

CASE 2891: Appli. of CONTINENTAL
for creation of BATTLEAXE DELAWARE
POOL, LEA COUNTY, NEW MEXICO.

Case 110.
2801

dictation, Transcript,

all Exhibits, Etc.

DRAFT

JMD/esr
Sept. 10, 1963

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
COMMISSION OF NEW MEXICO FOR
THE PURPOSE OF CONSIDERING:

CASE No. 2891

Order No. R- 2565

NOMENCLATURE

APPLICATION OF CONTINENTAL OIL
COMPANY FOR THE CREATION OF A
NEW OIL POOL, LEA COUNTY, NEW
MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m. on
September 4, 1963, at Santa Fe, New Mexico, before Elvis A. Utz,
Examiner duly appointed by the Oil Conservation Commission of New
Mexico, hereinafter referred to as the "Commission," in accordance
with Rule 1214 of the Commission Rules and Regulations.

NOW, on this _____ day of September, 1963, the Commission,
a quorum being present, having considered the application, the
evidence adduced, and the recommendations of the Examiner,
Elvis A. Utz, and being fully advised in the premises,

FINDS:

(1) That due public notice having been given as required by
law, the Commission has jurisdiction of this cause and the subject
matter thereof.

(2) That the applicant, Continental Oil Company, seeks an
order creating a new oil pool for Delaware production comprising
portions of Sections 30 and 31, Township 26 South, Range 32 East,
NMPM, Lea County, New Mexico, to be designated the Battleaxe-
Delaware ^{Oil} Pool.

(3) That ~~wells producing from~~ the Delaware formation under-
lying the SW/4 SE/4 of Section 30, the NW/4 NE/4, NE/4 NW/4, and
Lots ~~2, 3, 4, and 5~~ of Section 31, Township 26 South, Range
32 East, NMPM, Lea County, New Mexico, ^{constitutes} ~~are producing from~~ a
separate and distinct common source of supply that should be
designated the Battleaxe-Delaware Oil pool.

(4) That the Battleaxe-Delaware Oil Pool was discovered by the Russell Federal 30 Well No. 1, located 660 feet from the South line and 1980 feet from the East line of Section 30, Township 26 South, Range 32 East, NMPM, Lea County, New Mexico, with the ~~top~~ ^{on December 4, 1960,} of the casing shoe at 4405 feet.

(5) That in order to prevent waste and protect correlative rights, the allowable assigned to wells located within the Battleaxe-Delaware Oil Pool should not affect any well located outside the horizontal limits of said pool.

IT IS THEREFORE ORDERED:

(1) That ^{effective December 4, 1960,} a new pool in Lea County, New Mexico, classified as an oil pool for Delaware production, is hereby created and designated the Battleaxe-Delaware Oil Pool, consisting of the following-described acreage:

TOWNSHIP 26 SOUTH, RANGE 32 EAST, NMPM
Section 30: SW/4 SE/4
Section 31: NW/4 NE/4, NE/4 NW/4, and
Lots 2, 3, 4, and 5

(2) That notwithstanding the provisions of Rule 104 of the Commission Rules and Regulations, the allowable assigned to wells in the Battleaxe-Delaware Oil Pool shall not affect the allowable assigned to any well located outside the horizontal limits of said pool.

(3) That jurisdiction of this cause is retained for the entry of such further orders as the Commission may deem necessary.

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

[illegible]

pool

265

32 E

NEW MEXICO PRINCIPAL MEMORANDUM

County _____

Township _____

Section 32 E

NEW MEXICO PERMANENT RECORDS

6 5 4 3 2 1

7 8 9 10 11 12

13 14 15 16 17 18

19 20 21 22 23 24

25 26 27 28 29 30

31 32 33 34 35 36

37 38 39 40 41 42

43 44 45 46 47 48

49 50 51 52 53 54

55 56 57 58 59 60

61 62 63 64 65 66

67 68 69 70 71 72

73 74 75 76 77 78

79 80 81 82 83 84

85 86 87 88 89 90

91 92 93 94 95 96

97 98 99 100 101 102

103 104 105 106 107 108

109 110 111 112 113 114

115 116 117 118 119 120

121 122 123 124 125 126

127 128 129 130 131 132

133 134 135 136 137 138

139 140 141 142 143 144

145 146 147 148 149 150

151 152 153 154 155 156

157 158 159 160 161 162

163 164 165 166 167 168

169 170 171 172 173 174

175 176 177 178 179 180

181 182 183 184 185 186

187 188 189 190 191 192

193 194 195 196 197 198

199 200 201 202 203 204

205 206 207 208 209 210

211 212 213 214 215 216

217 218 219 220 221 222

223 224 225 226 227 228

229 230 231 232 233 234

235 236 237 238 239 240

241 242 243 244 245 246

247 248 249 250 251 252

253 254 255 256 257 258

259 260 261 262 263 264

265 266 267 268 269 270

271 272 273 274 275 276

277 278 279 280 281 282

283 284 285 286 287 288

289 290 291 292 293 294

295 296 297 298 299 300

301 302 303 304 305 306

307 308 309 310 311 312

313 314 315 316 317 318

319 320 321 322 323 324

325 326 327 328 329 330

331 332 333 334 335 336

337 338 339 340 341 342

343 344 345 346 347 348

349 350 351 352 353 354

355 356 357 358 359 360

361 362 363 364 365 366

367 368 369 370 371 372

373 374 375 376 377 378

379 380 381 382 383 384

385 386 387 388 389 390

391 392 393 394 395 396

397 398 399 400 401 402

403 404 405 406 407 408

409 410 411 412 413 414

415 416 417 418 419 420

421 422 423 424 425 426

427 428 429 430 431 432

433 434 435 436 437 438

439 440 441 442 443 444

445 446 447 448 449 450

451 452 453 454 455 456

457 458 459 460 461 462

463 464 465 466 467 468

469 470 471 472 473 474

475 476 477 478 479 480

481 482 483 484 485 486

487 488 489 490 491 492

493 494 495 496 497 498

499 500 501 502 503 504

505 506 507 508 509 510

511 512 513 514 515 516

517 518 519 520 521 522

523 524 525 526 527 528

529 530 531 532 533 534

535 536 537 538 539 540

541 542 543 544 545 546

547 548 549 550 551 552

553 554 555 556 557 558

559 560 561 562 563 564

565 566 567 568 569 570

571 572 573 574 575 576

577 578 579 580 581 582

583 584 585 586 587 588

589 590 591 592 593 594

595 596 597 598 599 600

601 602 603 604 605 606

607 608 609 610 611 612

613 614 615 616 617 618

619 620 621 622 623 624

625 626 627 628 629 630

631 632 633 634 635 636

637 638 639 640 641 642

643 644 645 646 647 648

649 650 651 652 653 654

655 656 657 658 659 660

661 662 663 664 665 666

667 668 669 670 671 672

673 674 675 676 677 678

679 680 681 682 683 684

685 686 687 688 689 690

691 692 693 694 695 696

697 698 699 700 701 702

703 704 705 706 707 708

709 710 711 712 713 714

715 716 717 718 719 720

721 722 723 724 725 726

727 728 729 730 731 732

733 734 735 736 737 738

739 740 741 742 743 744

745 746 747 748 749 750

751 752 753 754 755 756

757 758 759 760 761 762

763 764 765 766 767 768

769 770 771 772 773 774

775 776 777 778 779 780

781 782 783 784 785 786

787 788 789 790 791 792

793 794 795 796 797 798

799 800 801 802 803 804

805 806 807 808 809 810

811 812 813 814 815 816

817 818 819 820 821 822

823 824 825 826 827 828

829 830 831 832 833 834

835 836 837 838 839 840

841 842 843 844 845 846

847 848 849 850 851 852

853 854 855 856 857 858

859 860 861 862 863 864

865 866 867 868 869 870

871 872 873 874 875 876

877 878 879 880 881 882

883 884 885 886 887 888

889 890 891 892 893

[illegible]



