

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

6 21 December 1988

7 EXAMINER HEARING

8 IN THE MATTER OF:

9 Application of Nassau Resources, Inc. CASE  
10 for 19 unorthodox coal gas well locat- 9559  
11 ions, Rio Arriba County, New Mexico,  
and  
Application of Nassau Resources, Inc. CASE  
for a non-standard gas proration unit 9560  
Rio Arriba County, New Mexico.

12 BEFORE: Michael E. Stogner, Examiner

13  
14 TRANSCRIPT OF HEARING

15  
16 A P P E A R A N C E S

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1 MR. STOGNER: Let's call next  
2 Case Number 9559.

3 MR. STOVALL: Application of  
4 Nassau Resources, Inc., for 19 unorthodox gas, coal gas  
5 well locations, Rio Arriba County, New Mexico.

6 MR. STOGNER: Call for appear-  
7 ances.

8 MR. KELLAHIN: Mr. Examiner,  
9 I'm Tom Kellahin of the Santa Fe law firm of Kellahin,  
10 Kellahin & Aubrey, appearing on behalf of the applicant.

11 We request, Mr. Stogner, that  
12 you also call 9560 at this time and that the two cases be  
13 consolidated for hearing.

14 MR. STOGNER: Are there any  
15 questions or comments concerning that?

16 At this time we'll call next  
17 Case Number 9560.

18 MR. STOVALL: Application of  
19 Nassau Resources, Inc., for a nonstandard gas proration  
20 unit, Rio Arriba County, New Mexico.

21 MR. STOGNER: I'll also call  
22 for appearances.

23 MR. KELLAHIN: Same appear-  
24 ance, Mr. Examiner.

25 MR. STOGNER: Are there any

1 others in either case?

2 Thank you. Mr. Kellahin?

3 MR. KELLAHIN; I have four  
4 witnesses to be sworn, Mr. Examiner.

5 MR. STOGNER: Will the wit-  
6 nesses please stand and be sworn in?

7

8 (Witnesses sworn.)

9

10 MR. STOGNER: Mr. Kellahin?

11 MR. KELLAHIN: Mr. Examiner, I  
12 propose to present to you four witnesses this morning with  
13 regards to the Nassau Resources application.

14 The first witness is Mr. Gary  
15 Johnson, a petroleum engineer with Nassau Resources, who  
16 will describe generally what was the plan of operation and  
17 development for the unit in the Carracas Canyon for the  
18 exploration of the Fruitland Coal.

19 He will describe for you what  
20 parameters he established for the field personnel to at-  
21 tempt to find locations in the unit.

22 The second witness will be the  
23 field man, Mr. Mike Atchison, who works for Nassau Re-  
24 sources, and he's spent a considerable period of time this  
25 last year in the area working with the U. S. Forest Dis-

1     istrict Ranger to find suitable locations that met the cri-  
2     teria of the Forest Service and the District Ranger's  
3     office. He will describe for you his activities and his  
4     efforts to find on pattern locations and standard loca-  
5     tions.

6                             We'll present to you the  
7     Forest Service District Ranger who has reviewed, processed  
8     and approved the locations and he will discuss with you his  
9     range of discretion and the rules which he must operate on  
10    in order to approve the surface location for wells in this  
11    portion of the Carson National Forest.

12                            And then, finally, we'll pre-  
13    sent Mr. Kent Craig, who's the landman for McHugh, and he  
14    will discuss the unit operation from an ownership perspec-  
15    tive and describe for you what parties were notified and  
16    what consents were obtained for the location.

17                            If it's acceptable at this  
18    time, we'd like to commence with Mr. Gary Johnson.

19  
20                            GARY J. JOHNSON,  
21    being called as a witness and being duly sworn upon his  
22    oath, testified as follows, to-wit:

23  
24  
25

## DIRECT EXAMINATION

BY MR. KELLAHIN:

Q Mr. Johnson, for the record would you, sir, simply state your name and occupation?

A My name is Gary J. Johnson, and I'm a petroleum engineer employed by Nassau Resources in Denver.

Q Mr. Johnson, have you testified before the Oil Conservation Division on prior occasions as a petroleum engineer?

A Yes, I have.

Q Would you describe generally what it is that you are seeking to accomplish with this particular application on behalf of Nassau Resources?

A Well, we're generally trying to accomplish the development of the gas reserves from the Fruitland Coal formation within the Carracas Canyon Unit.

Q Is it your responsibility for Nassau Resources to develop and implement a plan of exploration and development for the Unit?

A Yes, it is.

Q And the primary objective at this point is the location of and drilling for the Fruitland Coal gas production that you believe exists within the Unit boundaries?

A Yes. That's what we're here to esta-

1 blish today.

2 MR. KELLAHIN: We tender Mr.  
3 Johnson as an expert petroleum engineer.

4 MR. STOGNER: Mr. Johnson is  
5 so qualified.

6 Q Mr. Johnson, would you start with what  
7 we've marked as Nassau Exhibit Number One and take a few  
8 minutes and describe the background by which the Carracas  
9 Canyon Unit was formulated from your perspective as an  
10 engineer.

11 A Okay. We started obtaining leases in  
12 the area which is now the Carracas Canyon Unit in 1984, and  
13 put together enough leases in here to have a basis on which  
14 to start developing gas resources in the area and by late  
15 1986 had assembled enough leases that it looked like an  
16 interesting area to go forth and develop.

17 By examining the leases that we held and  
18 the leases that other people held in the area, it became  
19 evident to us that the best way to develop this vast unde-  
20 veloped area was to try and form a unit.

21 In 1987 we worked with the Bureau of  
22 Land Management in Albuquerque and with their help and  
23 assistance was able to outline a unit area that they would  
24 approve subject to our drilling some confirmation wells.

25 Q What was the reason for working with the



1 Bureau of Land Management in Albuquerque?

2 A They're the Federal Agency charged with  
3 the management of the underground resources.

4 Q Did this unit area contain Federal  
5 lands?

6 A Yes. The unit area that we finally  
7 outlined is about 98 percent Federal and 2 percent fee, as  
8 far as surface and minerals, both, go.

9 Q The area of the unit is contained en-  
10 tirely within the U. S. Forest Service's Carson National  
11 Forest?

12 A With the exception of the small north-  
13 east portion, Sections 7, 8, 9, 17 and -- or parts of 9 and  
14 parts of 16. The remainder of the Unit is all in the Car-  
15 son National Forest.

16 Q And are all the wells from which you  
17 seek approval from the Examiner at today's hearing con-  
18 tained within the Carson National Forest?

19 A Yes, they are.

20 Q All right, describe initially what was  
21 the purpose of the formation of the Unit with regards to  
22 the drilling of wells to what formation?

23 A Okay. Originally we put this unit to-  
24 gether to try to develop gas reserves in the Dakota forma-  
25 tion and working with the -- with the BLM we came up with a

1 plan to develop a Dakota gas reserve in here and because of  
2 the stipulations in the Bureau of Land Management, we were  
3 obligated to drill two Dakota tests. One of the Dakota  
4 tests would need to be in the southwest portion of the Unit  
5 and the other in the northeast portion of the Unit, and we  
6 originally started development by drilling, setting out to  
7 drill these Dakota tests.

8 Q And did you drill and complete the two  
9 Dakota tests?

10 A Yes, we have. Originally we drilled a  
11 Dakota test in Section 34 of 32 North, 5 West, and then had  
12 staked another location in Section 14 of 32 North, 4 West  
13 in the northeast of the Unit, and as we developed, or as we  
14 drilled these Dakota wells we started to recognize the  
15 potential in the Fruitland Coal and formulated a plan to  
16 also develop this area for Fruitland Coal gas reserves.

17 Q Let me skip for a moment Exhibit Number  
18 Two and have you go to the Fassett and Hinds Coal maps,  
19 Exhibits Three and Four. I marked Exhibit Three to be the  
20 gross isopach and Exhibit Four is the net map.

21 Would you describe generally what you  
22 have concluded, Mr. Johnson, with regards to the potential  
23 availability of coal gas production within the boundaries  
24 of the Unit?

25 A Okay. Looking at the published data

1 available, this is probably the most recognizable map is  
2 this Fassett and Hinds map which outlines gross and net  
3 coal thickness in the Fruitland formation.

4 I've outlined on your map in yellow the  
5 two townships that we're dealing with.

6 Q Would you take a moment and find within  
7 that map boundaries the location of the Cedar Hills Pool?

8 A Okay. The Cedar Hills Pool is in 32,  
9 10, 32 North, 10 West, and that would be four townships to  
10 the west of our 32, 5.

11 Q In relation to the Meridian's 30 and 6  
12 Unit, where is your project?

13 A Meridian's 30 and 6 Unit is in Township  
14 30 North, 6 West, and it would be two townships south and  
15 one west of our 32, 5.

16 Q In examining the published data, includ-  
17 ing the Fassett and Hinds work on the isopach maps, what  
18 have you concluded with regards to the potential availabi-  
19 lity of coal gas production from the Fruitland formation?

20 A Okay. In examining this data we noted  
21 that as far as gross thickness of coal goes we had enough  
22 gross thickness to make it interesting and then examining  
23 the net thicknesses as opposed to the Cedar Hills and the  
24 Meridian 30 and 6 Unit, that we had nearly the same net  
25 coal in a single unit that was available in both of those

1 units, and it was our conclusion then that it was worth  
2 looking at the coal to see if it was worth developing.

3 Q When you looked at the coal within the  
4 Unit, did you have specific wellbore information, geologic,  
5 from drilling of other wells to establish conclusively for  
6 you as an engineer that there exists in fact coal gas  
7 production within the Unit?

8 A Yes. The Unit, the Carracas Unit Area,  
9 although primarily undeveloped, had been drilled in the  
10 past as early as 1953, and we had the data available from  
11 wellbores in Section 10 of 32, 5; Section 34 of 32, 5; Sec-  
12 tion 2 of 31, 5; and then there were wells in Section 26  
13 of 32, 5; Section 16 of 32, 4; Section 20 of 32, 4; and  
14 Section 29 of 32, 4.

15 All of these wells had penetrated the  
16 coal and from log data and well data on file with the state  
17 we were able to ascertain that the coal reserve was indeed  
18 there.

19 Q Were you able to make a preliminary con-  
20 clusion with regards to the existence of coal gas produc-  
21 tion within a wide area of the Unit itself?

22 A Yes. Looking at the published data and  
23 the data that was being released by other people drilling  
24 in the -- in the coal, and the historic data on these  
25 wellbores that I just pointed out, we were able to estab-

1 lish that this area indeed had potential for coal gas  
2 production.

3                   There was some evidence in the records  
4 that coal gas had indeed been encountered in some of these  
5 old wells and production had been attempted in several of  
6 the wells.

7                   Q           Having reached that opinion, Mr. John-  
8 son, what then did you do with regards to the formulation  
9 of a plan for unit exploration of the coal?

10                  A           We looked at the entire area and with  
11 the data that we had available we -- we concluded that  
12 about 80 percent of the unit area was available and under-  
13 lain by coal and was available for coal gas production.

14                         With that in mind, we embarked on a pro-  
15 gram of developing the coal gas resource in here, by first  
16 looking at the area as developable on a 320-acre spacing  
17 pattern.

18                         With this in mind, we -- we formulated a  
19 unit plan to develop this coal gas in here as a unit and  
20 try to develop as much as we thought was feasible at the  
21 time. We concluded that there were about 65 drillable lo-  
22 cations and so we set forth to stake these 65 locations and  
23 try to develop those coal gas reserves.

24                  Q           What spacing pattern were you initially  
25 proposing for the exploration and development of the coal

1 gas in the Fruitland for the Unit?

2 A We started out looking at this as being  
3 320-acre spacing units.

4 Q And when did you make that decision and  
5 commence then to try to find locations using 320-acre pat-  
6 terns?

7 A The initial decision to develop the coal  
8 was formulated in late 1987 and at that time we had con-  
9 cluded that 320-acre spacing pattern would be the best ini-  
10 tial development here.

11 Q That decision predates the Division  
12 order establishing on a basin-wide basis 320 acres for  
13 Fruitland coal gas production, does it not?

14 A Yes, it does.

15 Q Why had you chosen not to pursue  
16 160-acre coal gas spacing, which was the spacing used in  
17 the basin during that period of time that you were making  
18 these decisions?

19 A Well, when we initially looked at it, we  
20 didn't have enough data to make a conclusion whether  
21 320-acre development would be better or 160-acre would be  
22 better, so we opted to go with the wider spacing knowing  
23 that it was easier to infill than it was to back out.

24 Q At the time you were examining locations  
25 or having field personnel examining potential surface loca-

1 tions with the Unit, did you know that the Division would  
2 ultimately adopt Rule 7 of the basal coal rules, which  
3 require on pattern locations within a section to be first  
4 located in either the northeast quarter or the southwest  
5 quarter of the section?

6 A No, that information was not available.

7 Q Having made that decision on a course of  
8 exploration and development, what then did you do to imple-  
9 ment that plan?

10 A Okay. The first thing we did was to set  
11 up a team to go out into the -- into the field and stake  
12 standard locations using either a standup 320 or a laydown  
13 320 and our charge to them was to find a drillable location  
14 that would give us two wells per section.

15 Q Let me turn your attention now to Exhi-  
16 bit Number Two and have you identify that exhibit.

17 A Okay. Exhibit Number Two is a topo-  
18 graphic map of the Carracas Canyon area with the Carracas  
19 Canyon Unit outline and with the proposed drilling sites  
20 plotted.

21 Exhibit Number Two has some dots placed  
22 on it. The red, or the green dots being those wells which  
23 have currently been drilled for Fruitland Coal gas develop-  
24 ment and the red dots being the exception locations.

25 Q What is the current status of the wells

1 that are the existing wells?

2 A Okay, we --

3 Q They're the ones that are shown on Mr.  
4 Stogner's copy as the --

5 A Green dots.

6 Q -- green dots?

7 A Right. The green dots represent wells  
8 that have been drilled and cased through the Fruitland  
9 Coal. The state of development varies with the well.

10 The Well 34 "A" No. 5 in Section 34 of  
11 32, 5, is currently being production tested. 27 "A" 14 is  
12 flowing back frac fluid, and they vary from there. Some  
13 have been perforated and fraced; some have been perforated  
14 and not fraced and we're continuing to complete the wells.

15 Q Are all those locations despite the fact  
16 that they were permitted and drilled prior to the basinwide  
17 Fruitland rules, are those on pattern locations?

18 A They're not on pattern locations accord-  
19 ing to the new rules, not all of them.

20 Q They were drilled prior to the existence  
21 of those rules.

22 A Yes, they were.

23 Q Let's direct your attention now to the  
24 red dots, which are the 19 off-pattern, in some instances  
25 off-pattern and unorthodox well locations that are at dif-



1       ference with Rule 7 and describe for us the basis by which  
2       those were selected for locations.

