STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION COMMISSION

| | |
|---|---|
| IN THE MATTER OF THE HEARING CALLED BY THE OIL CONSERVATION COMMISSION FOR THE PURPOSE OF CONSIDERING: | |
| APPLICATION OF COLEMAN OIL AND GAS, INC., FOR AMENDMENT OF ADMINISTRATIVE ORDER SWD-806-B, SAN JUAN COUNTY, NEW MEXICO | CASE NO. 13,812 *de novo* |

ORIGINAL



REPORTER'S TRANSCRIPT OF PROCEEDINGS

COMMISSION HEARING

BEFORE: MARK E. FESMIRE, CHAIRMAN
JAMI BAILEY, COMMISSIONER
WILLIAM C. OLSON, COMMISSIONER

March 13th, 2008

Santa Fe, New Mexico

This matter came on for hearing before the Oil Conservation Commission, MARK E. FESMIRE, Chairman, on Thursday, March 13th, 2008, at the New Mexico Energy, Minerals and Natural Resources Department, 1220 South Saint Francis Drive, Room 102, Santa Fe, New Mexico, Steven T. Brenner, Certified Court Reporter No. 7 for the State of New Mexico.

* * *

# I N D E X

March 13th, 2008
Commission Hearing
CASE NO. 13,812



(Continued...)

* * *

E X H I B I T S

| Applicant's | Identified | Admitted |
|---|---|---|
| Exhibit 1 | 14 | 23 |
| Exhibit 2 | 19 | 23 |
| Exhibit 3 | 20 | 23 |
| Exhibit 4 | 34 | 46 |
| Exhibit 5 | 35 | 46 |
| Exhibit 6 | 36 | 46 |
| Exhibit 7 | 38 | 46 |
| Exhibit 8 | 39 | 46 |
| Exhibit 9 | 40 | 46 |
| Exhibit 10 | 41 | 46 |
| Exhibit 11 | 41 | 46 |
| Exhibit 12 | 42 | 46 |
| Exhibit 13 | 42 | 46 |
| Exhibit 14 | 43 | 46 |
| Exhibit 15 | 44 | 46 |
| Exhibit 16 | 44 | 46 |
| Exhibit 17 | 72 | 76 |
| Exhibit 18 | 96 | 104 |
| Exhibit 19 | 101 | 104 |

* * *

# A P P E A R A N C E S

FOR THE COMMISSION:

CHERYL BADA
Assistant General Counsel
Energy, Minerals and Natural Resources Department
1220 South St. Francis Drive
Santa Fe, New Mexico 87505

FOR THE APPLICANT:

HOLLAND & HART, L.L.P., and CAMPBELL & CARR
110 N. Guadalupe, Suite 1
P.O. Box 2208
Santa Fe, New Mexico 87504-2208
By: OCEAN MUNDS-DRY

FOR THE DIVISION:

MIKAL M. ALTOMARE
Assistant General Counsel
Energy, Minerals and Natural Resources Department
1220 South St. Francis Drive
Santa Fe, New Mexico 87505

* * *

WHEREUPON, the following proceedings were had at 9:51 a.m.:

CHAIRMAN FESMIRE: The next order of business before the Commission is Case Number 13,812, the Application of Coleman Oil and Gas, Inc., for amendment of Administrative Order SWD-806-B in San Juan County, New Mexico.

The first order before the Commission is the joint motion to limit the scope of the hearing.

Before we begin, may we take the appearances of attorneys, please?

MS. MUNDS-DRY: Good morning, Chairman Fesmire. Ocean Munds-Dry with the law firm of Holland and Hart this morning, representing Coleman Oil and Gas Corporation.

MS. ALTOMARE: Mikal Altomare on behalf of the Division.

CHAIRMAN FESMIRE: Counselors, you have submitted the joint motion. The joint motion looks acceptable, it does represent your agreement to limit the scope of this hearing to the three items outlawed -- outlawed? -- outlined in the motion.

MS. MUNDS-DRY: Hopefully not yet.

Yes, it does.

CHAIRMAN FESMIRE: Okay, we'll proceed. I believe the motion belongs to the OCD.

MS. ALTOMARE: I guess technically, since -- yeah.

CHAIRMAN FESMIRE: You're first, Mikal.

MS. ALTOMARE: You know, as far as the motion to limit the scope --

CHAIRMAN FESMIRE: No.

MS. ALTOMARE: -- or as far as --

CHAIRMAN FESMIRE: The Application.

MS. MUNDS-DRY: Actually, we --

MS. ALTOMARE: Actually, it's their Application.

CHAIRMAN FESMIRE: Oh, okay.

MS. ALTOMARE: Yeah. That's why I was confused, I was like, I signed off on the joint motion. But I think it's actually their application, so...

CHAIRMAN FESMIRE: I apologize.

Ms. Munds-Dry, would you like to proceed?

MS. MUNDS-DRY: Yes, I have an opening, and then I have four witnesses this morning.

CHAIRMAN FESMIRE: Okay, are your witnesses present?

MS. MUNDS-DRY: They are.

CHAIRMAN FESMIRE: Would you ask that they stand to be sworn, please?

MS. MUNDS-DRY: There are three witnesses present, currently.

CHAIRMAN FESMIRE: Okay, why don't you proceed -- why don't you proceed with your opening statement, and we'll swear them in before you begin.

MS. MUNDS-DRY: Thank you, give them a little time to show up.

CHAIRMAN FESMIRE: Right.

MS. MUNDS-DRY: Thank you Chairman, Commissioner Bailey, Commissioner Olson.

I just wanted to provide a little context for you, since there's been some history coming up to this point, to try to give you an understanding of what we are asking for today.

Coleman received authorization administratively under Administrative Order SWD-806 to dispose of produced water in the Juniper SWD Well Number 1.

Subsequent to that, there were some conditions imposed by the Division and the order was amended due to some concerns with the US EPA and the Division that some offsetting wells might be affected, that there might be some open holes that freshwater sources were not being protected. So the orders were -- the order was amended and required Coleman to go into an offsetting well, the Monument Well Number 1, and perform some remedial work on that well.

Subsequently Coleman, the Applicant, then applied

with the Division and requested that it not be required to go in and perform that remedial work on the Monument Well Number 1. That hearing took place, and the Division Order still required that the Monument Well be re-entered and plugged, and that is the context in which we appealed and are before you here today.

Now since that time -- and I should make it clear that there were two requirements, that the -- that Coleman go in and set an isolation packer in the Juniper SWD Well Number 1 to protect the upper portions of the Mesaverde, and Coleman had no problem with that and has since complied with those requirements in the Division order. It was simply appealing the order on the requirement to go in and perform the remedial work on the Monument Well Number 1.

Now since that took place, Coleman has looked at its future needs for disposing produced water, and is now looking actually to re-enter and perform work on the Monument Well Number 1 to actually convert it to saltwater disposal. And we have informally exchanged information with the Division that shows what -- our intent for operations. And although that question is really not before you today, we'll of course file the appropriate C-108 and make that application when we're ready.

Our main concern before you today is that we continue to be allowed to inject into the Juniper SWD Well

Number 1. And as you'll hear the testimony today, the process -- because the Monument Well Number 1 is on tribal land, it will take a while to gain access and then to actually perform -- to get the APD processed, and then to actually perform operations on the Monument Well Number 1 will take a good period of time.

And because Coleman has immediate needs to continue to dispose of that produced water in their Fruitland Coal field, we're requesting that they be continued to allow those injection operations in the interim.

And that is really the context of what we have before you today and what the testimony will show.

And as you granted that motion, we're only going to -- we'll give you enough, hopefully, background to bring you up to date, but our plans really with the witnesses today are just to bring the information that -- and the evidence that we presented in the Division hearing, and just kind of bring that forward and update you to show that there will be no impacts on the Monument Well Number 1 if we continue those injection operations, and hopefully try to limit our time before you today with our witnesses.

CHAIRMAN FESMIRE: Okay.

MS. MUNDS-DRY: Thank you.

CHAIRMAN FESMIRE: You bet. Are your witnesses

ready to be sworn?

MS. MUNDS-DRY: I believe we're all here.

CHAIRMAN FESMIRE: Okay, would you please stand and raise you right hand?

MS. ALTOMARE: Would you like my witness to stand as well, at the same time?

CHAIRMAN FESMIRE: Sure, that would be a good idea.

(Thereupon, the witnesses were sworn.)

CHAIRMAN FESMIRE: You may begin.

MS. MUNDS-DRY: Ready to proceed? In that case, I'd like to call my first witness.

Does the Commission and opposing counsel have copies of the exhibit file? We do have some extras here.

ALAN P. EMMENDORFER,

the witness herein, after having been first duly sworn upon his oath, was examined and testified as follows:

EXAMINATION

BY MS. MUNDS-DRY:

Q. Please state your name for the record.

A. My name is Alan P. Emmendorfer.

Q. And where do you reside?

A. Golden, Colorado.

Q. And by whom are you employed?

A. I'm employed by Coleman Oil and Gas as a

geologist in their Farmington office -- I mean, excuse me, in their Denver office.

Q. Have you previously testified before the Oil Conservation Division, and were your credentials accepted and made a matter of record?

A. Yes.

Q. Would you summarize your work and educational background, please?

A. I received a bachelor of science in geology from the great school of the State -- Southeast Missouri State University, and received a master's of science in geology from the University of Oklahoma.

I've been employed as a petroleum geologist since 1979, first in Farmington, starting with El Paso Exploration Company. I've lived in Tulsa, worked the San Juan Basin for over 28 years, moved back to Farmington, worked the San Juan Basin, worked the Rocky Mountains from there, and currently -- then I was hired by Coleman Oil and Gas, worked out of their Farmington office and then moved to our Denver office in 1999 and have been there ever since, working both the San Juan Basin and the rest of the Rocky Mountains.

CHAIRMAN FESMIRE: Mr. Emmendorfer, are you a certified petroleum geologist?

THE WITNESS: Yes, I am.

Q. (By Ms. Munds-Dry) Mr. Emmendorfer, are you familiar with the Application that's been filed in this case?

A. Yes.

Q. Are you familiar with the status of the lands that are in the subject area of this Application?

A. Yes, I am.

Q. And have you made a geological study of the area in question today?

A. Yes, I have.

MS. MUNDS-DRY: We would tender Mr. Emmendorfer as an expert in petroleum geology.

CHAIRMAN FESMIRE: Is there any objection?

MS. ALTOMARE: No objection.

CHAIRMAN FESMIRE: Mr. Emmendorfer is so adopt-- so -- We'll accept him.

THE WITNESS: Thank you.

Q. (By Ms. Munds-Dry) Mr. Emmendorfer, would you please state what Coleman seeks before the Commission today?

A. Coleman Oil and Gas seeks to be allowed to continue to inject produced water into the Juniper Saltwater Disposal Well Number 1. It's located in the northwest of Section 16, 24 North, 10 West, San Juan County, New Mexico. This produced water is from our

Fruitland Coal project and disposing of it into the Mesaverde formation.

In addition, we're asking to be authorized to re-enter and deepen the Monument Number 1 well, located in the northeast of Section 17, 24 North, 10 West, and to dispose of water into the Entrada formation.

Q. Mr. Emmendorfer, there were certain requirements with respect to the Juniper SWD Well Number 1 in the Division Order R-12,820. Has Coleman complied with those requirements?

A. Yes, we have. In December of 2006 we installed a packer at a depth of 2958 to isolate the Cliff House and La Ventana sections of the Mesaverde, to keep from injecting water into those zones and inject into the Menefee and Point Lookout formation -- zones, below that packer.

Q. All right. And let's -- then let's turn to your Exhibit -- would you please turn to what's been marked as Coleman Exhibit Number 1? Identify and review that for the Commissioners.

A. Mr. Chairman, this Exhibit Number 1 is a base map kind of outlining the area that Coleman is operating in and showing the area in question.

Principally, this map includes portions of Township 24 North, 10 West; 24 North, 11 West, San Juan County, New Mexico. Coleman has been fortunate to put

together 17 3/4 contiguous sections of land in the San Juan Basin for a Fruitland Coal play that the Fruitland is at a depth of around 1200 to 1600 foot in depth.

What has made this play work and viable is the fact that since we have contiguous sections we've been able to consolidate our gathering systems for our pipelines -- for our sales lines and for our water production lines. We've been able to drill several water disposal wells, and we have -- all of our water is piped below the ground to these disposal wells, eliminating trucking costs, which has helped out on this play tremendously.

The leases are a combination of state, federal and Navajo allotted leases. Surface area is a combination of BLM, Navajo allotted and Navajo Tribal Trust surfaces.

I'd like to point out the Juniper SWD Number 1, which is in question. That's in Section 16. It's highlighted kind of in a gray color, 24 North, 10 West. It's in the northwest corner of the state -- or excuse me, of the section.

Another well that is in question in this hearing is the Monument Number 1, which is represented by a small triangle in the northeast of Section 17 under the -- just below the well symbol of the 17-41 well.

Coleman operates approximately 58 producing Fruitland Coal wells at this time. We have four wells that

are in various stages of completion and 10 more wells to be drilled on this project before it will be fully developed on 160-acre spacing.

Q. What is -- Mr. Emmendorfer, what are the -- what is the timing on these two new drills?

A. Well, we would like to drill them this year. But we have been -- we're restricted in the amount of water that we can dispose of in our -- in water disposal wells, and we actually are curtailed in our gas production because of that, and there really is not a lot of need to drill those additional wells without the capability of disposing additional water. And so we really don't know what our timing would be. We'd like to drill them this year.

Q. On average, how much water is produced from a well per day?

A. Right now on the 50-some-odd wells that we're producing we're averaging about 150 barrels of water per day, per well.

Q. Total, do you know what the production of water is?

A. No, I'd have to -- I hate to do calculations in my head, and not to pass the buck, but the engineering witness next would probably be better to tell you that. He's got graphs and charts that will show that, so...

Q. Okay. And as you've indicated, then, Coleman

does have need for future saltwater disposal wells?

A. That's correct.

Q. Discuss a little bit for the Commission -- and I know I've provided some of that history, but procedurally how did Coleman's Application come to the Commission today?

A. Well, originally we drilled a 160-acre five-spot Fruitland Coal dewatering project to try to prove up commercial producibility of our Fruitland Coal project, and we noticed right away that we needed to have a water disposal facility. And that's when we drilled the Juniper SWD Number 1, right in the center of that original fivespot.

We were given through Administrative Order SWD-806 the authority to inject produced water into the Mesaverde formation within the juniper well. Later, conditions were imposed on the order under A and B. One of those conditions was that we needed to re-enter and replug a plugged and abandoned well, the Monument Number 1 located in the northwest of 17 -- or northeast of 17.

We didn't really think that we needed to do that, so we brought an application to the Division requesting that we not be required to plug that well. So we asked for that hearing, and the Division came back with an order that required us to plug that Monument Number 1 well, re-enter and replug it, to put in more cement plugs up and down the

wellbore, and that's why we're here today.

Q. And were injection operations in the Juniper SWD Well Number 1 dependent on first going back and re-entering and plugging that Monument Well Number 1?

A. Well, originally they weren't because we were injecting in both the La Ventana and the Cliff House sections. And because of the problems that the Division saw with that Monument Number 1 well, we were required to put that packer in, and it did impact our water disposal. We went from a very good disposal well to an average disposal well, causing us to actually trim back production in some of the other wells, because we couldn't handle all of the water production facil- -- or water disposal that was necessary.

Q. And Coleman initially resisted replugging the Monument Well Number 1, but now Coleman's aims have changed?

A. Yes, originally we resisted from the fact that we -- one is, the well had been drilled and plugged a long time before we had the lease. We bought it at a BLM lease sale. We didn't think there was a reason, but we saw that the Division was going to require us to plug that well.

And then we looked at our requirements and decided that we really needed additional water disposal facilities, and we thought maybe we could make everybody

happy by, one, re-entering the Monument Number 1 well and addressing the downhole communication issues that the Division raised and that we could deepen it to the Entrada formation and turn it into a water disposal well and aid in giving us additional disposal capabilities.

Q. Let's turn to what's been marked as Exhibit Number 2. If you would identify and review that for the Commission.

A. Exhibit Number 2 is a type log of the Juniper area utilizing the Juniper SWD Number 1 wireline logs, which includes both an induction log and a gamma-ray neutron density log, over the Mesaverde interval of the well. It's the typical stratigraphy of the San Juan Basin for the Mesaverde, where from top to bottom you have the La Ventana tongue of the Cliff House sandstone, the Cliff House sandstone, the Menefee formation and the Point Lookout formation.

Between the two logs I have the intervals that were originally perforated and were utilized as injection zones within the Juniper Number 1 well. As you can see, the vast majority of the perforations were up in the La Ventana tongue of the Cliff House. There's a very large sand pile in this portion of the Basin, within the La Ventana.

Because of complying with the Division's orders,

we have since installed a packer at a depth of 2958 to isolate the lower Menefee and Point Lookout formations, injecting into there and keeping the produced water from entering the Cliff House or the La Ventana tongue of the Cliff House formation.

Q. Thank you. Let's then turn to what's been marked as Coleman Exhibit Number 3.

A. Exhibit Number 3 is a compilation of three diagrams that were taken from the *Atlas of Rocky Mountain Gas Reservoirs* published by the New Mexico Bureau of Mines and Mineral Resources back in 1993, and it kind of shows why we picked the La Ventana zone as one of our zones for disposal.

If you look at the map at the bottom right, you can see that the La Ventana has a very thick sand trend that runs northwest-southeast through the southern portion of the San Juan Basin.

And I've cross-hached Township 24 North, 10 West. It shows that the -- that -- where this sand trend occurs through the Juniper area. So it became -- it was a very good target for water injection.

