STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

ORIGINAL

IN THE MATTER OF THE HEARING CALLED BY THE OIL CONSERVATION DIVISION FOR THE PURPOSE OF CONSIDERING:

CASE NO. 14411

APPLICATION OF AGUA SUCIA, LLC TO REINSTATE DIVISION ADMINISTRATIVE ORDER SWD-559 FOR A SALT WATER DISPOSAL WELL, LEA COUNTY, NEW MEXICO.

REPORTER'S TRANSCRIPT OF PROCEEDINGS

EXAMINER HEARING

March 18, 2010
Santa Fe, New Mexico

BEFORE: TERRY WARNELL: Hearing Examiner
DAVID BROOKS: Legal Adviser

This matter came for hearing before the New Mexico Oil Conservation Division, David Brooks, Hearing Examiner, on March 18, 2010, at the New Mexico Energy, Minerals and Natural Resources Department, 1220 South St. Francis Drive, Room 102, Santa Fe, New Mexico.

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A P P E A R A N C E S.

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HEARING EXAMINER: We'll call Case No. 14411, Application of Agua Sucia, LLC, to Reinstate Division Administrative Order SWD-559 for a Salt Water Disposal Well, Lea County, New Mexico. Call for appearances.

MR. BRUCE: Mr. Examiner, Jim Bruce of Santa Fe representing the Applicant. And I have two witnesses.

HEARING EXAMINER: And who are your two witnesses, Mr. Bruce?

MR. BRUCE: Ben Stone and Robert Lee.

MR. CARR: May it please the Examiners, my name is William F. Carr of the Santa Fe office of Holland and Hart, LLP. We represent Armstrong Energy Corporation in this matter. And I have five witnesses.

HEARING EXAMINER: Five witnesses? Could you give me the names of those witnesses?

MR. CARR: Robert Armstrong, Bruce Stubbs, Jerry Guy, Gary Wink, and pursuant to a subpoena, Louis Edgett.

HEARING EXAMINER: Very well then. If the witnesses would stand and be sworn.

(Note: The witnesses were placed under oath.)

HEARING EXAMINER: Opening statements anyone?

MR. BRUCE: Well, I know Mr. Carr probably has a lengthy one. I'll be brief. Mr. Examiner, we're here today about the Government E Well No. 1, which is located in the southeast southwest of Section 25, 19 South, 34

East.

Division Administrative Order SWD-559 approved injection into the Bone Spring formation in that well at depths of 9,716 to 10,240 feet. The well has been a salt water disposal well for many years since approximately -- I forget the exact date, 1994, 1995.

In January of 2008, there was some failure in the well and the well was shut in. There has been no water injected into this well since January of 2008, over two years.

At that time, the operator was Louray Oil Company. A repair attempt was made in January to February 2008, but that was unsuccessful and the well continued to be shut in. And in March, April of 2009, the well was successfully repaired and the well is ready to inject.

It's Agua Sucia's position that the only issue in this case is wellbore integrity. The wellbore, as acknowledged by the Hobbs district office of the OCD, is mechanically sound and ready to inject into.

And it's Agua Sucia's position that as a result, it has the right to both commence injection upon approval by the Division, and further, there is no harm to any offsets. Thank you.

HEARING EXAMINER: Mr. Carr?

MR. CARR: May it please the Examiners. As

Mr. Bruce indicated, with its application, Agua Sucia seeks reinstatement of Division Administrative Order SWD-559 so it can resume injection in the Government E Well No. 1.

But we differ with Agua Sucia as to what comes before you and what is brought to you with this application.

This is not just an issue of whether or not the integrity in the well is today sound, it's a question of whether or not injection can be allowed in the future in this wellbore without putting oil and gas reserves further at risk.

This case goes to the very heart of the jurisdiction of the OCD, it raises a question of preventing the waste of oil and gas.

To meet this duty, we submit that you have to first determine the nature of the problem, and you have to determine who is responsible for the well, and then you have to determine if what has been done on the well addresses that problem.

It's sort of like the Continental decision when it talks about correlative rights, you have to identify what they are before you can act to protect them. Here you have to identify the problem before you can decide whether or not simply returning the casing's integrity

will address the problem.

And the burden is on Agua Sucia to prove that, to prove they can inject without wasting reserves, and until they do that, we submit their application cannot be granted.

As you know, we're here because Armstrong has objected. Our evidence will show that Armstrong owns the mineral rights on the acreage on which this injection well is located. They operate Queen wells on the property.

They believe and will show you that prior injection has caused serious damage to these producing wells. They went to the OCD about the problem in 2008. There were problems with the well.

Louray, and then later Agua Sucia, worked on the well. We object to returning the well to injection, and today we are here to ask that their application be denied.

Our evidence is not going to be confined just to the wellbore, because to do that, you miss the whole issue in this case. We first have to talk about the ownership of the wellbore.

Our evidence is going to show that Armstrong originally owned the tract and assigned the well to Subsurface Water Disposal, who in turn later apparently conveyed the well to Louray.

We've been looking in the county records, we

have been seeking information through subpoena. We can tell you we find no evidence of a transfer to Louray. And in fact, our review of produced documents doesn't show a transfer of the wellbore, even though Agua Sucia --

And it's an interesting history, because in the middle of this whole issue concerning the well since 2000, there was a change in operator. But the change of operator is curious because the same person is responsible for the operation of the well prior to the change of operator, and is using the same consultants to bring this case to you.

So we think you have to look at the well and look at what happened, its current condition, and based on that, determine what will be the impact if you allow further injection.

The problem is this. Louray operated this well as an injection well from 2001 to 2009. And while they were injecting water, there was a significant increase in the water production in the Queen wells operated by Armstrong, and as we will show, also in San Andres wells on this section operated by Mr. Guy's company.

Repairing the well, we believe, will not correct the problem. And why is that? We're going to look at the mechanical integrity tests that have been run on the well, and they actually show, if they were correctly run, that

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the wellbore was sound during the period of time when we were experiencing these water problems.

If the wellbore was sound and we were experiencing those problems, it will be our contention that returning it to a sound condition does not address the problem, because we were experiencing these water flows in the past when the well apparently had passed MIT tests.

If it didn't, and they were injecting into the zone, that presents an entirely new and different set of issues for you and for the courts. And if we assume it's right -- and either way, the condition of the wellbore and what has been done to it, bears on whether or not the well can today be returned to injection.

Our evidence is also going to address the source of the water in the Queen wells. We're going to show the pressure data, the production information, with pressure responses with water analyses of the wells being -- the water being injected and the water being found in our well as compared to the water in offsetting units.

The water problem we are experiencing is from water injected in this well. We're going to show you that when the well was produced, 400,000 barrels were withdrawn from the well, and to date, over eight times that amount has been injected in the well. And we're here to testify

about that and tell you where we think that water has gone.

We can't look just at the recent work, the work done this year to run a liner and cement the well, but we have to look at what happened in 2008. Because we find ourselves in a position where we cannot ascertain exactly what was going on and why. Because after the problem was discovered, the tubing was pulled, hauled off and cut off. We don't know the condition of the tubing.

Before we could get in and look at the well, cement was run in the hole, even though the sundry notice had been denied by the OCD, and we don't know what volumes, because this was not a reported procedure.

In this intervening period of time, we know the well has been flowing back and large volumes of oil have been transported off this site. These weren't reported while Louray was there, but since Agua Sucia came on the scene they've been reporting.

We have as much as 770 barrels of oil coming off the site in November on a well that has not been used for two years. And if oil is coming back, if there is flowback, if there is oil in that water, we've been unable to find evidence of it, but if it's there, it could show communication, and it's relevant to this case.

We believe at the end of the case, you're going

to see that the work done on the well doesn't correct the problem, that until it is shown what the problem is and what they've done has corrected that problem, injection cannot be done.

HEARING EXAMINER: Okay. Thank you. Mr. Carr, you mentioned something about 2008 with Louray and Armstrong?

MR. CARR: I'm sorry, it would have been Louray and Agua Sucia.

HEARING EXAMINER: In 2008 --

MR. CARR: In 2008, there was a meeting at the OCD --

HEARING EXAMINER: There wasn't a hearing, just a meeting?

MR. CARR: No, just a meeting in the Hobbs office.

HEARING EXAMINER: Okay.

MR. BRUCE: Agua Sucia was not present.

MR. CARR: Agua Sucia didn't exist.

HEARING EXAMINER: So there was a meeting with Louray in the Hobbs district office?

MR. CARR: That's my understanding. No, I'm sorry, the meeting was between Mr. Armstrong, who represents the Hobbs office, to seek assistance because of the water problems they were experiencing in the area. I

don't believe either Louray or anyone from Louray was there.

HEARING EXAMINER: All right. I thought there was a hearing or something but -- Okay. Mr. Bruce?

MR. BRUCE: I call Mr. Stone to the stand.

BENJAMIN STONE,

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

DIRECT EXAMINATION

BY MR. BRUCE:

Q. Would you please state your full name and city of residence?

A. Ben Stone, Como, Texas.

Q. And what is your relationship to Agua Sucia in this case?

A. I was contacted as a consultant to prepare a C-108 to reinstate the well as salt water disposal.

Q. What is your educational and employment background?

A. My formal education is actually in graphic and commercial arts. And my employment background prior to owning and operating SOS Consulting, I worked for the Oil Conservation Division for 15 years as a petroleum engineer and specialist.

For a few of those years, I was the

administrator of the Underground Injection Control Program, and I was also responsible for implementation of the Risk State Management System. I processed several hundred administrative applications for salt water disposal, water floods, downhole commingling, things of that nature.

Prior to the Oil Conservation Division, I was a water-line engineer for 15 years. I've been on approximately 5,000 logging jobs. Most of those were production logs. My specialty was production logging. Approximately 1,500 of those were case hole operations, gamma ray neutrons, compensated neutron, perforating and plug setting.

Q. And what type of work does SOS Consulting do?

A. My wife and I own and operate SOS. I do mostly regulatory processing assistance for mostly small operators. I do some custom data base design. And my wife is an oil and gas revenue accountant, and she also does work for a few small operators.

Q. Okay. And during your time not only with the OCD and after, have you become familiar with the OCD's regulations concerning injection wells?

A. I am.

MR. BRUCE: Mr. Examiner, I tender Mr. Stone as an expert in the Oil Conservation Division's regulatory

matters pertaining to salt water disposal wells.

MR. CARR: No objection.

HEARING EXAMINER: I've heard a bit about you too, Ben. You said something earlier this morning that you'd heard about me. You say you worked 15 years in water line?

THE WITNESS: Yes, sir.

HEARING EXAMINER: Who was that with?

THE WITNESS: Initially with Cardinal Surveys. I went from there to Geosource Water Line. I was senior engineer for the Rocky Mountain region for Geosource. Went from there back to Cardinal, and from there to Armadillo Water Line.

I was district supervisor for the Hobbs shop of Armadillo Water Line. They folded eventually. I went to work for E.L. McCullough, and that's where I wrapped up pretty much my water line career.

HEARING EXAMINER: Okay. Mr. Stone is so recognized. Thank you.

Q. Mr. Stone let's go to the C-108 that you prepared on behalf of Agua Sucia. Let's run through that starting with -- going in a few pages with respect to the Government E Well and the SWD facility.

Could you discuss the -- without giving anything away too much, could you discuss the well and the type of

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work that's been done on the well, and let's run through the C-108.

A. Well, when I was contacted, I thought it was a simple matter of reinstatement. They apparently had gone a month or two past their 12 month inactive period while they had the well shut down for repair operations. Most of what I have prepared is just a rehash of existing data.

On my first submission of the application for Louray, I had contacted Will Jones of the Oil Conservation Division just to check and make sure that we could just update wherever might have changed in the area of review.

That had been the procedure when I was with the Oil Conservation Division, and Will confirmed to me that that was fine, just to -- whatever change.

So I updated the wellbore diagrams, the maps, some of the tabulation and renotified and submitted a trimmed-down version of the C-108 assuming that it would just be straightforward reinstatement.

Q. Okay. And what type of data -- And you said when you initially did that. Now, of course, the initial administrative application was objected to?

A. Correct.

Q. And so, then did you supplement the C-108 for purposes of the Agua Sucia application?

A. I did. I just -- for clarity and the point that

we had arrived to concerning the objection and change of ownership, consulted with the client and yourself, we decided it best to go ahead and do a full C-108 like we were permitting a new well.

So I redid everything, redid the plugged and abandonment wellbore diagrams, and full tabulation. Renotified, readvertised again, so I think what was submitted for Agua Sucia is a complete C-108.

Q. Okay. Let's start off with the wellbore schedule for Government E No. 1.

A. Okay.

Q. Well, maybe -- Let's go a few pages beyond that to what you have titled the C-108 supporting data, the writeup. You prepared this writeup, did you not?

A. I did.

Q. And what did you review in order to prepare this writeup?

A. Are you referring to the repair kit, the first repair kit?

Q. Starting with the first repair attempt, yes.

A. I assembled this narrative. I paraphrased the notes and documents provided to me by Louis Edgett on his procedure and process while attempting to repair the well.

Q. And who is Mr. Edgett?

A. Mr. Edgett was the owner/operator of Louray, and

I believe is operating in a pumping capacity for Agua Sucia.

Q. Okay. And then what did you review with respect to the final -- or the successful repair attempt?

A. That was based on the log book pages provided to me by Mr. Al Perry, who is the consultant for that workover. And again, I paraphrased that just for clarity, a little bit of -- well, not so much grammar in this type of procedure, but some not normally used acronyms and such just for clarity.

Q. And did Al Perry supervise the repair work on behalf of Agua Sucia?

A. On behalf of Louray.

Q. On behalf of Louray. Okay. And based on your review of the documents, was the repair work successful?

A. It appears to be.

Q. Right behind your writeup is the mechanical integrity test. Was that test successful?

A. Yes, sir, it was.

Q. And was that witnessed by the OCD?

A. Yes, it was.

Q. Let's go back to the wellbore sketch of the Government E Well No. 1, and could you just briefly go over that?

A. Well, again, it -- the wellbore schematic that I

had received initially was just the old standard schematic that had been recertified, so it was becoming somewhat unclear.

So I just did a new presentation with updated depths, and obviously showing the new four inch liner installed with cement behind that liner and -- It's just a pretty straightforward diagram.

Q. Okay. Based on your review of the documents, is the wellbore technically sound and ready for injection?

A. I believe it is.

Q. And will the wellbore prevent moment of fluids between zones?

A. I believe it will.

Q. And on Page 2 of the C-108, the two pages initially after the administration application check list is -- what is that?

A. You're addressing the cover letter to the Oil Conservation Division?

Q. Yes, sir.

A. It's addressed to the director, Mr. Mark Fesmire, just explaining -- It's just a standard cover letter accompanying the application to give an overview of what Agua Sucia was seeking through this application, and just explaining some of the basics of having the 5,700 feet of new four inch flush joint casing installed and

cemented.

And I also made the note that I had had a telephone conversation with Buddy Hill, district supervisor of the Hobbs district in the course of working on this application, and Buddy confirmed to me that in spite of issues that they had had with the previous operator, that the well was technically sound and ready for injection.

Q. Okay. Paging through this, when you get past the Government E wellbore sketch, what type of data is included in the C-108?

A. Past the wellbore diagram?

Q. Yes, past the wellbore diagram.

A. The next couple of pages are just the standard tabulation of wells in the area of review. Typically what is required are those wells that penetrate the injection zone, and I just went ahead and tabulated -- it's not a huge area of review -- tabulated all of the wells regardless of the depth of those, and put together then after the tabulation, went ahead and did the plugging diagrams on all the P and A wells in the AOR.

HEARING EXAMINER: Is this a half mile AOR?

THE WITNESS: Yes, sir.

Q. And in your opinion, are all of those wells properly plugged and abandoned?

A. Yes, they seem to be.

Q. Do any of these -- looking at this, the first three wells do not penetrate the Bone Spring, do they?

A. Correct.

Q. Only the final well test at the Bone Spring?

A. I believe that's correct.

Q. But there is no issue with respect to those wells that would require any remedial work on the plugged and abandoned wells?

A. Not to my knowledge.

Q. Okay. Have you reviewed geologic data to see if there is any evidence of replugging in this area?

A. Actually, I did, but not in relation to preparation of this application. I actually was working on a C-144 for a remediation on location, and that's when I actually did review several USGS studies and such and just researched that high planes aquifer to make sure what the groundwater depth was.

And in the course of that investigation, it appeared that there were no faulting or any communication between this operation and any kind of ground sources of drinking water.

Q. Do you know the approximate depth of any drinking water, any fresh water in this area?

Groundwater -- I don't know how drinkable it is,

but groundwater I found to be about 80 or 85 feet.

Q. Okay. And what is the source of the water to be injected into the Government E No. 1 Well?

A. Generally, produced water from the area, Queen, Delaware, Bone Spring formations.

Q. Okay. And does the C-108 contain water analyses of the various produced waters?

A. It does. And it shows them all to be very comparable as far as chlorides and PDS, well over a hundred thousand parts per million.

Q. So in your opinion, there would be no compatibility problems between formation water and injection water?

A. Correct.

Q. And as part of the preparation of this application, of course you have to notify surface owner offsets, et cetera, correct?

A. Yes, sir.

Q. And did you do that?

A. I did.

Q. And is that data contained within the C-108?

A. It's the last few pages. It's the proof of notification and a list of interested parties and offsets.

Q. Going down this list, of course Armstrong Energy has objected to this application. Did any of the other

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leasees object to this application?

A. No. I did receive one communication from COG, and they were actually in support and wondered when the well might be approved so that they could utilize that for some of their disposal.

Q. And you notified the Oil Conservation Division. Has the Division objected to injection into this well?

A. No, they haven't.

Q. You notified the BLM. Now, these are federal minerals, correct?

A. Yes, sir.

Q. And federal service?

A. Right.

Q. Did the BLM object to this application?

A. No, sir.

Q. Have you been to the well site?

A. I have not.

Q. Okay. And you understand that this is a facility that -- and probably one of the other people who may testify today can testify on this issue, but it's a substantial facility, though, is it not, from your review of the documents?

A. That's my understanding. I have looked at many photographs upon my request, and I have prepared site diagrams to prepare the application for the C-144 pit

remediation, and also the BLM right-of-ways.

So it's a sizeable facility. They've been doing lots of upgrading, remediating the pit, lots of surface cleanup, and just generally improving the housekeeping around the area.

Q. Okay. Now, one final thing before we move on to the next exhibit, Mr. Stone. Mr. Carr, in his opening argument, raised a number of objections and claims that the well may not be mechanically sound. Is there anything that Agua Sucia could do to prove that to the Division and to the offsets?

A. There is at least one tool that I'm quite familiar with, and we had made that offer early on, and that offer remains, that running a radioactive tracer survey to -- on whatever basis.

Typically that would be done annually to verify zone injectivity and check for any channeling or anything happening behind the pipe.

If you incorporated a temperature curve along with that, you can certainly determine what the volumes are we're talking about and determine any upward channeling or other saturation of the reservoir.

That offer remains and I think that would be a prudent tool to use to ensure that the water is going where we intend it to go.

Q. Okay. And Exhibit 1 was prepared by you, was it not?

A. The application, yes, sir.

Q. Now, I'll refer you to Exhibit 2, Mr. Stone. What is that?

A. This is a printout of the RBNS system used by field inspectors to track inspections and mechanical integrity tests, and I requested this from the Hobbs district office.

It shows all of the inspections run on the Government E 1 over the years, at least as far back as we were able to incorporate into the data base during the implementation.

The field report reflects 73 inspections, and it covered the period and roughly ties in with our narrative writeups on the repair attempts of what Louray and/or Agua Sucia indicated in their notes of when OCD visited the site. It doesn't tie perfectly, but it's certainly -- you can see many days where it's obvious that they were talking about the same inspection.

So on my copy here, I -- on the first repair attempt, OCD came by the well over 14 times and recorded no violations related to the workover procedures. And then during the second repair attempt, we have again ten or 11 inspections from the RBNS system, and again, there

are no violations shown that related to the workover operations.

Q. Okay. And even after the workover operations, there have been periodic inspections, have there not?

A. There have.

Q. And again, there are no violations, and I think the inspection report says there are no fluids going into the well, correct?

