

1 STATE OF NEW MEXICO
2 ENERGY AND MINERALS DEPARTMENT
3 OIL CONSERVATION DIVISION
4 STATE LAND OFFICE BLDG.
5 SANTA FE, NEW MEXICO

6 5 November 1986

7 EXAMINER HEARING

8 IN THE MATTER OF:

9 Application of Santa Fe Energy Oper- CASE
10 ating Parters, L.P., for Hardship Gas 9021
11 Well Classification, Eddy County, New
12 Mexico.

13 BEFORE: Michael E. Stogner, Examiner
14

15 TRANSCRIPT OF HEARING
16

17 A P P E A R A N C E S
18

19 For the Division: Jeff Taylor
20 Legal Counsel for the Division
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22 State Land Office Bldg.
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23 For the Applicant: James G. Bruce
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I N D E X

GARY GREEN

Direct Examination by Mr. Bruce 4

ANTHONY J. WELKER

Direct Examination by Mr. Bruce 7

Cross Examination by Mr. Stogner 20

E X H I B I T S

Applicant Exhibit One, Plat 5

Applicant Exhibit Two, Correspondence 6

Applicant Exhibit Three, Wellbore Diagram 10

Applicant Exhibit Four, Graph 10

Applicant Exhibit Five, Wellbore Diagram 12

Applicant Exhibit Six, Charts and Logs 15

Applicant Exhibit Seven, Tabulation 15

Applicant Exhibit Eight, Chronology 31

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MR. STOGNER: Call next Case
Number 9021.

4

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6

MR. TAYLOR: The application of
Santa Fe Energy Operating Partners, LP, for Hardship Gas
Well Classification, Eddy County, New Mexico.

7

8

MR. STOGNER: Call for appear-
ances.

9

10

11

MR. BRUCE: Mr. Examiner, my
name is Jim Bruce from the Hinkle Law Firm in Santa Fe, rep-
resenting Santa Fe Energy Operating Partners.

12

13

MR. STOGNER: Are there any
other appearances?

14

15

Being none, do you have any
witnesses?

16

17

MR. BRUCE: I have two witen-
ses to be sworn.

18

19

MR. STOGNER: Will both witen-
ses stand at this time and be sworn.

20

21

(Witnesses sworn.)

22

23

GARY GREEN,

24

25

being called as a witness and being duly sworn upon his
oath, testified as follows, to-wit:

1
2 DIRECT EXAMINATION

3 BY MR. BRUCE:

4 Q Would you please state your name and city
5 of residence?

6 A My name is Gary Green and I reside in
7 Midland, Texas.

8 Q And what is your occupation and who is
9 your employer?

10 A I am occupied as a landman for Santa Fe
11 Energy Operating Partners, LP.

12 Q And have you previously testified before
13 the New Mexico OCD?

14 A No, I have not.

15 Q Would you please briefly state your edu-
16 cational and work background?

17 A I have been employed in the Land Depart-
18 ment end with various companies since 1975. I've worked for
19 Texaco, Coquina, and for the past three and a half years for
20 Santa Fe Energy Company in various positions.

21 Q And has your position for Santa Fe Energy
22 Company included work in eastern New Mexico?

23 A Yes. It is at this time exclusively West
24 Texas and New Mexico.

25 Q And are you familiar with Case 9021 and

1 the land matters involved therein?

2 A Yes.

3 MR. BRUCE: Mr. Examiner, is
4 the witness considered qualified?

5 MR. STOGNER: Mr. Green is so
6 qualified.

7 Q Mr. Green, would you please briefly state
8 what Santa Fe seeks by its application?

9 A Santa Fe seeks a determination that its
10 Walker No. 1 Well, located in Unit letter I, Section 21, 22
11 South, 27 East, Eddy County, New Mexico, is a hardship gas
12 well entitled to priority access to the gas market under the
13 OCD Rules 408 through 412.

14 The Walker No. 1 Well produces from the
15 Carlsbad Morrow South Prorated Gas Pool and Santa Fe also
16 seeks to have a minimum flow rate established for production
17 from this pool.

18 Q Would you now please refer to Santa Fe's
19 Exhibit Number One and describe its contents?

20 A Exhibit Number One is a six section land
21 plat showing the Walker No. 1 Well and other wells in the
22 area. The offset operators are also listed and they are
23 Petro Lewis to the North, Alpha Twenty-One to the southwest,
24 Santa Fe Energy Operating Partners, LP, to the south, south-
25 east, and to the east, and V. H. Westbrook to the northeast.

1 To the west, the west half of Section 20
2 is operated by Belco, now Enron. The easthalf of Section 20
3 has no operator but to the best of our knowledge the two
4 lessees are Kerr McGee and Texaco.

