

SFC CLERK RECORDED 08/17/2012

**MINUTES OF THE
CITY OF SANTA FE & SANTA FE COUNTY
BUCKMAN DIRECT DIVERSION BOARD MEETING**

April 5, 2012

This regular meeting of the Santa Fe County/City Buckman Direct Diversion Board was called to order by Councilor Rebecca Wurzbarger, outgoing Board Chair and member at 4:00 p.m. in the City of Santa Fe Council Chambers, Santa Fe, New Mexico.

Roll call indicated the presence of a quorum with the following members present:

BDD Board Members Present:

Councilor Rebecca Wurzbarger [outgoing]
Ms. Consuelo Bokum
Councilor Chris Calvert
Commissioner Kathy Holian
Councilor Carmichael Dominguez
Commissioner Liz Stefanics
Commissioner Danny Martinez [alternate]

Member(s) Excused:

None



BDD Support Staff

Robert Mulvey, Facility Manager
Nancy Long, BDD Board Consulting Attorney
Marcos Martinez, Santa Fe City Attorney
Stephanie Lopez, BDD Staff
Erika Schwender, BDD Staff
Gary Durrant, BDD Staff

[Exhibit 1: Sign-in Sheet]

COUNTY OF SANTA FE)
STATE OF NEW MEXICO) ss

BUCKMAN DIRECT DIV MIN
PAGES: 23

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APPROVAL OF AGENDA

Deputy Marcella Ralston)
Witness My Hand And Seal Of Office)
Valerie Espinoza)
County Clerk, Santa Fe, NM)

Councilor Calvert moved to approve the agenda as published. His motion was seconded by Commissioner Stefanics and passed by unanimous voice vote.

APPROVAL OF MINUTES: March 1, 2012

Upon motion by Commissioner Holian and second by Councilor Calvert the minutes of the March 1, 2012 Buckman Direct Diversion Board were unanimously approved.

MATTERS FROM STAFF

None were presented.

CONSENT AGENDA

There were no items for action.

DISCUSSION AND ACTION ITEMS**6. Election of BDD Chairperson and Vice Chairperson**

COUNCILOR WURZBURGER: ... to take a moment of silence for my ten year's of service and say I'm still available for gifts [laughter] as is Commissioner Vigil and we have had quite a time together and this has been a wonderful project but I firmly felt that now that it is built it is time for me to move on. I will be doing that today and again I want to thank everyone who has made this project possible: the staff, the board members from the very beginning, the City and County collaboration and the public input that we have received to make this a viable solution to our tremendous water problems in this community, which have been, I think, wisely addressed at a cost on the City and the County – I can never not say that right – no federal money. Okay, that's my speech, thank you all.

Okay, Ms. Long would you please talk about what we need to do for the election?

NANCY LONG (BDD Board Counsel): Yes, Madam Chair. You will recall that you just had elections in January of this year as required by your rules of order and the joint powers agreement, but since that time there has been a City elections and as you have noted you, Madam Chair, will no longer be the chair and will be moving on to other committee assignments. So you need to have the election again for your Chair and Vice Chair.

The Chair position rotates between entities each year and this year the Chair is to be from the City. So you will need to vote a City member as the Chair and your Vice Chair is still on this Committee, Commissioner Stefanics, but my recommendation is that you go ahead and reaffirm that or reelect your Vice Chair and elect your Chair for the remainder of the term.

COUNCILOR WURZBURGER: And to make sure that we all understand. The remaining time in my service for the City is for the full year; correct?

MS. LONG: Yes, the City position will be for this entire calendar year.

COUNCILOR WURZBURGER: Calendar year, yes, thank you. I entertain a motion for BDD Chairperson.

COMMISSIONER HOLIAN: Madam Chair.

COUNCILOR WURZBURGER: Yes, ma'am.

COMMISSIONER HOLIAN: I would like to move to elect Councilor Chris Calvert as BDD Chairperson and to reaffirm Commissioner Liz Stefanics as Vice Chair.

COUNCILOR WURZBURGER: Is there a second to that motion?

BOARD MEMBER BOKUM: I second.

COUNCILOR WURZBURGER: Is there further discussion.

The motion passed by unanimous voice vote.

COUNCILOR WURZBURGER: I will now pass the baton over to you.

COUNCILOR CALVERT: First of all I want to thank Councilor Wurzburger for her years of service on this board. She's been on it from the very beginning, eight year, right?

COUNCILOR WURZBURGER: Ten years.

COUNCILOR CALVERT: Ten years of tenure. So I want to thank her for all her service and leadership on this board to bring the project to completion in terms of at least getting it built and it being operational.

COUNCILOR WURZBURGER: Chris, I need to add something. Thanks to Commissioner Stefanics, I should not that I was not fired from this position. I chose to no longer serve on six committees as chair. Thank you, Commissioner.

COUNCILOR CALVERT: All right, with that we'll move on.

INFORMATIONAL ITEMS

7. Briefing on the Buckman Well Monitoring Conducted by LANL and Recent Test Results

COUNCILOR CALVERT: Thank you, Mr. Katzman. If you would introduce yourself and proceed with your presentation.

DANNY KATZMAN: First of all, I'll introduce myself. I'm Danny Katzman and I'm in the environmental programs organization at Los Alamos National Laboratory. I'm in charge of all the technical work, pretty much, that involves the ground water protection programs, stormwater programs, and the cleanup program at the laboratory.

I would also like to introduce someone else here, David Rhodes who is the supervisor with DOE, the supervisor for the cleanup program at Los Alamos as well. Thanks for the opportunity to here and present this information today.