The diagram to the left is a generalized stratigraphic section showing the Mesaverde section in the San Juan Basin that includes the La Ventana portion. It ties back to Exhibit Number 2, which is the type log of the

Juniper well.

And then the diagram to the upper right shows the -- shows why the sand was deposited in such a thick interval between the transgression and regression of the Cretaceous seas during the Mesaverde time. A large portion of sand was put into the La Ventana section in the 24-10 area.

Because of all the sand that's present there, we thought it was a very good water disposal zone. There's some agencies that -- you know, like this -- the waters within this sand are freshwater and should be protected. We feel that with the information we have that's not exactly the case.

I would like to refer back to Exhibit 1. The Monument Number 2 -- or excuse me, the -- Coleman drilled an additional saltwater disposal well, which is the SWD Number 4 well, Juniper, and that's located in the southwest of Section 17. When we drilled that, we used a repeat formation tester to sample the waters in the La Ventana section, had them analyzed, and they showed that there was total dissolved solids of 9680 parts per million. Not exactly freshwater, but if you have a number picked out, 10,000 is the described limit, it's pretty darn close to the 10,000 limit.

Additionally, just off of this map to the east of

our Section 10 wells, Rosetta drilled the Sata saltwater disposal well Number 11 in the southwest of Section 11. Again, it's a quarter mile from our production facilities.

They -- when they -- after they cased their saltwater disposal well, they actually perforated and swab-tested and got a fairly large sample of water from that zone out of the La Ventana and had it tested, and total dissolved solids with 16,443 parts per million.

We're not here to argue exactly what the waters within the La Ventana is. We think it's not as fresh as the EPA or some of the other agencies think it is. But it is a -- from our way of thinking, a good disposal zone.

Q. Mr. Emmendorfer, based on your geological study, what conclusions can you reach?

A. Well, the Fruitland formation produces gas and a fair amount of water. Coleman's operation relies on water disposal facilities that are connected to their pipeline system. We had a really good disposal well. We have an okay disposal well now, but we need additional disposal facilities.

Q. And is the La Ventana an acceptable zone to inject into?

A. It's a very good disposal zone. The data that we have suggests that it should meet the requirements. Like I said, the Division and the EPA -- not officially the EPA

but through the Division has stated that those waters need to be protected within the La Ventana. And so without the -- that interval to inject into, we do need additional capabilities.

Q. And will Coleman call an engineering and hydrogeological witness to review those portions of the case?

A. Yes, they will.

Q. And were Coleman's Exhibits 1 through 3 prepared by you?

A. Yes.

MS. MUNDS-DRY: Chairman Fesmire, we would move the admission of Coleman Exhibits 1 through 3 into evidence.

CHAIRMAN FESMIRE: Any objection?

MS. ALTOMARE: No objection.

CHAIRMAN FESMIRE: Exhibits 1, 2 and 3 will be admitted to the record.

MS. MUNDS-DRY: And I pass the witness.

CHAIRMAN FESMIRE: Ms. Altomare?

MS. ALTOMARE: I think I probably just have a couple of follow-up questions.

CROSS-EXAMINATION

BY MS. ALTOMARE:

Q. Mr. Emmendorfer, you said you've been with

Coleman for quite some time now?

A. Yes, since '96.

Q. Okay, and Coleman has apparently several split-estate wells that have been drilled on Navajo land?

A. Yes.

Q. Okay, so is it fair to say you've been through this permitting process before --

A. Yes.

Q. -- with Coleman?

A. Yes, I --

Q. Okay.

A. -- this was my project from the git-go.

Q. Okay.

A. I recognized the potential and bought the leases and all that.

Q. Okay. Just from reviewing the materials it seems like it's a pretty drawn out, onerous ordeal to go through the process on tribal land. How closely does the timeline match up in practice with what is represented in -- you know, on paper by the agencies?

A. Truthfully, I haven't been involved with the day-to-day permitting part of it. I pick the location of where the wells should be drilled and provide estimates of formation tops, stuff like that, for the APD process.

Again, not to pass the buck, but I think a

subsequent witness would best be --

Q. Actually, that was my next question. Would there be another witness today that would be a better person to ask questions about that?

A. Yes.

Q. Okay, who would that be?

A. That would be Brian Wood, the fourth and last witness.

Q. Okay, excellent.

What portions of the process, once this gets underway, will you be directly involved in?

A. Again, I provide the geological assessments for both the disposal wells and for production wells, Fruitland Coal wells. I try to pick the best geological locations for that, provide the estimated formation tops for the permitting person to work with for his requirements. After the wells are drilled and logged, I typically pick where the zones to be perforated and completed in the Fruitland Coal wells are in the water disposal wells, are to be done.

Q. Okay, and do you do any actual filling out of paperwork and submission of reporting for any aspects of the permitting process or reporting of data?

A. Typically, no.

MS. ALTOMARE: Okay. Okay, I think that that's all I really have. Thank you.

CHAIRMAN FESMIRE: Commissioner Bailey? Notice I got your name right?

COMMISSIONER BAILEY: All right, thank you.

EXAMINATION

BY COMMISSIONER BAILEY:

Q. Is this area unitized?

A. No, it is not.

Q. So production is on a lease basis, individual leases?

A. Yes.

Q. Which means that that saltwater disposal well is a commercial well on state lands?

A. I think by definition, commercial being, do we allow other operators to put produced water in there?

Q. Do you inject foreign water into that well? Foreign meaning offlease.

A. We -- offlease water from other wells within the Coleman leases, yes, but not other operators from other leases.

Q. But it's foreign water from that specific state lease?

A. Yes --

Q. Then you --

A. -- portions of it are.

Q. -- do need to have a commercial permit from the

State Land Office, if you don't have one already?

A. I honestly can't tell you what the actual permit is.

Q. Just something to bring up.

In some parts of the San Juan Basin, the Entrada does contain protectable water. Have you tested that Entrada in the location of your Juniper well?

A. No, we have not. That would be something that we will have to do after the well is drilled as a requirement for getting approval to dispose of it.

There are other operators that have put -- are utilizing Entrada as a water disposal within a few miles of the Juniper area --

Q. Okay.

A. -- and they have a disposal well, approved disposal well.

Q. Could you explain one more time what this restriction is, what happened to the disposal well to turn it from an excellent well to an all right well?

A. Well, sure. If you go back to Exhibit Number 2 and you see all the perforations, both in the La Ventana section and the Cliff House section of the Juniper SWD Number 1, those perforations and the amount of sand that's within that well is the vast majority of the zones that are capable of accepting produced water.

Because the Division -- the input into the Division that perhaps the water -- the formation water within the -- excuse me, the La Ventana section in this area of the Basin would be considered protectable freshwater -- potential freshwater zones, we were required to cease injection into those zones. And we accomplished that by installing a packer within the well and injecting below that packer into the Point Lookout and Menefee, and not into those upper zones.

COMMISSIONER BAILEY: That's all I have, thank you.

CHAIRMAN FESMIRE: Commissioner Olson?

COMMISSIONER OLSON: I just have one question.

EXAMINATION

BY COMMISSIONER OLSON:

Q. You were mentioning the quality of water in the La Ventana. I guess -- Was that the only sample that you had? You mentioned one sample, then one that was off to the east. I guess in the one area of your operations, that's the only known water quality sample you've got of --

A. Yes.

Q. -- pre-injection operations?

A. Yes, that's correct. Actually, when the question of what the water quality was -- there were no samples that were of public record. We could not find where any other

operator had taken samples.

Just to the north of this area, Skelly back in the '50s had a waterflood where they used water from the La Ventana to do a waterflood of the Gallup formation in that unit. We could not find any records of that having been taken. Everybody always used wireline log calculations, and those calculations typically showed that the salinities were less than the 10,000-parts-per-million value.

So when we drilled that second disposal well, we took samples at that time and had it analyzed, and that was the first actual water sample from that zone in the area.

And then again, like I said, the other well that was drilled in 2007, that Rosetta, swab-tested the zone, because they knew of the issues that we were having. They took the sample, and it's a quarter of a mile directly adjacent to our operation, and they showed that the salinities were quite a bit higher than expected.

Q. So were the salinities that you observed comparable to what was estimated before from wireline?

A. No, they're quite a bit -- quite a bit saltier than what the wirelines would show.

COMMISSIONER OLSON: Okay, that's all I have.

EXAMINATION

BY CHAIRMAN FESMIRE:

Q. Actually, Commissioner Olson hit on what I wanted

to talk about.

The repeat formation tester in the Juniper SWD Number 1, when was that?

A. Probably 2006.

Q. 2006?

A. And again, Mr. Hanson, who will be the second witness, actually did it, so he would have a better idea of exactly when that was than I would.

Q. And the distance between the Juniper SWD Number 1 and the Rosetta well where they took the other sample?

A. That is approximately two miles away.

Q. You said it was a quarter mile from your property? It wasn't a quarter --

A. From our leases, but not from the Juniper SWD Number 1. It's approximately two miles from that injection well, but a quarter mile and adjacent to our Juniper project.

Q. Could the injection from the SWD -- I'm sorry, from the Juniper SWD Well Number 1 have affected that sample?

A. From the studies that we have done and we will show in subsequent testimony today, no, I don't think that would be the case.

Q. What's the salinity, the average salinity of the injected water in the Juniper well?

A. I believe it's 14,000 to 16,000.

CHAIRMAN FESMIRE: Okay, I have no further question.

Ms. Munds-Dry, do you have any redirect?

MS. MUNDS-DRY: I have no redirect.

CHAIRMAN FESMIRE: Any objection to this witness being excused?

MS. ALTOMARE: None.

CHAIRMAN FESMIRE: Commissioners?

COMMISSIONER BAILEY: No.

COMMISSIONER OLSON: No.

CHAIRMAN FESMIRE: Mr. Emmendorfer, thank you very much.

THE WITNESS: Thank you.

CHAIRMAN FESMIRE: For those of you who are here for the pit rules deliberation, Ms. Munds-Dry still has three witnesses. How long do you -- average, do you think that will take?

MS. MUNDS-DRY: Well, I think it's probably to say that we've probably got an hour, an hour and a half.

CHAIRMAN FESMIRE: And Ms. Altomare, how long do you think your testimony will take?

MS. ALTOMARE: We're going to try and keep it minimal. It really depends on how much information we're able to get out -- 20 minutes to half an hour, probably, is

what I'm expecting.

CHAIRMAN FESMIRE: For those of you that are here on the pit rule deliberation, we probably won't get to the pit rules until one o'clock after lunch. I'm not guaranteeing that. You have to travel at your own risk. But I can't foresee us being too wrong.

So if you want to stay and watch, that's fine. If not, you all can go ahead and take the rest of the morning off, and we'll begin -- we will probably begin at lunch, no guarantees.

That having been said, why don't we go ahead and take a 10-minute break and reconvene at twenty to eleven?

(Thereupon, a recess was taken at 10:30 a.m.)

(The following proceedings had at 10:45 a.m.)

CHAIRMAN FESMIRE: Let's go back on the record. This is a continuation of Case Number 13,812.

The record should also reflect that all three Commissioners are present, we therefore have a quorum.

I believe, Ms. Munds-Dry, you were getting ready to present your second witness?

MS. MUNDS-DRY: Yes, thank you, Mr. Chairman.

Are the Commissioners ready to proceed?

CHAIRMAN FESMIRE: We are. I am.

COMMISSIONER BAILEY: Uh-huh.

COMMISSIONER OLSON: Yes.

MICHAEL T. HANSON,

the witness herein, after having been first duly sworn upon his oath, was examined and testified as follows:

DIRECT EXAMINATION

BY MS. MUNDS-DRY:

Q. Would you please state your full name for the record?

A. Michael Thomas Hanson.

Q. And where do you reside?

A. Farmington, New Mexico.

CHAIRMAN FESMIRE: And Mr. Hanson, you understand you've been previously sworn in this case, right?

THE WITNESS: Yes, sir.

Q. (By Ms. Munds-Dry) And by whom are you employed?

A. Coleman Oil and Gas.

Q. And what is your position with Coleman?

A. Operations engineer.

Q. Have you previously testified before the Oil Conservation Division, and were your credentials accepted and made a matter of record?

A. Yes.

Q. Would you please summarize your education and work experience?

A. I have an associate of science degree from Casper College in 1979. I have been an operations manager since

1981. I have been employed with Coleman since 1997 as an operations engineer.

Q. And are you familiar with the Application that's been filed in this case?

A. Yes.

Q. And have you made an engineering study that is the subject of this application?

A. Yes.

MS. MUNDS-DRY: We would tender Mr. Hanson as an expert in petroleum engineering.

CHAIRMAN FESMIRE: Is there any objection to Mr. Hanson's credentials?

MS. ALTOMARE: No objection.

CHAIRMAN FESMIRE: Mr. Hanson, you're not a registered professional engineer, are you?

THE WITNESS: No, sir.

CHAIRMAN FESMIRE: Mr. Hanson will be so accepted as an expert in petroleum operations.

MS. MUNDS-DRY: Okay, thank you.

Q. (By Ms. Munds-Dry) Okay, Mr. Hanson, would you please turn to what's been marked as Coleman Exhibit Number 4 and identify and review that for the Commission?

A. Yes. Okay, Exhibit 4 is a well and pipeline gathering plat of the Juniper lease.

Q. And does this show ownership in different colors?

A. It does, it shows surface ownership as indicated by green being allotted, it's kind of a dark blue as being tribal trust surface, yellow as being BLM surface, and bright blue as being state surface.

Q. And where is the Juniper SWD Well Number 1 well located on this map?

A. The Juniper SWD Number 1 is in Section 16 of 24 and 10, in the northwest quarter.

Q. And the Monument Well Number 1, where is that located?

A. It's in the northeast quarter of Section 17 of 24 and 10.

Q. Thank you. Mr. Hanson, would you please turn to what's been marked as Exhibit Number 5 and review that for the Commission?

A. Exhibit Number 5 is a chronological timeline for the Juniper SWD Number 1 that was updated and -- presented in the earlier hearing and updated for this Commission --

Q. And if you could review, Mr. Hanson, for the Commission from the time period when the OCD hearing took place in this matter, going forward.

A. Okay. December 21st of 2006, the workover or lowering the packer and isolating the Cliff House formation was set and put back on disposal, along with a bottomhole pressure sensor and cable to surface to EFM equipment. The

EFM equipment, however, was not installed until power -- it was not operational until the electricity was installed. And then -- That was June of 2007. And in July of 2007, we actually put the plant under operation with full power.

November 1st of 2000, a sundry notice was sent to run a step rate test on the Juniper SWD Number 1 and was approved the same day by the Aztec field office.

And that brings us to today.

Q. Thank you. What is the current status, then, of the Juniper SWD Well Number 1?

A. The Juniper SWD Number 1 is currently being used as a disposal well for Fruitland Coal well from the Juniper lease into the lower Menefee and Point Lookout.

Q. And how many producing wells are disposing into that well?

A. If you go to Exhibit 6, the wells that are listed are those that are currently being used not on a continuous basis but an intermittent basis due to the volume of water that the SWD Number 1 takes.

Q. How many barrels of water a day are being disposed of into the Juniper Well Number 1?

A. The Juniper Well Number 1 currently is taking between 20,000 and 30,000 barrels per month.

Q. Okay. And then you've referred to Exhibit Number 6. If you could further explain for the Commission, what

is this showing?

A. Okay, when I reviewed the wells to determine how much gas and water loss we had due to the restrictions placed on this disposal well, and looking at the decline curves all I see were inclines, and it was really difficult because I wasn't really sure when the decline process was going to start.

So what I did is, I took a four-month average in 2006 and a four-month average in 2007, and that's what these numbers reflect. And if you look at the front page of Exhibit 6, this is for the water production, and you show in the average -- four month average for the end of 2006 was 51,631, and 29,991 for 2007. If you subtract new wells that were put on, it's the second column, and it was 47,702 in 2006 and 24,458, a substantial drop, a difference of 23,244 barrels per month of disposal.

The daily averages were, in 2006, almost 1700 barrels per day, in 2007 987 barrels per day, with all wells considered.

And if you look at the second page of Exhibit 6, this is the gas production. And the gas production probably would have been more realistic to take the decline curves if I could have predicted when the incline stopped and the decline started. However, I wasn't comfortable with that and it gave me substantial numbers. So what I

did is, I stuck with it -- with the four-month average on it as well, and the gas production for the four-month average in 2006 was 31,000 approximately, and in 2007 was 29,000 approximately, total for all the wells. And then minus the new wells was 30,695, and 2007 was 26,400, with a difference of 4295.

And using this method I come up with a daily lost gas volume of 141.30. If you look at decline curves, however, it's numbers on the average of 400 to 500 MCF per day lost due to not being able to produce the wells in the northeast portion of this -- operated leases of Coleman's, which is substantial.

Q. Thank you. If you'd please turn to Exhibit Number 7 and review this for the Commission.

A. Okay, Exhibit Number 7 is -- a request was asked of Coleman to what monitoring methods were in place. And currently what we're using is volumes, tubing pressures, tubing casing annulus pressure from the EFM equipment started in July of 2007. And at the same time, Coleman actually started the process of the APD application for the Monument Number 1, as indicated.

If you turn to the back page, the second question was raise, Well, what kind of volumes and pressures are requested? And of course we'd like to maximize this disposal well as an injection well due to the fact that we

are losing gas.

And currently what we're doing is, we're staying at 600 p.s.i. and injecting approximately between 800 and 1200 barrels per day, depending on tank level situations.

I guess ultimately what we'd like to do, and the reason for requesting the step rate test was to find the parting pressure and maximize this disposal well by increasing our pressures up to what has been consistent out there and -- of approximate 1650 p.s.i. with 2500 barrels per day, which might be wishful thinking.

