

WATER ANALYSIS TEST REPORT

[illegible]

AFTER ANALYSIS PATTERN
 CALCULATED TO SHOW 7 DATES HERE (TABLE 1)

	15	10	5	0
Na ⁺ 30				
Ca ⁺⁺				
Mg ⁺⁺				
Fe ⁺⁺				

BEFORE EXAMINER QUINTANA
 OF CONSERVATION DIVISION
 Hicks EXHIBIT NO. 8
 CASE NO. 8546

APPENDIX C

CATIONS	mg/L*	mg/L*
Total Hardness	145	147.6
Sodium, Na ⁺ (calc.)	23	23.6
Calcium, Ca ⁺⁺	53.3	53.206
Magnesium, Mg ⁺⁺	.12	1.5
Iron (Total), Fe ⁺⁺	.15	2.7

CH ₄ + 2S (s) → CS ₂ (l) + 2H ₂ (g)	ΔH° = -75.5 kJ
CH ₄ + 2S (s) → CS ₂ (g) + 2H ₂ (g)	ΔH° = -76.6 kJ
CH ₄ + S (s) → CS ₂ (l) + H ₂ (g)	ΔH° = -59.8 kJ

PHYSICAL PROPERTIES

ANIONS	mg/l	meq/l
Chloride, Cl^-	33.8	1200.
Sulfate, SO_4^{2-}	2.0	95
Carbonate, CO_3^{2-}	2.3	70.
Bicarbonate, HCO_3^-	15.9	971.
Hydroxyl, OH^-	0	0
Chromate, S^{2-}		
Phosphate-Mono, PO_3^{3-}		
Phosphate-Di, PO_4^{2-}		

PH	_____	9.12
ES (Dedux Per. Unit)	_____	1.0V
Specific Gravity	_____	_____
Turbidity, JTU Units	_____	_____
Total Dissolved Solids (Calc.)	_____	mg/L
Stability Index	_____	F
	_____	F
CaCO ₃ Solubility	_____	F mg/L
	_____	F mg/L
Max. CaCO ₃ Precip. (Calc.)	_____	mg/L
Max. CaCO ₃ Precip. (Calc.)	_____	mg/L
CaCO ₃ Precip. (Calc.)	_____	mg/L

SUSPENDED SOLIDS (QUALITATIVE)

Iron Sulfide ☐ Iron Oxide ☐ Calcium Carbide ☐ Gold (Au) ☐

REMARKS AND RECOMMENDATIONS:

[illegible]

WATER ANALYSIS TEST REPORT

Circumstance	Percentage of Respondents (%)
Self-defense	85
To protect others	75
To prevent a crime	65
To maintain order	55
To punish a criminal	45

2418

12-13-22

STATE

22

HICKS

COUNTY OF PARISH

San Juan

WATER SOURCE (FLEET/STATION)