I've got about a ten-minute presentation and I think I'd kind of like to go through a few basic things here. I think this is a little bit out in left field for some of you so I'm going to start out with a little bit of a background on LANL's groundwater monitoring program within the Buckman Well Field. So this presentation really focuses on LANL's work within the City of Santa Fe's Buckman Well Field. It's really a little bit of background and then I'm going to focus a little bit more on the tritium monitoring there and I'll explain a little bit about what that's about and what tritium means in case folks want a little background. And, then, ultimately this presentation is to kind of bring home and present a summary, if you will, of what an issue I guess or topic that's been in the paper a little bit lately about questions about tritium, detections of tritium or questions about detections of tritium within the Buckman Well Field itself. I think there is a lot of uncertainty about what that means, a lot of questions and hopefully this presentation can help with that and answer some questions for you and certainly I'm willing to address any questions that you guys may have, maybe hold them towards the end, but if you have clarifying questions along the way, feel free to ask them.

gone. The whole issue with low-level tritium because it is ubiquitous in the environment and really kind of helps dates post above ground nuclear testing era, it's really a valuable measurement to make in different kind of environmental problems because if you're studying groundwater it can tell you whether or not by looking at the presence of tritium in the groundwater, it can tell you whether or not that groundwater is in fact connected to the modern day atmospheric sources of tritium. It can also tell you whether or not tritiums from contamination sources are also present there as well. So studying tritium at very, very low levels in certain kinds of situations can be a very valuable tool in trying to understand whether or not your groundwater is essentially isolated from the environment or not.

COMMISSIONER HOLIAN: Thank you, Mr. Chair. Mr. Katzman, I have a question. If we didn't have any above ground testing at all what would you expect that the tritium levels would be in rainwater?

MR. KATZMAN: Naturally occurring?

COMMISSIONER HOLIAN: Yes, naturally occurring.

MR. KATZMAN: I don't know for sure and I can certainly provide more detail for you later but I would hazard a guess at probably on the order of maybe 2 to 3 pCi/L.

COMMISSIONER HOLIAN: Thank you.

MR. KATZMAN: Okay, so I'll proceed on from here. So tritium analysis is actually done in a lot of different facilities in a lot of different environmental projects. There are two types of tritium measurements that are made. One is basically liquid simulation is the method but it actually has a detection limit. I think you're probably all aware of detection limits, it's basically for certain analytical instruments in an analytical procedure to see a measurement with confidence. So there's two types of detection limits that are available for tritium analysis. One of them has a detection limit on the order of about 200 to 300 pCi/L. As you can imagine using a method like that when you're asking a question of whether any tritium is there, it's not particularly useful. That method is used a lot where you already know you have tritium and for any variety of reasons you're trying to track the trends of tritium, how it's moving around or whatever. So if your values that you expect in the environment are greater than 200 or 300 you might use that method. It's a faster turnaround from the analytical laboratories. It's an EPA-approved method and it's highly reliable, far less subject to error than other methods are but it only has limited applications in locations where you know you have a lot of tritium.

The other method is a low-level tritium method and that's kind of what I'm going to focus on now. That method has a detection limit that varies a little bit depending on which analytical laboratory you're using but it's safe to say that the detection limits of around 3 to 5 pCi/L are pretty reliable detection limits for that method. It's really important to point out that when you're starting to look at concentrations that low it becomes very difficult. And any method trying to look at levels that low is subject to errors. Errors can even involve a sample being exposed to the atmosphere on a humid day introducing tritium to your sample might show something. Analytical labs would have to be very, very clean to make sure that no tritium that is just in the environment is getting in the samples. It's really considered a research method and has unique applications. It's used in various research situations but is not a widely used method and

is not broadly commercially available. We choose to use it because we do have specific questions that we think benefit from using low tritium methods.

The history of the laboratory using the low-level tritium method goes back to around 2000. We use this method at a number of locations not just at the Buckman Well Field but we collect samples for low-level tritium to answer questions at the lab proper and within other utilities and in other locations around the laboratory. So the Buckman Well project is certainly not the place where we use this method.

From 2000 to 2008 we used a laboratory that is essentially a research laboratory at the University of Miami. Looking at the results over the year we saw what looked to us to be good consistent data. There are a very renowned laboratory for the work they do. After awhile we started taking a little bit different look at those results and even though they had internal consistency, which is one measure of good data – when a lab is producing results that look internally consistency for a location you would predict those kind of results from, that's a pretty good sign that you're getting good data from a laboratory. However, we were having some issues with the University of Miami work. They're not a production laboratory. They are not a commercial laboratory. So we were getting in many cases very slow turnaround on our analytical results. We are doing this work in a variety of locations and some times it is not acceptable for us to see results six months or even a year later after submitting samples. So that was one issue that we had with the University of Miami for years and we tried to work with them but we were just one of many people submitting samples to that laboratory.

But ultimately it was the fact that because of the nature of the laboratory that they are, they were not able to produce the full sort of quality assurance, quality control paperwork packages that the laboratory likes to get as part of its analytical work. We view all of our analyses as very important to be able to be fully defensible and as part of that analytical laboratories provide you very thick packages that support all of the information that they conduct, all the information that they collect in their laboratory to basically insure the pedigree of sample results. University of Miami was not able to or willing to produce that kind of paperwork for us. That's not their work.

So after awhile in 2008 we decided to actually pursue going to a commercial laboratory. It's actually a little bit difficult because not many laboratories do low-level tritium work but we did find out that had gone through the Department of Energies audit process that is required for us to have access to these analytical laboratories and that lab happens to be American Radiation Services. For them it's not something that they do a lot of. Not many clients come to them and ask for low-level tritium work. So they certainly had to ramp up when they agreed to do this work for us and frankly I think they did a pretty good job. We were getting good results pretty fast from them. Good in the sense of turnaround from them and with QC packages. And we were looking at that data and feeling pretty good about it from a QC standpoint but we started noticing pretty much right off the bat that the analytic results that were coming back from ARS were not consistent – there was like this sudden change in analytical results from this eight year history from results from the same locations that we had been getting from the University of Miami. So that certainly raised our eyebrows early on in the process. And we started communicating with ARS pretty early on in the process and in much of the correspondence to people that we were doing low-level tritium work for we were also bringing that to their attention as well.

Again, we sort of found these groups of data where suddenly because of ARS's work we were finding that the results were looking very different than they had in the past. And as investigators and as scientists we look at that kind of thing and it raises a lot of questions for us. We brought these questions and concerns to a company called Analytical Quality Associates. They are an independent company that does a lot of the data validation, quality control work for the laboratory and for many other clients where they review the analytical work that comes back from analytical laboratories. So we don't just take analytical results from laboratory and run with it. There is an additional series of steps that are EPA guidelines that are part of a process where you evaluate the quality of work that you've just got from your analytical laboratory. AQA is very active across the country and all of the analytical labs know these guys because they're one of the organizations, one of the companies that scrutinize the analytical laboratory work.