Q. And you said that that request for step rate tests was approved by the District Office?

A. That's correct.

Q. Now you said that a request was made. The Division requested this information as part of this hearing?

A. That's correct.

Q. Is that your understanding?

Let's turn to Exhibit Number 8, and if you'd please review this exhibit.

A. Okay, Exhibit Number 8 is a pre-workover wellbore schematic of the Juniper SWD Number 1. And as you can see, the packer was set at 2136, and the perforations were all below the packer, Cliff House included. And that's May of 2002, was actually, I think, the date that that was set.

In December of 2006 we lowered the packer as requested and installed the bottomhole pressure sensor and set the packer at 2958 with the lower Menefee and the Point Lookout below the packer, with the Cliff House formation being monitored by the bottomhole pressure static equipment.

Q. And that's shown on the back page of Exhibit Number 8?

A. Exhibit Number 8 is on the -- yes, I'm sorry, the wellbore schematic is -- for the current is on the second page of Exhibit Number 8.

Q. Mr. Hanson, would you please turn to Exhibit Number 9? What is this exhibit?

A. Okay, Exhibit Number 9 is the flow volumes per month this disposal well has taken up to December of 2007. And you can see, we kind of were in a test pilot study from 2002 through 2004, so no new wells were actually being brought on. So you averaged between 20,000 and 40,000 barrels per month of disposal.

Infield bit drilling took place, and disposal well was utilized to a peak of 140,000 barrels per day. In all of that, as you can see on the -- Well, that would be the next exhibit. And after installing the packer it fell off substantially to between 20,000 and 30,000 barrels per month.

Q. And what does the second page show?

A. Second page is just a snapshot of 2007, just to look at what we're doing currently.

Q. And what is Exhibit Number 10?

A. Okay, Exhibit Number 10 is the surface pressure measurements taken off of an EFM and recorded and plotted from the start of the disposal well to December of 2007. And you can see there was no surface pressure up until resetting the packer at the lower depth.

And as we see, a small amount of pressure just force-feeding it, and then with the artificial installation of positive displacements, we're up around 600 p.s.i.

Q. And the back page again shows --

A. And the back page --

Q. -- 2007?

A. -- is just another snapshot of 2007 so that we can compare. I guess mainly what I wanted to do is show that it's substantially different in 2007 from what it was originally, and there's -- that's why I feel that surface pressure is a good monitoring tool, surface pressure and surface volume, good monitoring tool for this disposal well for mechanical integrity.

Q. Okay, Mr. Hanson, turn to Exhibit Number 11 and then review that for the Commission.

A. Okay, Exhibit Number 11 is a graph of the tubing

casing annulus bottomhole pressure sensor readings from June of 2007 to February of 2008, with not much fluctuation.

Q. And the back page is a Hall plot?

A. The back page is just kind of a -- to confirm the pressure and volume. It's a Hall -- called a Hall plot, and it's a cumulative pressure versus cumulative rate, and it -- typically, if we would see a mechanical failure we'd see a definite deflection in that slope of the line. In this case it would be dramatic.

Q. Okay, what is Exhibit Number 12?

A. Okay, Exhibit Number 12 is some information that was requested by the Division, and it just explains where we purchased the pressure transducer, the type of pressure transducer, and I believe there's also some web pages for the actual manufacturer's site.

Q. Okay, moving along, what is Exhibit Number 13?

A. Okay, Exhibit Number 13 is a proposed completion procedure for the Monument Number 1 to be converted to an Entrada disposal well.

Q. And what is the proposed completion procedure?

A. After setting casing, we would go in and perforate the Entrada and set a packer within 100 feet of the top perforation and isolate it from -- and start injecting -- or disposing of water into it upon approval

from the OCD.

Q. Okay, and let's turn to Exhibit Number 14. Please identify and review this for the Commissioners.

A. Okay, Exhibit 14 is a wellbore schematic that just indicates what I mentioned with the completion procedure, that we would set a packer within 100 feet of the top Entrada formation and dispose of fluid down the tubing.

Q. And what is the back page?

A. The back page is an AFE'd cost for re-entering the Monument Number 1, completing it into the Entrada. It's just an estimated cost that it would take Coleman to do the work.

Q. And what does Coleman estimate is the total well cost?

A. Total well cost is $571,450.

Q. And then the third page of this exhibit, what does this show?

A. The third page is the Monument Number 1 as it exists today, as reported on the sundries to the OCD, taken off their website. And the back page of that exhibit is a cost estimate to re-enter and plug the upper Cliff House formation as requested by the Division.

Q. And what are the total well costs estimated for that?

A. $156,750, provided we don't have any problems re-entering.

Q. Okay, what is Exhibit Number 15?

A. Exhibit 15 is an operations plan that is proposed to submit with the APD process, and it just pretty much reviews everything that's required for the APD process on drilling the well.

Q. I want to back up just for a second, Mr. Hanson. What are you engineering conclusions for the Juniper SWD Well Number 1?

A. From everything I've seen, the Juniper SWD Number 1 is being adequately used as a disposal well, isolating the Cliff House formation into the lower Menefee and the Point Lookout formation.

Q. And also does your study -- what does your study conclude about Coleman's needs for additional disposal?

A. With the current needs and future needs, Coleman will be required to drill and complete an additional disposal well, unless we want to wait the time period for the disposal water to decline as much, where we won't need to, but -- with lost revenue, of course.

Q. And what is behind this next tab here? What is Exhibit Number 16?

A. Okay, Exhibit 16 is some more information that was requested as far as from the OCD. And the Monument

Number 2 well is one that's on the same wellpad as the Juniper SWD Number 1. And there is some confusion as to exactly where the stage collar is set.

And as far as finding it documented on any of the regulatory agencies' information, I can't find it. I've tried service companies, I've tried personnel who used to work for the company that actually drilled this well, with no luck. I can say from the volumes that they've pumped in cement slurries that I feel very confident that the Cliff House formation is isolated in this well.

Q. What was the request that was made from the Division?

A. The request was -- on this particular well?

Q. Just to give the Commission a little background about where this comes from.

A. This Monument 2 --

Q. Yes, on this particular well?

A. Okay, on the Monument 2 well the request was, was there any additional information on the depth of the stage collar?

Q. And did we provide this information to the Division?

A. As far as the actual depth, or the calculated depth? The actual depth, I'm only going by experience and what's been done in that area in the past.

Q. Okay. Were Coleman Exhibits 4 through 16 prepared by you?

A. Correct.

MS. MUNDS-DRY: Mr. Chairman, we'd move the admission of Exhibits 4 through 16 into evidence.

CHAIRMAN FESMIRE: Any objection to the --

MS. ALTOMARE: No objection.

CHAIRMAN FESMIRE: Okay, Exhibits 4 through 16 will be admitted to the record.

MS. MUNDS-DRY: And I have nothing further for Mr. Hanson.

CHAIRMAN FESMIRE: Ms. Altomare?

MS. ALTOMARE: Thank you.

CROSS-EXAMINATION

BY MS. ALTOMARE:

Q. Mr. Hanson, I just have a couple of questions, although it might seem like I'm bouncing around a little bit, because I'm kind of playing cleanup today, I guess.

I think at one point -- and I might have misheard you, but you had said something about having already started the APD process for the Monument Number 1. Have you already -- has Coleman already started the APD process for the Monument --

A. We've started the APD process, but we haven't submitted an APD. And what I mean by starting the APD

process is, we filed the notice of staking, we've notified -- and actually, our split-estate wells, we use Brian Wood with Permits West, and he's done 90 percent of that work, so he might -- if you're going to get detailed into what we've done, he would be a better one to ask on that.

Q. Okay, so he could tell us all exactly where you all are in that process?

A. I -- yes, yes, ma'am.

Q. Okay. You had mentioned that you wanted to maximize the productivity or, I guess, the usefulness of the Juniper Saltwater Disposal Well Number 1 by increasing the pressure. Would you -- would Coleman be willing to perform certain other conditions or monitoring-program-type things as a condition of increasing that pressure to ensure that the environment is protected?

A. Yes, I don't see where there would be a problem. I guess it depends upon what exactly and how often. But I do feel that what we're doing -- due to the fact that that Cliff House will take a substantial amount of water, that if we had a mechanical integrity problem, that it would be indicated right away.

Q. Okay. For instance, one of the things I think that we were thinking was, in addition to a step rate test would be doing a -- let me see how -- I have to make sure I have the lingo right -- would be a monitoring program with

a profile -- injection profile with -- where did I write it down -- with temperature -- radioactive tracer and temperature components?

A. I don't see a problem.

Q. Okay, so Coleman would be willing to do that and to submit that information to OCD to make OCD comfortable with the increased pressure?

A. I think that is an excellent idea.

Q. Okay. You had -- We've talked a little bit about the time that it's going to take, which I know -- I understand Mr. Wood is going to testify a little bit more extensively about the permitting process, and the schematics that you guys have submitted have laid out the existing pipelines that you have. I assume that you're going to be connecting this well to a pipeline as well?

A. This well being the Monument Number 1?

Q. The Monument Number 1.

A. Yeah, that's correct, and we actually are in the process of -- we have staked that pipeline, but we're in the process with the permit application that will be filed as well.

Q. So are plans in the works, then, to simultaneously complete that pipeline at the same time as the completion of the Monument Number 1 re-entry and conversion?

A. Yes, ma'am, that would be a benefit.

Q. Okay.

A. It is split-estate, so it does get a little iffy there, but -- it is split-estate.

Q. Okay, is the permitting process as onerous for the pipeline as it is for the re-entry and the drilling and the conversion?

A. I'm sorry, could you restate that?

Q. Is the permitting process for the pipeline on the split-estate land over there, is that going to be a whole 'nother issue, is that going to add on a whole lot of extra time?

A. I don't believe that it will, but again, Brian Wood would be -- he's -- I believe he's --

Q. Okay.

A. -- I don't know if he's filed that application, but he's actually worked on it; I know that for a fact.

Q. Okay. You talked a little bit about the fact that the Juniper saltwater disposal well is not able to handle as much now that the packer has been reset. And you may have already answered this. What was the volume that -- the rate of injection before the packer was reset?

A. Before the packer was reset?

Q. Yeah.

A. If you go to Exhibit 9 and prior to December of

2006 you are looking at between 100,000 and 120,000 towards the tail end there, which -- indicating some decline with the wells that were going in there.

Q. Okay, and then what was the significant change once the packer -- Okay.

A. When the packer was reset, the Cliff House was no longer taking fluid.

Q. And this is a monthly --

A. This is a monthly.

Q. Okay, and what's the daily -- what would be the daily rate comparison?

A. I think 800 to 1200 is what I had mentioned.

Q. For the present amount?

A. Yes.

Q. And what was the prior? Do you remember?

A. Probably between 3000 and 4000 barrels per day.

Q. Okay, just wanted to try and wrap my head around what the differential was.

A. That's real close.

Q. Okay.

A. That's -- I know it seems wide, but when you have a few wells go down, it doesn't take long.

Q. Okay. And are you involved in assisting in filling out -- as the operations -- I'm not real clear as an operations engineer what your role is in the process.

Are you involved in filling out forms and working with Mr. Wood in the permitting process --

A. Correct, I --

Q. -- or does he do that independently?

A. Typically on a nonsplit estate I handle 100 percent of it. On a split estate, due to the issues of dealing with multiple agencies -- and they have people that are already doing that -- it makes it cost-effective for us to have him handle that.

Q. Okay.

A. I have handled split estates, I prefer not to, but...

Q. Would you have any opposition to -- in this case, just as a matter of courtesy, providing the OCD with courtesy copies of what's being submitted to the BLM, just to keep us in the loop, I guess, as to where Coleman is in the process, since we're a little new to the split-estate process with regard to this timeline?

A. I would be happy to.

Q. Okay. And with regard to the downhole pressure sensor with the Juniper well, would Coleman have any opposition to continuing that monitoring and submitting reports on some sort of a schedule to -- during the interim continued injection, to the OCD?

A. I have no problem with that.

MS. ALTOMARE: Okay, I think that's everything.

CHAIRMAN FESMIRE: Commissioner Bailey?

EXAMINATION

BY COMMISSIONER BAILEY:

Q. When was the Monument number 1 drilled?

A. It was in the early '70s, I believe. The Monument 1 was drilled and plugged as a dryhole, and I think it's Link Oil, is who the operator was listed on the records on the OCD website.

Q. And was that --

A. I'm not sure --

Q. -- about the same time --

A. -- that's what's on the dryhole marker, but that's what's on the -- the sundry.

Q. Okay. Was that about the same time that Monument Number 2 was drilled?

A. The Monument 2, I believe, was drilled approximately five years after the Monument 1 by Tenneco Oil and Gas, and it was drilled as a producer. I have not been able to locate any production records, so I don't know how much they produced it.

I do know they frac'd it and tested it, but that's all I know. And it was -- I think probably in limbo for about a year and a half and plugged, and there's a sundry on the oil and gas website that I'd refer to on

that.

Q. And Coleman went in and plugged number 2 recently?

A. No, Coleman has not plugged the Monument Number 2 well.

Q. Is there any indication what the condition of the casing in the Number 1 well would be after -- how many years? Thirty-five years or more.

A. There is no casing in the Number 1 well. The casing is in the Number 2 well, Monument Number 2 well.

Q. Okay.

A. But I -- All I can go by is the condition of our casing, which is in -- appears to be in good shape from all the testing we've done.

Q. Looking at Exhibit Number 5 and the timeline that stretches back to 2001, it appears as though SWD permission was given back in 2001, and then in 2006 you were required to plug off the La Ventana perforations. Is that correct, the way I'm understanding this?

A. I believe the request to re-enter and plug the Monument Number 1 and Number 2 were on the earlier hearing, and again on the one in December. And I believe the one in December was -- what was required of Coleman at the immediate aftermath was to isolate the Cliff House formation, which we did, and I believe that hearing was

actually October 10th, November 9th, and then I think there was a follow-up on November 27th, and then December 21st is when we actually did the work.

I'm not sure when we received the actual information to do what was required of us, but I know there was several correspondence in there.

Q. So did injection actually start in 2001, and then you had to plug off --

A. I believe it was -- the application process for the Number 1 was started in 2001, but the actual spud of the Juniper SWD 1 was 2002, and disposal was actually May of 2002, initiated.

Q. Okay, what precipitated the requirement by the OCD to isolate the upper zones?

A. I'm not --

Q. Why did you have to come back in for isolation of those upper zones?

A. I believe their concern was with fresh water.

Q. Yes, but what precipitated that? They're not going to just --

A. I don't --

Q. -- go through the files and find that. Was there --

A. I don't --

Q. -- an event of some kind that --

A. I'm not sure what actually initiated the OCD into requesting Coleman to do that. I can't -- I don't know if I can answer that. I don't know that I'm aware of that a hundred percent.

Q. So you were injecting continuously from 2002 until you were required to come in in 2006?

A. We had an approval to inject into the Juniper SWD Number 1 in the Mesaverde formation, and that included all formation -- all -- all of the groups of the Mesaverde formation, which was the Cliff House, which is -- I believe the La Ventana is part of the Cliff House -- the Menefee and the Point Lookout, were all the initial zones of disposal, all open together.

That was in early 2002, that's --

Q. Right, but what I'm trying to understand is, if you were injecting from 2002 until this hearing in 2006, what precipitated the event of you having to come back in to have those upper zones plugged off?

A. I believe there was a second hearing, and there was a request, and Coleman actually agreed to do that work. Does that answer your question?

Q. No, but that's the only question I've got now.

MS. MUNDS-DRY: Commissioner Bailey, I might be able to help. The US EPA came in after the approval was given and consulted with the Division, and that actually

precipitated an amendment to the administrative order.

And maybe -- Mr. Jones may be able to expand on that.

COMMISSIONER BAILEY: Okay, but four years later EPA, in reviewing their records, realized that there had not been -- that there was a problem?

MS. MUNDS-DRY: (Nods)

COMMISSIONER BAILEY: Okay, that's -- I understand that now.

That's all I have.

CHAIRMAN FESMIRE: Commissioner Olson?

EXAMINATION

BY COMMISSIONER OLSON:

Q. Well, that was an attempt, I guess, at -- Commissioner Bailey's questions were along the same lines as mine, so I think I'm still a little confused too as to some of this. But I guess -- Make sure I understand the application, and I don't know if you're the right one to ask this, or to answer this.

At this point is Coleman, then, just requesting to continue using the Juniper SWD without plugging the Monument Number 1, as an interim action while this permitting is going on? Is that what this is all about?

A. Correct. But I don't -- I don't believe that Coleman's ever been approached to plug off the Cliff House

formation. I believe that we recommended this alternative, and it was agreed upon.

I don't believe there was a timetable set on that, but I'm a little fuzzy on that. So I'm not real certain on that.

Q. But they were asked to replug, I guess, the Monument Number 1. That's --

A. The Monument 1, that's -- were you talking -- I may have misunderstood you.

Q. Yeah.

A. I was talking about the Juniper SWD Number 1.

Q. No, I wasn't talking about that, I was --

A. The monitoring device is in the Juniper SWD Number 1. The Monument Number 1 was requested by the Commission to re-enter and plug and isolate the Cliff House, correct.

Q. Right. So now Coleman is just asking us to -- in the interim basis, while this permitting is going on with the Monument Number 1, to be allowed to continue to inject without replugging the Monument Number 1?

A. That's correct, I'm sorry, that's correct.

COMMISSIONER OLSON: Okay, thank you.

EXAMINATION

BY CHAIRMAN FESMIRE:

Q. Mr. Hanson, the information that you've compiled

on the -- specifically on the Monument Number 1, that all came from the OCD imaging system?