5 Please note that the wells in the north
6 half of Section 22 and the north half of Section 28 are dry
7 holes in the Morrow. In addition, the XL No. 1 Well in the
8 east half of Section 20 produced small amount of gas from
9 the Morrow but were later plugged and abandoned.

10 Q Were the purchaser and the offset opera-
11 tors or leasehold owners notified by this hearing -- of this
12 hearing by certified mail?

13 A Yes. Copies of the letters of notifica-
14 tion and certified return receipts are submitted as Exhibit
15 Two. We have not yet received the receipts from Westbrook
16 and Llano but would forward -- will forward copies to the
17 OCD when received.

18 Llano is the gas purchaser for this well.

19 Q Were Exhibits One and Two compiled from
20 the business records of Santa Fe?

21 A Yes.

22 Q At this time, Mr. Examiner, I'd move the
23 admission of Exhibits One and Two.

24 MR. STOGNER: Exhibits One and
25 Two will be admitted into evidence at this time.

1 MR. BRUCE: I have no further
2 questions of this witness at this time.

3 MR. STOGNER: Neither do I, Mr.
4 Green.

5 Are there any other -- does
6 anybody have any questions of this witness?

7 If not, he may be excused.

8 Mr. Bruce.

9

10 ANTHONY J. WELKER,
11 being called as a witness and being duly sworn upon his
12 oath, testified as follows, to-wit:

13

14 DIRECT EXAMINATION

15 BY MR. BRUCE:

16 Q Mr. Welker, would you please state your
17 full name and your city of residence?

18 A My name is Anthony J. Welker, W-E-L-K-E-R.

19 Q And what is your occupation and who is
20 your employer?

21 A I live in Midland, Texas. My occupation
22 is District Production Engineer for Santa Fe Energy.

23 Q And have you previously testified before
24 the OCD?

25 A No, sir, I have not.

1 Q And would you please give a summary of
2 your educational and work background?

3 A I graduated in 1974 with high honors from
4 New Mexico State University. My degree with them is a
5 Bachelor of Science, civil engineering.

6 I have graduate level courses at New Mex-
7 ico State University in groundwater hydrology and some heavy
8 oil recovery process courses at University of Southern Cali-
9 fornia.

10 I do have other post-graduate courses at
11 the University of Michigan and some courses at Amarillo Col-
12 lege.

13 My work history, from 1972 to '74 I was a
14 technical assistant with the New Mexico Water Resources Re-
15 search Institute in Law Cruces.

16 From '74 to '76 I was a Field Engineer
17 with Texaco, Incorporated, in south central Oklahoma.

18 From 1976 to 1981 I was a production en-
19 gineer with Santa Fe Energy, working predominantly in the
20 Permian Basin but sometimes in Rocky Mountains.

21 And from '81 to the present time my cur-
22 rent position, District Production Engineer with Santa Fe
23 Energy Company, Permian Basin District.

24 Q Does that area include eastern New Mexi-
25 co?

1 A Yes, sir, it does.

2 Q And are you --

3 A South, southeast New Mexico.

4 Q Are you familiar with the engineering
5 matters involved in Case 9021?

6 A Yes, sir.

7 MR. BRUCE: Mr. Examiner, are
8 the witness' qualifications acceptable?

9 MR. STOGNER: Mr. Walker's
10 qualifications are acceptable.

11 A That's "E", Welker.

12 Q Briefly, Mr. Welker, why does Santa Fe
13 seek a hardship well classification?

14 A We would like this classification to
15 avoid a premature abandonment of this well. We believe the
16 well's capacity to produce natural gas is adversely affected
17 by both shut-ins and severe curtailments.

18 We've had two shut-ins in 1986, both of
19 which were detrimental to the well's production capability,
20 and we've had some curtailments in summer and more recently
21 in October that the well has a real sluggish response fol-
22 lowing these curtailments.

23 Q What is the production history of the
24 Walker No. 1 Well?

25 A Can we introduce that exhibit there?

1 Q And would you please refer to -- first,
2 to Exhibit Number Three?

3 A If I could refer to Exhibit Three,
4 please. Exhibit Three is a wellbore diagram depicting the
5 condition of the subject well after completion, after ini-
6 tial completion.

7 This well was completed in July of 1983
8 from Morrow perforations, 11,514 feet to 11,583 feet.

9 On the wellbore schematic, Exhibit Three,
10 it was initially completed from -- from an interval below
11 our packer shown in the exhibit and above a retrievable
12 bridge plug.

13 The CAOF of the well was 5.5-million
14 cubic feet a day. The well was shut in a few months waiting
15 on a pipeline after initial completion and the well produced
16 at a fairly steady rate with a normal decline until February
17 25th, 1986, which was the date of our first significant
18 shut-in of this well.