AQA contacted ARSL and basically brought to their attention that there was something odd about the analytical results on the tritium. ARS basically took on a full-blown internal assessment which they basically issued as part of a nonconformance report. I think that nonconformance report should be in your packet. They did a very detailed root cause analysis and they identified the issues that were at the root of the sort of sudden changed analytical results that we have been seeing from them.

As part of that they were compelled to basically reissue the analytical packages that they had originally issued to us all the way back to mid 2008. This isn't just a small group of samples. I think there has been a certain amount of attention on some samples collected in March 2011. They went back and they reviewed the entire body of data that they had analyzed for us going back to about mid 2008 and again not just for Buckman Wells but for our entire body of low-level tritium data including those sample locations on the laboratory itself.

I'd be happy to get into the details of what those errors were but basically it was an error that incorrectly calculated the information that was coming off of instrument. So information comes off of the analytical instruments, it's not good to go, you have to actually process it. Do a variety of different calculations that factor aspects of the measurement device itself. They found that error in the calculations and went in and corrected it. Took the original analytical results that they had obtained. They didn't rerun samples. They took the original analytical results ran them back through the correct calculations and then reissued the sample paperwork for us – again, with the full body of QA/QC paperwork behind it – reissued it to the laboratory at which time it went through our scrutiny to see if we felt good about the corrections they had made. Once we felt good about it, because of the implications of changed analytical results for anybody who had been receiving low-level tritium work from us, including the City, we had detailed discussions with the City of Santa Fe – the same thing with Los Alamos County and the same thing with San Ildefonso Pueblo – describing this entire process that has just taken place. The errors that had been found by ARS. The corrections that were made. We rolled out all the QA/QC paperwork for everyone because we were willing or able frankly to go in and make corrections to a database that would become part of a public record we wanted to make sure that the different entities that had been recipients of these reports felt good about it and felt ownership in the process. And, frankly, the City was very actively engaged with us and asked extensive questions and I believe even called ARS directly themselves to hear directly from ARS what exactly happened.

Once we got word from the City that they felt comfortable with all the changes that had been made, we posted the results back out onto the public database in a place that I think a lot of you are probably familiar with called RACER, it's now been replaced by something called Intellus, which should in fact, just as a side note should be an improvement over what the RACER system was.

So, basically in summary, in mid 2008 the lab made a change in our analytical approach to tritium. That led to some issues but it ultimately led to a better QA/QC and really a vastly improved turnaround time on analytical results. Following on these corrections we are very confident in saying that monitoring data coming out of the Buckman Well Field today continues to show a period of record dating back to 2000 that shows the absence of detectable tritium in the well field. Which I think again, coming back to why you do low-level tritium that's a pretty big statement to say that tritium is not in the well field it means those waters produced in the well field are isolated essentially from the environment. People have done age dating on those waters. They're 20,000+ years old. There's a lot of reasons to believe that they're fundamentally isolated. It should be pointed out that even if tritium were measured in the well field it's not an automatic assumption that it would be from the laboratory, from Los Alamos National Laboratory because there's tritium everywhere. There's tritium in the river that flows right along side the well field also. So it would just trigger if tritium ever were to show up in the well field, I think it would trigger further inquiry, further understanding of where that tritium might be coming from. But that's something maybe that we'll never had to deal with. As of today the period of record shows no detectable tritium in the Buckman well field and we continue our quarterly monitoring program in the well field.

COUNCILOR CALVERT: Thank you, Mr. Katzman. Does the Board of any questions that they would like to ask Mr. Katzman?

BOARD MEMBER BOKUM: You talked about that you did supplementary monitoring on the Buckman Well Field since 2001. Has the City been monitoring tritium separately?

MR. KATZMAN: I don't know maybe someone is here from the City who knows. I would hazard a guess that they are not monitoring for low-level tritium.

ALEX PUGLISI (City of Santa Fe): Alex Puglisi, I'm with the Public Utilities Department. I'm their environmental compliance officer and actually we are the other side of the agreement with Los Alamos on the quarterly monitoring that is done on the Buckman Well Field. The City has done monitoring in the past both at the river and the well field. And, we actually do use the University of Miami so we have done sampling not only of the well field but of some – well, we've done joint monitoring of some shallow piezometers or monitoring wells along the river there and if I remember correctly we haven't seen any tritium in those piezometers either in the first round of sampling.

BOARD MEMBER BOKUM: I think it might be helpful for this public debate if the City at some point the City could just clarify formally maybe in a memo that you've done independent monitoring and that your monitoring hasn't shown any tritium and where it hasn't shown tritium. I think that would be helpful as a part of the public record.

MR. PUGLISI: Okay. I would actually state that additionally the New Mexico Environment Department has split some samples with regards to radioactivity, radionuclides, and other contaminants.

BOARD MEMBER BOKUM: Do we have that as part of our record over the last however many years?

MR. PUGLISI: I don't believe so.

BOARD MEMBER BOKUM: I just think that would be really good to have this be part of the record and put it on the website as well. It's important to people and I think it should be part of our work and part of the website.

COUNCILOR CALVERT: I was going to bring this up but since you mentioned it I want to bring up I guess what I would call a jurisdictional matter. Although we're hearing this at the Buckman Board we're talking about the Buckman well field which is strictly a City entity and so this is something that yes we can put on the City's website but it is not necessarily germane to put hearing this at the Buckman website because it's not in that jurisdiction. So I just wanted to clarify that.

BOARD MEMBER BOKUM: I guess because it's gotten raised in this context and we care about people having --

COUNCILOR CALVERT: Right, but I want to refocus it back to the proper jurisdiction on this. We'd be glad to make it public but in a proper format and a proper venue.

BOARD MEMBER BOKUM: Maybe a link because I think if people care we need to make it -- and I agree with you on the jurisdiction.

COUNCILOR CALVERT: Sure, that's fine.

BOARD MEMBER BOKUM: So maybe I shouldn't be making all these recommendations on behalf of the City.

MR. PUGLISI: Mr. Chair, members of the Board I would also like to mention the fact that the City of Santa Fe is required under the Safe Drinking Water Act to monitor its water supplies. We do monitor the Buckman tank which is a 10 million gallon tank which receives all the water from the Buckman well field and we have never detected tritium in any of our samples with respect to that. And that's information that we collect both for the New Mexico Environment Department and the US Environmental Protection Agency.

