there 300 feet to pull that gate up. If</p> <p>21 you had a broach, if you had a whirlpool, like I</p> <p>22 mentioned before, that would suck the (Unintelligible)</p> <p>23 down through it.</p> <p>24           MR. CROWFOOT: Can I -- this is helpful, and</p> <p>25 I -- and I'm encouraged that actually you got an</p>	<p>1 which transitions to a steel pipe.</p> <p>2           The steel pipe then exits the other half of</p> <p>3 the way out of the tunnel. And so we're able to walk in</p> <p>4 to part of the tunnel and view the condition of the</p> <p>5 steel pipe and the valves. So we do those inspection</p> <p>6 regularly. And then additionally, we have also brought</p> <p>7 up in submersible equipment to inspect the upstream</p> <p>8 portion of the tunnel and look at the condition of the</p> <p>9 concrete.</p> <p>10           We really take Jerry's seriously. We had our</p> <p>11 team take a close look at it, they briefed me on the</p> <p>12 condition of the facility. Additionally, right now we</p> <p>13 have the benefit of the independent comprehensive needs</p> <p>14 assessment team taking a look at it, the</p> <p>15 (Unintelligible) part 12 team has also taken a look at</p> <p>16 it. And then Congress required us to assemble a Level 2</p> <p>17 risk assessment team, so we have also had them look at</p> <p>18 the facility. So we're taking all that information, and</p> <p>19 I think the overall view is the facility's in good</p> <p>20 condition. But we to continue to have additional</p> <p>21 dialogue with Jerry to make sure we're addressing his</p> <p>22 concerns.</p> <p>23           MR. CROWFOOT: Thank you. That is really</p> <p>24 helpful. And if commission members at a future meeting</p> <p>25 want a more detailed report on that, we can certainly</p>

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<p>1 have it. So thank you very much. Any other members of 2 the public that wish to comment? Okay. For our last 3 item, I'd ask our colleague from Department of Water 4 Resources, Erin Mellon, come and give us an update on 5 communications. I think one clear message from Oroville 6 and surrounding communities is that, over the last three 7 years, is that DWR and our state needs to do better job 8 actually sharing information. And we've taken that 9 seriously and have made progress on that, 10 work-in-progress. And Erin will update us on that.</p> <p>11 MS. MELLON: Thanks. Thank you all. Thank 12 you, commissioners. I talked about this a little bit at 13 our last meeting. So like I just mentioned, we just 14 posted a digital article that kind of memorializes some 15 of the outreach that we want to do. It talks about when 16 we want to do that outreach based on some annual 17 milestones, and the (Unintelligible) that we do that 18 outreach. And there are paper copies in the back for 19 everyone. Like Secretary pointed out, we really want to 20 proactively share information about the operations of 21 DWR as a whole, and, obviously, Oroville specifically. 22 We want to do is in a variety of ways to make sure that 23 everybody has access to that. So we use e-mails, we use 24 our website, we use print advertisements in local 25 papers, certainly social media.</p>	<p>1 So looks like lake levels are still low to the 2 point that we wouldn't even be able to use the main 3 spillway. There's a lot of conversation about 4 operations plans. So every time we update our operation 5 plans, and through the communication with the Army 6 Corps, we want to make sure we're putting that out 7 proactively as well. Any time we see large storms on 8 the horizon, or significant snowpack that's going to go 9 into the watershed, we want to communicate that early 10 and often.</p> <p>11 Again, with the caveat that sometimes we'll 12 communicate it and the storm will move or change, and 13 we'll have to kind of adjust that. So every time that 14 you use that news coming from us, know that it's, you 15 know, these things -- we're trying to get more accurate, 16 as the representative from the Army Corps mentioned, 17 with things like FIRO, but there will be adjustments. 18 We do annual -- multiple snow surveys every year, and 19 we'll be up there, actually a week from today. And we 20 want to really connect those snow surveys and what we're 21 seeing up in the mountains to what you guys can expect 22 seeing enter the reservoir here.</p> <p>23 And the, of course, our emergency action plan, 24 which I think many of you are involved in the regular 25 workshops and tabletop exercises where we kind of go</p>