CONTINENTAL OIL COMPANY

P. O. BOX 1377
ROSWELL, NEW MEXICO

PRODUCTION DEPARTMENT
NEW MEXICO DIVISION
A. B. SLAYBAUGH
DIVISION SUPERINTENDENT
V. C. EISSLER
ASSISTANT DIVISION SUPERINTENDENT

625 PETROLEUM BUILDING
TELEPHONE: MAIN 2-4202

August 14, 1963

New Mexico Oil Conservation Commission
Post Office Box 871
Santa Fe, New Mexico

Attention: Mr. A. L. Porter, Jr., Secretary-Director

Gentlemen:

Re: APPLICATION FOR CREATION
OF BATTLEAXE DELAWARE
POOL - LEA COUNTY, NEW MEXICO

We forward herewith application in triplicate for the creation of the Battleaxe Delaware Pool in Sections 30 and 31, T26S, R32E, Lea County, New Mexico. This is being furnished as requested in your conversation with Mr. Jason Kellahin and it is our understanding that the matter will be placed on the September 4th docket for examiner hearing.

Yours very truly,

AB Slaybaugh

VTL-pr
Enc.

cc: RGP GW JWK VGM

DOCKET MAILED

Date 8/23/63

PIONEERING IN PETROLEUM PROGRESS SINCE 1895

DOCKET: EXAMINER HEARING - WEDNESDAY - SEPTEMBER 4, 1963

9:00 A.M. - OIL CONSERVATION COMMISSION CONFERENCE ROOM,
STATE LAND OFFICE BUILDING, SANTA FE, NEW MEXICO

The following cases will be heard before Elvis A. Utz, Examiner, or Daniel S. Nutter, as alternate examiner:

- CASE 2890: Application of S. P. Yates for an unorthodox location, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority to drill and complete an oil well in the Seven Rivers formation at an unorthodox location 1435 feet from the North line and 1155 feet from the East line of Section 12, Township 20 South, Range 26 East, Eddy County, New Mexico.
- CASE 2891: Application of Continental Oil Company for the creation of a new oil pool, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the creation of a new oil pool comprising portions of Sections 30 and 31, Township 26 South, Range 32 East, Lea County, New Mexico, said pool to be designated the Battleaxe Delaware Pool.
- CASE 2892: Application of Continental Oil Company for a waterflood project, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project in the Baish Pool, Lea County, New Mexico, by the injection of water into the Yates formation through four wells located in the NE/4 of Section 21, Township 17 South, Range 32 East.
- CASE 2893: Application of Murphy H. Baxter for compulsory pooling, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an order force-pooling all mineral interests in the Indian Hills Upper Pennsylvanian Gas Pool underlying all of Section 32, Township 21 South, Range 24 East, Eddy County, New Mexico.
- CASE 2894: Application of Murphy H. Baxter for an unorthodox location, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority to drill his Marathon State Well No. 1 at an unorthodox Indian Hills Upper Pennsylvanian location 844 feet from the North line and 473 feet from the West line of Section 32, Township 21 South, Range 24 East, Eddy County, New Mexico.
- CASE 2895: Application of Texaco Inc. for a dual completion, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of the dual completion (conventional) of its J. B. McGhee Well No. 1, located in Unit I of Section 31, Township 24 South, Range 38 East, Lea County, New Mexico, to produce oil from the Dollarhide-Drinkard and Dollarhide-Devonian Pools through parallel strings of tubing.
- CASE 2896: Application of Texaco Inc. for a triple completion, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of the triple com-

pletion (tubingless) of its L. R. Kershaw Well No. 8, located in Unit D of Section 13, Township 20 South, Range 37 East, Lea County, New Mexico, to produce gas from the Eumont Gas Pool and oil from the Skaggs-Glorieta and East Weir-Blinbry Pools through parallel strings of tubing cemented in a common well bore.

CASE 2884: (Continued from August 21, 1963 examiner hearing)

Application of Continental Oil Company for a pressure maintenance project, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a pressure maintenance project by the injection of water into the Dakota formation through its Table Mesa Well No. 25, located in Unit K, Section 34, Township 28 North, Range 17 West, Table Mesa Pool, San Juan County, New Mexico.

CASE 2888: (Continued from the August 21, 1963 examiner hearing)

Application of the British American Oil Producing Company for a unit agreement, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of the Jalmat Deep Unit Area comprising 10,568.81 acres of State land in Townships 21 and 22 South, Range 35 East, Lea County, New Mexico.

Case 2891

Revised 9-4-63

Res. 9-4-63

1. Create a new Oil pool to be known as the Battles - Delaware Oil Pool with Horizontal boundaries as follows:

~~Secs. 2, 3, 4, 5.~~

26 S - 32 E,

sec. 30 SW/4 SE/4

sec. 31 NW/4 E/4, NE/4 NW/4,

Total, 2, 3, 4, 5.

2. Provide that only those wells ~~drilled~~ producing ~~within~~ the boundaries of the Battles - Del oil pool shall receive allowables in accordance with the ~~state~~ SE of the normal unit allowable. Wells drilled outside the limits of this pool may be subject to the Dr. Mason, Delaware allowable rules. Order R-944.

Truitt

Cont. Russ Fed 1. ^{well no} Compl 11-12-60
Charles B. Reed well no 1 " 8-29-62

Sp. of Pay
casing shoe
4405-

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
COMMISSION OF NEW MEXICO FOR
THE PURPOSE OF CONSIDERING:

CASE No. 2891
Order No. R-2568
NOMENCLATURE

APPLICATION OF CONTINENTAL OIL
COMPANY FOR THE CREATION OF A NEW
OIL POOL, LEA COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m. on September 4, 1963, at Santa Fe, New Mexico, before Elvis A. Utz, Examiner duly appointed by the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission," in accordance with Rule 1214 of the Commission Rules and Regulations.

NOW, on this 17th day of September, 1963, the Commission, a quorum being present, having considered the application, the evidence adduced, and the recommendations of the Examiner, Elvis A. Utz, and being fully advised in the premises,

FINDS:

(1) That due public notice having been given as required by law, the Commission has jurisdiction of this cause and the subject matter thereof.

(2) That the applicant, Continental Oil Company, seeks an order creating a new oil pool for Delaware production comprising portions of Sections 30 and 31, Township 26 South, Range 32 East, NMPM, Lea County, New Mexico, to be designated the Battleaxe-Delaware Oil Pool.

(3) That the Delaware formation underlying the SW/4 SE/4 of Section 30, the NW/4 NE/4, NE/4 NW/4, and Lots 2, 3, 4, and 5 of Section 31, Township 26 South, Range 32 East, NMPM, Lea County, New Mexico, constitutes a separate and distinct common source of supply that should be designated the Battleaxe-Delaware Oil Pool.

(4) That the Battleaxe-Delaware Oil Pool was discovered on December 4, 1960, by the Russell Federal 30 Well No. 1, located 660 feet from the South line and 1980 feet from the East line of Section 30, Township 26 South, Range 32 East, NMPM, Lea County, New Mexico, with the casing shoe at 4405 feet.

-2-

CASE No. 2891
Order No. R-2568

(5) That in order to prevent waste and protect correlative rights, the allowable assigned to wells located within the Battleaxe-Delaware Oil Pool should not affect any well located outside the horizontal limits of said pool.