A. That's correct. There is one violation reported, but that was in relation to the pit situation and not at all tied to the well directly.

HEARING EXAMINER: What's the date on that violation?

THE WITNESS: That is 4/24/09.

HEARING EXAMINER: Okay, I see it there.

Q. In looking at this, this well has been inspected quite regularly, has it not, Mr. Stone?

A. It has, it's a substantial number of inspections. I understand the priority and the need for OCD to do that, but certainly, it was obviously a priority situation and most wells don't attract this kind of inspection.

Q. Did you initially have some difficulty getting this inspection report, or did you call up the Hobbs district office to get it?

A. I called them up. I was unable to obtain it from Santa Fe. I actually maintain a copy of the RBNS in our system, but I've not been able to get a data update from the Santa Fe office, so I called Hobbs directly and they provided this for me.

Q. Was this from Buddy Hill, the district supervisor?

A. Yes.

MR. BRUCE: Mr. Examiner, with that, I would move the admission of Exhibits 1 and 2.

MR. CARR: No objection.

HEARING EXAMINER: No objections. Exhibits 1 and 2 are admitted.

MR. BRUCE: And I would pass the witness.

CROSS-EXAMINATION

BY MR. CARR:

Q. Mr. Stone, when you were first hired to prepare a C-108 on this well?

A. My initial contact was in April of '09.

Q. And by whom were you hired?

A. Louis Edgett.

Q. And what were you asked to do?

A. He explained to me that they had let their injection authority lapse during the workover process and simply to reinstate SWD-559.

Q. So you prepared a C-108 to do that?

A. Yes, sir.

Q. And in doing that, what have you looked at, did you look at well data?

A. I did, but again, Mr. Carr, that first -- the first C-108 submission was kind of stripped down, just submitting anything that had changed. And little has changed out there over the years.

So my initial review was very cursory and just checked a few depths and such, and update the wellbore diagram, so that there was no extensive research involved initially.

Q. Okay. And what were you looking at, were you looking at the well file?

A. Yes, sir, online.

Q. Did you get other information from Louray that you integrated into that work?

A. For the initial application?

Q. Yes, sir.

A. I'm sure -- you know, we were in regular communication. I'm sure I double checked depths, perforations, cement volumes on the repairs, et cetera. So I would say yes, but I can't point to --

Q. When you were looking for cement volumes on the repairs, things of that nature, were you able to get that

information?

A. From Mr. Edgett?

Q. Yes, sir.

A. Right.

Q. You were?

A. I was.

Q. Do you have any knowledge at all about the ownership of the wellbore?

A. I don't guess that I do directly. What I know of is the right-of-way. I assisted with that application for change of operator on the right-of-way with the BLM.

Q. When you worked on that change of right-of-way, you were changing it from Louray to Agua Sucia; is that correct?

A. That's correct.

Q. And you filed a form with the BLM. What was the nature of that right-of-way, for a salt water disposal well?

A. Yes, sir.

Q. And when you filed that application with the BLM, you filed that when, in August of this year?

A. I believe that's about right, yes, sir.

Q. And when you filed this with the BLM, you attached the salt water disposal approval from the OCD, did you not?

A. The salt water disposal --

Q. The SWD-559, was that attached to this application?

A. I believe it was. I don't have that application with me, Mr. Carr.

Q. Do you know if that's required?

A. Off the top of my head, I don't know that it's required.

Q. Did you, when you filed this application, advise the BLM that the well hadn't been used for injection for almost two years?

A. I don't recall that we had any discussion about the actual operations of the wellbore.

Q. Did you have any discussions with the BLM about whether or not they knew that the approval had expired for injection at the time you filed the application?

A. I believe they did know that. Again, I -- you know, it's hard for me to recollect exactly. I was in communication with Wesley Ingram, Tessa Sisneros, some others with BLM in Carlsbad, so there were discussions about things going on.

The pit remediation, certainly we copied them on that C-144 also. So at some point, I would say yes, they were certainly aware.

Q. Beyond that, do you have any information about

the assignments in and out of this property and any of the ownership interests? If you don't, say so and I won't ask you about it.

A. As far as the oil and gas lease, I understand that was Armstrong, but no, beyond that --

Q. You haven't looked at the assignments?

A. No. I, as far as the right-of-way, that -- the rental on that had been paid and they -- and BLM did show that to be held by Louray Oil Company.

Q. Were you aware that Armstrong Energy owns the mineral rights under this tract?

A. Yes, sir.

Q. And that they weren't owned by Louray?

A. Yes, sir.

Q. Did you look beyond the wellbore itself for any possible avenue of migration from the injection zone?

A. I didn't look specifically for a problem situation other than knowing that, you know, any producer you may have might be a pressure sink in the area or whatever. So I didn't do any in-depth analysis from a geology perspective or otherwise.

Q. Do you have an opinion on that?

A. Not really. I -- well, no, I don't.

Q. Were you involved in any way with the sale of Louray to Agua Sucia?

A. No, sir.

Q. Did you participate in any discussions concerning that?

A. Certainly. We -- it was discussed. I had no recommendation one way or the other. I would say that at some point, I did point out early on that perhaps they shouldn't change it over to Agua Sucia, that Agua Sucia shouldn't purchase the well and consummate that by whatever means until we got on down the road.

And at some point, due primarily to the delays and continuances in us trying to get the hearing, in discussion with the client and Mr. Bruce, we thought that, you know, at this point we may as well -- at this stage, we may as well go ahead and resubmit the new application and get the well over into Agua Sucia's name.

Q. Do you know who the owners or principles are in Agua Sucia?

A. Yes, sir.

Q. And who are they?

A. Denis Schoenhofer.

Q. And in addition to Denis Schoenhofer, do you know if Mr. Edgett has an ownership interest in the well?

A. I don't know that.

Q. Do you know exactly what Mr. Edgett's responsibilities are at this well site?

A. In my discussions with my client, Denis Schoenhofer, Agua Sucia, my understanding is, he is the operator, pumper, individual who took over the facility.

Q. And when you testified, you said you thought Mr. Edgett worked in the pumping capacity; is that correct?

A. Yes, sir.

Q. What role do you have with either of these companies, is it limited just to filing regulatory forms?

A. That's all I do.

Q. That's the only authorization you have?

A. Yes, sir.

Q. Now, in your C-108, the cover letter contains reference to Buddy Hill, supervisor of the Hobbs OCD District office. And you say he confirmed to you in a telephone conversation that, quote, "We've had lots of issues with the previous operator," close quote.

A. Yes, sir.

Q. And who would that operator be?

A. Louray.

Q. And what were the problems, do you know?

A. I couldn't give you a good example. I know that they just considered Louray to be a substandard operator and it was just one of those that they -- for lack of a better term, felt they needed to bird dog them during

operations.

Q. But you don't know any of the particulars of any of that?

A. Not really.

Q. I assume that you're not familiar with the text of the operating agreement governing this property?

A. I guess I'm not.

Q. That's a no, you're not?

A. No, I'm not.

Q. Okay. You prepared the change of operator form from Louray to Agua Sucia, correct?

A. For the BLM.

Q. And what did you provide with that, did you provide any evidence of assignments or ownership changes?

A. Mr. Carr, I apologize, I've been through so much on this well, and without having that at that my disposal, I don't recall exactly what's required.

It's a lengthy application, is goes into a lot of detail. Much of it's incorporated on the form similar to the C-108. So you just itemize and do some narrative things on there. You have the attachments, corporate documents, bonding, and that sort of thing.

Q. But not the particular details of this agreement?

A. I don't -- I'm not sure what you're referring to

as particular --

Q. The operating agreement for Agua Sucia, are you familiar with the terms of the operating agreement?

A. No, I'm not.

Q. Are you familiar with the kind of business operation being conducted at this site at this time?

A. Only by virtue of my communication with Mr. Edgett and Mr. Schoenhofer.

Q. Do you understand there is no injection going on?

A. Yes, sir.

Q. And you understand that oil is being transported from the property?

A. That's my understanding.

Q. What is this, is this just being operated as a transfer station at this point in time pending approval?

A. They do still take waters in. So, yeah.

Q. So is it fair to say they take water in, send that water to somebody, and also skim the water?

A. Yes, sir.

Q. Is that consistent in your opinion with what the BLM authorized at this location?

A. I can't answer that exactly except that I believe the operation hadn't changed for some time. So my assumption is that -- I didn't look at those details of

that operation.

Q. But there was injection prior to 2008 and there hasn't been since?

A. Right.

Q. Prior to the well being shut in in 2008, were you aware of any particular problems with this well in your research, did you find anything?

A. I found the -- When the well failed. I don't know if you're considering that prior to, but I certainly saw the evidence of the damaged casing through the Queen interval.

Q. You referenced the MIT tests that have been done on the wellbore in the past.

A. Yes, sir.

Q. And do you know how those MIT tests -- those mechanical integrity tests were conducted?

A. Yes, sir.

Q. Were they witnessed?

A. Yes, sir. I'm sorry, Mr. Carr, as far as I know, they were. I mean, certainly, I didn't check to make sure that they were all witnessed, but obviously, that's part of what's required is notification to OCD whenever you're going to run one, so I assume most, if not all, were witnessed.

Q. Even if you were going out on your well and were

going to pull the tubing, or cement the casing, would you also need OCD prior approval to do that?

A. Yes, sir.

Q. Do you know in any of these MIT tests at what depths the packers were set?

A. Not from the notes I have available.

Q. In terms of repair on the work on the well, that decision had been made to go ahead and repair the wellbore prior to the time you became involved; isn't that correct?

A. It had been completed and they had the successful MIT done by the time I was contacted in the first part of April.

Q. And by that time, there had been certain recent work on the well, including certain cement being run in the well in January of 2008; isn't that correct?

A. I believe it is.

Q. Did you get information from Louray on that?

A. Are you referring to that cement that was pumped during the first repair attempt?

Q. First repair attempt in January of 2008.

A. Right.

Q. My understanding was, that that was pumped between eight and five-eights casing and five and a half casing?

A. Yes, sir, some 760 sacks.

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Q. If I go to your schematic and in the C-108 for Government E No. 1, I don't see that cement shown; is that correct

A. That is correct.

Q. And why is that?

A. That was a failure on my part to make any indication there.

Q. If you put that volume of cement in that space, how far down in the well do you think it would go?

MR. BROOKS: Excuse me, I'm very confused about what you're talking about. I missed some words back there. Could you clarify a little bit?

Q. Mr. Stone, if you go to the schematic of the Government E Well No. 1 in the C-108, and you look at that wellbore, there was an attempt to repair the well in 2008, and cement was injected between the eight and five-eighths casing, and the five and a half casing. That's not shown, correct?

A. That's correct.

MR. BROOKS: Okay, the eight and five-eights casing, is that the blue?

THE WITNESS: Eight and five-eights would be the yellow.

MR. BROOKS: Oh, the yellow.

MR. CARR: The blue is the five and a half.

MR. BROOKS: The blue is the five and a half, so the injection was between those two?

MR. CARR: Those two.

MR. BROOKS: Okay. Go ahead.

Q. And you put in -- how many sacks of cement did they put in?

A. I believe 766.

Q. And how deep in that well would that cement have gone, do you know?

A. I don't know exactly. They had a cement retainer set. I believe, if you calculate that using normal yields, you would expect to see that circulate, but apparently they didn't. So.

Q. There were holes in the casing at 4,168. If that's true, would you suspect it would go no deeper than that?

A. Yes, sir.

Q. If I look at this diagram and look between those two strings of casing, we do have cement from the bottom of the well up to about -- I think it's 7,700 feet; isn't that right?

A. Around the five and a half?

Q. Yes, sir.

A. Yes, sir.

Q. And so if the cementing in 2008 only went to

4,161 and the cement only came up to 7,700, there would be a space in that wellbore that wouldn't have cement around the casing; isn't that true?

A. That's true.

Q. Now, if I look at your Exhibit 2, this is just the inspection report from the OCD, correct?

A. Yes, sir.

Q. And if I go to the third page of this and I look at the entry one up from the bottom on January 29, 2008 -- Do you see that entry?

A. Yes, sir.

Q. It indicates that 185 joints of tubing were pulled from the well?

A. Yes, sir.

Q. How long is a joint of tubing?

A. They average 30, 31 feet.

Q. And so, if we had 30 feet times 185 joints, about 5,500 feet of tubing would have been pulled out of the well; is that right?

A. That's close, yes.

Q. Do you have an opinion whether or not that is all the tubing that was in the well?

A. Without reviewing it some more, Mr. Carr, I don't know if that was all the tubing that was in the well.

Q. If that was all the tubing in the well, they would have removed the tubing down about 5,550 feet, correct?

A. Correct.

Q. And if I look at your schematic, San Andres formation is below that, right?

A. Yes, sir.

Q. If you go to 2/5/2008, it's the top of those two.

A. Yes, sir.

Q. It says that there was a call at 5:30 p.m. for a cement pump truck on that location and it arrived at 6:40 p.m. Would that suggest that that's when they actually did that cementing work, after 640 p.m.?

A. Yes, sir.

Q. It indicates that it was not approved, the job was unapproved before pulling out of the hole with the tubing; is that right?

A. I'm sorry, could you --

Q. The last line says, "Bradenhead not approved before job. Pulling out of hole with tubing." In your experience and with your expertise as a -- with the oil gas and regulations with the OCD, before you go out and pull tubing out of a hole, shouldn't you get an approved sundry notice?

A. Yes, sir. I would, Mr. Carr, qualify that by saying, as the operation was ongoing consecutive days, that typically, you won't notify of every time you trip in and out of the hole.

Q. If you were pulling 5,000 feet of tubing out of a well where you knew they were going to try to run a Bradenhead test on it, wouldn't you want to get approval prior to do it doing it?

A. I would, but again, I'm just trying to quickly look at the procedure here and --

Q. But in those circumstances, wasn't it your answer that you would get approval before pulling tubing out of a well in this area?

A. My answer was, if you rig up on a well, you would notify to pull the tubing. But I have to qualify that by saying that we're, at this point, two weeks into the operation, and certainly, tubing, the packers are tripped, or whatever other tools are tripped, frequently as part of workover. So I would say that not every single time would you notify the Division.

Q. This form, the well inspection history, is not familiar to me. Have you looked at them before from time to time?

A. I actually designed the report.

Q. Then you're the person I want. On that same

entry, February 5, 2008, it says, "Called at 5:30 p.m. Cement pump truck on location. Arrived at 6:40."

A. Right.

Q. Does that mean the OCD was called at 5:30, is that what that would mean?

A. I can't surmise exactly what the interpretation would be.

Q. These are summaries of notes from the OCD?

A. These are the exact notes that that inspector typed in to the laptop computer, so generally, they --

Q. So if it was Buddy Hill, or whoever, and they wrote that down, that would indicate they were probably called about that time?

A. I would assume.

Q. If I look at the schematic again, the current configuration of the well, the green inside the casing, that is the liner that's been installed?

A. Yes, sir.

Q. And there is cement behind the liner?

A. Yes, sir.

Q. Do you know why that cement volume hadn't been reported to the OCD?

A. I could not tell you.

Q. Do you have that volume?

A. The volume would be on the second successful

repair attempt narrative.

Q. And that's in the C-108; is that right, Mr. Stone?

A. Yes, sir. Final repair, March, April, 2009.

Q. Let's see.

A. On 3/27, B.J. Services circulated liner two barrels of cement.

MR. BROOKS: Well, underneath the description of the liner on the well diagram, it says, "Cement 240 sacks Class H from 9,547 to 3,843."

A. Yes, sir, and that's also in Mr. Perry's workover notes.

Q. Okay. That's all I have. Thank you Mr. Stone.

HEARING EXAMINER: David, any questions?

MR. BROOKS: Well, one just out of curiosity. Where is Como, Texas? It's in seven five, and I used to live in Dallas, which is the center of seven five, but I never heard of Como, Texas.

THE WITNESS: Como is a thriving metropolis of 621 people, and we're about 100 miles east of Dallas/Ft. Worth out Interstate 30.

MR. BROOKS: Okay. Is the United States the owner of the surface of this location? BLM

THE WITNESS: Yes, sir.

MR. BROOKS: So that's why Agua Sucia obtained a

BLM right-of-way?

THE WITNESS: Yes, sir.

MR. BROOKS: Okay. I think that's all my questions.

HEARING EXAMINER: Okay. Mr. Stone, when did you first become associated with this particular well? Not companies involved, but the well itself?

THE WITNESS: First week of April, I was contacted by Debbie McKelvy of Hobbs, and she had referred me to Louis Edgett of Louray Oil Company. And so my first contact with Mr. Edgett was on April 7, 2009.

HEARING EXAMINER: So just about a year ago?

THE WITNESS: Yes, sir.

HEARING EXAMINER: Okay.

MR. BRUCE: I have no follow up.

HEARING EXAMINER: Let's take a short break.

(Note: A break was taken.)

HEARING EXAMINER: Mr. Bruce, you were about to call your second witness.

ROBERT LEE,

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

DIRECT EXAMINATION

BY MR. BRUCE:

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

A. Robert Lee.
Q. And where do you reside?
A. Midland, Texas.
Q. What's your occupation?
A. I'm a petroleum engineer. I do consulting work.
Q. And in this case, are you a consultant for Agua Sucia?
A. Yes, sir.
Q. Have you previously testified before the Division?
A. I have.
Q. And were your credentials as an expert petroleum engineer accepted as a matter of record?
A. Yes, they were.
Q. And how long have you been a petroleum engineer, Mr. Lee?
A. Twenty-five years.
Q. And during that time, have you prepared C-108 injection applications or water flood applications at various times?
A. Yes, sir.
Q. Do you have any idea how many you've done?
A. Fifteen, 20.
Q. And so you have had the opportunity during your career to pay attention to what is required by a C-108 and

to look at wells in the area of review, as well as injection wells to determine the soundness of the wells?

A. Yes, sir.

MR. BRUCE: Mr. Examiner, I'd tender in Mr. Lee as an expert petroleum engineer.

MR. CARR: No objection.

HEARING EXAMINER: Mr. Lee is so recognized.

Q. Mr. Lee, have you reviewed Exhibit 1, the C-108 that was prepared by Mr. Stone?

A. Yes, sir.

Q. And did you just look at the exhibit, or did you look at any supporting data?

A. I reviewed his exhibit to see if all the components were there, and just kind of checking it over and felt that was what -- I didn't review any of his work or anything.

Q. Okay. But in your review of this exhibit, is the Government E Well mechanically sound?

A. Yes, sir, it appears to be.

Q. So from an engineering standpoint, if the Division allows water to be injected in the Bone Spring formation, will the wellbore construction prevent the movement of fluids between zones?

A. Yes, sir, I believe it will.

Q. You listened to Mr. Stone's testimony, did you

not?

A. Yes, sir.

Q. Do you have any particular comments with respect to the C-108 and anything that was mentioned during that testimony?

A. No. The oversite of looking at the cement and -- I mean, he addressed everything back in the supporting data. So, you know -- You don't know where the tops are, there weren't temperature surveys ran. So, you know -- but it's all documented there.

On the first attempt, it looks like that the well -- you know, they pulled 309 joints out of the well when they first rigged up on it trying to work on it, so that would put down around 9,700 feet or so, which is the top of the injection formation at the height of 9,716.

Q. Okay. So based on the documents, there were 309 joints of tubing, not just 185?

A. It looks like when they first rigged up on the well, it looks like they pulled 309 joints out.

Q. Okay. Do you have any other comments on the C-108?

A. No, sir.

Q. Okay. Let's go to Exhibit 3. What does that represent, or what data does that contain?

A. This is a production curve on the Government E 1

showing that the well comes on about 1971, goes offline in early 1994. Shows the oil, gas and water production that I pulled out of IHS Production Services, shows the well production.