A. That's correct.

Q. In fact, most of the data that you presented here came from the OCD, didn't it?

A. Well, I didn't actually download the volumes and pressures from the OCD. I actually downloaded those from our system.

But I hope they match.

Q. Well, I'm not going to check, but the OCD was --

(Laughter)

A. They should match.

Q. -- the OCD system was pretty instrumental in this, wasn't it?

A. The OCD system was very instrumental except for determining where the stage collar was for the Monument 2. But yes, you are exactly right.

Q. And if we were not to have the resources to keep that system up to the quality that we've got now, that would be a big problem for the operators, wouldn't it?

A. If you had to resort to the old system it would be monotonous and time-consuming, that is correct.

Q. Now, I must have misunderstood Mr. Emmendorfer. Your timeline has these Juniper SWD well -- in Exhibit 5 -- drilled in 2001, is it?

A. No, the APD process was filed in 2001. The actual spud date was 2002.

Q. Okay, and when did they begin injection? If my eyes were better, I could --

A. It's here, BHT, sundry notice -- Well, I don't see the exact date, but I would be willing to say that it was July 23rd of 2003, because the OCD witnessed the Bradenhead test and the MIT in that week, period of time.

Q. Can we assume it started inject- --

A. Oh, you know what -- I'm sorry, July of 2003 is when it was actually started.

Q. Okay. So when did we take the -- when from this scale, this timeline, when did we take the repeat formation tester and get the analysis on the water?

A. That's when we drilled the Juniper SWD Number 4. I don't know the exact date. I don't have when we -- I took the SWD Number 4 information off of this timeline, because it was requested that I do that.

Q. So -- Do you know when that was?

A. If I was going to guess, it's going to be 2004.

Q. Okay. So there had been some injection into the SWD Number 1 prior to that --

A. Yes.

Q. Okay. How far away is the 4 from the 1?

A. Off the top of my head, I'd -- it's -- one's in

the southwest quarter, and the other one is in the northwest quarter, so a good mile-plus.

Q. A good mile? Do we have any idea how much water we injected into the 1 before we got the sample out of the 4?

A. You know, I think Paul might be able to answer that question.

Q. You guys are setting Paul up real good.

A. Sorry. Paul and Brian.

I think the reason there's such a time lag between that actual spud date and the actual disposal date is because of some surface issues, but I'm going off of memory, so...

Q. Okay. With respect to Exhibit Number 6, I didn't follow exactly how you got the daily production loss of 400 to 500 MCF per day off of this. Could you go back over that again?

A. Okay, the 400 to 500 gas production loss was off of decline curves.

The only problem I had with decline curves is, it looked rosy as far as how much loss we had, but I was uncomfortable with saying, okay, it inclined through that whole period of time when there was no decline, because 90 percent of the wells were on an incline during that period when I looked at it.

So that's why I kind of went back and did a four-month average, rather than the decline curve.

Q. Okay. I think I followed that analysis, but how did you get to the -- specifically, how did you get to the 400- or 500-MCF-per-day difference?

A. What I did is, I took those decline curves and built a trend, and then looked at the difference between what it is producing now and what the incline curve indicated that it should have been producing.

Q. Okay, and is that based on back pressure or lack of dewatering, or -- theoretically, I guess, I don't understand.

A. Well, it appears to me that we haven't totally dewatered the coal, and we're still seeing increases in volumes on individual wells. And if you look at our total field production, that's also indicated as well.

So I guess I could have built a good case for using the declines, I just -- with the water being declining and the gas being inclining, I didn't feel real comfortable with saying that year period, it didn't start declining from the decline curves.

Q. Okay. Now Coleman thinks that the water in the Ventana group is just below the 10,000 parts per million TDS, right?

A. Correct.

Q. But it is below the 10,000 parts per --

A. If that's the line, it is below the 10,000.

Q. Okay. How come they didn't squeeze off those shallow perfs when they reset the packer?

A. Are you talking about in the SWD Number 1 there?

Q. In the Juniper SWD Number 1.

A. It's going to be probably difficult to get a 100-percent squeeze in that La Ventana because of the porosity in it.

You could probably set a plug across it and be successful, but I don't know that you would ever be successful getting a squeeze where you could actually do a mechanical integrity test, and that's why we proposed the bottomhole pressure static sensor, to monitor that.

Q. Do you have any idea how much water -- it looks from the -- you know, your pressure went from zero when you plugged it off to 700 pounds, so a significant portion of the total injection prior to the time that you set the packer went into that shallow zone, right?

A. Correct.

Q. Do you have any -- have you all done any estimates or tried to figure out how much water that is?

A. I have not. Paul may be able to touch on that with his -- because his study deals with that.

Q. Okay. Now in Exhibit 10, you indicated that that

was a good measure of the casing integrity, and I didn't follow that reasoning again.

A. Exhibit 10. I guess due to the fact that the -- when the La Ventana and the Cliff House was open, we didn't ever -- we never seen any surface pressure.

So therefore, if we had a mechanical failure, it would go on a vacuum to larger volumes of water, because we went from approximately, like I said, 3000 barrels a day to 4000 barrels a -- and 4000 barrels a day, down to 800 to 1200 injection at pressure.

So with never seeing over that long period of time, I wouldn't expect with it sitting there for over a year that you would see pressure on it today.

Q. Okay. And if my understanding is correct, you've hung an annular bomb just above the packer. Is that a constant readout? How do you get the information from that?

A. It's actually pulled, I think, a minimum of six hours, that data is pulled a minimum of six hours, and sent to a website.

And from that website it actually sends reports to operation personnel, and it actually has an alarm set up to where if there's an increase or decrease of 100 p.s.i., it will actually flag an alarm. So that's pretty much how it works.

And then we can look at cumulative data as well as instantaneous data. We don't --

Q. Well --

A. We do not have -- we do not have the capability of pulling, so we would have to take -- instantaneous data would be the last time it was pulled.

Q. Okay. Well, it's -- how often -- so it's actually hung off and pulled?

A. No, no, no.

Q. No?

A. No, it's sending it --

Q. Are you saying it's pulled --

A. -- it's pulled, as in radio communication.

Q. Oh, okay. Okay. It's been a long time since I've done this kind of work, and we didn't have those gee-whiz gadgets.

A. We use these devices to monitor pumpoff controls in the submersible pumps in our Powder River Basins successfully, and they're the ones that actually recommended to me the type that they had the best success for -- with. Best success with, I'm sorry. And that was a particular one that we had shipped out of the Powder River Basin to the San Juan Basin.

Q. So that's why you bought it in Wyoming, instead of --

A. That is the reason we bought it -- You know, there are devices in San Juan County that are capable of doing that currently, but I don't believe there were a lot of them done early on.

Q. Okay. And so is it physically set in the packer or --

A. It's strapped --

Q. -- in the string?

A. It's strapped to the tubing --

Q. Strapped to the tubing.

A. -- and the cable is strapped to the tubing as well from the setting depth to the surface, and it actually -- from the surface it goes over to the EFM equipment.

And that's -- that readout is a zero to 2000 p.s.i. strain gauge, but it's -- also has a transducer on it that converts that to milliamps, and that milliamps is what we use to come up with the pressure, surface pressure reading, very similar to, if you would run it in on a rig and pull it out, if you didn't use a mechanical device.

Q. And I could see, you know, if the objective were just to monitor the backside, that would be fine. But we've got usable water through some pretty effective perforations on the backside there, and that concerns me.

A. There are multiple feet of perforations open, you are correct.

Q. Have you done any projections on how much the Entrada will take in the recompleted well?

A. I've communicated with Dugan who has, I believe, four Entrada wells currently active in that area, and I believe that would be my information at this time. And I believe they're taking -- last time I checked, anyways, approximately 2400 barrels a day at over 800 p.s.i., and climbing, so...

Q. So just a little bit over what you're injecting. 800 barrels a day in that well, did you say?

A. In the Dugan well?

Q. Yeah.

A. No, 2400 barrels a day --

Q. 2400 at 800 --

A. -- at 800 p.s.i. But the last time I checked on those was approximately six months to a year ago. I've had a call in to Dugan to see if I could get some pore-pressure information from them on the Entrada and have not got a return call yet, but...

Q. Now you're going to -- are you expecting it to be about the -- I guess the question was your projections. Is the information that you've gotten from them the projections you're using right now for the injection rate and pressure?

A. That is correct.

Q. Okay. And so you're going to need a new pump facility out there, right?

A. No, sir, we would use the pipeline and split off of our SWD Number 1 pump, which is capable of handling close to 4000 barrels a day.

Q. Okay, and what is the SWD Number 1 injecting now?

A. It's 800 to 1200 barrels a day at 600 p.s.i.

Q. And do you remember what it was taking -- and I'm sorry if some of these are redundant, but do you remember what it was taking before you moved the packer?

A. I believe it was 3000 to 4000 barrels a day, at zero p.s.i.

Q. Okay. So from the calculations that you're talking about, you're going to need both wells, right?

A. That's correct, or another disposal.

Q. Or another disposal. You said that kind of knowingly. Is there something I should know about?

A. No, if you take declines of the water projections, and depending upon the time frame it takes us, I guess there's a little bit of possibility that we won't need additional disposal.

Q. Okay. But if you do the drilling program that you're talking about, you're going to need --

A. I don't believe so. We've got 10 wells to drill in there and four to complete.

And we've requested an increase in pressure for the Juniper West SWD Number 1, and we expect it to take more volume than it's currently taking, so that will take up some of the volume required. That will fulfill that void.

CHAIRMAN FESMIRE: Okay, that's all the questions I have.

Ms. Munds-Dry, do you have --

MS. MUNDS-DRY: I have nothing further.

CHAIRMAN FESMIRE: Okay. Mr. Hanson, thank you very much.

MR. HANSON: Thank you.

CHAIRMAN FESMIRE: Ms. Munds-Dry, who's your next witness? I guess it's him?

MS. MUNDS-DRY: Coming this way.

CHAIRMAN FESMIRE: Yeah. And his name is -- ?

MS. MUNDS-DRY: -- is Paul Oldaker.

CHAIRMAN FESMIRE: Oh, good.

MR. OLDAKER: Thank you.

CHAIRMAN FESMIRE: Paul, you remember that you've been previous sworn in this case, do you not?

MR. OLDAKER: Yes, Mr. Chairman.

MS. MUNDS-DRY: If the Commission is ready to proceed?

CHAIRMAN FESMIRE: Proceed, please.

PAUL R. OLDAKER,

the witness herein, after having been first duly sworn upon his oath, was examined and testified as follows:

DIRECT EXAMINATION

BY MS. MUNDS-DRY:

Q. State your name for the record, please.

A. My name is Paul Roger Oldaker.

Q. And where do you reside?

A. I reside in Denver, but my business is in Steamboat Springs, Colorado.

Q. And by whom are you employed?

A. I'm self-employed.

Q. And what is your relationship with Coleman?

A. I am a consultant to them.

Q. And have you previously testified before the Oil Conservation Division, and were your credentials accepted and made a matter of record?

A. I testified in April of 1985 and November of 2006, and the answer is yes.

Q. You have a good memory too.

A. Good notes.

Q. Would you please summarize your education and work history for the Commission?

A. I have a bachelor of science in watershed science from Colorado State University. I did two years of

graduate work at Colorado State. I've taken several short courses over the past 30 years.

My work experience is 31 years as a hydrologist and hydrogeologist. I have over 100 oil and gas projects, of which 70 are in the San Juan Basin.

Q. Are you familiar with the Application that's been filed in this case?

A. Generally. Obviously, I'm most familiar with my own sections.

Q. And have you made a hydrogeologic study of the area that is the subject of this Application?

A. Yes, the first report was on April 10th, 2006. It was updated for the first hearing, November 3rd, 2006, and the third update is 2008, March 3rd.

MS. MUNDS-DRY: We would tender Mr. Oldaker as an expert in hydrogeology.

CHAIRMAN FESMIRE: Any objection?

MS. ALTOMARE: No objection.

CHAIRMAN FESMIRE: Mr. Oldaker's credentials will be so accepted.

Q. (By Ms. Munds-Dry) Would you please explain to the Commission what Coleman asked you to do?

A. They asked -- Pardon me.

Q. Sorry, go ahead.

A. They asked me to calculate the radius and area of

influence of the SWD Number 1, of the area of injection, and also review the water quality in the area.

Q. And earlier in the hearing I believe it was asked by one of the Commissioners what water quality samples were taken in the area. Could you briefly address that issue?

A. There were samples taken in the Cliff House sandstone, both in the SDW [*sic*] 1 and the SDW 2, and if I may refer to my original report I can get you the exact dates on those.

The date of the SDW Number 1 is May 16th of 2002. The SDW Number 4, which was the formation tester, is November 9th, 2005.

CHAIRMAN FESMIRE: Could you go over those again, please?

THE WITNESS: Certainly. The Juniper SDW -- D Number 1 is May 16th of 2002.

CHAIRMAN FESMIRE: And that's the drilling date or the test date?

THE WITNESS: That is the date on the sample itself, of the formation, probably a swab sample.

The Juniper SWD Number 4 is November 9th of 2005, and that is the formation tester.

Q. (By Ms. Munds-Dry) And while you have that out, I'm anticipating Chairman Fesmire's question. Do you recall how much water was injected from the SWD Number 1

before the Number 4 test was taken?

A. We can actually look at the exhibit.

Q. Let's turn to that Exhibit Number 17, then.

A. Uh-huh. On Figure 4 we have the water injection volume versus time, the Juniper SWD Number 1. And if I go back to my dates, of course, it would be -- November of 2005, the cum is about 2.5 million barrels.

Q. Thank you. And from your study, what are some of the results that you can share with the Commission?

A. Due to the relative -- in hydrogeology terms -- of small amounts of water, the radius -- calculated radiuses are essentially fairly small, in the 200-, 300-foot range.

And then the water quality, Cliff House is moderate to highly saline. It's consistent with a rock deposit in a marine environment. The Fruitland is highly saline. The ocean is about 34,000 milligrams per liter, and the Cliff House is in the range of about 15 -- well, 10, 9, 6, I believe it is, is the -- to about 15,000 for the Cliff House. The Fruitland is somewhat higher, 15,000 to about 25,000.

Q. Okay. And I believe you already referred to Exhibit Number 17. What is Exhibit Number 17?

A. That's my third update report on the Juniper SDW Number 1.

Q. So this takes us to present?

A. It takes us through 2007 --

Q. Okay.

A. -- for data, the end of 2007.

Q. And have you calculated a radius for this injection volume?

A. There are actually two radiuses that we'll be dealing with. The -- up to 2006 the radiuses were calculated on Figure 5A. That is through the entire 501 feet of perforations available. And depending on the porosity, it ranges from 242 feet to 306 feet.

Q. And after 2006?

A. That would be on Figure 5C. That's on page 6. We're now injecting -- we still have the -- we now are injecting just below the packer into the 124 feet of perforations, and the porosity range from 15 to 23 1/2 percent gives us a range of 289 feet to 306 feet.

Q. Can you also calculate the impact of injection by acres?

A. Yes, since it is a cylinder, the area of a cylinder is $\pi r^2$. Using the radiuses before 2006, on Figure 5B, that ranges from 4.2 acres to 6.7 acres.

And Figure 5D is for through 2007 in the lower unit, goes from 6 acres to 9.7 acres.

And all of these are porosity-dependent.

Q. Would you please review for the Commission your water chemistry data?

A. The Cliff House sandstone, the samples to date have all been moderate to highly saline. Even 9600 classifies as moderately saline. The samples have high chlorides, indicating deposition in a marine environment. The Fruitland formation is higher saline, or highly saline, 15,000 to 25,000. And for comparison, the seawater is about 34,000 milligrams per liter.

Q. Would you again refer to your update and review the porosity versus time?

A. Yes, given the hypothetical situation, including the Monument Number 1, which is 1885 feet away from the SDW Number 1, if we inject it at 2000 barrels a day how long would it take the radius of influence to reach the Monument Number 1 location? And that's shown on Figure 7. Depending on porosity again, it would take between 52 years and 74 years.

Q. What type of declines are you seeing in the Fruitland Coal?

A. We're looking at the fivespot production, which are the oldest wells on the sites, and that's shown on Figure 8. They started as, all five added together, approximately 40,000 barrels per month, and over five years they have declined into the, oh, 12,500 range. This is

fairly typical for coalbed methane.

Q. And based on your original study and now your updated study, what conclusions can you reach for this area?

A. Those conclusions are on page 11 of the exhibit. Overall, there's a relatively small amount of water compared to surface water. Large amounts, barrels; but in terms of cubic feet per second, we're only -- the maximum was .3 cubic feet per second.

Through December, 2006, all the water injection was into the 501 feet of thickness. The radius only ranged from 242 to 306 feet. There was an overall mean of 265 feet.

Through December -- from December, 2006, to December, 2007, all the water injection was then into a smaller amount of perforated thickness. That calculation gives you a radius of 289 to 366 feet, with an overall mean of 317 feet.

Those can then, in Conclusion 6, be calculated as areas. In the hypothetical situation of how long it would take the injection water to reach the Monument Number 1 well, it's somewhere between 52 and 74 years, if we calculate at -- excuse me, inject at 2000 barrels a day.

And coalbed methane water production has declined to approximately a quarter of the original production over

five years, and that is expected to continue to decline.

Q. Based on your study, why does the continued injection into the Juniper SWD Well Number 1 not pose a threat to freshwater zones in the area?

A. The injections are into approved zones, the calculated radiuses do not intercept any freshwater zones.

Q. And was Coleman Exhibit Number 17 prepared by you?

A. Yes, it was.

MS. MUNDS-DRY: Mr. Chairman, we'd move the admission into evidence of Coleman Exhibit Number 17.

