

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING)
CALLED BY THE OIL CONSERVATION)
DIVISION FOR THE PURPOSE OF)
CONSIDERING:)
APPLICATION OF STEVENS & TULL,)
INC.)
_____)

CASE NOS. 11,323
11,338
(Consolidated)

REPORTER'S TRANSCRIPT OF PROCEEDINGS

EXAMINER HEARING

BEFORE: DAVID R. CATANACH, Hearing Examiner

July 27th, 1995

Santa Fe, New Mexico

This matter came on for hearing before the New Mexico Oil Conservation Division, DAVID R. CATANACH, Hearing Examiner, on Thursday, July 27th, 1995, at the New Mexico Energy, Minerals and Natural Resources Department, Porter Hall, 2040 South Pacheco, Santa Fe, New Mexico, Steven T. Brenner, Certified Court Reporter No. 7 for the State of New Mexico.

* * *

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 Examiner Hearing
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A P P E A R A N C E S

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By: W. THOMAS KELLAHIN

* * *

1 WHEREUPON, the following proceedings were had at
2 10:22 a.m.:

3 EXAMINER CATANACH: Call the hearing back to
4 order, and at this time we'll call Case 11,323.

5 MR. CARROLL: Application of Stevens & Tull,
6 Inc., for an exception to the casing requirements of
7 Division Order Number R-111-P, Lea County, New Mexico.

8 EXAMINER CATANACH: Are there appearances in this
9 case?

10 MR. KELLAHIN: Mr. Examiner, I'm Tom Kellahin of
11 the Santa Fe law firm of Kellahin and Kellahin, appearing
12 on behalf of the Applicant.

13 EXAMINER CATANACH: Any additional appearances?

14 MR. KELLAHIN: We'd like to call the next case
15 and have it consolidated for purposes of testimony with the
16 current case.

17 EXAMINER CATANACH: At this time we'll call Case
18 11,338.

19 MR. CARROLL: Application of Stevens & Tull,
20 Inc., for an exception to the salt protection casing string
21 requirement of Division Order Number R-111-P for certain
22 wells located in portions of Township 20 South, Range 33
23 East, Lea County, New Mexico.

24 EXAMINER CATANACH: Any additional appearances in
25 this case? Okay.

1 MR. KELLAHIN: Mr. Examiner, I have three
2 witnesses to be sworn.

3 EXAMINER CATANACH: Will the witnesses please
4 stand to be sworn in?

5 (Thereupon, the witnesses were sworn.)

6 MR. KELLAHIN: Mr. Examiner, let me outline for
7 you what we're here for and why.

8 Prior to the Commission's adoption of Commission
9 Order Number R-111-P, which occurred on April 21st of 1988,
10 there was an area described by the Commission as the oil-
11 potash area.

12 That area had a boundary contained within the
13 federal potash enclave, and those boundaries were
14 different. The BLM, Secretary of the Interior, had a
15 potash mapped area using their parameters, which we'll
16 discuss, establishing an area for potash resources.

17 For a number of years, we utilized the
18 Secretary's map that was dated 19- -- Was it 1983?

19 MR. HUTCHINSON: 1984.

20 MR. KELLAHIN: The 1984 map.

21 Subsequent to R-111-P, a couple of things
22 happened.

23 First, additional acreage was added into the
24 R-111 orders, expanding the agency rules and regulations
25 for wellbores in a broader area.

1 In addition, some things were added.

2 Historically, under R-111, operators were given
3 two options for what we characterize as a salt protection
4 casing string program. We're going to describe for you
5 those two options, which continue to exist.

6 When R-111-P was adopted and the area was
7 expanded, for those areas that were now included that had
8 not previously been included, operators were afforded the
9 opportunity under the rules to seek exceptions from either
10 of the two existing salt protection programs that were in
11 the rule.

12 The rule contemplated that the OCD District
13 Supervisor would have the discretion to allow operators to
14 delete the salt protection string.

15 What has happened is that, notwithstanding the
16 OCD rules, the practice has been that if the wellbore was
17 on federal acreage, the operators would go to the BLM in
18 Carlsbad, and the BLM Carlsbad would make the exclusive
19 decision on those federal wellbores to delete the string.

20 You're going to see maps in which that has
21 occurred in this area on a regular basis, if it was on
22 federal lands.

23 You're going to see a map that also has some
24 differences when it comes to state lands. The Commissioner
25 of Public lands has taken the position that if an operator

1 wants to delete the potash string on state lands within
2 this expanded area, then they must come to the agency to
3 get that approval.

4 By practice, Director LeMay has required Mr.
5 Sexton in Artesia not to exercise his jurisdiction under
6 the rule but to refer those matters to Santa Fe. And as a
7 consequence, they've always come to hearing.

8 Because that process consumes a lot of time, many
9 operators in the past have simply chosen to assume the
10 additional expense on state tracts of putting the potash
11 protection string in, rather than go through the tedium of
12 a hearing to have it deleted.

13 In April of 1994, Mitchell Energy Corporation, in
14 Section 4, just to the north of the area we're about to
15 discuss, decided that they had enough wellbores in shallow
16 oil production in the West Teas Oil Pool that for all of
17 Section 4 it was important enough to seek an exception from
18 the agency to delete the string for a state tract.

19 That was done.

20 One of the experts that testified in that case on
21 potash resources is here to testify again for us. Mr. Gary
22 Hutchinson is a recognized expert in potash economics.
23 He's been recognized as an expert in evaluating whether
24 there's waste of potash and risk to miners in cases before
25 the agency, when Yates and Noranda and IMC discussed all

1 those issues with the Commission. He has repeatedly been
2 before the agency. He's going to discuss the potash issues
3 for you.

4 Mike Mooney is going to describe for you his
5 reason to seek an exception. Mr. Mooney is an expert
6 engineer with particular expertise in these matters, and
7 he's going to demonstrate to you that his proposed
8 exception from the potash protection program gives you a
9 wellbore that is superior in integrity to one of the two
10 options already in the rule, and it will be consistent with
11 the general practice of accepting that protection string
12 within this area.

13 When you look at the context of Stevens' case in
14 11,323, Well Number 7 is on a federal tract.

15 There has been a change of practice at the BLM.
16 Historically, they have been the exclusive agency to delete
17 the protection string. We are now advised by BLM Carlsbad
18 that they're going to require operators on federal wells to
19 also get the concurrence of the Oil Conservation Division
20 to delete the string.

21 And so when you see the docket of this case for a
22 Federal Well Number 7, we are here because the BLM has
23 asked us to come here.

24 Because we had to go through the expense of doing
25 that case, we have made an evaluation and determined the

1 circumstances to delete the potash string for Well Number 7
2 are equally applicable to other acreage that Stevens and
3 Tull has in portions of Sections 9, 10 and 16 in the
4 immediate area, and so we're going to ask you to consider
5 this whole area on a blanket basis, to delete the string
6 for these shallow oil wells, and that's why we're here.

7 All right, we'd like to call our first witness,
8 Mr. Jerry Weant.

9 JERRY A. WEANT,

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

12 DIRECT EXAMINATION

13 BY MR. KELLAHIN:

14 Q. Mr. Weant, for the record would you please give
15 us your name, your occupation and where you reside?

16 A. Okay, my name is Jerry Weant. I work for Stevens
17 and Tull in Midland, and I am their sole landman.

18 Q. On prior occasions, Mr. Weant, have you qualified
19 before the agency as an expert in matters of petroleum land
20 management?

21 A. Yes, I have.

22 Q. As part of your land duties, have you made
23 yourself knowledgeable and familiar with the ownership not
24 only of the oil and gas resources, but have used your own
25 knowledge, supplemented by consultants, to locate the

1 potash operators and lessees and the ownership of that
2 potash within this area?

3 A. Yes, I have.

4 Q. Have you made yourself aware of the notice
5 obligations under R-111-P, insofar as notification of the
6 potash lessees and operators of this particular Application
7 -- in fact, both these Applications?

8 A. Yes, I have.

9 MR. KELLAHIN: We tender Mr. Weant as an expert
10 in petroleum land management.

11 EXAMINER CATANACH: He is so qualified.

12 Q. (By Mr. Kellahin) Let's take the exhibit book
13 and turn to the first information behind the -- We'll
14 characterize these for the record as Stevens and Tull
15 Exhibit 1, and then -- That's the whole book, and we will
16 go through the sections as you have identified them.

17 If you'll turn to Exhibit 1, then, and look
18 behind the tab that says "Land", what's the first display?

19 A. The first display is a land plat, a nine-section
20 land plat around our acreage. The plat reflects the yellow
21 acreage, designates acreage which Stevens and Tull, Inc.,
22 has acquired, either leasehold or farmouts or term
23 assignments from other parties, which the solid yellow
24 represents 100-percent ownership.

25 The acreage in the southwest quarter of Section

1 10 is acreage which we have acquired 58.33 percent of the
2 leasehold in that tract at this time.

3 Q. What does the red arrow indicate?

4 A. The red arrow designates the Federal 9 Number 7
5 well, which -- This issue was brought up, that was the
6 application we submitted after drilling the five wells with
7 the red dots to the north of it on federal tracts. The
8 seventh well was proposed, the APD was submitted, and at
9 that time that's when the BLM basically informed us of the
10 new procedures.

11 Q. When we look at the other information, what's the
12 purpose of the red dots?

13 A. Okay, the red dots outline all wells that have
14 been drilled, shallow oil wells which have been drilled in
15 this area, which have not required -- or have been drilled
16 without a salt protection string.

17 Q. When we look at Section 9, if we look at the area
18 of Section 9 that's shaded in yellow and look at the
19 wellbores with the red dots, are all those wellbores
20 drilled and operated by Stevens and Tull?

21 A. Yes, they are.

22 Q. And those wellbores, then, with the red dots on
23 the yellow acreage in Section 9 were drilled without the
24 potash string?

25 A. That is correct.

1 Q. And in each instance, those are federal wells?

2 A. That is correct.

3 Q. And the BLM exclusively allowed and permitted the
4 wells to be drilled without a protection string?

5 A. That is correct.

6 Q. When we look north of that into Section 4, that's
7 the operation under what we know to be Mitchell Energy?

8 A. That is correct.

9 Q. And on that section are there wellbores that now
10 exist without the potash protection string?

11 A. Yes, there are.

12 Q. And how are those identified?

13 A. Those are the two red dots labeled due north, one
14 being located -- both being located in the southeast
15 quarter of Section 4.

16 Q. As a result of the BLM's change of practice in
17 approval, about the time you're filing your federal APD for
18 the Number 7, are you now in a time constraint with regards
19 to commencement of the Number 7 well?

20 A. Yes, we are.

21 Q. Describe for us what that circumstance is.

22 A. We have acquired a term assignment from a company
23 in Artesia by the name of Southeast Royalties on the 40-
24 acre tract, being the northeast quarter of the southeast
25 quarter of Section 9.

1 That acreage was purchased in January for a six-
2 month term assignment, with the understanding that the well
3 would be drilled prior to July 1, pending approval of our
4 APD, which we anticipated no problem at that point in time.

5 Q. As a result of the change of procedures, what's
6 at risk with regards to the farmout?

7 A. The loss of the acreage.

8 Q. As to what point in time?

9 A. We have currently sought -- We could not build
10 location, seek bids from any drilling contractors, or
11 perform any work until our APD was approved. The APD was
12 approved approximately one week prior to July 1 of this
13 year.

14 Q. With the additional stipulation, however, that
15 you get the concurrence of the Oil Conservation Division?

16 A. That is correct. It was required that we put the
17 potash string in the well, in this wellbore, and therefore
18 we had one week to commence our operations of seeking a
19 drilling contractor and all the necessary operations that
20 go with drilling the well.