IT IS THEREFORE ORDERED:

(1) That effective December 4, 1960, a new pool in Lea County, New Mexico, classified as an oil pool for Delaware production, is hereby created and designated the Battleaxe-Delaware Oil Pool, consisting of the following-described acreage:

TOWNSHIP 26 SOUTH, RANGE 32 EAST, NMPM

Section 30: SW/4 SE/4

Section 31: NW/4 NE/4, NE/4 NW/4, and
Lots 2, 3, 4, and 5

(2) That notwithstanding the provisions of Rule 104 of the Commission Rules and Regulations, the allowable assigned to wells in the Battleaxe-Delaware Oil Pool shall not affect the allowable assigned to any well located outside the horizontal limits of said pool.

(3) That jurisdiction of this cause is retained for the entry of such further orders as the Commission may deem necessary.

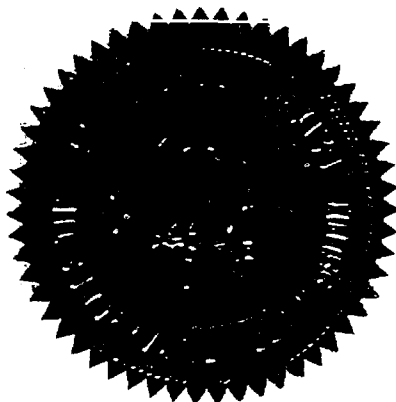
DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

Jack M. Campbell
JACK M. CAMPBELL, Chairman

E. S. Walker
E. S. WALKER, Member

A. L. Porter, Jr.
A. L. PORTER, Jr., Member & Secretary



esr/

GOVERNOR
JACK M. CAMPBELL
CHAIRMAN

State of New Mexico
Oil Conservation Commission



LAND COMMISSIONER
L. S. JOHNNY WALKER
MEMBER

P. O. BOX 871
SANTA FE

STATE GEOLOGIST
A. L. PORTER, JR.
SECRETARY - DIRECTOR

September 17, 1963

Mr. Jason Kellahin
Kellahin & Fox
Attorneys at Law
Post Office Box 1713
Santa Fe, New Mexico

Re: Case No. 2891
Order No. R-2568
Applicant:
Continental Oil Company

Dear Sir:

Enclosed herewith are two copies of the above-referenced Commission order recently entered in the subject case.

Very truly yours,

A. L. Porter, Jr.

A. L. PORTER, Jr.
Secretary-Director

ix/

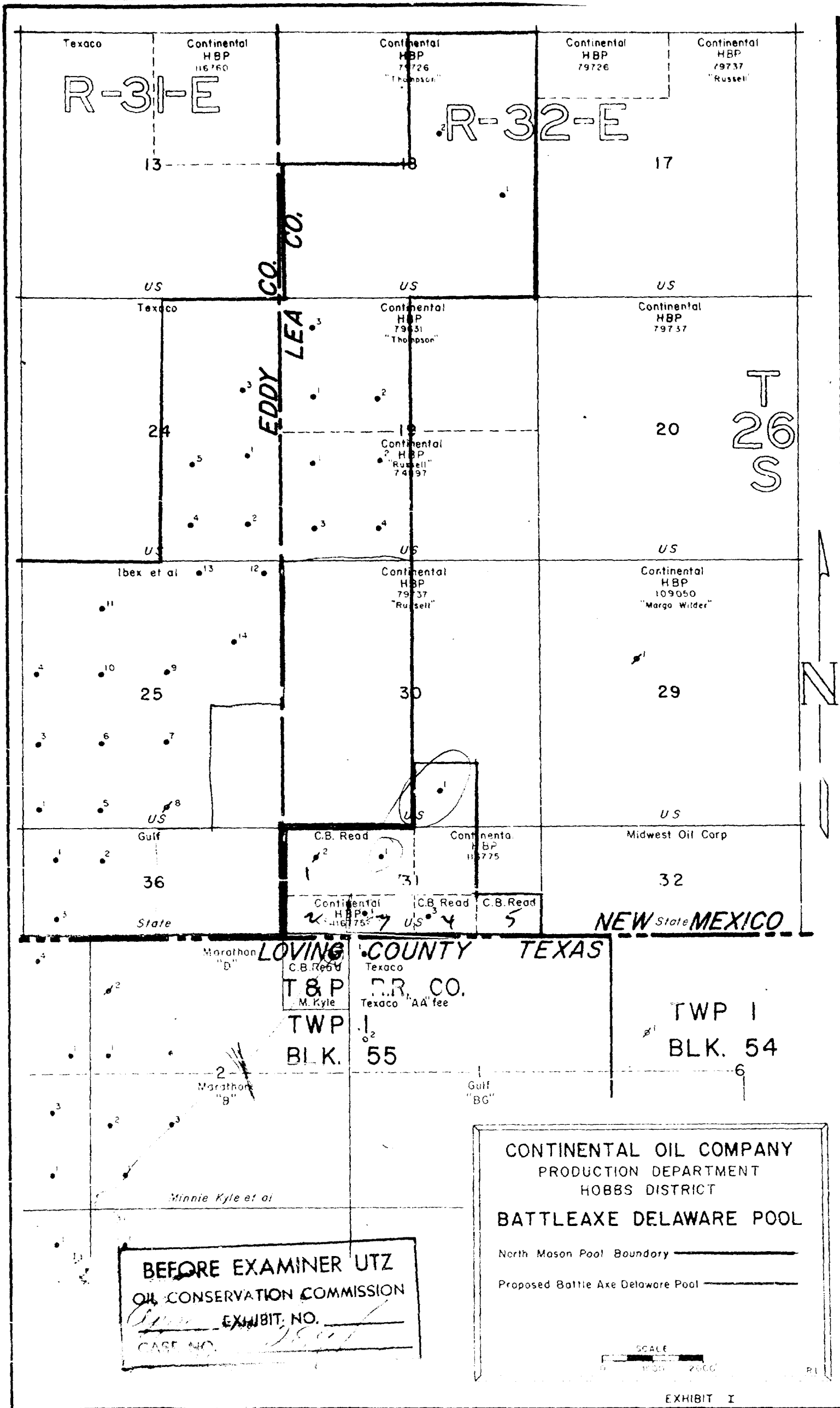
Carbon copy of order also sent to:

x
Hobbs OCC _____

Artesia OCC _____

Astec OCC _____

OTHER _____



Texaco

Continental
HBP
116760

Continental
HBP
79726
"Thompson"

Continental
HBP
79726

Continental
HBP
79737
"Russell"

R-31-E

R-32-E

13

18

17

US

US

US

Texaco

Continental
HBP
79931
"Thompson"

Continental
HBP
79737

24

20

T
26
S

Continental
HBP
74197
"Russell"

US

US

US

Ibex et al

Continental
HBP
79737
"Russell"

Continental
HBP
109050
"Margo Wilder"

25

30

29

Gulf

C.B. Read

Continental
HBP
116775

Midwest Oil Corp

36

32

State

Continental
HBP
116775

C.B. Read

C.B. Read

NEW State MEXICO

LOVING COUNTY TEXAS

Marathon
"D"

Texaco

T & P

T.R. CO.

M. Kyle

Texaco "AA" fee

TWP

1

BLK.