3               A           Okay.    The basis for selection of these  
4       19 locations was the same basis that we selected all of our  
5       locations.

6                       The first charge was to find two drill-  
7       able locations per 320.

8                       The second charge was for our people to  
9       stay within the guidelines and the rules that were outlined  
10      by the Forest Service as the Surface Management Agency.

11                      We set out to find two locations per  
12      section that would fit all of the criteria that we knew at  
13      the time.

14               Q           The fundamental decisions with regards  
15      to the location of wells was influenced heavily by the  
16      topography and the wildlife and terrain management of the  
17      Forest Service?

18               A           Yes, it was. Each location was staked  
19      as a standard location initially and then that location was  
20      moved to mitigate terrain, existing roads, any sensitive  
21      wildlife areas, any sensitive archaeological areas, any  
22      areas that might cause over-building of roads into these  
23      wildlife sensitive areas, and so within the scope of the  
24      Surface Management Agency criteria and within the scope of  
25      what we knew at the time were oil and gas Division rules,

1 we got these locations staked as shown.

2 Q Was there any conditions place upon you  
3 for the utilization of existing roads by which, then, to  
4 locate your exploration plans for these Fruitland Coal  
5 wells?

6 A Yes. In working with the Forest Ser-  
7 vice, the very first criteria that we agreed on with them  
8 was that we would try to stay with existing roads as much  
9 as we could.

10 Q Can Mr. Stogner examine the topo map and  
11 see what is an existing road and what represents the poten-  
12 tial construction of new roads to well locations?

13 A Yes. The existing roads are shown by  
14 the doubled small lines going through there and in some  
15 cases may even be identified as -- as roads. For instance,  
16 in Section 20 of 32, 4, there is a road that trends to the  
17 northeast and it's marked as the Carracas Mesa Road.

18 Q Let's take a specific example of an off-  
19 pattern well and describe the circumstances by which that  
20 has become the approved requested location. Let's look,  
21 for example, in Section 19.

22 A Okay. Section 19 of 32, 4, we attempted  
23 to stake two locations in that section following either a  
24 standup or a laydown 320, as the case -- as this particular  
25 case might dictate.

1                   In looking at where the locations are  
2 staked, the 19 "B" No. 1, which is in the northeast quar-  
3 ter, we attempted to stake that as close as we could to the  
4 790/790 rule and because of terrain and because of the  
5 heavy timber in the area, moved that location back as close  
6 as we could to the existing road so it shows up where it's  
7 marked on the map.

8                   Then in looking in the other quarters of  
9 that section, because of timber considerations, because of  
10 terrain, because of archaeology, and other considerations,  
11 the only place that we really could place a second well in  
12 that section was where the location of the 19 "B" No. 4  
13 exists in the northwest quarter of that section.

14               Q           In examining the potential for an on-  
15 pattern location for that well in the southwest quarter,  
16 then, of 19, were you able to find a suitable surface loca-  
17 tion within the southwest quarter of that section?

18               A           We were not able to do that. We spent  
19 approximately one week in the field with a team that  
20 consisted of Mike Atchison as our director of this project,  
21 a surveyor, and an archaeologist and their first charge was  
22 to stake an on-pattern, regular location and then mitigate  
23 that depending on what happened as far as the Surface  
24 Management Agency rules, and after a week of concentration  
25 on that one section, the location they came up with that

1 would meet all of the criteria was the location in the  
2 northwest quarter.

3 Q Describe for us what Mr. Atchison's  
4 charge was with regards to finding not only a suitable pad  
5 for the well, but a suitable system of surface access to  
6 that well by which you then can -- can go to the wellsite  
7 and plus take production from the gas lain pipelines that  
8 gather gas from all wells within the unit.

9 A Okay. His charge was to find a location  
10 that we could reasonably access with roads, with pipelines,  
11 with producing facilities, and be able to set up necessary  
12 production equipment, tank batteries, things like that,  
13 basically, the only restrictions that we placed on him is  
14 that we stay within reasonable guidelines as far as road  
15 building and location building goes, where we wouldn't have  
16 so much money tied up in the roads and locations that you  
17 could never produce enough oil and gas to pay for them.

18 Q Let's talk about the system of roads  
19 that gives you access to the wells and describe what condi-  
20 tions or restrictions are placed upon the -- the road sys-  
21 tem, if you will, within the unit for access to the wells.

22 A Okay. Right now we're operating under a  
23 couple of restrictions; using the existing roads, we essen-  
24 tially have three different areas in the units, or three  
25 different accesses into the unit now and one of the charges

1 that we have from the Surface Management Agency is that we  
2 don't cause loops to be formed where you could access the  
3 entire unit basically from one entrance.

4 To give you an example of the restric-  
5 tions, at one time this summer we were drilling a well in  
6 Section 27 of 32, 5, called the 27 "A" 14, I don't know if  
7 yours is all numbered like mine is, but --

8 Q It will be over in the southwest quarter  
9 of the unit?

10 A -- it would be the southwest quarter of  
11 27 in 32, 5. We were drilling there, we were recompleting  
12 the well in Section 20 of 32, 4, in the southwest quarter,  
13 and we were also drilling a well in Section 14, the north-  
14 east quarter, 14, 32, 4.

15 Now, the way the -- the way the crow  
16 flies, the distance from the 27 "A" 14 to the well in 14 is  
17 about 8 to 10 miles. In order to drive between those loca-  
18 tions on -- on roads that we have permission to use, from  
19 the 14 Well to the 27 Well is about 130 miles on the road.

20 Q Have you now located, Mr. Johnson, on  
21 your Exhibit Number One and Exhibit Number Two, those 19  
22 wells that either are approved by the Forest Service  
23 District Ranger's Office, or in an approvable situation?

24 A Yes. These -- these locations are shown  
25 on Exhibit Number Two by the green dots. In working with

1 the Forest Service, all of these locations are either ap-  
2 proved or approvable by the Surface Management Agency

3 Q Do you have an opinion as to whether or  
4 not you can at this point amend any of these off-pattern,  
5 unorthodox locations and put them in compliance with Rule 7  
6 of the Oil Conservation Division rules with regards to the  
7 Fruitland Coal production?

8 A It's my opinion that we would be unable  
9 to amend any of these locations to make them comply with  
10 Rule 7.

11 Q Do you have an opinion, sir, with  
12 regards to the reservoir engineering with regards to the  
13 unit, whether or not the system by which you are now al-  
14 lowed to drill these wells at these locations will give you  
15 other than an effective and efficient pattern for the de-  
16 velopment of the coal? Have the surface requirements been  
17 so restrictive and provide such constraints on you that you  
18 cannot in an orderly fashion develop the unit?

19 A I feel that we can orderly, in an order-  
20 ly manner, develop the resources that are available to us.  
21 There are some locations that I would, as a reservoir en-  
22 gineer, would like to change, but within the constraints  
23 that we have to operate, I think that we have a pattern  
24 that will give us an efficient drainage of the resource  
25 available.

1           Q           Using the predicate that you're attempt-  
2           ing to develop on a 320-acre spacing pattern.

3           A           That's correct.

4           Q           Let's look at some of the few examples  
5           where there are obvious wells closer than 320-acre spacing  
6           patterns. For example, you have an existing well in the  
7           southwest quarter of 18 and now you have a proposed loca-  
8           tion in the northwest of 19. We have wells in close prox-  
9           imity to each other, or potentially, when completed in  
10          close proximity.

11                       What -- what advantages and disadvan-  
12          tages do you see in that situation to your exploration and  
13          development of the unit?

14          A           Okay, the orderly development of that,  
15          of course, would -- would be to try and get those wells  
16          equally spaced in all directions, the disadvantage that we  
17          have right now being that they're not equally spaced in all  
18          directions.

19                       The advantage that we may have with this  
20          being a Fruitland Coal reservoir, the necessity to produce  
21          water from the Fruitland Coal to lower the pressure in the  
22          reservoir so gas can start to desorb, may, indeed, be aided  
23          by the close proximity of these wells in allowing us to  
24          draw down the pressure in a larger area with the wells as  
25          they're shown than we probably could with the wells evenly

1 spaced.

2 Q Because the 18 and 19 and other sections  
3 are all within a unit area, do you see as a reservoir en-  
4 gineer any potential for the violation of correlative  
5 rights because of the proximity of a few of these wells  
6 in close relation to an offsetting coal well?

7 A Generally speaking, the wells offset one  
8 another in their respective sections on almost an equal  
9 basis and because of that I don't see any reason to suspect  
10 their correlative rights would be endangered.

11 Q Let me direct your attention to what has  
12 been docketed as a separate case on the docket. It's 9560  
13 and it deals with the requested approval of a nonstandard  
14 gas unit for the well to be drilled in Section 2 down in 31  
15 North, 5 West. Do you see that one?

16 A Yes, I do.

17 Q All right. Describe for us, Mr.  
18 Johnson, what is the necessity from your perspective for a  
19 nonstandard spacing unit for that well?

20 A There's a couple of requirements there.  
21 Section 2 is a nonstandard section being less than 640  
22 acres, and in order to develop that section, in my opinion  
23 it would be best served by drilling just one well.

24 The other constraint that we have to  
25 operate on is that well being in the bottom of the Mancos



1 Canyon. It's an extremely archaeologically sensitive area  
2 and the wellsite that we have picked is on a drill pad that  
3 currently exists from a well that was plugged and aban-  
4 doned.

5 Q Do you have other examples of certain of  
6 these requested off pattern locations being located in pads  
7 of wells that were previously drilled?

8 A Yes, we do. If you'll look on the map,  
9 as a for instance, Section 10 of 32, 5, the well that we  
10 have staked is on an existing drill pad, a well that was  
11 first drilled in 1953 and then completion was attempted  
12 again some years later, but that drill pad has been used at  
13 least two times before.

14 In Section 25 of 32, 5, there is a drill  
15 pad and a road that were permitted a number of years ago  
16 but the well was never drilled. That's in 25 of 32, 5.  
17 Looks to be about the midpoint in the unit.

18 Q I believe you told us awhile ago that  
19 the original charge to Mr. Atchison was to attempt to  
20 locate and stake some 65 wells within the Unit?

21 A That's correct.

22 Q How many wells would represent full de-  
23 velopment of the entire Carracas Unit for the coal gas pro-  
24 duction?

25 A If we were going to develop all of the

1 320-acre spacing patterns in the Unit, we would probably --  
2 we would have to drill approximately 80 wells.

3 Q Of the 65 requested spacing locations,  
4 then, Mr. Atchison was charged to locate for you, how many  
5 of those represent off pattern or unorthodox well loca-  
6 tions?

7 A 19.

8 Q Do we find for the further development  
9 of the unit that the remaining wells in fact will be on  
10 pattern at standard locations as best you know it now?

11 A Well, I should clarify my last answer.  
12 The 19 that we've requested are the ones that are off  
13 pattern or nonstandard that have not been drilled. Some of  
14 the wells that we've already drilled and some that we al-  
15 ready have approved, are also either nonstandard or off  
16 pattern locations.

17 With the rule now in effect, any wells  
18 that we stake in the future, we're going to try and comply  
19 with that regulation, but there's no guarantee that we can  
20 find a location that would comply with Rule 7 and comply  
21 with the Surface Management Agency's charge that we can get  
22 approved by both agencies.

23 Q I'm not going to ask you, Mr. Johnson,  
24 to go through each of the 19 off pattern, unorthodox loca-  
25 tions, but let me just ask you some general questions. If

1 they do not apply to all 19, please tell me, and we'll talk  
2 about that as an exception.

3 For each of these 19, looking within the  
4 section, have you found or can you obtain an approvable al-  
5 ternative location that will comply with Rule 7?

6 A With the 19 applications that we have  
7 turned in now, there are none of those that we feel we can  
8 move and obtain Surface Management Agency approval.

9 Q That opinion is based upon what effort  
10 with your people and the U. S. Forest Service in discussing  
11 and negotiating those locations?

12 A Okay. The effort that's been expended  
13 on this was with a 3-man team and sometimes augmented by  
14 other -- others out here working on this particular unit to  
15 develop orthodox locations over a period that started in  
16 April of 1988 and has just ended in October of 1988. So we  
17 have expended considerable manhours and considerable effort  
18 and considerable expense to survey and to come up with  
19 locations that fit the criteria that we're operating under  
20 from our own standards and the Surface Management Agency  
21 standards, as well as OCD rules.

22 Q Based upon your study of this particular  
23 issue, Mr. Johnson, do you have an opinion as to whether  
24 Mr. Stogner might approve these applications and do so  
25 without violating correlative rights and may do so without

1 causing waste?

2           A           In my opinion the -- the unit operations  
3 and the correlative rights of those parties within the unit  
4 would not be endangered by the approval of these 19 loca-  
5 tions. We have a precedent of sorts set in here in that  
6 there are some locations that were approved as nonstandard  
7 and off pattern prior to the implementation of Rule 7, and  
8 the correlative rights question was examined in each of  
9 those and found to not be adversely affecting anyone.

10           Q           Do you have an opinion as to whether  
11 approval of these off pattern locations will result in the  
12 drilling of unnecessary wells?

13           A           In my opinion it will not. My basic  
14 charge from my employer is to develop this resource in the  
15 most efficient manner possible and one of my charges is to  
16 not drill unnecessary wells.

17                               MR. KELLAHIN: That concludes  
18 my examination of Mr. Johnson.

19                               We would move the introduction  
20 of Exhibits One through Four.

21                               MR. STOGNER: Exhibits One  
22 through Four will be admitted into evidence at this time.

23                               Are there any questions of  
24 this witness?

25                               If not, he may be excused.

1 Mr. Kellahin, continue.

2  
3 MIKE ATCHISON,

4 being called as a witness and being duly sworn upon his  
5 oath, testified as follows, to-wit:  
6

7 DIRECT EXAMINATION

8 BY MR. KELLAHIN:

9 Q Mr. Atchison, would you please state  
10 your name and occupation for the record?

11 A My name is Mike Atchison and I'm a oil  
12 field consultant employed by Nassau Resources.

13 Q Would you describe for us, Mr. Atchison,  
14 what is it that you have specifically done with regards to  
15 your employment concerning the Carracas Canyon Unit?

16 A I have staked these locations inside the  
17 Unit and laid out the roads.

18 Q Describe for us what has been your back-  
19 ground and experience in the oil and gas industry, Mr.  
20 Atchison.

21 A I've worked in the oil and gas industry  
22 for about 21 years in different phases from dirt construc-  
23 tion, pipelining, up through the actual drilling and some  
24 completion of oil and gas wells.