19 I'd like to -- the tabular history of
20 this well is in our hardship application but the graph that
21 we'd like to introduce as Exhibit 4 is a little easier to
22 follow, I think.

23 Exhibit Four graphically shows the pro-
24 duction from the -- the subject well since the beginning of
25 1986.

1 If I could walk you through the graph,
2 please, the -- the graph shows the tubing, flowing tubing
3 pressure of this well, the gas rate in MCF per day for this
4 well, and the barrels of water per day that we produced.

5 One can see that the well had a fairly
6 normal decline there until the end of February, February the
7 25th, which was our first significant shut-in for this well,
8 shut-in for lack of market demand, pipeline.

9 That shut-in was basically a two day
10 shut-in and we, when the pipeline wanted the gas back again
11 after two days, we opened it back up the same choke that it
12 was before that shut-in, and we found the well's capacity to
13 produce had been reduced approximately 44 percent.

14 The well produced a few days as shown on
15 the graph and then we had another shut-in on March the 4th,
16 this one of a longer duration. It's in our application, ap-
17 proximately ten days to two weeks on the second shut-in.

18 Following that second shut-in when we
19 went to return the well to production, it was dead. We
20 tried for approximately two weeks through various means to
21 resurrect the well. They were unsuccessful.

22 As the graph shows, there is essentially
23 no production between March 4th and, oh, the latter part of
24 May there.

25 May the 6th through May the 7th we con-

1 ducted a workover on this well, a nominal \$50,000 workover
2 cost.

3 Q Would you please refer to Exhibit Five
4 and --

5 A Yes, sir.

6 Q -- describe the workover a little bit?

7 A Yes, sir. We have an Exhibit Five that
8 is another wellbore drawing of the same well after the work-
9 over that we -- that we done.

10 The workover was resurrect the well but
11 we took a shotgun approach with it. We -- we did four dif-
12 ferent things with the workover.

13 As a comparison between Exhibit Three and
14 Exhibit Five would show, we removed the retrievable bridge
15 plug in the hole, which we had reason to believe that leak-
16 ing, and we set a cast iron bridge plug somewhat lower in
17 the well. The effect of that was to two bottom sets of per-
18 forations that we felt were contributing to water production
19 in the well and to expose two sets of perforations that we
20 felt would be gas productive.

21 Another portion of the workover, or an-
22 other thing we accomplished in the workover, we reduced our
23 tubing size from 2-7/8ths to 2-3/8ths inch to provide us
24 with a more efficient lift mechanism on the well, and final-
25 ly, we stimulated what we call this Upper Morrow interval,

1 this interval that was originally completed on Exhibit
2 Three, this interval from 11,514 to 11,583, such that the --
3 the pictured well downhole is as Exhibit Five depicts now.

4 Q Please refer back to Exhibit Four and de-
5 scribe the production since the workover was completed.

6 A Yes, sir. We -- we performed our work-
7 over and it took approximately eight days of swabbing on
8 this well after the workover to -- to enable the well to
9 produce into the sales line, but we were successful in re-
10 surrecting the well.

11 As you can tell from the water, our water
12 gradually did decline on the well from maybe 40 barrels per
13 day down to a level of between 15 and 20 barrels per day,
14 and at that time our gas -- gas rate was approximately 600
15 MCF per day.

16 We -- the fact that the shut-in appears
17 to damage the well appears to be a time-related phenomenon.
18 We -- we have tolerated one-day shut-ins in the past with --
19 with a quick rebound of the well. It's the longer times
20 that seem to hurt it, and -- and our explanation of why this
21 well is damaged relates to the water that the well makes.
22 We believe that when the well is shut-in the gas at the bot-
23 tom hole rises to the surface in an unexpanded state, gives
24 us a high shut-in tubing pressure and that, coupled with the
25 hydrostatic head of the water in the wellbore yields a pres-

1 sure inside the casing opposite the perforations higher than
2 reservoir pressure, such that the water in the wellbore is
3 over time displaced back into the formation, and this in-
4 creases the water saturation which consequently would de-
5 crease the permeability to a gas phase.

6 Q Mr. Welker, do you have an opinion as to
7 a minimum daily producing rate which should be permitted for
8 this well?

9 A Yes, sir. We're requesting a rate of 400
10 MCF per day. The -- that number is based on the sluggish
11 response of this well after the workover, after a logoff
12 test that was conducted, and after a curtailment in July,
13 not a shut-in but a curtailment, the graph -- let me pass on
14 that for just a minute.

15 We're basing our rate on the sluggish re-
16 sponse after the workover, the sluggish response after the
17 logoff test, and -- and the sluggish response, slow response
18 to come back after a curtailment in July. It's apparent to
19 us that this well is borderline between live and dead and
20 the 400 MCF per day rate is the lowest safe rate that I can
21 confidently recommend and still have an operating cushion
22 between the allowable and what we would produce of a normal
23 day, and still leave the well with enough momentum to carry
24 us through short term upsets, such as our compressor being
25 down.