21 Q. As to all other issues, then, with the exception
22 of the potash string, this wellbore has been approved by
23 the Bureau of Land Management?

24 A. That is correct.

25 Q. And the deletion of the potash string is

1 approvable by the BLM Carlsbad, provided we have the
2 concurrence of the Oil Conservation Division?

3 A. That is what they have led us to believe, that's
4 correct.

5 Q. All right, what's the timing, then, to commence
6 the well at this point without losing the farmout?

7 A. We have requested an extension to, I believe,
8 August 24th, because we have finally located a drilling
9 contractor that can get on the well. Most of the drilling
10 contractors had advised us that they couldn't even drill a
11 well out here before the end of the year.

12 We have located a drilling contractor that has a
13 window and has advised us that they can drill this well --
14 or commence operations on it on approximately August 24th.

15 We have therefore contacted Southeast Royalties
16 and advised them of this, and they have granted us leeway
17 to that date.

18 Q. All right. Apart from the special circumstances
19 of the Number 7 well, identify for us the balance of your
20 acreage that's included within the second Application.

21 A. Okay. The -- As I stated earlier, the acreage in
22 the southwest quarter of Section 10 is a term assignment
23 that we have purchased. We purchased 50 percent of the
24 acreage. The other eight percent was bought from Conoco.
25 Down in -- I'm sorry, Sun.

1 Down in Section 16, we have purchased the acreage
2 shaded in yellow in the northeast quarter of Section 16,
3 and also the north half of the southwest quarter.

4 The southeast quarter and the north half of the
5 northwest quarter are subject to a term assignment with
6 Conoco, and the south half of the southwest quarter is
7 subject to a term assignment with OXY.

8 Q. All right. So you're seeking in the second case,
9 then, approval from the Division to delete the potash
10 string in all of Section 16, the southwest quarter of 10,
11 and what is now the east half of the southeast of Section
12 9, 40 acres of which is included in your Application for
13 Wellbore 7?

14 A. That is correct.

15 Q. All right. Subsequent to doing that, you now
16 have in Section 17 additional acreage that's not currently
17 included in this Application?

18 A. That is correct, that was acreage which was
19 purchased at a prior federal sale this year.

20 Q. When we look at Section 16, there is a wellbore
21 in the southeast northwest of 16 that doesn't have the
22 string, and yet the rest of the wellbores around it do?

23 A. That is correct.

24 Q. Is there a reason that explains why that
25 occurred?

1 A. I do not know the answer to that. This is
2 information based off of research from the records with the
3 State of New Mexico, pulling the records which reflect the
4 casing designs of those wells.

5 Q. All right. Were those wells drilled and operated
6 by Stevens and Tull in Section 16?

7 A. The only well which has been drilled by Stevens
8 and Tull in Section 16 is the State BF Number 3 well, which
9 is located in the northwest quarter of the southwest
10 quarter of Section 16.

11 Q. And why was that wellbore drilled with the salt
12 protection string in it?

13 A. It was a requirement of the State of New Mexico.

14 Q. All right, and you at this point didn't seek an
15 exception, then, through the R-111-P process to have that
16 deleted at that time?

17 A. That is correct.

18 Q. All right, let's turn to the next display. We've
19 talked about the oil and gas issue. Let's talk about the
20 potash leases. Have you made yourself knowledgeable about
21 that ownership?

22 A. Yes, I have.

23 Q. Describe for us what you have determined.

24 A. We have determined that, as you can see from the
25 plat, there is one federal potash lease and two state

1 potash leases reflected on the map.

2 All of Section 8, which is Federal Lease NM-
3 013298-A, is owned by IMC Global operations.

4 In Section 16 the entire section, being the State
5 of New Mexico Lease M-651-9, is owned by Mississippi
6 Potash, Inc.

7 And in the south half, south half of Section 17,
8 another state lease, being State Lease Number M-19262-1, is
9 owned by New Mexico Potash Corporation.

10 Q. Are those the only current potash leases in this
11 area shown on this display?

12 A. Yes, sir, that is correct.

13 Q. What have you done about contacting these various
14 potash lessees?

15 A. Following the plat, there are copies of letters
16 dated May 3rd, 1959, wherein we contacted each one of these
17 companies, requesting that they waive the requirement of
18 the potash string and that they would send their response
19 either to us or to the NMOCD.

20 Q. Did any of these companies object to the drilling
21 of the well if it included the potash protection string?

22 A. No, sir, they did not.

23 Q. So none of those companies were worried about
24 having the wellbore, as long as it had the string?

25 A. That is correct.

1 Q. They were willing to concede that that wellbore,
2 if drilled, was not going to waste potash?

3 A. That is correct.

4 Q. All right. Their complaint or concern was the
5 deletion of the potash string?

6 A. That is correct.

7 Q. And you have letters to that effect?

8 A. Yes, sir, following the three letters to the
9 companies -- and I guess, to make a correction, the top
10 letter is to Noranda Exploration. Subsequent to this
11 information, the notice was sent to Noranda, and we were
12 advised that IMC had purchased or acquired the interest of
13 Noranda, and they have been -- This notice was forwarded on
14 to IMC. We have had phone conversations with them.

15 But following the three letters, you will see
16 there are two letters, one from Mississippi Potash, Inc.,
17 dated May 5th, 1995, and another from IMC Global, dated
18 June 17th, 1995, both stating that they have no objection
19 to the drilling of this well.

20 Q. Do you know whether or not, based upon your
21 research, that the area we're seeking exceptions for --
22 whether that area is included with any dedication by a
23 potash lessee of being in an LMR, a life-of-the-mine
24 reserve declaration?

25 A. It is my understanding that we do not -- that

1 this acreage is not within an LMR.

2 Q. Do you have knowledge or information with regards
3 to whether or not your acreage that you've requested the
4 deletion for is located closer to an LMR than a quarter
5 mile, being the buffer for shallow wells?

6 A. No, sir, we are not located any closer than that.

7 Q. All right. So you're more than a quarter of a
8 mile from an LMR, and therefore you're outside even the
9 buffer area for shallow oil wells?

10 A. That is correct.

11 One thing I would like to reflect back on in the
12 very first plat, the green dots -- We spoke of what the red
13 dots represented. The green dots represent those wells
14 that were drilled with a potash casing.

15 However, there is one well located in the
16 northwest quarter of the northeast quarter of Section 16,
17 which is half green, half red. That wellbore was drilled
18 with a potash protection string. However, they did not
19 have a subsequent string of casing nor cement beyond those.
20 It was just open-hole below that, below the potash string.
21 So therefore it only had two strings of protection in it as
22 we propose.

23 MR. KELLAHIN: All right, sir. That concludes my
24 examination of Mr. Weant.

25 We move the introduction of the land portion of

1 Exhibit Number 1.

2 EXAMINER CATANACH: The land portion of the
3 exhibit will be admitted as evidence.

4 EXAMINATION

5 BY EXAMINER CATANACH:

6 Q. Mr. Weant, the letters from IMC and Mississippi
7 Potash both object to the drilling of the Federal 9 Number
8 7 well without the salt protection string; is that your
9 understanding?

10 A. Yes, sir, that is correct.

11 Q. Are your subsequent witnesses going to address
12 these concerns?

13 A. Yes, sir.

14 Q. Do you know, in the -- The previous method that
15 the BLM utilized in granting these exceptions, did it
16 involve contacting the potash companies?

17 A. I believe that is correct.

18 Q. Were any of the exceptions ever objected to by
19 the potash companies?

20 A. I assume they would. I don't have that
21 information.

22 Q. Just for my clarification, the acreage that
23 you're seeking exception to, again, is just the east half,
24 southeast quarter of Section 9?

25 A. No, sir, both -- We are seeking exception from

1 both cases, for all of the acreage shaded in yellow in
2 Sections 9 and 16, and also the tract which is hached in
3 the southwest quarter of Section 10.

4 Q. Do you feel like additional wells are going to be
5 drilled in the northeast quarter of 9?

6 A. In the northeast quarter of 9? That could be
7 something, yes, sir, depending on the -- I guess any change
8 in field rules, which I assume Mr. Mooney, our engineer,
9 will address.

10 Q. Do you have an LMR map that you made the
11 determination of the location?

12 A. The information we went off of was the R-111-P
13 order, which -- There's a copy of that behind the tab
14 labeled "Potash Regulations" in your booklet, and we --
15 that information was pulled off of those, off of the
16 exhibits on the back of it.

17 But to answer your question, we did not have a
18 map similar to the one that is hung up across from me,
19 which represented the acreage.

20 MR. KELLAHIN: Point of clarification, Mr.

21 Examiner: The topic of where an LMR is physically located
22 is a matter of confidence between the State Land Office,
23 the BLM and the potash lessee, and so the practice is sort
24 of hit and miss.

25 You have to go to the BLM, for example, with a

1 location. They will look at their confidential data, and
2 they will tell you if you're in an LMR or how far away you
3 are from it. And so you move your point around until you
4 decide if all your locations meet that criteria.

5 But we are unable under the rules to show you a
6 map or to have a map ourselves.

7 By using that process, though, we have been
8 told -- and the letter from the potash lessee confirms --
9 that we are not in an LMR, and we're more than a quarter of
10 a mile away.

11 Q. (By Examiner Catanach) That goes for all of the
12 acreage that you're trying to except?

13 A. Yes, sir, that is correct.

14 Q. Okay. Mr. Weant, do you know if the wells in
15 Section 16 -- if the operator attempted to get a exception
16 or did not attempt to get an exception, or do you know?

17 A. I cannot speak for all of the parties in there,
18 except for Stevens and Tull, which we have drilled one well
19 in 16.

20 We did attempt -- and Mr. Mooney can elaborate on
21 this more than I, since he files our APDs -- but we did
22 attempt to have the potash string deleted from our wells.
23 However, we were advised that it was a State of New Mexico
24 requirement that we have that string put in our well.

25 We have drilled the five wells up in Section 9

1 prior to drilling the well in Section 16.

2 Q. How many wells did you drill in 16?

3 A. In Section 16, currently we have only drilled one
4 well.

5 Q. Okay. You didn't seek an exception through this
6 procedure?

7 A. That is correct.

8 EXAMINER CATANACH: Okay.

9 Do you have any questions?

10 MR. CARROLL: Yeah, I have a couple questions.

11 EXAMINATION

12 BY MR. CARROLL:

13 Q. Mr. Weant, what's the relationship between
14 Noranda and IMC?

15 A. IMC has acquired the federal potash lease from
16 Noranda. Noranda has -- It's my understanding they have
17 basically pooled their interest in this area, and instead
18 of letting the lease just fall, IMC acquired it from them.

19 Q. When did that occur? Do you know?

20 A. In the very recent -- As I stated earlier, the
21 letters were sent to Noranda, we were not notified of it.
22 IMC -- I received a phone call approximately a month ago,
23 and they had advised me that that transaction had taken
24 place.

25 Q. And Mr. Weant, Stevens and Tull is not asking for

1 an exception to the shaded area in Section 17? It's just
2 9, 10 and 16?

3 A. That is correct. The only reason the acreage in
4 17 was colored is just to show our leasehold position in
5 the area, that we are -- that we have a vested interest.

6 Q. And which is the well drilled by Stevens and Tull
7 in 16?

8 A. In 16, it's our State BF Number 3 well. It is
9 located in the northwest quarter of the southwest quarter
10 of Section 16. You'll see there's one well labeled 2. It's
11 just due west of that, and a little bit north of it.