25 Q With regards to finding locations within

1 the Carracas Canyon Unit for Fruitland coal gas wells, what  
2 were you asked by Mr. Johnson to do?

3 A He asked me to stake wells on standup or  
4 laydown 320's in each section within the unit.

5 Q In order to accomplish that task, what  
6 did you initially do in order to make a tabulation, if you  
7 will, of potential locations within the unit?

8 A Well, the first thing I did was sit down  
9 and plat a map of the unit off of a topographical map,  
10 trying to see where I might put locations in the best  
11 places topographically to meet his guidelines.

12 Q Do you recall in making that initial ex-  
13 amination of potential locations approximately how many  
14 potential locations you identified in that manner?

15 A I think I had 98 when I first started.

16 Q What then did you do in order to con-  
17 tinue the process of further identifying and then obtaining  
18 approval for those locations?

19 A We talked to the Forest Service and got  
20 more guidelines. Being as this was a road closure area and  
21 a game management area, they had guidelines that they  
22 wished us to follow, which --

23 Q Without going into great detail about  
24 those, Mr. Atchison, would you describe generally the para-  
25 meters by which you were required to locate wells and

1 identify potential roads? What were the major concerns by  
2 the Forest Service that restricted your locations?

3 A The major concerns that the Forest Ser-  
4 vice had were that we staked our well locations as close to  
5 existing roads as possible and where the terrain would al-  
6 low us to do the least amount of damage to this unit be-  
7 cause of the wildlife and there other management plans.

8 Q The wildlife plan that you were required  
9 to abide by included the management of the forest and the  
10 trees.

11 A Yes, sir.

12 Q It precluded you from excessive cutting  
13 of forest in order to establish your roads and pads for  
14 your wells?

15 A Yes, sir, that's correct.

16 Q You were required to use existing roads  
17 and open areas for wells that did not disturb to an un-  
18 reasonable extent the forest itself?

19 A Yes, sir.

20 Q Notwithstanding that you were also re-  
21 quired to, in conjunction with the Forest Service Ranger,  
22 find locations that did not adversely impact the wildlife  
23 in the area?

24 A That's correct.

25 Q You found areas where you could build a

1 location but for the wildlife and disturbing the elk and  
2 the other animals and fowl that were found within the  
3 National Forest.

4 A That's correct.

5 Q Did you have any other restrictions with  
6 regards either to archaeological restrictions or other  
7 terrain management restrictions?

8 A Yes, sir. This area is virtually unmap-  
9 ped to the archaeological finds and getting into this area  
10 we found that almost any place that was flat with very much  
11 groundcover, that there were an extreme amount of Indian  
12 ruins, which we had to work around, and that was the basis  
13 of putting a lot of these wells to where they are now.

14 Q What period of time were you involved in  
15 the field study?

16 A From early part of March up through, oh,  
17 up through the end of October.

18 Q Out in the field, walking the canyons,  
19 flying over them, riding horseback?

20 A Yes, sir. I camped up there from April  
21 up till the first part of November and we worked from 12 to  
22 14 hours a day with a crew of surveyors attempting to com-  
23 plete this project in the time that we had.

24 Q Give Mr. Stogner an example of the kinds  
25 of difficulties you had with regards to the existence of



1 archaeological incidents. For example, you could find a  
2 location that was suitably accessed with a road, did not  
3 adversely impact the wildlife, did not involve unnecessary  
4 cutting of the forest, and what would you find?

5 A Indian ruins, because the, basically,  
6 the Indians picked the same places that we had because of  
7 the topography of the roughness of the terrain, that any  
8 place that was flat, the Indians could camp there or had  
9 (unclear).

10 Q And those were precluded to you, ob-  
11 viously, for --

12 A Oh, yes.

13 Q -- drilling activities.

14 A Right.

15 Q You've brought with us -- brought with  
16 you this morning, Mr. Atchison, some aerial photographs.

17 MR. KELLAHIN: And we don't  
18 have extra copies yet, but we'll make them available for  
19 the record, Mr. Stogner. If you'll permit Mr. Atchison to  
20 approach your end of the table, I'd like for him to take a  
21 moment and demonstrate to you the kind of difficult terrain  
22 that he had to work with, if that's all right.

23 Q Just to keep the record straight, we're  
24 going to mark Aerial Photo 096 as Exhibit Number Five and  
25 your Aerial Photo 007 as Exhibit Number Six, and then fin-

1 ally, your overlay, which you're going to use to orient the  
2 aerial photos, as Number Seven, Mr. Atchison.

3                   Would you start, sir, with taking Number  
4 Five and take a moment and simply describe what portion of  
5 the unit we're looking at from this aerial photograph?

6                   A           Okay. This is mostly 32 and 5 of the  
7 Unit. These are the existing roads. Some of these roads  
8 are -- have been closed by the Forest Service.

9                   Q           When you look at the colors of the  
10 aerial map, what is the significance of seeing the area  
11 that has a pinkish or a reddish tinge to it?

12                  A           These are infra red photographs taken  
13 from about 20,000 feet. They were hunting faults and they  
14 shadow in better. The red is vegetation. The healthier  
15 the vegetation, the redder, and that makes the rock forma-  
16 tions stand out.

17                  Q           Let's have you take the overlay, Exhibit  
18 Number Seven, take a moment and overlay, then, the topo  
19 map, which has the section lines on it, and then let's  
20 locate a specific section.

21                  A           You may have to be patient. It's kind of  
22 hard to line up so you can find it.

23                  Q           Can you hold the overlay over the aerial  
24 photo in such a way that we can have you identify Section  
25 19 of 32, 4? Have you found that?

1           A           Yes, sir.

2           Q           Okay. Let's take a moment and use that  
3 as an example, Mr. Atchison, and identify for us on that  
4 display where the Forest Service and you have located the  
5 site for the Well 198-4.

6           A           (Inaudible).

7           Q           All right, sir, that's the one in the  
8 northeast quarter. Find me the one in the northwest  
9 quarter.

10          A           Well, can I refer to this map, please?

11          Q           Sure.

12          A           Be approximately here.

13          Q           In looking for locations in Section 19  
14 in which to find two drillable locations for Fruitland Coal  
15 gas production, have you examined all available information  
16 to find locations within that section?

17          A           Yes, sir, I spent approximately six days  
18 in that section in all trying to meet guidelines. Most of  
19 the reason for these well locations being placed where they  
20 were is this east part of the section is not accessible by  
21 any road and the amount of timber destruction that we  
22 would have in -- in this section would not meet the Forest  
23 Service guidelines.

24          Q           Were you able to find a suitable loca-  
25 tion in the southwest quarter of Section 19 for a well and

1 access roads to the well?

2 A No, sir, we could not.

3 Q Is that true of all the other 19 wells  
4 that you have located and either had approved or put in an  
5 approvable situation with the Forest Service District  
6 Ranger's office?

7 A Yes, sir, it is.

8 Q To the best of your knowledge and infor-  
9 mation and belief, Mr. Atchison, are these locations the  
10 optimum locations that meet the criteria of Mr. Johnson, as  
11 well as the criteria of the Forest Service for locating  
12 wells in the Unit?

13 A Yes, sir, they are.

14 Q Do you find any instance in which you  
15 can now relocate any of these 19 wells and have them placed  
16 in an on pattern location that meets the requirements of  
17 Rule 7 of the OCD and will also meet the constraints and  
18 requirements of the Forest Service?

19 A No, sir, I do not.

20 Q You may return to your seat.

21 A Thank you.

22 MR. STOVALL: Mr. Kellahin,  
23 might I just ask you some questions with respect to the  
24 mechanics of this exhibit?

25 Is it your intention to submit

1 comparably scaled photographs for the record?

2 MR. KELLAHIN: We will do that  
3 and we simply didn't have the opportunity to --

4 MR. STOVALL: I understand  
5 that, but it will be on the same scale so that we can used  
6 the same overlay --

7 MR. KELLAHIN: Yes, sir.

8 MR. STOVALL: -- to mark it?

9 Could I have your witness  
10 identify or explain for the record how to line up the over-  
11 lay on a photograph --

12  
13 VOIR DIRE EXAMINATION

14 BY MR. STOVALL:

15 A The simplest way is using the roads.  
16 This fenceline that you can see here in the photograph is  
17 the Colorado/New Mexico state line and then you can see the  
18 roads on your overlay, and if you will just line your roads  
19 up with the overlay on the --

20 Q Okay, well, that helps. So we have to  
21 look at a transcript to --

22 A Yes, sir, that would be the simplest  
23 way.

24 Q And when you were pointing to the loca-  
25 tion of the well, I believe it was in Section 19, you were

1 (not clearly understood) the same location as appeared on  
2 Exhibit Two, is that --

3 A Yes, sir, --

4 Q -- correct?

5 A -- that is correct.

6 One reason for the photographs is these  
7 topographical maps are very deceiving to this area because  
8 the ones on one side are 20 foot contours; the one on the  
9 other is 40 foot contours, and that is very deceiving.

10 MR. KELLAHIN: It gives you  
11 the impression of what, Mr. Atchison, as you move across  
12 the map?

13 A It give the impression that the area is  
14 not as rough.

15 Q Is your overlay contour the same contour  
16 as the --

17 A Topographical maps.

18 Q So it would be 20 feet, 20 feet is on  
19 the western portion, is that correct?

20 A Yes, sir.

21 Q 40 feet is on the eastern portion?

22 A Yes, sir, and in my opinion the map in  
23 the 40 foot contours, the terrain is rougher than the area  
24 in the 20 foot contours.

25 Q And looking at your Exhibit Two, and I

1 would assume it correlates to Exhibit Seven, your -- the  
2 line appears to be between Sections 15, 16, 21, 22, 20, 27  
3 and 22, 5, is that correct?

4 A That's correct.

5 Q Isn't that where the maps split?

6 A Yes, sir.

7 MR. KELLAHIN: With your per-  
8 mission, Mr. Stogner, we would move the introduction of  
9 Exhibits Five, Six and Seven and seek your authority to  
10 withdraw them and substitute duplicates.

11 A Part of the photograph is duplicated;  
12 they're not exact.

13 Q What is the source of these photographs?

14 A What source did these photographs --  
15 these photographs came from McGuire and Associates in  
16 Denver, Colorado. He did a geological study of the area  
17 and Mr. McGuire uses these photographs to assist him in  
18 finding rock formations.

19 Q There appear to be numbers across the  
20 top of the photographs. Do you know what those are?

21 A Not exactly, sir. They're something to  
22 do with the timing of the camera. Those --

23 Q They have nothing to do with your pre-  
24 sentation and use of these photographs?

25 A No, sir, they do not.

1                   Q            Okay.    Do you know when these photo-  
2                   graphs were taken?

3                   A            1981.

4                   Q            Okay, is that the date that's up in the  
5                   upper lefthand corner?

6                   A            Yes, sir, that's correct.

7                   Q            Do you know, have any knowledge, person-  
8                   al knowledge, as to whether there've been any significant  
9                   changes in the topography out there since that time?

10                  A            No, sir, there hasn't, except for the  
11                  plant growth would be different.

12                  Q            As far as roads in there or anything  
13                  man-made that would be different?

14                  A            Those -- a lot of those existing roads  
15                  have been closed by the Forest Service and the Game Depart-  
16                  ment.

17                  Q            In Section 27, you might look at Exhibit  
18                  Two, as well, there's a white area on Exhibit Two that ap-  
19                  pears as a light brown area in the photograph. Do you know  
20                  what that is?

21                  A            If I may look here. This is a chained  
22                  out area. I'm not sure what year it was chained, where the  
23                  Forest Service had chained timber off the top to make more  
24                  wildlife habitat.

25                  Q            So it's a -- in other words, it's sort



1 of a barren --

2 A It's a barren --

3 Q -- open --

4 A Yes, sir.

5 Q -- grassy area, or whatever.

6 MR. STOVALL: Mr. Kellahin,  
7 let me ask you for a moment, there are other questions  
8 about the terrain in the photographs and I don't know  
9 whether it would be better to ask this witness or Mr.  
10 Settles, when he is --

11 MR. KELLAHIN: Certainly Mr.  
12 Atchison could be recalled if there are questions Mr.  
13 Settles can't answer. The ranger has obviously been in  
14 this district longer than Mr. Atchison, may know more de-  
15 tials about the terrain management than --

16 MR. STOVALL: My -- my -- my  
17 immediate reaction is that these are probably questions  
18 within Mr. Settles' area of knowledge, and I would defer at  
19 the moment.

20 MR. KELLAHIN: And, if not, we  
21 certainly have Mr. Atchison available to re-examine.

22 MR. STOVALL: Okay.

23 MR. KELLAHIN: Mr. Johnson  
24 makes the suggestion that we can leave these Exhibits Five,  
25 Six and Seven with the hearing examiner for the next few

1 weeks while he deliberates what he wants to do with this  
2 case, and that way we don't have to withdraw them and try  
3 to make copies of them and delay his deliberations.

4 So let me amend my request and  
5 let us withdraw these at some later date after he's decided  
6 how to proceed with the case, but ultimately, we need to  
7 take these back and duplicate them.

8 But we can, contrary to my  
9 earlier statement, leave these with you.

10 MR. STOVALL: Yeah, that would  
11 be fine. Did we admit them? I think you already --

12 MR. KELLAHIN: Yeah, he's not  
13 yet admitted them.

14 MR. STOGNER: Oh, sorry, Ex-  
15 hibits, what is it, Five, Six and Seven --

16 MR. KELLAHIN: Yes.

17 MR. STOGNER: -- will be admit-  
18 ted into evidence.

19 Are there any questions of  
20 this witness?

21 He may be excused.

22 A Thank you.

23

24 PHILIP R. SETTLES,

25 being called as a witness and being duly sworn upon his

1 oath, testified as follows, to-wit:

3 DIRECT EXAMINATION

4 BY MR. KELLAHIN:

5 Q We talked all about you this morning,  
6 Mr. Settles, now we get to talk to you.

7 A Okay.

8 Q Would you take a moment and identify  
9 yourself and describe for us for whom you work for and in  
10 what capacity?

11 A Okay. My name is Philip R. Settles.  
12 I'm the District Ranger. I work on the Carson National  
13 Forest, Jicarilla Ranger District. It's U. S. Forest Ser-  
14 vice, Department of Agriculture.

15 Q Describe for us how long you have been  
16 the District Ranger for this particular district.

17 A Okay, I've been the District Ranger on  
18 this district for five years.

19 Q With regards to this particular subject,  
20 the approval of surface locations for exploration and  
21 drilling of oil and gas wells within the Carracas Canyon  
22 Unit, describe for us what generally is your authority and  
23 range of judgment in processing the applications for sur-  
24 face locations.