55

TWP 1

BLK. 54

Marathon
"B"

Gulf
"BG"

Minnie Kyle et al

BEFORE EXAMINER UTZ
OIL CONSERVATION COMMISSION
EXHIBIT NO. 2800
CASE NO. 2800

CONTINENTAL OIL COMPANY
PRODUCTION DEPARTMENT
HOBBS DISTRICT
BATTLEAXE DELAWARE POOL

North Mason Pool Boundary
Proposed Battle Axe Delaware Pool

SCALE
0 1000 2000

PRODUCTIVE CHARACTERISTICS
IN SUB-SEA COLUMN
PROPOSED BATTLEAXE DELAWARE FIELD

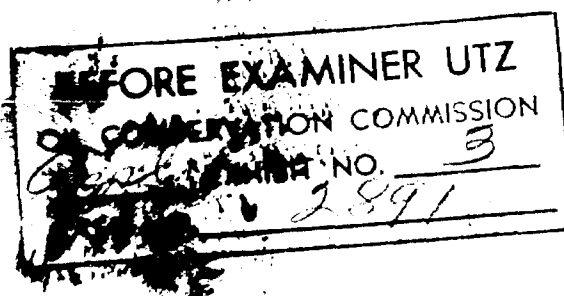
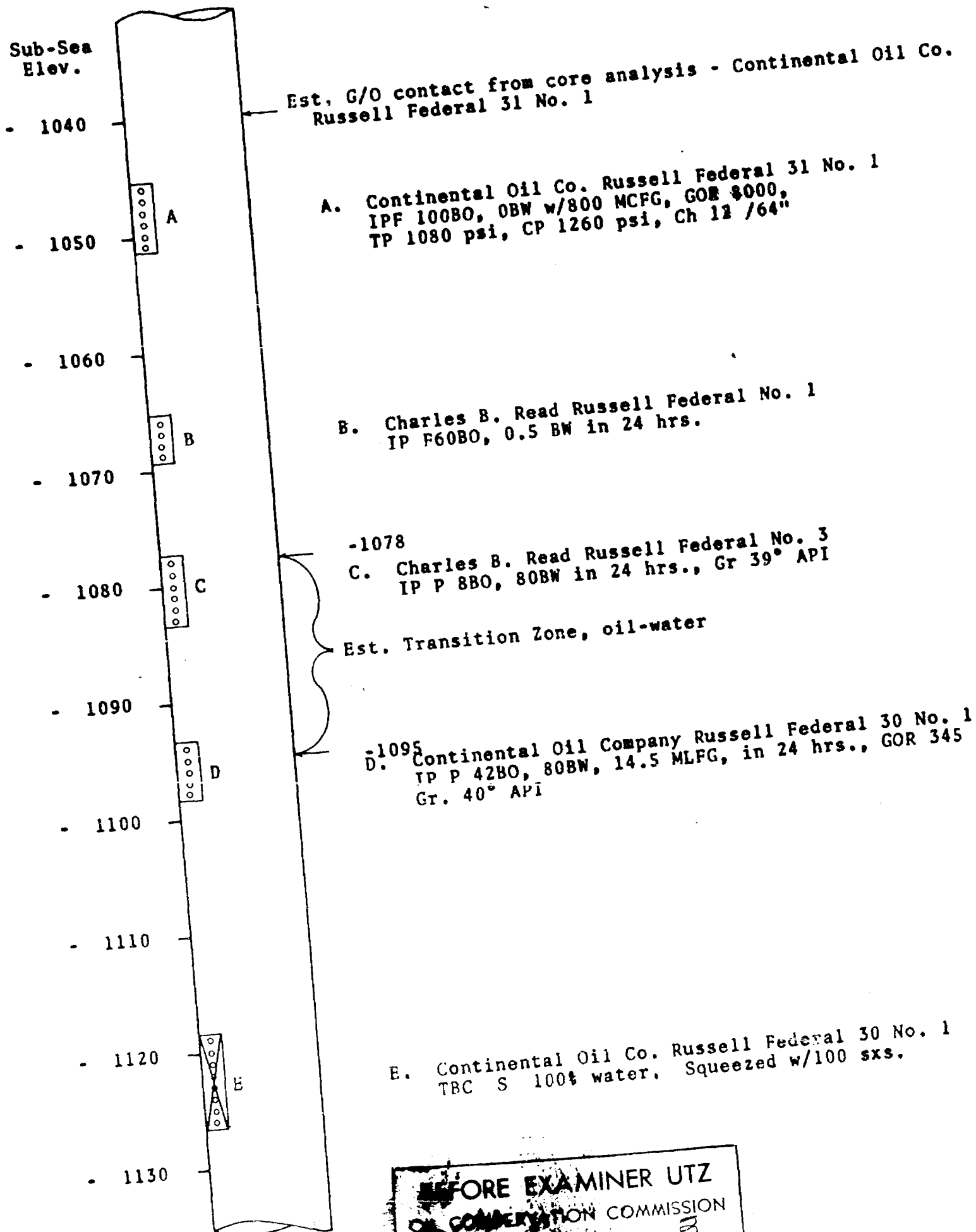
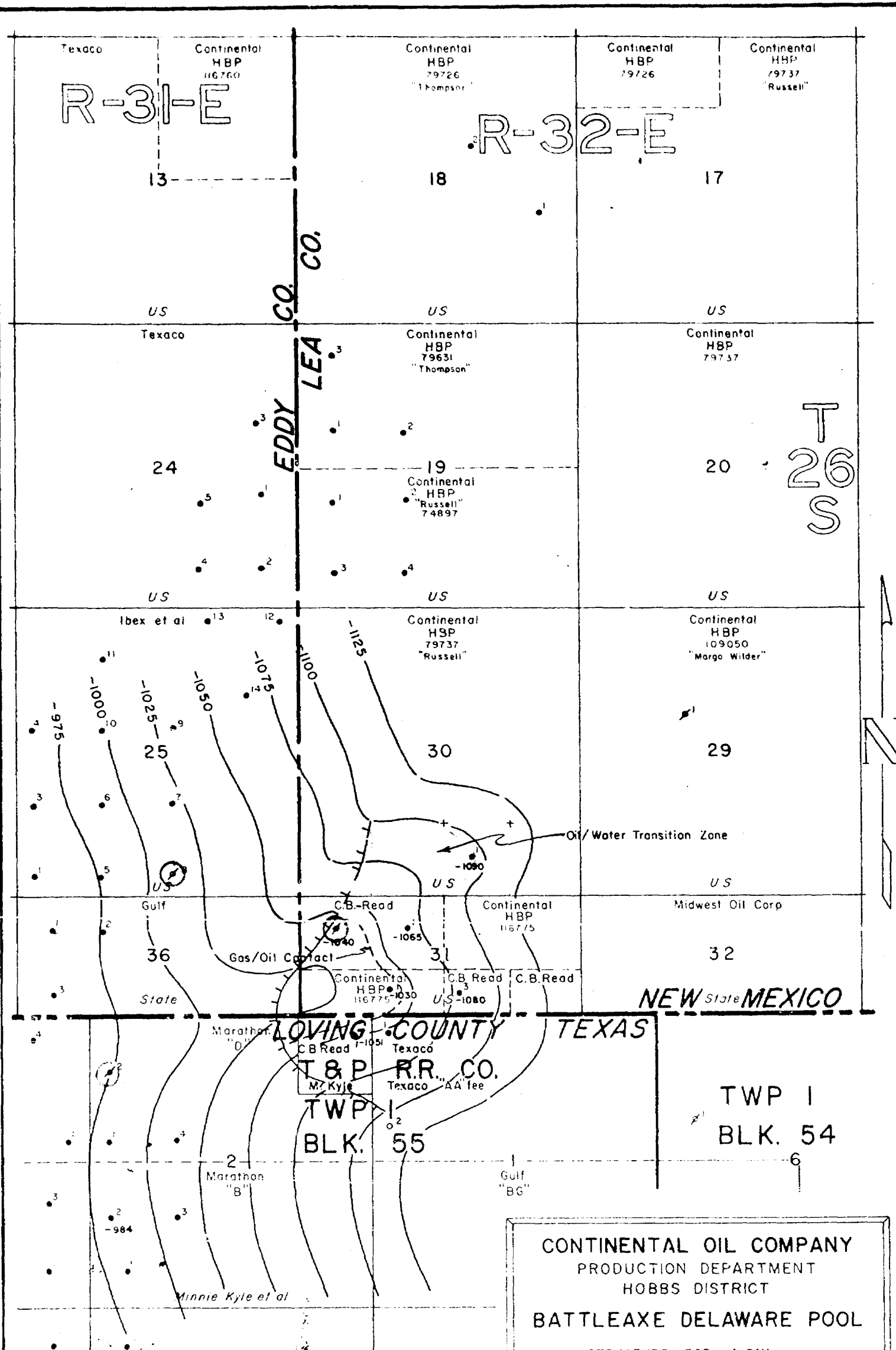