12 MR. CARROLL: That's all I have.

13 EXAMINER CATANACH: I have nothing further. The
14 witness may be excused.

15 MR. KELLAHIN: All right, sir. Call at this time
16 Mr. Mike Mooney.

17 MICHAEL G. MOONEY,

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

20 DIRECT EXAMINATION

21 BY MR. KELLAHIN:

22 Q. Mr. Mooney, for the record would you please state
23 your name and occupation?

24 A. Yes, my name is Michael G. Mooney. I'm a
25 consulting engineer on retainer with Stevens and Tull out

1 of Midland.

2 Q. On prior occasions have you testified before this
3 agency as a petroleum engineer?

4 A. Yes, sir, I have.

5 Q. As part of your engineering duties, have you made
6 a geologic and engineering evaluation of the opportunities
7 for Stevens and Tull to drill and develop further reserves
8 out of the West Teas Oil Pool?

9 A. Yes, sir, I have.

10 Q. And as a result of that evaluation, do you now
11 have certain conclusions and opinions?

12 A. Yes, sir, I do.

13 Q. In addition, have you made a study within your
14 expertise of how to properly drill, complete and produce
15 these wells so as to not cause undue waste of the potash,
16 pose a risk to mine safety or otherwise impair the
17 conservation of that resource?

18 A. Yes, I have.

19 Q. Have you a plan of drilling, completing and
20 producing that will allow us to recover hydrocarbons in
21 order to prevent waste and protect correlative rights for
22 the interest owners of that resource?

23 A. Yes, I do.

24 MR. KELLAHIN: We tender Mr. Mooney as an expert
25 witness.

1 EXAMINER CATANACH: He is so qualified.

2 Q. (By Mr. Kellahin) Let's talk about the geologic
3 components first, Mr. Mooney, in what appears to be, from
4 Mr. Weant's map, an area of well developed shallow oil
5 wells, which are known as this West Teas Pool. We are
6 dealing principally for production from what formation?

7 A. From the Upper Yates formation.

8 Q. All right. Let's turn to the geologic portion of
9 Exhibit 1, turn past the written summary, and let's look at
10 the first geologic map. This is a map on what?

11 A. This is a map on the top of the Yates.

12 Q. And it's a structure map?

13 A. That's correct.

14 Q. Describe for us the manner chosen by Stevens and
15 Tull and other operators to locate and produce these oil
16 wells.

17 A. Okay. Well, the Yates -- In general, the Yates
18 consists of seven sand sections.

19 In the Lower Yates is a prolific high water drive
20 zone, where the Upper Yates is an associated gas-type
21 reservoir. So it's critical on the Lower Yates to hit the
22 top of the feature or the top of the structure to make any
23 kind of commercial production. Anything offstructure
24 usually yields high water concentrations and usually are
25 not economical.

1 And the Upper Yates, however, produces
2 offstructure as well as onstructure and usually averages
3 somewhere around 50,000 barrels of oil out of the Upper
4 Yates.

5 Q. When we look at the top of the structure, that
6 appears in Sections 9 and 16 --

7 A. Yes, sir.

8 Q. -- and in the top portion of the structure, what
9 have the operators been producing out of the pool? What
10 portions?

11 A. Okay, in Section 16, in the very top part of the
12 structure, the operators have been producing out of the
13 Lower Yates, and some geologists call the Lower Yates the
14 top of the Seven Rivers; it's synonymous.

15 Q. That appears to be well and fully developed at
16 this point?

17 A. That is correct.

18 Q. When we look at the balance of -- When we look at
19 those wellbores, what kind of average cumulative oil
20 production have they achieved at these higher structural
21 positions in the reservoir?

22 A. In the high-structure positions, they averaged
23 right at 100,000 barrels per well.

24 Q. When you look at the area that Stevens and Tull
25 seeks to have the potash string deleted, what is your range

1 of expectation of ultimate oil recovery?

2 A. Well, we've experienced a range as low as 20,000
3 barrels and as high as 75,000, so we're saying the average
4 is going to be close to 50,000 barrels per well.

5 Q. Is that a reliable and accurate average estimate
6 of ultimate oil recovery as to these locations for which we
7 seek this exception?

8 A. Yes, sir, it is.

9 Q. Based upon that estimate of reserve, have you
10 applied the cost to drilling a well?

11 A. Yes, sir.

12 Q. And subsequent, we'll see your cost analysis?

13 A. Yes, sir.

14 Q. When we look at that conclusion, though, what
15 have you determined to be the consequence of having to
16 drill these wells with the string and without?

17 A. Well, with the potash string, the economics are
18 very -- What's the right word? They're almost not
19 economical. Our rate of return is less than 30 percent,
20 and normally we try to drill something around 40 percent,
21 as well as everybody else.

22 Q. Can you give us a general idea of the cost per
23 well we're looking at, that we save if we delete the string
24 and all the components involved in the string?

25 A. Yes, sir, I have -- Back here under the

1 "Economics" part of it I have actual costs. These aren't
2 estimates, these are actual costs.

3 As you heard in Section 16, Jerry Weant testified
4 that we drilled one with the string, and we've drilled five
5 in Section 9 without the string. So we have direct
6 comparisons on costs.

7 Q. What's the summary?

8 A. The summary is that the one with the salt string
9 costs about \$226,000, and without the salt string it's
10 \$162,000, meaning that it's an additional \$63,600 to add
11 the salt string.

12 Q. Per wellbore?

13 A. Per wellbore.

14 Q. And when you're looking at average recoverable
15 oil of about 50,000, what does it do to your economics if
16 you have to put the string in?

17 A. It hurts them real bad.

18 Q. Have you been able to put a current value price
19 on what this is in terms of dollars?

20 A. Yes, sir, it's -- We're looking at an additional
21 10 locations to be drilled as it stands right now. So
22 that's -- You know, that's \$600,000 per well -- I mean,
23 that's \$600,000 for the ten wells, additional cost.

24 Q. Can you approach this from a different point of
25 view and tell me approximately how much oil is wasted if we

1 have to put in the additional string?

2 A. Yes, it's right at 4000 barrels per well.

3 Q. And when you multiply that by the 10 wells, we've
4 got 400,000 barrels of oil?

5 A. Or 40,000 barrels of oil.

6 Q. 40,000 barrels of oil per well?

7 A. No, it's 4000 barrels of oil that's wasted per
8 well. On a ten-well package --

9 Q. All right.

10 A. -- that would be about 40,000 barrels.

11 Q. All right. Are we in a portion of hydrocarbon
12 production that we can afford to simply put in the salt
13 protection string and economically and efficiently drill
14 these wells?

15 A. No, sir, we're not.

16 Q. Have you come up with some alternative ways to
17 effectively and efficiently drill this well, or these
18 wells, and still protect potash?

19 A. Yes, sir.

20 Q. Let's turn behind this first geologic display,
21 and let's look at the next reference material. You have a
22 portion of a log. What are you showing here?

23 A. Okay, if you'll go -- The first log was just a
24 mud log, and basically all that does is show the tops of
25 the Yates, and it shows that -- you know, the salt section

1 where the potash is purported to be.

2 Q. All right. When we look at the salt section,
3 we're looking at the McNutt member of the Salado?

4 A. That's correct.

5 Q. And where is that going to be on your type log,
6 your mud log? What's the footage?

7 A. Okay, well, the best place to go to see that is
8 on the electric logs. That's the only place where we can
9 see it.

10 Q. And what is the footage?

11 A. It's about 2100 feet.

12 Q. Okay. And where will we find that information?
13 I guess we're going to have to turn behind the yellow tab
14 and look at your electric log?

15 A. That's correct.

16 Q. And then we'll flip six pages, and we get down to
17 about 2100 feet?

18 A. Right, at 2170 feet there's a gamma-ray kick on
19 the log, on the left-hand side of the log.

20 The only way we can distinguish potash is with
21 the gamma ray, because there's radioactive thorium in it
22 that exists in it, and that's the only thing we can use on
23 the log to determine where it is. And you'll find it down
24 there around 21- -- The tenth member of the McNutt is at --
25 Let's see, it would be 2176 feet.

1 Q. All right. So you have a good handle on where
2 the potash is in this immediate area?

3 A. Right, right, from the gamma-ray log, that's
4 correct.

5 Q. All right. Let's turn to the next tab, which
6 says "Potash Regulations".

7 A. Okay.

8 Q. What have you included in this section, Mr.
9 Mooney?

10 A. I have included some schematics showing what the
11 R-111-P regulations state as the wellbore -- how the
12 wellbore should be.

13 And then it also gives an option that R-111-P
14 gives us, and I've included the schematic. It's underneath
15 the "Engineering" part of it.

16 Q. All right. So the first portion of this tab is
17 simply the inclusion of R-111-P for reference for the
18 Examiner?

19 A. That's correct.

20 Q. All right. And the next tab, then, is the blue
21 tab that says "Potash Protection"?

22 A. That's correct.

23 Q. Let's turn to that section. If you'll turn past
24 the blue tab, let's talk about the data you've summarized
25 here. What are you looking at?

1 A. Okay, this data is what we've -- You know, we
2 have drilled several wells out there, and we've gotten this
3 information from the wells that we have drilled.

4 And what I'm hoping to do here is to show you
5 that the drilling fluids that we'll use when we're going
6 through the potash is a 10-pound saturated mud system.

7 And the virgin pressure of the Yates is -- it was
8 1125 pounds, and it's currently only 960 pounds pressure.
9 And because of that, with our drilling mud weighted at 10
10 pounds per gallon, we will always be overbalanced, so that
11 anytime we enter into the Yates formation, the migration of
12 any kind of fluids out of the Yates up into the potash
13 would be nullified.

14 Q. And you have good and accurate data in near-
15 wellbore situations to make this information valid?

16 A. That's correct, that's correct.

17 Q. All right. And you're dealing with shallow oil
18 production --

19 A. Yes, sir.

20 Q. -- as opposed to trying to drill deep gas wells
21 at high pressure?

22 A. That's right.

23 Q. All right. Your conclusion is that the drilling
24 system -- the mud system is overbalanced, and we're not
25 going to have any hydrocarbons moving during the drilling

1 portion of the well, to let those hydrocarbons migrate up
2 into the salt?

3 A. That's correct.

4 Q. Okay, let's turn to the next information behind
5 that first display. What are you showing here?

6 A. Okay, this is just a list showing all the
7 different wells that Jerry Weant had already showed you
8 earlier, that -- the ones that had the potash protection
9 and the ones that did not. It's just a summation of that.

10 Q. All right. Let's turn next to the first wellbore
11 schematic.

12 Having examined and certainly already knowing the
13 R-111-P requirements to the two options for drilling wells,
14 let's talk about the one option. Under R-111-P, one option
15 is to do what, sir?

16 A. One option is to go ahead and set your surface
17 casing down to 1350 feet, to protect any red beds and
18 freshwater zones.

19 And then at that point you can drill down to the
20 top of the Yates or -- 100 to 600 feet below the base of
21 the salt, set a second string, which is what they're
22 calling the salt string.

23 And then the third string -- Then you continue on
24 and you drill down another 300 or 400 feet to the Yates,
25 and then have to set another additional 5-1/2-inch string

1 inside of it.

2 Q. All right. Let's look at this schematic for a
3 minute. When I'm looking at the location of the McNutt at
4 approximately the 2100-foot interval --

5 A. Yes, sir.

6 Q. -- where will I be on this schematic?

7 A. On that schematic, you'll be below the surface
8 casing, and you'll be about midway in the intermediate
9 hole.

10 Q. Can you draw an arrow on my copy of this display
11 to show me where that's going to be? Or just draw a
12 horizontal line across the display.

13 You have put an arrow that, if you read in the
14 right-hand margin, it says "8 5/8 salt protection string
15 set 100 feet below base of the salt", right?

16 A. Right, that --

17 Q. Your arrow is just above that gap in the shading?

18 A. Right, it would be above it. It would be about
19 500 feet above it.

20 Q. Okay, you're at a point on this schematic so if
21 we're looking at the salt we're trying to protect, you're
22 going to have the reservoir, or the salt, on the far right?