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<p>1 And if you guys have any other ideas of venues 2 that we should be communicating, we're all ears. As far 3 as our website, we do these kinds of digital articles. 4 And when we have new information about operations, we do 5 these blog posts, put out press releases. I think 6 Congressman LaMalfa talked about checking C-Desks and 7 we also are pulling our charts off that website which 8 shows current lake levels and releases from the 9 facilities. As far as when we want to do that 10 communication, some milestones that we come to every 11 year are things like a new water year, or when the state 12 water project makes its water supply allocations, which 13 in large part determined by how much water in storage we 14 have in Lake Oroville.</p> <p>15 We want to do communications when we need to 16 make required releases from the facility, and that's for 17 environmental reasons or water quality or water supply 18 needs. Certainly any time that we ever intend to 19 utilize the main spillway, a lot of communication will 20 be had. And we'll start communicating well ahead when 21 we anticipate potentially use with the understanding 22 that, depending on weather patterns, things may change. 23 We may adjust our operations and may not need to end up 24 using the main spillway. Unfortunately, this year, it 25 looks like it's going to stay pretty dry.</p>	<p>1 through the communications and outreach that happens if 2 there's a situation up in the facility. And really, DWR 3 as the owner of the facility in those situations, 4 partners with the local law enforcement to provide them 5 the information they need to ensure that information 6 gets to the residents. And so we really -- that's where 7 that communication with local law enforcement happens. 8 I also want to make sure everyone knows if you aren't 9 already receiving the e-mails, please let us know and 10 we'll get you on that lister.</p> <p>11 We also put the same content in those e-mails 12 in weekly advertisements in the local papers, so you 13 should be seeing those on Sunday. And then, during the, 14 I think it was the last commission meeting, Supervisor 15 Connelly, who I know couldn't be here today, made a 16 really helpful suggestion to update some of the maps 17 that we have on that -- on our California data exchange 18 website to make sure that all those charts don't just 19 talk where the lake is in terms of storage, but also 20 talk about in terms of elevation level. So we made that 21 update. There might be a couple more that's still 22 getting tweaked.</p> <p>23 So if you see something and you feel like 24 there's a clearer way of sharing that -- of us sharing 25 that information, if you have ideas for how we share</p>



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<p>1 this information, or adjustments to the language we're 2 using, we're all open, ears are wide open. I really 3 appreciate that kind of feedback to make sure that we're 4 communicating to you all in a way that's actually 5 helpful.</p> <p>6 MR. CROWFOOT: Thanks so much, Erin. The 7 community feedback and input has been really helpful to 8 improve our communications. And so let me ask, first of 9 all, are there commission members that have any 10 suggestions, observations, questions in term of these -- 11 these recent ways that we are communicating? I might 12 just ask Ted -- oh, sorry.</p> <p>13 MR. PITTMAN: I just want to add that 80 14 percent of our learning today -- or more -- is generated 15 by visual. So the more pictures, the better. I just 16 have the say that. That's a big deal and it really 17 helps.</p> <p>18 MS. MELLON: Me too.</p> <p>19 MR. CROWFOOT: Yeah, and I say, too, video 20 that can shared as well.</p> <p>21 MS. WIDENER: I have just an observation for 22 the public. There's, like, a contact us at the end 23 of -- through one of those community update e-mails. 24 And you can click on it, and you can get a hold of Liza 25 really, really quickly. I had a little bit of an issue</p>	<p>1 miracle March.</p> <p>2 MR. JOHN: Yes, so we're experiencing what's a 3 very usual dry period right now. February there's a, 4 based on the forecast that we're looking at right now, 5 we could be completely look at a zero for total precip 6 for the month of February, which would be unprecedented. 7 So, you know, this -- as we are for the year, we saw a 8 pretty decent December, but we had a late start in terms 9 of precip. We're probably running about -- I think it's 10 about 50 percent of where we should be at this point. 11 So it's a little bit concerning based on our experience 12 back in '14, '15 where we essentially, in January 13 of 2014, it was the start of a 13-month -- essentially 14 no significant precip for 13 months. We're still in the 15 water -- in the wet period of year, so there's still 16 hope.</p> <p>17 Although, still looking out ten, 14 days, 18 there's no significant precip. The good news is our 19 storage is relatively good coming off of a wet year. So 20 we're, you know, 2.2 million-acre feet. We're kind of 21 leveling out, though, on storage. We've had to increase 22 the releases here just recently for the fact that the 23 system is drying out downstream. And in order to meet 24 the flow and salinity requirements in the delta, we are 25 having to up our releases along the Shasta and Folsom,</p>