EXHIBIT III



BEFORE EXAMINER UTZ
 OIL CONSERVATION COMMISSION
 CASE NO. 2897

CONTINENTAL OIL COMPANY
 PRODUCTION DEPARTMENT
 HOBBS DISTRICT
 BATTLEAXE DELAWARE POOL
 STRUCTURE TOP of PAY
 Permeability Pinch Out

BEFORE THE OIL CONSERVATION COMMISSION
OF THE
STATE OF NEW MEXICO

IN THE MATTER OF THE APPLICATION
OF CONTINENTAL OIL COMPANY FOR
THE CREATION OF THE BATTLEAXE
DELAWARE POOL LOCATED IN SECTIONS
30 & 31, T26S, R32E, LEA COUNTY,
NEW MEXICO

A P P L I C A T I O N

Comes now applicant, Continental Oil Company, and respectfully requests the creation of a new pool designated the Battleaxe Delaware Pool located in Sections 30 and 31, T26S, R32E, Lea County, New Mexico, and in support thereof would show:

1. That applicant drilled and completed on December 4, 1960, as an oil well in the Delaware sand, its Russell Federal 30 Well No. 1 located 660 feet from the south line and 1980 feet from the east line of Section 30, T26S, R32E, Lea County, New Mexico.

2. That applicant and other operators have completed three additional wells in the Delaware sand on adjacent lands in Section 31, T26S, R32E.

3. That evidence available at this time indicates that the above mentioned four wells are producing from a reservoir which is separate and distinct from any presently designated oil pool.

4. That presently available evidence indicates that the reasonably proven productive area of the reservoir is described as SW/4 SE/4 Section 30, NW/4 NE/4, NE/4 NW/4, and lots 1, 2, 3, 4 and 5 of Section 31, T26S, R32E, Lea County, New Mexico.

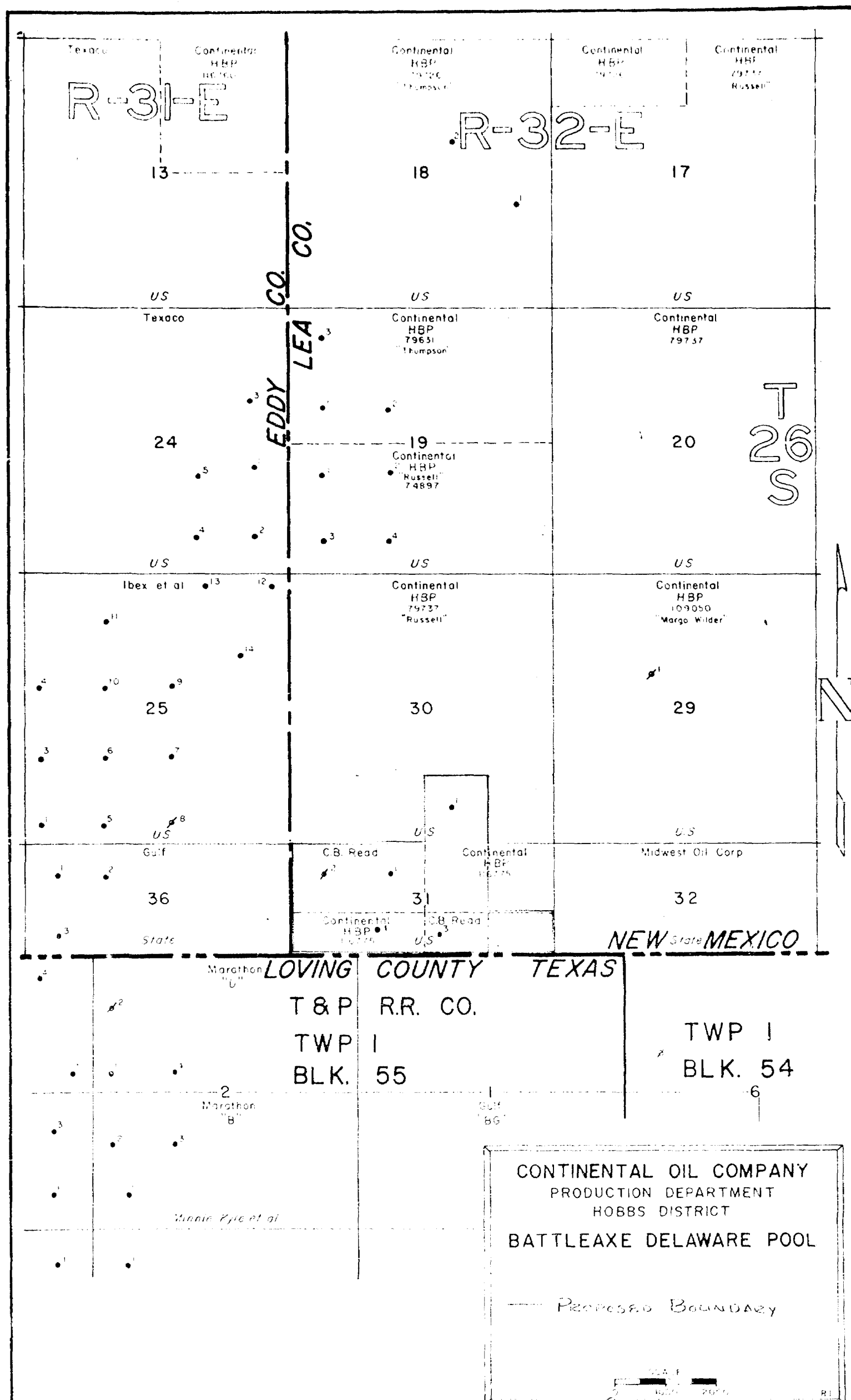
5. That the creation of the Battleaxe Delaware Pool as described above is in the interest of the prevention of waste and the protection of correlative rights.

Wherefore applicant respectfully requests that this matter be set for hearing before the Commission's duly qualified examiner and upon hearing an order be entered creating the Battleaxe Delaware Pool as described above.

Respectfully submitted,

A. B. Slaybaugh
A. B. SLAYBAUGH
Division Superintendent
of Production
New Mexico Division

Case 287



BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
Santa Fe, New Mexico

EXAMINER HEARING

IN THE MATTER OF:

Application of Continental Oil Company
for the creation of a new oil pool, Lea
County, New Mexico. Applicant, in the
above-styled cause, seeks the creation of
a new oil pool comprising portions of
Sections 30 and 31, Township 26 South,
Range 32 East, Lea County, New Mexico,
said pool to be designated the Battleaxe
Delaware Pool.

Case No. 2891

BEFORE: Elvis A. Utz, Examiner.

TRANSCRIPT OF HEARING

September 4, 1963.

DEARNLEY-MEIER REPORTING SERVICE, Inc.