Q. Okay. Now, this well was drilled deeper than the Bone Spring, actually, was it not?

A. Yes, sir.

Q. And so your production data just shows the Bone Spring production?

A. Yes, sir, those perfs about 9,716 feet.

Q. Okay. And it ceased producing, it looks like, in 1994?

A. Early part, yes, sir.

Q. Okay. Produced a fair volume of oil?

A. 181,000 barrels, and about half million cubic feet of gas, and 121,000 barrels of water.

Q. Okay. So a fair amount of water also?

A. Yes, sir.

Q. What is the second page of the exhibit?

A. The second page is -- I ran through some volumetric calculations to kind of get an estimate of what the potential drainage would be based upon the parameters I saw in the wellbore, getting the information off the logs, and I kind of made an estimate of what the CH would be over the entire interval.

The well was perforated at 9,716 to 20. There was a zone right below the perforation that -- you know, with the acid job they put on it, I believe it may have, you know, gone into that.

So anyway, I looked at the 16 to 30 interval for my drainage calculations and calculated water saturation and went through a calculation and estimated that this one well may have drained about 200 acres. It seems pretty high.

There may have been some reservoir heterogeneous sand or some thickening out there, or maybe better recoveries than what I calculated, but it was a reasonable type of number other than just being a little on the high side with 210 acres.

Q. Okay. What's the third page of Exhibit 3?

A. This is a production curve on the Government E 7. It's another Bone Spring well. To the north of the No. 1, I believe it's in Unit C, and once again, it's showing production of the well. It made about 78,000 barrels of oil, 175,000 MCF, and just a little over a thousand barrels of water.

Q. And what was the perforated interval in this well?

A. Perforated interval here was from the 9,736 to 54. And I kind of went through the same gyration

calculating on average CH, calculated water saturation coming up with some sort of recovery factor.

I used a recovery factor of 15 percent, assuming that, got a drainage radius of about 70 acres. Once again, seems reasonable.

Q. Okay. So at least in the area of the Government E Well, the Bone Spring appears to be depleted at least at those depths; would that be a fair statement?

A. That would be a correct.

Q. Do you have any further comment on your Exhibit 3?

A. No, sir.

Q. Was Exhibit 3 prepared by you?

A. Yes, sir.

MR. BRUCE: Mr. Examiner, I'd move the admission of Exhibit 3.

MR. CARR: No objection.

HEARING EXAMINER: No objections, Exhibit 3 is admitted.

MR. BRUCE: I pass the witness.

CROSS-EXAMINATION

BY MR. CARR:

Q. Mr. Lee, if you look at the first page of Exhibit 3, this shows the production from the Government E Well while it was producing prior to the time it was

converted to injection?

A. Yes, sir.

Q. And if I look at this exhibit, you show that during this period of time, the well produced about 181,000 barrels of oil?

A. Yes, sir.

Q. And you stated that it also produced about 121,000 barrels of water; is that right?

A. Yes, sir.

Q. So what we actually have here is about 302,000 barrels taken out of this well?

A. Yes, sir.

Q. Do you have any idea how much has been injected back into the Bone Spring?

A. A little over 3.1 million barrels.

Q. So you've created, by withdrawing, a voidage of 302,000 barrels?

A. Yes.

Q. And you've put back into that interval about eight times that amount?

A. Yes, sir. Ten times.

Q. Ten times. Where do you think that water is going?

A. I think it stays in the Bone Spring formation. I mean, it goes out into the, obviously, the depleted part

here. There's additional perfs that were added down around ten two on the wellbore diagram. There were some additional perfs that were added.

So there was additional volumes of reservoir that was opened up for the injection. It's pretty typical of a lot of injection wells that we see out here. And water floods and disposal wells, generally, more water goes in than is voidage created taken out, and I believe it's just filling up the reservoir down there.

I believe it's held in this lower part of the Bone Spring, because sitting up above this injection interval there is a couple of very massive, tight carbonate intervals.

Q. Do you have an opinion as to where water may be coming from in the offsetting wells, in the Armstrong wells?

A. Yes, sir.

Q. And what is that?

A. I think it's coming from the Merit floods to the southeast -- southwest.

Q. And what do you base that on?

A. A couple of things. I looked at the curves and -- the curve of the water injection of the E 1 Well over time, and I looked at the Armstrong wells. I summed them all up on the Armstrong wells out of the Queen.

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And looking at where the water was increasing, at that time frame, the -- there was MITs that passed. So, I'm going to say that for water to get into the Queen out of this well, you would have to have -- you know, the packer would have had to have failed, you'd have to have a conduit to get past the packer, and then there would have to be holes in the casing for it to go into the Queen.

For the bulk of the life of the well, the positive MITs that were ran demonstrate that the casing had integrity. Now, the other place it could come from out of this wellbore that we kind of puzzled over, was -- it had to come up the backside.

In order to do that, you'd have to go through about 2,000 feet of cement from the top perf here, 9,700. Top of cement was found with a temperature survey at 7,700. So we got a good handle on that.

A lot of times, one of the fears that we ran into was problems with trying to calculate the top of cement, but here it's actually measured so we know where it is. So you got 2,000 feet of cement above the injection interval, you know. I'm going to say that that's going to be good enough to hold our injection water in.

Q. Did you look at pressure information on the wells?

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A. I did not, no, sir.

Q. Did you look at pressure buildups?

A. None were available to me, and so, no, I did not.

Q. Did you compare water analyses on the Armstrong wells with the injection fluid?

A. No, I did not.

Q. Did you compare water in the Armstrong wells with water from the Mescalero Ridge unit?

A. No, sir, I was just using my production curves to make that assessment.

Q. Now, if water got from -- and you're an expert, so follow me with this question. If water got from the injection well into the Armstrong wells, there are only a certain number of ways that can happen, right?

A. From the Merit flood?

Q. From the Government E 1 Well, if water is injected there and that water happens to show up in the Armstrong, there are only a certain number of ways that can happen?

A. That I can visualize, yes, sir.

Q. It would have to be some sort of a leak?

A. That's correct.

Q. It would have to channel up around the casing?

A. Yes, sir.

Q. There would have to be some anomaly in the formation of the well tab?

A. That's correct.

Q. Now, you have ruled out the wellbore?

A. Yes. I would say that getting up behind the 2,000 feet of cement highly unlikely. The MIT showed the casing had integrity.

Q. And you looked at those mechanical integrity tests. Do you have an opinion on whether or not the wellbore was sound throughout this period of time?

A. In the early years when the good MITs ran, yes, sir, it looks like to me that based on the reported data that was on the OCD's website, that yes, they were good MITs.

Q. When I look at your volumetric calculations here -- I want to be sure I see what you're trying to show us with these. If we look at the volumetric calculation on the Government E No. 1 Well, it looks to me like what that shows is, in fact, it drained 210 acres. Is that what you're showing?

A. That's correct, that's kind of what the calculation shows here.

Q. And that would be oil, and because of the water saturation factor, that's water and oil?

A. I'm going to say yes, that that's water and oil.

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Because I've got some mobile water there, there's probably water saturation.

Q. But basically, that is the area that was impacted by that production?

A. That's an estimate, yes, sir.

Q. Okay. Now, are you trying to tell us that this is a small reservoir?

A. No. I'm saying that if I look at the volumes of fluid that came out of the reservoir, based upon the log parameters that I see, it looks like you could get 200 acres.

And like I said, that's -- When I look at that, it's like, you know, that's a little bit on the high side, I'm making an estimate that the well on primary production recovered 15 percent of the original oil in place.

So -- and, you know, I'm seeing a fairly thin reservoir here. As it gets thicker ten feet away from it. I can't see it, I don't know. That H is pretty variable. I have a pretty good handle on my fee, I think I'm okay on my SW, but --

Q. But these calculations should show the area drained by these wells, that's what I'm trying to --

A. That's correct, it's an estimate of the area drained by the well. That's a little high.

Q. You have seen the reported information on the

mechanical integrity tests, correct?

A. I have looked at the charts and I looked at the -- just what was recorded on the OCD website saying that they passed.

Q. Can you tell from that at what depth the packer was set?

A. No, sir.

Q. In trying to determine what was the source of the water in the offsetting wells, would it have been useful to you to have been able to examine the casing and the tubing in the well as it was in 2008?

A. No. The reason I say that --

Q. The landman told you there was a leak --

A. Well, I mean, we know there was a leak. Because they go in with a packer and plugged and they find the leak. I think that's what you would find.

Q. But would that information have been able to tell you the extent of the leak, the intervals of the leak, those kinds of units of information?

A. Right. And the way I could kind of assess that is with a packer and plug saying it was from 4,100 down to about 5,200, 5,300 --

Q. I thought you said you don't know where the packer is set?

A. No, I -- Did I say packer? No, the leak was

reported -- I'm sorry, I said packer. When they went in to isolate the zone where the leaks were, they would go in with a packer and plug subsequent to finding out there was a leak on the backside to see what they were looking at and needing to fix.

Q. If you were trying to determine if there was a leak and what needed to be fixed, my question is, would the physical condition of the tubing be useful to you?

A. I don't know, Bill. I don't think so. Because, once again, I know I've got a leak. What would be more valuable to me would be knowing what -- if you got a piece of that casing out, to see whether the corrosion was from the outside into the wellbore, or from the inside out to the wellbore.

Q. Once you put cement in the annulus, does that inhibit your ability to look at the casing?

A. Well, unless you pulled that casing you couldn't look at it. But yes, once you cement in place, it's there and isolated and you're protected as best you can at that point in time.

Q. That's all I have. Thank you.

HEARING EXAMINER: Kind of on that same line, checking the integrity of that casing, aren't there some wire line logs out there that would help us look at that casing, whether it's been cemented in or not?

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THE WITNESS: Yes, absolutely. Yes, there are.

HEARING EXAMINER: We've heard a lot about the MITs, mechanical integrity tests. How would one do an MIT on the well as it stands right now with this four inch plus joint casing that's -- with no annulus?

THE WITNESS: Well, yes, there is, there's going to be an annulus between the -- your tubing that you're injecting down, and actually, it's going to be five and a half at the surface. By pressuring up on that, you'll be able to confirm that you don't have a leak with the four inch flush joint.

HEARING EXAMINER: All right. Mr. Brooks?

MR. BROOKS: No questions.

MR. BRUCE: Mr. Examiner, if I could?

HEARING EXAMINER: Yes.

REDIRECT EXAMINATION

BY MR. BRUCE:

Q. Mr. Lee, I've handed you what we've marked as Exhibit 4A, 4B, and 4C, and ask the Examiner to maybe set them down with 4A at the top, and 4B and 4C at the bottom.

And Mr. Lee, this gets to a question that Mr. Carr asked you about where you think water might be coming from. Did you prepare these exhibits?

A. Yes, sir.

Q. And what do they reflect?

A. The 4A is a summary curve of the Armstrong wells in Section 25. 4B is a curve on an offset injection well, the Mescalero Unit 15, and it is located in 35, it's on the area of review map, just outside the area of review.

Q. Adjoining Section 35?

A. Yes, just to the southwest, yes, sir. And 4C is an injection curve on the Government E 1 showing the injection volumes, injection rate, monthly rates over time.

Q. And is the time line on all of these three exhibits the same?

A. Yes. They all go from '93 to 2010, so you can kind of see them in sequence yearly.

Q. Okay. That's why I asked the Examiners to line them up from top to bottom. What sticks out at you from this exhibit?

A. Well, one of the first things I noticed when we first started working on this is the Government E Well was putting away quite a bit of water, between 10,000 and 20,000 barrels a month. It ceases injection in 1 of 2008.

And if I look at the Armstrong summary curve with their production, I don't really see an impact on any of the oil production at early 2008, but I did notice that the water volumes started dropping in 2008.

And I looked at that and I was kind of going --

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you know, it looks like that injection well was impacting their wells. I couldn't figure out how. You know, that's why I kind of went through the deal of how can you get the water there, and, you know, the 2,000 feet of cement ought to hold me, maybe the bores had a casing leak back here.

Well, then I go back and pull the MITs and I put the times in there when the MITs are ran, and it's showing me they had some tubing leaks and things like that and repair that, and they do an MIT and everything checks out okay.

And I got that off the OCD website. So well, now I don't have a conduit to get outside my five and a half into the Queen, so how does it work? I was just kind of -- I was pretty puzzled.

As things went on, I kept updating this curve and I noticed kind of towards the middle of this year, that the --

Q. Middle of '09?

A. Middle of '09, yes, sir, the water production on the Armstrong wells started increasing from about 3,000 barrels a month up to five or six thousand barrels a month. And our well is still shut in.

Well, I got to looking around at other things that might be able to explain that phenomenon, and -- I had the curves. I didn't drag them out because I don't

think they're pertinent here.

But I looked at all the injection wells kind of in the area, particularly down in that Section 35, the Merit Queen flood, and found that the closest well to Mr. Armstrong's acreage there in Unit A, it actually ceased producing towards the very end of 2007. And about 2009, the middle of 2009, a little bit earlier that year, it started putting water back in the ground.

Since my Government E 1 is shut in, and I see this, and it lines up with what the water production on the Armstrong lease did, I kind of came to the conclusion that these offset injection wells was impacting water production on the Armstrong acreage.

Q. Could you also go back to the year 2001 and compare -- if you look at Exhibit 4A, the Armstrong wells had a fairly flat water production through the year 2000.

A. Uh-huh.

Q. And then it started going up, correct?

A. That's correct. And the well -- the Armstrong -- the E 1 commenced injection in '94.

Q. And not only that, during the 2001 period for a while, the Government E Well was apparently shut in, correct?

A. That's correct. There was -- Yes.

Q. But there's a jump in water production from the

Armstrong well?

A. That's correct.

Q. So there's some anomalies there --

A. Right.

Q. -- which leads you to believe that it's not the Government E 1 that has contributed to Armstrong's increased water production?

A. Yes, that's why I reached that conclusion.

MR. BRUCE: Mr. Examiner, I move the admission of Exhibits 4A, 4B, and 4C.

MR. CARR: No objection.

HEARING EXAMINER: Exhibits 4A, 4B, and 4C are admitted.

MR. BRUCE: I have no further questions.

RECROSS-EXAMINATION

BY MR. CARR:

Q. Mr. Lee, look at Exhibit 4C.

A. Yes, sir.

Q. In 2001, the Government E 1 Well was returned to injection, correct?

A. Early 2002.

Q. Okay.

A. Yes, sir.

Q. And prior to putting that well back on injection, the well was worked over, was it not?

A. That time frame in 2001 --

Q. Do you know what was done to the well in 2001?

A. No. There's a note in the OCD file that said it was shut in for that period of time because there was a sale going on.

Q. Do you know if any work was done on the well?

A. I do not know, no, sir.

Q. If we go then up to the 4B during that same 2001, 2002, 2003 time frame, we really don't see any change in the data from the Mescalero Ridge, there's a slight decline?

A. That's correct.

Q. And then we go to Exhibit 4A, and we can see that after 2001, there was a sharp increase in water production in the Armstrong wells; isn't that right?

A. That is correct.

Q. All right. And when we look at 4B and 4C, you're suggesting when you look at these, you can see what was really causing the water production; isn't that what you're suggesting?

A. That is correct.

Q. You realize, of course, that the Mescalero Ridge Unit Well is injecting about a thousand barrels a day?

A. Yes, sir.

Q. I'm sorry, a month.

A. The Mescalero Ridge Well, about 10,000 barrels a month. Right now, it's about 7,000.

Q. If I look at this graph and I look --

A. Well, I'm confusing you because -- I knew you'd play that trick on me. No. There's blue water that is actually produced water, and that's just the way my program spits out a curve. The purple water curve is the injection water curve. So it's 6,000.

Q. And if we look at the injection from the Government E, it gets up as high as 40,000?

A. That is correct, yes, sir.

Q. Thank you. That's all I have.

A. There was other injection wells out there. This was just the closest one to match what was out there.

HEARING EXAMINER: Which zone are they injecting into in the Mescalero Ridge No. 15, is that Bone Spring?

THE WITNESS: No, sir, it's a -- the Queen flood's sitting down there, yes, sir. And we prepared a cross-section that those shows that the injection intervals in the Mescalero correspond to the producing intervals in Section 25.

HEARING EXAMINER: Okay. David?

MR. BROOKS: Yes. This Mescalero Ridge Unit No. 15, what zone is that injecting into?

THE WITNESS: It's a Queen zone.

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MR. BROOKS: Okay. Now, I'm not accustomed -- unlike a scientist or an engineer, which I'm not, I'm just a lawyer, so you have to help me a little bit here.

I'm not accustomed to looking at these log rhythmic scales. To read on this Exhibit 4B for the Mescalero, to read that, I have to look at the purple numbers on the right-hand side; is that right?

THE WITNESS: Yes, sir.

MR. BROOKS: And these are what, where it says a thousand, is that a thousand, or is that 10,000?

THE WITNESS: No, that's a thousand barrels a month.

MR. BROOKS: Okay. And then you go up to the next bold line, and that's 10,000?

THE WITNESS: That would be 20 -- the next --

MR. BROOKS: The one that goes over to the edge and there's no number.

THE WITNESS: Yes, that is correct, that would be 10,000, yes, sir.

MR. BROOKS: Yeah. And there's a wide gap, and that's a thousand, and then each of these is 2,000, 3,000 4,000, and so on?

THE WITNESS: Yes, sir.

MR. BROOKS: So the injection, then, that's shown for the Mescalero during the pertinent period here

from '01 to '07, is in the range of 10,000 to 20,000 --

THE WITNESS: Yes.

MR. BROOKS: Okay. When you go and look at the injection on the Government E No. 1, you only have one scale, and that's shown on the left, right?

THE WITNESS: Right. I just had one line that I showed.

MR. BROOKS: Okay. And the range of the injection is -- most of that period is like 10,000 to 11,000?

THE WITNESS: Ten to almost 30,000. At the very end, 40,000.

MR. BROOKS: Oh, 10,000 to 20,000, yeah. And then it goes up to 40,000 in '07 for a short time?

THE WITNESS: Yes, and it was about 40,000 in '97 also, yes, sir.

MR. BROOKS: Right. And that's injecting into this deeper formation. This is San Andres?

THE WITNESS: Bone Spring.

MR. BROOKS: Bone Spring. I'm sorry.

MR. BROOKS: Okay. I think that's all I have.

MR. BRUCE: Just following up on something.

REDIRECT EXAMINATION

BY MR. BRUCE:

Q. Mr. Lee, you mentioned you picked up this Merit

Mescalero Ridge Unit 15 Well. Are there other injectors in that water flood unit?

A. Yes, sir.

Q. Do you know how many?

A. Right now there's five active wells that I picked up over the bulk of the life of it. Right now they started shutting some of those wells in in '09, and there's three active injectors in '09 -- at the end of '09.

Q. Is it possible that the water injected into the Merit wells could have contributed to the failure of the Government E 1?

A. Possibly. You're getting some water movement through there, and maybe some, I don't know, pressurization of the zone, I don't know. But I think just through that Queen interval, you're getting water movement and it's eating that casing up.

Q. Okay. Thank you.

A. I would think so.

MR. BRUCE: That's all I have. That concludes our direct testimony.

MR. CARR: May it please the Examiner, we call Louis Edgett to the stand.

LOUIS EDGETT,

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

DIRECT EXAMINATION

BY MR. CARR:

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

A. My name is Louis Edgett.

Q. Mr. Edgett, you are appearing here pursuant to a subpoena, are you not?

A. Yes, sir, I am.

Q. Where do you reside?

A. Lovington, New Mexico.

Q. And by whom are you employed?

A. I'm a contract worker. I am employed by several companies.

Q. Do you do work for Agua Sucia?

A. Yes, sir, I do.

Q. And what is your relationship with Agua Sucia?

A. I'm a contract pumper on the Marathon Disposal.

Q. Is that your only relationship with Agua Sucia, or do you own part of the company?

A. I do not own part of the company.

Q. You were the operator of Louray, correct?

A. Yes, sir, I was.

Q. And that company was sold to Agua Sucia?
A. No, the company wasn't sold, the well was sold.
Q. All right. And Louray is still an active company?
A. No, sir, it's not, Louray has gone bankrupt.
Q. Okay. And so you just then sold the wellbore called Agua Sucia --
A. I sold the wellbore and the equipment.
Q. Are you familiar with the application filed in this case to reinstate the salt water disposal injection authority for this well?
A. I'm aware of it. I contacted Mr. Stone to do all the paperwork. I was over my head on the paperwork and needed some advice.
Q. Are you currently an officer in Agua Sucia?
A. No, sir, I'm not.
Q. You were originally its managing partner, were you not?
A. I was the -- I forget what it says on the operating agreement. Agent, I was the agent for this area.
Q. How long did you do business as Louray?
A. Since 2000 -- Well, since 2002, I believe, yes, sir.
Q. And what was the nature of that business, was it

a disposal business only, or did you also operate oil and gas wells?