BOARD MEMBER BOKUM: Well, I stand corrected and I would respectfully request that the City and the County consider making that information more accessible.

COUNCILOR CALVERT: Sure. Yes, on that point.

COMMISSIONER HOLIAN: I just want to know, when you do your tritium measurements are you doing actually low-level tritium analysis or just the normal tritium analysis?

MR. PUGLISI: Under the Safe Drinking Water Act, no, we do not do low-level tritium but in some of the internal monitoring that has been done I do believe that the low-level method is used by the University of Miami were used.

COMMISSIONER HOLIAN: Thank you.

BOARD MEMBER BOKUM: On slide 5, you said the groundwater standard is 20,000 pCi/L; is that an EPA standard?

MR. PUGLISI: Yes, and it's actually based on the Safe Drinking Water Act standard for our water supplies.

BOARD MEMBER BOKUM: Thank you. On slide 6 I just want to confirm that this low-level tritium method that you are relying on now it's not an EPA-approved method.

MR. KATZMAN: There is no low-level tritium method that is EPA approve.

BOARD MEMBER BOKUM: And why is that?

MR. KATZMAN: My understanding is that EPA when analytical methods are either considered in development or have the potential for problems because they're kind of research oriented methods – I shouldn't even say necessarily potential problems, but they're really based on research oriented and they're not widely used necessarily sort of in a commercial sense by facilities under investigations and things like that, the EPA does not necessarily approve those methods until they feel like the results are – the method is so robust that it can repeated commercially by everyone readily without commercial laboratories having to go the extra mile with having to bring in specialized instruments or even specialized chemists that EPA does not impose that as sort of an approved method. There's methods for PCBs for example that we're in fact using at the laboratory. It's a very important method for us for investigations. It's not an EPA-approved method.

BOARD MEMBER BOKUM: I'm not going to ask this next question very artfully but is there a body of scientific research out there that disputes this way of measuring the –

MR. KATZMAN: No, there is not.

BOARD MEMBER BOKUM: Is it generally acceptable?

MR. KATZMAN: For research purposes, it is generally acceptable. You know, it's interesting because not very long ago I sort of canvassed the other facilities within the DOE complex: who else is doing low-level tritium; what kind of detection limits are you getting, what are you doing? It was actually very interesting to find that in the DOE facilities that I checked with they had tritium contaminations at all levels. Their levels are in the range that they just use the standard method and they asked the question of me, why are you using low-level tritium? And we explained to them that we have some unique situations. We're not doing it at site investigations where we have elevated tritium that we might be tracking but the ability to use it as, sometimes they uses the term "canary" if you will, to be able to use it at locations that are out in the environment that you want to sort of test what is the connection between those groundwater zones and young waters. Whether they're young contaminated waters from a facility or young waters that have tritium from precipitation from global fallout, it's a potentially very powerful tool to see the absence of tritium is really informative. The presence of tritium just takes you to the next step of inquiry, where did that tritium come from? Is it rainfall? There is a well, I live fairly close to here in town, and there's a City of Santa Fe monitoring well along the river that I understand has 80 pCi/L. It's probably a manifestation of precipitation from the 70s or 80s getting down into that zone. Again, with a standard of 20,000, it's not of any concern from a human health risk perspective but it's a useful indicator. So low-level tritium continues to be a selectively applied tool for the laboratory in its role of environmental monitoring around the laboratory to be able

to say, is tritium over in places like Los Alamos County well field, Buckman well field, locations we sample in San Ildefonso Pueblo because that helps to document what the laboratory's fingerprint is out in the environment. So, low-level tritium is one of those potentially powerful tools to watch for the canary, is something there. The absence of it is really useful information. The presence of it would take us to the next level of inquiry because tritium is everywhere it doesn't automatically mean it would be from the laboratory. Does that answer your question?

BOARD MEMBER BOKUM: Yes, it did, thank you. I'm finished, thank you very much. Thank you, Mr. Chair.

COUNCILOR CALVERT: Thank you. Commissioner Holian.

COMMISSIONER HOLIAN: Thank you, Mr. Chair. Mr. Katzman, after you did the AQA did the reanalysis of the systematic errors and so on, what was the result? Was it no detectable tritium or was there a small amount of it?

MR. KATZMAN: The results came back as all non-detections. So many of the detections or many of the analyses before the corrections were made showed detections. And let me take just a minute to explain that. What you get back from an analytical laboratory for radionuclide analysis is, you get an analytical result, you get a detection limit because a detection limit is not always a single number. It varies a little bit based on the instruments performance on the day or the hour that those samples were run. So if you don't see changing detection limits a little bit changing then that is already suspect. You get from the analytical laboratory you get a result, you get a detection limit which I call the MDA, minimal detectable activity, and then you get an analytical uncertainty because every analysis whether it's a metal analysis or a radionuclide analysis comes out of the instrument saying the value – and I'll just make up some numbers now – 10 ± 3 and that's just kind of a standard way that analytical laboratories report these results.

So what we got back from ARS after they had reprocessed the samples was we got a new results. The change in their calculation produced a new result, a new detection limit and a new uncertainty. We take that information in the rules of what's called validation, data validation, this is standard EPA protocol is to take the analytical result for a radionuclide and that result has to be greater than the MDA, greater than the detection limit, that's pretty intuitive, but also it has to be greater than three standard deviations of the uncertainty. So we took all the new information that had come back from ARSL ran it through that validation process and the results for everyone of them was non-detection. So since the calculations had been done wrong in the first place when you did that same kind of comparison result against the MDA and against 3x the standard deviation it had resulted in [inaudible]. But once the numbers got corrected to what the should have been in the first place the validation process led to a determination of non-detection for all of those.

COMMISSIONER HOLIAN: Thank you. And you mentioned that there were other samples as well from other locations that the lab had reanalyzed and is that correct? And did you see something similar?

MR. KATZMAN: The same exact thing at all the locations. So all of the results that we had analyzed – now many of the corrected values for locations where we had historically had tritium came back corrected and looking better and more consistent that showed detections. But for locations that had a history of non-detections those

corrections also led to the conclusion of non-detection. So I think there's been something along the order of maybe 120 or so samples that had been run through ARSL since mid 2008. All of those got reprocessed. All the ones that had had previous non-detections stayed non-detections. All those that had had tritium, showed tritium again.