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<p>1 with some dates that were not showing on the website; 2 she fixed it really quickly and got back to me, and it 3 was very much appreciated.</p> <p>4 MS. NEMETH: Thanks. Yeah, if you don't know 5 her already, Liza Whitmore is our public information 6 officer here in Oroville. She lives up in Chico. That 7 was a new addition -- what have we been? A year now and 8 a couple months now? In or around?</p> <p>9 MS. MELLON: So that was direct feedback from 10 you all that we needed someone here, who lived here, who 11 was more accessible, and who also kind of understands 12 what you guys are dealing with on a daily basis, as 13 opposed to, you know, me in Sacramento. So thank you 14 for pointing that out. Liza's all yours.</p> <p>15 MS. WIDENER: Yeah, it's really good, I think, 16 for the community. If you have questions or anything 17 that you want put out there right away, and, you know, 18 some kind of response, it's a really good tool for us.</p> <p>19 MR. CROWFOOT: It's really great. You know, 20 while we have this slide up, maybe to conclude the 21 meeting -- and maybe it's Tad or John I see back 22 there -- if you want to just give us the sort of status 23 report on the reservoir this season and what we can 24 expect for the remainder. Not that we're asking you to 25 predict the weather. Tell us if we're going to have a</p>	<p>1 which is a little bit unusual for this time of year to 2 start that this early. So, you know, we're not 3 positioned very well right now.</p> <p>4 Although, like I said, it is as relatively 5 healthy storage coming off a wet year, so we could 6 withstand one dry year. If it's prolonged into another 7 year, then we wold start to be a little concerned. 8 But --</p> <p>9 MR. CROWFOOT: And, John, the flip side of 10 that, of course, you're talking about water supply. At 11 least there's a silver lining as it relates to flood 12 control. So plenty of space in the reservoir.</p> <p>13 MR. JOHN: Yes, plenty of space in the 14 reservoir. I think as was in Joe's presentation, we're 15 not even close to having -- being open to that required 16 vacant flood control space for this year. So that is 17 the flip side. There is no concerns at this point 18 whatsoever for any type of flooding.</p> <p>19 MR. CROWFOOT: Got it. Questions of John? 20 John is, like, the chief operator of the entire state 21 water system. He's got some fancy title I forget.</p> <p>22 MR. JOHN: Yeah, I forget, too. Congressman?</p> <p>23 MR. NIELSEN: Thank you. What could we figure 24 on having an updates, or even a final number, on ag 25 district allocations here locally, or farther down the</p>

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<p>1 chain for DWR? I know you got a -- I think Erin said 2 take another poke here on the snow next week. And is 3 that going to be kind of the final? Are we going to 4 hope for miracle March? What are we kind of looking at? 5 MR. JOHN: Yeah, you know, so for the 6 allocation for the -- kind of the local senior solvent 7 contractors, per contract, that's going to be -- the 8 final on that is going to be based on an April 1st 9 runoff forecast. Right now we're at a hundred percent. 10 So we're looking at a hundred percent for them, for the 11 senior folks locally. For the south delta -- for the 12 state water projects survey, we're only looking at 13 15 percent allocation at this point. And that is -- 14 that's very low for this time of year. We will see how 15 things develop as we go through the spring. That 16 forecast is always based on a conservative estimate of 17 the amount of precipitation we'll see through the 18 remainder of the year. 19 MR. NIELSEN: You're very conservative early 20 in the year. So if you believe that we're going to have 21 the minimal amount of additional inflow, you know, 22 something -- taking into account the dryness we've had 23 and maybe average from here on out, do you see that that 24 15 percent can be improved upon for those a little 25 father south?</p>	<p>1 those, say in March, which is still a month that we're 2 open to that type of phenomenon. 3 MR. NIELSEN: Yeah, I wrote down a few C-Deck 4 numbers from -- Oroville Lake reached its peak four days 5 ago; 805.53 is already trending down unless something 6 big happens on our runoff. A year ago today, 7 interestingly, it was 774. So it's 30 feet higher than 8 a year ago. But we had a lot happening before we 9 reached the peak on June 26th of 896. And then the lake 10 dropped all the way down to 775, its low point, on 11 November 29, which is about the same as the one-year-ago 12 date. So it's only come up 30 feet since November 29 to 13 where we are right now. 14 So as, you know, the concern the gentlemen 15 had, I don't see any way we're going to be getting into 16 a flood control situation. We can have an easy March. 17 So I just thought those numbers were interesting on 18 Oroville a year ago. Compared to now, we have almost 19 zero snowpacks, so we're going to have to play it pretty 20 tight. Releases he talked about for delta saline and 21 fish issues, how many CFS do you think that would peak 22 at, looking at how we haven't had supplements from -- 23 MR. JOHN: Right. So we made about 500 CFS 24 increase. We're hopeful that's all we're going to have 25 to make for at least the foreseeable future. I will say</p>