CHAIRMAN FESMIRE: Any objection?

MS. ALTOMARE: No objection.

CHAIRMAN FESMIRE: Exhibit Number 17 will be admitted to the record.

MS. MUNDS-DRY: And I pass the witness.

MS. ALTOMARE: I don't think I have any questions for this witness.

CHAIRMAN FESMIRE: Okay. Commissioner Bailey?

COMMISSIONER BAILEY: I have none either.

CHAIRMAN FESMIRE: Commissioner Olson?

COMMISSIONER OLSON: No questions.

EXAMINATION

BY CHAIRMAN FESMIRE:

Q. Mr. Oldaker, going back to your calculations on

page -- starting on page 3, you're assuming piston displacement -- piston-type displacement, aren't you?

A. It's simply volumetric displacement.

Q. So you're not taking into account ineffective porosity, porosity that's not connected?

A. We're not taking into account it or differential head, which would increase the -- into lower zones, versus upper zones. You're not --

Q. Or preferential --

A. Yeah. You're not also taking into account -- you know, permeability does not really enter the equation, since it is just a volumetric calculation, yes.

Q. Okay. In your calculation, did you take into account the significant difference in the permeability of the deep -- in the -- significantly greater permeability of the shallow zone in the Juniper SWD Number 1, between the shallow zone and the deep zone?

A. No, there's no permeability in the equation.

Q. Okay, so you're assuming a cylinder in your model, wouldn't take into account the fact that the upper zones are going to take a lot more water than the lower zones, right?

A. Not necessarily, because the head in the well -- there's going to be greater head in the lower zones than on the upper zone.

Q. Absolutely, but you've seen the pressure data that the previous witness presented, showing that the well was essentially on a vacuum before they moved the packer, and then after the vacuum the pressure went up to 700 to 800 pounds; is that correct?

A. Correct, but we've reduced thickness by almost two-thirds.

Q. Okay, and you don't think that the -- there is a significant difference in the permeability?

A. There may be, but we don't have direct permeability data here.

Q. Okay. We reduced the thickness by two-thirds, you said, the effective thickness. How did we change the rate?

A. Well, the rate declined. However, if I take, say, 100 feet of the La Ventana and try to stuff all the water into 100 feet of it, depending on its permeability it may have pressured up as well.

Q. Okay, so from the data presented you don't see any difference in the permeability between the shallow zone and the --

A. There's no permeability data presented. There may be a permeability difference between the zones.

Q. Okay, I'm talking about the information presented to the Commission. Can we look at the data and say that

there's a permeability difference between the shallow zone and the deep zone?

A. Since no permeability data is being presented here, you can infer there may be a change in permeability for any 100 feet within the well.

Q. Okay, so from the data presented to the Commission you don't see any indication that there would be preferential flow, a significant increase -- a significant difference in the per unit area of flow -- per unit liner flow in the wellbore into the shallow zone over the deep zone?

A. Well, if we do that, that would be handled by the maximum porosity, and radius would be closer to the wellbore. If the maximum -- if we go to the minimum porosity as shown on Figure 5A, it's 15 percent.

Q. Okay.

A. So I mean, the radius may change with you, the permeability may be changing, depending on which 100 feet we take, but in terms of porosity you'd have to take it to a radial-flow model to handle the differential heads, as well as possible differential permeabilities, before you could make a determination whether the radius is closer to the wellbore or farther away from the wellbore.

However, because we're taking minimum porosity, it probably -- it will not exceed that minimum porosity.

So the radius of 306 feet is the effective maximum, whether it goes in or out. You'd have to close off perfs to change that minimum or maximum radius.

Q. Okay. What's in the rock when you start injection? What's in the porosity, what's in the void?

A. Generally fluid, water. It's a fluid, whether it's gas, water or oil.

Q. Okay, so -- and as you inject -- what was it, 2.5 million barrels of water to date?

A. No, that was to the change in the SW 1. To date, the amount injected into the well is about 4.3 million barrels.

Q. Okay. What does that injection do to the fluid in the reservoir?

A. Well, if it's water, which is incompressible, it simply displaces it. It does not mix with it.

Q. Okay. So a radius-of-pressure influence is going to be significantly different than the radius of actual volumetric influence; is that correct?

A. That's very possible, yes.

Q. Let me try to clarify something. You started out your testimony saying that the SD Number 1 was May 16th, 2002, and that was probably a swab sample.

A. Correct.

Q. Okay. What was the total dissolved solids in

that sample?

A. May I check my report?

Q. You may, sir.

A. The SWD Number 1 was 27,300.

Q. And which zone was that out of?

A. That would be all 501 feet of perforations.

Q. Okay, so that is not the repeat formation tester sample that we got out of the shallow zone?

A. No, that's a different well. That's the SDW Number 4, is where the repeat formation tester was used.

Q. Okay, and that was used to isolate just the La Ventana section, right?

A. May I check quickly?

Q. Please, because I'm really confused here.

A. Juniper SW- -- was sampled by RFT tool on November 9th, 2005, before being cased. And that sample is the SDW Number 4, and that is 9740 milligrams per liter.

Q. I'm truly confused. The SD Number 1 -- are we talking -- With SD Number 4 are we talking a different well, or just different sample?

A. They're different wells and different samples.

Q. Okay, so the SD Number 1 was sampled in May 16th, 2002 --

A. Uh-huh.

Q. -- and it came from the total 501 foot of

perforation, and it tested twenty-seven thousand- --

A. -- -three hundred --

Q. -- -three hundred p.p.m. TDS.

A. I have it as milligrams per liter, which is p.p.m. equivalent.

Q. Okay. So SWD Number 4, where is that on our map?

A. It's about a mile away, as I believe Mike testified to. Exhibit Number 1 map, SD Number 1 is shown to be in the gray section, Number 16, and SD Number 4 is in the southwest of 17.

Q. So it's approximately a mile away?

A. Approximately a mile. I have not calculated the distance.

Q. And in Number 4 is where they used the repeat formation tester?

A. Correct.

Q. And the TDS of the sample of the repeat formation tester -- Do you have the exact depth on that?

A. Let me look. I may not, I'm sorry. We can certainly get it for you.

I don't have a depth in the appendix. We can certainly get it for you.

Q. Well, but for the record can you represent to us that that's out of the La Ventana section?

A. That's the La Ventana section, as I understand

it.

Q. Do you have the results of the repeat formation tester? Was there a free-flow on that?

A. That I don't know.

Q. And the results were 96- --

A. 9740.

Q. And total injection to date is -- into the SWD Number 1 has been 4.35 million, right?

A. Yes, sir.

Q. And do you -- just to clarify, what was the date that the packer was moved? Is that mid-2004?

A. The packer was installed in January of 2007.

Q. 2007.

A. It might be December, I don't know. I basically cut it off saying that the --

Q. Probably where that crook is in --

A. Yeah, December, 2006, was the entire formation.

Q. So we're talking about 4 million barrels have been injected when that upper zone was open, right?

A. No.

Q. No?

A. Four million were injected through the end of 2007. There's one year when it was not open.

Q. Okay, but looking at your curve, if we assume that the change occurred where that break is, the

cumulative to date at that point had been about 4 million. Am I reading it wrong?

A. At 2007, approximately 4 million, yes.

Q. Okay. So what are we arguing about?

A. That's your question, sir.

(Laughter)

Q. But when I ask you the cum'd production to the point at which that packer was moved and I said it would be about 4 million, you told me no.

A. Uh-huh, yes. But since the packer has been moved we've had 350,000 barrels put in.

CHAIRMAN FESMIRE: Okay. Ms. Munds-Dry, I have no further questions. Do you have a redirect of this witness?

MS. MUNDS-DRY: I do not.

CHAIRMAN FESMIRE: Commissioner Olson?

COMMISSIONER OLSON: Could I follow up a question?

CHAIRMAN FESMIRE: Surely.

EXAMINATION

BY COMMISSIONER OLSON:

Q. I guess when you were talking about your calculations on porosity, you were using -- did I understand that right, you were using total porosity versus an effective porosity?

A. It is from the density log. Therefore, that would be total porosity until you get some permeability where -- permeability measurements may or may not show total porosity is being used.

Q. Want to explain that again?

A. Well, if something -- it basically goes back to grain size. If I have a bunch of softballs that have a porosity of 40 percent, the permeability is quite large, since the pore throat is so large. But if I use a bunch of BBs, the pore throats are much, much smaller. It's the same porosity, but the permeability is much less.

Q. I don't think that quite answered my question. I was looking at the difference, though -- what you're representing here seems to be total porosity versus effective porosity, which is the interconnected porosity. If you've got a volume of softballs, a series of that area is going to be dead-end pores that you're not going to be pushing fluid into, most likely.

A. Yeah, there's no calculation of effective porosity. You'd have to go back and do the radial-flow analysis on it, including permeability. Permeability implies connectivity, which would give you the effective porosity.

Q. Right, but I'm just trying to understand that if you're -- your calculations here --

A. Uh-huh.

Q. -- are based on --

A. Total --

Q. -- total porosity, right?

A. Uh-huh.

Q. So if you used effective porosity you would have a larger radius than you're representing here?

A. Depending on permeability. Well, volumetricwise, if the effective porosity goes down, the radius will change.

However, the minimum radius we have here is 15 percent. We'd have to be dropping it below 15 percent for the entire zone to not -- to get below that maximum. In other words, I have a total porosity from 15 to 23 1/2 percent. Yes, if for some reason all of this is not interconnected, which the records don't -- you know, we obviously seem to be getting water into it, therefore it appears to be connected -- you'd have to be dropping effective porosity down below 15 percent to really increase that radius beyond 300 feet.

Q. Right, but you're saying here that your variations in total porosity are from 15 to 23 percent?

A. 23 1/2, I believe. 23 1/2 percent.

Q. And not all -- in any formation that you're in, all of the porosity is not interconnected. So if you're

representing this as even 15 percent on the low side of a total porosity, your effective porosity, for which fluids are going to flow through, is going to be less than that?

A. Yes, but let's say we start at 23 1/2 percent. We have total porosity, it's reduced by 2 percent. You go to the curve and it would be 21 percent, which would be down about, you know, 290 acres. You would have to go all the way to the minimum, the very minimum, of 15 percent, then say all of it's 15-percent porosity. Then all of that 15 percent is then -- some of that's not connected, to get below 15 percent.

Q. Well --

A. So the maximum-minimum radius range is still between 15 and 23 1/2 percent.

Q. I guess maybe I'm just confused on what you're representing here. Are you saying that the porosity of the injection zone ranges from 15 to 23 percent, or are you saying that this represents best-case to worst-case scenarios?

A. Let me go back to the original report. The density log was calculated porosities. We read the porosities for every foot that had perforations. We then took the upper zone, the La Ventana and Cliff House, had a porosity of 20.5 percent. However, there were some zones as high as 23 1/2 percent.

The medium or -- in this case, the Menefee zone was 19.2 percent, the Point Lookout 17.1, but there was one average zone as low as 15 1/2 percent. I just took the 15. Now, therefore I have a max and a min for the entire 501 feet of thickness.

If we reduce -- if you say some is not -- excuse me, total porosity, some is effective porosity, well, if we reduce 23 1/2 by, say, 3 percent, okay, it's 20 percent. So you can still go to the curve, we are still within the radius range we've calculated.

We'd have to go down to the lowest porosity for 501 feet, then say all of that is down below even 15 percent, to say where our effective porosity -- you know, where our radiuses would be. I think that's highly unlikely.

Q. I'm just trying to understand what you're representing. So even at 15-percent porosity, that is still the total porosity versus effective porosity?

A. It's the minimum total porosity for the entire zone.

COMMISSIONER OLSON: Minimum total porosity, okay. Thank you.

CHAIRMAN FESMIRE: May I ask one more question?

MS. MUNDS-DRY: But of course you may.

CHAIRMAN FESMIRE: It'll probably lead to a

couple others.

FURTHER EXAMINATION

BY CHAIRMAN FESMIRE:

Q. Have you done any waterflood work?

A. Generally. I would call it more -- we call it inverse dewatering. We do a great deal of dewatering in water -- hydrogeology. True waterfloods, I've been involved in one or two.

Q. In oilfield waterfloods?

A. Oilfield waterfloods, yes, Uintah Basin.

Q. What kind of sweep efficiencies would you generate in a typical waterflood?

A. Depends on the permeability.

Q. That's true. Say in the permeability of the La Ventana?

A. La Ventana is going to be pretty high.

Q. What is pretty high?

A. I'm converting units in my head, I'm sorry, I --

Q. Let's use a percent then.

A. If we have reservoir engineering and we have hydrogeology, and -- they're the same science but different terms. And if we go into permeabilities and darcies, you're -- where almost all of oil and gas is in millidarcies, where the La Ventana we are getting into darcy-type permeabilities, your efficiencies are going --

your waterflood efficiencies are going to be very, very high.

Q. So you have a feeling for the permeability in the La Ventana?

A. From all indications from the literature, it is a permeable zone.

Q. Okay, what about the lower zone?

A. The lower zone generally is lower permeability, but --

Q. Orders of magnitude lower permeability, isn't it?

A. -- but it has the highest head on it.

Q. That's true. Now let's go back to the waterflood example. What kind of waterflood efficiencies are we talking about?

A. You're probably getting into the 60-, 70-percent range.

Q. Okay. And what is that the result of? Why do you not have 100-percent efficiency like you've modeled in your --

A. Oh, why you do not?

Q. Yeah.

A. Because there is some porosity that is not effective. You know, total versus effective porosity, definitely.

Q. And that's for an extremely permeable zone?

A. Yes.

Q. And it would decrease from there; is that correct?

A. It should, yes.

CHAIRMAN FESMIRE: No further questions. Any redirect?

MS. MUNDS-DRY: I do not.

CHAIRMAN FESMIRE: Thank you, Mr. Oldaker.

MS. MUNDS-DRY: I tried.

(Laughter)

CHAIRMAN FESMIRE: Do you want to break for lunch, or do you want to keep going?

COMMISSIONER BAILEY: I have to eat.

(Laughter)

CHAIRMAN FESMIRE: The record contains the reason for the --

MS. ALTOMARE: We don't want cranky Commissioners.

CHAIRMAN FESMIRE: Is an hour enough?

COMMISSIONER BAILEY: More than enough. Forty-five minutes is fine with me.

MS. ALTOMARE: Did you say seven minutes?

CHAIRMAN FESMIRE: She said 45.

Would you all be able to come back in 45 minutes?

MS. ALTOMARE: Sure.

COMMISSIONER OLSON: Cheryl objects.

CHAIRMAN FESMIRE: Oh, we've got an objection from the attorney. How appropriate.

Why don't we go ahead and take an hour for lunch and reconvene at 1:15 in this room?

Thank you all.

(Thereupon, noon recess was taken at 12:13 p.m.)

(The following proceedings had at 1:23 p.m.)

CHAIRMAN FESMIRE: Okay, let's go back on the record.

The record should reflect that it's 1:15 p.m. on Thursday, March 13th, 2008. This is a continuation of Case Number 13,812.

The record should also reflect that all three Commissioners are present. We therefore have a quorum.

And I believe, Ms. Munds-Dry, you had one more witness to present?

MS. MUNDS-DRY: I do, I promise, one more witness.

CHAIRMAN FESMIRE: And that is -- ?

MS. MUNDS-DRY: Brian Wood.

CHAIRMAN FESMIRE: Mr. Wood, do you remember that you've been previously sworn in this case?

MR. WOOD: Yes, sir.

CHAIRMAN FESMIRE: Please proceed, ma'am.

MS. MUNDS-DRY: Thank you.

BRIAN WOOD,

the witness herein, after having been first duly sworn upon his oath, was examined and testified as follows:

DIRECT EXAMINATION

BY MS. MUNDS-DRY:

Q. Would you please state your full name for the record?

A. Kenneth Brian Wood.

Q. And where do you reside?

A. Santa Fe.

Q. And by whom are you employed?

A. Permits West, Incorporated.

Q. And what is your relationship with Coleman?

A. I've worked as a consultant for them for 10 years.

Q. And have you previously testified before the Oil Conservation Division and were your credentials made a matter of record -- accepted and made a matter of record?

A. Yes.

Q. And could you summarize your education and work experience?

A. I have a bachelor's from the University of Virginia, a master's from the University of Wyoming. I founded Permits West in 1984. We've permitted projects in

11 different states on 15 different indian reservations. We've also worked for indian tribes and indian businesses. We've worked on the Navajo reservation since 1984 also. Currently I have several dozen different projects underway on the Navajo reservation.

Q. And are you familiar with the Application that's been filed in this case?

A. Yes.

Q. And what did Coleman ask you to do?

A. They asked me to basically shepherd their applications through the tribal-BIA-BLM process, processes.

Q. And what is your involvement with respect to the Juniper SWD Number 1 well?

A. On the Juniper SWD Number 1 well, my involvement to date has been permitting the electric line that was run into that well several years ago.

MS. MUNDS-DRY: We would tender Mr. Wood as an expert in permitting.

CHAIRMAN FESMIRE: Any objection?

MS. ALTOMARE: No objection.

CHAIRMAN FESMIRE: Mr. Wood will be so accepted.

Q. (By Ms. Munds-Dry) Mr. Wood, Commissioner Bailey had discussed the issue of whether the well was commercial for the Juniper SWD Well Number 1. Can you tell me the nature of the ownership of the surface for that well?

A. The Juniper Number 1 surface is currently BLM surface. It's state minerals. There was a land exchange at some point in the past.