COMMISSIONER HOLIAN: Thank you. I have one final question. Was there ever a report written on this re-evaluation process and if so, is it available to the public?

MR. KATZMAN: There hasn't really been a big wrap-up report that's been written. We've posted information on RACER and now it's in Intellus as well that sort of explains the situation. Anytime we make changes or corrections to a database especially something as important as this, we try to post [inaudible] pieces in the database with that. We have the various correspondences to the City, Los Alamos County, San Ildefonso and NMED, it's been published if you will in those venues and in RACER/Intellus but there's not been a sort of single comprehensive report that has been prepared.

COMMISSIONER HOLIAN: Thank you.

COUNCILOR CALVERT: Anybody else have any questions? I guess I have one question, Mr. Katzman, and it's a high-level basic question. If the lab made a mistake and they've corrected it; how do we have confidence in their future results? In other words, we've had some problems, how do we have that confidence in the future that it will be done correctly as opposed to what they did originally?

MR. KATZMAN: You can bet that we'll be watching and I have no doubt that others will be as well. It's probably worth pointing out that it is not unusual for a laboratory -- these laboratories process thousands and thousands and thousands of samples in a year, and things happen. Things happen in a laboratory like that. It's one of the reasons why we feel and I think most people who are used to looking at environmental data never feel comfortable just taking an analytic result from even the best laboratories and running with it. It's always very, very important to constantly look at the analytical results, the QA packages but maybe more importantly than anything else looking at the analytical results in the context of larger bodies of data. Single results -- you have the environmental uncertainty; you have variability in the environment; you have analytical uncertainty; you have real humans in an analytical laboratory processing your samples and so many things that could/can happen. It's one of the principles of robust environmental work is examining repeatability and looking at long-term trends and evaluating things in context. We feel very good about the way ARS took it onto themselves and issued a very impressive, I think, non-conformance report. They assigned it to themselves; went through a full corrective action process; root cause analysis; showed us the nature of the errors; and showed us the details of the check on the revised equations. We feel good about their future with low-level tritium but they're not -- no lab is ever off the hook with us in terms of being able to constantly watch their performance.

COUNCILOR CALVERT: Okay, and did the work by the Analytical Quality Associates also add to that confidence? In other words their taking a look at what was going on there.

MR. KATZMAN: AQA has high credibility in the industry and their ability to look at this independently as well. Our feeling is that the ability for scientists

with the City of Santa Fe looking at this and scrutinizing it on their own terms are all ways that actually bolster our confidence frankly and what we as scientists also saw in ARS's work.

COUNCILOR CALVERT: Thank you. Anybody else, any questions? Thank you very much for the presentation and we appreciate it very much.

8. Update on Recent City Activities and Participation in Meetings with the Regional Coalition of Los Alamos Communities, LANL and NMED Regarding Environmental cleanup Activities at Los Alamos National Laboratory

MR. PUGLISI: I'm the environmental officer with the Public Utilities Department. One clarification I would like to make about the previous item. The City of Santa Fe does not have a well within the City limits that has tritium in it. It's a monitoring well and we actually looked for tritium to date the water in that well. Like Danny was saying, because of atmospheric testing tritium can be used to date water and it was actually a monitoring well for the Ortiz Landfill and we were trying to determine the source of some contaminants and we used tritium – well, actually one of the consultants used tritium as a method to date that water. And it was directly related to water that would have percolated or infiltrated into the ground during the period of atmospheric testing.

COUNCILOR CALVERT: Thank you for that clarification.

MR. PUGLISI: With respect to item number 8, basically this item has been provided at the request of Mayor Coss to brief the BDD Board with regards to several issues that have arisen lately and have become focal points for the City and City staff since the beginning of 2012. And when I say issues I don't mean necessarily contamination issues directly. What I'm saying is that there's a lot happening out there right there with the New Mexico Environment Department, Los Alamos National Laboratory and all parties impacted by the laboratory.

In brief, these items include a framework agreement between the New Mexico Environment Department and the Department of Energy/National Nuclear Safety Administration. The purpose of this agreement is to address the removal of the above ground TRU waste or transuranic waste from Area TA-54. Area G. And the deadline for doing that is June 30, 2014. And basically there's at the request of Governor Martinez and others, there's an effort to path forward on TRU waste removal that is focusing on the removal of all non-cemented or non-stabilized, I guess I'll call it that, TRU waste from above ground at Area G and that's in direct response to the Las Conchas fire.

The City of Santa Fe obviously supports the removal of TRU waste from Area G because of the possible implications not only to the Buckman Direct Diversion but to groundwater. However, it's the City's position that although we do support this removal of TRU waste we do not feel that this effort should supersede or negatively impact the completion of other environmental restoration activities at LANL.

Along with your packet there was a set of bullet points and a lot of these items were covered in these bullet points. And, I do apologize I think it is entitled "Presentation to the Public Utilities Committee," and part of the reason for that is that we



gave this same presentation last night to the Public Utilities Committee so at least two people are hearing this again.

So with regard to the agreement in principle between DOE and NNSA we do support that but we've been talking with the Environment Department, we've had several meetings with them and we are making it clear that the City expects that LANL will move forward with respect to the environmental restoration activities that are covered under the consent order on compliance that was issued in 2005 that directs the laboratory to investigate and remediate contaminated sites at the laboratory and I believe that there's something like 1,500 contaminated sites that are still covered under that consent order. Obviously, a lot of these sites could directly impact the City and that's why we want to see that progress forward.

Another issue that has come up recently is the Regional Coalition of LANL Communities has been meeting several times over the last three months to coordinate support from LANL's cleanup budget for fiscal year 2013 and subsequent years that will support not only TRU waste removal but the continuation of the essential environmental restoration activities that are required pursuant to NMED's compliance order on the consent.

The Coalition has recently traveled to Washington to meet with New Mexico's congressional delegation, DOE/NNSA officials and others to support this adequate funding for Los Alamos. The mayor of Santa Fe participated in this trip and we haven't heard yet what exactly the environmental restoration budget is going to be but we're hoping that they listen to our arguments. I think that in the beginning the original request was \$368 million. We were hoping to get at least \$250 million and it seems hopeful that we might get that \$250 million.