ALBUQUERQUE, N. M.
PHONE 243-6691

SANTA FE, N. M.
PHONE 983-3971

FARMINGTON, N. M.
PHONE 325-1182

DEARNLEY-MEIER REPORTING SERVICE, Inc.

FARMINGTON, N. M.
PHONE 325-1182

SANTA FE, N. M.
PHONE 983-3971

ALBUQUERQUE, N. M.
PHONE 243-6591

MR. UTZ: The hearing will come to order, and we'll call Case 2891.

MR. DURRETT: Application of Continental Oil Company for the creation of a new oil pool, Lea County, New Mexico.

MR. KELLAHIN: Jason Kellahin, Kellahin & Fox, representing the applicant. We have one witness I would like to have sworn, please.

(Witness sworn.)

MR. UTZ: Are there any other appearances in this case? You may proceed.

(Whereupon, Applicant's Exhibits Nos. 1 through 5 were marked for identification.)

JAMES P. BOYLAN

called as a witness, having been first duly sworn, testified as follows:

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q Would you state your name, please?

A James P. Boylan.

Q By whom are you employed and in what position?

A I'm employed by Continental Oil Company in the Hobbs Production District as a Senior Production Engineer.

Q Have you ever testified before the Oil Conservation



DEARNLEY-MEIER REPORTING SERVICE, Inc.

FARMINGTON, N. M.
PHONE 325-1182

SANTA FE, N. M.
PHONE 983-3971

ALBUQUERQUE, N. M.
PHONE 243-6631

Commission?

A No, sir.

Q For the benefit of the Examiner would you outline briefly your education and experience as a petroleum engineer?

A I received a Baccalaureate Degree in petroleum and natural gas engineering from the Pennsylvania State University in June, 1953. From that time until August of 1955 I served on active duty with the United States Navy. I was employed by Continental Oil Company during October of 1955 and completed the engineer training program in the following October.

From October, 1956 to February, 1958 I worked in the Houston Production District at Galena Park, Texas. I was then transferred to the Reserves and Evaluation Section in Continental Headquarters in Houston, Texas and worked in that office until October, 1961. At that time I was transferred to the Artesia Production District which merged with the Hobbs Production District the following January, and have remained in the Hobbs Production District to the present time.

Q Does the area involved in the application before the Commission fall within your jurisdiction?

A Yes, it does.

MR. KELLAHIN: Are the witness's qualifications acceptable?



DEARNLEY-MEIER REPORTING SERVICE, Inc.

FARMINGTON, N. M.
PHONE 325-1182

SANTA FE, N. M.
PHONE 983-3971

ALBUQUERQUE, N. M.
PHONE 243-6691

MR. UTZ: Yes, sir.

Q (By Mr. Kellahin) Are you familiar with the application of Continental Oil Company in Case No. 2891?

A Yes, sir.

Q Briefly, what does Continental propose in this application?

A This is the application of Continental Oil Company for the creation of a new Delaware sand oil pool located in Sections 30 and 31, Tract 26 South, Range 32 East, Lea County, New Mexico. Our suggested name is the Battleaxe Delaware Pool.

Q Directing your attention to what has been marked as Exhibit No. 1, would you identify that exhibit and discuss the information shown on it?

A Exhibit No. 1 is a location and ownership plat showing the proposed new pool outlined in red. As shown, it is proposed to consist of the Southwest Quarter, Southeast Quarter, Section 30, Northwest Quarter, Northeast Quarter, --

Q Is it the Northwest of the Northeast?

A Let me repeat. Northwest Quarter, Northeast Quarter, Northeast Quarter of the Northwest Quarter, and Lots 1, 2, 3, 4 and 5 in Section 31, Tract 26 South, Range 32 East.

Q You mean Township 26 South, 32 East?

A Yes, sir.



Q The boundaries of the pool, are they shown on there?

A The boundaries of the North Mason Delaware Pool are shown in green. All wells which have been drilled to the Delaware formation within the area of the map are shown together with lease ownership.

Q Would you describe the development of the proposed Battleaxe Delaware Pool?

A As shown on Exhibit No. 1, there have been five wells drilled in the New Mexico portion of the pool area. The first well was Continental Oil Company's Russell Federal 30, No. 1, located in the Southwest Quarter of the Southeast Quarter of Section 30. This well was completed during December, 1960. Charles B. Reed, in September, 1962, drilled and completed Russell Federal No. 1 in the Northeast Quarter, Northwest Quarter of Section 31, and immediately thereafter drilled No. 2 in Lot 1 of the same section.

Well No. 2 was considered non-commercial and was plugged and abandoned without having casing set. The same operator then drilled Well No. 3 in Lot 4 of Section 31, which was completed in January, 1963 as a limited capacity oil producer. Continental Oil Company drilled and completed during June, 1963, the Russell Federal 31, No. 1, in Lot 3 of Section 31. These are all of the wells in the New Mexico portion of this pool.



There are also two oil producers in the Texas portion, one drilled by Charles Reed in the Northeast Quarter, Northeast Quarter of Section 2, and the other by Texaco in the Northwest Quarter, Northwest Quarter of Section 1, Township 1, Block 55, Texas and Pacific Railroad Survey, Loving County, Texas.

Q Now, referring to what has been marked as Exhibit No. 2, Mr. Boylan, would you identify that exhibit and discuss the information shown on it?

A Exhibit No. 2 is a copy of a core graph prepared from the core analysis of Continental Russell Federal 31, No. 1. By the usual symbol we have shown the perforated interval in which the well was completed. At the bottom of the exhibit we have added the initial completion data and the latest test data.

You will note at the top of the Ramsey sand from 4175 to 4179 virtually complete absence of oil saturation, although good porosity and permeability are present. These conditions indicate the existence of a gas cap in the top of the Ramsey sand encountered in this well.

Q Now, referring to what has been marked as Exhibit No. 3, would you discuss that exhibit?

A Exhibit No. 3 is an Idealized section showing the fluid occurrence in the area which we propose to designate as the Battleaxe Delaware Pool. The completion interval of the several



DEARNLEY-MEIER REPORTING SERVICE, Inc.

FARMINGTON, N. M.
PHONE 325-1182

SANTA FE, N. M.
PHONE 983-3971

ALBUQUERQUE, N. M.
PHONE 243-6691

wells is shown on the relative subsea elevation, and the results of completion or production tests which tell us the fluid content of those sections.

As shown on Exhibit No. 3 we interpret the gas cap above minus 1040 subsea elevation and an oil-water transition zone from minus 1078 to minus 1095 feet subsea elevation.

Q Now, referring to Exhibit No. 4, would you discuss that exhibit?

A Exhibit No. 4 is a structure map contoured on top of the Delaware sand pay with a contour interval of 25 feet. The gas-oil contact and oil-water transition zones, as described in Exhibit No. 3, are also shown on Exhibit No. 4 in conjunction with the structural contours. You will note that along the western edge of the proposed pool there's a line which is the estimated location of a permeability barrier which separates the proposed new pool from the North Mason Pool. The dry holes to the west and north are circled in red and show a separation between these two pools within the State of New Mexico.

Q On what factual information do you base this permeability barrier and its location?

A There are three primary reasons for interpreting a lack of permeability between these two pools. The first is a decrease in permeability between Continental Russell Federal 31,



No. 1, and Charles B. Reed Minnie Kyle No. 1. Our well has an average permeability of 54 millidarcies, whereas the Reed well has an average permeability of 28 millidarcies. While this variation from one well to another is within the range of possibility, we believe that in this case it indicates a significant loss of permeability indicative of a nearby permeability pinch-out.

We have learned the Delaware reservoirs normally trend in a northwest, southeasterly direction with the westward or updip boundary determined by very rapid deterioration of permeability ultimately resulting in a permeability pinch-out which forms the trap for the oil accumulation. Usually the eastward or downdip boundary is determined by the occurrence of water.