23 A. Uh-huh.

24 Q. The first element separating the production from
25 the salt is going to be a piece of steel, isn't it?

1 A. You'll have the cement from the intermediate
2 string, and then you'll have the steel.

3 Q. All right. So the first shading is the cement
4 column --

5 A. That's correct.

6 Q. -- between the salt and the first piece of steel?

7 A. That's correct.

8 Q. All right. We move in and we have the steel
9 protection of that intermediate casing string, and as we
10 move inward towards the inner part of the wellbore, there
11 appears to be a void space that doesn't have cement?

12 A. That's correct.

13 Q. So the production casing, the space between the
14 production casing and this intermediate casing, is filled
15 with what?

16 A. At that point it's just filled with drilling
17 fluids.

18 Q. And that's permitted under R-111-P?

19 A. That's correct.

20 Q. And they call that one of the protection devices?

21 A. That's correct.

22 Q. So I've got this interval, this annular space
23 between the intermediate casing and the production casing,
24 that's filled with drilling fluids?

25 A. That's correct.

1 Q. All right. And inside the production casing,
2 then, what do I have?

3 A. Inside the production casing you would have your
4 tubing and rods that you require to pump the well.

5 Q. All right. So I have two pieces of steel and one
6 column of cement across the salt?

7 A. Yes, that's correct.

8 Q. All right. Let's look at the second option under
9 R-111-P and look at that schematic. Describe for us what
10 you can do currently under R-111-P, under this option.

11 A. Okay, since it's a shallow well, R-111-P allows
12 us to -- We still have to set the surface casing at 1350
13 feet, but they allow us to go down to 100 feet below the
14 salt and just tack the casing in place. And by "tack", I
15 mean maybe 50 to 60 sacks of cement, just to hold it in
16 place.

17 Then you drill out through the Yates formation --

18 Q. Now, you're ahead of me. I'm not following you.
19 Take me through the sequence. What do you do? First you
20 drill your hole?

21 A. Yeah, okay, first you drill your hole and set
22 your surface casing at 1350 feet.

23 Q. What kind of a wellbore size am I using, then, at
24 the -- to accomplish that?

25 A. Okay, you'll be setting 13-3/8-inch casing.

1 Q. And we take that down to 1350?

2 A. Yeah, 1350 feet.

3 Q. 1350 feet. And we set that and we cement it back
4 to surface?

5 A. That's correct.

6 Q. All right. Now what do I do?

7 A. Now you drill a hole like you would originally
8 with a 12-1/4-inch hole. You drill it down to 2800 feet.

9 Q. All right, so now I'm below the salt with that
10 process?

11 A. That's correct.

12 Q. And what do I do then?

13 A. Then you run your casing in the hole, the 8-5/8-
14 inch casing.

15 Q. All right. Let me find the 8-5/8-inch casing,
16 which is run in the hole, and it is below the salt, now?

17 A. That is correct.

18 Q. What do I do?

19 A. Then you tack the casing in place so that you can
20 drill another hole. And by tacking it in place, you
21 usually 50 to 60 sacks of cement.

22 Q. I am not taking that 8 5/8 casing and cementing
23 it back into the surface casing?

24 A. No, sir, you are not.

25 Q. What do I do then?

1 A. At that point, then, you drill a 7-7/8-inch hole
2 through the intermediate, and you drill out your Yates
3 formation.

4 Q. And what do I do then with that production
5 casing?

6 A. Okay, you then are allowed under R-111-P to
7 recover the intermediate casing, the 8 5/8. You are
8 allowed to recover that and run the 5-1/2-inch casing and
9 then cement it back to surface.

10 Q. Well, there's going to be a point in time under
11 this process where the salt is not protected with anything?

12 A. That's correct.

13 Q. How long does that happen?

14 A. This process would probably take you 24 hours.

15 Q. Under this approved process, then, I can expose
16 the salt for 24 hours on average?

17 A. On average.

18 Q. With no steel and no cement?

19 A. That's correct.

20 Q. And then what happens?

21 A. And then you will -- then at that point you would
22 circulate cement eventually all the way to surface from the
23 5-1/2-inch casing.

24 Q. And then I will tie that cement on the 5-1/2-inch
25 production casing back up into the surface casing string?

1 A. Yes, you'd bring it all the way to surface,
2 that's correct.

3 Q. And you circulate that?

4 A. Uh-huh.

5 Q. And so when all that is done across the salt
6 interval, I have one column of cement and one piece of
7 steel?

8 A. That's correct.

9 Q. Okay. Tell me what you want to do. Let's turn
10 to that display.

11 A. Okay, what I'd like to do is just go ahead and
12 drill the surface hole down to 1350 feet, set 8-5/8-inch
13 casing, cement it to surface, just like we've done on the
14 other three options, and then drill a 7-7/8-inch hole all
15 the way to the Yates, and then cement it to surface, run
16 the 5-1/2-inch casing in the hole, and then cement it to
17 surface.

18 Q. What's your engineering judgment and opinion
19 about the integrity of the wellbore drilled under that
20 plan, as compared to the options currently allowed under
21 the rule?

22 A. I don't see any difference.

23 Q. Okay. In fact, option 3 that you're trying to
24 exercise has equivalent or better integrity for protection
25 of the salt than at least one of the options that's already

1 allowed?

2 A. I believe that's correct, uh-huh.

3 Q. Do you have a specific drilling plan that you
4 propose and seek approval for?

5 A. Yes, sir, under --

6 Q. It's the "Engineering" tab.

7 A. Yeah, under the "Engineering" tab.

8 Q. Let's turn behind that. In the first page it
9 says "Well Plan". Let's turn beyond that, and you have a
10 summary?

11 A. Yes, sir.

12 Q. Let's look at the summary. Describe for us what
13 you're doing.

14 A. Okay, in the summary, basically what I've stated
15 is that we drill a 12-1/4-inch hole to 1350 feet, and then
16 we would run 8-5/8-inch casing and then cement it as per
17 R-111-P regulations.

18 Q. All right, let's circle the numbers that are
19 still in your plan that are required by R-111.

20 A. Okay. What's required by R-111 is 2, 3, 4, 5, 6,
21 7.

22 Q. All right, let's do it again. You're on the
23 "Drilling Prognosis and Procedure". Under R-111-P, 2, 3 --
24 what?

25 A. 2, 3, 4, 5, 6, 7 and 12, 13, 14.

1 Q. All right. What portion of R-111-P, then, are
2 you seeking exception for, if you're still complying with
3 all these pieces?

4 A. We are simply asking to remove the salt string
5 section of the R-111-P.

6 Q. Let's talk about a proposed change under your
7 plan. If you'll look at item number 9, it's suggested here
8 that you might run open-hole logs.

9 A. That's correct.

10 Q. What do you want to do now?

11 A. Okay, instead of running the open-hole logs, what
12 we would prefer to do is just go ahead and set pipe
13 immediately, and therefore limiting the exposure of any
14 salt or potash in the hole.

15 The time restraints are considerably less without
16 having to run open-hole logs.

17 Q. Under R-111-P, can you run an open-hole log and
18 still satisfy R-111-P?

19 A. Yes, sir.

20 Q. And you're suggesting, then, a requirement that
21 is more stringent than you could currently do, insofar as
22 running open-hole logs?

23 A. That's correct.

24 Q. Okay. All right, let's turn to the next page.
25 You've identified your "Mud Program".

1 A. Yes, sir.

2 Q. In fact, you have a whole well plan here that's
3 got all the details by which you or anyone else reading
4 this plan can do this well?

5 A. That's correct.

6 Q. All right. Go ahead and show us the rest of the
7 pieces.

8 A. Okay, the exhibit here that shows "Mud Program"
9 is just a simple program that we're drilling the surface
10 hole with fresh water to protect any freshwater sands and
11 setting the pipe at 1350 feet.

12 And then we're going to convert to a saturated-
13 brine mud system to prevent any kind of solution of any
14 salt section.

15 And then at TD we will raise the viscosity and
16 raise the filtrate so that we can run our pipe in the hole
17 without any problems.

18 Q. Let's look at the casing string design.

19 A. Okay, in the casing string design, the
20 information here just shows you what the -- what we plan on
21 running in the well, and it shows that our safety factors
22 are well within range.

23 Q. What's the classification of the casing strings?
24 Is there a number or a code attached to these various
25 strings?

1 A. Well, under the description it tells the weight
2 and the type of the casing that we're going to run.

3 On the 8-5/8-inch surface, it's 24 pounds, and
4 it's K-55 grade. And the K-55 grade has a strength of
5 263,000 pounds, and it has a collapse resistance of 1370
6 and a burst resistance of 2950.

7 Q. Are all these strengths, in your opinion,
8 designed that we don't expect any casing collapses in this
9 wellbore?

10 A. No. As a matter of fact, if you'll see where it
11 says "S.F." that's the safety factor. And in every
12 situation -- For instance, under the collapse, we're 2.29
13 on the safe. That's 229 percent below what the resistant
14 collapse would be. And the same thing with the burst.
15 We're way under the specs of the pipe.

16 Q. All right, sir. Let's look at the next display.

17 A. The next display is the same thing, only it deals
18 with the 5-1/2-inch casing. Again, safety factors are very
19 good.

20 Q. Okay. All right, and then you have a cementing
21 program schedule?

22 A. Right, the cementing program is pretty much
23 specified in the R-111-P. Their only requirement is that
24 you use at least .1 percent calcium chloride in the cement;
25 and in the surface casing we're using 2 percent calcium

1 chloride.

2 Q. How will you introduce your cement into the
3 wellbore and assure yourself that you've got adequate
4 cement coverage through the column necessary to protect the
5 salt?

6 A. Well, we will circulate the cement to make sure
7 that we have seen it from top to bottom.

8 Q. And to what extent do you circulate the cement?

9 A. I don't understand.

10 Q. A certain percentage over the calculated volume
11 of the cement used?

12 A. Oh, yes. Okay, yeah, we always use 100-percent
13 excess over the hole-volume calculations.

14 Q. Again, now, you have your cementing program for
15 the production casing?

16 A. Yes, sir, same scenario.

17 Q. All right. And then what happens after the well
18 is drilled. If it's -- can't be completed, there's a
19 plugging and abandonment procedure; if it's successful,
20 then upon abandonment there's a plugging procedure?

21 A. That's correct. Now, the plugging and
22 abandonment procedure is the recommendation of the NMOCD or
23 the BLM, depending on which lands we're on. But this
24 schematic here shows pretty much what -- Well, this is what
25 Jerry Sexton has showed would be required of any wells on

1 state lands that have to be plugged.

2 Q. All right. And this is consistent with what's
3 required for plugging wells in R-111-P?

4 A. Yes, sir, it is.

5 Q. We're not seeing an exception here?

6 A. No, sir.

7 Q. Finally, let's look at the wellbore configuration
8 in a producing situation.

9 A. Yes, this is typically just a wellbore schematic
10 showing a rod-pump unit. It shows the tubing and the
11 sucker rods. These wells -- You know, the Yates is low
12 pressure, so it does have to be put on pump to produce.

13 Q. Summarize your engineering conclusions about the
14 integrity of this wellbore and whether the exception can be
15 approved without posing a risk to safety or to unduly
16 wasting potash.

17 A. Yeah, it is my opinion that the -- in this
18 particular instance, for sure, there is no chance of ever
19 damaging any potash, and that the integrity of the wellbore
20 is certainly going to be adequate to protect it.

21 Q. Let's look now at the economic consequence to
22 your client, Stevens and Tull, and what it means to drill
23 the well with and without the salt protection string.