25 A Okay. Well, we are the Surface

1 Management Agency responsible for -- for anything that --  
2 any surface disturbance that occurs on National Forest  
3 lands, directly dealing with the Jicarilla Ranger District,  
4 which I'm in charge of.

5 Our land management plan was approved in  
6 December of 1986. From that, that was designated by law by  
7 the FLPMA, which I'll use the term here, it's the Forest  
8 Land Management Policy Act, and also according to meet with  
9 the National Environmental Policy Act. These are our --

10 MR. STOVALL: Excuse me, Mr.  
11 Settles, let me just interrupt you for the sake of the re-  
12 porter.

13 Would you spell FLPMA for her  
14 so when she makes the record --

15 A FLPMA.

16 MR. STOVALL: Okay.

17 A Anyway, we were told basically by law,  
18 by Congress, to produce land management plans for all  
19 national forest land.

20 Okay, on the land management plan for  
21 the Carson National Forest there -- there are three areas  
22 that are -- that are emphasized, and that's recreation,  
23 wildlife and soil and water.

24 Specific to the Jicarilla Ranger Dis-  
25 trict we're -- we're dealing with wildlife, the roads

1 issue, topography and soils, and also cultural resources.

2 These are the main areas that are empha-  
3 sis areas on our district.

4 Q When an applicant such as Nassau Re-  
5 sources or Mr. McHugh comes to you and requests a location  
6 for a well, whose decision is that for the use of the sur-  
7 face for that project?

8 A It is my decision to approve any appli-  
9 cation for a permit to drill.

10 Q Is there an appeal process beyond your  
11 decision if there is an adverse decision?

12 A Yes, there is an appeal process. It's  
13 -- there's two levels of appeal. Currently they're working  
14 maybe, really on one. It depends on new appeal regulations  
15 to the -- to the Forest Service, but my decision can be  
16 appealed to the Forest Supervisor and then in turn that can  
17 be appealed to the Regional Forester. They're going to go  
18 by the same guidelines that I go by and that is the Carson  
19 National Forest Land Management Plan.

20 Q For purposes of approving or disappro-  
21 ving the well locations with this unit, you were the indi-  
22 vidual charged with that responsibility by the Forest Ser-  
23 vice Department?

24 A Yes, I am.

25 Q Describe for us the status by which

1 these 19 off pattern locations are now either approved or  
2 in an approvable location from your perspective as the  
3 management agency for the surface.

4 A Okay. What I'll try and do, I'll try  
5 and start from the beginning and then if I don't answer  
6 properly you can go ahead and --

7 Q Fine.

8 A -- ask some more questions.

9 Basically, back in March, Nassau Re-  
10 sources came to my office and said, we plan on drilling in  
11 the Carracas Unit, or they had described the unit as the  
12 Carracas Unit, about 30,000 acres.

13 At that time they said, we -- we want to  
14 work with you and try to work as far as -- as what we can  
15 do as far as drilling, plus work with environmental  
16 concerns. The environmental concerns, basically, anything  
17 they do on the surface which would hinder or hurt any of  
18 the -- of the habitat enhancement ability we do have.

19 Q So with that, I basically spoke to the  
20 Nassau Resources folks and told them that I had certain  
21 guidelines or stipulations that they -- they must meet in  
22 order to develop the Carracas Unit, and realizing that this  
23 Carracas Unit has been undeveloped, or not developed at the  
24 present.

25 So looking to our forest plan, there are

1 certain emphasis areas that I brought up to them; mainly  
2 being wildlife, the roads issue, the topography and soils,  
3 and the cultural resources.

4 The wildlife area, we're interested in  
5 providing habitat for -- for all wildlife, both small and  
6 large game. Some of our current issues are migration  
7 routes, security areas, calving and fawning areas.

8 For roads we -- this is in an off road  
9 vehicle restriction area. In other words, there are no  
10 motorized vehicles permitted off of these roads. Since --  
11 for the last couple of years we've closed approximately 60  
12 to 70 miles of road on -- in the Carracas Unit. These  
13 roads were old logging roads used to access to the timber  
14 sales and these roads are no longer necessary. All they do  
15 is -- is decrease the amount of security area needed for  
16 wildlife to -- to live in the area.

17 We also talked about topography and  
18 soils. The soil in the Jicarilla District are highly  
19 erodable (sic) as seen through most of the photos here of  
20 the deep gully, severe erosion; also the steep slopes. We  
21 have slopes in excess of probably 40 percent in much of the  
22 area.

23 Also we have an issue of cultural re-  
24 sources, archaeological sites. The Carracas Unit probably  
25 has the highest site density of archaeological sites on the

1 Carson National Forest.

2 One thing about that is any place that's  
3 flat, that's where the Indians liked to live and conse-  
4 quently, in the past we've built roads through these areas,  
5 had destroyed cultural resource sites; presently there is a  
6 lawsuit settlement being continued on -- that was filed by  
7 the State of New Mexico against the Forest Service, and  
8 it's a major issue that we protect and collect data on all  
9 these cultural resource sites. So that is a major issue  
10 with us also.

11 So with those guidelines, Mike went out  
12 and he had his charge, and went out and started locating  
13 these wells. What I told him at that time was that I would  
14 provide expertise from my folks to go along with them in  
15 the form of a wildlife biologist and also minerals techni-  
16 cian and a hydrologist. They met with Mike and they met on  
17 the ground; actually they spent several hours flying to all  
18 the locations that Mike had staked that we called suitable  
19 locations.

20 So we have looked at all the locations  
21 that you basically see on your maps there. We have gone  
22 into the approval process; now some of these are not ap-  
23 proved, basically because we are working on, according to  
24 the National Environmental Policy Act, on the environmental  
25 assessment of the area. We have to complete that before we



1 can allow any drilling in -- or new development, basically,  
2 in this area.

3 So we're in the process of doing that  
4 right now and we will be actually giving final approval for  
5 those based upon the environmental assessment that will be  
6 approved here in the, probably about the next month and a  
7 half.

8 So we have approved all wells along ex-  
9 isting roads and some of the other criteria that we've put  
10 forth calls for if any road was to be built, new road con-  
11 struction, they were -- that road was to access as many  
12 wells as possible; therefore preventing or doing away with  
13 the need for locked gates, because we are requiring locked  
14 gates because this is in an off road vehicle restriction  
15 area. In dealing with the public we don't like to have  
16 locked gates, so therefore that was one of the criteria,  
17 that they design a network of roads to these wells to  
18 access them.

19 Q Describe for us the period of time that  
20 you and your personnel have devoted to examination of these  
21 well sites. That took over what period of time?

22 A Okay. We have worked with Nassau Re-  
23 sources from the time that they came in my office in March,  
24 clear through until, well, we're still working with them,  
25 and we will continue.

1                   One of the things that is a concern of  
2 mine is that we want to provide for enhancement of the en-  
3 vironment, plus allow the removal of a natural resource.

4                   Q           The Commission, after this process was  
5 commenced, adopted some spacing rules and pattern rules for  
6 the development of these Fruitland Coal wells that require  
7 that the initial wells be in either the northeast quarter  
8 of the southwest quarter of the sections.

9                   Do you have an opinion or can you ex-  
10 press an opinion with regards to whether or not for any of  
11 these wells we have an alternative approvable surface  
12 location that would allow these wells to be on pattern?

13                  A           First of all, as far as the northeast  
14 southwest quarters to drill in, that pretty much removes  
15 any management options that we have as a land management  
16 agency. If the well can be drilled, we'll find a place for  
17 it to be drilled, but it might not fit in with those --  
18 with the pattern that you actually want as far as the  
19 northeast/southwest.

20                  Yes, there are some locations that we  
21 flat will not approve because they're not in accordance  
22 with our guidelines that we set forth.

23                  One of the good examples you talked  
24 about, I believe, is probably Section 19. There is --  
25 there is a well that's already been drilled and the south-

1 west quarter of Section 18. You propose one in the north-  
2 west quarter of Section 19. Well, by all rights I think we  
3 did locate one in the -- in the northeast quarter of Sec-  
4 tion 19 and by rights there should be probably one in the  
5 southwest quarter of 19. Based on the input from my folks  
6 and from myself, we cannot approve a location there --

7 Q In the southwest quarter.

8 A -- in the southwest quarter because of  
9 topography, because of cultural resources, and because of  
10 wildlife values, and these wildlife values I'm talking of  
11 are basically elk calving and deer fawning areas.

12 MR. KELLAHIN: Let me tender  
13 Mr. Settles for cross examination at this point and allow  
14 you, Mr. Stogner, or Mr. Stovall, to ask specific questions  
15 that may be of concern to you that I might -- might not  
16 occur to me.

17

18 CROSS EXAMINATION

19 BY MR. STOVALL:

20 Q Let me just clarify, Mr. Settles, I  
21 think -- I think I heard you say that the situations you  
22 looked at, what would be OCD rules orthodox locations, and  
23 you have ruled those out under your management plan. Is  
24 that correct?

25 A We've ruled them out based on either

1 the wildlife values, roads, or cultural resources, or topo-  
2 graphy.

3 Q Let me be a little more specific with  
4 that, then. In each of the proposed unorthodox locations,  
5 did you examine for that section in some way the -- an or-  
6 thodox location in each section or was it a more general --

7 A Basically what it was, was that Mike and  
8 his folks located -- they -- it was their -- up to them to  
9 go out and find those locations based on the -- they had an  
10 archaeologist on their staff and with the guidelines that I  
11 set forth and Mike basically knows about big game movement  
12 and wildlife, with the additional stuff that I gave him,  
13 guidelines that I gave him.

14 Now, what they have done is, the ones  
15 that we've looked at, we've actually looked at each one of  
16 those sites and approved those sites. I've sent my folks  
17 and they've flown to each one of those sites and actually  
18 looked at them on the ground. We have approved those  
19 sites.

20 We've asked them, I don't know how many  
21 we asked you to move, Mike, but I'm -- I'm sure there were  
22 some we asked to be moved based on these criteria.

23 Q Moved substantially or moved within an  
24 area or --

25 A Some of them have been moved within a --

1 within an area of 300 foot spacing, I believe. Others have  
2 been asked to move completely opposite a valley on another  
3 flat or closer to a road or things like this; this is what  
4 we've asked them.

5 Q Let me ask you a little bit about the  
6 road situation specifically. Is it -- is it -- am I cor-  
7 rect in assuming, and I'm afraid I missed part of Mr.  
8 Johnson's testimony, he may have addressed this, but I'll  
9 ask you as well, the roads which have been pencilled in or  
10 drawn in on Exhibit Two, are you familiar with that? I  
11 think that's the topo map.

12 A I think this is the same, yeah, okay.

13 Q There are number of roads in there that  
14 appear to have been drawn in. They're not actually on the  
15 map.

16 A Uh-huh.

17 Q Those are roads which are proposed to be  
18 constructed by Nassau for access?

19 A Yes.

20 Q And those roads have been approved by  
21 you, as well?

22 A They have not been approved as of yet.  
23 They will not be approved until the environmental assess-  
24 ment is approved.

25 But, yes, we have looked at those loca-

1 tions. I think you and Jim looked at most of those roads  
2 as far as --

3 MR. ATCHISON: Yes, I think --

4 A There are a lot of old logging roads in  
5 that area. They do follow and that was one of the -- one  
6 of the criteria we used.

7 Q Do you know, are the logging roads on  
8 this Exhibit Two, do you know, or --

9 A No.

10 Q They are not.

11 A Most of --

12 Q Would they be in Exhibit, what is it,  
13 Five or Six, the aerial photo that you have?

14 A They could be if you knew exactly how to  
15 look at -- look for them.

16 Q Well, maybe we can get you over here and  
17 -- because I've got some other questions about those photos  
18 anyway.

19 A Okay. These here roads that you can see  
20 here, those are the main system roads. Now, you can see --

21 Q Let me stop you here just --

22 A Okay.

23 Q -- to be sure we get a good record.  
24 What you're referring to is, you're referring to the light  
25 colored lines that look roads from the --

1           A           Those are roads, yeah.

2           Q           Okay.

3           A           Now you can also see -- well, they're  
4 not showing up now because the timber was harvested back in  
5 about 1974 and those roads were closed out. We've also  
6 closed more out since -- well, for the last couple of years  
7 we've closed out 60-some miles of road up here?

8                       For example, here in Cottonwood Canyon,  
9 the road is closed to right here right now. See this road  
10 that --

11          Q           So you're looking at Section -- what is  
12 that?

13          A           That is Section 25, 32 and 5.

14          Q           Okay. So the road may show in the  
15 aerial photo but it is in fact not accessible and usable as  
16 a road under your --

17          A           That's right.

18          Q           -- management.

19          A           Another good example is the road that  
20 comes off in Section 23 of 32 and 5 and goes in a southerly  
21 direction and then comes across and goes to the -- to the  
22 west and that area you were talking about that was pushed,  
23 that was basically a pinon/juniper area that was pushed and  
24 we planted ground species in there, bitterbrush, mountain  
25 mahogany, things like that, for -- to improve wildlife

1 habitat, and that road is closed out, is completely closed  
2 out. There will be no travel.

3 One of the reasons is that this area  
4 right here on the east end of this push area, is -- there's  
5 archaeological sites and we can't even go across it with a  
6 bulldozer. That's part of the lawsuit settlement, so those  
7 are just some of the conditions we have to work with.

8 Q Now, in evaluating a site, you've listed  
9 a number of criteria to be wildlife, I guess, movement, is  
10 that correct?

11 A Migratory routes, yes.

12 Q Archaeological considerations.

13 A Yes.

14 Q What other considerations were there?

15 A Roads. Roads, no -- it's an off road  
16 vehicle restriction area where we allow no off road  
17 vehicles that are off the existing roads and we have that  
18 marked. That is based on law.

19 Q Okay, and if a particular location had  
20 any one of those characteristics it would just be disquali-  
21 fied as a location under your surface management plan, is  
22 that correct?

23 A As far as the wildlife, the cultural re-  
24 sources, any threat to endangered species, such as either  
25 animal or plant, yes, we would definitely deny the appro-



1 val.

2 Now, there are some areas as far as  
3 roads that we can approve roads into this area. We had one  
4 stipulation, that, as I said earlier, that one road would  
5 connect a bunch of wells; therefore eliminating the need  
6 for all of the gates going to those wells. That was the  
7 only criteria.