We believe, therefore, that the decrease in permeability observed between these two wells indicates that the western boundary of this reservoir is near by. The second fact upon which our indicated boundary is based is shown on Exhibit No. 5.

Q Will you refer to Exhibit No. 5 and explain what is shown on that exhibit?

A Exhibit No. 5 is a cross section between Continental Russell Federal 31, No. 1, and Marathon's Minnie Kyle "B" No. 2 well. As shown, the Kyle "B" No. 2 well is upstructure from the Continental well. The gas cap which was mentioned in my



DEARNLEY-MEIER REPORTING SERVICE, Inc.

FARMINGTON, N. M.
PHONE 325-1182SANTA FE, N. M.
PHONE 983-3971ALBUQUERQUE, N. M.
PHONE 243-6671

discussion of Exhibits No. 2 and 3 is shown colored in yellow. The oil-productive zone is shown colored in green. A comparison of the elevation from which these two wells produce indicates quite clearly that if permeability were continuous between these two wells, that Kyle No. 2 well would be productive of free gas only.

The data appearing below that well on the exhibit shows that this is not the case. It is quite obvious, therefore, that there is no permeable connection between the reservoir in which the Continental Russell Federal 31, No. 1 is completed in any well in the North Mason Pool.

The third reason for interpreting a permeability barrier between these two pools is a comparison of the average bottom hole pressure in the North Mason Pool measured during the survey taken in 1962, with the bottom hole pressure measured upon completion in Continental's Russell Federal 31, No. 1.

The average bottom hole pressure in the North Mason Pool was 393 pounds per square inch, whereas the bottom hole pressure in the Continental Russell Federal 31, No. 1 was 1639 pounds per square inch.

I should like to call your attention that the pressure measured in the Russell Federal 31, No. 1 was not the initial pressure in the proposed Battleaxe Pool in that the Charles B.



DEARNLEY-MEIER REPORTING SERVICE, Inc.

FARMINGTON, N. M.
PHONE 325-1182SANTA FE, N. M.
PHONE 983-3971ALBUQUERQUE, N. M.
PHONE 243-6691

Reed Russell Federal No. 1 had been producing for a period of nine months and the Continental Russell Federal 30, No. 1 had been producing for a period of approximately two and one-half years prior to the bottom hole pressure measurement in Russell Federal 31, No. 1.

This comparison of pressures indicates that the proposed new pool had virgin pressure upon discovery, or at the time of the first pressure measurement had suffered no significant drainage from the North Mason wells. The New Mexico Oil and Gas Engineering Committee report the initial pressure in the North Mason Pool to be 1840 pounds per square inch.

Q Had there been communication between the North Mason Delaware Pool and the proposed Battleaxe Pool, would you have anticipated finding the pressures you did find in the Battleaxe area?

A No, sir. We would have expected to find a somewhat lower pressure.

Q Has there been enough production from the North Mason Delaware Pool to have achieved this?

A Yes, sir. There has been significant production from the North Mason Delaware Pool.

Q Is there any difference in the gravities of the fluid involved?



DEARNLEY-MEIER REPORTING SERVICE, Inc.

FARMINGTON, N. M.
PHONE 325-1182

SANTA FE, N. M.
PHONE 983-3971

ALBUQUERQUE, N. M.
PHONE 243-6591

A An investigation of the gravities of the fluid involved show that there is no appreciable difference between the gravity in the proposed new pool area and the gravity of the fluid in the North Mason area.

Q Is that a situation that's generally true to the production from the Delaware Pools?

A This is generally true in the Delaware sand pools. Their gravities are usually comparable.

Q Now, the proposed pool limits you have recommended here cover only land in New Mexico, is that correct?

A Yes, sir.

Q The pool actually does extend into Texas, does it not?

A As we interpret it, it does.

Q What would be the situation as to the Texas portion of the pool, Mr. Boylan?

A The situation with regard to the Texas portion of the pool is currently as follows: The operator filed his application for permission to drill the Minnie Kyle No. 1 as an extension to the North Mason Pool in Texas; on the basis of that filing the well is being prorated as a North Mason Pool well and will continue to be so prorated until approval of the operator's application for a new pool designation and discovery allowable. Mr. Reed has informed us that it is his intention to file such an



DEARNLEY-MEIER REPORTING SERVICE, Inc.

FARMINGTON, N. M.
PHONE 325-1182

SANTA FE, N. M.
PHONE 983-3971

ALBUQUERQUE, N. M.
PHONE 243-6691

application immediately upon approval of the new pool designation in the State of New Mexico.

Q Would that be in the interest of protecting correlative rights of all of the operators in the pool in your opinion?

What I'm saying is, should that portion of the pool in Texas be prorated in your opinion on the same basis as in New Mexico?

A Yes, sir, it should be prorated on the same basis.

Q Will the granting of this application result in the prevention of waste and the protection of correlative rights?

A So far as the New Mexico portion of this pool is concerned, correlative rights will be protected. We believe that it would be proper for the Texas portion to be granted comparable allowables which will protect correlative rights throughout the pool.

Q What would be the effect of continuing or putting this area in the North Mason Delaware Pool then?

A We believe that the pool should be prorated on the basis of the normal New Mexico allowable since there's evidently a separation between this pool and the North Mason Pool. The depressed allowables in the North Mason Pool could result in a considerable prolongation of the producing life of these properties with the attendant economic waste which would result. The depressed allowables also tend to discourage further develop-



DEARNLEY-MEIER REPORTING SERVICE, Inc.

FARMINGTON, N. M.
PHONE 325-1162

SANTA FE, N. M.
PHONE 983-3971

ALBUQUERQUE, N. M.
PHONE 243-6391

ment of the area to the extent that locations may not be drilled which otherwise could be developed economically.

Q I believe you've already said that there would be no impairment of correlative rights in New Mexico if this is approved?

A Yes, sir, that is correct.

Q Do you have anything further to present to the Examiner in connection with this case?

A No, sir.

Q Were Exhibits 1 through 5 prepared under your direction or supervision?

A Yes, sir, they were.

MR. KELLAHIN: I would like to offer Exhibits 1 through 5 inclusive.

MR. UTZ: Without objection, Exhibits 1 through 5 will be entered into the record of this case.

(Whereupon, Applicant's Exhibits Nos. 1 through 5 were offered and admitted in evidence.)

MR. KELLAHIN: That's all I have on direct examination.

CROSS EXAMINATION

BY MR. UTZ:

Q Are there just two wells in the Texas portion of this pool?



DEARNLEY-MEIER REPORTING SERVICE, Inc.

FARMINGTON, N. M.
PHONE 325-1182

SANTA FE, N. M.
PHONE 883-3971

ALBUQUERQUE, N. M.
PHONE 243-6691

A Yes, sir, that is correct. That is my understanding.

Q Texas Double A Fee and the Charles Reed Mac Kyle No. 1, is it?

A Yes, sir, that is correct.

Q Or is that Minnie Kyle?

A It's Minnie Kyle No. 1.

Q There are four producing wells in the New Mexico portion?

A Yes, sir, that is correct.

Q I notice on your Exhibit No. 4 you have this oil-water transitional zone colored in light green. Does the Well No. 1 in Section 30 and the Well No. 3 in Section 31 make any water?

A Yes, sir. The No. 1 makes a considerable amount of water and No. 3 also produces a considerable amount of water. I might add that No. 3 is a limited capacity well.

Q It's a marginal well then?

A Yes, sir.

Q Would it be your opinion that you have just about discovered the eastern as well as the western limits of this pool?

A In my opinion that is correct.