1 The well does seem to have some momentum
2 at 400 MCF a day and at lower rates it has inertia, the re-
3 sistance to increase its rate when we want to increase it.

4 Q Has a logoff test been conducted in co-
5 operation with the OCD?

6 A Yes, sir, it has. Exhibit Six is a pack-
7 age, a manila package that contains the actual charts on the
8 logoff test and Exhibit Seven is a tabular listing of -- of
9 the calculations from that test, the rates, the flowing
10 pressures, the -- the choke sizes.

11 Q Would you please refer to Exhibit Seven,
12 the test result summary, and discuss the logoff test, Mr.
13 Welker?

14 A Yes, sir. Exhibit Seven is a summary of
15 our logoff test results. It -- the test was conducted be-
16 tween October the 17th and October the 27th. The first rate
17 that's on there is the first date -- I'm sorry, the 17th and
18 18th is essentially what the well was doing before we choked
19 it back. As you can see, we have choke sizes labeled there,
20 flowing tubing pressures, gas rates and water rates, and
21 then comments over there.

22 The first unusual response of the well
23 occurred on the first chokeback when -- when the tubing
24 pressure dropped rather than increased when the well was
25 choked. I don't know why that occurred. I thought at that

1 time that the well was actually logging off then; however,
2 the well continued to produce, as you can see going down
3 from day to day. Each day we reduced it, first there a
4 choke size of a half, and then just observed the well's res-
5 ponse of the next morning.

6 The flowing tubing pressure remained
7 relatively, relatively constant on the well through the
8 22nd. On the 22nd is when we observed what I would call our
9 first significant loss of water production on the well, and
10 that's not really significant. It's two barrels a day.

11 Subsequent cutbacks on the well reveals
12 what you see there in this Exhibit 7, the tubing pressure
13 then started to rise, the rate started to go down, and --
14 and as you can see, the water production with time fell off
15 more rapidly.

16 We -- we did have some mechanical
17 difficulties on the 24th there with our choke freezing, and
18 also on the 27th, with the choke freezing again and our
19 compressor went down on this well. We elected to terminate
20 the logoff test on the 27th of October for a number of
21 reasons. One, with the well being down there we had a
22 discontinuity in the test, but also the well was producing
23 at a rate which was below our economic limit to produce the
24 well.

25 Now, that was the end of the logoff test.

1 There's a last data point down at the bottom of the page at
2 the bottom of Exhibit Seven. That was not part of the test
3 and that rate was not witnessed by the Commission, but I put
4 that on there to indicate that after our test we -- we
5 opened the well back up. Our intent was to produce it at
6 our emergency allowable of 400 until this hearing, until the
7 Commission decided whether to allow this permanent 400 MCF a
8 day allowable.

9 So we did open it up afterwards and the
10 reason I put this rate on here is it does indicate the
11 well's very sluggish response. It does not bounce right
12 back.

13 The well at the low rates, as I said ear-
14 lier, appears to have inertia. It tends to want to stay
15 down if it's down. It's one piece of evidence that indi-
16 cates the well, if it's producing at a very low rate it
17 want's to stay there. It doesn't want to come up any.

18 There's a similar piece of data like this
19 in the hardship application in the tabular data. It shows
20 up on this graph, Exhibit Four. I might ought to lead into
21 it. In the month of July the takes from pipelines were
22 fairly low; consequently, we had a low sales line pressure.
23 The well really didn't have much trouble producing against
24 that sales line pressure, but as August came around, the
25 takes got larger from wells in this part of the -- part of

1 the country and our sales line pressure did go up, conse-
2 quently the well rate dropped off. It had a hard time pro-
3 ducing into the sales line. You can see there that our rate
4 was dropping, oh, going from July to August, the rate was
5 dropping and continued to drop.

6 On August the 13th the well was still
7 producing; however, we were concerned that the well would
8 die and that, based on a previous experience with a workover
9 we wouldn't be able to afford that kind of money with the
10 well any more.

11 We put a compressor on the well on August
12 13th and it did help the well. On August the 14th we got
13 our notice of overproduction on the well and a shut-in
14 notice from the Commission, and that led to our application
15 for a hardship classification for this well.

16 Just one other thing on Exhibit Four and
17 then I'll get off of it.

18 Roughly through September you can see we
19 were producing at this 400 MCF a day rate. The well's about
20 as steady as it ever was in its life. The latter part of
21 October is when we conducted our logoff test and those
22 points reflect the tabular data presented in Exhibit Seven,
23 and I would reiterate that we opened well's choke back up
24 following its test and as of yesterday morning it was still
25 approximately what -- what it shows there as October 30th on

1 -- on the Exhibit Seven.