24 Do you have an economic section of the Exhibit 1?

25 Let's turn to the first display. It's captioned "Economic

1 Differences Between Casing Designs".

2 A. Yes, sir, this is just a review of the actual
3 cost, kind of summarized for easy reading.

4 But in this it -- Again, it shows the total cost
5 of the well that we drilled, the State BF Number 3 in
6 Section 16, using this string, the salt string, showing
7 that the actual cost of the well was \$225,879, which
8 yielded us like a -- It's going to yield us a 3.05-year
9 payout and a rate of return of 24 percent.

10 That in comparison to the well drilled, the
11 Federal 9 Number 2, without the salt string, the total cost
12 of the well was \$162,266, which gives us a payout of two
13 years with a rate of return of 39 percent.

14 Q. What are these calculations assuming in terms of
15 a revenue interest? Is this a 100-percent number, or is
16 this a net-revenue calculation?

17 A. No, this is a 100-percent number that -- The
18 royalties and stuff have not been taken out of this number;
19 this is just a gross number.

20 Q. All right. If you were to make an estimate or a
21 conclusion, what percentage of total recoverable oil
22 reserves are risked by adding the additional cost?

23 A. Well, at -- It's very sensitive, of course, to
24 oil pricing. But at \$15 a barrel, we need to recover 4240
25 barrels, conservatively.

1 And when I say "conservatively", again, that
2 doesn't take into consideration that we have expense for
3 royalty that we haven't taken out. These are gross
4 numbers.

5 But we've got to recover 4240 barrels of oil just
6 to get back to even.

7 Q. Well, that's about eight percent of your reserves
8 if you're using 50,000 barrels?

9 A. That's correct.

10 Q. And that's a gross number?

11 A. That's a gross number.

12 Q. All right. Let's talk about the additional
13 documentation. Behind that summary sheet there's a
14 separator sheet and then you get back to some detailed
15 information. What's this next display?

16 A. Okay, then the detailed information is the actual
17 cost of the two wells, broken out on -- by categories.

18 Q. If the Examiner decides to do so, then he can
19 take an existing well example back in 1992 of a well that
20 -- Was this one drilled without the string?

21 A. Yeah, the Federal 9-2 was drilled without the
22 string.

23 Q. And then he can compare it with an example in
24 1985 of a well that was drilled with the string?

25 A. That's correct.

1 Q. After that there's a red tab separating the
2 balance of the information under your section. What does
3 this show?

4 A. This is just an engineering and economics run on
5 the two wells, one with the salt string and one without.
6 It's basically showing you the input data and everything
7 from the conclusions that I gave you earlier on the payout
8 and all that kind of stuff.

9 Q. All right. Give us a quick summary of what's
10 involved in the \$64,000 of savings difference.

11 A. Okay, the bulk of it is in the drilling itself.
12 It's the drilling differences, because you've got to set
13 the extra pipe and everything. It comes out to be about
14 \$12,200.

15 Then we have an additional cementing cost for the
16 extra string of \$11,500.

17 Then we've got the extra cost of the casing,
18 which comes out to \$13,300.

19 And then the extra cost of the mud systems, it
20 comes out to some \$4100.

21 So about \$41,100 is just on them four items.

22 And then because of time restraints and
23 everything -- you have rentals and stuff like that -- it
24 costs more money.

25 Q. All right, and that will drive that number up to

1 about \$64,000?

2 A. That's right. These are just the main ones.

3 MR. KELLAHIN: All right. That concludes my
4 examination of Mr. Mooney, Mr. Examiner.

5 We would move the introduction of his portion of
6 the exhibit book. It represents the items between the land
7 testimony and Mr. Hutchinson's potash information. I
8 should have numbered them, but I failed to do so. It's a
9 little awkward, I'm sorry.

10 EXAMINER CATANACH: It's okay. That evidence
11 will be admitted.

12 EXAMINATION

13 BY EXAMINER CATANACH:

14 Q. Mr. Mooney, in your economic differences did you
15 assume a recovery of 50,000 barrels for those wells?

16 A. Yes, sir, it comes out on the economic sheet at
17 52,000 barrels.

18 Q. Okay. Now, I believe you -- earlier, on your --
19 behind the yellow tab, the "Geology" --

20 A. Uh-huh.

21 Q. -- some of those wells are recovering 100,000
22 barrels?

23 A. Yes, sir, the wells in the top feature that were
24 producing out of the Lower Yates, which is not a target for
25 Stevens and Tull at this point -- The Lower Yates, which

1 are in the blue dots that were up on the structure, they
2 cum'd 100,000 barrels per well.

3 But the yellow dots, which are what we're going
4 after, the Upper Yates, they're only going to cum about
5 50,000 barrels per well.

6 And our purpose of drilling down in Section 16 is
7 for the Upper Yates, not the Lower Yates.

8 Q. Why is that?

9 A. We feel that it's pretty much depleted. The big
10 reserves and the structure is very small and defined, and
11 that State BF well we took to the Lower Yates, and it's
12 uneconomical, and we're getting ready at this point to
13 recomplete it in the Upper Yates.

14 Q. Would the requirement that you utilize the potash
15 salt string -- Do you feel like that would preclude the
16 drilling of any of these wells?

17 A. Yes, sir, the reason being, is, as we start going
18 off the structure we've got one well -- That's the Federal
19 9-3. If you'll look behind the yellow tab where the yellow
20 dots are, it's the one over in the top. It would be the
21 northwest corner, the northeast of the northwest.

22 Q. Uh-huh.

23 A. As we start falling offstructure, that well there
24 will be lucky to make 20,000 barrels. Without the potash
25 string, you know, we at least achieve a payout on it. But

1 with it we would never have a chance.

2 And there's a lot of unexplored acreage over in
3 Section 10 that would be -- the economics wouldn't justify
4 taking a chance going that way, if we have to run the
5 string.

6 Q. Okay. The location of the potash reserves -- You
7 talked about the McNutt formation.

8 A. Yes, sir.

9 Q. Is that the actual potash interval?

10 A. Yeah, that's the part of the Salado formation
11 that they're doing their potash mining in, and the potash
12 expert will testify on where it is and everything exactly,
13 but we can locate it on our electric logs.

14 Q. And that's generally from -- Did you say 2170?

15 A. 2170 down to probably 2400 feet.

16 Q. That's the extent of the salt section entirely?
17 Out of that interval there's no additional salt?

18 A. No, sir, the actual top of the salt is at 1500
19 feet and goes down to about 2800 feet.

20 Q. The options -- The drilling options, where are
21 those identified within R-111-P?

22 A. Okay, if you go to page 6 and -- Well, actually
23 go to page 7. It shows you a section there in -- I think
24 it's labeled 3 (b), which is a salt protection string.

25 Q. Okay.

1 A. And (b) (i), it says, "For wells drilled to the
2 shallow zone" it says that "the string may be cemented with
3 a nominal volume of cement for testing purposes only", and
4 that in the event that you make a well, that you are
5 allowed to -- if you read on down it says it "may be cut
6 and pulled if the production string is cemented to the
7 surface..."

8 Q. Okay. Have you utilized this exact procedure in
9 any of your wells?

10 A. This one here?

11 Q. Right.

12 A. Where I pull the string out? No, sir, I have
13 not.

14 Q. Okay. So the R-111-P requirements, you're
15 looking at setting the salt protection string at what
16 depth?

17 A. Well, what the requirements say is a minimum of
18 100 feet below the base of the salt, and that's anywhere
19 from 2800 to 2900 feet, is where we'd be setting it.

20 Q. Okay.

21 A. And then the top of the Yates is at 3100 feet.
22 There's only 200-foot difference.

23 Q. Where is the base of the Yates? Do you know?

24 A. The base would be -- 3400 feet would be the top
25 of the Seven Rivers, so that would be about the base of the

1 Yates.

2 Q. Okay. Is it your impression that the salt
3 protection string of casing is designed to protect
4 primarily during drilling operations?

5 A. Well, the way I interpret the whole reason for
6 setting that was the fact that the potash miners were
7 afraid of drilling into some high-pressure zone that could
8 possibly put gas or hydrocarbons into the potash section.

9 That's -- So yes, it was during the drilling
10 operations. They were afraid of a blowout, if you will, or
11 contaminating from a high-pressure zone.

12 Q. Under your option, couldn't you still get some
13 gas migration going into a potential potash zone?

14 A. No, sir, because we would be overbalanced as far
15 as our drilling fluids go. So if anything, the drilling
16 fluids would be going into the Yates, preventing any kind
17 of migration at all out. We'd be overbalanced at all
18 times.

19 Q. How about during production operations?

20 A. During production operations, it would all be
21 sealed off with the cement from when we set the 5 1/2
22 casing.

23 Q. Is it a practice in -- during drilling operations
24 to reciprocate your casing?

25 A. Some people reciprocate casing, I do not. I

1 don't think it's a good idea. I rotate the pipe before I
2 cement it.

3 As far as circulating the cement, of the six
4 wells I've drilled out there, we've never had a problem
5 getting cement to surface, nor have we had a problem with
6 the bond of the cement. We've always been able to
7 circulate the cement.

8 Q. Have you run bond logs on some of these?

9 A. We have on a couple of the wells.

10 Q. And you've seen no --

11 A. We've seen no cracks.

12 Q. -- microannulus or anything of that sort?

13 A. No, by rotating the pipe you do away with the
14 microannulus.

15 And also, the R-111-P requires that we hold
16 pressure on the pipe for 12 hours before it's released.
17 That also helps prevent that.

18 Q. Is the procedure -- "Drilling Prognosis and
19 Procedure" you've got listed -- in the wells that BLM has
20 accepted, has this been the standard procedure --

21 A. Yes, sir, this is exactly how it is on the APD.

22 EXAMINER CATANACH: I think that's all I have for
23 this witness, Mr. Kellahin.

24 MR. KELLAHIN: We'd like to call Mr. Gary
25 Hutchinson now.

1 GARY L. HUTCHINSON,

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

4 DIRECT EXAMINATION

5 BY MR. KELLAHIN:

6 Q. Mr. Hutchinson, for the record would you please
7 state your name and occupation?

8 A. Gary Hutchinson. I'm a minerals management
9 consultant. I live in Golden, Colorado.

10 Q. Would you summarize for us your education, Mr.
11 Hutchinson?

12 A. I have a professional engineering degree in
13 mining engineering from the Colorado School of Mines. I
14 received that in 1962.

15 I have a master's of science in mineral economics
16 from the same institution. I received that in December of
17 1989.

18 Q. Were you retained by Mitchell Energy as an expert
19 in matters of potash, to testify and in fact qualify before
20 this agency in a prior hearing that deals with these same
21 topics?

22 A. Yes, I was.

23 Q. And you testified on the issue of potential waste
24 of recoverable potash resources with regards to Mitchell's
25 case?

1 A. That's correct, I did.

2 Q. That is in Section 4, just to the north of where
3 we're talking now?

4 A. Exactly.

5 Q. In addition, you used your expertise to determine
6 the available public information on potash core data and to
7 analyze that and to come to conclusions about whether the
8 potash resource in the Mitchell area could be mined at a
9 profit, did you not?

10 A. Yes, I did do that.

11 Q. Have you taken those basic studies in both those
12 areas, one of potash economics and of potential potash
13 recoveries, and extended them to now include the acreage
14 that Stevens and Tull seek to do what Mitchell got to do?

15 A. Yes, I did. In fact, they overlap by about three
16 square miles.

17 Q. In addition, have you previously been a qualified
18 expert witness before the Oil Conservation Commission in
19 these and similar related topics with regards to the Yates
20 and the Snyder Ranch cases that involved potash disputes
21 for drilling in the potash area?