A. At that time, I just had the one well, the Government E No. 1 Well.

Q. In the exhibit material in front of you is what we have marked as Exhibit No. 13, and a ways back, Mr. Edgett, is a copy of the operating agreement of Agua Sucia. Do you see that?

A. Yes, sir.

Q. If I look at this document, I believe you actually signed this document on the last page; is that right?

A. Yes, sir.

Q. After that time, you were a managing member of Agua Sucia?

A. Yes, sir.

Q. And then if we look at the next document, the next document is a corporate authorization resolution, and that is also signed by you, is it not?

A. Yes, sir.

Q. And it indicates you're the individual signed behind the initial "B," that you're authorized to exercise the powers listed in the resolution. Do you see that?

A. Yes, sir.

Q. And if I go to the next one, 15, that's an

amendment to the operating agreement dated October 14, 2009?

A. Right.

Q. And this indicates that you have withdrawn as the managing member of the company; is that right?

A. Yes, sir.

Q. That provides after that notation that, "He," being you, "will retain his authority to perform acts customary to day-to-day operations of the company as stated in Article 6, Section 6-1B." Do you see that?

A. Yes, sir, I do.

Q. If you go to the operating agreement and turn to Page 7 of that agreement, do you see that?

A. Yes, sir.

Q. And it says, "Management of the company," at the top, Article 7, and there is a subparagraph. Are you with me?

A. Okay.

Q. Mr. Edgett, this reads,

> "Louis G. Edgett shall have the power and authority to perform acts customary to the operation of the business engaged in the water disposal business, handle the day-to-day operations of the company, authorize the execution of all

documents, instruments and agreements reasonably deemed by Edgett to be needed for the performance of his duties in the exercise of his powers under this agreement," and then it goes on.

A. Yes, sir.

Q. Are these the powers that you currently are exercising?

A. Yes. The powers of a pumper, I get, you know, the day-to-day operations.

Q. So you are in charge of day-to-day operations at the well?

A. Yes, sir.

Q. How have your responsibilities changed from the time you were operating the well as Louray and the way you're operating it now as -- or conducting operations on the well for Agua Sucia?

A. How have they changed?

Q. Yes.

A. Well, before, I didn't have nobody to -- you know, a higher authority to talk to on anything I needed to do. Anything I do now, I have to pass it through up to Denis Schoenhofer, which is the owner.

Q. And what does Mr. Schoenhofer -- what's the nature of his business, is he in the disposal business?

A. Yeah, he's the owner of American Salt water Disposal.

Q. Does he own other salt water disposal operations?

A. No other salt water disposals, no, sir.

Q. Does he have oil and gas operations?

A. Yes, sir, he does.

Q. And you have access to the site daily?

A. Yes, sir.

Q. Does he have oil and gas operations?

A. Yes, sir, he does.

Q. You have access to the site daily?

A. Yes, sir.

Q. I'd like you to go back with me for a few minutes, and in the material that is in front of you is on top an assignment -- it's the long paper there, Mr. Edgett.

A. The very first one?

Q. Yes, sir. It says, "Assignment of operating rights." This is from Mobile to Armstrong?

A. Yes, sir.

Q. Are you familiar with that at all?

A. No, sir, I'm not.

Q. All right. Are you familiar with what has been marked as Exhibit 10? It's two documents back. This is

the assignment from Armstrong to Subsurface Disposal.

A. Am I familiar with this document? No, sir.

Q. Were you aware at the time that Louray acquired the property -- or the disposal well that there were conditions in this earlier assignment that limited operations on that property?

A. No, sir, I was not aware.

Q. Were you aware that you have only the wellbore and no mineral rights?

A. No, sir, I was not aware.

Q. Were you aware of the depth limitations as to where you could inject?

A. I was aware that I was able to inject into the -- it was around 9,600, 9,700 foot.

Q. And deeper?

A. And deeper, yes, sir.

Q. Was it your understanding that you owned any mineral rights under the tract?

A. No, sir, that was not my understanding.

Q. You didn't think you did?

A. I didn't know. I was unaware.

Q. Okay. If we go to the next document, it's an assignment and a bill of sale from Louray to Dena Strickland.

MR. BROOKS: What exhibit is that?

MR. CARR: It's Exhibit 11.

MR. BROOKS: Okay. And the last exhibit you were talking about was which exhibit number?

MR. CARR: The last exhibit I was talking about was Exhibit 10, the assignment from Armstrong.

MR. BROOKS: So you're now talking about Exhibit 11?

MR. CARR: Yes.

MR. BROOKS: Okay. Continue.

Q. This is titled an Assignment and Bill of Sale, and it's to Dena Strickland. She's your daughter, is she not?

A. Yes, sir.

Q. And can you tell me what the purpose of this assignment was in 2005?

A. Well, at that time I had a partner in the well, Ray Hardin. And what we were doing is, assigning -- we were trying to get grants for other businesses, and this business, too.

And, you know, women are a minority, and we were assigning the wells and whatever we needed to, and we also assigned a chemical company over to them to try to get access to grants.

Q. Your daughter Dena, when you transferred to her, the property still stayed in Louray, did it not? I

mean, you weren't conveying interests out to third parties that would affect a transfer --

A. Louray was still operating the well.

Q. When we have gone back through the records trying to see how the property was acquired by Louray from Subsurface Water disposal, we could find no document. Do you know how you actually acquired it?

A. Well, there's an assignment and bill of sale missing from this.

Q. From this?

A. From where Lowell Deckert assigned this well over to us.

Q. And they did assign that to you?

A. Yes, sir, they did.

Q. In discovery, we asked for all documents that would show the chain of title, and we didn't get that and we haven't been able to find anything in the records of Lea County. Could you provide us with a copy of that?

A. Not at this time I could not.

Q. No, but after the hearing, could we get that?

A. I'm sure I could. You know, Mr. Deckert is dead, he died of leukemia.

Q. Right.

A. And that's one of the reasons he was getting rid of the salt water disposal is because he was trying to get

all of his effects in order. And he sold it to me and Ray Hardin. And Daniel Alexander drew up the papers, the assignment and bill of sale. He's the owner of M&A Enterprises. He drew up the assignment and bill of sale and he was present when Mr. Deckert signed it.

MR. CARR: Will you just look for that document, Mr. Bruce? Do you think you could find that for us?

MR. BRUCE: I'll ask. I mean, I gave you what I had.

MR. CARR: Okay.

Q. When we go into the exhibits again, we go to what's marked Exhibit 12. Do you have that there, Mr. Edgett? It's another assignment of sale.

A. Okay.

Q. Is this the assignment of the wellbore to Agua Sucia?

A. Yes, sir, it is.

Q. Are you aware of any other bill of sale, or assignment, or anything of that wellbore to Agua Sucia?

A. Of the wellbore to Agua Sucia, no, sir.

Q. If I look at both the assignment to Dena Strickland and this one out from her, both of them contain an exhibit that states that what is being conveyed is an oil and gas lease.

And I'm not trying to ask you for a legal

conclusion, I just want to be sure that you believe this is the document that conveys the wellbore to Agua Sucia.

A. As far as I know, yes, sir.

Q. Okay. When you were operating this well as a disposal well, the Government E --

A. Yes, sir.

Q. Were you familiar with the OCD order granting authority to use it for injection?

A. Was I familiar with it?

Q. Yes.

A. The Permit 559?

Q. Yes.

A. Yes, sir.

Q. And you understand that that permit required you to do certain things to ensure that the integrity of the wellbore was sound?

A. The mechanical integrity, yes, sir.

Q. Did you load the tubing casing annulus with fluid and monitor that as required?

A. Yes, sir, I did.

Q. And this order provides that you notify the Hobbs office if there is any failure of the tubing, casing, or packer; did you do that?

A. Yes, sir. Every time there was a failure, I would notify them.

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Q. And if there was a failure you would have known about it, correct?

A. Yes.

Q. And you would have been required to take care of it, correct?

A. Yes, sir.

Q. My question really is, do you have an opinion as to the integrity of this wellbore during the time you that you operated it. We know there was a problem in early 2008, but was it your belief that the integrity of the wellbore was sound?

A. Yes, sir.

Q. Now, when the mechanical integrity tests were run on the well in 2001 to 2005, were you present?

A. 2001 to -- I'm sure I was. I don't recall exactly, but I'm sure I was.

Q. Would you have any information today on the depth of the packer when any of those tests were conducted?

A. It was a hundred foot above the top perf, which, I believe, was 9,600 foot. I think that's what's required by the OCD.

Q. Okay. In 2008, there were problems with the well?

A. Yes, sir.

Q. How did you find out there were concerns being expressed by Armstrong?

A. Okay, the well was being checked by the OCD probably -- three or four times a month they'd come and check the pressure on the casing, open the casing valve, close it back up. We'd already done a mechanical integrity test when they had come by.

Q. When was that test?

A. I don't know exactly the date when it was done, but every time, you know, it's due for a pressure test, they sent me a form and we'd go out and do that.

Q. Was that like fairly close in time to 2007, 2008?

A. It wasn't due for another pressure test yet.

Q. Okay.

A. But I kept a gauge in the well, and most of the time I kept the valves open to the gate so if there's any problem I could see it.

Q. And when did you discover that Armstrong had concerns?

A. I didn't know Armstrong had concerns.

Q. When did you find out that you were going to -- you needed to test the well, or do something to it?

A. It was before I got the rig on the well. I went out one day and I was checking everything out, and I found

on the pressure gauge there was a hundred pounds of pressure on the pressure gauge.

So I closed the valve off, opened the -- you know, took the pressure gauge out, opened the valve back up, and there was a trickle of water coming out. Stuck the gauge back in, opened it up, and over a period of maybe an hour, it built back up to a hundred pounds. So I knew I had some kind of problem going on.

Q. And when about was that?

A. That was in January of 2008.

Q. And in January of 2008, you went out to the well and pulled the tubing, did you not?

A. I had a rig on the well. I think it rigged up on a Friday. And when I found the leak, you know, found that I had a problem, I called for a pulling unit. And they got one out, and they come out and rigged up on Friday.

In the process, I was bleeding the well back to the tanks and having the water hauled over to Basin Alliance so they could do the disposal, trying to get it down enough to where they could -- the rig could work on it.

Q. When did you actually pull the tubing out of the well, do you know?

A. I don't know the exact date on that, I don't

have --

Q. That's all right, but --

A. But I do know the day of the week. The rig rigged up on a Friday. I was out there Saturday and Sunday bleeding the well off, and the pulling unit, I think, pulled the well on Monday morning.

Q. Okay. And what happened to that tubing, do you know?

A. What happened to the tubing?

Q. Yeah, was it inspected -- What happened physically with that tubing that you pulled out of the well?

A. Well, we set the packer and started the hole on the packer. We had some water coming back on us, but not too much. I had dug a reserve pit there for any overflows, and it was lined and fenced.

And when we got up to -- when the packer got up to around somewhere below 5,000 foot, it started dragging. And we just kept easing up onto it. And then when we got on up above 5,000 foot, then we had a big water flow come and started -- I had to call for a vacuum truck to start come hauling water out of the pit.

Q. While you were doing this, did you advise the OCD that you were working on the well?

A. On that Friday when I got the rig on there and I

started bleeding it back, I went out there on a Saturday morning and I was watching the well, making sure the tanks were okay and called the trucks to come get the water. I saw Jerry Guy over at the well -- I guess the well in question.

Q. Yeah.

A. He was over there doing something to it. So I went and talked to him, see what he was doing. He was putting some kind of a computer pressure deal on the casing.

And I talked to him, see what was going on. And he said they were going to monitor the pressure on the casing, they was getting some flow back. I talked to him for a minute and I was fixing to leave, and then right as I was walking around my pickup, Mr. Gary Wink drove up. He pulled up and started talking to Jerry Guy.

And I went over there to talk to him and -- and there was a few words said. I don't know what was said. But anyway, after I talked to Jerry and Gary for a minute and -- I told Gary I was going to be pulling the well. At that time he was employed by the OCD. And after that I went back to the well and started watching it to flow back.

Q. Was the tubing removed from the site at that time when it was pulled, it didn't stay on site?

A. No. If you had pictures of the location, the location is very small. There's lots of tanks on the location, the pumps, the suction tanks, and everything's right by the well.

We pulled the tubing. The tubing that we thought was good that we could run back in the hole, we left in the dirt. The tubing that was scaled up or didn't look good, we laid down.

The tubing that we laid down, I was going to get a new work string in there. The tubing that we laid down, I had to have hauled off because that's the only area where we could have the tubing racks for the new tubing to come in. And I had already ordered it to get it in there so I could run a work string. So I had the tubing hauled off, the bad tubing.

Q. On about February 5th, you -- in early February you filed a sundry notice seeking or advising the OCD you were seeking authorization to put cement in the well, do a cement squeeze. Do you recall that?

A. I recall -- I don't know the exact date, and I know that I did turn in a C-103 to -- I got a friend, Al Perry, he's the one that did the last job on the well.

He worked for Southwest Royalty for years and he was a production foreman for them. He's done hundreds of these jobs.

And he suggested to me since there was so much water flow coming back on me, to try -- to go in and set a cement retainer and do what's call a Bradenhead squeeze to try to squeeze it from the other side.

Because there was so much water flow coming -- you know, we didn't -- he didn't think that we could get enough cement back behind the pipe to, you know fix -- repair the holes. So I took his advice and set up a Bradenhead squeeze on the well.

Q. Do you know what kind of reports were filed with the OCD for doing that?

A. I did take a C-103 in to the Hobbs district office and I did give it to the secretary. And I said that -- Chris Williams was there at the time. I said, "I need for you to give this to Chris Williams because I've called some cementers and we're going to do a cement job on the Bradenhead."

And I didn't know exactly when they were going to be there because they had other jobs to do and they were going to call me when they were heading in that direction.

Q. Let me ask you some questions about the kind of operations going on out there at this location.

A. Okay.

Q. Are there oil sales being made from the

property?

A. Slop oil sales, yes, sir.

Q. And when you say slop oil, is that the same as skim oil? I just don't know the term.

A. It's skim oil and slop oil. The difference between -- I ran a chemical company for five years. I owned one, a chemical company. And I do know how to treat oil, I know how to make it good.

The difference between the disposal I had and everybody else's disposal, you can go out to them right now and there's signs out there that say, "We do not take tank bottoms. We do not take slop." I have no such sign. I allow that into mine. If it's going semi screens, I will take it. And I know how to get that oil good and I know how to sell it

Q. And correct me if I'm wrong, I understand now the well is shut in?

A. Yes, sir.

Q. And what happens now is water is brought to the site?

A. Yes, sir.

Q. That you skim oil off that water?

A. Yes, sir.

Q. Then you deliver the water to someone; who, Chesapeake or --

A. Chesapeake Operating, yes, sir.

Q. Okay. And then you sell that -- I call it skim oil; is that a fair term?

A. Yes, sir, skim oil or slop oil.

Q. And how do you move that skim oil from a location, is it trucked away?

A. It's trucked, yes, sir.

Q. And do you keep records on the volumes that you recover?

A. There has to be a C-117 form filed with the OCD every time there is a load hauled out.

Q. And do you do that on each load?

A. The trucking company does that on each load.

Q. Prior to operations by Louray, Subsurface filed a C-104. You did not do that; is that correct?

A. I wasn't aware of that, no, sir.

Q. And then after Agua Sucia came along, they started filing C-103s?

A. Yeah. I had accountants in place to do all of that for me. I was not aware of that form. And I -- I just wasn't aware of it, that's just all there is to it.

Q. Do you have records that show how much oil has been sold from the property during the time you operated it?

A. I have the copies of the C-117s.

Q. That would show that?
A. Yes, sir.
Q. You report that to the OCD?
A. Well, it goes through the OCD, it has to be reported to the OCD before it can be hauled. They have to get a permit number.
Q. And then do you report any of this to the Taxation and Revenue Department, or only the OCD?
A. That's part of our -- Louray's gone bankrupt.
Q. Okay. And that's because of issues --
A. That's because my accountant that I had for six years wasn't reporting, and then when she -- In 2008, she come and threw a bunch of boxes in front of me and said, "I'm no longer your accountant."

So I figured she found out that she wasn't doing what she was supposed to be doing. And she conveniently lost all records on the computer, had no backups.

Q. Mr. Edgett, when you transport -- I guess it's when you inject water, do you also file a form C-120A with the OCD?
A. I'm not familiar with that form.
Q. Do you report the volumes of water you inject, do you know?
A. Yes, sir.
Q. And to whom do you report?

A. Debbie McKelvy. She does that report for me, C-115s.

Q. All right. And you report water on the C-115?

A. Yes, sir.

Q. You had problems with the well in 2008, and you were flowing the well back?

A. Yes, sir.

Q. What was coming out of the well, did it contain any oil?

A. Yes, sir, it did.

Q. And when you got that fluid out of the well, what did you do with that, did you mix that with other water on location, or did you segregate it?

A. No, it all went into the disposal system, backflood into the system just like --

Q. Just like every other water?

A. Yes, sir.

Q. Do you have any idea how much oil might have come back out of the well?

A. No, sir, I don't have any exact amount, no, I don't.

Q. You wouldn't have records that would show that?

A. No, sir, I don't.

Q. In October of last year, Agua Sucia reported that they were moving off that property about 723 barrels.

Does that seem like about an average number come off --

A. Sometime it's lower, sometimes it's higher. Sometimes, you know, you may get two loads, just depending on how much slop it brings in or how many people clean tank bottoms and bring it in. You know, it varies from month to month. You may not get much of anything one month, and next month you may have quite a bit.

Q. Back to the question about the flowback oil of -- when some oil came in, can you tell where that oil came from?

A. Oh, it was just coming from the well.

Q. You don't know what formation or --

A. No, sir, I don't.

Q. You have an arrangement with the BLM to use this surface?

A. I have the right-of-way.

Q. And that's all? Do you have any kind of a business lease or any other arrangement other than a salt water disposal?

A. There's a lease that -- yes, I have to pay so much of a percentage -- I don't have the paperwork in front of me, but there's a percentage that -- you know, so many cents a barrel of water that's interjected into the ground.

Q. And that's paid to the federal government?

A. That's paid to the federal government, the BLM.

Q. That's all I have. Thank you.

HEARING EXAMINER: Mr. Bruce?

CROSS-EXAMINATION

BY MR. BRUCE:

Q. I just wanted to clear up a couple of things that -- questions Mr. Carr asked you, Mr. Edgett.

A. Okay.

Q. You said that water is coming into the facility every day, correct?

A. Every day, yes, sir.

Q. There has been no water injected into the Government E Well?

A. There has been no water injected into it since January 2008.

Q. And you skim out the oil, and then you ship water over to a Chesapeake water --

A. Yes, sir. They run a line over to the disposal. They run the line and pay for all the hookups for -- you know, for it to be transferred over to their water flood.

Q. When the Government E was injecting water, what types of daily volumes of water did you inject?

A. I would get anywhere from 1,600 to 2,500 a day, barrels.

Q. And it was within that injection pressure limit,

.2 PSI per foot?

A. Yes, sir. When I first started, I had Triflex pumps on the hole. They're like a box of rocks, you know, you got to work them all the time. I finally put what's call a horizontal pump, which is a downhole read-a-pump just on the surface. It's centrifugal, smooth, and I had it designed where the pressure wouldn't exceed 1,900 pounds, and I think the maximum pressure I could put on the Bone Spring zone was 1,950.

Q. And Mr. Carr asked you about sales from the facility. You said the trucking company files reports. What company is that?

A. Gandy hauled all of the oil from -- when it was Louray, Gandy hauled most of it, and then Black Hawk hauls now for Agua Sucia.