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<p>1 MR. JOHN: We hope so. So we update these 2 forecasts every month. And what happens is, during that 3 snow survey process that takes place where all the 4 snow's measured comprehensively up and down the Sierra 5 Nevada, that gets turned into a runoff forecast of how 6 much runoff we expect from that -- from the snow that's 7 up there, plus a forecast of anticipated precipitation. 8 That then flows into a operations forecast in terms of 9 what we can actually deliver to our contractors. The 10 unfortunate thing is, the 15 percent was actually based 11 on conditions as of February 1st. And as I mentioned, 12 we're being shut out of here in February. So we don't 13 see any movement upward on that allocation anytime soon 14 unfortunately. 15 MR. NIELSEN: So even just a movement of time 16 doesn't have any optimism of -- 17 MR. JOHN: Yeah, so there's certain 18 expectation of a certain amount of precipitation 19 occurring each month. Even in a dry year, we would 20 typically see a few inches of precip each month; we're 21 not seeing that in February. I mean it's not completely 22 unusual that we see a week's stretch of no precip, 23 because much of our precip comes in through these 24 atmospheric rivers. So that, you know -- that has the 25 potential of turning around if we get hit by one of</p>	<p>1 I'm giving up hope yet that we have reached our peak in 2 storage. I think there's -- more likely than not, we're 3 going to start increasing storage once again once -- I 4 mean, odds are we will get some sort of precipitation in 5 March that -- and we do have some -- even though it's 6 small, we do have some snowpack. We will still get some 7 of that inflow later in the spring. So not giving up 8 hope yet that we've peeked out on storage. 9 MR. NIELSEN: No, no. But I mean, last year I 10 liked to watch the inflows, too, and we had a lot of 11 days between -- the low was 10,000, the high was about 12 35,000 CFS during that March period. I hope we see some 13 35s and kick this up a bit. I'm a little concerned. 14 MR. JOHN: Absolutely. This is the time 15 period where we actually would be cheering on an 16 atmospheric river to provide some benefits to the water 17 supply. 18 MR. NIELSEN: Thank you. I'd like to, at the 19 appropriate time -- I'll wheel back -- but on FERC 20 relicensing and that situation when that's appropriate. 21 MR. CROWFOOT: Me too. 22 MR. NIELSEN: Right now? Okay. What are we 23 looking at as far as, you know, as the FIRO or the needs 24 assessments, are those things that are in the way of a 25 FERC relicense? What are the other things in order to</p>

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<p>1 get that resolved? And also, there's obviously a local 2 concerns of the County and the City on some things being 3 met. I think everybody in favor of getting this done 4 and having the -- a long term hydropower. Everybody 5 wants that. But just, you know, the concerns 6 immediately after the spillway failure and some of the 7 more local issues.</p> <p>8           What are you looking at with that whole matrix 9 as far as -- what you need to get out of the way as far 10 as needs assessment. Is that a job that needs to be 11 done first? And the FIRO and that update there, are 12 those things that need to be done, or is that 13 independent of what you need to do for a relicense?</p> <p>14           MS. NEMETH: I think technically it's 15 independent. But I think the dynamic is, you know, 16 post-spillway failure, a real interest in the County and 17 the City and, you know, especially some of our friends 18 recreational community really wanting to understand what 19 out long-term plan was to enhance the facility. We are 20 close. And a lot of folks around some of the 21 commissioners others have been participating in the 22 comprehensive needs assessment. And, Ted, you can tell 23 us the timing on that. But I believe we're close to 24 reaching completion on the forecast and foreign 25 reservoir operations, which is really exciting stuff, we</p>	<p>1 get to those as soon as we can.</p> <p>2           MR. NIELSEN: Do I hear in there that you 3 have -- FERC has some boundaries on that, but are you 4 able make firm commitments independent of what FERC 5 might that we can take to the bank locally as far as 6 those recreation and facilities upgrades? Kind of like 7 what the lady was asking about, one of our public 8 members. On facilities that are accessible to her too, 9 too.</p> <p>10           MS. NEMETH: Absolutely.</p> <p>11           MR. NIELSEN: But do we have -- and I might be 12 ignorant because I'm not here all the time, but do we 13 have that plan? Is that something that we can put our 14 finger on, and then I can help reassure our locals at 15 the City and the County, "Hey, we're looking good, and 16 I'm going to go ahead and do my part to help encourage 17 FERC to move forward once we have those assurances"?</p> <p>18           MS. NEMETH: Yeah, so we've done a handful of 19 projects -- and we can give you an update on those 20 projects -- that we're helping on the -- both on the 21 fish front, in the Feather, but also some of the work 22 that has been done around improvements to Loafer Creek 23 and other paces. So I'd be happy to provide you with a 24 lost of work that's ongoing. But I think we have 25 identified that as the universe of things that we can</p>