2 Q Mr. Welker, is the well still currently
3 overproduced?

4 A Yes, sir, it is. We -- we estimate that
5 as of November the 1st, 1986 the well is overproduced by 70-
6 million cubic feet, 70 MM. This is a reduction from the
7 August overproduction of 190-million; therefore, in less
8 than two months at our current allowable of this well, the
9 well won't be in an overproduced status.

10 We would like to point out that our cur-
11 rent monthly allowable for this well is approximately 70-
12 million cubic feet per month and the production rate that
13 we're requesting or suggesting as our minimum safe rate is
14 about 12-million cubic feet per month.

15 Q In your opinion will the granting of this
16 application be in the interest of conservation and the pre-
17 vention of waste?

18 A Yes, sir, if we don't get a hardship
19 classification on this well which would lead to us obeying
20 the shut-in order from the Commission, we believe it will
21 lead to the premature abandonment of the well and a loss of
22 an estimated 125-million cubic feet of gas reserve.

23 Q Were Exhibits Three through Seven pre-
24 pared by you or compiled from company records?

25 A Yes, sir.

1 MR. BRUCE: Mr. Examiner, at
2 this time I move the admission of Exhibits Three through
3 Seven.

4 MR. STOGNER: Exhibits Three
5 through Seven will be admitted into evidence.

6 MR. BRUCE: I have no further
7 questions of this witness.

8

9

CROSS EXAMINATION

10 BY MR. STOGNER:

11 Q Mr. Welker, let's go back. This well was
12 completed in July of '83, did you say?

13 A Yes, sir.

14 Q Okay, it's completion -- it was completed
15 in the manner shown on Exhibit Three?

16 A Yes, sir.

17 Q Okay. I'm a little confused here. You
18 show some lower perforations, those being from 11,790 to
19 11,888.

20 A Yes, sir.

21 Q When were those producing?

22 A Those -- those were -- that's in the Mor-
23 row also. We perforated that during our initial completion
24 effort on this well but it was making some water and conse-
25 quently we plugged back those perforations with that bridge

1 plug, as was shown in the schematic, so we actually shot it
2 during initial completion but we're not producing from it
3 initially on the well.

4 Q So after those were tested and a retriev-
5 able bridge plug was put in and this well was producing from
6 those perforations from 11,514 to 11,583, is that correct?

7 A Yes, sir.

8 Q In the beginning in '83 what kind of
9 water production, what kind of production did this well
10 have?

11 A We had no water production initially from
12 this interval, if I can call this interval 11,514 to 11,583
13 this upper interval. That was dry gas with no liquids.

14 Q What kind of gas production, say, in '83
15 and '84, what kind of rates did this well have?

16 A I have that if you'll give me just a
17 second to dig it out here.

18 Our -- our hardship application, I have-
19 n't added it up for each month but I've got what I felt was
20 typical months in '83, like for example, the well was
21 actually placed on production in November 7th.

22 Q Of '83?

23 A Yes, sir, of 1983, and I report here our
24 first full month's production in December of 1983 as 1,782
25 Mcf.

1 I have a few scattered months in 1984.

2 June of 1984 was 27,011 Mcf. October of
3 1984 was 13,827; December '84, 70 -- 70,070 Mcf.

4 Two months in 1985. June of 1985 was
5 45,242 Mcf.

6 I might note that in 1985 we were making
7 water on the well.

8 In December of 1985 we had a rate of
9 27,605 Mcf.

10 Now these are -- are approximate rates.
11 I don't remember if these are rates off of our state reports
12 or summation of daily rates from our pumper. They would be
13 within, say, three percent of one another.

14 Q Okay, let me go back to that October and
15 November of '84.

16 A Okay.

17 Q You said October had 13,870 Mcf?

18 A Yes, sir.

19 Q And what was November?

20 A I don't have November.

21 Q You mentioned something about 70,077 Mcf.

22 A In December, yes, sir. In our applica-
23 tion on the -- in focusing in on an anomaly on the well that
24 we mention in our application, it's on typed page two of our
25 application.

1 Q Okay, that being --

2 A It has 1984 up at the top of the page
3 there, and we -- November 6th through the 12th is an anomaly
4 that we note there.

5 Our flowing tubing pressure on this well
6 increased from 700 psi to 3500 psi. Our production in-
7 creased on the well from 457 to 2,205 Mcf per day. We re-
8 covered a 34 barrel slug of oil from the well and our water
9 production increased from approximately one barrel a day to
10 56 barrels of water a per day?