22 A. Yes, I have testified in those cases.

23 Q. All right. Are you a recognized expert within
24 this field, acknowledged by this agency?

25 A. I would think so.

1 MR. KELLAHIN: All right, sir. We tender Mr.
2 Hutchinson as an expert witness.

3 EXAMINER CATANACH: He is so qualified.

4 Q. (By Mr. Kellahin) Let's give the Examiner, Mr.
5 Hutchinson, a general overview and a quick summary of what
6 you've done, and then we'll go back to the details.

7 First, let's talk about your major conclusions.
8 What have you found?

9 A. I have found that there is virtually no prospect
10 or viability of potash mining in the nine-section area
11 surrounding Section 16, and in developing that have looked
12 at the two most interesting areas of study, one, the
13 overall status of the potash mining in New Mexico, and then
14 focused on the public information available within the
15 nine-section plat, doing so because there are no existing
16 mines in the area, and I needed to look at the viability of
17 the development or potential for the development of any new
18 potash mines in the relative area, in the northeast portion
19 of the known potash area.

20 Q. Do you see with your expertise any reasonable
21 probability that the potash resource as it exists within
22 this nine sections is going to be developed within any
23 portion of the time frame in which the hydrocarbon
24 reservoirs are being accessed and produced?

25 A. I think the potash in this area will never be

1 developed, it's spotty at best, the grades are relatively
2 low compared to North American potash being produced today,
3 and conclude that even in the specific area that there is
4 -- not in the foreseeable future or any projectible
5 circumstances will potash be developed.

6 Q. Is there any reasonable probability that existing
7 mining operations would come close enough to this area that
8 as a result of their operations, subsidence would occur and
9 any of these wellbores would be put to physical pressures
10 that would compromise their integrity?

11 A. Because of the distances involved to existing
12 operations, which are tremendous distances, and the -- my
13 knowledge of subsidence studies in the general area, the
14 answer is no, there would never be a problem with
15 subsidence affecting the wellbores in this nine-section
16 plat.

17 Q. How far away do we have to go to find current
18 mining operations in the area which is equivalent to the
19 potash resource that exists in our area?

20 A. How far would we need to go --

21 Q. In a horizontal distance.

22 A. To get to the nearest operation?

23 Q. That is working at this interval?

24 A. One of my exhibits points that out, but I think
25 the nearest point where any mining has taken place and is

1 now not taking place and hasn't for some years is some four
2 and a half miles.

3 The closest operation going on today is much
4 further than that. It's approximately nine miles away, 9.2
5 miles away.

6 And next to that, the closest operation is over
7 14 miles away.

8 Q. Is it reasonable to conclude from your work that
9 there is no probability that a new mine and related
10 facilities could be installed in this nine-section area
11 during any time that would overlap with oil and gas
12 production?

13 A. Absolutely not.

14 Q. And there is no current mining operation that
15 would cause their activity to come forward into this nine-
16 section area so that the two extractions are somehow
17 competing or interfering with each other?

18 A. No, there is no possibility.

19 Q. Let's look at your study. If you'll turn to that
20 portion of Exhibit 1, let's look back behind -- We've
21 generally labeled it, I think, "Potash Economics", but it's
22 got a lot more in it. Let's start with the first page.

23 A. First page is a graph that shows the New Mexico
24 potash production since it topped out in 1966.

25 1965 was the date the last mine was put into

1 production in the Basin, and this is what we would consider
2 a very mature potash -- or mature mining area. Those areas
3 that are going to be developed have been developed, and the
4 first exhibit under my section shows the production of
5 metric tons of K_2O , which is the measure of potash that is
6 used universally, is steadily declining.

7 The heavy black line is just merely a regression
8 of those points, showing that it will decline.

9 I don't mean to say that there aren't some
10 valuable deposits of potash in the area.

11 Down in the very southern lobe of the potash area
12 are two mines that produce a mineral called langbeinite.
13 There is no langbeinite of any commercial value in the
14 northern half -- or northern two-thirds of the area, and so
15 I've excluded the possibility of langbeinite in this study.

16 It is, however, extremely limited. Those two
17 mines make a very highly specialized product. It's very
18 expensive. No one really wants to use it unless they
19 absolutely have to. Potash is a necessary element for
20 plant growth and -- So that's a very limited market,
21 limited production, as it applies to langbeinite.

22 The other potash mineral that is mined in great
23 quantities in the Basin here and is the most popular around
24 the world is the mineral that is called sylvite, and that
25 sylvite mineral is processed and sold as the most popular

1 fertilizer, called muriate of potash, and that's what I've
2 concentrated this study on.

3 Q. When you look at this decline in New Mexico
4 potash production, is there a reason to explain this
5 general decline?

6 A. Yes, there are several reasons which I'll get
7 into, but basically the supply and demand for potash in the
8 United States is -- The demand has continued to be very
9 great, but since the 1960s when the much higher grade
10 Canadian reserves began to go into production, potash
11 mining in New Mexico, being a mature area, has continued to
12 decline, as its product is -- its mined product is very
13 much less in quality than the Canadian reserves.

14 Q. The majority of New Mexico potash is the muriate
15 that is used for fertilizer, and that fertilizer market is
16 in the corn belt of the United States?

17 A. Yes, it is.

18 Q. Can you give us a general summary, as New
19 Mexico's potash product competes with the Canadian product,
20 is there a difference in quality of the ore that's
21 extracted by which that product is realized?

22 A. Yes, the -- In general, the Canadian products in
23 Saskatchewan, which again show up on some exhibits, are in
24 excess of 25 percent K_2O .

25 Q. That's a grade percentage, is it not?

1 A. Right, that's the amount of K_2O , which is a
2 chemical symbol for potassium dioxide [sic]. That's just
3 how the product is measured and sold around the world.

4 Sylvite is not K_2O , it's KCl . But that's beside
5 the point. Everybody measures it as K_2O .

6 Q. What's 25 percent a grade of? It's -- What?

7 A. That's the potash deposits that they're mining in
8 Canada, are about 25-percent K_2O , whereas in New Mexico the
9 current mines are down below 15-percent K_2O .

10 Q. If I'm taking a ton of this material out of the
11 mining operation, is 25 percent of it, then, this material?
12 What are we measuring 25 percent of?

13 A. The end product that is sold as muriate is
14 approximately 60-percent K_2O .

15 So if you're mining 25-percent K_2O , you have to
16 mine 60 divided by 25, that many tons, plus allowing for
17 some waste in the processing in mining, to make a ton of
18 product to sell.

19 In New Mexico, at 15-percent K_2O , concentrating
20 that to 60 percent K_2O so that it can be sold on the
21 market, it would take at least four tons. And allowing for
22 waste in milling and mining, it's considerably higher than
23 that.

24 So there's a remarkable difference. It's just a
25 physical difference as to how the deposits were made

1 through geologic time.

2 Q. In a simple summary, then, the quality of ore per
3 equivalent volume of material is four times better, I
4 guess --

5 A. It's --

6 Q. -- in Canada?

7 A. The Canadians have at least a 2-1/4-to-1
8 advantage. They can mine, for example, one ton and produce
9 the same product that it takes an average New Mexico
10 sylvite producer two and a quarter tons to mine and mill.

11 Q. Apart from grade, is there a component of cost
12 attributed to depth between the Canadian resources and the
13 New Mexico resources?

14 A. The Canadian resource are deeper, but many of
15 them were developed by the New Mexico potash miners, and
16 they -- their higher volume, quite a bit upgraded from a
17 technical standpoint. They do have their own mining
18 problems, but the comparative costs, cash costs, to mine a
19 ton in Canada are considerably less than they are in New
20 Mexico.

21 Q. Let's go through some of the illustrations of the
22 economics of that industry. If you'll turn to the first
23 pie chart, how do you summarize and describe the
24 information on this display?

25 A. There are three pie charts showing the US demand

1 uses for potash.

2 Five percent goes to chemicals, 95 percent to
3 fertilizer.

4 The middle pie chart shows where the demand comes
5 from. Currently 73 percent comes from Canada. Other
6 imports provide 7 percent. And domestic potash supplies 20
7 percent of the US demands.

8 To show all of the US potash production, 80
9 percent of which comes from New Mexico, 37 percent of that
10 is exported, 63 percent is used in this country, and that
11 equates approximately to the 20 percent in the pie chart
12 above.

13 So this exhibit tells us that we use potash
14 mainly for fertilizer, a huge portion of it comes from
15 Canada, and that that which we produce in this country is
16 exported for some reason.

17 Q. All right, let's go to the next display, and show
18 us the illustration of how you have quantified the
19 geographic demand for the product.

20 A. Trying to figure out what will happen to New
21 Mexico potash, we need to know where it's produced or how
22 it's produced and how it's used.

23 And in the top pie chart of the two, we see that
24 muriate is by far the most popular, because it's a cheaper
25 way of getting potassium into the soil, as compared to

1 sulfates which comprise -- at 5 percent, which comprise --
2 are made up in part by the mines in the southern end of the
3 Basin.

4 Now, as to where the potash is used in the United
5 States, 59 percent goes to the corn belt, which I'll get to
6 later.

7 The southeast states -- Florida, Georgia, that
8 area -- take nine percent. California takes two percent,
9 Texas four percent, and the remainder of the United States
10 only consumes 26 percent of the potash consumption in the
11 United States.

12 Giving us a lead here that we had better
13 concentrate on the corn belt, I made the next exhibit,
14 which is also a three-pie-chart exhibit. Concentrating
15 just on the corn belt area, only 11 percent of that
16 consumption of potash is provided from domestic sources, 89
17 percent from Canada.

18 I did a study excluding Missouri, which will be
19 obvious by the next exhibit. Without Missouri, 95 percent
20 of the potash to the corn belt comes from Canada and only 5
21 percent from domestic sources.

22 New Mexico's production in general duplicates the
23 demand for potash in the United States. It's 93-percent
24 muriate, 7-percent sulfates.

25 Q. Let's talk about the map, then, that shows the

1 distribution.

2 A. I made a study, then, once I realized the corn
3 belt was such a great demand area for potash, and on this
4 map I've located the Saskatchewan potash reserves as "SAS".
5 You can see they're just across the US border.

6 And the upper right-hand corner of the map, "NB"
7 stands for New Brunswick. Those are equally high-grade
8 deposits, much nearer the coast, that again were developed
9 by US potash companies, as it turns out, more in the late
10 Seventies through the Eighties. And I think that there are
11 two, perhaps three, mines that will reach full production
12 capability in the New Brunswick area, probably in the next
13 five years.

14 By comparison, you can see the general location
15 in New Mexico. My brown square is a little bit too far
16 west.

17 And then in Utah there are some underground
18 potash reserves that are being mined by solution methods
19 and evaporated.

20 California has quite a good, large production of
21 potash. It's predominantly as a sulfate, and I believe
22 it's all consumed in California.

23 Q. When we look at the corn belt that you've
24 identified with the yellow and the blue shading, there's a
25 subdivision in the plat that does it by percentage. What

1 does that mean?

2 A. Yes, the table in the lower right-hand corner of
3 this exhibit, for example, shows that Illinois consumes
4 approximately 13 percent of the potash consumed in the
5 United States. However, of the 13 percent of the total US
6 demand, only 3 percent of the 13 percent comes from
7 domestic sources.

8 And on down to a subtotal of the main corn-belt
9 states, we see that they consume 53 percent of the potash
10 consumed in the United States, but only 2 percent of that
11 53 percent comes from domestic sources.

12 Adding in Missouri, we have correspondingly 58
13 percent of what's consumed in the United States, and only 4
14 percent of that 58 percent comes from domestic production.

15 In looking at the geography of the map, that
16 tells us that potash must have a transportation advantage.
17 And certainly, the red line is an equidistant line between
18 New Mexico and Saskatchewan potash reserves, so that you
19 would expect that most of the potash consumed in Missouri
20 would come from New Mexico, and I presume that it does too.