8 So our goal is to have the minimum  
9 amount of locked gates that are necessary.

10 One other criteria that we put on there  
11 was -- was anything that was a quarter of a mile or closer  
12 to the main road, that we would go ahead and allow them to  
13 leave that road open and when I go back to this, I'll go  
14 back to what we call security area, and if you have one --  
15 a square section, one square mile, and you have a mile or  
16 road or more, you lose basically 70 to 80 percent of the --  
17 or more, of the -- of the security area for wildlife  
18 habitat for big game. Once you close those roads, limit  
19 those roads down to about a third of a mile per section,  
20 you increase your security by 70 to 80 percent. That's the  
21 goal of our off road vehicle restriction; therefore related  
22 to the wildlife habitat.

23 Q And when you're talking about security  
24 area, what does that term mean?

25 A That means where deer and elk can go to

1 not be hurt at, and that's why we -- we don't allow motor-  
2 ized vehicles in these areas. You can walk, go horseback,  
3 take a mountain bike, or whatever you want to in there, but  
4 you can't drive a motorized vehicle.

5 Q Let me pull over Exhibit Two here. I  
6 just want to get some general understanding and make sure  
7 as we look at these exhibits we're understanding the ter-  
8 rain correctly.

9 The areas on Exhibit Two that are white  
10 or light in color, do you know what that -- the signifi-  
11 cance of that?

12 A Those are basically sagebrush openings.

13 Q Okay, and the green designates more --

14 A Timber.

15 Q -- heavily forested timber.

16 A Those are timber areas.

17 Q And can you review or can you describe  
18 how they appear on the aerial photographs to your --

19 A On the photographs? Well, you're going  
20 to find little white spots and so most of these are in your  
21 bottoms or flats, so to speak. For example, this area  
22 right here, this --

23 Q In Section 16, all right.

24 A Section 16 is this area right here.  
25 It's just a small plat.

1           Q           Okay, is the one area we referred to  
2 before in the area, 27, is that the only area that has been  
3 artificially cleared and replanted?

4           A           Yes, in the Carracas Unit. We have some  
5 further south.

6                       We're also planning on doing several  
7 prescribed burns in the browse type for wildlife food.

8                       One other area that I think you primar-  
9 ily might be interested in is a little bit further south,  
10 to tie in with the cultural resource value of the area. The  
11 company right now has spent about \$25,000 mitigating, to  
12 try to get through an area of cultural resource, of high  
13 site density, and they're still not through there yet.  
14 So these are some of the values that we look at as far as  
15 cultural resources, also.

16           Q           Were you involved in -- when Nassau Re-  
17 sources originally was forming the unit? Did they have any  
18 discussions with you at that time with regard to their --

19           A           When Nassau -- yes, they did, and we're  
20 -- we're happy that they did because what -- what it gave  
21 us is a chance to sit down and actually plan the unit with  
22 them, taking into consideration the wildlife values and the  
23 values we've placed on the area.

24                       As in the past, the development of the  
25 forest was kind of haphazard, one here, one there, one over

1 here, and there was no real plan. If that would have  
2 happened, I'm sure we would have found out within about the  
3 first ten or so wells and everything would have been stop-  
4 ped and shut down at that time. So this gave us a time, a  
5 chance to be pro-active and to sit down and actually plan  
6 the unit and get our values addressed in the way that the  
7 unit is developed.

8 And -- and as far as I can tell you, the  
9 forest supervisor has been behind us 100 percent.

10 Q You're talking about the Carson --

11 A Carson Forest Supervisor, John Bidell,  
12 yes.

13 MR. STOGNER: We'll take a  
14 break at this time.

15  
16 (Thereupon a recess was taken.)  
17

18 MR. STOVALL: Mr. Settles is  
19 still on the witness stand, I believe.

20 A Yes, you bet.

21 Q Mr. Settles, in looking at the locations  
22 proposed by Nassau, have you taken into account production  
23 facilities as well as the drilling operations?

24 A Yes.

25 Q What about pipelines, removing gas, have

1       you --

2                   A           Yes.   Basically all -- the guideline  
3 we've set down was that all pipelines would -- would be put  
4 in the roads that would be through the area, actually the  
5 road right-of-way.

6                   Q           So you're -- when you approve a location  
7 and access to that location, that approval will include --

8                   A           The transmission.

9                   Q           -- transmission, pipeline to the area  
10 and part of those are to be buried or --

11                  A           Yes.   Yes, they will be buried. No --  
12 we do issue temporary permits for above ground lines but  
13 that's not to exceed thirty days, and they will be all  
14 buried. As far as the requirements, I think it's three  
15 feet, or whatever it is, and some areas where we can't bury  
16 them, they will be allowed to be left above ground. I  
17 think there will be a couple areas where that will be per-  
18 mitted.

19                  Q           That would be topographic reasons?

20                  A           Yes.

21                  Q           Plants or rock, or whatever.

22                  A           And we -- one thing I don't want to do,  
23 too, is -- is that we talked a little about loop roads? We  
24 don't want to have any loop roads and therefore if we can  
25 go through some steep canyons, and what not, put the pipe-

1 line above ground, that makes it better for us because we  
2 don't have a road so people can drive across in case we do  
3 get one of our locked gates.

4 Q Have you had any discussions with them  
5 with respect to disposal of produced water?

6 A Yes, that's -- that's a major concern.  
7 We're -- we're approaching that as we're going to try and  
8 leave as much as a produced water on the surface as we can.  
9 It will basically be purified, tying into the wildlife  
10 emphasis.

11 With the riparian areas, small dams, so  
12 to speak, earthen dams, and the water will flow freely down  
13 to through the canyons into Navajo Lake after it's reached  
14 or been purified to a standard that's acceptable to State  
15 Game and Fish Department's water qualify folks and all, so  
16 --

17 MR. STOVALL: Mr. Kellahin, is  
18 one of your witnesses, if we recall Mr. Johnson, perhaps,  
19 would he be able to discuss the water issue for us?

20 MR. KELLAHIN: Yes, we will,  
21 Mr. Johnson can.

22 MR. STOVALL: For the record,  
23 I know Mr. Settles statements regarding the potential use  
24 of water, let me ask you a couple questions with regard to  
25 that.

1           Q           Have you looked at the water quality of  
2 the produced water?

3           A           Yes, we have. Initially we were looking  
4 at some in the neighborhood of something like 8000 TDS.  
5 I've understood that some of this will be around 12,000.  
6 We've talked to some folks with purifying units and also  
7 Nassau Resources also talks with folks, and we feel that we  
8 can purify the water to where it can be usable by livestock  
9 and wildlife, and what those parameters are is down to  
10 around 6 to -- 6000 to 6800 TDS, as far as usable by wild-  
11 life.

12          Q           If -- if it were to result that as the  
13 wells were more produced from a period of time that the  
14 water became more contaminated, if you will, have you dis-  
15 cussed with -- with Nassau any potential disposal plans or  
16 operations to get rid of water that couldn't be purified to  
17 the --

18          A           Yeah, okay, those -- those issues are  
19 addressed, will be addressed in an environmental assessment  
20 that we're preparing. Yes, we do understand that there is  
21 a good possibility that a lot of it will have to be injec-  
22 ted. We understand that.

23                       The other thing is that we're looking at  
24 in the future 20 years from now, about what we're going to  
25 do. We know that the water quality or quantity will dimin-

1 ish over time. We're looking at ways to produce water and  
2 continue to have water there. These are some of the major  
3 issues that have come up as far as wildlife habitat, lack  
4 of water, and that's one thing we're going to try to alle-  
5 viate through working with Nassau Resources on this.

6 Q Do I understand you to be saying then  
7 that you would anticipate that the use of produced water to  
8 feed natural stock tanks, if you will, for wildlife, would  
9 actually enhance the wildlife habitat of the forest? Is  
10 that what you're saying?

11 A Yes, it would. We are lacking water in  
12 these areas right now and by leaving that water on the sur-  
13 face, we will be creating a series of earthen dams along  
14 these drainages and it will be free flowing and enhance the  
15 riparian areas.

16 MR. KELLAHIN: Mr. Stovall, so  
17 there's no misunderstanding, that is a subject of continu-  
18 ing discussion in terms of its feasibility.

19 The current plan of operation,  
20 however, is to dispose of the produced water in a currently  
21 existing salt water disposal well that's in the unit.

22 MR. STOVALL: Okay, I think I  
23 may want permission to discuss that with Mr. Johnson later.

24 MR. KELLAHIN: I'm sorry, it's  
25 currently being drilled.



1 MR. STOVALL: Okay, I think we  
2 may recall him to have some discussion on that, and I have  
3 a comment I want to make but I'll wait till we've got him  
4 back on the stand.

5 Q Have you -- have you discussed with  
6 Nassau measures which you're going to require them to take  
7 in terms of protecting wildlife, particularly, from harm by  
8 the actual facilities themselves, vis-a-vis pits or pumping  
9 units or production units of any sort?

10 A What we have done, we've tried to locate  
11 the wells in areas where they will least affect wildlife.  
12 As far as, when we're talking about that, I mean elk  
13 calving areas, deer fawning areas, migration routes, these  
14 things. Also the equipment to be put on the well, we un-  
15 derstand that there's a certain amount of equipment that  
16 has to be put on those wells. We've pretty much approved  
17 that.

18 We've looked into the amount of travel  
19 to those wells, further stipulating some -- some require-  
20 ments as far as hunting from a vehicle that is owned by  
21 them. We've gone so far as to say that they will not carry  
22 a firearm in their vehicles during that time and they will  
23 not allow anyone else in there. They will not even, if a  
24 person shoots a deer down there, they will not even be al-  
25 lowed to take and put that deer in the back of the truck

1 and haul it out for them.

2 This is an off road vehicle restriction  
3 area and we will control the amount of travel to those  
4 wells.

5 Also we're looking at, as far as the  
6 disposal of water, if we have to inject or whatever, we're  
7 looking at pipelines as far as there will be no 3200 gallon  
8 tanker trucks driving those roads 24 hours a day. That's  
9 one of the conditions we set down, that water will have to  
10 be piped off. They understand that and those are just some  
11 of the requirements.

12 Now, as far as actual harassment to  
13 wildlife, we -- we feel that we've pretty much mitigated  
14 that through the locations, where they're at.

15 Q Are -- are you -- do you have any speci-  
16 fic requirements, say, for example, as to fencing or pro-  
17 tection?

18 A Okay, excuse me, I didn't talk about the  
19 water. Yes, we require an 8-foot high fence around the --  
20 the pits and maintained continually.

21 Q What about, have you looked at the im-  
22 pact, or will it be included in your environmental assess-  
23 ment, the impact of emergencies or, for example, broken  
24 pipes, spills, things that happen when mechanical objects  
25 go pfft -- when mechanical objects break?

1           A           Okay. Those are some of the things that  
2 -- that are basically normal occurrences, such as, if  
3 they're blading a road and they rupture a pipeline or spill  
4 any of it, we handle those as we would everyday happenings  
5 such as that.

6                       We, yes, we do know that that's going to  
7 happen at times and we work the best we can. We're not out  
8 there to -- to try and hang somebody. If it's -- if it  
9 happens unbeknown to them and without them causing it,  
10 well, you know, those are things we've got to look at, and  
11 that's basically kind of why I'm there.

12           Q           Have you had any discussions with the  
13 Aztec District Office of the OCD with respect to any of  
14 these operations? Do you coordinate it at all with that  
15 office?

16           A           I've talked to, I think it's Ernie Bush,  
17 is that --

18           Q           Yes, that's the geologist up there.

19           A           Okay. I've talked to him about this.  
20 He is the only one that I've actually talked to that's  
21 contacted me, also.

22           Q           Do you know if there's any mechanism  
23 within -- within your structure and I would think ours as  
24 well, as to -- some of these -- some of these issues are  
25 within both your jurisdiction and authority and responsibi-

1 lity as the surface managing authority in the area, they're  
2 also within the OCD's authority as the regulator of produc-  
3 tion. Do you know if there's any mechanism within your  
4 structure that can help us to insure that the management  
5 issues are cooperatively resolved and that we have a degree  
6 of consistency in the way these things are managed?

7 A Are you -- now you're talking about the  
8 way the unit was developed?

9 Q No, I'm more concerned about operational  
10 type issues at this point.

11 For example, we have regulations regard-  
12 ing notification of spills, that sort of thing.

13 A Right.

14 Q We have certain responsibilities in that  
15 area, the OCD does.

16 A Right.

17 Q The Forest Service is certainly going to  
18 have some concerns in that.

19 A From my recollection of the format, the  
20 BLM will still be handling that type of a -- of a situation  
21 as far as during the drilling stage. Now, after produc-  
22 tion, we will be -- you know, we will have to work with you  
23 folks as far as determining what's needed to be done and  
24 those things like that as far as any Federal surface land,  
25 and --

1 Q The BLM is still a mineral authority --

2 A They're still underground. They're  
3 still below ground stuff. We hope within the next few  
4 years to actually, the Forest Service to acquire that, that  
5 responsibility underground.

6 Q Just one last question, Mr. Settles.  
7 How would you describe Nassau's approach to their develop-  
8 ment efforts in this area with respect to dealing with the  
9 Forest Service and their requirements?

10 A Okay. We are very pleased with the at-  
11 titude that Nassau's taken in developing the Carracas Unit.  
12 I need to say I wish all companies would do the same thing.  
13 I think it shows that they are, as I said earlier, they are  
14 pro-active. It gives us a chance to actually sit down and  
15 develop something without doing it in a haphazard basis and  
16 as far as the way it was developed, we set down a lot of  
17 the guidelines, we discussed that with them. We've had  
18 some special meetings where -- where Nassau was involved  
19 and actually did develop what some of the criteria that we  
20 would want in developing a unit and as far as the way they  
21 have set it up and planned it, I don't think we could ask  
22 for a more suitable development plan for this unit, being  
23 that -- that this is a totally -- more, you know, almost  
24 totally undeveloped section of National Forest, and when-  
25 ever you can plan something like that and actually do a

1 plan, the only thing I can think of that was any more pro-  
2 active was -- you're probably familiar with the Vividal  
3 (sic) Unit on the Carson National Forest, which was a  
4 donation of Pennzoil. That was the only effort that I see  
5 that would have been any better than this effort right  
6 here.

7 So as far as I'm concerned, I have great  
8 respect for Nassau and I think they in turn have respect  
9 for us as far as the development of the Carracas Unit and I  
10 feel that our goals and objectives, as far as the Carson  
11 National Forest land management plan is concerned, has been  
12 met by the way this has been developed.

13 Q Would you -- do you have familiarity  
14 with what development would be like under a leasehold oper-  
15 ation, on a lease basis rather than on a unit basis? Do  
16 you have an understanding of that terminology and --

17 A Yeah.

18 Q Do you feel that this area could be  
19 reasonably developed on a lease basis rather than a unit  
20 basis?

21 A If I had the choice, I would rather go  
22 on a unit basis any time. I think it shows that we can  
23 work together and actually do a plan that still allows the  
24 company to produce a natural resource such as gas, and we,  
25 as the Surface Management Agency of the Forest Service, to

1 provide for quality enhancement of the environment.