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<p>1 expect to have a work plan completed by the end of this 2 year, which, of course, is all of this new information 3 that the Corps is committed to considering as it moves 4 towards a separate process, which is updating the -- the 5 control manuals.</p> <p>6           So all those things are converging. I think, 7 ultimately, it's at the discretion of the FERC 8 Commission in Washington, D.C. to make the 9 determination. And, you know, I think -- I mean, my own 10 observation if FERC was -- you know, as we were moving 11 through this realtime emergency and sorting things out 12 through the aftermath, and we were rebuilding our 13 relationship with FERC, and the engagement of many 14 independent technical bodies that could help provide 15 more confidence that we were looking at everything, we 16 were accounting for everything. I think the fact that 17 we have now three separate, independent entities that 18 are reviewing the work, I think, helps us, you know, 19 make the case to FERC that we're crossing T's and 20 dotting I's, and that we're committed to delivering on 21 this path of improvements.</p> <p>22           Here at Oroville ought to help us make the 23 case. But these very specific things that we can and 24 cannot do given the FERC boundary, particularly as it 25 relates to the recreational amenities. We just want to</p>	<p>1 accelerate absent a FERC license.</p> <p>2           MR. CROWFOOT: But, Karla, it also sounds like 3 it would be helpful to get the list of projects that 4 we've committed to within the FERC license, too.</p> <p>5           MS. NEMETH: Sure.</p> <p>6           MR. CROWFOOT: I think that's important for 7 you to know what we're stepping up. And do you recall 8 off the top of your head the amount of investment as it 9 relates to the amount of funding?</p> <p>10           MS. NEMETH: John, can you remind me? Or Ted.</p> <p>11           MR. CROWFOOT: Half a billion dollars?</p> <p>12           MS. NEMETH: One million.</p> <p>13           MR. CONANT: Say again. Maybe on the 14 microphone.</p> <p>15           MS. NEMETH: Yes.</p> <p>16           MR. CONANT: Sorry to put you on the spot.</p> <p>17           MR. YARBOROUGH: Sorry. An entire 18 billion with the license.</p> <p>19           MR. CROWFOOT: Got it.</p> <p>20           MR. NIELSEN: Say that again, please.</p> <p>21           MR. YARBOROUGH: Would be one billion in 22 total.</p> <p>23           MR. NIELSEN: One billion with a "B"?</p> <p>24           MR. YARBOROUGH: With a "B" over the 25 50-year license.</p>

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<p>1 MR. NIELSEN: Invested over what? 2 MR. YARBOROUGH: The anticipated 50-year 3 FERC license. 4 MR. NIELSEN: In what zone? What geographical 5 area? 6 MR. YARBOROUGH: All around the -- 7 within the FERC boundary where the Oroville facility is. 8 MR. NIELSEN: (Unintelligible) over 50. Okay. 9 MR. CROWFOOT: And it seems like a good 10 follow-up would be -- at the Congressman's office, would 11 be just some overview that detail in terms of what are 12 12 the projects. I mean, we're excited about this, for 13 what 13 it's worth. And I think that we recognized that we 14 need to 14 work with the community on finalizing the FERC 15 license, 15 but, you know, we're sort of excited to get 16 this stuff in 16 the ground. 17 MR. NIELSEN: I hope, again, that 18 (unintelligible) remaining positive relationship there. 19 19 I know -- there's been a really good (Unintelligible) 20 with 20 the local chamber being the promoter for DWR. And 21 21 (Unintelligible) up there, so those are all good inputs. 22 I 22 think everybody really wants to be going in this right 23 same 23 direction. It's like, once you finally get to that 24 point 24 where boom, you get a 40 or 50 year operating 25 license, it seems there's nothing really to talk about</p>	<p>1 think, just for some background information, you know, 2 for those that might not know. There is a lot of 3 pushback from the community about the new license where 4 it relates to recreation because of things like the 5 original recreation plan that was done in the '60s. 6 And, you know, a lot of those things were not 7 implemented in our community. And then, you know, when 8 that was brought to FERC's attention in the '90s, they 9 were deemed to be not necessary. But there's a lot of 10 people still here that remember that, that remember the 11 promises that were made a long time ago that never came 12 to fruition. So it's difficult for a lot of people in 13 the community to visualize a new license creating all of 14 these things that were being promised, because we have 15 been burned before, to say it simply. 16 MR. CROWFOOT: Well, that's helpful. And 17 really appreciate your candor. And that's what this 18 commission's all about, to actually bring that stuff to 19 the fore. So Karla had a good point. We're hearing is, 20 as we continue this conversation with local leaders who 21 offer the support for finalizing FERC, we feed to 22 continue to identify how we will be held accountable for 23 actually materializing these improvements. We're past 24 the hour. I want to give the final word of this meeting 25 to certainly Senator Nielson; this commission is sort of</p>