With respect to these issues, several recommendations have been included in the packet but in short, the recommendations focus on the City's due diligence to insure that NMED's consent order on compliance is not modified solely on LANL's performance or their efforts to remove TRU waste in Los Alamos. The City is also going to strive to continue to collaborate with the New Mexico Environment Department in any modification of the consent order which will directly or indirectly impact the City's natural resources or interests. These interests would include such things as the lease or changes in schedules in regards to sites that could impact Santa Fe's groundwater or surface water or changes to current LANL monitoring of ground in surface water or reduction of efforts to clean up sites with potential threats to Santa Fe. One of the issues that we have repeatedly brought up at the Coalition of LANL Communities meetings is that we were not aware that, I think it is on the order of somewhere between 32 and 36, modifications to schedule had already been approved by the New Mexico Environment Department and we're trying to work with the secretary of that department to make sure that in the future we are informed of any future approvals of schedule delays or any changes in activities that comes before the head of this waste bureau and we've been insured that that will be the case.

That's essentially the summary of my report and I stand for questions.

COUNCILOR CALVERT: Thank you for that. Anyone on the Board have any questions?

COMMISSIONER STEFANICS: I have a comment, Mr. Chair.

COUNCILOR CALVERT: Sure.

COMMISSIONER STEFANICS: One of the things that Senator Bingaman indicated in Washington is that the entourage, which I was not a part of because I was in some other meetings, was very well organized and hit so many different departments that he commented that we had covered the capitol quite well so they could not ignore the requests that were coming forward. So it was a well organized effort.

COUNCILOR CALVERT: I apologize for the somewhat City-centric nature of this presentation but I assumed, I don't know, I won't assume, but I'm hoping that the County shares these sentiments and takes a similar position..

COMMISSIONER STEFANICS: Yes, and, in fact, Mr. Chair, Commissioner Danny Mayfield was actually part of the group that was in Washington that participated and we have some ongoing desires and goals and priorities for the cleanup so I think we're probably in synch with many things.

CCOUNCILOR CALVERT: And the reason that it's here is that we are partners on the Buckman and this has a direct effect on our reliability on producing quality water to the citizens. So I thought it was important that we have this presentation here today.

Okay, thank you, Mr. Puglisi for your presentation.

MATTERS FROM THE PUBLIC

ANNA HANSEN: Hello, my name is Anna Hansen and I live in the City of Santa Fe. I went on one of Concerned Citizens for Nuclear Safety toxic tour and I was really dismayed by the state of the early warning system that exist at the Otowi Bridge. It is disgraceful. As a city and county entities as something that is protecting our water from ash and radionuclides I think you all need to go see it. There are panels of broken, solar panels are broken, half the stuff there is non-functional and I was really shocked and it's the only early warning system that we have and there should be another one at Guaje Canyon because there's a tremendous amount of ash and other contaminants coming down that canyon also into the Rio Grande.

So to me, one early warning system is not adequate and especially in the state that it is in which is non-functional and we are going to be entering into a monsoon season in the next couple of months and to have a non-functioning early warning system means that we do not have early warning system at all for the Buckman.

The other thing that I'm concerned about as an Arts Commission for the City of Santa Fe there's supposed to be and I don't know all the details about this but there is suppose to be a park out by the Buckman where there is plutonium buried and I would like to urge that if such a park is ever going to happen near the Buckman that the plutonium is removed and that extensive monitoring be done at that site. Because if children are going to be playing under a cottonwood tree in a park along the Rio Grande even though it may be that the plutonium is three feet or I don't know exactly underground it still to me is a dangerous thing to have children being – any human being, pregnant mothers anyone being exposed to that. So those are my comments.

And I also urge all of you as City Councilor and County Board to go on the toxic tour and see some of these situations that are affecting our water situation.

COUNCILOR CALVERT: Thank you.

JONI ARENDS: Good afternoon. Joni Arends, Concerned Citizens for Nuclear Safety. My first comment is that – I have seven comments. My first comment is that there was a request for televising these meetings because of growing concerns about water issues there was a request to televise the BDD meetings and also the Public Utilities Commission meetings because there's a lot of conversation about water. I don't know that process but I wanted to make that suggest.

I agree with Councilor Calvert that the presentation by LANL needed to be done before the Public Utilities Council, Committee?

COUNCILOR CALVERT: Committee.

MS. ARENDS: Committee, as well. Number three I would like to address some of the issues raised by Mr. Katzman's presentation. Number one, the National Academies of Science did a review of the groundwater practices at LANL in 2008. I have distributed copies of that report a couple of times to members of the Board and also Commissioner Holian. In that report the National Academies of Science said that there is an inventory of 3.6 million curies of tritium at Area G. New information from the proposed clean up plan for Area G that although the detect says that the groundwater flow is the southeast the figures indicate that the groundwater flow is to the northeast to San Ildefonso Pueblo and onward to the Buckman Well Field. And that's a whole other conversation that's probably better before the Public Utilities Committee. However, the CCNS and Robert H. Gilkeson a registered geologist, we met with the mayor in early March before he went to DC and we also met with city staff, Alex Puglisi and his staff earlier this week and we met for two-and-a-half hours on this growing concern about the inventory of contamination at Area G and this migratory pathway toward San Ildefonso and the Buckman. So I want to reiterate the 3.6 million curies of inventory of tritium at Area G.

Number two, this issue about the data has been going on for quite a long time and specifically in the LANL environmental impact statement that was issued in 2008. We had a conversation through our public comments about the high levels of neptunium which is another radionuclide that was found in the wells at the Buckman. We raised questions about whether the neptunium was actually there or was it a problem with the analytical method. The NAS addressed that issue in that report about the plan for groundwater protection at LANL and I'll be sure to get you – I think, Commissioner Stefanics, I don't think you have a copy and Councilor Dominguez and I'll mark those pages and just put them in your box over here.

So this is an ongoing issue with the laboratory, so we have some specific questions with to the quality assurance/the quality control at the laboratory. Number one, why through the validation since 2010 – and you can see in this [inaudible] the corrective action report – this has been going on since April 2010, why didn't the laboratory pick that up through the validation process that the laboratory does on all the data that comes through? Why didn't they notice that there was a problem with that? That's questions number one.

Question number two, if the laboratory was going to change analytical laboratories why didn't they have an overlap period the University of Miami and this new facility, this new laboratory that didn't have the experience to do low-level tritium.