11 The next point there, it says, "produced
12 large amounts of frac sand", for five days, and then our ex-
13 planation of what happened there, or our suspicion of what
14 happened, it says we suspect the retrievable bridge plug,
15 which you can see in Exhibit Three, isolating those two up-
16 per and lower intervals, we suspect that that retrievable
17 bridge plug failed at that time. The main reason for the
18 suspension was we were getting about the amount of gas that
19 we tested out of the bottom zone, about the amount of water
20 we had tested out of the bottom zone, but the real clincher
21 was the frac sand we recovered, because we did frac the
22 lower interval.

23 At that time it was only a suspicion that
24 our bridge plug had failed, very logical but still our best
25 estimate, because another anomaly that would have produced

1 essentially the same results is -- would be communication
2 behind a pipe between -- between 11,583 and 11,790, would
3 have caused about the same response.

4 Now, it turns out later we did find out
5 the retrievable bridge plug had failed because we pulled it
6 during the workover and -- during this workover of May of
7 '86, and the rubbers were cut on it, and it had failed.

8 Q When did this well start making water?

9 A Well, it would be prior to that, prior to
10 that November 6th date, because, like we say there, it in-
11 creased from one barrel of water per day, which is just al-
12 most insignificant, in fact that could be condensation water
13 from the gas, one barrel a day is a little bit high for
14 that, but it depends on what you call the significant amount
15 of water. One barrel is virtually -- virtually nil, so I've
16 got, you know, if you want to know the day we first reported
17 a barrel of water, I've got that.

18 Q Well, let's go from that insignificant
19 barrel to a significant, what would you call that and when
20 did that occur?

21 A That time period would have been between
22 November the 6th and the 12th.

23 Q Okay.

24 A Of 1984, during the time that we say that
25 bridge plug failed in the well.

1 Q So this water encroachment was taking
2 place from November of '84 until March of '86 when it was --
3 whenever the well was shut in, is that correct?

4 A Yes, or late February of '86.

5 Q And was there any workover or was there
6 anything done to relieve this, to fix it, or did you all
7 just have the well open?

8 A We didn't do any workover on the well.

9 Q Let's talk about the periods between No-
10 vember of '84 and March of '86. Was there any curtailment
11 in the production?

12 A No, sir, except for that latter part of
13 February of '86.

14 Now I'm sure that -- that, you know, I
15 could look through these daily records and there may be a
16 few hours of shut-in for something but -- but between '84 --
17 I can look through them if time permits here -- but between
18 '84, when that bridge plug gave way and this shut-in in Feb-
19 ruary, late February of 1986, there's essentially no cur-
20 tailment of the well. I say no curtailment, no shut-in --

21 Q No shut-in --

22 A -- sorry. Now, how about the proration
23 periods, was that any time that this well was overproduced
24 and we're just talking between November of '84 and March of
25 '86?

1 A Yes, sir, I'm sure there was.

2 Q Do you know if it was ever six times
3 overproduced and required to be shut-in?

4 A Yes, sir, it -- well, during this time I
5 don't know. I became aware of that six times overproduced
6 when we got this letter from the Commission, the shut-in or-
7 der.

8 Q This is the first time that you know it
9 to be overproduced.

10 A Yes, sir.

11 Q Six times overproduced. That was mid-
12 August or something when I got that.

13 And we didn't shut in the well then.
14 What we did was we -- we cut it to what we felt was the min-
15 imum safe rate for the well and -- and then began our hard-
16 ship application process.

17 Q Okay, when was this, the minimum? When
18 did you say that you'all cut back to your minimum?

19 A I believe it's on this August 18th. If I
20 remember right, the date of the overproduction notice --

21 Q Oh, this is '86, right?

22 A Yes, sir.

23 Q Well, let's -- let's take this one step
24 at a time.

25 A Oh, I'm sorry.

1 Q Let's go back and we're talking now from
2 a period November of '84 to March '86.

3 A Yes, sir.

4 Q Let's forget anything that happened after
5 that. Let's just stick with this time.

6 Was there any choke changes? Was there
7 any changes in the choke size in that period?

8 A I'm sure there was.

9 Q Was there any noticeable production chan-
10 ges, whether it increased or decreased? Did the water in-
11 crease or decrease? What can you tell me between that time
12 period?

13 A Well, --

14 Q Was it pretty stable production?

15 A Well, I think so, but I hate to trust my
16 memory there. If I could look -- oh, shoot, this is only
17 1986.

18 I can only go off of my memory during
19 that time, Mr. Examiner, and in I believe it was similar to
20 what we observe in the first part of 1986 on this graph.

21 I'm sorry, I don't -- I don't have a de-
22 cline curve with me for this earlier period of time, and
23 that, I'm sure that there were choke changes, as you men-
24 tioned, but I'm not aware of any of them of a massive na-
25 ture.

1 Q Okay, so if I referred to Exhibit Number
2 Four and I look at January and February's gas production,
3 you were clicking along there an average of 900, give or
4 take 100, wouldn't -- wouldn't you agree to that?