21 Confidentiality agreements between the Bureau of
22 Mines and the potash producers in New Mexico keep us from
23 knowing exactly what that is. But if New Mexico produces
24 80 percent of the potash in the United States, I think we
25 can be on pretty good grounds to say that most of Missouri

1 is supplied by New Mexico.

2 However, Illinois, which is split by the red
3 line, and Indiana, you would think that there would be a
4 more even distribution, but there isn't. The conclusion
5 from that is that the Canadians must have a price advantage
6 in addition to a transportation advantage, and that in fact
7 is the case.

8 Q. Do you see in the foreseeable future that that
9 kind of relationship is going to change?

10 A. No, the Canadians have huge reserves. The New
11 Mexico reserves are extremely small, even on a North
12 American basis. On a world basis, they're even more
13 dramatic.

14 I took a look at where the muriate prices are
15 going, particularly for US producers, and that's on the
16 next exhibit. Again, it's a graph. I've put the prices
17 all in 1994 dollars to get away from inflation and so
18 forth, so --

19 Q. These are prices of what? Tons of K_2O ?

20 A. Yes, sir, these are dollars per metric ton of
21 K_2O , and those are muriate prices that are steadily
22 declining.

23 Very common in mineral economics, when a
24 commodity is well developed around an area of large demand,
25 prices will continue to decline. That's been the case with

1 just about everything except gold, which doesn't respond as
2 other commodities like copper and lead and so forth.

3 Q. Does the New Mexico potash industry have the
4 ability to set prices for their product, or do they simply
5 have to respond and take the prices offered?

6 A. The New Mexico potash industry is pretty much in
7 the same boat that the US oil industry is in. They are
8 price-takers.

9 People with the large reserves around the world
10 have such strength in volume that they can set the prices,
11 and the rest of the world, its producers, just have to take
12 those prices, with some variance.

13 But mainly -- Certainly in this case, the
14 Canadians are the price-setters, the New Mexico producers
15 are the price-takers. They really have no choice as to
16 what price there is.

17 It's an oligopoly in North America, the potash
18 industry, much as the oil industry is an oligopoly for the
19 OPEC producers.

20 Q. We've looked at price. Let's look at the
21 components of cost. If you'll look at the next display
22 with us --

23 A. Yes, there are --

24 Q. -- tell us about cost.

25 A. There are two tables on the next exhibit.

1 The upper one gives you an idea of why the
2 Canadians have such price control, just on the basis of the
3 volume they control.

4 In 1994, the USA only produced 6 1/2 percent of
5 the potash produced, whereas the Canadians produced 34
6 percent. The percent of world reserves, known reserves,
7 USA has less than 1 percent. The Canadians have almost
8 half of the known world reserves of potash.

9 Putting that in a term of art that the BLM and
10 the USGS likes to use, the term "resource", if you take all
11 the potash that's known, indications of potash, and
12 calculate those, as Bureau of Mines personnel like to do,
13 the USA has 1 1/2 percent of the world resource of potash.
14 And a lot of that is not in New Mexico; much of that is in
15 Michigan.

16 Canada has nearly 60 percent of the world
17 resource of potash. So they're certainly in the driver's
18 seat.

19 The lower table tries to compare the New Mexico
20 and Canadian muriate production. In 1993, the Canadians
21 produced well over six times as much as the New Mexico
22 producers. The prices, FOB mine -- Again, this is K₂O in
23 metric tons -- you can see here that the Canadians do have
24 a price advantage of -- compare \$124 a ton to \$100 a ton.

25 Cash costs per ton mined, this has nothing to do

1 with grade; it's just a physical 2000-pound ton that has to
2 be mined and brought up the shafts and put through the
3 mills. The New Mexico mines, being older -- some of them
4 date back to the Twenties and Thirties when they were
5 initiated -- have higher costs on a per-ton basis.

6 The grades mined in the next line are what I had
7 talked about earlier, the comparison of less than
8 15-percent K_2O to greater than 25-percent K_2O on average.

9 Now, here's a -- The next line is a key item to
10 me that tells me there will be no new sylvite mines opened
11 up in New Mexico, or any other place that doesn't have a
12 tremendous transportation advantage to the Canadians, or
13 grades of equal quality.

14 The New Mexico production is about 1.2 million
15 metric tons of K_2O per year. The Canadians, on the other
16 hand, can produce 12 million tons.

17 Now, if you'll look up to the first line of that
18 table, in 1993 they only produced 6.8 million tons. They
19 have the capacity to produce almost twice that. In
20 general, the Canadians are only producing at about 60
21 percent of their capacity. They do that on purpose because
22 they're the oligopolists that can hold back their
23 production to keep the prices up, much the way OPEC can do
24 it.

25 And then a familiar comparison in the last line,

1 in taking into consideration grade, mill loss, prices, the
2 Canadians have about a 2-1/4-to-1 advantage over the New
3 Mexico producers.

4 Q. All right, let's turn to the other topic now, Mr.
5 Hutchinson. Let's look at the data and the specifics of
6 the nine-section area that's the topic of the specific
7 decision the Examiner makes.

8 First of all, let's talk about the color code on
9 the next display. What does that mean?

10 A. Yes, the next display is the nine-section plat,
11 and it's similar to an earlier presenter.

12 This shows, as I put it together, that blue area
13 which is within the nine-section plat that is leased USA
14 land. That Section 8 does belong to IMC Global. It had
15 previously belonged to Noranda.

16 The orange is state land that's leased to two
17 parties. In Section 17, the south half of the south half
18 is New Mexico Potash Corporation, and all of 16 is
19 Mississippi Potash, Inc. Previously it was called
20 Mississippi Chemical.

21 Q. And the balance of the acreage is unleased
22 federal?

23 A. Yes, and to my knowledge that area has never been
24 leased, or certainly not in the recent past. There was a
25 lease in two of the sections immediately to the east that

1 belonged to Noranda. They gave that up some years ago.
2 They had a large block and never did develop a mine.

3 Q. In addition, this display has got some potash
4 core data, and there's a way to identify those locations
5 and to put a code on that information?

6 A. Yes, the triangle shape are core holes, and a
7 couple of exhibits later I can -- I utilize those quite a
8 bit more.

9 Q. Those triangles then represent potash core data?

10 A. Yes, they do.

11 Q. In addition, there are other symbols in here
12 which are conventional oil and gas symbols?

13 A. Yes, they are, dryholes, oil wells. My map is
14 probably not as accurate as earlier ones that you have
15 seen, but I try to demonstrate in here what oil development
16 there had been -- or in one instance I think there's a gas
17 well, a couple of gas wells -- just for my information in
18 determining the importance of the potash.

19 Q. All right. In locating this basis of data for
20 potash cores and some of the oil and gas geologic logs that
21 might otherwise be used to help locate potash, have you put
22 on the map all the data points that you were able to find,
23 either at the BLM or the State Land Office, concerning
24 potash cores?

25 A. Yes, everything that I've been able to assemble

1 over recent months and going back to dealings in the
2 general area with the BLM and the State, I've tried to put
3 every -- the location of potash corehole that I have any
4 knowledge of.

5 Q. In addition, in the last few weeks you have
6 updated your database and included further information
7 available through the Bureau of Land Management?

8 A. Yes, the BLM has a practice that -- and under
9 federal oil and gas leases, they're required to give the
10 oil and gas lessee information, limited information, on
11 corehole -- potash corehole data, as to whether it's
12 economic or subeconomic, given the BLM's own internal
13 criteria, which hasn't been updated since the mid-1970s.
14 But that's --

15 Q. But you've made a recent check to see if there's
16 any more of that information available to you, and you've
17 added it to your database?

18 A. Yes, I have.

19 Q. All right. None of the information that you're
20 about to describe is confidential or violates any
21 proprietary agreements with any regulators or potash
22 company?

23 A. No, it does not. It's purely public information
24 sources.

25 Q. All right. Let's look at the next display, which

1 is a copy of the Secretary map. It's the 1993 version, I
2 believe.

3 A. Yes, this is the 1993 version, somewhat difficult
4 to read, but I wanted to point out where the mines in the
5 area are, relative to this specific question of nine-
6 section area.

7 The line going to -- 14 miles long, goes to the
8 nearest Mississippi Potash operation. They do own a mine
9 that's immediately to the west, about ten miles, but that
10 mine was shut down in 1982, probably as a result of the
11 economic duress of the potash industry.

12 The two distances of 4.5 miles and 9.2 miles is
13 to the New Mexico Potash Corporation mine. The 4.5 miles
14 is to the nearest point in that mine, and they have
15 curtailed operations in that part of the mine. They did
16 that some years ago, more than five, I think. And they're
17 currently working down in the area that is indicated by the
18 line that is 9.2 miles long.

19 Q. When we look at the point of origin of those
20 line, are we looking at Section 16?

21 A. That's approximately the center of Section 16,
22 the center of the nine-section plat.

23 Q. All right. And so north of 16, then, on this
24 map, we're looking at Section 9, and a substantial portion
25 of Section 9 is shaded in pink?

1 A. Yes, it is.

2 Q. What does that represent, using the BLM criteria,
3 as inferred on their map?

4 A. The BLM uses -- in this map it came out pink --
5 an area that is barren of potash ore. Their darker blue
6 area is generally a color they use for potash they think to
7 be of commercial grade.

8 Again, their definition of commerciality was
9 developed in the 1970s, and we can see that a lot of things
10 have changed economically since then for the New Mexico
11 potash industries.

12 Q. But as of 1993, using the BLM criteria, by their
13 own admission a substantial portion of Section 9 is barren
14 of potash?

15 A. Nearly all of it is barren of potash.

16 Q. All right, let's go to the next display.

17 A. This is really the meat of the specific area
18 analysis. It's somewhat complicated. I'll try to go
19 through it so it's understandable.

20 The hatched red lines are those areas that the BLM
21 has designated as noncommercial. You can see that a good
22 bit of the north part of Section 8, almost all of Section
23 9, are, by BLM terms, noncommercial.

24 Q. All right. Let's take that point as an assumed
25 item at this point. The red line indicates what the BLM

1 says is barren.

2 What have you done with this light tan line
3 that's also on the map? What does that represent?

4 A. Well, let me also point out, because we'll need
5 it later, that K-125, which is in the very southeast
6 quarter of Section 17, is a corehole that is barren in all
7 zones, according to the BLM, and you can see that they have
8 -- their methodology just allows them to go out a quarter
9 or a mile from that barren hole, or approach in a halfway
10 distance over to the southwest corehole I-153 and say, you
11 know, that's -- Rather than isopaching the grades, they
12 just sketched those in. And I don't think that area or the
13 one to north has changed since 1975.

14 Q. What have you done, then, with this light tan
15 line?

16 A. I've looked at all the public information that I
17 could get, and my knowledge of what grades of potash I
18 think to be economic, given an extremely important
19 assumption. That assumes that there is a mine in the area,
20 close by, that would allow a mine to mine approximately 14-
21 percent K_2O , product. I think that is something that can
22 be mined today, if you already have a mine there and you
23 have already paid all of your capital costs. And keep in
24 mind, a new mine would cost about \$150 million, a sylvite
25 mine.

1 Making that very important assumption, I've said
2 if there is a mine in the area, I've designated a line --
3 and the data is somewhat sketchy, and I've put some
4 question marks in that line to try to show what I think
5 would be unmineable by today's economics, if you had a mine
6 right there, say, somewhere along the perimeter of this and
7 could mine up to that mine. That's about as far as a
8 potash mine would go.

9 You can see that it certainly would not go into
10 Sections 16 and 17 and 9 and only a limited part of 10, and
11 that would be very marginal.