Q I don't recall your saying anything about the C. B. Reed No. 2, which would be in Lot 1 of Section 31. Did you give any information as to that?



DEARNLEY-MEIER REPORTING SERVICE, Inc.

FARMINGTON, N. M.
PHONE 325.1182

SANTA FE, N. M.
PHONE 983.3971

ALBUQUERQUE, N. M.
PHONE 243.6691

A Yes, sir. I stated that it was drilled as a non-commercial well and was plugged and abandoned without setting production casing.

Q And you feel that the reason they didn't produce it is because of its extremely low permeability?

A In my evaluation of the well it had a very minimum amount of net effective pay in the order of possibly three feet. Production casing was not run as a non-commercial location.

Q Does Continental intend to drill any more wells in this area?

A I could not answer that at this time. In my personal opinion I don't believe that Continental will drill any additional wells.

Q As far as allowables are concerned, it's your recommendation, I believe, that the New Mexico portion of this pool was the Texas portion?

A Sir?

Q Is that true?

MR. KELLAHIN: That is true.

Q It's quite unusual, is it not? Do you have any explanation as to why the west half of Section 30 was included in the North Mason Delaware Pool?

A No, sir, I have no explanation.



DEARNLEY-MEIER REPORTING SERVICE, Inc.
 FARMINGTON, N. M.
 PHONE 325-1182
 SANTA FE, N. M.
 PHONE 983-3971
 ALBUQUERQUE, N. M.
 PHONE 243-6691

Q There are no wells of any kind in that half section, is that true?

A That is true.

Q And there are also no wells in the East Half of Section 36 of 31 East, is that true?

A That is correct.

Q In your opinion are these two areas that I have just spoken of productive of oil from the Delaware?

A In my opinion they are not productive of oil in the Delaware sand.

Q Because of the permeability pinch-out?

A Yes, sir.

Q Which well was it, the C. B. Reed No. 1 that you believed to have a gas cap?

A We discovered a gas cap, or interpret a gas cap in our Continental Russell Federal 31, No. 1 which is located in Lot 3.

Q Your interpretation of this gas cap, then, it would be up against the permeability pinch-out?

A Sir?

Q I say your interpretation of that gas cap then would be that it is there because of the permeability pinch-out to the west?

A Yes, sir. The gas cap, in my opinion, is positive



DEARNLEY-MEIER REPORTING SERVICE, Inc.

FARMINGTON, N. M.
PHONE 325-1182

SANTA FE, N. M.
PHONE 983-3971

ALBUQUERQUE, N. M.
PHONE 243-6691

evidence that a permeability pinch-out upstructure is the westward boundary of the gas cap.

Q Does that well make quite a bit of gas?

A On initial completion it made a considerable amount of gas. Subsequent well tests have shown that the gas-oil ratio has diminished as quoted on Exhibit No. 2, the last test well test showed a gas-oil ratio of 1950.

MR. UTZ: Are there any other questions of the witness?

MR. DURRETT: Yes, sir, I have a question.

BY MR. DURRETT:

Q Am I correct, Mr. Boylan, that your application does not concern the contraction of the North Mason Delaware Pool, it just concerns creation of your proposed pool?

A That is correct.

Q But you would not have any objection if the Commission at a later date would decide that the North Mason Delaware should be contracted if this pool was created, would you?

A That is correct.

MR. PORTER: I have one question.

MR. UTZ: Mr. Porter.

BY MR. PORTER:

Q What did you say the present bottom oil pressures in the North Mason are, the average pressures, did you give that



DEARNLEY-MEIER REPORTING SERVICE, Inc.

FARMINGTON, N. M.
PHONE 325-1182

SANTA FE, N. M.
PHONE 983-3971

ALBUQUERQUE, N. M.
PHONE 243-6691

figure?

A Yes, sir. I quoted the average bottom hole pressure in the North Mason field as of, or during the bottom hole pressure survey taken in 1962 to be 383 psi.

Q And you had a pressure of 1639 in one of the wells in this new pool that you propose?

A Right.

Q At what date?

A Continental Russell Federal 31, No. 1 had a bottom hole pressure of 1639 psi, and this was taken immediately after completion of that well.

Q In '61?

A During June of 1963.

Q Oh, '63. You say that Mr. Reed, in the event that the New Mexico Commission grants your application to establish a new pool, intends to ask for a bonus discovery allowable and designation of a new pool in Texas?

A That is correct.

Q Do you know what the bonus discovery allowable under this particular situation would be?

A No, sir, I don't. I understand the discovery allowable would be in the order of 100 barrels a day. However, this well is also a limited capacity and does not test over 35 barrels per



DEARNLEY-MEIER REPORTING SERVICE, Inc.

FARMINGTON, N. M.
PHONE 325-1182

SANTA FE, N. M.
PHONE 983-3971

ALBUQUERQUE, N. M.
PHONE 243-6691

day.

Q The discovery well on the Texas side?

A Yes, sir.

Q Questioning a little further along this line, I don't know if you are familiar with Texas rules or not. It's my understanding that bonus discovery allowable runs for eighteen months. Does anybody have any information on that?

MR. LYON: Eighteen months or until sixth well is drilled.

MR. PORTER: And that would apply until any of the first six wells, or just to the discovery well?

MR. BLACK: That applies to the first five wells.

MR. PORTER: So that if Texas established say 100 barrel allowable for this area, then in all probability if New Mexico followed the usual pattern, New Mexico would establish the same allowable as Texas, which would make quite a bit of difference between that and North Mason. I'm just talking here, I'm not questioning at the moment, but what I was speculating on was this no-man's land, this area that might be created by the Commission's own action in deleting certain acreage from the North Mason Delaware should production occur in that area, there would probably be contention over which pool the well belonged in because of the differential in allowable.



DEARNLEY-MEIER REPORTING SERVICE, Inc.

FARMINGTON, N. M.
PHONE 325-1182

SANTA FE, N. M.
PHONE 983-3971

ALBUQUERQUE, N. M.
PHONE 243-6631

What I was wondering about would be the advisability of limiting the provisions of whatever rules are established for this pool that you are asking for strictly to that area rather than encompassing a mile area as has been the custom of the Commission in the past. I'm sure Mr. Lyon understands what the problem is here. Would there be any objection to limiting the rules to the area asked for here?

MR. LYON: If you leave the boundaries as they are presently proposed and shown on the exhibit, then I think your question, your problem would be solved. Any well drilled within the present North Mason Pool boundary would be governed by those rules. Insofar as Continental Oil Company is concerned, we're not going to move upstructure and drill another well.

MR. PORTER: That's all I have, Mr. Utz.

MR. UTZ: Are there other questions of the witness?

The witness may be excused.

(Witness excused.)

MR. UTZ: Are there any other statements to be made in this case? The case will be taken under advisement.



STATE OF NEW MEXICO)
COUNTY OF BERNALILLO) SS

I, ADA DEARNLEY, Court Reporter, do hereby certify that the foregoing and attached transcript of proceedings before the New Mexico Oil Conservation Commission at Santa Fe, New Mexico, is a true and correct record to the best of my knowledge, skill and ability.

IN WITNESS WHEREOF I have affixed my hand and notarial seal this 6th day of September, 1963.

Ada Dearnley
Notary Public-Court Reporter

My commission expires:
June 19, 1967.

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 2881 heard by me on *Sept 4* 1963.
Must G. D. Examiner
New Mexico Oil Conservation Commission

DEARNLEY-MEIER REPORTING SERVICE, Inc.

FARMINGTON, N. M.
PHONE 325-1182

SANTA FE, N. M.
PHONE 983-3971

ALBUQUERQUE, N. M.
PHONE 243-6691