5 A Yes, sir.

6 Q Okay, and the water production remained
7 steady at about, what is that, 40 barrels a --

8 A About 40 barrels a day, yes, sir.

9 Q And then we had to shut in there. All
10 right, now you mentioned -- let's talk about the shut-in
11 period that looked like it started on March 4th, is that
12 when the long period started?

13 A Yes, sir, that was the one of the longest
14 duration.

15 Q Okay, let's focus in on that period from
16 March 4th till May the 9th -- 24th, that's when it was
17 turned back on?

18 A Let me -- just second, please.

19 Q Let's refer to Exhibit Four on that.

20 A Well, Exhibit Four, this long shut-in be-
21 gan March the 4th.

22 Q March the -- okay.

23 A Yes, sir, and we tried -- we tried to
24 return it to production. This might be better to look at
25 that same page two that you did before on the -- on our ap-

1 plication.

2 Q I tell you what, this sounds like a good
3 place just to stop right at this time.

4 MR. STOGNER: Mr. Bruce, let's
5 refer back to that application for classification as a
6 hardship gas well, which he refers to, and it shows a step
7 by step what we've done.

8 Let's make that as an exhibit
9 and I'll come back and have you go over that.

10 We'll take a fifteen minute
11 recess at this time.

12

13 (Thereupon a recess was taken.)

14

15 MR. STOGNER: This hearing will
16 come to order.

17 We'll continue Case Number
18 9021.

19 Mr. Bruce.

20 MR. BRUCE: Mr. Examiner, we'd
21 like to submit as Santa Fe's Exhibit Number Eight part of
22 its application for classification as a hardship gas well,
23 the Walker No. 1 Well, particularly sheets one through four,
24 which contain a tabulation of production or of well activi-
25 ties during parts of years 1983, '84, '85, and '86, since
the well was first shut-in.

1 Are there any other parts of
2 that you wanted admitted, Mr. Examiner?

3 MR. STOGNER: No, I believe
4 this will be sufficient at this time.

5 Exhibit Number Eight will be
6 admitted into evidence.

7 MR. BRUCE: And, also, Mr.
8 Examiner, the witness has stated he doesn't have the
9 detailed day-by-day production reports on this well but will
10 gladly get copies and submit them to the --

11 MR. STOGNER: For the record,
12 we will take administrative notice on the annual reports put
13 out by the New Mexico Oil and Gas Engineering Committee on
14 that, and that should be sufficient.

15 But if there is other
16 information that's required, I'm sure we can dig it up out
17 of the C-115's.

18 A I tried to point out the major anomalies
19 and the consistencies in these pages that comprise Exhibit
20 Eight. If you need more detailed records we do -- we do
21 have them prior to 1986.

22 MR. STOGNER: Okay.

23 Do you have anything further at
24 this time, Mr. Bruce?

25 MR. BRUCE: Just a couple of

1 questions.

2 First of all, Mr. Examiner,
3 would you like Mr. Welker to go over any part of Exhibit
4 Eight, or is the chronology submitted sufficient?

5 MR. STOGNER: Is there anything
6 on here that you feel needs to be gone over at this time?

7 A No, sir, we -- as you can see, we gave a
8 lot more daily detail here around this shut-in period be-
9 cause that's what we thought we'd be focusing on. It tells
10 what efforts we made following shut-ins to revive the well.
11 It describes all our workover in some detail here. I would
12 think it would be self-explanatory on when the well was
13 shut-in and when we dropped soap sticks and when we tried
14 this or that.

15

16 REDIRECT EXAMINATION

17 BY MR. BRUCE:

18 Q Mr. Welker, you previously testified
19 about a compressor being installed. What was the approxi-
20 mate cost of that installation?

21 A It was about \$10,000.

22 Q And what was --

23 A That's a rental compressor. That's just
24 a rental.

25 Q And what was the cost of the previous

1 workover?

2 A The workover in May, 1986, was \$51,200.

3 Q Can Santa Fe Energy Operating Partners
4 afford to do another \$50,000 workover on this well?

5 A No, sir, we wouldn't feel that the
6 remaining reserves would warrant that -- that kind of expen-
7 diture.

8 Q If you'd refer to Exhibit Number Seven,
9 particularly the October 17/18th date, is that choke normal
10 for a well of this type?

11 A Well, that's the normal choke size that
12 we have on this well to keep it below this emergency 400
13 Mcf a day allowable that we have.

14 Q Finally, one last question. Referring to
15 Exhibit Number Five, Mr. Welker, what is the reason that the
16 bridge plug was set at 11,849 feet in the workover rather
17 than set at the original 11,642 feet, as the well was
18 originally completed?