12 Q. All right, let me interrupt you for a moment on
13 this display, and let's go back and describe to the
14 Examiner the nomenclature.

15 This map deals only with the 10th potash zone.
16 If you'll go to the last display of your book, we have a
17 cross-section, if you will, an illustration, that will show
18 by depth how the potash industry numbers their various ore
19 zones. If you'll turn to that --

20 A. It's the very last exhibit, I believe, that you
21 have --

22 Q. On the very last page.

23 A. -- and it may help you with a question you had
24 earlier.

25 On the left-hand side, the general Basin geology

1 of the Ochoan, you can see the McNutt member. That's the
2 middle diagrammatic section. Then tracing the McNutt
3 member, again, to the diagrammatic section on the right,
4 you see the top of the McNutt at the Vaca Triste.

5 Then the ore zones are numbered from bottom to
6 top, and I've made some notes here for your information
7 that the 11th ore zone is not common throughout the Basin.
8 The 10th ore zone is, and it's mined by New Mexico Potash.
9 It does contain some clay. It was the zone that was last
10 developed in 1965, and therefore, I would conclude as a
11 mining engineer and economist, the least advantageous
12 potash deposit to mine.

13 The Number 9 is rare, 8 contains a lot of clay, 7
14 does, 6 is not common.

15 Then the really good zones of langbeinite, which
16 only occur way to the south, are the Number 4 and Number 5.

17 Number 3 is very low grade, 2 is not commercial.

18 And the area -- The bed that brought the potash
19 mines into the area in the first place, way over on the
20 west side, was the Number 1 bed, and that's really been the
21 bed that brought everyone in and caused development of
22 potash in the area. It's very shallow, and the potash gets
23 quite a bit deeper as you go to the east.

24 Q. As we come back, then, and look at the mapping of
25 the 10th potash zone, how far west do we have to go to find

1 that that zone shown is currently being mined?

2 A. The 10th ore zone?

3 Q. Yes, sir.

4 A. I don't believe the 10th ore zone is mined
5 anywhere except in the mine immediately to the southwest,
6 in the New Mexico Potash area. There may be some 10th ore
7 mining going on way down in the very southwest lobe of the
8 Basin, for some specialty-product reasons, but that's the
9 best of my knowledge.

10 Q. Let's spend a moment and talk about what the BLM
11 criteria is and how they apply it in order to generate
12 something that looks like the 1993 map.

13 For example, when they're contouring, if you
14 will, the decision about whether it's economic or barren,
15 that economic-or-barren decision has got some parameters
16 that are based back on 1975 economics, are they not?

17 A. Yes, that's correct. The BLM seems to take one
18 ore zone at a time, they consider ore zones. Then they
19 will check that zone to see if it as at least four feet in
20 mining thickness, of 10-percent K_2O , as sylvite, or four
21 percent of K_2O as langbeinite that is also at least four
22 feet deep.

23 If they find that criteria in a single corehole,
24 they will compare that to coreholes that fall within a mile
25 and a half.

1 If they find coreholes within a mile and a half
2 that are also in that same zone, and above their economic
3 cutoff grades that I just gave you, they will consider that
4 ore.

5 And they've been using that same criteria since
6 the mid-Seventies, that I'm aware of.

7 Q. All right. And part of their own criteria, then,
8 is to take three coreholes within a mile-and-a-half area,
9 and if they have those, then, under this 1975 economics and
10 that procedure, they will make a decision if that zone is
11 economic?

12 A. Yes.

13 Q. All right.

14 A. And they'll make an outline of that zone, and
15 they'll do that for all zones, and then they'll make an
16 outline without any consideration for differences in depth,
17 just a general outline of the areas they think to meet
18 their economic standards.

19 Q. All right. When we look at the display for the
20 10th potash zone, can we find three potash core datas that
21 meet the economic criteria and are within the 1-1/2-mile
22 radius of each other?

23 A. I can't. You could go off of this map as -- to
24 the north and west of Section 8, and there are some
25 coreholes in that direction that might make I-244 and I-141

1 economic, but I -- The BLM doesn't give that information
2 out; they just say it's economic or subeconomic. This
3 method seems to make a lot more sense to me in the 10th ore
4 zone.

5 So with that exception, there aren't any
6 coreholes that meet the BLM's own criteria for ore on this
7 nine-section plat.

8 Q. All right. Let's turn and look at a composite of
9 all other potash zones, then, on the next display, and show
10 us what you've concluded.

11 A. There were two other zones that the BLM informed
12 us were economic: the 3rd ore zone, which is 150 feet below
13 the 10th ore zone in this area, and the 8th ore zone, which
14 is maybe 50 feet below the 10th ore zone in this area, both
15 of them very -- throughout the Basin, very marginal
16 economically.

17 In fact, I'm not sure that anyone mines the 8th.
18 The 3rd has been mined in very special circumstances, when
19 they had mined out the 1st ore zone and went up 20 feet and
20 mined some of the 3rd ore zone.

21 To point out why the BLM map has to be taken with
22 a grain of salt, I would direct your attention to Section
23 16, the potash core hole U-115. They informed me that it
24 was barren in the 8th ore zone -- that's what the "B"
25 stands for -- and that it was economic in the 3rd ore zone.

1 Now, I would ask you to go to the southwest and
2 look at K-125. They informed me that in the 3rd ore zone
3 it was barren. And again, back to U-115 and going up to
4 I-144 to the northeast, they informed me that the third ore
5 zone was barren.

6 Now, between I-144 and K-125 is less than a mile
7 and a half. The two outside holes are barren in the 3rd,
8 as well as the 8th, but U-115 they show as economic. Well,
9 that violates their own criteria, which makes me wonder why
10 on the previous exhibit they did not include U-115 in their
11 barren area.

12 But that particular map I've been studying for
13 years, and it's -- Situations like this exist all over the
14 place.

15 Q. Summarize for us, then, what your conclusions
16 about the viability of mining potash in the nine-section
17 area, with the assumption that you could do it without
18 adding any more capital costs attributed to mines, mine
19 shafts and milling.

20 A. All right. Let me point out one other physical
21 problem with this area, for potash mining.

22 On the exhibit that has the red and the orange
23 lines, above the potash corehole locations, I've indicated
24 the depth to the 10th ore zone. It looks like in Section
25 16 that it would be about 2100 feet deep. That was

1 confirmed by a previous witness using oilfield electric
2 logs.

3 That is 20 percent deeper than any other mining
4 that's going on in the Basin.

5 The deepest mine is the New Mexico Potash Mine,
6 and they have had some explosion problems there as a result
7 of pressure. Not detonation, but pressure.

8 So this is 20-percent deeper. Another perhaps
9 physical disadvantage of mining in this area.

10 Q. All right. To mine this area despite depth and
11 all those issues, if you were to try to access it from
12 existing operations, and assuming that you had somehow
13 bridged this -- anywhere from 4.5- to 9-mile horizontal
14 distance, is it economic to mine this potash?

15 A. No, it is not. Really, the two reasons that I
16 pursued after exploration of the problem, you can take
17 either the general situation of sylvite potash mining in
18 the area, and no rational mining company, nor lender, would
19 -- seeing Canadian reserves around us, would take on the
20 risk of developing a mine, in general.

21 You get to the physical constraints, the physical
22 area of the nine-section plat, and if there were a mine
23 there, these are very -- Well, there are no economic
24 reserves in the area, and on the fringe of the area there
25 might be, but we don't have enough information to tell

1 that, and the potash companies' exploration people don't
2 seem to want to take the risk to drill any more coreholes
3 to pursue any of the sylvite grades that do exist.

4 Q. In summary, Mr. Hutchinson, do you see any reason
5 not to approve this Application from the point of view of
6 your expertise?

7 A. Not at all.

8 MR. KELLAHIN: That concludes my examination of
9 Mr. Hutchinson.

10 We move the introduction of his exhibits.

11 EXAMINER CATANACH: Mr. Hutchinson's exhibits
12 will be admitted as evidence.

13 EXAMINATION

14 BY EXAMINER CATANACH:

15 Q. Mr. Hutchinson, on your map that you've got the
16 tan and the red displays, that just includes which zones?

17 A. It's the 10th ore zone. It's the only ore zone
18 that seems to have any hint of commerciality in the general
19 area, not just the nine-section plat, but within a ten-mile
20 radius of this area.

21 Q. You've looked at all the other -- All the other
22 zones don't appear to be commercial in any form or fashion?

23 A. No, there was just that one example of the U-115
24 that even the BLM, with their outdated economics, thought
25 might be economical way down in the 3rd ore zone, another

1 150 feet of expensive shaft or ramping down get to. And
2 it's very limited by the next exhibit. It has barren holes
3 on either side of it.

4 Q. Where did you arrive at the figure of \$150
5 million to initiate mine operations?

6 A. Throughout the last more than three years it's
7 been a question that I've explored, and that's, you know,
8 part of what I do for a living, economics of mining
9 operations.

10 I might point out one other point.

11 The Mississippi Potash lease and the New Mexico
12 Potash lease are not contiguous to any other leases they
13 have in the area. Those leases that are shown in the nine-
14 section plat are not contiguous to any other potash leases
15 that they -- either company has in the area, and I assume
16 were just part of a lease package, when they took their
17 other leases -- and obviously too small to develop by
18 themselves.

19 Q. You don't foresee any change in the price of
20 potash in the near future, or even the long term?

21 A. My prediction is, it will continue down.

22 One other problem we have in the world with
23 potash prices is the former Russian countries, Belorusse
24 and Russia itself, control the known potash reserves that
25 Canada doesn't control, and I think that they're in a

1 situation of needing hard dollars, or hard currency, and
2 their situation is today that they will be selling potash
3 anywhere they can.

4 Now, there have been some agreements between US
5 -- our government and those producers that they'll not sell
6 -- or they'll try to avoid selling way below cost. But my
7 experience tells me that they're not really sure what their
8 costs are, having been a centrally planned economy for so
9 many years, versus a market economy, which they're trying
10 to become.

11 EXAMINER CATANACH: Okay, I have nothing further
12 of the witness, Mr. Kellahin.

13 MR. KELLAHIN: Mr. Examiner, I have two items to
14 submit to you.

15 One is the certificate of notice, which we've
16 marked as Exhibit 2.

17 And Mr. Hutchinson has provided me with a short
18 summary of his presentation which would provide a narrative
19 supplement to his exhibits. I'd like to submit that to
20 you.

21 EXAMINER CATANACH: Okay, Exhibit Number 2 will
22 be admitted as evidence.

23 Mr. Kellahin, would you kindly prepare a rough
24 draft order in this case?

25 MR. KELLAHIN: Yes, sir, I'd be happy to.

1 EXAMINER CATANACH: Okay, there being nothing
2 further, Case 11,323 and 11,338 will be taken under
3 advisement.

4 (Thereupon, these proceedings were concluded at
5 12:38 p.m.)

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**I do hereby certify that the foregoing is
a complete record of the proceedings in
the Examiner hearing of Case No. 11323, 11338
heard by me on July 27 1995.**
David R. Catanach, Examiner
Oil Conservation Division

CERTIFICATE OF REPORTER

STATE OF NEW MEXICO)
) ss.
COUNTY OF SANTA FE)

I, Steven T. Brenner, Certified Court Reporter and Notary Public, HEREBY CERTIFY that the foregoing transcript of proceedings before the Oil Conservation Division was reported by me; that I transcribed my notes; and that the foregoing is a true and accurate record of the proceedings.

I FURTHER CERTIFY that I am not a relative or employee of any of the parties or attorneys involved in this matter and that I have no personal interest in the final disposition of this matter.

WITNESS MY HAND AND SEAL August 1, 1995.



STEVEN T. BRENNER
CCR No. 7

My commission expires: October 14, 1998