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<p>1 much after that. And we all want that license to 2 happen. 3 MR. CROWFOOT: Right. 4 MR. NIELSEN: Great, green hydro generation. 5 MS. NEMETH: That's what's so good about this 6 commission. 7 MR. NIELSEN: Thank you. 8 MR. CROWFOOT: Helen, quick point. 9 MS. DENNIS: All right. My quick point is, 10 when I made my comment, it was not solely for disabled 11 people. It's for everybody. 12 MR. CROWFOOT: Totally. 13 MS. DENNIS: When I was younger and my 14 children were home, I used to take them out to the Loaf, 15 for instance, or the (unintelligible) and take them out 16 to go swimming and have a picnic and a barbecue or 17 whatever. I've taken Girl Scouts out. I've taken, you 18 know, lots of kids out there to enjoy the lake, and from 19 the shore, not necessarily in a boat. 20 MR. CROWFOOT: Yeah, I think the point we take 21 from your comment is that we need all types recreational 22 access. 23 MS. DENNIS: That's right. And for everybody. 24 MR. CROWFOOT: Absolutely. 25 MS. WIDENER: And if I can add to that. I</p>	<p>1 a child of yours and Senator Gallagher's. And then also 2 Congressman LaMalfa, who we are honored to have here 3 today. Gentlemen? 4 MR. NIELSEN: Well, to me, as I said, 5 it's humbling to be a part of this for so long. My 6 whole life's actually been river and water issues all 7 over California. But to see the success of this, and 8 the commitment of the administration, it's really 9 encouraging. And I would hope so to the citizens. 10 There were not too many private citizens here today. I 11 would hope that they would realize at least that this is 12 their opportunity to come. 13 And this is a rare thing that -- this is a 14 rare thing in government, to have your government come 15 out to you. And you're getting the highest level 16 officials. They are busy people, and they are devoting 17 a lot of time and attention to the citizens here. So 18 that's a rare opportunity. So it's incumbent on the 19 citizens to involve themselves and pay attention to 20 what's going on here. Because in that you have a very 21 direct voice. You don't have to send a letter and wait 22 a month to get a response, "Thank you for your letter." 23 But you're getting to talk to the real shot callers. So 24 that's really helpful. I do want to just revisit and 25 mention, again, the issue of siltation. I don't think</p>

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<p>1 we've got any problems.</p> <p>2 I'm not hearing complaints. But it's</p> <p>3 something that we must always be aware of. And it can</p> <p>4 becomes problematic when we create islands and -- much</p> <p>5 goes on. So let's just not forget that, as far as our</p> <p>6 conveyance, silt is an issue. I used to have fun</p> <p>7 thinking about the people who would say we needed to</p> <p>8 control the flow of the river. Well, I said, "No,</p> <p>9 you're never going to do. We're peons, that river's</p> <p>10 going to go where it wants to go." So we tried to work</p> <p>11 along with (Unintelligible) we can, but it's more the</p> <p>12 boss than we are. But they are things that humans most</p> <p>13 assuredly can do.</p> <p>14 I want to make just an observation that I</p> <p>15 consider an encouraging one. Many of us deal with the</p> <p>16 federal government; Congressman LaMalfa literally every</p> <p>17 day. But my perception -- and I've gone to Washington</p> <p>18 many times on many issues. And under -- irrespective of</p> <p>19 the administration, usually, when you to go to D.C., you</p> <p>20 meet with high-level officials, and they welcome you to</p> <p>21 the office and smile and listen to you and patronize</p> <p>22 you. And the conclusion is, we'll take it up with the</p> <p>23 regions. Fine. Now, that's maybe a little harsh, but</p> <p>24 not much. My point being, it's important to go, but</p> <p>25 sometimes don't harbor high expectations. I never have.</p>	<p>1 with trashed.</p> <p>2 Then I realized that we had a couple of very</p> <p>3 heavy days of rain and there's a little creek just to</p> <p>4 the north of us. And the toilet was flushed along that</p> <p>5 creek, the refuse of the campers. Now, I certainly</p> <p>6 talked to Director Bonam about this -- I think that's a</p> <p>7 fish and wildlife issue, too, because of the geese and</p> <p>8 ducks were swimming around in that mess. But it is a</p> <p>9 real problem. And dealing with the agencies, there's a</p> <p>10 wariness in the legislature of dealing with this very</p> <p>11 important issue. And I'm going to say that I'm</p> <p>12 encouraged Governor Nielson -- not Nielsen He's never</p> <p>13 going (Unintelligible).</p> <p>14 MR. CROWFOOT: You never know.</p> <p>15 MR. NIELSEN: No, no. That's long</p> <p>16 history. Governor Newsom has been really focused on it.</p> <p>17 And focused very much so in his State of State Address.</p> <p>18 But (Unintelligible) there would be some follow-up on</p> <p>19 this, and some action taken. The legislature most</p> <p>20 assuredly is dealing with it. I have to deal with it,</p> <p>21 and Gallagher, and LaMalfa, all of us in elected</p> <p>22 office. In many capacities, you local officials as</p> <p>23 well. And you're doing certain things with certain</p> <p>24 local ordinances about camping. We have got to attend</p> <p>25 to that because it is of crisis, of course. And we're</p>