19 A When -- when -- when this well would not
20 be revived by normal methods and we resolved to do a work-
21 over to -- to try to return the well to a productive status,
22 we evaluated not only the information that we had on this
23 well but -- but we had extension attempts on the well to the
24 south, which is the Neeley Well in Section -- Section 28,
25 and the combination of what we knew about this well and what

1 we knew about the Neeley Well, we put together to deduce
2 this, that -- that it's not something we state with any de-
3 gree of -- we can't say we're 100 percent sure of anything
4 on these wells downhole because it's all a matter of how
5 much confidence we have that this is right or that is right,
6 and -- and our best estimate before we did that workover was
7 that the lowermost two sets of perfs on Exhibit Five, that
8 is those perforations from 11,867 to 11,888, were predom-
9 antly water-bearing. That was based on log calculations
10 from this subject well and individual packer testing of the
11 correlative interval in the south offset well.

12 That -- that was one piece of evidence
13 that we had.

14 We also had some evidence that the two
15 sets of perforations from 11,790 to 11,835 were gas-bearing
16 intervals, and -- that was deduced from the flowing tempera-
17 ture survey that was run on this well during the initial
18 completion procedure.

19 When we did the workover we made the best
20 judges we could with the information that we had, and
21 thought that had we simply removed that retrievable bridge
22 plug, as is shown on Exhibit Three, and replaced it at --
23 with a cast iron bridge plug and cement at the same depth as
24 the retrievable bridge plug was, so as to really isolate the
25 same intervals as the retrievable bridge plug was, that we

1 would be losing some gas. We would be foregoing the re-
2 serves from perforations 11,790 to 11,835.

3 So we bet on the come and we set that
4 cast iron bridge plug at 11,849, hoping to exclude all of
5 our water and ideally it would exclude all of our water. As
6 Exhibit Four, which is that graph, we did cut our water to
7 about half.

8 MR. BRUCE: I have no further
9 questions of the witness.

10 MR. STOGNER: Thank you, Mr.
11 Bruce.

12

13 RE CROSS EXAMINATION

14 BY MR. STOGNER:

15 Q You said you felt the water -- has the
16 water been solved, the water problem, has it been solved, or
17 do you feel that this water production that you're getting
18 back now is the stuff that had been encroached into the up-
19 per zone?

20 A Well, it's just my guess. I -- I feel
21 that the water we're getting now probably is coming from the
22 two intervals that are below our cast iron plug.

23 Notice that we fraced these -- these four
24 sets of perms here in the bottom and there's not all that
25 much distance between them.

1 Our water could be coming from the lower
2 two sets communicated through our fracture treatment and
3 coming out these perfs from 11,790 to 11,835. Now that
4 would be my best guess. The only thing that might tone that
5 -- that assessment down just a little bit, Mr. Examiner,
6 would be the fact that when we did our workover we also
7 stimulated these perforations from 11,514 to 11,583. On the
8 initial completion those were natural completion, no stimu-
9 lation, and during our May of '86 workover we did acidize
10 those and our intent was to -- to open up any intervals that
11 were not producing.

12 We did have spinner surveys on the wells
13 that showed of all those intervals up there we had like four
14 feet of rock producing.

15 So it's conceivable that some of our
16 water is coming out of the top that was not communicated to
17 the wellbore before our workover.

18 Q I refer to Exhibit Number Seven.

19 A Yes, sir.

20 Q I show that the last (not understood) for
21 October 3rd you had a gas rate of 245 Mcf. Now you had
22 stated that the logoff test --

23 A That's October 30th.

24 Q Bear with us, then, anyway. Okay, October
25 30th you had 245 Mcf.

1 A Yes, sir.

2 Q Now the logoff test was terminated on the
3 27th of October, is that right?

4 A Yes, sir.

5 Q Is this 245, is that the maximum this
6 well can produce?

7 A No, sir, we could -- well, we could try
8 to get it to make more. What -- what -- what our pumper
9 did, we opened the choke up to about what it was before we
10 started the logoff test. It's within a quarter size there.

11 Q Mr. Welker, let me rephrase that ques-
12 tion.

13 If you opened that valve up now, what
14 would be the maximum this well could produce without doing
15 anything else to?

16 A I don't know.

17 Q Okay.

18 MR. STOGNER: I have no further
19 questions of this witness.

20 Is there anything further in
21 Case 9021?

22 Mr. Welker may step down.

23 Case Number 9021 will be taken
24 under advisement.

25 (Hearing concluded.)

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C E R T I F I C A T E

I, SALLY W. BOYD, C.S.R., DO HEREBY CERTIFY the foregoing Transcript of Hearing before the Oil Conservation Division (Commission) was reported by me; that the said transcript is a full, true, and correct record of this portion of the hearing, prepared by me to the best of my ability.

Sally W. Boyd CSR

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. _____, heard by me on _____ 19____.

_____, Examiner
Oil Conservation Division