Number three, the Department of Energy has quality assurance/quality control requirements for analytical laboratories that do this kind of sampling or this kind of

analytical work around the country. Why didn't they know ahead of time that there might be problems and why didn't the audit process catch these problems earlier? So why is there this huge data gap between April 2010 and April 2012 where we don't know what's happening with the tritium especially with the huge inventory of 3.6 million curies at Area G. This is a huge data gap and my last point is going to be about the recommendation that we have for the Board.

So just to recap, why didn't they pick it up in the validation process? Why didn't they pick it up in the QA/QC, quality assurance/quality control process with respect to the audit? Why didn't they pick it up with respect to their certification of the laboratory? Those are three points where they could have picked it up if there was a problem and they didn't pick it up. And this goes back to the whole thing with the neptunium, why didn't they find these problems.

Question number four or point number five, I would like to know from Mr. Katzman what sites he did check with with respect to tritium analysis because it's a broad range of issues across the complex and I would like to know that.

Our recommendations: are there problems with other analytical samples. Are there other problems with the fast moving contaminants that Mr. Katzman pointed out? The chromium plume which is below Sandia and Morton [inaudible] canyon which is directly west of the Buckman Well Field, the chromium plume was discovered in 2004. At that time it was 400 parts per billion which was 8 times the New Mexico standard. The latest report is 1,200 parts per billion so it has increased three-fold in seven years. We need to be able to keep an eye on what's happening with this chromium plume. The perchlorate, that's a whole other set of issues with respect to Los Alamos County shut down one of its wells because of the perception of high levels of perchlorate in one of their wells. And then the tritium. So are there similar problems with the analytical laboratory analysis of these other fast moving contaminants and we need to figure that out.

We recommend and we fully support that the City and the Buckman Board having independent sampling and perhaps even enhancing the sampling at this point in time so that we can be kept keeping track of what's happening with our water supply because the laboratory is not doing that to the extent that people who are drinking the water are concerned about. And what are the comments of the University of Miami about this whole fiasco, that's something I had hoped to contact them before this meeting but I was unable. But what is the University of Miami saying about all of this?

Having worked on LANL issues for over two decades there is a pattern and practice with respect to data and so again CCNS is offering our experience in dealing with the data and we appreciate the seriousness of the issue and we appreciate the fact that we were able to meet with the mayor and also with the City staff about our ongoing concerns. I think we have to heighten awareness whether it's about heightened awareness, heightened – being proactive in a much stronger way. The Board has been very active and proactive in terms of the letter about these contaminants flowing through the canyon but given the magnitude of the Las Conchas fire last summer we know that there's increased contamination that will be flowing again this summer and we need to be on high alert with respect to these issues and preventing any of these radionuclides, any of these hazardous materials, any of these toxic materials getting into our water. And so we're available if you would like to set up a time to go on the toxic tour during the week.

It's almost an emergency at this point in time and I think that this presentation indicates that in fact. Thank you very much.

COUNCILOR CALVERT: Thank you.

DAVID BACON: David Bacon with CCNS. I just want to mirror what Joni said. Mark Sardello and I have tracked the raw data and we're seeing huge levels of contaminants last July and August coming down the river. The Buckman was shut down because of ash and because of contaminants for two months. And then they turned it on in September. We don't know why they turned it on or what their data was that allowed them to turn it on. We do know that they pumped four days when they shouldn't have. We know that they pumped during strong pollutant flows. We absolutely know that from comparing pumping data with the data we have about contaminants. We were shocked to find 953 pCi/L of gross alpha coming down the river. We saw levels at 4,500 gross alpha just a few days after that. We saw gross alpha in the thinnest water at Buckman at a high level. If you take Argen [inaudible] level's of what is acceptable for gross alpha it was hundreds of times higher in the thinnest water at Buckman.

We had to sit for hours on the phone and I had to go through pumping data and he had to show me the data. Why don't we have data? Why don't all of us have data that we can follow? There is no data that tracks what's going on at Buckman right now you can't get it. Mark has tried to get the March data of chromium forever now, for months and months. We can't get a hold of raw data when it's essential.

We sat with Ralph Ford-Schmid at the Environment Department and we had a good meeting with Ralph. This is about two weeks ago. Ralph said, well, I can't show you guys our data because LANL has to have it for 30 days. They massage it. They do whatever they want with it. We're letting the labs run the data right now. That has to change. We have to have – in tritium when you do radiological analysis of something that has a delicate half-life as tritium, you have to have that data back immediately and you can do that. There's technical ability to do that in real time. We don't have data about pumping. We don't have data about pumping. We don't have data about. We don't have data about contaminate flows right now that anyone can use. So there needs to be a trend analysis done. There probably needs to be about \$100,000 worth of pure data coherency done on what's going on and we're looking at a new fire season right now, you know, we're in April. The fires are going to start, who knows when, in May or maybe this month but certainly in May. We've already seen that all of the data was shut down. The last data we could get was from early in September – it just doesn't exist. There was no analysis done when there was still serious flows of contaminants coming down the Rio Grande right into Buckman.

I would suggest like Joni suggested, I think we need to have meetings where we have the parameters laid out. Where we have these questions asked and where we have people who understand at least from another point of view what the data show. This – you know I was sitting in back there thinking, if we were buying like a couple of used trucks from LANL it would be one thing. But it's drinking water for 80,000 people. Eighty thousand tourist, it's drinking water for people coming through the City and we're not treating it with the proper respect right now. Just from what we know, just from the analysis that we've done purely on the existing data, it looks really bad. So I would suggest that we have some kind of summit where we can begin to pin down what's actually going on and how we know what's actually is going on in the future because



right now even if we were buying a couple three-quarter ton pickups I wouldn't be happy with the data right now for that purchase. But for a \$220 million water system for the majority of the population of the City this is shockingly bad. And I don't know where we go because I've stood up here and I've said this time and again, is it going to be a lawsuit? Do we have sue the Board? What do we do to get action about what is actually going on with our drinking water system? I don't know. I hope you guys kick it around. I hope you think about it. And I hope next Buckman meeting you have some answers because this is a very, very serious issue. Thank you.

COUNCILOR CALVERT: Thank you. Yes, ma'am.