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<p>1 However, in the last couple of years, I've</p> <p>2 seen a big difference when I've gone back with the help</p> <p>3 of Congressman LaMalfa arranging things for Gallagher</p> <p>4 and I to visit. You sit down with these directors or</p> <p>5 secretaries, whoever you're meeting with, and it's a</p> <p>6 very direct conversation. They're all hands on desk</p> <p>7 listening to you. And there are even commitments made</p> <p>8 in the meeting. "Yeah, we're going to do that and</p> <p>9 here's how. We're going set it in place and work on</p> <p>10 it." Now, that meant that were well prepared for the</p> <p>11 meeting, because they don't just make decisions on the</p> <p>12 fly like that without examining the issues.</p> <p>13 But my point is, it's an encouraging thing to</p> <p>14 see the federal government being a bit more responsive</p> <p>15 to us. And lastly, the issue of homelessness, I want to</p> <p>16 revisit that. Last year we took a little cruise up to</p> <p>17 Feather and the Yuba and down the Sacramento. And I was</p> <p>18 really shocked the degree of campers. I know there was</p> <p>19 quite a few, but how much really surprised me. About</p> <p>20 five months ago, I got up one morning and -- usually</p> <p>21 when I'm on the river, I always open the curtains and</p> <p>22 look out at the river -- looked like a garbage truck had</p> <p>23 rolled into the river, all this enormous pile of trash.</p> <p>24 Within 30 minutes one-half of the Sacramento River --</p> <p>25 it's pretty wide at that point -- was brown and filled</p>	<p>1 having severe public safety, human persons safety on our</p> <p>2 streets and out cities. My own staff have been harassed</p> <p>3 walking to their homes in downtown Sacramento. And one</p> <p>4 of them just made the decision this week to move, she's</p> <p>5 been so harassed and fearful.</p> <p>6 And as I mentioned as far as our waterways,</p> <p>7 there are issues here. We really need to focus on it.</p> <p>8 And I think that we are on the threshold of being able</p> <p>9 to do that. And the governor has done something</p> <p>10 addition, although there's no meat on the bone yet, and</p> <p>11 that's the key to how successful this will be.</p> <p>12 Addressing not just providing shelter for the homeless,</p> <p>13 but also other needs to allow those homeless individuals</p> <p>14 to become self-sufficient and self-supportive and not</p> <p>15 homeless. And we've got a long way to go with that yet,</p> <p>16 but at least encouraging it's talked about.</p> <p>17 And that's encouraging to me because that's a</p> <p>18 core problem, and that's getting to the core of the</p> <p>19 issue if we do it. And so there are some good things</p> <p>20 ahead if we persist. I don't want to belabor it too</p> <p>21 much, folks, but it's even polling is such a big issue</p> <p>22 in the nation. But I assure you it's an issue</p> <p>23 everywhere, even in our small community. Mr. Secretary,</p> <p>24 I thank you very much for your attentiveness. And</p> <p>25 Director Nemeth for being here with us. And we enjoy.</p>

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<p>1 We enjoy your attention, and we appreciate it.</p> <p>2 MR. CROWFOOT: Yeah, thanks so much. I would</p> <p>3 just respond that we heard, I think at the last two</p> <p>4 meetings, members of the community that are concerned</p> <p>5 about camping on the waterways below the dam. And, you</p> <p>6 know, we should think about how we may want to talk</p> <p>7 about that here at the commission. I mean, obviously,</p> <p>8 it's not related specifically to the dam, but its of</p> <p>9 importance. And we state agencies need to do something</p> <p>10 about it, along with our local partners. So let's</p> <p>11 explore that. Congressman?</p> <p>12 MR. NIELSEN: I had plenty of mic time, but I</p> <p>13 just wanted to say thank you to the group. Thank you</p> <p>14 Director and Secretary. And I want to pass up the</p> <p>15 chain, too, the thanks to the Trump administration for</p> <p>16 their responsiveness to Northern California's needs the</p> <p>17 last three years when we had the spillway, the car fire</p> <p>18 in Redding, and we had the campfire in Paradise. And as</p> <p>19 Jim was, you know, talking about, the responsiveness has</p> <p>20 been really good on a (Unintelligible). And that goes</p> <p>21 hand-in-hand with our state-level folks.</p> <p>22 We don't always agree when everything down</p> <p>23 there's is -- as you noticed sometimes. But we've all</p> <p>24 agreed on how the immediacy of things that need to</p> <p>25 happen in response to these disasters has been. And</p>	<p>1 again, it's been a very positive relationship since</p> <p>2 we've had this happen the last three years. And the</p> <p>3 communication had been pretty incredible, and I think</p> <p>4 Jim and James would commend that, as well as our state</p> <p>5 reps. So with that, thank you all, everyone. And on</p> <p>6 the things we need to follow up with the Corps,</p> <p>7 please -- you know, the dollars, et cetera will want to</p> <p>8 be apprized of how we're doing on that, and make sure</p> <p>9 you have the flexibility to keep going. Thank you.