Q. And who owns the surface where the Monument Well Number 1 is located?

A. Monument Well Number 1 surface is Navajo nation, it's tribal trust land, and the minerals are BLM.

Q. Let's march through the approval processes there to give the Commissioners an idea of how long and -- what you've been asked to do and how long it will take to get you there.

A. One of the exhibits will go into excruciating detail. But to just kind of summarize, we'll be dealing with five different agencies, Oil Conservation Division being one, the Navajo nation, Bureau of Indian Affairs, the US EPA -- and the reason the US EPA is involved is, if -- even if it's just indian surface, they've got jurisdiction as they see it -- and then the BLM.

And those are the -- you know, like I say, the five major agencies we deal with. Each of those agencies, of course, have, you know, their own bureaus and branches. Those offices are scattered across five different cities: Gallup, New Mexico; Window Rock, Arizona; Farmington; Aztec; and San Francisco, California. So we've got, you know, five agencies, five cities, three states.

Q. Okay, let's turn to what's been marked as Exhibit Number 18, and review this for the Commissioners.

A. This 11-page exhibit, the origin of it was, in 1995 I was working for Mobil Oil as a consultant. Their management was quite concerned about how long it was taking to get approval for their projects up in the Aneth field, which is tribal minerals and tribal surface. I spent a day with their regulatory affairs manager, and we basically filled up two walls trying to diagram all the individual steps involved in getting approval to drill an oil well on the Navajo nation.

You'll notice that this was designed for oil wells. It basically applies to any surface disturbance on tribal land, on Navajo tribal land.

A couple points I'd like to make is that this, like I say, it was -- you know, it was created in-house in 1995.

In 1996, because of a lot of operator complaints about how long it was taking the BLM to approve APDs, Mobil elected to share this with a government-industry task force. That's how it came to be a matter of public record.

At that time, the BLM's records indicated that it was taking 13 months to have an APD approved. That somewhat understates the actual time frame, simply because BLM was tracking it from the date at which they received an

APD. There's several months of preparation involved before you even get to that point.

Another way that this somewhat understates the number of steps is, if you'll turn to page 9, what is shown as signature approval sheet process, you can see there's individual boxes. And what these individual boxes represent are tribal offices.

However, it's not as simple as it seems. One example is, for instance, when your package comes to each office -- and it goes consecutively, not concurrently -- when it goes to each office, there's basically four steps at each office. A secretary will log it in, then they'll give it to a staff member to review, the staff member will then give it to his manager to approve, and then the manager gives it back to a secretary to move on to the next office.

Unfortunately, the way they're staffed, if anybody is sick, you know, it just sits there. There's really no backup, by and large.

One other thing that's omitted from this flow diagram again, this was, you know, written to reflect what you have to get it through for an oil well. It does not include the fact that with the Monument Number 1, this being tribal surface, that we're also going to have to deal with the US EPA.

Q. Okay, so let's walk through the steps, then, of the different agencies that you'll have to get approval for, and give us some idea of timing for each of those steps.

A. The overall time frame is when a client comes up with a project and asks how long will it take, I always say at least one year. I never give them a final date, simply because there's just too many unpredictable actions. We have encountered, over the years I've worked on the Navajo nation, instances of -- there's been a fuel leak where an office was closed for several months with all the files still trapped inside the office. There's been, you know, funding delays where again the Fish and Wildlife Department has basically -- sabbatical for two months. There's just so many unpredictable factors out there that -- like I say, I can give you a minimum, I can't give you a maximum. But I would say, you know, allow at least one year for your standard oil and gas well. With this being a water disposal well, even though it is an existing wellbore, you know, it will be more than a year.

Q. And how long to get through the tribal -- to get tribal approval, do you estimate?

A. I would say once they receive the application package -- and the application package is going to consist of basically four documents: You've got your archaeology

report, you've got your environmental assessment, you've got your actual application, which in this case would be your application for permit to drill, and then also since this is a water disposal well, we will file -- the tribe has their own UIC division, so we'd be filing their application, put it in the package, it would be one physical package.

And then the fourth document, the fourth part of the package, is what they call field clearance. And the field clearance is the consent of the grazing permittees. This can take quite a bit of time in itself, not because there's that many people involved, but once we have a project surveyed we send a request to the Navajo Tribe in Window Rock requesting field clearance. They have one lady that's responsible for 80 percent of the reservation.

She then goes down to the local chapter house, talks to the local grazing official, who hopefully is there, find out who's god the grazing rights. And these are not always something that's just lined out on a map; lots of times it's just in the guy's head, and you hope the guy is there, and you hope there's no dispute.

She then has to go out, find the family or families, as the case may be, get their consent and go back to Window Rock. And like I say, again, not a lot of people involved in this step, but it's a really critical step,

because if you can't get the consent of the grazing permittees, the tribe is really, really reluctant to move forward on a project.

Now we're not anticipating a problem getting the grazing consent for this project. Coleman already has a gas well in the same quarter section. But nevertheless, there's two unoccupied houses there, you know, it looks as if it's been several years since they've been lived in. My suspicion is, the family uses it, you know, kind of as a summer camp to tend their livestock. But we're 600 feet, you know, from these two unoccupied houses.

Q. Once you get approval from the tribe, then where do you go?

A. Then it goes on to the BIA. They're basically making sure everything flanges up. They're very protective, very zealous in their exercise of their trust responsibility. You can have a typographical error that may be nothing more than 1/10 of one foot, and it will kick that back, even if the typographical error came from the tribe versus the applicant. They're also going to be the party responsible for issuing the FONSI. The FONSI is the document that approves the environmental assessment. You're looking at several months there.

Once it goes from the BIA to the BLM, usually that's a very quick process. I would say on average, two-

week turnaround. But like I say, you've got in essence months and months and months before it gets to the BLM.

In this case, again, since it's indian surface, we'll be filing an application simultaneously with the US EPA. The last project that we did with US EPA for a water disposal well on Navajo tribal surface, we turned the application, it was two months before we got any feedback, and they do have a representative in Farmington, but he in turn confers with the people in San Francisco. So we got their feedback after two months, responded. It was five months after they got, you know, all the data they needed before the US EPA, you know, issued their approval.

Q. Let's turn to Exhibit Number 19. What is this document?

A. Last fall -- Things have not changed much over the, you know, intervening decades since this came out. The BLM checked their records, and the average approval time for an APD had gone from 13 months to, according to the BLM records, 351 days. And in essence, they tried to summarize in two pages, you know, what was in 11 pages.

Q. And what does that 351 days take into account?

A. Again, that's when the BLM first sees the APD and the environmental assessment. But before they can see the environmental assessment, for instance, what we need to do is request a threatened, endangered species database search

from the tribal fish and wildlife department. Once we get that database search, we then go out and do the threatened, endangered species field work, write up the report, write the environmental assessment.

And once we write the environmental assessment, we send the EA back to the tribal fish and wildlife department where they review it, approve -- or issue an approval document that we put into the EA -- Oh, and one other document we need to have in the EA before we turn it in to the BLM is, the archaeology report has to be not only written, the archaeology report has to be approved by the tribe.

So in essence we've got to have two preliminary approval documents in the EA before we turn the EA in to the BLM.

Q. Okay, taking all of that into account, then, overall for this project, how long do you think it will take to get all the approvals to get Coleman onto that property to begin the re-entry?

A. I would say 15 months minimum, perhaps 18. And again, that's if nothing goes wrong.

Q. Okay. Oh, there was a question earlier about pipeline permitting. Are you assisting with that as well?

A. Yes, just to bring you up to date on, you know, what's happened so far, we staked -- even the wellbores

there, we still went ahead and staked it so that we could have accurate latitude and longitude and have a new C-102 form. But in essence, the surveyor went out in the field on January 15th, he, you know, measured where the wellbore was, laid out a well site, staked a pipeline and access route. That was January 15th.

On January 26th of this year we filed a notice of staking. This was just a notice to the BLM and to the tribe -- or to the BIA, rather, that, you know, we're surveying, we're planning a well.

On January 30th I faxed a memo to the BLM requesting what they call a category determination. Category determination is their language for just saying, this is how much we're going to charge you for a right-of-way fee. In this instance, the water pipeline that will go from the Juniper SWD Number 1 to the Monument Number 1, part of that pipeline route is on BLM surface, it will require BLM right-of-way. That was January 30th.

And then on January -- excuse me, on February 12th, we actually filed our right-of-way application with the BLM for the BLM portion of the project.

Q. How long do you expect it to take to receive feedback whether it's -- approval or not from the BLM?

A. On the right-of-way?

Q. On the right-of-way.

A. I would say they're running three to six months right now. Again, they've got a lady that's retiring in April, they've just got a new manager, they just seem to be somewhat understaffed for their realty workload. You know, I do expect that the water pipeline will be approved far before, you know, everything else is approved.

Q. Were Exhibits 18 and 19 either prepared by you or compiled under your direct supervision?

A. Yes, compiled under my supervision.

MS. MUNDS-DRY: We would move the admission of Exhibits 18 and 19 into evidence.

CHAIRMAN FESMIRE: Any objection?

MS. ALTOMARE: No objection.

CHAIRMAN FESMIRE: Exhibits 18 and 19 will be admitted to the record.

MS. MUNDS-DRY: And I pass the witness.

CHAIRMAN FESMIRE: Ms. Altomare?

CROSS-EXAMINATION

BY MS. ALTOMARE:

Q. Mr. Wood, you said you've been consulting for a number of years with Coleman, right?

A. Yes, 10 years with Coleman, since 1984 overall.

Q. Okay. And have you done a number of disposal wells during that time?

A. Yes.

Q. Okay. What is the longest amount of time that you had seen one of these permit processes take?

A. I had one applicant up in Utah that never did get approval. That's been probably 10-plus years. It was federal lease where, you know, they had every legal right to, you know, drill their oil wells, and because of some political issues, social issues within the Navajo nation, it was never approved.

Q. Okay. What about where it was ultimately approved but it was just, for whatever reason, delays -- the process took longer than --

A. Yeah, I would say there's probably been a number where it's been two years.

Q. Okay. So would it be fair to say that kind of the upper end of the range that we could expect, if this is -- if this is an application process that is ultimately going to get approved and it's just a matter of jumping through hoops and seeing how long it takes, the upper end of that range would be about two years?

A. Yeah, two, I think so. Two to three, yeah.

Q. Okay --

A. Uh-huh.

Q. -- with the lower end being about 16 months in the case of a disposal well?

A. Yes.

Q. Okay. And as far as where you all are in the process now with the APD preparation for the well, not the pipeline but the well, you've begun preparation of the APD application; is that right?

A. Correct.

Q. Okay. And what about the environmental assessment and the archaeological survey?

A. We've ordered up all of those, we have the threatened/endangered species database search results back, although these are very general. I mean, in essence, they look at the topo map and say, you know, either this has been found or could be found out here. It's -- honestly, it's not a whole lot of help.

Q. Okay.

A. But, you know, the -- probably the next critical step in the process is conducting the onsite inspection with the BIA and the tribe. The BIA lady that is responsible for that, she's a manager. The guy that had been responsible retired last fall, so in essence she's having to do double duty. She has said, you know, in essence, I'll see you in April.

Q. Okay. What would be the date that you would expect to be in a position where you are ready to submit the APD application for permit to drill for the Monument Number 1 well?

A. If we look at the entire application package -- which is what I think we really need to do, because that's what we will need to get through the process -- I would say June 1st.

Q. Okay, so that would be our starting point for calculating this 16-month to two-to-three-year --

A. Correct.

Q. -- range, if that's what we're looking at?

A. Correct.

Q. Do you foresee anything happening between now and June 1st that could interfere with that June 1st starting date?

A. I do not.

Q. Okay. And I think you already testified that the pipeline process is already well underway and is expected to be approved well before --

A. Correct.

Q. Okay, and construction on that will ensue as soon as that's approved?

A. No, I'm sure Coleman will wait till the whole project is approved, because in essence half the pipeline is on BLM and half is on Navajo tribe, and it would be, you know, more cost-effective to just bring the pipeline company out for one trip.

Q. But in any event, it will be ready by the time

the well is --

A. Yes --

Q. -- completed?

A. -- without a doubt --

Q. Okay.

A. -- without a doubt.

MS. ALTOMARE: All right. I think that that's all I wanted to clarify. I think I'll pass the witness.

CHAIRMAN FESMIRE: Commissioner Bailey?

EXAMINATION

BY COMMISSIONER BAILEY:

Q. What additional costs does Coleman entail by conducting operations on indian surface, over and above what it would cost on BLM surface?

A. Boy, I would say at least $5000. For instance, if you're drilling on BLM surface, generally the BLM will write the environmental assessment in house, do all the threatened/endangered species work.

The tribe is also going to charge a $500 application fee. They also have a policy that would apply to this particular well. Their policy is that if any lease has been issued after 1990 they charge what they call consideration. It's basically an annual rent that currently is roughly $13,800 per acre, per year.

Q. So $5000 is a very low, low figure.

A. Oh, yes.

Q. I'd like to know -- $5000 for the additional environmental assessment, but you also have the additional T&E surveys and arch surveys and consultant surveys and all of that. I mean, I'm looking for a total --

A. Well -- okay. Yeah, well, the $5000 would encompass, you know, the EA, the T&E work, that type of stuff. The archaeology work, you know, the company would have to pay for that, whether it's BLM surface or Navajo surface.

Q. Uh-huh.

A. So that's, you know, a wash there. Like I say, the really big cost factor is this annual rent, like I say, and I -- $14,000 per acre, per year, payable in advance.

Q. Okay. So for a saltwater disposal fee which covers, what, 2 1/2 to 3 acres of surface, it's three times $13,800, plus the $5000 --

A. Right.

Q. -- and what do we come up with for that? About $46,000.

A. Yes, I -- you know, commonly we're taking clients' checks into the tribe for that amount and more.

Q. And that's a bare minimum fee. Plus we're talking about the loss of production --

A. Yes.

Q. -- for three years or more?

A. Right, one of which is, you know, a state section. In other words, you know, where the Juniper well is, there's also gas wells producing from state leases there.

Q. And to a gas operator, gas is going $10 per MCF right now?

A. Yes.

Q. So over three years, it seems to me that a better business decision would be not to use indian surface for saltwater disposal alternatives, other than Juniper Number 1?

A. I don't make the business decisions. I mean --

Q. I understand, that's not your role.

A. Uh-huh.

Q. The maps that were provided to us don't show any other wellbores that may be available throughout the prospects. So we're not getting the information that this is the only wellbore that's available for re-entry and conversion to a saltwater disposal well.

My question is, why doesn't Coleman go to BLM surface, when BLM surface is just to the north --

A. You know, I believe --

Q. -- in very close proximity?

A. Yeah. Well, I believe the decision or the

rationale is that, okay, we're going to have -- Coleman will have to do something in the Monument 1 wellbore. Okay, so they've got that cost as a given. But they're going to go ahead and re-enter the Monument Number 1 wellbore, you know, let's go ahead and just drill out the extra, what, 1000, perhaps 2000 feet, down to the Entrada.

And I mean, you know, trying to minimize the surface impact out there. In other words, yes, there's lots of BLM surface out there where they could go, you know, build a new wellpad, put in new pipelines, et cetera.

But here the pipeline that they're planning on laying -- basically, they will have to cross about 656 feet of virgin ground with the road and combined pipeline corridor. And once they get to the wellpad -- you know, it's a reclaimed wellpad, so -- and BLM is certainly making a push to, you know, minimize, you know, the disturbance of new ground.

Q. But we don't have the information from Coleman to tell us if there are any other wellbores on BLM property in proximity. I mean, my question is always going to be, why choose that wellbore when we don't have the geology for the Entrada to indicate that that's even the best location for another injection well?

Another question -- No, that's all I have. That's my point.

CHAIRMAN FESMIRE: Commissioner Olson?

COMMISSIONER OLSON: I don't have any questions.

EXAMINATION

BY CHAIRMAN FESMIRE:

Q. Mr. Wood, I just want to reiterate something that after I wrote the questions down I think you answered, but I wanted to make sure.

What is being proposed here is that Coleman be allowed to move back up and inject into the upper zone in the Juniper SWD Number 1 during the period of time it takes them to get the approvals for the Monument Number 1 well, right?

A. (Shakes head)

Q. No?

A. No. Okay, I guess I'm -- why is it relevant, the time that it will take to get the permit on the Monument Number 1?

A. My understanding, and correct me if I'm wrong, my understanding is that, you know, the packer will stay, you know, in the Juniper SWD Number 1 where it's at, isolating those higher zones. Disposal will continue in the lower zones. And as I understand it, you know, what Coleman is seeking is, you know, to continue that practice, you know, until they can get into the Monument Number 1 and do the squeeze job -- I'm not sure if that's exactly what you're

planning, but in essence, protect those upper zones. And then as soon as that happens, continue down the wellbore and drill out the plugs, go deeper and into the Entrada.

Q. Okay. Now has the OCD in their order put a limit on the amount of time that they can use the -- Am I asking the wrong person?

A. You're asking the wrong person.

MS. ALTOMARE: Yeah. Mr. Chairman, if I could -- maybe I could clarify a little bit for the Commission.

The underlying order actually ordered them to do a couple of different things specifically in order to keep using the Juniper well, one of which was to set the packer to isolate off the protectable water. The other was to go ahead and re-enter the Monument well and protect off that particular zone in that well as well, because of the proximity.

Coleman looked at that and said, Okay, if we're going to have to go through the APD process on the native surface anyway in order to get into that well to re-enter it and plug it, we might as well make lemonade out of lemons and try and make the best of out of it.

The order specifically said they were not -- that they had to complete column A and column B in order to continue injecting. Their request is that, given the time period that we now know it's going to take them to do all

of this, that we allow them to continue injecting in the Juniper, even though they haven't completed all the tasks that we've asked them to do or that the underlying order has ordered them to do, given that we now know that they are -- that they have it in the works and -- as long as they meet certain requirements and certain conditions.