2 Q Is -- and you, do you believe that is  
3 because that operating on a unit basis they can plan for a  
4 large area of development rather than --

5 A When ever you start going haphazardly  
6 lease by lease, you have -- you have serious problems, and  
7 that is what's got us into problems in the past with the  
8 certain environmental groups. By doing this we can be up  
9 front, show why we did certain things, and plan a whole  
10 unit instead of just one little parcel at a time.

11 As far as we're concerned from the  
12 Forest Service viewpoint, we would much rather plan for an  
13 entire area than we would -- we call them diversity units  
14 in the Forest Service, and so yes, we would much rather  
15 plan over a larger area than a small area.

16 Q Your -- your -- as the Forest Service  
17 reaches agreements, issues approvals for what Nassau is  
18 proposing, are these being documented and recorded and they  
19 will be come permanent agreements that will survive the --  
20 the -- your, for example, your tenure with the Forest  
21 Service --

22 A Yes, sir.

23 Q -- or your service in the Carson?

24 A Yes, the things that we put in the  
25 records right now, that is why we want to develop this and

1 why we want to prepare the environmental assessment, be-  
2 cause these are -- are quote "blueprints" for the way we're  
3 going to operate up there and whenever I'm gone, and that  
4 could be very soon, my predecessor will come in and he will  
5 have something to fall back on and continue this same, same  
6 approach.

7 MR. STOVALL: I don't have any  
8 further questions, Mr. Examiner.

9 MR. STOGNER: Does anybody  
10 have any other questions?

11 MR. KELLAHIN: No, sir.

12 MR. STOGNER: You may be ex-  
13 cused.

14 Mr. Kellahin?

15 MR. KELLAHIN: Thank you. I'd  
16 like to call Mr. Kent Craig, Mr. Examiner.

17

18 KENT CRAIG,  
19 being called as a witness and being duly sworn upon his  
20 oath, testified as follows, to-wit:

21

22 DIRECT EXAMINATION

23 BY MR. KELLAHIN:

24 Q Mr. Craig, for the record would you  
25 please state your name and occupation?



1                   A           Yes, sir. My name is Kent Craig and I'm  
2 the Land Manager for Nassau Resources in Denver.

3                   Q           Mr. Craig, have you previously testified  
4 before the Oil Conservation Division as a petroleum land-  
5 man?

6                   A           Yes, sir.

7                   Q           And do your areas of responsibility for  
8 your company include the formulation and the continued land  
9 management of the Carracas Canyon Unit?

10                  A           Yes, sir, they do.

11                               MR. KELLAHIN: We tender Mr.  
12 Craig as a petroleum landman.

13                               MR. STOGNER: Mr. Craig is so  
14 qualified.

15                  Q           Mr. Craig, you have before you what is  
16 marked as Nassau Exhibit Number One, a copy of the unit  
17 outline and the various tracts that compose the unit.

18                               Let me have you take a moment, sir, and  
19 have you describe generally without a lot of great detail  
20 the -- from a landman's perspective, the plan of operation  
21 for the unit. What -- how's it to work?

22                  A           Initially when we approached the BLM to  
23 approved this Federal exploratory as a divided type unit,  
24 we had a number of leases in there that we had acquired  
25 since September of 1984, and through some farmouts and

1 other arrangements, we controlled roughly 80 percent of the  
2 lands in the unit at this time.

3                   We went to the Forest Service. Initial-  
4 ly the unit, as I believe Mr. Johnson mentioned earlier,  
5 was predicated on the Dakota play and the BLM approved our  
6 unit subject to drilling two Dakota wells, both of which  
7 now have been drilled and the unit obligation has been met.

8                   And in the interim time since then,  
9 since the unit was approved, the Fruitland Coal play came  
10 into our attention and the existence of coal in these lands  
11 led us to start looking at the coal play as our viable  
12 alternative.

13               Q           One of the basic questions to consider  
14 is whether or not the 19 off pattern and unorthodox loca-  
15 tions within the unit disrupt in some way the correlative  
16 rights of any of the participants in the unit, royalty,  
17 overrides, working interest owners, contrasting that to an  
18 example where are in a non-unit situation and you similar  
19 off pattern wells. The basic questions is from your per-  
20 spective do you see any reason for concern that correlative  
21 rights have the potential to be violated by the approval of  
22 the off pattern wells within the unit?

23               A           In my opinion, based on the guidelines  
24 that we had to work with as far as both the State guide-  
25 lines and the Forest Service, and the topography problems,

1 archaeological problems that have been discussed, no, we're  
2 in a unique situation with respect to correlative rights,  
3 in that the majority of the lessees, if you will, are or is  
4 either Nassau Resources or Kindermack Partners, which is  
5 one of our entities, and as Mr. Johnson mentioned earlier,  
6 98 percent of all the lands are Federal minerals.

7                   This helps us in this particular case  
8 with respect to correlative rights, because the majority of  
9 all of our royalty payments, if we are indeed successful,  
10 will be made to the Federal government irregardless of  
11 where the locations are.

12                   Q           Can you take a moment and help us under-  
13 stand where we find the some 694 acres of fee acreage  
14 that's contained within the unit?

15                   A           Yes, I sure can. In the northern part  
16 on a line in -- starting with the northeast part of Section  
17 8 of 32, 4, and running horizontally over the top half of  
18 Section 9, Section 10, into the west half of 11, down into  
19 the west half west half of 14 and the east half east half  
20 of 15, and again down the west side, basically, the west  
21 half west half of 23, that basically constitutes all the  
22 fee lands that lie within the unit.

23                   Q           We do not have any of the fee acreage  
24 within the land, then, within the adjoining spacing unit on  
25 320 acres to a producing or a proposed location that's the

1 subject of this case. In other words, you can take any of  
2 the 19 proposed wells, look at that spacing unit, and there  
3 are none of the adjoining 320-acre spacing units that  
4 contain fee acreage?

5 A That's correct.

6 Q When we look outside the unit, there are  
7 a few examples of wells along the boundary that are off  
8 pattern. Can you identify for us what parties or operators  
9 control the acreage towards whom you are off pattern and  
10 to which they might have a potential objection?

11 A Yes, sir. The southern part of Township  
12 32 North, 4 West, we have a number of off pattern and/or  
13 unorthodox locations running from Section 33, 35 and 36 of  
14 32, 4. The south offset ownership there is either owned by  
15 a J. Glenn Turner out of Dallas, Texas, who I've spoken to  
16 on two occasions and we notified of this notice; or Amoco  
17 Production Company, whom we also notified; or Meridian,  
18 whom we also notified.

19 The same is true offsetting Section 2  
20 in the southwest part of the unit of 31 North, 5 West. All  
21 of those direct offsets are Amoco or Meridian.

22 Q Have you received any objection from any  
23 of those interest owners?

24 A We have not.

25 Q When we look at the interest owners

1 within the unit, am I correct in understanding that this is  
2 100 percent voluntary exploratory unit?

3 A That's correct.

4 Q And you have obtained the working inter-  
5 est owner approval and concurrence to the drilling of  
6 these wells at off pattern locations?

7 A Would you repeat that?

8 Q Yes, sir. Within the unit itself, the  
9 cost of these wells is to be shared among the working in-  
10 terest owners.

11 A Within a given proposed spacing unit,  
12 that's correct.

13 Q And have those owners approved the  
14 drilling of --

15 A Yes.

16 Q -- these wells?

17 A Yes, sir.

18 Q At the off pattern locations?

19 A Yes, sir.

20 Q Let me direct your attention to Exhibit  
21 Number Eight, which is the notification sent from my office  
22 in which notice was provided to some nine different com-  
23 panies or individuals.

24 Would you take a moment, look through  
25 the nine names, and tell us whether or not those represent,

1 to the best of your knowledge, all of the potentially  
2 affected interest owners that adjoin the unit that might be  
3 affected by any of these applications?

4 A Yes, sir, they do. I do.

5 Q We have a complete list?

6 A Yes, sir.

7 Q Describe for us, if you will, Mr. Craig,  
8 the method by which you will proceed to implement partici-  
9 pating areas in the unit.

10 A When we proposed this -- well, when we  
11 drilled our first well, our first unit well, which was in  
12 the northwest quarter of Section 34, 32 North, 5 West,  
13 after we drilled that well, myself and Mr. Johnson, a  
14 geologist, and one other person went down and met with the  
15 BLM in Albuquerque to explain to them that our 320's, as we  
16 saw them, could be standups or laydowns, and that what  
17 guidelines would we need to look at with respect to parti-  
18 cipating areas.

19 In January of this year, 1988, the BLM  
20 in Albuquerque told us that they would try, and they will  
21 attempt to conform to whatever spacing the State gives us  
22 on those 320's and allow that to coincide with a proposed  
23 participating area for a given well.

24 Q Is this a standard. conventional way to  
25 develop participating areas in an exploratory unit?

1                   A           It is in a divided type unit, it is,  
2 yes.

3                   Q           And do you have concurrence and agree  
4 ment among all the working interest owners to implement  
5 that type of participation? Is that part of your agree-  
6 ments?

7                   A           It's not part of our agreements in  
8 writing. We have informed all of our participants, pos-  
9 sible participants that that is our game plan and that's  
10 what we intend to do, but as far as a definite partici-  
11 pating area in writing, we don't have that yet because, as  
12 you're aware, you have to have some pressure data, and in  
13 the case of coal gas some desorb data and some production  
14 history in order to even propose a participating area. So,  
15 really, approval from all the parties in here on all these  
16 wells at this time is premature.

17                  Q           Understanding the concept by which  
18 you'll attempt to implement participation, do you seen any  
19 potential for violation of correlative rights with the ap-  
20 proval of the off pattern locations?

21                  A           No, sir, I do not.

22                               MR. KELLAHIN: That concludes  
23 my examination of Mr. Craig.

24                               We move the introduction at  
25 this time of Exhibit Number Eight.

1 MR. STOGNER: Exhibit Number  
2 Eight will be admitted into evidence.  
3

4 CROSS EXAMINATION

5 BY MR. STOVALL:

6 Q Mr. Craig, we've heard testimony from  
7 your engineer and the Forest Service with respect to pro-  
8 posed locations and wells to be drilled and testimony that  
9 there's been considerable work being done between Nassau  
10 and the Forest Service to develop acceptable locations.

11 One thing that appears from looking at  
12 your maps is that there may be on spacing unit basis tracts  
13 which are undeveloped and undevelopable due to surface re-  
14 strictions.

15 If -- does your unit agreement or your  
16 proposal or plan, as far as participating areas, take those  
17 factors into account?

18 A No, it doesn't, from the standpoint  
19 of when the unit was formed it was a standard Federal unit  
20 and unit operating agreement, and as you are aware, Mr.  
21 Stovall, the first step was just to get the unit approved  
22 and that's long before you even start staking the wells and  
23 looking at spacing patterns and looking at which 320 you  
24 can go to or even legal locations. So the answer to that  
25 is no.



1                   The other side of that coin is we would  
2 expect that almost all these sections, the 19 locations  
3 which we do have are off pattern; however, we do have al-  
4 most in every section, which does not show on that map but  
5 I'll be happy to show you my work map, we do have an on  
6 pattern location which will compensate for the other 320  
7 acres within -- within a given section.

8                   Q           Are you saying, then, that you do have  
9 future development plans which would ultimately result in  
10 the development of every 320-acre tract within the unit?

11                  A           Not every, but the majority of the  
12 320's.

13                  Q           Would you -- would you just briefly de-  
14 scribe for the record what you mean when you say a divided  
15 type unit? What does that mean in terms of participation  
16 in it?

17                  A           Okay. With respect to Federal units,  
18 there are two types.

19                               An undivided Federal unit is strictly an  
20 acreage participating -- participating both costwise and  
21 production allocation is strictly on an acreage basis. So  
22 for a simple example, if you have a 640-acre undivided  
23 Federal unit and you own 160 acres out of that 640, you'll  
24 have a quarter interest in every well that's drilled in  
25 that 640, whether they're spaced on 40 acres or whether

1 it's spaced on 80's or 320's. you will have a quarter in-  
2 terest.

3                   Conversely, an undivided unit is not on  
4 an acreage basis. You solicit participation of all the  
5 owners within the unit. You have to meet at least a 75  
6 percent test of those lessees within the unit to get your  
7 unit approved, and then wells are drilled on a tract by  
8 tract, spacing unit by spacing unit, if you will, basis.  
9 This cost is allocated on a spacing unit basis, and then  
10 production is allocated either on a spacing unit or on a  
11 participating area basis.

12                   In the case of New Mexico and in the  
13 case of our meeting with the BLM, your production most  
14 likely, and 90 percent of the time, is -- or your partici-  
15 pating areas, if you will, the production is allocated as  
16 to that participating area, which conforms to the spacing  
17 unit area that you propose.

18                   In New Mexico your drilling blocks are  
19 your spacing units. Your PA's also conform to your spacing  
20 units in most cases.

21                   Q           Is there a provision in the specific  
22 unit agreement under -- for this unit for participating  
23 areas to be greater than a spacing unit?

24                   A           Yes.

25                   Q           Now you've indicated that you've got a

1 tentative development plan, the original work map there,  
2 that would show a well on the majority of the spacing units  
3 at least, within the -- within the unit.

4 A Yes, sir.

5 Q Have you discussed that longer range  
6 development with the Forest Service and do you have any  
7 feeling as to what their approach, their attitude towards  
8 that kind of dense development would be?

9 A Yes, sir, I can. The Forest Service can  
10 comment on that. Mr. Settles can comment on that, if you  
11 so desire.

12 The Forest Service has a listing of all  
13 of our locations and all of our locations have been staked,  
14 be they off pattern and unorthodox, or on pattern and or-  
15 thodox.

16 So with respect to what two wells, what  
17 two given locations do we have in, say, Section 19, which  
18 we've discussed earlier, they're aware of those two loca-  
19 tions as -- as much as we're aware of them, and that's true  
20 for every other section within this unit.

21 We haven't picked an off pattern loca-  
22 tion and then left the other 320 hanging, if you will,  
23 saying where are we going to put that other well. We know  
24 right now, and the Forest Service knows, and again Mr. Set-  
25 tles can elaborate on that if you so desire, where, at this

1 given point in time, we think both wells will be and where  
2 they will be approved.