</p> <p>10 Appreciate it.</p> <p>11 MR. CROWFOOT: Yeah, I would just say we</p> <p>12 cannot underestimate the huge news that you and the</p> <p>13 president's administration was responsible for as it</p> <p>14 relates to the reimbursement of -- for the spillway and</p> <p>15 the dam. That's a big deal. And I think, you know,</p> <p>16 what we see above the fold of the newspapers is often,</p> <p>17 you know, policy disagreements we have, but underneath</p> <p>18 that, there is just a ton of good work happening between</p> <p>19 state and federal agencies, and certainly with the local</p> <p>20 agencies. And so really appreciate your leadership on</p> <p>21 the water issues and the forest issues. And we will</p> <p>22 definitely pledge to work more with you on that.</p> <p>23 I have as homework from this meeting one sort</p> <p>24 of, like, quarterly update where DWR and the Army Corps</p> <p>25 could give an update to the elected members and</p>
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<p>1 it's been really good. So, you know, I look at -- two</p> <p>2 of those are fires and one of is this. And Governor</p> <p>3 Brown and I were getting on a plane to Washington, it's</p> <p>4 been almost three years ago, and he threw out a figure</p> <p>5 of what the State was going to need on the dam, and by</p> <p>6 golly, we reached it. You know? So and that's good.</p> <p>7 It doesn't hurt to have our big-guy colleague in and</p> <p>8 Bakersfield, Mr. McCarthy, with the presidency or two.</p> <p>9 I always, you know, remember that.</p> <p>10 And then thank you, Secretary, too, for your</p> <p>11 attention on this, but also on some of the steps that</p> <p>12 are being taken for forest management and fire</p> <p>13 prevention on the heels of Paradise. And the car fire</p> <p>14 because of the inventory of trees and forestry that so</p> <p>15 desperately needs to be done in this state. And so look</p> <p>16 forward to working with you on that even more so. And</p> <p>17 for our local officials here, too. I want to continue</p> <p>18 to be a resource as we talk together about how the FEMA</p> <p>19 relicensing's going to come into play so that all these</p> <p>20 needs are met.</p> <p>21 And I don't think anybody's that far apart.</p> <p>22 It's more about how the information's going to be, and</p> <p>23 how the commitment is, you know, I guess, lack of a</p> <p>24 better word, trustable versus what -- you know, you were</p> <p>25 talking about the 50 years ago like that. And I think,</p>	<p>1 certainly the commission in terms of how the manual</p> <p>2 update is proceeding along with the forecast and</p> <p>3 important reservoir operations. I'd also like us to be</p> <p>4 able to advance an invite to the commissioners to join</p> <p>5 us at the flood operation center.</p> <p>6 If you could spend, you know, a few hours</p> <p>7 getting down to Sacramento, it's worth your time to</p> <p>8 actually see how the flood operation coordination</p> <p>9 happens. And we should hopefully do that by the end of</p> <p>10 the winter, if we can. Any final questions or thoughts?</p> <p>11 Yes, sir?</p> <p>12 MR. BARNES: Just in regards to Senators</p> <p>13 Nielson's comments on the homelessness issues on river.</p> <p>14 I'm involved in about 95 percent of our department's</p> <p>15 interaction with homeless, and any activities that we</p> <p>16 do. And I'd really embrace the opportunity to be a part</p> <p>17 of those conversations if it presents itself.</p> <p>18 MR. CROWFOOT: That's great. I mean, I for</p> <p>19 one am very open to agendizing this on a future</p> <p>20 commission meeting. Again, not totally central to the</p> <p>21 dam, but important to the community and the relationship</p> <p>22 with state agencies.</p> <p>23 Thank you all. Have a great day.</p> <p>24 (Whereupon, the matter concluded at 12:18 p.m.)</p> <p>25 ---o0o---</p>

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REPORTER'S CERTIFICATE

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I, Olivia M. Rendon, a Certified Shorthand Reporter in and for the State of California, hereby certify that the witness in the foregoing deposition was by me first duly sworn to testify to the truth, the whole truth, and nothing but the truth in the within-entitled cause; that said deposition was taken at the time and place therein stated; that the testimony of the said witness was reported by me, a disinterested person, and was thereafter transcribed under my direction into typewriting; that the foregoing is a full, complete, and true record of said testimony; and that the witness was given an opportunity to read it and, if necessary, correct said deposition and to subscribe the same.

I further certify that I am not of counsel or attorney for either or any of the parties in the foregoing deposition and caption named, nor in any way interested in the outcome of the cause named in said caption.

Executed this 7th day of March, 2020.



Olivia M. Rendon, CSR 14306