So that's where we are now. They're not planning on making any other changes to the Juniper well other than possibly asking for an increase in pressure, so that -- am I --

CHAIRMAN FESMIRE: Ms. Munds-Dry, is that --

MS. MUNDS-DRY: Mr. Chairman, if I could just -- I think she's summarized it, but I'd just add that whether or not -- whatever -- regardless of our plans on the Monument Well Number 1, we would still have to get permission to enter the surface, because it's tribal surface.

So going back to Commissioner Bailey's question, some of those costs would happen and would incur regardless of what we did, whether we accepted the Division order or continued to try to convert to an SWD well.

Now from a business decision you can still argue about the numbers, but regardless of what our plans are with the Monument Well Number 1, there are surface access issue and, you know, other issues that we'd have to address

before we can even get to the Monument Well Number 1.

So there's still a delay regardless of what we do, and that's why we want to make sure that we still have that authority to inject in the Juniper SWD Well Number 1.

CHAIRMAN FESMIRE: Even though the conditions to the initial order have not been met -- will not be met, apparently, for two years or more. Is that the argument?

MS. MUNDS-DRY: Correct. And only with respect to the Monument Well Number 1. We've complied with all the requirements in the Division Order in terms of the Juniper SWD Well Number 1.

CHAIRMAN FESMIRE: Okay.

THE WITNESS: And if I could just, you know, kind of tie it all together, you know, we would still have to go through the same, you know, tribal process, BIA process, BLM process, if all we were going to do is go in, you know, to the Monument 1 and just, you know, squeeze off those upper Mesaverde zones. The only difference is, we would not have to go through the US EPA, and we'd only have to in essence pay one year's rent versus 20 years' rent.

CHAIRMAN FESMIRE: Okay. And where does the Monument Number 2 come into the plans?

MS. MUNDS-DRY: There was really no issue with the Monument Well Number 2, and I'm sure the Division can speak to that, but they really wanted just more information

on where the DV tool was set, and that's what we've been trying to comply with, and that's why Mr. Hanson discussed that, is, we tried to look wherever we can think to look to try to determine where that is, and we've given the Division all the information we can try to find, including, obviously, looking at Division records to try to make that determination.

But I don't think there's any other issue with regard --

MS. ALTOMARE: (Shakes head)

MS. MUNDS-DRY: -- to the Monument Well Number 2.

CHAIRMAN FESMIRE: Okay. Mr. Wood, thank you very much, that --

COMMISSIONER OLSON: May I try to clarify some stuff for myself?

CHAIRMAN FESMIRE: Sure.

COMMISSIONER OLSON: So is then -- technically, are they not allowed to inject because they haven't completed the actions on the Monument Number 1?

MS. ALTOMARE: Technically that's correct, however they did come to us and said, you know, we've gone and we've done the Juniper work, this is what's going on, we can't get to the Monument well because of this process, however we have an alternative solution.

Asked us to consult with our technical people to

see if there were environmental issues that were of concern. There were -- didn't seem to be imminent environmental issues. We looked at the monitoring that was involved, and this was the solution that we came up with so that we could continue to be in communication with them, to make sure that there was continued environmental protections in place and still allow them to do business.

COMMISSIONER OLSON: Okay, I have no further questions.

Ms. Munds-Dry, do you have any redirect of this witness?

MS. MUNDS-DRY: I have no -- anything further for Mr. Wood.

CHAIRMAN FESMIRE: Okay. Mr. Wood, thank you very much.

MR. WOOD: Thank you.

CHAIRMAN FESMIRE: Ms. Munds-Dry, do you have a close?

MS. MUNDS-DRY: Do you want me to do that now? Are you calling --

MS. ALTOMARE: Do I get to do my own case?

CHAIRMAN FESMIRE: You do, I'm --

(Laughter)

CHAIRMAN FESMIRE: I'm getting ahead of myself.

MS. ALTOMARE: I'll do whatever you want me to.

CHAIRMAN FESMIRE: I'll tell you what, since I slipped I'll give you the choice. I'm assuming you'll wait until after --

MS. MUNDS-DRY: I would like to wait.

(Laughter)

CHAIRMAN FESMIRE: Boy, I'm batting a thousand today.

Ms. Altomare, do you have a case to present, starting with an opening?

MS. ALTOMARE: I do, and essentially I did some of my opening in just summarizing that.

I essentially did want to clarify a little bit, just that we do commend Coleman in essentially trying to make lemonade out of lemons. I think we all wish that the solution had come to light a little bit earlier, because we could have had this done a little bit sooner and gotten the process started. However, it is nice to see that we are moving forward on something in the means that is going to be useful and protecting the environment.

We have no objection to the proposal, as long as at every step the monitoring is continued, that, you know, of course once the Entrada is breached, it is tested to make sure that there are not protectable waters there, that the APD process is followed through as it has been laid out here, that the APD process with our Division is followed

through with as it has been laid out, and Coleman has been very cooperative in providing extra documentation.

As to the Monument Number 2, our only concern was that we were somehow missing records that they might have access to because there seemed to be an absolute absence of records as to what exactly happened at that well, because nobody seemed to know. And we just wanted to make sure that we had all the information that we could possibly have in the records as to what exactly happened at that site.

After having consulted with the Hearing Examiner who heard the underlying matter and reading through the documentation that was submitted and consulting with our technical people, we are also comfortable that that particular wellbore is adequately protected.

That being said, our only purpose today is basically to make sure that the Commission doesn't have any concerns in the proposal and to establish a time frame and what's going to happen during that time frame to make sure that the environmental issues are addressed and that continued monitoring of the juniper well is maintained, and -- during the continued injection, while the Monument well is re-entered and converted.

And with that, I'd like to call my first -- my only witness, Will Jones.

CHAIRMAN FESMIRE: Mr. Jones, have you been

previously sworn in this case?

MR. JONES: Yes, sir, I have.

CHAIRMAN FESMIRE: Would you please take the stand?

May the record reflect that tomorrow is Mr. Jones's birthday. I promised him that we would put that on the record and tell him happy birthday on the record.

MS. ALTOMARE: Didn't you also say you were going to sing?

CHAIRMAN FESMIRE: I did not.

WILLIAM V. JONES,

the witness herein, after having been first duly sworn upon his oath, was examined and testified as follows:

DIRECT EXAMINATION

BY MS. ALTOMARE:

Q. Would you state your name for the record, please?

A. William V. Jones.

Q. Okay, and where are you employed?

A. The State of New Mexico, Oil Conservation Division.

Q. And what is your title?

A. I'm an engineer for the -- in the engineering bureau.

Q. Okay, and you're also a Hearing Examiner, correct?

A. On occasion.

Q. Okay. Are you familiar with the Oil Conservation Division's administration of the underground injection control program?

A. Reasonably familiar with this, yes.

Q. Okay, what was your role with the underground injection control program?

A. I was the director of the state UIC program for a couple of years.

Q. Okay. And you have a degree in civil engineering as well as one in geological engineering; is that right?

A. Yes.

Q. Okay, and you are a licensed petroleum engineer?

A. Yes.

Q. Have you previously testified before the Division and the Commission before?

A. Both of them, yes.

Q. Okay, and have you been accepted as an expert in petroleum engineering?

A. Yes.

MS. ALTOMARE: At this time I would move that Mr. Jones be accepted as an expert in the area of petroleum engineering.

MS. MUNDS-DRY: No objection.

CHAIRMAN FESMIRE: Having seen no objection, Mr.

Jones's credentials will be so accepted.

THE WITNESS: Thank you, Mr. Chairman.

Q. (By Ms. Altomare) Okay. Mr. Jones, are you familiar with the wells that we've been discussing today and the case that is at issue today?

A. Yes, I am.

Q. Okay, and were you here and present for the testimony that was previously today --

A. Yes.

Q. -- on this matter?

With regard to Mr. Emmendorfer's testimony regarding the geology of the area, did you have any concerns or issues about the testimony that was presented with regard to the geology?

A. I didn't.

Q. Okay.

A. I could expound on the areawide issue of concern in the La Ventana. It really hasn't been studied yet, at least not by the Division, but we do have some evidence in this area that waters are -- *in situ* waters are around 10,000 or a little bit less than 10,000.

Q. Okay, issues of concern -- What do you mean when you say expound on?

A. I was going to say that when this came to light, we looked over all injection wells in the Mesaverde,

throughout the whole of San Juan Basin, and we looked at the logs and the wells and everything, and the EPA did the same thing. And this was just one of the ones that we found that we needed to look at a lot closer.

Q. With regard to the testimony provided by Mr. Hanson, the operations engineer for Coleman, did you have any concerns regarding any of the testimony provided by Mr. Hanson?

A. I didn't. I think we failed to ask him his estimate of whether they could stay in that old wellbore or not, and I think Coleman, as you stated earlier, has made a good choice here that will hopefully satisfy the Division if they can re-enter this well and install casing and cement the casing up to cover the entire Mesaverde so that the Point Lookout, the Menefee and the Cliff House is all covered with cement on the back side.

And the well itself in this case is -- you can re-enter it with a 7-7/8 bit, so you could install 5-1/2 casing all the way through the Entrada, so -- and you can't do that on the Monument Number 2, which is right next to the Juniper Number 1. And obviously that well being so close is the one we are most concerned about. But that's why we wanted to verify the DV tool setting depth.

But that well has casing already in it, so if you deepened that well to the Entrada, you would have to do it

through some old-type tools, and Coleman must have made a decision that although some people seem to jump on the same old bandwagon, they didn't want to do it, I guess, on this well.

Q. So the plans that you've looked at that were submitted by Coleman regarding the re-entry and completion -- recompletion of the Monument Number 1, did they look adequate and appropriate to you, given what you know about this --

A. They do.

Q. -- area?

A. Sounds like if they can get the permit done to get to it --

Q. And the cementing to protect the Mesaverde formation looks adequate and appropriate, given what you know about the protectable waters?

A. It does. I noticed that there was a mention of a DV tool in the -- in that completion procedure, and I think it was adequate to be at least a plan to cement that well all the way through the Mesaverde. But we would ask that they run a cement bond log on it if there's any question at all.

CHAIRMAN FESMIRE: On the Monument 2?

THE WITNESS: Number 1.

CHAIRMAN FESMIRE: 1. Is there casing in the --

THE WITNESS: The one without the casing that they're planning on re-entering.

CHAIRMAN FESMIRE: Oh, so you're asking them to circulate cement and run a DV -- I mean, run a --

THE WITNESS: Well, if they -- if they don't circulate cement on both stages, we'd ask them to run a bond log.

Q. (By Ms. Altomare) But the plans -- do -- the plans right now, they call for circulation to the surface, right?

A. I believe they do. I would have to check that again. I'm sure they do.

Q. Okay. With regard to the Juniper well, there was testimony that they were going to request increased pressure with regard to the Juniper well. What concerns, if any, would you have about that request?

A. Well, I think -- actually, I kind of wish they had already done that step rate test a few years back. It sounds like they might have missed some production by not having some injectivity out there, so -- they do need to have more injectivity, and if they run a step rate test on that well and -- but we'll look at it real close, of course.

And we always use a factor of safety of a clearly defined break on a step rate test, so we'll probably use a

little bigger factor of safety here, but they've got the bomb in the hole right above the packer, so...

And obviously with the injectivity in the Cliff House being so much higher than the injectivity in the Point Lookout, I agree with what Mike Hanson said, that that pressure sensor should -- the pressure should see it. Now, the Hall plot definitely -- or the injectivity will definitely change dramatically, and they should see it.

But we sometimes require operators to run injectivity surveys with the tracer temperature tool within six months after they begin injection on a new well and every five years after that, so it wouldn't -- it's not commonly done in the San Juan Basin, but if they can get tools up there, they should -- we'll probably put that as a condition.

Q. Okay. And that would be something you would recommend, given the circumstances in this case?

A. Yes, probably so. You'd have to look at the step rate test first --

Q. Okay.

A. -- to make sure.

Q. Regarding the testimony that was given by Mr. Oldaker, tell us a little bit about the salinities in the members of the Mesaverde.

A. Okay, and this is something that the

Commissioners are probably aware of, is that the Mesaverde is considered one pool, or at least the base of the Mesaverde is basically one pool, I think, in the San Juan Basin, and it's -- the Point Lookout, the Menefee and the Cliff House. Now, sometimes you have the Lewis Shale and Chacra members in there.

But because it's all considered one big zone, our C-108 procedures are to require a water sample analysis of injection to make sure it's less than 10,000 before injection is started in a well, so -- we've got lots of them in the files that say that the Mesaverde, overall injection salinity is -- or *in situ* water salinity is, oh, I don't know, 25,000. There's a lot of them that show that.

But once you combine the Point Lookout and the Menefee and the Cliff House, sure, they're that. But if you start getting a little closer look at it and look at, in this case, what Coleman has run into, through no fault of their own, is that big La Ventana thick sandstone down there that -- it's in the Cliff House.

And if you do a salinity over the whole Mesaverde in this well, in these wells, you're probably way over 10,000. But EPA and the State of New Mexico has the 10,000 limit that we're not allowed to -- we're required to protect those waters that show that, that can yield up to

one gallons per minute. So that's kind of the situation that's happened in the past.

Now this -- all of a sudden, this Cliff House or this member of the Cliff House came to the attention of the BLM and our people as being extremely high resistivity, around 20 ohmmeters' resistivity on the deep induction log. So that back-calculates to -- I think this well calculated around 8500, but -- as an equivalent sodium chloride salinity. So it is a calculation, but it's based on inferred resistivity.

And in looking at these logs over the San Juan Basin, you can see -- you can see the mud -- the mud types that they used to drill, if they drilled, obviously with a mud type that would have over 10,000 resistivity, your deep induction log would -- and your intermediate induction log would switch, you know, and if they drilled with freshwater muds they would switch the other way, so -- if it was a situation where the *in situ* resistivity was dangerously high, in this case -- like in this case.

So it's a pretty clear marker as far as the evidence, but it is an inferred marker, and they -- and then since all this happened, they have -- there has been -- oh, about two miles away there's another company that came to us with a water analysis of the -- of the different -- the Point Lookout, and I think they did the Menefee and

the Cliff House. And it shows that the salinity is -- I thought it was around 25,000 in the Point Lookout. So if you're injecting in the Point Lookout, you're displacing 25,000 salinity water, if you're injecting other waters, and it's moving out.

So I didn't really have a problem with what Mr. Oldaker said about the -- except that we have to also consider just piston displacement of *in situ* waters that could go out and hit another wellbore, so...

And in this case, if that old 1970s-era well was not totally grown back up with Mancos shale, well, those waters could hit that Point Lookout and move up preferentially because of less -- higher injectivity into the zone above, and move into that. So you'd be moving Point Lookout waters into the -- into the fresher waters that we're supposed to protect. It's not as bad a situation as if you're injecting right under the Ogallala and something like happens, because obviously we're dealing with higher salinity waters here, but they're considered, at least in an area, to be protectable.

Q. When you reference a 1970s well, are you talking about the Monument Number 2 or the Monument Number 1?

A. I think the 1, Monument 1.

Q. Okay, and you said if it were not cemented --

A. If it were not grown totally up with the swelling

Mancos shales --

Q. Okay --

A. -- which you have to assume it's not.

Q. Okay. So given what you know and what you just testified to, is there a reason to be concerned about the continued injection in the Juniper with the re-entry of the Monument Number 1?

A. I think -- It's 1800 feet away from the -- the well that we're looking at here is 1800 feet away from the other well, and you've got -- we've got a rule against injection moving out of zone within the area of review or within the well itself. That's Rule 702-703. And then we've also got a rule that we protect waters less than 10,000. So we've got those two situations, so we are concerned about it.

But then we've also got -- we want to prevent waste, and if they need this well to be continued injection to prevent waste of the Fruitland gas, well, that's got to be weighed with that.

Q. Okay. Regarding the downhole monitor at the Juniper site, what kind of continued monitoring would you like to see in the interim period while the permitting process ensues with the Monument Number 1?

A. Well, our inspector could go out and monitor it and gather those pressures from Coleman. As far asking the

Commission to write anything into an order about that, they could -- they could say that -- they could ask Coleman to supply a similar chart like that they have in these exhibits, update it every six months or so.

Q. Six months would be adequate for us to -- for the OCD to be able to review it and ensure that --

A. I think so.

Q. -- the pressures are remaining stable?

A. Yeah, because Coleman is gathering the data all the time anyway, so...

Q. Okay. So if I understand you correctly, your recommendations are that the Mesaverde formation in the Monument Number 1 be completely cemented and isolated --

A. Well, if they were in casing, casing cement should cover the Mesaverde.

Q. Right.

-- that the downhole monitoring of the Juniper be continued with six-month -- every-six-month reports of some kind being turned into the OCD --

A. (Nods)

Q. -- that if an increased pressure limit on the Juniper Saltwater Disposal Number 1 well is requested and the step rate test seems to indicate it, that an increase -- or additional monitoring program is implemented?

A. I think the step-rate -- I think if the step-rate

test shows that a pressure increase is warranted, it should be granted.

Q. Okay. What other recommendations would you have for continued monitoring?

A. Well, obviously the most likely well to cause any trouble here was the Monument Number 2, which is only 100 feet of the well that they were injecting into, and their research shows that that -- the cement -- and I looked at the cement volumes too, and I think the cement volumes are most likely isolating those two formations that we're worried about connecting the Point Lookout and the Cliff House, so -- but that well does have casing in it, so it could be re-entered a lot easier, you know, and a bond log run on it.