3 Q Okay, we don't -- do we have an exhibit  
4 in the record that identifies those locations?

5 A Mr. Stovall, I'll have to look and see.  
6 I'm not sure.

7 MR. KELLAHIN: Let me withdraw  
8 this from the Examiner for a second and check it. I think  
9 this shows it.

10 A Yes, you do.

11 Q And which exhibit is that?

12 A Exhibit Number Two, I believe. Is that  
13 Exhibit Number Two?

14 Q Are those the pencilled in square blocks  
15 on that exhibit?

16 A On the topography, that's correct.

17 Q And do you know if each of those pro-  
18 posed locations is -- is standard as far as the rules for  
19 the Fruitland (unclear) pool?

20 A Mr. Stovall, if they are not standard or  
21 if they are not standard, they are on an off pattern but we  
22 been advised by the oil and gas commission (not clearly un-  
23 derstood) for administrative approval.

24 Q All right, let me just pick for an  
25 example, to make sure that we're understanding it clearly,

1 look -- look at Section 25 in I think it's 32, 4, the edge  
2 of the unit.

3 A Yes, sir.

4 Q And my Exhibit Two shows an unorthodox  
5 location, non-pattern location, in the southeast quarter,  
6 is that correct?

7 A Yes, sir, that's correct.

8 Q And then you show a -- on this exhibit I  
9 see a location in the southwest quarter which would be on  
10 pattern, perhaps orthodox, perhaps unorthodox, in terms of  
11 distance from the boundaries, is that correct?

12 A Yes, sir.

13 Q All right.

14 A No, in the event that is -- and I don't  
15 know without going back through my notes there -- in the  
16 even that is unorthodox, we have submitted for administra-  
17 tive approval, a request that that unorthodox location be  
18 approved because it is on pattern.

19 Q And then you would divide Section 25  
20 into standup 320's --

21 A Yes, sir.

22 Q -- and every owner in Section 25 would  
23 have an opportunity to receive his share of underlying oil  
24 or gas?

25 A Exactly. Exactly.

1           Q           Conversely, let's look at, say, Section  
2 27. It appears that you've got a -- in this case you've  
3 got a location in the northwest quarter, which would be off  
4 pattern.

5           A           Correct.

6           Q           And you're seeking approval for that  
7 today?

8           A           Right.

9           Q           And I see a location which appears to me  
10 to be in the southeast quarter, which would also be off  
11 pattern, is that correct?

12          A           That's correct.

13          Q           But you're not seeking approval for that  
14 location at this time.

15          A           That is also correct. That -- that par-  
16 ticular lease is owned by a Newport Exploration or a  
17 Michael Diefendorfer To date we have not proposed a well  
18 nor have we made a deal with Mr. Diefendorfer for that lo-  
19 cation.

20                      He, as you're aware under the unit oper-  
21 ating agreement, if he so desires, he can propose his own  
22 well there and we'll drill it for him as unit operator, or  
23 he can drill it if he can meet our cost.

24                      The alternative to that is for us to  
25 make some kind of arrangement with Mr. Diefendorfer and

1 drill a well at that location.

2 We didn't bring that before the Commis-  
3 sion because at this time we have no control over that  
4 location.

5 Q Okay. Now look at Section -- let's go  
6 over to Section 30 --

7 A Yes, sir.

8 Q -- for a moment, and I see a proposed  
9 off pattern well shown by a red dot in the southeast quar-  
10 ter.

11 A Yes, sir.

12 Q And I don't see any other proposed loca-  
13 tion in that section.

14 A Okay, I'm sorry. There is one in the  
15 southeast of the northeast quarter, which is unorthodox but  
16 on pattern.

17 If I may, I'll bring my map and show  
18 you.

19 MR. STOVALL: Let the record  
20 reflect that Mr. Craig has shown me a topo map with presum-  
21 ably the unit outline drawn on it, is that correct?

22 A Yes, sir.

23 MR. STOVALL And all of the  
24 well locations, and he's referring to a location in the  
25 northeast of Section 3, which I just inquired about.

1                                Looking at that and looking at  
2 also Exhibit Two, I see there are other -- there appear to  
3 be other sections which may not have a second well in the  
4 section, which would indicate -- my concern would be that  
5 there's some risk that there would be a lack of protection  
6 of the correlative rights in there because owners would be  
7 unable to drill due to topographic, Forest Service require-  
8 ments, and yet they would not be able to share in the one  
9 well in the section that could be drilled.

10                Q                Have you looked on those on a well by  
11 well basis to identify any potential problems of that  
12 nature that might be addressed under a participation ar-  
13 rangement rather than --

14                A                Yes, sir, we have. To our, and to my  
15 knowledge, there are no outstanding 320-acre pieces which  
16 we have not covered either in our presentation today or by  
17 an on pattern location, which would affect correlative  
18 rights.

19                Q                Well, I'd better -- let me -- apparently  
20 there appears to be a substantial difference between Exhi-  
21 bit Two and this work map that you've got. Let me just  
22 take a look at it.

23                                For example, looking up in the north-  
24 eastern quadrant, if you will, of the unit --

25                A                Yes, sir.



1           Q           -- it appears that you have got a number  
2 of locations on -- on your work map that do not appear on  
3 the exhibit. Now, let me, for the record, make it clear  
4 that I understand that you do not have to come in here and  
5 demonstrate to us those locations which are orthodox and  
6 within the pool rules.

7                   What I am concerned with is that we've  
8 heard some testimony here that the unit development is  
9 beneficial certainly from the surface management standpoint  
10 in that it allows an orderly development, but my concern is  
11 that I think that's great but we need to make sure that the  
12 correlative rights are going to be protected.

13                  Now is it your testimony, then, that it  
14 is Nassau's intention to drill a -- I'll use Exhibit Two as  
15 the reference -- that you have additional locations and  
16 proposed wells on tracts which are not identified in  
17 Exhibit Two, which will serve to protect the correlative  
18 rights of interest owners --

19           A           That is --

20           Q           -- that are not part of this  
21 application?

22           A           That is correct. Exhibit Two will not  
23 necessarily reflect on pattern, unorthodox locations by  
24 virtue of the fact they are not part of this document.  
25 That does not lend itself to -- for one to arrive at the

1 conclusion that we are not going to drill those 320's and  
2 not protect the correlative rights.

3 Q Did Nassau Resources participate in the  
4 study committee or the hearing that resulted in the esta-  
5 blishment of the Fruitland Coal rules -- of the special  
6 pool rules for the Basin Fruitland Coal Pool?

7 Do you know? Do you have knowledge of  
8 that yourself?

9 A I have knowledge of the rules, yeah, and  
10 as far as we did indirectly and we were not -- we didn't  
11 show up in person. We weren't represented in person. We  
12 were represented by a group, yes, sir.

13 Q As far as your participation and your  
14 understanding of what went on then, are you the person I  
15 should ask about Nassau's involvement and participation in  
16 the group, if you will?

17 A Between myself and Mr. Johnson, we'll be  
18 able to answer all your questions with regard to our parti-  
19 cipation in that group, yes, sir.

20 Q Do you have knowledge as to the basis  
21 upon which the pattern was established (unclear)?

22 A I do not.

23 Q Could we get your work map somehow or a  
24 reproduction of that tendered as an exhibit in this case?

25 MR. KELLAHIN: Let me suggest

1 an alternative solution is to let us withdraw Exhibit  
2 Number Two for a moment, let Mr. Craig go to another room  
3 and make sure that he has carefully and accurately trans-  
4 posed the information from the worksheet onto Exhibit  
5 Number Two it would accurately reflect what he thinks it  
6 does reflect.

7 MR. STOVALL: Well, okay --

8 MR. KELLAHIN: Obviously we've  
9 missed a couple of well spots there.

10 MR. STOVALL: Well, and I  
11 understand why it happened, Mr. Kellahin, because the loca-  
12 tions that you missed are either -- are not the subject of  
13 this application, and I'd like to make it clear, and I  
14 think I've already explained that my concern is that as we  
15 approve this application, it rather substantially disrupts  
16 the pattern established by the pool rules for the pool, and  
17 I think we need to show that in doing so, that all the  
18 correlative rights of the parties are being protected and  
19 that becomes somewhat complicated because of the surface  
20 restrictions which you're facing.

21 MR. KELLAHIN: Well, and there  
22 are some open windows in here, as Mr. Craig has testified,  
23 that he cannot give you a location because they're not yet  
24 resolved, and so we're going to have some of those left to  
25 rely on his sworn statement that it will resolve as they

1 come to them, but I don't think we can present you with a  
2 display that in all instances shows you an alternative  
3 location. We're going to have a couple of gaps in there, I  
4 think.

5 A Well, you're going to have that plus the  
6 fact that short of uniform production, which you won't  
7 have, that goes back to your -- to your correlative rights,  
8 because if you have a well that's making a million a day  
9 and you offset it with a well that's making 20 MCF a day,  
10 there's no question you may have disparity as far as cor-  
11 relative rights, but by the same token that's the nature of  
12 the oil business.

13 Q Well, I understand that, and that goes  
14 to the opportunity to produce, which is what the correla-  
15 tive right issue is.

16 A Right, the economics of -- of producing.

17 Q And I'm not -- that doesn't concern me  
18 so long as that person has the opportunity to participate  
19 in a -- in production in some way.

20 A Okay.

21 Q The fact that they're in a good well or  
22 a bad well is not an impairment of correlative rights. My  
23 only concern is that there be somebody who is excluded be-  
24 cause they can't get into their location for one reason or  
25 another.

1           A           That, with respect to these 19 wells,  
2 that is not the case.

3           Q           Okay.

4           A           And that's the subject of our proposal,  
5 is with respect to these 19 wells there are no correla-  
6 tive rights issues which are at question here by virtue of  
7 nonaccessibility from archaeology, and so on and so forth,  
8 as to the offsets of said 19 locations.

9           Q           Okay. I think it would be helpful to  
10 have Exhibit Two expanded just for the record but I don't  
11 think we need to do it at this time. Let's do it at the  
12 conclusion of testimony, and then --

13          A           Okay, what would you like on Exhibit  
14 Two, that --

15          Q           Just --

16          A           -- all of the locations staked through-  
17 out Carracas Canyon?

18          Q           Yeah, somehow we need the information  
19 and it could be in as rough a form as it may appear to be  
20 on your working map. The alternative would be to either  
21 put the working map in or to mark those locations on  
22 Exhibit Two.

23                               MR. KELLAHIN: Well, why we  
24 ask Mr. Johnson additional questions, let us take those two  
25 displays and compare them. I don't know what's on the work

1 map, Mr. Stovall. We need to make sure that he hasn't  
2 given you unintentionally some proprietary information. So  
3 that's my concern, is he needs to have the opportunity to  
4 look at it and see if he's ready to disclose all of it.

5 MR. STOVALL: I understand  
6 that and I don't -- I think the Examiner would like to have  
7 the work map and quite frankly, I understand why you might  
8 wish to review it before you were to submit that or --

9 MR. KELLAHIN: Sure, he needs  
10 to have a minute to look at it and make sure --

11 MR. STOVALL: I have no objec-  
12 tion to that.

13 MR. KELLAHIN: -- it's all  
14 right.

15 MR. STOVALL: And I recognize  
16 that we're kind of going in an unusual breadth of testimony  
17 but I think we've got an unusual circumstance here and I  
18 want to make sure that if we approve this application that  
19 we do not do so -- that our doing so does not result in the  
20 impairment of correlative rights as defined -- defined as  
21 the opportunity to receive a fair share of production.

22 MR. JOHNSON: By whom?

23 Q By anybody, and that's --

24 MR. JOHNSON: Well, that --  
25 okay.

1 MR. STOVALL: And I under-  
2 stand, I understand what you're saying --

3 MR. JOHNSON: That goes back  
4 to the fact that all -- any party who possibly -- that --  
5 that could fall in that situation has been given notice.  
6 Correct?

7 MR. STOVALL: I hope so. Yes,  
8 you've testified to that. Yeah, I understand that.

9 Let me think if there are any  
10 other questions off that, off that particular issue that I  
11 need to ask Mr. Craig before we excuse him.

12 I don't have any further ques-  
13 tions of Mr. Craig at this time.

14 As we switch over here, let's  
15 go of the record for a minute because I want to discuss  
16 something very briefly off the record.

17  
18 (Thereupon a recess was taken.)

19  
20 MR. STOGNER: The hearing will  
21 come to order.

22 MR. STOVALL: I have no  
23 further questions of Mr. Craig at this time.

24 MR. STOGNER: Are there any  
25 other questions of this witness?

1 He may be excused.

2 Mr. Kellahin?

3 MR. STOVALL: I would -- I  
4 would like to recall Mr. Johnson, if I might, Mr. Examiner.

5 MR. STOGNER: Okay.

6  
7 GARY J. JOHNSON,  
8 being recalled and remaining under oath, testified as fol-  
9 lows, to-wit:

10  
11 CROSS EXAMINATION

12 BY MR. STOVALL:

13 Q Mr. Johnson, in this application, and I  
14 know I'll be a little repetitive here, but in this applica-  
15 tion you are requesting approval of 19 off pattern, unor-  
16 thodox locations based upon the pool rules for the pool, is  
17 that correct?

18 A That's correct.

19 Q And if I look at this map correctly, and  
20 those -- those are marked with the red dots on Exhibit  
21 Number Two?

22 A That's correct.

23 Q And if I look at the map correctly and  
24 understand what you've -- what you've done, you've also put  
25 on Exhibit Number Two previously green dots, which indicate



1 wells which have already been drilled or --

2 A That is correct.

3 Q Are those all Fruitland Coal wells or --

4 A Yes.

5 Q -- are those --

6 A They're all Fruitland Coal wells now.

7 Q Okay. Now, during the break you've gone  
8 back and placed on the map additional blue dots. Could you  
9 tell me what those blue dots are?

10 A Those blue dots are additional locations  
11 that we plan to drill as part of the unit development that  
12 are not covered by this application. Most of those are  
13 orthodox, standard locations and are not subject to this  
14 application, but they are wells that we have plans, current  
15 plans, to drill.

16 Q And are those firm locations or are they  
17 --

18 A The majority of the locations shown in  
19 blue there have already been applied for with APD's; have  
20 gone through the majority of the approval process and are  
21 firm locations.

22 Q Are all of them firm or are there any of  
23 them that are not yet firm at this time?

24 A There's probably two or three on there  
25 that are not yet firm. They're locations that we plan to

1 drill but they haven't completely gone through the appro-  
2 val process with the APD.

3 Q Has the Forest Service approved all of  
4 the blue locations at this time, do you know?

5 A No, they have not. All but about two,  
6 two or three, as I recall, are approvable locations, meet  
7 all of their criteria, and the APD's are submitted and are  
8 going through the process but they are not all yet ap-  
9 proved.