Q. And under Agua Sucia, there's no oil produced from backflow from the well?

A. No, sir. Actually, the well doesn't even have a line hooked up to it right now.

Q. Okay, so it's unhooked?

A. Yes, sir, and the casing valve is open to the air.

Q. And with respect to the water shipped to Chesapeake, that's metered every day?

A. I have a meter on there. It's metered every

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day. We read the meter every morning and we put it to that pump over there to the oil state facility. And it runs from -- anywhere from 1,600 barrels a day to 2,000 barrels a day.

Q. That's all I have. Thank you.

MR. CARR: Mr. Examiner, if I might, I forgot to move the admission of Exhibits 13, 14, and 15. That's the operating agreement, the corporate authorization and resolution.

MR. BRUCE: I have no objection.

HEARING EXAMINER: Exhibits 13, 14 and 15 are admitted. Mr. Brooks, any questions for Mr. Edgett?

MR. BROOKS: I think I know the answer but, you are a pumper for Kevin Butler on a case that we had up here once?

THE WITNESS: Yes, sir.

HEARING EXAMINER: I thought so. I remember you testifying here once before. That's all I have.

HEARING EXAMINER: Mr. Edgett, when you were Louray -- I guess it's one and the same, right, Louray?

THE WITNESS: Yes, sir.

HEARING EXAMINER: When Louray bought this well, you bought it from Subsurface Water --

THE WITNESS: Yes, sir, from Lowell Deckert.

HEARING EXAMINER: Do you know what time frame

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that was?

THE WITNESS: If I recall right, that was in November or December of 2001.

HEARING EXAMINER: Okay. Mr. Lee's chart, that was when that well was shut in pending sale?

THE WITNESS: It was shut in because he was -- like I say, he had leukemia for ten years and he wasn't doing very well and he wanted to get rid of -- you know, sell and...

HEARING EXAMINER: Was that your first disposal well?

THE WITNESS: That was my first anything.

HEARING EXAMINER: First anything?

THE WITNESS: Yes, sir.

HEARING EXAMINER: So how does a guy go from a first anything to buying a disposal well like that, did you know the previous owner or --

THE WITNESS: I knew Lowell Deckert. But I had a chemical company. And we had a very good relationship. I had a very good relationship with him on doing all of his chemical work and considered myself his friend.

HEARING EXAMINER: So you bought the well in about 2001, and then here just fairly recently, a year ago --

THE WITNESS: That I sold, yes, sir.

HEARING EXAMINER: You sold it to Agua Sucia?

THE WITNESS: Yes, sir. The reason I sold it, because I spent every penny I had trying to get the well back into operation and I was completely broke.

So that's when Denis Schoenhofer called me. He heard I was needing some money to put into the well to get it back into working order. And at that time, I thought I still had a permit and I didn't know the permit had run out.

HEARING EXAMINER: I wonder how he heard that. Because here's a guy that's never been in the oil business or never done any -- has any salt water disposal experience or --

THE WITNESS: Well, when he called me he was looking to diversify, you know. He was tried of -- He owns several Kentucky Fried Chickens, and that's what his business is since he was 24 years old.

HEARING EXAMINER: That's diversifying, all right.

THE WITNESS: And he had gotten into some dealings with some other people on some oil properties -- actually, on the drilling end of it, and he wanted to go into the production part of it. And I had put out the word out through some people. You know, I had talked to some people that I was looking for some people to buy into

it so I could get the well back into operation.

I guess he heard from one of them people, because I didn't even know who he was until he called me up out of the blue one day.

HEARING EXAMINER: All right.

MR. CARR: Just one kind of a follow up?

HEARING EXAMINER: Yes, sir.

REDIRECT EXAMINATION

BY MR. CARR:

Q. Mr. Edgett, you were friends with the prior owner of Surface Water Disposal?

A. Lowell Deckert, yes, sir.

Q. Had you worked on this well prior to the time you actually acquired it?

A. The only thing I'd done on the well, it -- It was down when he had hit, and I had talked to him about it before. He had no tubing in the hole. He had run a casing and inspection log on the well and the casing inspection log turned out real good.

Q. About what time was that, was that just before you --

A. That was like a couple months before I bought the well.

Q. Thank you.

MR. BROOKS: Was that in '01, the period there

was no injection?

THE WITNESS: That was in '01, yes, sir. Like I said, he did a casing -- he gave me the casing inspection log on it and showed me the casing was in good shape.

MR. CARR: That's all I had.

HEARING EXAMINER: All right, then, let's go ahead and break for lunch.

(Note: A break was taken for lunch.)

HEARING EXAMINER: Let's go back on the record in Docket 10-10. And we're well into Case 14411, and I believe Mr. Carr --

MR. CARR: Yes, sir. At this time we would call Robert G. Armstrong to the stand.

ROBERT G. ARMSTRONG,

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

DIRECT EXAMINATION

BY MR. CARR:

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

A. Robert G. Armstrong.

Q. Mr. Armstrong, where do you reside?

A. Roswell, New Mexico.

Q. And by whom are you employed?

A. Armstrong Energy Corporation.

Q. And what is your position with Armstrong Energy Corporation?

A. President and CEO.

Q. Have you previously testified before the New Mexico Oil Conservation Division?

A. Some years ago, yes.

Q. Have you ever testified before Examiners Warnell and Brooks?

A. No, I have not.

Q. Could you briefly review your educational background for them?

A. I have a BA in history from Washington University, and a law degree from the University of Texas School of Law.

Q. And how long did you practice law?

A. I practiced approximately five years.

Q. And then did you go into the oil business?

A. Yes, I started my oil company in 1977.

Q. And you have been developing oil and gas properties in New Mexico since that time?

A. Yes, I have.

Q. Are you familiar with the application filed in this case on behalf of Agua Sucia?

A. Yes, I am.

Q. Could you explain to the Examiners what interest

Armstrong has in this area?

A. We own some Queen producing wells. And we also have some deeper rights in other parts of this same lease. But we do have some Queen producing wells.

Q. And it's on the same lease as the Government E No. 1 Injection Well?

A. They are.

Q. What does Armstrong seek with this application?

A. We seek to have this application denied.

Q. When did you become aware of this problem?

A. We became aware of a problem out there in approximately 2003 when we acquired the Queen wells and started looking into the cause of our reduction in production from those wells.

Q. And what have you done since that time to --

A. I brought it to the attention of our engineer, Bruce Stubbs, and he started looking into it and we found some issues with regard to the offset disposal well, the Government E No. 1.

MR. BROOKS: Excuse me a minute. Mr. Carr, are you offering Mr. Armstrong as an expert in anything or is he just a fact witness?

MR. CARR: I'll offer Mr. Armstrong as an expert practical oil man with a legal background.

HEARING EXAMINER: From the University of Texas?

MR. CARR: From the University of Texas.

MR. BRUCE: I have no objection.

HEARING EXAMINER: Okay, Mr. Armstrong is so recognized.

Q. All right. Mr. Armstrong, what did you do to try to chase this problem down, you talked to Mr. Stubbs?

A. I talked to Mr. Stubbs and he did a good bit of research with regard to what was happening. We saw an increase in water in our Queen wells and a reduction in our oil production.

Through testing and other things that Mr. Stubbs did, we determined that the water was not coming from an offsetting water flood, and the issue resolved, we found that it was probably coming from the E 1.

Q. Did you contact the Oil Conservation Division?

A. Yes.

Q. And when did that happen?

A. It would have been either late 2007 or early 2008.

Q. For the last five or more years, you have been experiencing increased water in the Superior Federal wells in the Queen formation?

A. That's correct.

Q. Can you estimate how much production you have been losing because of the increased water in these wells?

A. When we first became aware of it, we were probably losing ten to 13 barrels of oil a day, and it dropped to a point where it was about 20 barrels of lost production per day.

Q. I'd like to ask you some questions about the ownership of the wellbore, and I'd like you to refer to what has been marked for identification as Armstrong Exhibit 8. Is that before you?

A. Yes.

Q. Are you familiar with this?

A. Yes, I am.

Q. Would you identify it for the Examiners?

A. It's an assignment of operating rights and bill of sale from Mobile Producing Texas and New Mexico to Armstrong Energy Corporation whereby we acquired interests in a lease that covered Section 25 that's been the subject of this discussion.

In portions of it, we had from the surface to the base of the Morrow formation. And then other parts of it, it was limited in depth below 5,250 feet.

Q. Would you refer to Exhibit 9 and identify that?

A. Exhibit 9 is an assignment of oil and gas leases and bill of a sale. And is it from St. Clair Energy Corporation assigning to Armstrong Energy Corporation the wells, the Queen wells that are the subject of our

discussions today.

Q. And did you with this assignment acquire those interests that were not included in the original assignment from Mobile --

A. Yes, I did.

Q. Do you still own the Government E Well on this property?

A. The Government E Well, I still own the mineral rights in that well.

Q. But do you own the wellbore itself?

A. We conveyed the wellbore.

Q. Would you identify what has been marked as Exhibit 10?

A. That is an assignment of the Government E Well located in the southeast quarter of the southwest quarter of Section 25, whereby we assigned that to Subsurface Water Disposal Company for use as a water disposal well.

Q. Were there limitations imposed on the use of that well?

A. Yes, it was limited to the wellbore only. It did not convey any mineral rights with regard to it.

Q. Was there also a depth limitation?

A. Yes, it was from -- the depths from 5,250 feet to the base of the Morrow formation.

Q. Have you attempted to determine the current

owner of this wellbore?

A. Yes, I have.

Q. And what have you done?

A. We've had a search done of the Lea County records in Lovington, New Mexico.

Q. And did you also seek by production certain information by way of subpoena?

A. Yes, we did.

Q. And what have you discovered?

A. We discovered that there was no assignment of record from Subsurface Water Disposal to Louray Oil and Gas.

Q. And there's none in the records?

A. There's nothing of record.

Q. And nothing was produced during discovery?

A. No, there was not.

Q. And that doesn't mean it doesn't exist, it just means it wasn't recorded and was not produced?

A. That's correct.

Q. All right. What is Armstrong Exhibit No. 11?

A. It's an assignment and bill of sale from Louray Oil Company to Dena Strickland.

Q. And what is the date of that assignment?

A. The date is not stated, but it was notarized June 20, 2005.

Q. Okay. Hold this for a minute and identify what has been marked as Armstrong Exhibit No. 12 and identify this.

A. Exhibit 12 is an assignment and bill of sale from Dena Strickland to Denis Schoenhofer.

Q. Would you look at Exhibit A to each of these assignments and identify what that exhibit shows?

A. They both convey the leasehold rights, title and interest to the lease as to Section 25, Township 19 South, Range 34 East.

Q. And do you own the leasehold rights to those tracts of land?

A. Yes, we do.

Q. Is there any reference to any transfer of the wellbore itself to the southern entities?

A. These two assignments make no reference to that.

Q. If you have problems with this well, are you able to determine from these records who is actually the owner of the well at this time?

A. My conclusion would have to be that it was Subsurface Water Disposal Company.

Q. Thank you. Do you have anything to add to your testimony?

A. No, I do not.

MR. CARR: That concludes my direct examination

of Mr. Armstrong.

MR. BRUCE: Just a few questions.

CROSS-EXAMINATION

BY MR. BRUCE:

Q. Just a few questions. Looking at Exhibit 12, Mr. Armstrong, assuming the intermediate assignment from Subsurface to Louray, then under this assignment, Denis Schoenhofer would own the wellbore of the Government E Well No. 1, correct?

A. There's no reference, it's a lease assignment which they had no title to.

Q. Well, it wouldn't surprise you if I, on behalf of Agua Sucia, stipulate that Denis Schoenhofer or Agua Sucia does not own the lease itself to Section 25?

A. That's fine, yes.

Q. I mean, the only thing you assigned was the wellbore of the Government E No. 1, correct?

A. Wellbore with certain stipulations.

Q. And when I say "you," I mean Armstrong Energy Corporation.

A. Yes. The wellbore with certain stipulations.

Q. Yeah. And one of those stipulations, looking at Exhibit 10, is that the assignee has the right to the wellbore for purposes of disposing water as to certain depths, correct?

A. That's correct.

Q. And that would include the depths that are covered by this application, Agua Sucia's application?

A. That's correct.

Q. And on the bottom of Page 1, the assignee also acquired the rights to any skim oil which may be contained as a byproduct of transported disposal water; you do not dispute that?

A. No, we do not. It's a byproduct of transported disposal water.

Q. Just assuming that Denis Schoenhofer did acquired the wellbore only of the Government E Well, there is nothing that prevents or restricts Agua Sucia from operating that wellbore on his behalf, is there?

A. If there's no ownership, then I would have a concern with him operating that wellbore, yes.

Q. But many times in this state and other states, operators don't own an interest in the lease itself and operate on behalf of working interest owners; isn't that correct?

A. In oil and gas, I'm aware of contract operators, yes.

Q. One final question. There was a time period where Armstrong was sending its produced water to the Government E 1 Well for disposal, was there not?

A. That's correct.

Q. Do you recall what time period?

A. I'm pretty sure it was early -- after we acquired those Queen wells in 2003. And I think we did that for a couple of years and then we discontinued that.

Q. Okay.

MR. BRUCE: That's all I have, Mr. Examiner.

HEARING EXAMINER: Mr. Armstrong, I'm trying to put together a time line here. Armstrong sold this well to Subsurface back in '94?

THE WITNESS: Yes, sir.

HEARING EXAMINER: And why did you sell the well to them?

THE WITNESS: It was a producing oil well that was no longer economical to produce from and we learned that Lowell was interested in acquiring it for a water disposal well.

HEARING EXAMINER: Okay, so you knew when you were selling it in 1994 to Subsurface Water Disposal that they were going to turn it into a water disposal well, and indeed they did?

THE WITNESS: And that was the only use for which we assigned it was as a water disposal well.

HEARING EXAMINER: And so that well has been used as a water disposal well with the exception of a year

or two when it wasn't used for anything for about 15 years?

THE WITNESS: That would be correct, yes.

HEARING EXAMINER: And when did you first object to that well being used as a disposal well? You said you met with the OCD over it.

THE WITNESS: In about late 2007, 2008.

HEARING EXAMINER: Early 2008, yes, sir. Sorry I had to have you repeat that. I had it written down here, I just didn't see it. And when you say you've contacted the OCD, could you tell me what was involved with that?

THE WITNESS: Actually, our chief of operations, Bruce Stubbs, made the contact and pointed out to them that we had some concerns with regard to the water that we were seeing in our Queen wells.

HEARING EXAMINER: And at that time, you and Mr. Stubbs were pretty convinced that the problem was coming from this well?

THE WITNESS: With additional testing that was done as a result of it, we confirmed that. But we were very suspicions at the time and had pretty well concluded that at the time we notified the OCD.

HEARING EXAMINER: So just based on your suspicion, when you went to OCD, you hadn't really done

any testing?

THE WITNESS: We had done a lot of examination of records. And Mr. Stubs could go into that. And we concluded that the only place that this water was coming from was from the E 1 based upon the information that Mr. Stubbs compiled.

HEARING EXAMINER: Okay. Thank you.

MR. BROOKS: You don't have to answer this if you don't want to, but just out of curiosity, what year did you graduated from the University of Texas?

THE WITNESS: 1972.

MR. BROOKS: And I graduated in 1973.

THE WITNESS: Oh, is that right?

MR. BROOKS: I don't recall having met you when I was there, but it's a large law school.

THE WITNESS: It is.

MR. BROOKS: But we always identify classes by the editor in chief of the Law Review.

THE WITNESS: And I was not involved at that level, so...

MR. BROOKS: So. What lands does this lease cover?

THE WITNESS: It covers all of Section 25.

MR. BROOKS: Only?

THE WITNESS: That's my recollection, yes, that

it's -- at least what was conveyed to us was all of Section 25.

MR. BROOKS: Now, when this well was on injection, was it disposing of water that was produced from this lease?

THE WITNESS: You're talking about the E 1?

MR. BROOKS: Yeah.

THE WITNESS: I think they were trucking water in and disposing. We, as I indicated earlier, were sending some water there to be disposed. And I'm not sure where else they were getting water from, but it was also being trucked in and disposed.

MR. BROOKS: So it was injecting both water that was produced on the lease and water that was brought in from off the lease?

THE WITNESS: That's correct.

MR. BROOKS: Okay. You're producing a lot of water, so obviously, you have other sources or other avenues for disposition of your water --

THE WITNESS: We have a water flood that's just to the southwest of this area, south and a little bit west, Delaware injection project we have, and we've been sending water from our wells to that disposal, to that injection.

MR. BROOKS: Now, you didn't acquire these Queen

wells until '03, right?

THE WITNESS: That's correct.

MR. BROOKS: So your ownership prior to that, was it limited to greater depths?

THE WITNESS: In some parts of the lease, we own from surface to the base of the Morrow. In other parts of the lease where there was already existing Queen wells, we had only from 5,250 feet to the base of the Morrow, and we were missing surface to that 5,250.

MR. BROOKS: And other than the Queen wells that Armstrong currently operates, are there any other wells on this -- and the Government E No. 1, are there any other wells on this lease?

THE WITNESS: Yes, there are, but not that we operate.

MR. BROOKS: And that's all in the C-108. So I can get that information. Okay. Thank you, that's all I have.

MR. CARR: At this time we call Bruce Stubbs.

BRUCE STUBBS,

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

DIRECT EXAMINATION

BY MR. CARR:

Q. Would you state your name for the record,

please?

A. Bruce A. Stubbs.

Q. And where do you reside, Mr. Stubbs?

A. Roswell, New Mexico.

Q. And by whom are you employed?

A. Armstrong Energy Corporation.

Q. What is your position with Armstrong Energy Corporation?

A. Vice President of Operations and Engineering.

Q. Have you previously testified before the New Mexico Oil Conservation Division?

A. Yes, I have.

Q. And you've testified before Examiners Warnell and Brooks?

A. Yes, I have.

Q. Were your credentials as an expert in petroleum engineering accepted and made a matter of record at the time of that testimony?

A. Yes, they were.

Q. Are you familiar with the application filed in this case on behalf of Agua Sucia for reinstatement of Division Administrative Order SWD-559?

A. Yes, I am.

Q. Are you familiar with the offsetting properties operated by Armstrong Energy Corporation, Guy Oil and Gas,

Inc., America Petroleum, and others?

A. Yes.

Q. What is Guy Oil and Gas, Inc.?

A. Jerry Guy owns Guy Oil and Gas. He operates in Section 25. He operates three San Andres wells.

Q. And that's the same section we're talking about where the Government E No. 1 Well is located?

A. That's correct.

Q. Have you made an engineering study of the area surrounding the proposed injection well?

A. Yes, I have.

Q. And are you prepared to show the results of that study with the Division?

A. Yes, I am.

MR. CARR: We tender Mr. Stubbs as an expert witness in petroleum engineering.

MR. BRUCE: No objection.

HEARING EXAMINER: Mr. Stubbs is so recognized.

Q. Mr. Stubbs, what does Armstrong seek in this case?

A. Probably three things. Were we seek to have this application denied. We'd like to have an accounting of the oil flow from the Government E No. 1. And we would like no further injection to prevent waste.

Q. Have you prepared exhibits for presentation here

today?

A. Yes, I have.

MR. CARR: May it please the Examiners, Mr. Stubb's initial presentation was a set of slides. They are marked as Exhibit 1, Pages 1 through 17. And as this case has lumbered along, we have come up with some additional things that we're going to integrate as we move through the slides.

Q. But at this time, Mr. Stubbs, would you move to Page 1 of Exhibit 1 and identify this and review it for the Examiners?

A. This is an area map showing all the wellbores in nine sections surrounding the Superior Federal lease. The Superior Federal lease that we're primarily talking about is the west half of Section 25. And there's a total of six Queen producers on the west half of 25, and also the Government E No. 1.

Guy Oil and Gas's wells are located in the northeast quarter of 25, those three green dots in the northeast corner of 25. The Government E No. 1 is located just a little bit southeast of the Superior Federal No. 6 well, and wells in 35 are the Mescalero Ridge Pro Queen unit wells. So that kind of gives you an overview of all the wells and what's going on in the area.

Q. The Mescalero well that was discussed this

morning by Mr. Lee, the injection well down in that unit, is that the well, the most northeasterly well in Section 35?