But -- and I think other than that -- that's just a concern, it's not -- I'm not asking the Commission to do anything on it. That would be the only other one to talk about --

Q. Okay --

A. -- besides -- I'm sorry, besides a -- some kind of a time limit for Coleman to get this done.

Q. So you'd like to see some sort of a timeline consistent with the timeline that they have estimated, that the APD process is going to take?

A. I'd like to see some sort of a -- it wouldn't --

I don't think it should be open-ended.

Q. Okay. But in general, do you feel that the proposals and the plans for re-entry, completion and protection of the protectable waters, as proposed by Coleman for the Monument Number 1, and the continued injection of the Juniper Saltwater Disposal Number 1 are --

A. I think --

Q. -- adequate and appropriate?

A. Yes, I think Coleman is to be commended for coming up with this solution that will be a -- it will help their injectivity, and it will also help us protect any potential safe drinking water out there.

MS. ALTOMARE: Okay, I think I'll pass the witness.

CHAIRMAN FESMIRE: Ms. Munds-Dry?

CROSS-EXAMINATION

BY MS. MUNDS-DRY:

Q. I just have one or two questions, Mr. Jones.

You were discussing the water samples that have been taken in this area, and I just wanted to make sure I understood you. Did you say those are water samples taken of the La Ventana or --

A. They -- I forget the company's name. It was off to the east there. They took water samples through one

perf and swabbed a little swab test of the Point Lookout, the -- I think the Menefee also, and also the Cliff House.

And they came to us and showed us that, but we still -- and it did show in the Cliff House that -- their sample that they took out of Cliff House showed around 15,000, I think, on TDS, but we still limited them to out of the Cliff House, because it was too -- for several reasons.

And we talked this over with our geologist in Aztec, and we also talked it over with the EPA. And we needed to find out more about the sampling, whether the sample was representative or not, and -- the sample was taken before any kind of a breakdown, it was just a perf sample, which may have been okay, but the resistivity log still showed that it's possible that just a little bit away from where they took the sample things could be fresh. But the main reason was that we hadn't done the study to find out the area of this protectable waters.

Q. But the water samples you've seen have been over a 10,000 TDS?

A. That one did. It was about three miles away, two miles away, something -- it was -- it wasn't -- it was pretty close.

Q. Have you seen any other water samples?

A. I didn't. I know Coleman testified today, and I

think prior to that, that they had done this repeat formation tester sample, but -- you know, I see a lot of water samples in the different members of the Mesaverde.

Q. And so the concern stems, then, from calculations that you've done or that the District Office has done?

A. Yeah, you can see on -- I think it's Exhibit Number 1 or 2, you can see that massive sandstone in there. It's amazing. It's a big, thick sand, and it's got -- the resistivity logs show a distinct separation through -- a consistent separation through the whole thing. So it's -- I'm not a practicing geologist, but I know the geologists could really tell you all about it.

MS. MUNDS-DRY: Okay, that's all the questions I have.

CHAIRMAN FESMIRE: Commissioner Bailey?

COMMISSIONER BAILEY: I have no questions.

CHAIRMAN FESMIRE: Commissioner Olson?

COMMISSIONER OLSON: I think I just have one.

EXAMINATION

BY COMMISSIONER OLSON:

Q. You were recommending not having it open-ended and having some kind of a time limit. What would you recommend?

A. After hearing Brian Wood talk about this -- you know, they don't -- I didn't hear them say anything about

the other wells that were -- had to go through this same process, I would think, to get those Fruitland wells drilled, so they should know probably about how long things would take.

To answer your question, I would have the same -- I would be a -- I would say, you know, a year and a half, and then give a report back to the Division on the progress or -- and then -- this has been -- Coleman kind of got caught in this situation, so -- but it has drug on, after this happened it drug on from the revision, first revision of administrative permit to a couple of Division hearings, I think, on this, so -- It keeps going on, so I would ask the Commission to make some kind of a time limit on it.

COMMISSIONER OLSON: Okay, that's all I had.

EXAMINATION

BY CHAIRMAN FESMIRE:

Q. Mr. Jones, I believe it was Mr. Hanson that testified that the shallow perfs in the Juniper well couldn't be squeezed. Did you hear that testimony?

A. I did, and what happened is, as soon as this all came to light Coleman came up here and talked to us, and that's what they said at that time, and that's when they proposed the pressure sensor above the packer and resetting the packer depth. And then obviously they took a huge hit on their injectivity in that well.

That sand looks pretty coarse and pretty permeable. And I'm not a real experienced squeeze person in the area, but I'd have to say Mike Hanson knows a lot more about it than I do, so -- and I've heard it from some other people too, that it's -- it would be very difficult to squeeze and get a really -- a competent squeeze.

Now, I see what you're saying, and I kind of went against the grain of not trying, and you know, they could try to squeeze it and then drill it out and put that packer down there and put the pressure sensor right back in, you know, that kind of a thing. But I think if things broke around, they're going to see it right away, so...

Q. Well, prior to plugging on that well, they're going to have to get some sort of integrity out of that casing, aren't they?

A. Eventual plugging of it?

Q. Yeah.

A. Well, it would just -- they would have to do a squeeze and, you know, set a plug, obviously at TD and then probably below the Mesaverde and above the Mesaverde and -- Well, now that this La Ventana has been found, plugs on the plugging well should be set, a plug above and below that zone to protect it, and obviously below the Fruitland.

Q. So we would approve a procedure that didn't involve squeezing those perforations, as long as they

isolated above and below, right?

A. I think we would. I'm -- the district -- I would have to ask that to the district.

Q. Okay, and you're satisfied with the pressure monitoring procedure that we've got in place, the --

A. It seems like it. It's not something that -- I've heard about a couple that they started doing right before I left the oil patch up in Wyoming, where they put these in the external casing packers, and they had readings from depletion of zones as the wells were being depleted, and they could tell differential depletion, but...

I've never seen it in an annulus before, but -- it's something new, and the reason I would say that we might lean towards the injection survey is, if that -- La Ventana is extremely permeable, then the fluid level might not stand very high in it, even if it did break around. So the fluid level obviously is what the sensor is going to read, so I think it would probably be okay.

Q. Okay. And with respect to the Number 2, the Monument Number 2 well, you're now satisfied with the question you had about the DV tool?

A. Yeah, and also because the injectivity in this well has been real poor. So, you know, if it did move over and break -- use that well 100 feet away as a conduit, well, you'd see it real soon. And so -- and the

calculations look like it was -- I guess the best way to find out where that DV tool is just to find out where the DV tools are normally set at that point in time, and I don't remember exactly if I saw enough wells to tell that or not.

Q. So you would recommend that we accept Coleman's proposed amendments with these additional conditions that you've just outlined; is that correct?

A. Yes, the -- pretty much the time -- we think Coleman has come up with a good solution here, we really do.

Q. Okay, so we get an uncased well plugged out there -- or not necessarily plugged, but it's no longer a problem?

A. No longer a problem, and it's -- it will more than likely be a decent injection well for them.

Q. Okay, let's go over those conditions that you recommended in addition to the time limit. You recommended that step rate tests in the Juniper injection well be done and that if an injection pressure increase is warranted, that that be allowed, right?

A. Yes. I don't know if that was even part of the Application or not, but --

Q. Well, okay, so -- but that's something you wouldn't be opposed to if they came?

A. No, I wouldn't.

Q. Okay. And they continue the downhole monitoring of the Juniper Saltwater --

A. Yes.

Q. -- Disposal 1, and what was the last condition, or the other -- ?

A. The time delay and the --

MS. ALTOMARE: Well, in addition to the step rate test, depending on the results of that, we wanted an injection profile log with radioactive tracer and temperature components.

CHAIRMAN FESMIRE: In which well?

MS. ALTOMARE: In the Juniper, if increased pressure limits are granted and -- depending on the step rate test results, and I think Coleman indicated they'd be willing to consider -- they'd be willing to do that if it was warranted, they'd work with the OCD on that.

CHAIRMAN FESMIRE: So in the order we could write in authorization?

MS. BADA: It's not part of the --

CHAIRMAN FESMIRE: -- not part of the part of the application. Can we make it a condition of the --

MS. ALTOMARE: I think, though, because part of the original order required them to re-enter and reset the packer as part of protecting that Juniper well, in my

opinion it's part of protecting that zone. And part of the reason that they need the additional pressure is because --

CHAIRMAN FESMIRE: -- increased the injectivity --

MS. ALTOMARE: -- is, they increased the injectivity, which is a direct result of the reduced capacity due to the resetting of the packer. So I think it's all tied together. I'll leave that to the Commission to decide, of course, but...

And then the other condition that we would request is just that the plans as they are laid out with the casing, that the cement -- completely isolating the Mesaverde formation in the Monument Number 1.

THE WITNESS: Yeah, and obviously the Fruitland all the way up, because they're producing out of the Fruitland. They'll do that.

Q. (By Chairman Fesmire) But aren't those -- the step rate tests, don't they need to do the step rate tests to come in here with an application for an increase in pressure, and couldn't we make that as conditions at that time?

A. Yes, sir.

Q. And they're going to file an application, or --

A. They will.

Q. They will file an application to re-enter the

Monument Number 1, and --

A. That would be --

Q. -- the cementing program would be part of that. So the only thing that we're looking at here is putting a condition -- a time limit on the proposed -- on their proposed application.

A. There is one more thing --

MS. ALTOMARE: -- monitoring.

THE WITNESS: -- we were asking for the progress reports that as things went through the BLM or the tribal permitting process, they be supplied to Charlie Perrin in Aztec, so that -- and he asked for that when we talked to him a day or two ago.

MS. ALTOMARE: So that we're kept in the loop as to where they are in the process and have an idea of kind of when we can expect stuff to be coming our way. And then the continued monitoring, the six-month reports of the downhole monitor.

CHAIRMAN FESMIRE: Okay.

COMMISSIONER OLSON: So if they submitted progress reports, how often would they do that?

MS. ALTOMARE: For the downhole monitor, or the progress report?

COMMISSIONER OLSON: Just the overall progress reports on the permitting that you're talking about.

MS. ALTOMARE: They could probably do it --

THE WITNESS: I think they should --

MS. ALTOMARE: -- once every six --

THE WITNESS: -- check with Charlie Perrin --

MS. ALTOMARE: Yeah.

THE WITNESS: -- about that, because Charlie did ask for that. He asked us to include that.

MS. ALTOMARE: I guess I just figured they would simultaneously submit a copy of whatever they were submitting to the BLM.

THE WITNESS: It probably would need to be done a periodic basis, because...

CHAIRMAN FESMIRE: Okay. I have no further questions.

Do you have any redirect of this witness?

MS. ALTOMARE: No.

CHAIRMAN FESMIRE: Mr. Jones, thank you very much.

Now would you like to close?

MS. MUNDS-DRY: I would.

CHAIRMAN FESMIRE: Okay.

MS. MUNDS-DRY: Thank you.

Mr. Chairman, Commissioner Bailey, Commissioner Olson, I'll state again what we want, because there has been some confusion about what we're seeking from the

Commission today.

We really are only seeking for continued authority to inject into the Juniper SWD Well Number 1. Regardless of the outcome with the Monument Well Number 1, we would still need time to gain access, surface access, to that well.

So really, the time limit -- you've heard Mr. Wood's testimony that it can take, worst case two years, best case a year. We leave that to your discretion and we just would respectfully request that we're given enough time to get access and then conduct operations to convert that well to saltwater disposal.

We certainly do not disagree and are willing to comply with the Division's additional conditions in terms of progress reports or any additional monitoring, certainly not an issue.

And as you heard today, the Division does not object to our proposal.

The testimony did show today that we did comply with the Division to set that packer to isolate the Cliff House, and I believe Mr. Jones testified that he's satisfied that that will adequately protect any potential freshwater sources.

And Mr. Oldaker also testified regarding the area of influence, and you may disagree about the methodology,

but I believe he testified that the radius really would not fluctuate that radically.

Now even if you disagree with his 52- to 74-year estimate of reaching the Monument Well Number 1, we're asking for a much smaller window than that. So even if you have concerns about the data in there, we're asking for a much shorter window to give us time to get into the Monument Well Number 1.

So at the end of the day, I believe the Division does not disagree that any potential freshwater sources are being protected and it certainly will not be affected by the short window.

And really, at the end of it all, this is a win-win situation. The operator is getting additional injection capacity, and the Division's concerns towards, you know, protecting any potential freshwater zones are also being met by this proposal before you.

And with that, we would thank you for your time today.

CHAIRMAN FESMIRE: Okay.

Ms. Altomare, do you have a close?

MS. ALTOMARE: Just briefly to reiterate that we don't -- we don't object to the proposal and that we simply want to make sure that the communication lines stay open, because this is anticipated to be a bit of a lengthy

process and, at least to me, it is a new process, dealing with the split-estate issues and the native surface issues.

I can appreciate wanting to have an end date, as Mr. Jones had testified to, but I'm -- I can also appreciate Commissioner Olson's comment as to, I'm not really quite sure how to come up with one either.

I think maybe progress reports might be the best all-around solution. I think, if we make sure that they are comprehensive in nature, that that might be sufficient, as long as we are provided with copies of stuff as it's being submitted to the BLM and the BIA and all of that stuff, we're kept in the loop.

I think that it is a really good solution and a good plan, that we're moving things forward in a productive way, so...

CHAIRMAN FESMIRE: Okay. Anything further to add to the record in this case?

MS. MUNDS-DRY: Nothing further.

CHAIRMAN FESMIRE: At this time the record in the case will be -- the record for evidence will be closed.

Is it the pleasure of the Commission that we deliberate on this now?

COMMISSIONER BAILEY: Sure.

COMMISSIONER OLSON: Yeah.

CHAIRMAN FESMIRE: Okay, and a public

deliberation is called for?

MS. BADA: It's entirely up to you.

CHAIRMAN FESMIRE: That was kind of Commissioner Bailey's cue.

COMMISSIONER BAILEY: It's not our practice, but in the interest of time, since we need to get to the other deliberations, I'll agree to it.

CHAIRMAN FESMIRE: And I take it you're anticipating a tough decision on this one?

COMMISSIONER BAILEY: Not really.

(Laughter)

CHAIRMAN FESMIRE: Is that appropriate, Commissioner?

COMMISSIONER OLSON: That's just fine.

CHAIRMAN FESMIRE: Okay, the Chair would entertain a motion to go ahead and deliberate at this time and begin deliberations.

COMMISSIONER BAILEY: I so move.

COMMISSIONER OLSON: Second.

CHAIRMAN FESMIRE: All those in favor signify by saying aye.

COMMISSIONER BAILEY: Aye.

COMMISSIONER OLSON: Aye.

CHAIRMAN FESMIRE: Aye.

I think Coleman has done a good thing, they've

taken a well that would otherwise be sitting out there -- well, let's use the phrase "vulnerable", and they're going to put it to good use. They've proven that they have a -- I think, a satisfactory plan for it.

I think the conditions that the Commission is seeking are probably reasonable, and I think we can fashion an order that indicate that and move on.

What do you think, Commissioner?

COMMISSIONER BAILEY: I agree with you. I think that Coleman has done what they need to do. I support the OCD recommendations to include in the order, and I just wonder if they'll start referring to it as the lemonade well.

(Laughter).

CHAIRMAN FESMIRE: Commissioner Olson?

COMMISSIONER OLSON: I agree with you, and I think in regards to a couple of recommendations which were not quite as definitive, I would maybe suggest that we put a two-year time limit on this. And then as far -- I think progress reports are a good way, maybe if they just give a quarterly progress report as to what's going on. I don't think that's too infrequent, to let us know what's happening.

And that would be submitted, then, to the Division, as well as, I guess, you know, a requirement

that, you know, copies of documents that are submitted to other agencies -- it sounds like the OCD would like to see those so that those would be submitted as well to OCD. And with that, I think that's a good resolution of this.

CHAIRMAN FESMIRE: Commissioner, is the two-year time limit acceptable to you?

COMMISSIONER BAILEY: That's fine by me, and the quarterly reports is fine by me.

CHAIRMAN FESMIRE: Okay. I think the will of the Commission is pretty clear on that.

Counsel, do we have enough to draft an order to effect that?

MS. BADA: (Nods)

CHAIRMAN FESMIRE: With that, we'll ask counsel to draft the order, to be addressed and signed at the next regular Commission --

MS. BADA: As long as it's not --

(Laughter)

CHAIRMAN FESMIRE: Is there anything else anyone needs to add in this case?

With that, we'll adjourn Cause Number 13,812.

Thank you all.

And I want to thank the folks from Coleman. I think that's a good resolution to a problem well out there.

MS. ALTOMARE: Steve Hayden referred to it as an

elegant solution.

CHAIRMAN FESMIRE: Steve's probably correct.

Why don't we take a 15-minute break, and I really, really mean 15 minutes, and --

COMMISSIONER BAILEY: We have to call the continuances and dismissals.

CHAIRMAN FESMIRE: Oh, I'm sorry, I'm sorry.

(Thereupon, these proceedings were concluded at 2:40 p.m.)

* * *

CERTIFICATE OF REPORTER

STATE OF NEW MEXICO )
) ss.
COUNTY OF SANTA FE )

I, Steven T. Brenner, Certified Court Reporter and Notary Public, HEREBY CERTIFY that the foregoing transcript of proceedings before the Oil Conservation Commission was reported by me; that I transcribed my notes; and that the foregoing is a true and accurate record of the proceedings.

I FURTHER CERTIFY that I am not a relative or employee of any of the parties or attorneys involved in this matter and that I have no personal interest in the final disposition of this matter.

WITNESS MY HAND AND SEAL March 28th, 2008.

STEVEN T. BRENNER
CCR No. 7

My commission expires: October 16th, 2010