10 Q Now just looking at it, and again I may  
11 -- correct me if I'm wrong, but as I look at some of these  
12 blue dots, for example, in Section 12 of 32, 5, there ap-  
13 pears to be one in the southeast --

14 A That's correct.

15 Q -- quarter. That would be off pattern  
16 and would require approval by the Division, is that cor-  
17 rect?

18 A Yes, it would, and to explain that fur-  
19 ther, Section 12 is a lease that the Nassau Resources group  
20 does not control but as part of the overall unit plan we  
21 drew those locations in and have even staked those loca-  
22 tions but have not gone through the permitting process be-  
23 cause we don't control the leases yet.

24 As unit operator we will have the obli-  
25 gation to work with the lessee to develop those, and so we

1  
2 have looked at those as part of our overall unit develop-  
3 ment plan.

4 Q Would it be safe, then, to say that what  
5 you're saying to me is that there may be additional unor-  
6 thodox off pattern locations for which you may have to seek  
7 approval at a later date?

8 A That's correct.

9 Q And again based upon looking at the  
10 Exhibit Two now with the blue dots on it, it appears that  
11 you have additional development planned for the unit  
12 beyond that which is contained within your application.

13 A That is correct, yes.

14 Q Did you participate in any of the com-  
15 mittee work or hearings in the Basin Fruitland Coal hearing  
16 or the work that went up into it?

17 A I did not participate in the hearing. I  
18 did participate in some of the preliminary work as part of  
19 a group composed of some of the operators that -- that did  
20 present at that hearing, but I did not appear at the  
21 hearing.

22 Q At the time you participated in that,  
23 let me back up and ask you another question first. You  
24 were aware of what was going on in the proposals and what  
25 was going to be proposed to the -- to the Division at the

1 time the rules were established?

2 A Yes. I was aware that what the commit-  
3 tees were looking at was 320-acre spacing. I was not aware  
4 until the saw the order of which Rule 7 is a part, that  
5 there was going to be a proposal for the northeast/south-  
6 west locations.

7 Q So you didn't, at the time all that work  
8 was going on, you didn't make any comments as to that, the  
9 impact of that, perhaps, on this unit?

10 A No. No, I didn't. The main comments  
11 that we made as a result of that preliminary work was that  
12 we would support 320-acre spacing. If you'll remember, the  
13 group that was composed of Dugan, et al, proposed that  
14 320-acre spacing be approved north of a demarcation line  
15 and 160-acre spacing south of it, and we participated in  
16 that group and gave our approval to that submission.

17 Q This would be north of that demarcation  
18 line.

19 A That's correct.

20 Q So you would have expected 320 here.

21 A That's correct, and all of the work that  
22 we did leading up to this point was based on development of  
23 this unit on 320-acre spacing units.

24 Q Prior to the actual pool rules being  
25 issued, you say you were not aware that there would be a

1 proposal for a specific well pattern northwest --  
2 northeast/southwest?

3 A That's correct. Yes.

4 Q Let me just touch on a couple of things  
5 I asked Mr. Settles with respect to the water issue.

6 A Okay.

7 Q What plans do you have for disposal of  
8 produced water?

9 A We're -- we are working sort of in a  
10 parallel pattern on water disposal. We are currently  
11 drilling a water disposal well in the northeast quarter of  
12 Section 27 of 32, 5, and that is proposed to be a disposal  
13 well completed in the Entrada formation.

14 We also are continuing to work with the  
15 Forest Service on surface disposal where the water quality  
16 will either meet the surface disposal standards or could be  
17 brought into compliance with surface disposal standards  
18 with, you know, within reasons of economics.

19 Q Has your disposal well been approved at  
20 this time?

21 A It's been approved as an Entrada test  
22 but not as a disposal well. That application has been  
23 submitted both to the Santa Fe and to the Aztec District  
24 office but we have permitted the well only as an Entrada  
25 test right now.

1 Q And that is in Section 27, did you say?

2 A Yes, northeast quarter of Section 27.  
3 You might see a blue dot there with a location below it.  
4 Those, both of those -- it's proposed as a salt water dis-  
5 posal well on the south part of that and then a coal well  
6 will be twin to that.

7 Q And that water will be piped from the  
8 other wells to that? It's only going to be used as a well  
9 for disposal?

10 A That is correct. We have plans now for  
11 waterlines to parallel all of our gas lines to gather water  
12 from all of the wells and bring them to the central point  
13 for injection.

14 If we come across wells that have water  
15 quality that will allow surface disposal, we're going to  
16 work towards that wherever we can.

17 Q Let me for the record make sure that you  
18 are aware that any -- any water disposal you -- plan you  
19 have, in addition to requiring -- particularly surface  
20 water disposal, in addition to requiring Forest Service ap-  
21 proval, would of course require OCD approval (not clearly  
22 understood).

23 A Yes, that's correct, and we have had  
24 conversation with the State Engineer's office concerning  
25 their responsibilities in that, too, and so we are follow-

1 ing parallel courses.

2 Right now we don't have enough data on  
3 our water to pursue surface disposal.

4 Q Well, let me ask you one question now  
5 to determine whether I need to get an answer from you or  
6 Mr. Atchison.

7 With respect to the -- how -- how in-  
8 volved were you in the selection of actual locations for  
9 the 19 wells that are the subject of this application?

10 A Basically being based in Denver, I  
11 didn't get into the day-to-day field reconnaissance of it,  
12 but I was reported to on a regular basis and when things  
13 got the point where we were having to get way off pattern  
14 or close to a line on a drilling and spacing unit, that was  
15 cleared with me as to whether we could live with that or  
16 not.

17 Q Would you just describe for me, and  
18 again I'm looking primarily at those 10 wells, to the  
19 extent it includes any others, you may have that addition-  
20 al information, but would you describe for me just briefly  
21 the process you used and what happened that resulted in the  
22 selection of these locations? I know you've done a lot of  
23 this before, but I'd like you just to --

24 A Okay.

25 Q -- quickly summarize it, if you would.

1           A           Well, very quickly summarizing it, our  
2 original intent was to drill two wells per section and we  
3 asked Mike and his crew to get us two drillable locations  
4 in that section. They were --

5           Q           Let me interrupt you for just a moment,  
6 if I may. In giving them those instructions, did you in-  
7 struct them to look for a standard pattern location first?

8           A           That's correct, yes. We asked them to  
9 give us two drillable -- two drillable locations per sec-  
10 tion that would conform to the spacing that we were working  
11 under at that time. In fact we were working under, as I  
12 recall, 160-acre spacing for the Fruitland at that time and  
13 so we had actually four targets per section that we could  
14 work in, and then he had the leeway to move those as we  
15 needed to conform with what the stipulations of the surface  
16 management agency was, and in Section 19, to be very brief,  
17 these are the two locations that met McHugh standards and  
18 also met the surface management standards.

19          Q           You're referring then to one location  
20 being a blue dot, if you will, and one being a red dot.

21          A           That's correct, yeah. The one with the  
22 red dot on it being the off pattern unorthodox location  
23 subject to this application; the blue dot being one that,  
24 although it's probably unorthodox, is -- is on pattern.

25          Q           Let's -- let's look at Section 19 and



1 just using that kind of as an example if it may be safe to  
2 do so. You picked two wells. As you indicated, your ori-  
3 ginal plans were based upon thinking that it would be  
4 160-acre spacing in the area, did you look for locations in  
5 the south half of 19, as well, at that time?

6 A Yes.

7 Q Did you actually attempt to get a loca-  
8 tion approved at that time?

9 A We did not make an attempt to get a lo-  
10 cation approved in the south half of 19 because our field  
11 reconnaissance, as I said, lasted a week, gave us no -- no  
12 real hope of ever finding a location that we could get ap-  
13 proved, so we did not stake or submit a location. We did  
14 the surveying work; we did the archaeological survey; we  
15 looked at the timber and game management criteria, and con-  
16 cluded that there was nowhere in the south half of 19 that  
17 we could hope to get a location approved, and so we went to  
18 the, you know, to the standup 320's in there and put both  
19 locations in the north half.

20 Q Is it your testimony, then, that in the  
21 case of each of the wells which are the subject of this  
22 application, that you physically or that you directed Mr.  
23 Atchison to physically look at the standard -- standard  
24 pattern location and eliminate that before you went to an  
25 off pattern location?

1           A           That's correct. That's what we were  
2 operating under.

3                           MR. STOVALL: I don't have any  
4 further questions of Mr. Johnson. I would like to ask Mr.  
5 Atchison a couple of questions.

6  
7                           REDIRECT EXAMINATION

8 BY MR. KELLAHIN:

9           Q           Maybe I've lost track, but when we're  
10 looking within a section using 160-acre spacing, then,  
11 there are at least four quarter sections in which you would  
12 have the process of examining the topography and the ter-  
13 rain management and all the rest.

14          A           That's correct.

15          Q           Am I correct in understanding that your  
16 delegation or your criteria for Mr. Atchison was not to  
17 simply find the first two, if you will, in the section and  
18 ignore the rest of the section.

19          A           That's correct. His instruction was to  
20 look at the whole section and come up with the best loca-  
21 tion for those wells in that section that would meet all of  
22 the criteria that we had, that the Forest Service had, and  
23 we did not set out --

24          Q           Well, let me ask --

25          A           -- you know --

1           Q           -- in some instances, then, you would  
2 have a section that at least on the first cut is going to  
3 have four locations that might be --

4           A           It would have four --

5           Q           -- permittable (sic).

6           A           Four -- four potential locations that we  
7 could look at.

8           Q           Okay, and for all the sections in which  
9 there was a potential for a location up to a maximum of  
10 four, one in each quarter section, that's what you operated  
11 under.

12          A           That's correct.

13          Q           And then you worked back from that to  
14 select the best two of the four.

15          A           That's correct.

16          Q           And his instructions were to find on  
17 pattern locations in each instance.

18          A           That's correct.

19

20                       RECROSS EXAMINATION

21 BY MR. STOVALL:

22          Q           Let me ask you a couple more questions,  
23 maybe I can do this quickly with you.

24                       Did Mr. Atchison have the authority to  
25 reject a location, let's assume on a quarter section basis,

1 could he just reject and say there's no location in that  
2 quarter section that meets the criteria?

3 A Yes, he could but he -- not without ex-  
4 amining it. I mean he couldn't just look at the map and  
5 say, well, it's rough country, I don't even want to go look  
6 there, because he was, you know, obligated to look at all  
7 four 160's, and there were some places on the map, to give  
8 you a for instance, in Section 26 of 32, 5, if you look in  
9 the south half of that section, it doesn't take a lot of  
10 examination there, you wouldn't spend a week of field time  
11 there, to conclude that there are no drillable locations  
12 there.

13 Q However, let's use that as an example,  
14 then. If -- if -- what you're saying, if I understand cor-  
15 rectly, is that on a 40-foot contour those lines are pretty  
16 close together.

17 A That's on a 20-foot contour on that side  
18 of the map.

19 Q Oh, okay, well, nonetheless they're  
20 still close together so it --

21 A Correct.

22 Q -- indicates it's fairly steep. It's  
23 also, let's assume for the sake of argument, rather heavily  
24 forested.

25 A Correct.

1           Q           And so you would go in and look at that  
2 location and would it -- would it be fair to say that you  
3 would eliminate that location on, say, the basis of econ-  
4 omic criteria even if you could get it permitted, it would  
5 be cost prohibitive to go in there? Would that be a -- was  
6 that a criteria that was used?

7           A           We didn't put the economic criteria that  
8 high, basically. You could look at a location like that  
9 and that section as a for instance and realize from the  
10 steepness of the topography and the heavily forested area  
11 and the limited access that's already in there, that based  
12 on the Forest Service criteria it wouldn't be worth  
13 spending time on because it would not be an approvable  
14 location. And the economic criteria were further down the  
15 line, basically.

16          Q           Were there any -- again, we're just  
17 talking about with respect to the proration units affected  
18 by the wells under this application, were there any of the  
19 on pattern, standard locations that you know of that were  
20 eliminated strictly because the economics of developing a  
21 location were prohibitive and even though the location it-  
22 self might have been approvable or just do they go hand in  
23 hand, perhaps?

24          A           Well, I can't recall any that we reject-  
25 ed because of economics. Any locations that were rejected

1 had to go through the -- the approval chain for on or off  
2 pattern and then the surface management agencies, and if we  
3 got all of those, and I don't recall any that got far  
4 enough down the approval chain that economics was the con-  
5 trolling factor.

6 Q Would it, and I'm kind of making an as-  
7 sumption here, but I'll ask you, would it be safe to con-  
8 clude that in all probability that a location which would  
9 be uneconomic to develop, those factors, terrain factors,  
10 which would make it uneconomical would also eliminate under  
11 the Forest Service criteria?

12 A I think that would be a safe assumption.  
13 If a location was so rugged or so remote that it would be  
14 economically unfeasible to do, it would probably fail some-  
15 where up the -- up the approval chain long before the econ-  
16 omics came into play.

17 MR. STOVALL: I have no  
18 further questions of Mr. Johnson.

19 I would like to call Mr. At-  
20 chison for just a couple of brief questions.

21

22

MIKE ATCHISON,

23 being recalled and remaining under oath, testified as fol-  
24 lows, to-wit:

25

## 1 RECROSS EXAMINATION

2 BY MR. STOVALL:

3 Q Mr. Atchison, you've heard Mr. Johnson's  
4 testimony with regard to your charge and your duties, what  
5 you were expected to do, is that correct?

6 A Yes, sir.

7 Q Is there amplification or progression  
8 that you'd like to make to that or was that your under-  
9 standing of why you were hired and sent out to do this?

10 A That was my understanding of my job.

11 Q With respect to the 19 locations that  
12 we're talking about, the off pattern, unorthodox locations,  
13 did you conduct some sort of physical examination at a  
14 non-pattern location within those spacing units?

15 A Yes, sir, I did.

16 Q And for the reasons that Mr. Johnson has  
17 testified, is that why you --

18 A Yes, sir. One other reason that wasn't  
19 really brought up in that discussion was if you were in one  
20 of the sections, like 15 there, some place where it's real  
21 steepened up, that another guideline that's set forth by  
22 the BLM and Forest Service is the road steepness, that we  
23 couldn't have any roads of more than 10 percent to 300  
24 feet, and there's just basically no way that you could get  
25 into those areas with those guidelines.

1                   Q           But you did look at each one in every  
2 case (unclear).

3                   A           Yes, sir, I have.

4                               MR. STOGNER:   Are there any  
5 other questions for this witness?

6                               MR. KELLAHIN:  No, sir.

7                               MR. STOGNER:   He may be ex-  
8 cused.

9                               Anything further in either  
10 case Case 9559 or Case 9560?

11                               These cases will be taken un-  
12 der advisement.

13

14                               (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 that 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 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 Nos. 9559 and 9560  
heard by me on 21 December 1988.

Michael E. Stogers, Examiner  
Oil Conservation Division