A. Yes. That's the well that's located in the northeast northeast of Section 35.

Q. And approximately how far is that from the Superior No. 6?

A. A little over half a mile.

Q. And the distance between the No. 6 and the Government E Well?

A. Oh, little over a -- there's more than one location, so a little over a quarter of a mile.

Q. 370 feet?

A. No, the Government E No. 1 is 370 feet from the Superior Federal 6.

Q. Okay, that's what I was trying to ask. Let's go to the next page. Could you identify and review that?

A. This is the structure map on top of the Queen and the area. The map is dated 1960. That's when most of these wells had been drilled, by 1960.

The Superior Federal west half of Section 25 lays on the eastern side of that structure. As it goes farther east, it drops off. It's structurally lower, and there's oil/water content over in the east side of Section 25.

Q. Are we above the water contact in the acreage shaded yellow?

A. Yes, we are. The oil water content is about minus 940; we're about minus 900 to minus 920.

Q. Could you review for the Examiners the background of what we believe to be the problem here today?

A. When Armstrong Energy bought these properties, we, of course, analyzed it and found that the fluid levels in the No. 5 and No. 6 wells were high. And of course, our first assumption was that we were getting some kind of response from the Mescalero Ridge Unit. And I believe over time there has been some response from the Mescalero Ridge Unit, but it's a minor type response.

So we started testing the wells. We changed out the pumping units, increased the pump capacity, measured the fluid levels, and through this whole process, we were never able to really get ahead of the water production.

And later in, I guess 2007 -- we'll go into a little more detail -- the fluid levels finally got to the surface on the No. 6, they came up almost to surface in the No. 5, and later that year we started having water flows out of the annulus on the No. 6.

And so we tested that and found that if we shut it in, it would build up to 500 pounds in just a -- like

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overnight. And we didn't allow it to build any higher than 500 pounds because we didn't want to take the chance of developing a leak or something in our casing or our well head.

So we flowed it to the tank barrier and flowed it down and shut it in again and watched it build up. But it just kept getting stronger and stronger and stronger, and it finally got to the point that it would flow fairly large quantities of water, like a hundred barrels a day, or 125 barrels a day out of the annulus.

And we knew we had a real problem. It wasn't just the Mescalero Ridge water flood, it was something bigger. So we did some more testing and found that there was direct communication with the Government E No. 1 Well.

Q. When you reached that conclusion, what did you do?

A. Went to the OCD in January of '08. We had a meeting, told them what our problem was, talked about what they could do to help try to figure it out. And they decided that the best thing was to review all the wells in the area and check the annulus and see if there was any flows on the annulus.

Q. Would you go to Pages 3 and 4 of Armstrong Exhibit 1 and review the history of the Government E Salt Water Disposal Well No. 1?

A. We've talked about this well a little bit already. Let me recap a couple of things that are real important. The well was drilled in 1971, it was completed as a Bone Spring well. When they ran a five and a half inch casing, they brought the cement back only to 7,700 feet. So there was essentially an open hole from 7,700 feet to the base of the intermediate casing, which was set at 4,089 feet. So there's roughly 3,600 feet of open hole.

That open hole covers the Delaware formation, the San Andres formation and the Queen formation. The Government E No. 1 produced a total of 181,000 barrels of oil, 517 million cubic feet of gas, 121,000 barrels of water. That's a total of about 400,000 barrels of voidage out of the reservoir. To date, there's been almost 3.2 million barrels injected into the Government E No. 1. That's eight times what was removed.

And that's important because this is a lot different than the water flood over in the Mescalero. The Mescalero unit, they inject water and then they produce water out of their producer. So they don't really build a lot of pressure in their reservoir.

This reservoir, the Bone Spring, if you replace what your voidage was, well then the only way to get more water in there is to compress things, compress the liquids

and compress the rock to make more room for the water. So the pressures have to go up as you put that much more water in the ground. So I think that's fairly important, is the amount of water that's been put in this well.

Q. In 1994, then the well was converted to disposal?

A. That's correct.

Q. Okay. And then what happened after that?

A. Basically, they walked along injecting. They had a couple of failures on that well. They had one in year 2000. They went in and replaced some bad joints of tubing and ran MIT tests. The casing tested okay at that point.

They had the original equipping of the well when they converted it to salt water disposal. They also tested the casing, and that was in July of '94, tested the casing at 820 pounds. And the casing was okay then, too. So the casing was in good shape during the time Subsurface had it.

In 2001, Subsurface shut the well down and sold it to Louray. That was effective October 1, 2001. And then Louray took the well and reported in January '02 that they had run a new packer and plastic coated tubing. They ran an MIT test. On the C-103 they sent to the state, there was no reported depth. So all we know at this point

is the MIT test was good from the packer, wherever it was set, back to the surface.

They had a leak in 2005 and replaced four bad collars, ran the packer on the tubing back in the hole, tested the annulus to 400 pounds, and another good MIT test from the packer back to surface.

We met with the OCD January 14, 2008, told them about our problem. And they agreed to do an MIT on all the surrounding wells, including the Government E 1.

Before the OCD could get out there, the tubing was pulled from the Government E 1. And I think we've already had quite a bit of testimony to that. But there's no records, no tubing tallies that's been submitted to us, nothing that really shows exactly what was in the well. So we don't know for sure where the packer was or what was being injected into.

The tubing was hauled off, cut up, and nobody -- the OCD or nobody got to witness that tubing, nobody got to tally it. So again, we really don't know where our thing was set in the well.

At that point, Louray tested the well with a packer and a bridge plug, found that there were holes from 4,167 to 5,332 that would allow -- and there were also holes in the tubing. So that would allow injection fluids to go out those holes into the Delaware, Queen, and San

Andres zones.

The next thing that was done to that well, in February, Louray submitted a C-103 to the Oil Conservation Division to fix the leaks in the casing, and that procedure was denied.

The next day they went out and did a Bradenhead cement job on the well and that cement job was not witnessed by the OCD. So we really don't know exactly what happened there either.

And then in January of '09, there was a notice of intent filed with the OCD to run a four inch liner and cement it in place. No cement volumes were reported on that C-103, and checking the OCD records a few weeks ago, there still hasn't been a subsequent report on that procedure. So in my mind, there's some real questions with this well.

Q. Mr. Stubbs, I'd like to ask you to look at the injection and production histories on the Superior Federal lease, and I'd like you to turn to Page 5 of Armstrong Exhibit No. 1. Would you identify this exhibit and review the information for the Examiners?

A. This is the summary of the production of oil, gas, and water, and injection from Government E 1. All these wells are located in the east half of Section 25.

You'll notice that the magenta line is the

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injection volumes on the Government E. And you'll also notice that starting in January of '01 through almost the end of January '02, there's no injection. That's when the well was shut in pending sale.

The well came back on injection the first part of January '02. Interesting things started happening after that. You'll notice that the Superior Federal lease also had a jump in water production in January. Well, not January, but February. And then there was a spike in injection into the Government E No. 1 in -- I believe that was March. We had a corresponding increase in water production.

But more interestingly is, we had a pretty good little jump in oil production, had a little kick in play. We went from about a thousand barrels a month to about 1,800 barrels a month there for about two months. From that period on, we just kept seeing increasing and increasing water volumes.

And you'll see there in January -- not January, about November, December of '04, an increase of water production from the Superior Federal lease. That's when we put the larger pumping units on it and tried to lower the fluid levels, and did that for about a year. And then there was a drop in water production when we quit doing some of that and gave back the rental pumping unit and put

the old pumping unit back on there.

But again, from that point forward, we kept having increasing water production until it got up to about 10,000 barrels a month.

Also, you'll notice that there is a drop in the oil production. Prior to 2001, the decline curve had flattened out. Most Queen wells you can expect a 6 or 8 percent decline. After January 2002, we saw a lot steeper decline, a 15 or 20 percent type decline. So things change from when Subsurface had it until Louray had it.

Couple other things you'll notice, the magenta line in January of '08 is when injection was stopped, injection went to zero. Correspondingly, the water production from the Superior Federal lease dropped. And in about November of '08, because we -- we kept pumping the No. 5 well and really weren't seeing any lowering of the fluid level or any increase in oil production.

We shut that well in for a while, shut it in for about probably eight months or so, and then put it back on the middle of '09, and it's been producing ever since.

And Mr. Lee related that jump in water production from the injection well and the Mescalero Ridge unit, but it's really not a kick from the injection well, it's a kick from putting the well back on production.

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Q. And so when we look at this exhibit, the production and injection information, the graph that you've been shown, it's very similar to Exhibit 4A that was presented by Mr. Lee; is that not correct?

A. That's right.

Q. And the blue line is actually a water line, is that correct, the top line that --

A. Yes, that's water production.

Q. They decline in '08 when the well was shut in. There is a noted spike in oil production, however, when the well was put back on production in January of '09; is that right?

A. Yeah, there was a jump in water production when we put the No. 5 well back on.

Q. And so that pump at the end of the oil line, the increase in oil production is, in your opinion, attributed to the time you put the No. 5 well back on?

A. Yeah, we had a big increase in water production and just a little increase in oil production.

Q. Based on this production data alone, does this suggest to you what might be the source of the water in the Superior Well No. 2?

A. Well, not necessarily by itself. Later on it did, but early on, you know, our first assumption was the Mescalero Ridge unit. But we eliminated that through some

other stuff we'll talk about in a minute. But later on it became obvious that that water was coming from the Government E 1.

Q. Are you ready to go to Page 6 of Exhibit 1?

A. Yes, sir.

Q. Okay, what does this show us?

A. Well, one of the final tests we ran out there, we put a quartz pressure gauge and a recording device on the annulus of the No. 6 well when it started flowing water to the surface.

And we did that to measure the pressure mainly, but also to see if we could figure out what was going on. And after we looked at the data, we could actually see when the pump kicked on on the Government E. There would be a pressure increase on the No. 6 well. And when the injection pump went off on the Government E, we got a reduction.

And what this graph shows -- and it's a little complicated, there was a lot of noise in the data. So to kind of smooth it out, what I did was took a Delta pressure from 2 points a half hour apart. So in the red line when it's below zero is when the pump was off, and when it's above zero is when the pump was on.

And you can see there at about 20 hours when the pump went off, a pretty nice little drop in pressure. And

about 26 hours when the pump came back on, there was a jump in pressure. Same thing at about 33 hours, when the pump went off, there's a drop in pressure.

And we ran -- this is not the only one of these we ran, we ran it on and off for almost two months. But there is a pretty definite correlation between what was going on at the Government E Well and the pressure response we were getting on the No. 6 Well.

Q. And how quickly do you get that response?

A. It's almost instantaneous.

Q. And that would be how quickly you have pressure communication between the injection well --

A. There was direct communication between those two wells.

Q. And the Federal No. 6?

A. Yes.

Q. Let's go to the next page and have you review the pressure response in Superior Federal No. 6.

A. Yes. This is some more testing using that same quartz pressure gauge and recorder. This is from February 5th. And that's the day they did the cement Bradenhead squeeze job on the Government E 1.

And it's kind of interesting. You can see prior to 1600 hours, they were flowing the well or doing something to it, because there's some pressure responses.

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But starting at about 1600 hours is when they pump the cement job. You can see a pretty nice increase in pressure as they pump their cement job, and whenever they quit the cement job, the pressure dropped off.

Also, it indicates the exact time that was done. That was about 4:00 in the afternoon. And I don't believe -- I think we've already heard testimony to the fact that the OCD wasn't called until like 5:30, and nobody from the OCD got out there until about 6:00 or so and that cement job was not witnessed by the OCD. So that's what that slide shows.

Q. Mr. Stubbs, you've looked in the records of the Oil Conservation Division; have there been any separate volumes reported for the work that is indicated during this time frame on this particular exhibit?

A. No.

Q. Has a subsequent report been filed for this work?

A. No.

Q. Let's take a look at the fluid levels and look at Page 8. But before we do that, let's jump out of order and take a look at Armstrong Exhibit 2. Would you identify Exhibit 2 and review it, please?

A. Exhibit 2 is the C-103 that Louray submitted to the OCD prior to doing the cement job. And you can see

that it was stamped "Denied." On the second page, it just gives a very brief description of what was going to be done. No details. No details on the cement volumes or exactly how the procedure was going to be performed.

And Page 3 is the schematic that was submitted with the salt water disposal application. And we've already discussed that in some detail. My biggest concern is that it's not accurate, it doesn't reflect the remedial cement job nor the holes in the casing.

And Page 4 is a written description of what was done. I think we've already covered that in the testimony.

Q. Okay. Let's go now to the -- Looking at this information, the information you've been able to obtain on this wellbore, do you have any idea as of this moment what the status of that wellbore is and what has been done to it?

A. Not exactly. If it's been done like they say it's been done, I still have some concerns, because it's probably not cemented from the upper hole down to the top of cement at 7,700 feet. So there's still a large void behind the casing in that well.

Q. Let's take a look at the fluid levels, and I'd direct your attention to Page 8 of Exhibit 1. What does this show us?

A. This is probably where our initial -- well, not initial, it's part of our testing trying to figure out first what production enhancements we could do to the lease.

You'll see that the red dots are the No. 6 Well. In 2004, it had a high fluid level. Typically, when you have a high fluid level well, if you can get more fluid, you can make more oil. So that was why we equipped the No. 5 and the No. 6 well with larger pumping units and tried to pump them down.

You'll notice that the fluid levels did drop. Late 2004, early 2005, the fluid levels were back down to around 160 joints, which is about the seat nipple. So they were pumped down at that point.

You'll also notice that starting shortly after that in 2006, 2007 -- the little green star is the No. 5 well -- the fluid level started coming back up again. I don't have any good data for 2006 on the No. 6 Well because I think it was full of fluid, but I didn't put that on there. But in about April 2007, we had one fluid level on the No. 6, and it was 21 joints from surface.

So the fluid level on the 5 and the 6, we tried to pump them down. We got them pumped down and then they just came right back up again over a period of the next couple of years. So we ended up with the wellbores full

of fluid.

Q. What does this show us about what is going on with the reservoir?

A. It shows us that we have a major water influx from somewhere.

Q. Let's go to the next page, Page No. 9. And again, I'm going to break the order and I'm going to ask you to go to Exhibit 3, the water analyses. That's marked Armstrong Exhibit No. 3.

A. Like I said, one of our first ideas was that the water was coming from the Mescalero Ridge unit, because it was in the same formation and it was roughly close by.

So we started collecting water samples, and here is just kind of a representative sample of them. The waters from the Superior 5 and the Superior Federal No. 6 -- And let's just talk about the No. 6 first.

The chlorides were running anywhere from 130,000 to 169,000. And I think we had some previous testimony as to the waters that were put into the Government E Well that were 150,000 or 160,000, or 60,000, or something like that. So those chlorides are similar to the Government E waters. The Superior Federal No. 5, we had a sample of 115,000 chlorides.

Then we caught some samples off the Merit water flood. And what we found there is that over the life of

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that water flood, they've used a lot of fresh water as makeup water. So the chlorides in that water down there is a lot lower than the original formation fluid was. And in this particular sample, it was the 93,000 chlorides, which is about 60 percent of what you're getting out of the No. 6 well.

So it's definitely a different water, it's got different characteristics that they're using down in the water flood area.

MR. BROOKS: And this is a sample from where?

THE WITNESS: From the Mescalero Ridge water flood unit.

MR. BROOKS: 93,000?

THE WITNESS: Yes, 93,000, right.

A. So that was our first clue -- our first big clue that the water we were getting out of the 5 and the 6 was not the same water that was coming out of the Mescalero Ridge unit. Behind there, there's the backup material for those numbers. And the last two pages is a map of the Mescalero Ridge unit with the well numbers on there.

You'll notice that the well in the northeast northeast of Section 35 is numbered the No. 15 injection well, and that's true, it is. The last page is injection and production curves from the Mescalero Ridge unit.

And for the last ten years or so, they really

haven't added any makeup water, they're just basically cycling the water that they're producing. So they're producing the water out of the wells and they're just reinjecting it.

And that's a fairly typical water flood scenario, is you inject into your producers. And I think their injection pressures were somewhere around 1,300 pounds. That sounds relatively high unless you consider that the producing wells have essentially zero bottom hole pressure at the producing well.

So your average reservoir pressure is just a few hundred pounds, because that water moves from the injector to the producer. That pressure in the injector, as it expands out and the velocity decreases, that pressure drops relatively quick. So probably the average reservoir pressure over in this field is, let's say, a few hundred pounds, 500 pounds or so.

So there is no indication that this kind of pressure is what we're seeing in the Superior Federal No. 6. Because when we shut it in, we have 500 pounds at the surface, and we really don't know how high it would build because we're afraid to leave it shut in..

So that's just another pretty strong indication that the Mescalero Ridge unit is not a contributing factor to the water problem.

Q. Let's look at the shutin casing pressures on Page 9. Are you ready to go to that?

A. Yes, sir.

Q. Would you please review that for the Examiners?

A. Well, when we got to the point that we're having water to the surface on the Superior Federal No. 6, we started recording pressures. And you'll notice that in, oh, like about between April and May 2007, it built up to 375 ponds, and in August 2007, it broke up to 425 pounds.

Then in January of '08, this is when we really started having problems because we couldn't -- Previously we could leave it shut in and it wouldn't go past that point. But in January of '08, that's when it would build to 500 pounds and we opened it back up to the tank battery and let it flow down. So we did that in January, so it built to 500 pounds.

And if you'll recall, the injection in the Government E No. 1 Well ceased at the end of January. A couple curious things happened. In February, we did a three day test on that and it took three days to build up to 500 pounds. And we did another test the first of March and it started at 250 pounds and it took it about a week and it only built up to 400 pounds.

So this is another direct indication that there's communication between the Government E Well. As

soon as that thing was shut down, the pressure started to the dissipate.

Q. And this shows that the communication is between the Bone Spring injection interval and the Queen, does it not?

A. Well, not necessarily. It just shows that there's communication between the Government E and the Queen zone in Superior 6 and 5.

Q. Let's go to Page 10 of this Exhibit 1. Would you identify and review that, please?

A. This is just a summary of the test data on these wells, and most of it's presented in the two grafts we just looked at. It gives -- like in July '04, we moved the 320 pumping unit on there and started pumping, lowered the fluid level. That was fairly clear.

One of the interesting things, if you turn to the next page, Page 11, on the No. 6 well, another theory we had, that we had some kind of water flow coming from like the Seven Rivers Reef or some other zone up the hole.

So on Page 12, on May 14, 2007, we moved the pulling unit on the hole, pulled all the equipment out of the hole, ran a bridge plug in there and tested the casing, and there was no leak from the top of the Queen back to surface. So it's pretty well isolated. The water was coming out of the Queen perforations.

And also, this well -- you know, we tested it, put reader pumping units on it and recorded the fluid levels and the pressures. And this is just a summary of those pressures, fluid levels.

Q. Are you ready to go to your Exhibit No. 4?

A. Yes, sir.

Q. Okay, would you do that, please? This is out of order again. This is a production plot summary of the Government E.

A. Looked at the Government E wells that Guy Oil and Gas has up in the northeast quarter of Section 25, this is a production plot from those three wells, it's summed together.

And you'll notice a couple of interesting things. Prior to 2001, the water was on a fairly steep decline, and the oil was on a little lesser decline but still a definite decline.

After 2001, when injection was started into the Government E Well when Louray took over, you'll notice that there is a little jump up in the water production, but also a flattening of the decline curve. Same thing happened on the oil curve, started getting a little bump in the oil production and flattening of the oil curve.

So the Government E wells up in the northeast quarter of that section was seeing an influence from the

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injection into the Government E No. 1 Well.

And Jerry Guy will talk about that a little bit later. But you'll also notice that about February or March of '08, right after the Government E Well was shut in, there was a fairly drastic drop in the water production.

So again, another indication of direct communication of not only with the Queen, but also the San Andres.

Q. And Mr. Guy is going to review Page 14 of Exhibit 1 later. Would you go to Page 15 and tell us what this is?

A. Okay, this is a summary of the Mescalero Ridge unit wells in the east half east half of 35, so those are the wells that are closest to the Government E No. 1 Well.