BASIA MILLER: My name is Basia Miller from CCNS. I just have two related questions. I heard Danny Katzman's presentation about the changeover from analytical laboratory to analytical laboratory and I guess this doesn't sound very sophisticated but I'm more disturbed by the fact of finding a non-detection than I would be if there had been something. It seems to me that however statistical methods you use on an absence of tritium you will come up with an absence of tritium. But it seems very difficult to move from an appearance of tritium but you change your statistical method and you come up with an absence of tritium. Do you understand why that's so perplexing? You must have had something that you were working with even then you do the analytical techniques and you move it out for three standard deviations and you come up with a non-detection? I just can't see it. Maybe it's a matter of terminology. Maybe non-detection really doesn't mean no tritium. Maybe it means that there is something there and that would satisfy me more is that vocabulary was used to represent a misinterpretation of the – I don't know what it is – residual tritium or whatever it might be then you could see how an analytical statistical method could be used to reduce that to non-detection. At any rate, that's just the beginning. That's just a small point.

The other issue I have is something I'd like to see on the website. I know the safety standards for the various contaminants are the type where there's either not a problem or else it's an exceedance. I would like to know how the contaminants measure up to the framework of safety standards for infants, pregnant women, the elderly, people who weight less than 154 pounds and things like that. It's not enough to just comply with the safety standards unless those standards reflect true population. That's just a request. I would love to be able to go into this more with people who know something about it which I really don't. If we had a summit like David suggested, maybe we could work on making these numbers that come out of the readings more coherent, more readable, legible to the population of Santa Fe. Thank you.

COUNCILOR CALVERT: Thank you. Anybody else.

MATTERS FROM THE BOARD

COMMISSIONER STEFANICS: Mr. Chair, thank you. Not just based upon the comments of this evening but based upon comments that have come through several different meetings, I suggest that we have once a year a public meeting regarding the public's concerns, issues, some statistical information. And then one of the formats that I'd like to throw out and this is used at many national conferences where there are poster sessions and people move through so there can be small discussion groups. So rather than have 100 people shouting at one presenter, there might be several session

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throughout the room broken up into time slots. So I would ask that our staff work – do we still have PR on contract or not?

MR. MULVEY: Through the Chair, Lyn's contract is about to expire so we plan on moving on but if the Board directs us to do something like this we can bring her back.

COMMISSIONER STEFANICS: Well if we have staff that are capable and have the skills of putting together these meetings I would be happy to entertain that as well. It doesn't have to be a contractor. So I just want to put that on the table again. Thank you, Mr. Chair.

COUNCILOR CALVERT: Thank you. Anybody else?

NEXT MEETING – Thursday, May 5, 2012 @ 4:00 p.m.

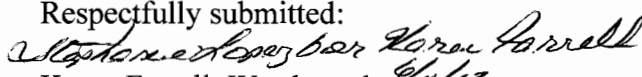
ADJOURN

Having completed the agenda and with no further business to come before the Board, Board Chairman Calvert adjourned this meeting at approximately 5:30 p.m.

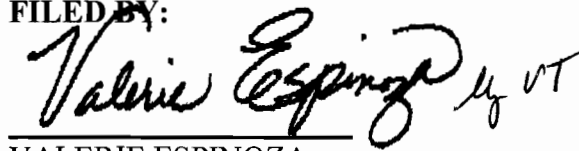
Approved by:


Chris Calvert, Chair

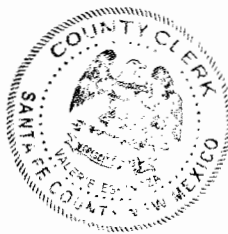
Respectfully submitted:


Karen Farrell, Wordswork 4/1/12

FILED BY:


VALERIE ESPINOZA
SANTA FE COUNTY CLERK

ATTEST TO:



SIGN-IN SHEET

April 5, 2012

BUCKMAN DIRECT DIVERSION
BOARD



NAME (PLEASE PRINT)

ALEX PUGLISI CITY OF SF

Nancy Jernwald CCNIS

David Bacon CCNS

Mica Suter

Las Campanas

Phil GEORGE

Las Campanas

Erika Schwende

BDD

Danny Katerina

LANL

Eric Ulibarri

LANL

David S Rhodes

DOE LASO

Gary Durrant

BDD

Basia

CCNIS

RECORDED 08/17/2012



CITY CLERK'S OFFICE

DATE 3/29/12 TIME 3:50

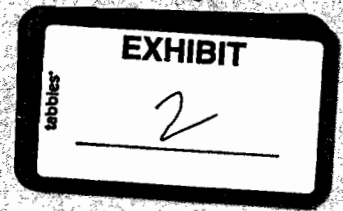
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AGENDA

THE CITY OF SANTA FE
And
SANTA FE COUNTY



BUCKMAN DIRECT DIVERSION BOARD MEETING

THURSDAY, APRIL 5, 2012
4:00 PM
CITY HALL
CITY COUNCIL CHAMBERS
200 Lincoln Avenue

1. CALL TO ORDER
2. ROLL CALL
3. APPROVAL OF AGENDA
4. APPROVAL OF MINUTES FOR THE MARCH 1, 2012 BUCKMAN DIRECT DIVERSION BOARD MEETING
5. MATTERS FROM STAFF

CONSENT AGENDA

None

DISCUSSION AND ACTION ITEMS

6. Election of BDD Chairperson and Vice Chairperson. (Nancy Long)

INFORMATION ITEMS

7. Briefing on Buckman Well Monitoring Conducted by LANL and Recent Test Results. (Bob Mulvey & Danny Katzman, LANL Environmental Manager)

CITY CLERK RECORDED 03/17/2012

8. Update on Recent City Activities and Participation in Meetings with "The Regional Coalition of Los Alamos Communities," LANL and NMED Regarding Environmental Cleanup Activities at Los Alamos National Laboratory. (Alex Puglisi and Rick Carpenter)

MATTERS FROM THE PUBLIC

MATTERS FROM THE BOARD

NEXT MEETING: THURSDAY, MAY 5, 2012 @ 4:00 P.M.

ADJOURN

PERSONS WITH DISABILITIES IN NEED OF ACCOMODATIONS, CONTACT THE CITY CLERK'S OFFICE AT 505-955-6520, FIVE (5) WORKING DAYS PRIOR TO THE MEETING DATE.

SFC CLERK RECORDED 08/17/2012