And you'll notice that the injection pretty well matches the production on the water side. You'll also notice that the first part of 2008, we started having a pretty drastic dropoff in the water production.

Then in 2009 -- the black line is the injection volume -- we actually have an increase of injection in that part of the field due to the drop off in water, I think, probably to boost that water production or water injection back up.

Also, it had a pretty visible drop in the oil

production on that part of the lease. So again, another correlation between injection into the Government E 1 and the wells in the area.

Q. Okay. Let's go to Armstrong Exhibit No. 5, which is the summary report from the OCD concerning the mechanical integrity of the wellbore.

A. On the first page you'll notice a little arrow up in the upper right side of that page. This is March 20, 2001. This is when there was evidently some leaks in the well and they gave Subsurface 30 days to repair the tubing.

So I think this was when the well was shut in because it had mechanical problems. And Lowell Deckert was sick and he wanted to sell the well. So at that point, the well had some problems.

Let's see here. That was -- Okay, on the second page, this was when the problem was corrected on January 12, 2002. That's after Louray had taken over operations, had run new tubing and new packer in the well.

The third page is a C-103 that was submitted to the State for that work. And you'll note that it just lists running a packer and new tubing, it doesn't give any depths, or type of packer, or any details.

Page 4, middle of the page, there was another leak discovered on February 11, 2005. And that leak was

not fixed until September 15, 2005. So there was a leak in the tubing into the five and a half casing annulus for approximately seven months.

And again, here is the sundry notice in 2005 submitted on September 15, and again, there's no details as to the tubing or the casing and the packer that were on or where they were set.

Q. Now, Mr. Stubbs, does the information in this exhibit show that when the casing was sound, there was still communication with the Queen and San Andres formations?

A. Yes. The MIT test run in January of '02 indicated a good MIT test and we had indications of direct communication at that point. We also had an MIT test in September of '05 and we had direct communication at that point also.

Q. Today if the wellbore is sound because of recent work on that wellbore, do you know of anything that would suggest that there still wouldn't be communication between that wellbore and the Queen and the San Andres?

A. Well, there's two possible scenarios. If the packer and the tubing were run to the top of the Bone Spring, injection occurred into the Bone Spring, then there is a direct either fault or fracture or failure of the cement or something that's allowed a direct

communication between the Bone Spring, the Delaware, San Andres, and the Queen.

The other scenario is, if there was some way there was already communication into the five and a half -- to leave a five and a half casing into the Queen, there's still direct communication.

Now, I don't think -- if it's going into the Bone Spring, I don't think there's much anything we can do to repair that well where it would be suitable for injection. So I don't think it's a good injection well.

Q. Let's go to the data on oil sales that's contained in Armstrong Exhibit 6.

A. When Subsurface had the well -- and I think we've already heard testimony to this fact, that they probably had one or two C-104s submitted for a month as they sold skim oil.

And myself and our field people have witnessed a lot of oil trucks out there. But you look in the OCD records and there's no C-104s or -- I haven't found any C-117s. So we really don't know how much or what kind of oil was actually moved from the lease.

And it has a couple of concerns for me. If it did backflow oil from the Government E No. 1, the well belongs to Armstrong. Also, if it is backflowing oil from the Government E No. 1, we'd like to know about it.

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Because if it's coming from the Delaware or some zone other than the Queen, we might want to drill a well out there and develop another zone in the area.

So it's important to us on two facets, not only the revenue from the oil, but also as an exploration tool to the oil.

And on the third page in the summary that was submitted to us on operations out there, in the middle of the page there, they state that they flowed back from this well --

Q. It's the third page of the exhibit, Page No. 2 at the bottom.

A. Yeah, it's page No. 2, it's the third sheet in the exhibit. In the middle of the page, they state that their procedure was to flow the well back to the facilities and skim any oil off of it. So apparently, there was plans to produce oil out of the well.

Also, through discovery on Page 4, we obtained a handwritten faxed memo that states that in March -- it was faxed on March 22, '09, that they had two loads of oil ready to sell.

So we'd like to know how much oil was produced out of the Government E No. 1, and we'd like to know what kind of oil it was.

Q. Now, let's go to your last exhibit, Armstrong

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Exhibit 7, the pressure information.

A. This is the injection pressure data obtained from the OCD website. Starting in 1994, Subsurface reported surface injection pressures of 1,700 pounds through essentially the whole life of the well.

In 2001 in December, Louray reported 1,400 pounds, and they reported 1,400 pounds of injection pressure until February of 2006, and then it jumped up to 1,500 pounds.

And this strikes me as a little concerning, because if Subsurface was injecting to 1,700 pounds, it seems to me, like we talked before, the more water you put in there, the higher your pressure should get.

I don't know why it would be lower unless there was a -- even a more direct communication with other zones that are being injected into.

Q. You would expect pressures over time to go the other direction?

A. You would expect over time, as you pressure the reservoir, that your surface pressures will increase.

Q. And the reduction in pressure suggests the water may have found someplace else to go?

A. A more easier path to go, yes.

Q. Let's go to your conclusions, Page 16 of Exhibit No. 1.

A. We've concluded that the water problem we're having in the Superior Federal 6 and Superior Federal 5 is a result of injection into the Government E No. 1.

Water production started increasing after Louray started injection in 2001, steadily increased in the No. 5 and No. 6 wells until they completely filled with water, and the No. 6 started flowing water out of the annulus.

Even by increasing pump capacity, couldn't keep up with the increasing inflow. Oil production decreased right after the Government E No. 1 was shut in in January of '08.

Mechanical integrity tests that were run when the well was initially put on by Louray in January of '02, and another one when they had the tubing leak in September of '05, indicated the casing was good from the packer, wherever the packer was set up.

If it was set above the Bone Spring, then there's direct communication to the Queen formation from the Bone Spring formation.

We also have concluded that the well did backflow some oil, and we'd like to know how much that is and what zone it came out of.

Q. In fact, if that is oil produced from that property, it belongs to Armstrong, does it not?

A. That's correct.

Q. Summarize your conclusions for the Examiners.

A. Our conclusions would be that we would like to see this application denied for injection. We'd like to have an accounting of the oil flowed back from the Government E No. 1, and no further injection in this wellbore.

Q. Okay. Were Armstrong Exhibits 1 through 7 prepared by you or compiled by you or under your supervision?

A. Yes, they were.

MR. CARR: At this time, we'd move the admission into evidence of Armstrong Energy Corporation Exhibits 1 through 7.

MR. BRUCE: No objection.

HEARING EXAMINER: Exhibits 1 through 7 are admitted.

MR. CARR: Mr. Examiner, I'm not sure I have moved the admission of the title documents with Mr. Armstrong. Those were Exhibits 8 through 12. If I did not, I'd like to move their admission now.

MR. BRUCE: No objection.

HEARING EXAMINER: Exhibits 8 through 12 are admitted.

MR. CARR: And that concludes my direct examination of Mr. Stubbs.

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HEARING EXAMINER: Mr. Bruce, on your cross, would you like to go now or would you like to take a short break?

MR. BRUCE: I'd like to take a short break.

HEARING EXAMINER: I think that's a good idea. Let's take ten minutes.

(Note: A break was taken.)

HEARING EXAMINER: Okay, let's go back on the record. Mr. Bruce?

CROSS-EXAMINATION

BY MR. BRUCE:

Q. Mr. Stubbs, what I've handed you is Agua Sucia Exhibit No. 5. You were talking about that you didn't know what happened on February 5, 2008 at the well site. Pursuant to the discovery request, this is a document that was turned over by Agua Sucia to Armstrong. Doesn't that show it was done by Triple N Services?

A. It gives a summary of what job was done. It doesn't tell exactly what happened. It was not witnessed by the OCD.

Q. Are you aware that Buddy Hill was called and did show up while the cement was being pumped?

A. Well, we'll probably hear testimony later, but I don't think he was called until after the job was done.

Q. But you have no reason to dispute what Triple N

set forth on this ticket?

A. No, I would just like to have a second set of eyes verifying it. And they were supposed to let the OCD witness it. The problem -- there's two problems with this. This was done and was not approved. The procedure was denied by the OCD, and the way they did it, still leaves a large void in the annulus of the five and a half casing. So -- Well, I got problems with it.

Q. I'm looking at your Exhibit 3, Mr. Stubbs, the -- I'm looking at this and -- I don't mean to put words in your mouth, but you're saying due to the variable chloride content of the samples, that the water couldn't have come from the Merit water flood, it must have been coming from the Government E No. 1?

A. That's correct.

Q. Well, doesn't -- I mean, looking at just the Superior Federal 5 and 6, there's quite a -- actual variation or fluctuation in these chloride levels regardless, isn't there?

A. On the 6, it could be due just to the type of water that they're bringing in there, whether it's Delaware, Bone Spring, or wherever, you know, whatever they are putting in the well.

The No. 5 well, more than likely since it had not been affected quite as much as the No. 6 and the water

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completely flushed away, it may actually have a little bit of Mescalero Ridge water in there. We know we've had a response from that flood, it's just not the kind of response that we were getting out of the Government E Well, it's not an overwhelming response.

Q. It's common, even with wells in the same pool, to have differences in the water being produced from well to well, from time to time, is it not?

A. Usually formations are pretty consistent unless you do something to change it.

Q. Let's turn to your Exhibit 1, Page 5. Is the Armstrong Superior Federal No. 5 producing right now?

A. Yes, it is.

Q. What does it produce?

A. Well, let's see here. About a hundred barrels of water a day and a trace of oil.

Q. Okay. So it produces about a hundred barrels of water a day. I'm looking, obviously, on the right side of your -- of this plat, looking at -- and I'm not sure of the exact time frame, I'm guessing it's mid '09, the water production from -- and I presume this includes all Armstrong wells?

A. This is all the Armstrong wells in the west half of Section 25.

Q. Okay. Right about mid -- I guess mid '09, the

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water production suddenly increases about 3,000 barrels a month, correct?

A. That's correct, that's when we put the No. 5 back on production. No. 5 was shut in about November of '08 and was put back on in July of '09.

Q. But there is no water being put into the Government E Well?

A. That's correct. But that whole system is pressured up.

Q. Well -- and then go back to, what, the period '06, starting about January '06, '07, there are a couple of spikes in water injection into the Government E Well, and the water production from the Armstrong is pretty flat?

A. Well, the only way we could produce more water would be to put bigger pumping units back on there. So we were basically maxed out. Fluid levels were increasing but we didn't have any more production capacity.

Q. Do you have any pressure data on your Superior Federal No. 5 and 6 wells from '09 and '10?

A. No, not anything in the last couple of months, no. But I know that No. 6 is not flowing any more, and that's a good thing. So the pressure on it is down.

MR. BRUCE: Mr. Examiner, that's all I have.

HEARING EXAMINER: Okay, thank you. Mr. Stubbs,

you had mentioned earlier in your testimony that you could see almost immediately on your No. 6 well whenever the E 1 was on or off, injecting or noninjecting?

THE WITNESS: Right.

HEARING EXAMINER: Is it your belief -- What do you belief would happen if we went out to the injection well and while they were injecting, spotted radioactive iodine tracer activity, would that show up in your well?

THE WITNESS: It might over a period of time if it was -- Depends on what the path is. If it's going out the Bone Spring and up some fault or fracture or something away from the wellbore, it may take a while for that to happen, but I guess eventually it would if that's the path.

HEARING EXAMINER: You really don't know that, do you? If there's a fault out there or -- You know, this well was drilled back in '71, so that original casing could have been pretty well damaged.

THE WITNESS: Yeah. It's a 35 year old well.

HEARING EXAMINER: If they were injecting into the Bone Spring -- but could have been injecting into just about any other place.

THE WITNESS: Well, if that was the case, then the packer would have had to have been set above the holes at 3,100 feet to have a good mechanical integrity test.

We don't know. So if we put iodine in there and put a tracer in there and it all stayed in the Bone Spring, well then, that would -- maybe that would be a direct indication that there was direct injection into the Queen, San Andres, and Delaware interval. But it's -- I don't know.

HEARING EXAMINER: I don't have any other questions. David?

MR. BROOKS: Well, Mr. Carr suggested that there are only a limited number of ways that water could get 9,400 feet up to 4,200 feet. And it either has to be -- there are some subdivisions of what could be happening in this well, but basically, it either has to be injecting out of this well into the Queen formation, or it's got to be coming up the well from the Bone Spring out to the Queen. Or else it's got to be moving through the formation.

THE WITNESS: Yeah.

MR. BROOKS: And I gather your belief is it's moving up through the formation, because either of the other two could be fixed, right?

THE WITNESS: Well, my real belief is it was directly injected into the Queen because it was such a sudden -- I mean, it's instantaneous -- or not instantaneous, but it's a very quick response, what

happens in the Government E, it happens in the No. 6.

I mean, I would think if the fluid had to go almost a mile from the Bone Spring all the way back up to the Queen, that there would be some lag time or a dampening or something taking place. But we don't have any proof one way or the other.

MR. BROOKS: Well, one would think so, but if that's true, then if doesn't establish your theory that this well can't be made suitable for injection, does it?

THE WITNESS: Well, if their testimony is the packer was set above the Bone Spring and injection was into the Bone Spring, then it happened in the formation, the communication. So it still cannot be. And I don't know if they're going to be able to prove to our satisfaction or your satisfaction whether that's not happening.

MR. BROOKS: Well, Mr. Warnell suggested, and I believe Mr. Stone also suggested, that you could put a tracer in it, but I can see possibly that if the water is moving a long ways, and the water that's actually coming into your wells may not be the same water, it may take a while to pull a tracer against it.

THE WITNESS: Mr. Stone was talking about doing a radioactive tracer -- which is basically a near wellbore tool, that we inject a tracer and then you follow it up

the hole with the logging tool. And that's only good for just a few feet into the formation.

So if it's happening some place away from the wellbore, numbers of feet, like Mr. Warnell said, you'd have to put a tracer in there and then log it for an extended period of time to make sure -- see what it was doing.

MR. BROOKS: That's all I have.

HEARING EXAMINER: Okay. Mr. Carr?

MR. CARR: Yes, sir, at this time we call Jerry Guy.

JERRY GUY,

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

DIRECT EXAMINATION

BY MR. CARR:

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

A. Jerry Guy.

Q. Mr. Guy, where do you reside?

A. Hobbs, New Mexico.

Q. And by whom are you employed?

A. I'm a contractor and I work for Armstrong Energy.

Q. And do you work for other companies?

A. Some, yes.

Q. How long have you worked for Armstrong Energy Corporation?

A. Approximately 23 years.

Q. Can you review your work experience for the Examiners?

A. I started out with ARCO Oil and Gas. I got about 22 years with them. And then I've been out on my own for about 23 years.

Q. And what did you do for ARCO?

A. I was a production supervisor for 15 years.

Q. And then since that time, what have you done?

A. Well, I contract pumps, I plug wells, I've pulled wells, frac'ed well, worked on wells.

Q. And are you familiar with the Government E Well that is the subject of this particular case?

A. Yes, sir.

Q. Did you operate this well for a time while it was owned by Mr. Armstrong?

A. Yes, I did.

Q. Did you also operate the well for a time while it was operated by Subsurface?

A. Yes, I did.

Q. Are you familiar with Agua Sucia's application to reinstate Administrative Order SWD-559?

A. Yes, sir.

MR. CARR: My it please the Examiners, we tender Mr. Guy as a practical oil man.

MR. BRUCE: No objection.

HEARING EXAMINER: We will accept Mr. Guy as a practical oil man.

Q. Mr. Guy, back at the time you were operating this well for Subsurface Water Disposal, do you recall what injection pressures were being used at that time?

A. Probably around 1,950, plus or minus.

Q. And so as we've moved it through the life of the well, the pressures have come down, not gone up; is that right?

A. Yes.

Q. Do you also own your own oil and gas production business?

A. Yes, sir.

Q. And what is the name of that business?

A. Guy Oil and Gas Limited Company.

Q. And do you operate wells under name of this company in the area of the Government E Well No. 1?

A. No, just these three.

Q. These three wells, are they on the same section as the Government E --

A. Yes, they're in the northeast quarter of

Section 25.

Q. Do you have a copy of Armstrong Exhibit No. 1 before you?

A. Yes.

Q. Okay, would you turn in that exhibit to Page 14 and identify this for the Examiners?

A. This is the production curve of my three wells, the Government E 2 and 3.

Q. And those are the three wells across the bottom of the graph?

A. Yes.

Q. And does this also show the injection from the Government E No. 1?

A. Yes, it does.

Q. And what does this exhibit show?

A. Well, it tells me that when they shut down the government E salt water disposal, my water dropped almost immediately, started down.

Q. In each of your three wells?

A. In these three wells.

Q. And in what formation are they completed?

A. San Andres.

Q. How often do you visit the site of the Armstrong Federal wells or these wells that you operate?

A. Frequently. I'm out there quite a bit.

Q. Are you able when you're out there to see what's going on at the Government E Well No. 1?

A. Yes, sir.

Q. Do you know Mr. Edgett?

A. Yes, I do.

Q. And how do you know him?

A. Well, he's operator of the WD 1 that's a SWD well.

Q. Did you have conversations with Mr. Edgett at the time the tubing was removed from this well in January of 2008?

A. Yes, I did.

Q. And can you explain what that was?

A. I was on the Superior Federal No. 6 Well checking the pressures, and he came over there. And they had a rig on the hole, said he was going to pull the well to show me -- prove to us that his injection wells was the cause of our problem, our water problem.

Q. Did you go over and watch the procedure?

A. No, I didn't go to his location, but I watched it from the Superior Federal 6, which is less than 300 feet over there.

Q. And you watched the removal of the tubing from the well?

A. Yes, I watched it.

Q. Have you witnessed other activity at this location?

A. Yes, sir, there's trucks in and out of there quite frequently, and then I've seen oil trucks in and out.

Q. Mr. Guy, when we look at Page 14 in Exhibit 1, have you reviewed this information?

A. Yes.

Q. And can you testify that it's accurate?

A. Yes.

MR. CARR: May it please the Examiners, at this time I'd move the admission into evidence Armstrong Exhibit -- Page 14 of Exhibit 1. I think it's actually already been admitted, but it's now sponsored by the proper witness.

MR. BRUCE: I have no objection.

MR. CARR: And that concludes my direct examination.

HEARING EXAMINER: So admitted. Mr. Bruce?

CROSS-EXAMINATION

BY MR. BRUCE:

Q. I really have only one question, Mr. Guy. The Government E was not injecting during the year 2001, yet you were still having quite a bit of water production?

A. That was not a normal curve right in there, and

then you can see -- we got further out there, and when they turned this off, then I dropped. So I think it may have been leaking sometime prior to that, I think.

MR. BRUCE: That's all I have, Mr. Examiner.

HEARING EXAMINER: Mr. Guy, moving a little bit further on where the E No. 1 Well was shut in in 2001, almost immediately when that well was shut in, you're showing kind of an unusual spike there in your water production.

THE WITNESS: I do what?

HEARING EXAMINER: You see that right there?

THE WITNESS: Yes, sir, I see that little jump.

HEARING EXAMINER: Any thoughts on what caused that?

THE WITNESS: No, I wouldn't have any idea.

HEARING EXAMINER: That's kind of an anomaly, but...

THE WITNESS: It looks like the water spiked up.

HEARING EXAMINER: Yes. That's about a max in there. I have nothing else.

MR. CARR: At this time we call Gary Wink.

GARY WINK,

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

DIRECT EXAMINATION

BY MR. CARR:

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

A. Gary Wink.

Q. And Mr. Wink, where do you reside?

A. Hobbs, New Mexico.

Q. And by whom are you employed?

A. Sundance Services.

Q. And what kind of business is Sundance?

A. It's a disposal business and a commercial landfill.

Q. Is it formerly or currently know as Parabow?

A. Yes, that's right.

Q. What is your relationship with Armstrong Energy Corporation?

A. When I was working for the OCD, I would talk to them from time to time.

Q. Could you summarize your work experience for the Examiners?

A. I was with Atlantic Richfield for 17 years. And I was with the OCD as staff manager of District 1 in Hobbs

for 14 and a half years.

Q. And what did you do when you were with ARCO?

A. I started out pumping, and then I became production foreman for the last 13 years.

Q. As staff manager for the OCD, what were your responsibilities?

A. I oversaw the field operations for the OCD, and at various different times we had -- At one time, I think I had five field inspectors.

Q. Are you familiar with the Government E Well?

A. Yes, sir.

MR. CARR: We'd tender Mr. Wink as an expert in oil and gas regulations, and particularly in OCD field inspection practices.

MR. BRUCE: No objection.

HEARING EXAMINER: So accepted.

Q. Mr. Wink, based on your experience and your understanding of the rules, does the OCD require that MIT tests be witnessed?

A. Yes, sir.

Q. Does it require that when you go out and do a cement job on a well and pull the tubing, does that have to be witnessed?

A. Yes.

Q. Is it witnessed at all times?

A. When they do a cement -- or squeeze?
Q. Yes.
A. I wouldn't normally think so.
Q. In all cases, they have to have an approved sundry notice before they --
A. Yes, sir, they have to have a C-103.
Q. Were you aware of a meeting between Armstrong and the Oil Conservation Division personnel in Hobbs in January of 2008?
A. I was aware of it.
Q. Did you attend the meeting?
A. No, sir.
Q. Do you know what action the OCD decided to take in response to that meeting?
A. I was told by Chris Williams that we were going to do a mile radius area of review of all the wells around the Government E.
Q. And when you were going to do that, what does that require, what does that sort of effort entail?
A. Do what?
Q. What do you do when you go out and do a one mile area of review?
A. Well, we survey all the wells within a mile radius of the subject well, and have all the Bradenheads shut in the night before. And then we had three or four

different inspectors go out to the different companies.

Q. Did you personally write operators and advise them that this process was going to be undertaken?

A. Yes, sir.

Q. When we look at the Government E No. 1 Well, was it tested?

A. No.

Q. And why not?

A. Well, they were in the process of pulling it.

Q. They were in the process of what?

A. They were going to work on the well.

Q. Okay. And what did they do?

A. They -- well, they pulled the tubing out of the well.

Q. And did they do that before or after you were scheduled to run the Bradenhead test?

A. Seems like it was -- I'd have to look back, but I think it was right after.

Q. Do you know what happened to the tubing?

A. Well, not exactly.

Q. How did you find out about this situation?

A. Buddy Hill called me at the office and told me that he was out on the location and he hadn't -- and the tubing -- It was short tubing if it was at 9,700 feet.

And so I went out to the location and -- I don't

remember if I asked Mr. Edgett or the reverse unit operator he had on the location. Anyway, I asked him where the tubing was.

And he told me that they had taken it -- they had already hauled it in to Hobbs Iron and Metal -- or no, to -- excuse me, they'd already hauled in it. And I said, "Well, where did you take it?" And he said, "Took it to Greg Lopez' yard."

Q. Did you check with Greg Lopez' yard?

A. Yes, sir. I called Greg on my way into town. And Greg said, "Well, Gary, we've already cut the tubing up and taken it to Hobbs Iron and Metal."

And I said, "Okay. Can you tell me if you -- do you have the weight ticket from Hobbs Iron and Metal? Can you tell me how much it weighs?"

And he said, "Well, what difference does that make?" And I said, "Well, I can tell how much tubing there was." And he said, "No, we had -- we mixed it up with some other we had in the yard, three and four inch pipe tubing."

So I went to Hobbs Iron and Metal and asked them if I could see the weight ticket, and they told me they couldn't show it to me because it was privileged information.

Q. And how long did it take all of this to

transpire?

A. It was all one day.

Q. There was cement work done on the well back in early 2008. Are you aware of this?

A. Yes, sir.

Q. And how do you know this?

A. Well, are you referring to when they squeezed the well?

Q. Yes, sir.

A. Buddy Hill called me from the location, and it was -- oh, it was around -- I can't remember. It was late. I think the office had already closed. He called me and told me they had already squeezed it. And he didn't -- and he wasn't there when they squeezed it.

And I asked him who did it, and he said Triple N. And so I called Jim Newman and asked him why I wasn't notified about it. And -- I called Jim Newman in Odessa, and he said, "Gary, I'm sorry," he said. "I knew I should have called you, but we were just coming in from another job and stopped by there to do it."

Q. Would this kind of work ordinarily require preapproval of a sundry notice or notice of intent by the OCD?

A. Yes.

Q. Did Agua Sucia file a sundry notice for this

work?

A. Louray.

Q. I'm sorry, did Louray file a sundry notice?

A. They -- I don't recall filing the sundry notice for this. I think Chris Williams received it.

Q. Okay. And do you know what action was taken when it was received?

A. He was denied.

Q. How did you actually -- you first learned about the work how? I think you testified to this but I just want to be sure.

A. Buddy Hill called me.

Q. Do you know if that call preceded the time the work was actually done?

A. No, it was afterwards.

Q. Have any reports been filed by Louray on this work?

A. I don't remember seeing any.

Q. At this time, do you think -- are you aware of any way to determine what was done on the well?

A. No.

Q. In your opinion, would it be possible to ascertain the status of the wellbore at the time this problem actually occurred?

A. No.

MR. CARR: That's all I have.

CROSS-EXAMINATION

BY MR. BRUCE:

Q. Mr. Wink, when did you leave the OCD?

A. I think it was the afternoon of February -- into February, I think, of 2008.

Q. Okay, it was 2008?

A. Uh-huh.

MR. BRUCE: I don't have anything further, Mr. Examiner.

MR. CARR: That concludes our presentation.

HEARING EXAMINER: Let me ask Mr. Wink a question. You mentioned Jim Newman?

THE WITNESS: Yes, sir.

HEARING EXAMINER: Is that Fred Newman's son?

THE WITNESS: Yes, sir. They sold out and now he's with Basic.

HEARING EXAMINER: Mr. Wink, you mentioned a couple times, and I thought it interesting, that Buddy Hill called you. Why is Buddy Hill calling you to tell you what's going on with a Louray well?

THE WITNESS: Well, they'd worked on the well and wouldn't have reported anything from time to time.

HEARING EXAMINER: So when you left the OCD, Buddy Hill took your position?

THE WITNESS: Yes, sir.

HEARING EXAMINER: And there's been a lot of talk here today, Mr. Wink, about the tubing that was immediately removed from the location and -- shredded, for lack of a better word. Is it your belief that there wasn't nearly as much tubing in the well as OCD --

THE WITNESS: I don't have any way of telling you that for sure. I just know that when I got to the location, there wasn't nothing on the derrick and there wasn't nothing on the ground to make that 9,700 feet.

HEARING EXAMINER: Mr. Brooks, do you have any questions?

MR. BROOKS: I guess not.

MR. CARR: That concludes my direct case.

HEARING EXAMINER: Mr. Bruce?

MR. BRUCE: I would like to recall my witnesses very briefly to address a couple of issues.

HEARING EXAMINER: Okay. Mr. Wink, you're witness number seven, so that's all the witnesses we have.

MR. BRUCE: I call Mr. Stone, who has previously been sworn.

REBUTTAL DIRECT EXAMINATION

BENJAMIN STONE

BY MR. BRUCE:

Q. Mr. Stone, you listened to the evidence

presented by Mr. Stubbs, did you not?

A. Yes, sir.

Q. And he said that radioactive tracers may not be valid. What's your opinion of that?

A. I didn't perceive that. What Mr. Stubbs said was accurate to me as far as to the depth of investigation that you might see a tracer.

When Examiner Warnell asked about the possibility of following that tracer from one wellbore to another by whatever source of communication there may be, it just occurred to me that would probably take some length of time.

And your typical tracer is Iodine 131, which has an eight point four day half life. So it would take a constant influx of that material.

Generally, in those types of studies -- Those studies have been done. I actually did the MCA pilot project whereby we injected into a well -- this is previous to the C02 flood out there -- and we traced that to offsetting wellbores and actually watched it for six weeks.

But what you need to do is go to a higher half life radioactive material such that it will have enough residual that you can actually monitor that whenever it does show up in another wellbore.

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So his statement was accurate, but it was just occurring to me to -- in answer to the Examiner's question, and also typically, it's essential that when you're doing the types of studies that may be involved in this situation where there may be some question about a body of fluid somewhere, that you use a radioactive tracer and temperature in combination, your radioactive tracer shows you the exit from the wellbore and any migration within, say, 18 inches of the wellbore, whether that's between the cement sheath and facing, or just outside the cement, or something nearby the formation.

Using that in combination with temperature, you're then able to put some sort of qualitative analysis on a body of fluid that exists. So from surface to whatever TD of any well that you're logging, you've got your geothermal gradient. Any fluid from surface that's introduced into that will retard that gradient back.

The larger volume of fluid you have, the longer it will retain that temperature. And this can be true for many, many feet out into the reservoir.

So you have a body of fluid there, and as you decay that out, you can actually see where larger volumes of fluid reside in the formation and make some sort of qualitative determination that you actually do have fluid in place, or some path or communication.

Where you will see the temperature -- or see that geothermal gradient flatten, you're able to use that in combination with the radioactive tracer and determine any channel behind that pipe.

But you'll see that temperature decay back to the geothermal. It tries to recover itself, the geothermal gradient, as quickly as it can, again, based on the volume of fluid.

So if you're running your microannulus or something, you have a very small volume of fluid, it retards that temperature temporarily but it recovers quickly.

Where you're flooding a formation, going through a vertical fracture or whatever, and you're actually moving large volumes of fluid out there that have retained and retarded that temperature for some time, you decay that out over a period of time and you can actually put some qualitative analysis on "this is where we've interjected into." So.

Q. So a radioactive tracer wouldn't be a valid way to determine where the water is going in this well once injection has been pulled out?

A. Absolutely. Again, it -- primarily from exit point from the wellbore and what's happening within, say, 18 inches of the wellbore. But again, it's essential to

get a good analyses on it that you always run a tracer -- for this type of study, that you always run a tracer in combination with a temperature survey.

I'm afraid it's a dying art. I don't think that production logging is quite as popular as it used to be.

MR. BRUCE: That's all I have, Mr. Examiner.

CROSS-EXAMINATION

BY MR. CARR:

Q. Mr. Stone, if we were to run a tracer -- a radioactive tracer to try and chase the migration of a large volume of fluid through a fracture system, do you have any idea how long that would take?

A. It's hard to say. Just based on Mr. Stubbs' testimony, we think that that may be occurring rapidly, say in a week's time. So you could watch it.

You actually have to monitor it for an extended period of time, maybe give it a couple of days prior to 24 hour monitoring of the wellbore that you suspect it may be communicating over to so you can see some sort of detection.

Again, you've got your half life working against you, and also dilution of your material. So it's a -- it's a long-term, around-the-clock situation. But again, using the MCA project just as an example, we can detect after six weeks the introduction of radioactive material

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to the offset wellbores.

Q. But it might take longer than that?

A. You may never see it.

Q. You may never see it, it might go off into the Delaware somewhere?

A. It absolutely could do that. But the assertion is that fluid from this wellbore is going there. So undoubtedly, if you continue your introduction of radioactive material into that fluid stream, then you could surmise that more than likely you're going to see that show up at some point in the other wellbore.

Q. Thank you.

HEARING EXAMINER: And that's a good point. I heard here today that chlorides that were being injected into the E 1 Well were showing up in the No. 6 Well. So if you took a radioactive Iodine 137 --

THE WITNESS: Iodine 131.

HEARING EXAMINER: -- and a longer half life --

THE WITNESS: Right.

HEARING EXAMINER: If that indeed is happening, then I would suspect that you would see that iodine show up over in the No. 6 Well, don't you think?

THE WITNESS: Sure. My recommendation for that type of study would be Radium 192. It's got like a seven/four day half life.

HEARING EXAMINER: You're trumping me now.

THE WITNESS: Like I say, it's a dying art.

HEARING EXAMINER: All right.

MR. BRUCE: A half-life dying art. I'd like to recall Mr. Lee, Mr. Examiner.

REBUTTAL DIRECT EXAMINATION

ROBERT LEE

BY MR. BRUCE:

Q. What I've handed you, Mr. Lee, is Mr. Stubbs' Exhibit 1, and we're on Page 2. I think at one point, Mr. Stubbs said it's possible there could have been some water from the Merit water flood moving toward their Superior Federal wells. How does injected water migrate, in which direction?

A. It's going to go in the path of least resistence where the least pressure is, or the best permeability is. And for the No. 15 Well there in Unit Letter A on 35, if it's going to see some of this pressure sink over there in Section 25 and it's going to be crucial water, it's going to be heading in that direction.

Q. It looks like the Merit No. 15 Well is basically on roughly the same structural level as the Superior Federal wells?

A. Uh-huh. Actually, maybe a little up dip. So water would have a tendency to go down the hill rather

than go up the hill, also.

Q. Okay. Now I'm moving on to Mr. Stubbs' Exhibit 4. I've also handed you what is Agua Sucia No. 6. Did you prepare Exhibit 6, Mr. Lee?

A. Yes, sir.

Q. And first of all, in looking at the Armstrong exhibit, somewhere -- I forget which year because I don't have that in front of me, they show kind of an upward spike in water production?

A. Uh-huh. It would be like in '02.

Q. Back in '02. When you look at it, it's a pretty small daily increase, isn't it?

A. That would be correct. It's a couple hundred barrels a month. And so it would be -- it may be five, six barrels a day, at best.

Q. But -- I mean, to my untrained eye, I mean, you could also draw that entire decline curve as a hyperbolic decline, could you not?

A. Yes. Yes, and that's -- What I was kind of looking for whenever I looked at this -- I prepared my exhibit just on kind of what does the historical curve shape look like. And as the wells come on and you see them being drilled and the blue line is showing well count, but the hyperbolic shape where the slope is is changing over time and flattening out over time.

Q. And despite little spikes, it always flattens out over time, though?

A. Yeah.

Q. It always goes back to the hyperbolic decline?

A. Yes. Yes.

Q. And what would that indicate to you?

A. Just a good stable primary-type production.

Q. Okay. The injection pressures into the Government E 1, could -- if the wells had been acidized, couldn't this also be a reason for a pressure drop on the injection well?

A. On the injection well?

Q. Yes.

A. Yes, sir. If the well is building upscale and you do an acid job over time, it could also decrease the pressure on the injection pressure.

MR. BRUCE: That's all I have, Mr. Examiner.

CROSS-EXAMINATION

BY MR. CARR:

Q. Mr. Lee, if I look at Exhibit No. 6 and I look at the oil production from, say, 1994 through -- for 2000, I have a hyperbolic decline that is fairly obvious through that period of time; is that not correct?

A. On this one?

Q. On your Exhibit No. 6.

A. From '94 to 2000?

Q. Yes.

A. Well, it -- I would say I -- you know, I'd rather look at the whole curve. I mean --

Q. I'm asking you to look at just part of this curve, and that part of the curve has a definite decline and it flattens out and changes after 2001, does it not?

A. Yeah, the hyperbolic nature comes down, it will get flatter with time.

Q. And it flattens out, and it flattens out in 2001 when the injection commenced by Louray?

A. Okay.

Q. All right now, you know, I think you said this looked like just a typical production decline; is that what I heard you say?

A. A primary production. Sure, yeah.

Q. But the dropoff in the production in 2008 and 2009, would clearly show the influence of water on the production from this well, would it not?

A. Are you looking at the oil curve?

Q. Yes, I am. And it drops off in 2008, 2009 when the injection in the Government Well ceased work. I'm sorry, it is the water curve. It's the blue --

A. Okay. See, you're confusing me that time. That's a turnaround from the previous deal.

Q. We're getting even with each other.

A. Yes. Exactly. Yes, it would look like the water in 2008, 2009 is falling off as the injection in Merit's flood was down.

Q. Is that the same zone as the Merit flood, that water?

A. You know, I'm not sure, Bill.

Q. Isn't this an adverse production in the Merit floods in the Queen?

A. That is correct. And I do not know if they have any San Andres production -- injection. You are correct. I do not know.

Q. Thank you. That's all I have.

A. I had a cross-section made and I can't remember what that showed me.

HEARING EXAMINER: Mr. Brooks?

MR. BROOKS: No questions.

MR. BRUCE: I have nothing further.

HEARING EXAMINER: Closing comments?

MR. CARR: I'd like to make a closing statement, but I'm going to keep this one really, I think, brief. Are you ready?

HEARING EXAMINER: I'm ready.

MR. CARR: The duty of the Oil Conservation Division is the prevention of waste of oil, not the

protection of someone's permit to inject water.

And when someone comes in and suggests they can inject water into a well and another operator is concerned that that is going to be encroaching in their well and causing them to lose production, to waste oil, the burden has to fall on somebody to come in and show that they can safely take an action that will put my property rights at risk.

And you can have a hearing and you can mush around through facts and theory, but you have to get down to a point where there is some hardcore factual evidence that you can look at. And you can say, well, look at the production curve. It's up. This means -- it doesn't mean production from an offsetting unit, it's when somebody turned a pump on.

You've got to sort through this and you have got to look at the trends in these graphs. And when you look at these graphs and you compare them to the injection, you're going to see a direct and immediate response between injection in the Government E and what happens in the offsetting well, and the water in the offsetting well.

But we don't stop there, we have water samples and analyses that tell you where the water is coming from. We have pressure information that shows the response. We have short-term pressure responses. We have pressure

buildups.

Over and over again, the data that you as technical people look at, say one thing and one thing only, and that is, there is a water problem here and you have to get out into the realm of theory to tie it into an offsetting unit.

Because they don't even operate their unit that way, they inject and withdraw. It's not like the Government E Well. And their waters are different. And they're far away instead of 350 feet away where you can even tell what you're neighbor's doing with an immediate pressure response. Fine. You can run tracer surveys, you can do all of those things.

But I submit that if you do that, you're trying to build a case that wasn't presented here today. Your duty is to prevent waste, to enter an order based on the record made in this case.

And the record made in this case says the wellbore integrity in this well -- in the injection well was sound when there was a water flow in the offsetting wells, and the water is the water that was being injected.

And what they come in and propose is putting the well back where it was in good condition just like it was when we were experiencing these water flows.

And if you allow that to happen, you're causing

waste and you're taking a walk on your primary statutory responsibilities.

HEARING EXAMINER: Thank you. Mr. Carr. Mr. Bruce?

MR. BRUCE: Mr. Examiner, I don't think anybody disputes that in 2008 there was an issue. There was a problem. But the Government E 1 has been shut in since that time and still there's water production, as Mr. Lee testified, as Exhibits 4A through 4C show, that it's likely that that water is coming from Merit Energy.

Regardless, the Government E 1 has been shut in and it has been repaired. The workover document done on the E 1 shows that it's structurally sound, and the OCD Hobbs office agrees. They say it's ready to inject into.

Armstrong speculates on this issue while Agua Sucia has met its burden to show that the well is sound. There is no harm in injecting water into the Bone Spring formation, and I didn't hear Armstrong say anything different.

Now, as Agua Sucia stated, it's willing to run a radioactive survey to show there's no problem with the wellbore. That's the reasonable thing to do, rather than to rely on Armstrong's speculation.

And again, based on what Mr. Stubbs says, if there's an issue, it's going to show up in a few days. If

that's the case, yeah, then there is a problem with the wellbore. But if it doesn't show up, then the wellbore is sound as shown, as the OCD Hobbs office agrees, and Agua Sucia should be allowed to inject into this well. That's all I have.

HEARING EXAMINER: Okay. Thank you, Mr. Bruce. With that said, I want to thank all of you for the testimony and your time coming here today.

And with that, we will take Case No. 14411 under advisement. And that concludes this docket.

(Whereupon, the proceedings concluded.)

I hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. _____, heard by me on _____

_____, Examiner
Oil Conservation Division

STATE OF NEW MEXICO)
) ss.
COUNTY OF BERNALILLO)

REPORTER'S CERTIFICATE

I, PEGGY A. SEDILLO, Certified Court Reporter of the firm Paul Baca Professional Court Reporters do hereby certify that the foregoing transcript is a complete and accurate record of said proceedings as the same were recorded by me or under my supervision.

Dated at Albuquerque, New Mexico this 26th day of March, 2010.

PEGGY A. SEDILLO, CCR NO. 88
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