Well Head

37

4 5 6 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 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197 198 199 200 201 202 203 204 205 206 207 208 209 210 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225 226 227 228 229 230 231 232 233 234 235 236 237 238 239 240 241 242 243 244 245 246 247 248 249 250 251 252 253 254 255 256 257 258 259 260 261 262 263 264 265 266 267 268 269 270 271 272 273 274 275 276 277 278 279 280 281 282 283 284 285 286 287 288 289 290 291 292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308 309 310 311 312 313 314 315 316 317 318 319 320 321 322 323 324 325 326 327 328 329 330 331 332 333 334 335 336 337 338 339 340 341 342 343 344 345 346 347 348 349 350 351 352 353 354 355 356 357 358 359 360 361 362 363 364 365 366 367 368 369 370 371 372 373 374 375 376 377 378 379 380 381 382 383 384 385 386 387 388 389 390 391 392 393 394 395 396 397 398 399 400 401 402 403 404 405 406 407 408 409 410 411 412 413 414 415 416 417 418 419 420 421 422 423 424 425 426 427 428 429 430 431 432 433 434 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452 453 454 455 456 457 458 459 460 461 462 463 464 465 466 467 468 469 470 471 472 473 474 475 476 477 478 479 480 481 482 483 484 485 486 487 488 489 490 491 492 493 494 495 496 497 498 499 500 501 502 503 504 505 506 507 508 509 510 511 512 513 514 515 516 517 518 519 520 521 522 523 524 525 526 527 528 529 530 531 532 533 534 535 536 537 538 539 540 541 542 543 544 545 546 547 548 549 550 551 552 553 554 555 556 557 558 559 560 561 562 563 564 565 566 567 568 569 570 571 572 573 574 575 576 577 578 579 580 581 582 583 584 585 586 587 588 589 590 591 592 593 594 595 596 597 598 599 600 601 602 603 604 605 606 607 608 609 610 611 612 613 614 615 616 617 618 619 620 621 622 623 624 625 626 627 628 629 630 631 632 633 634 635 636 637 638 639 640 641 642 643 644 645 646 647 648 649 650 651 652 653 654 655 656 657 658 659 660 661 662 663 664 665 666 667 668 669 670 671 672 673 674 675 676 677 678 679 680 681 682 683 684 685 686 687 688 689 690 691 692 693 694 695 696 697 698 699 700 701 702 703 704 705 706 707 708 709 710 711 712 713 714 715 716 717 718 719 720 721 722 723 724 725 726 727 728 729 730 731 732 733 734 735 736 737 738 739 740 741 742 743 744 745 746 747 748 749 750 751 752 753 754 755 756 757 758 759 760 761 762 763 764 765 766 767 768 769 770 771 772 773 774 775 776 777 778 779 780 781 782 783 784 785 786 787 788 789 790 791 792 793 794 795 796 797 798 799 800 801 802 803 804 805 806 807 808 809 810 811 812 813 814 815 816 817 818 819 820 821 822 823 824 825 826 827 828 829 830 831 832 833 834 835 836 837 838 839 840 841 842 843 844 845 846 847 848 849 850 851 852 853 854 855 856 857 858 859 860 861 862 863 864 865 866 867 868 869 870 871 872 873 874 875 876 877 878 879 880 881 882 883 884 885 886 887 888 889 890 891 892 893 894 895 896 897 898 899 900 901 902 903 904 905 906 907 908 909 910 911 912 913 914 915 916 917 918 919 920 921 922 923 924 925 926 927 928 929 930 931 932 933 934 935 936 937 938 939 940 941 942 943 944 945 946 947 948 949 950 951 952 953 954 955 956 957 958 959 960 961 962 963 964 965 966 967 968 969 970 971 972 973 974 975 976 977 978 979 980 981 982 983 984 985 986 987 988 989 990 991 992 993 994 995 996 997 998 999 1000 1001 1002 1003 1004 1005 1006 1007 1008 1009 1010 1011 1012 1013 1014 1015 1016 1017 1018 1019 1020 1021 1022 1023 1024 1025 1026 1027 1028 1029 1030 1031 1032 1033 1034 1035 1036 1037 1038 1039 1040 1041 10

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STATISTICAL ANALYSIS METHOD

100-107410-104 24-304 62 DATES - 2/21/62 (1417)

RESOLVED CASES

12/20/50 11:15 AM

CO ₂ (g)	1.0	1.0
CO ₂ (g)	1.0	1.0

REFERENCES

pH	_____	7.76
Eh (Calc. & Potential)	_____	mV
Specific Gravity	_____	
Turbidity, NTU Units	_____	
Total Dissolved Solids (Calc.)	10,278	mg/l*
Stability Index	B _____ F _____	
	B _____ F _____	
CaSO ₄ Solubility	B _____ F _____	mg/l*
	B _____ F _____	mg/l*
Max. CaSO ₄ Possible (Calc.)	_____	mg/l*
Max. BaSO ₄ Possible (Calc.)	_____	mg/l*
Residual Hydrocarbons	_____	ppm (Vol/Vol)

EXTENDED SOLIDS (QUALITATIVE)

Iron Sulfide ☐ Iron Oxide ☐ Calcium Carbonate ☐ Acid Insoluble ☐

REMARKS AND RECOMMENDATIONS:

There is a wide range of opinion as to whether the data are suitable for trend analysis, particularly for the period 1960-1970, and the results are not consistent. Although the data are not ideal, they are the only ones available for the period 1960-1970, and the following analysis is based on them.

1947-1948	1949-1950	1951-1952	1953-1954	1955-1956	1957-1958	1959-1960	1961-1962	1963-1964	1965-1966	1967-1968	1969-1970	1971-1972	1973-1974	1975-1976	1977-1978	1979-1980	1981-1982	1983-1984	1985-1986	1987-1988	1989-1990	1991-1992	1993-1994	1995-1996	1997-1998	1999-2000	2001-2002	2003-2004	2005-2006	2007-2008	2009-2010	2011-2012	2013-2014	2015-2016	2017-2018	2019-2020	2021-2022	2023-2024	2025-2026	2027-2028	2029-2030	2031-2032	2033-2034	2035-2036	2037-2038	2039-2040	2041-2042	2043-2044	2045-2046	2047-2048	2049-2050	2051-2052	2053-2054	2055-2056	2057-2058	2059-2060	2061-2062	2063-2064	2065-2066	2067-2068	2069-2070	2071-2072	2073-2074	2075-2076	2077-2078	2079-2080	2081-2082	2083-2084	2085-2086	2087-2088	2089-2090	2091-2092	2093-2094	2095-2096	2097-2098	2099-2100	2101-2102	2103-2104	2105-2106	2107-2108	2109-2110	2111-2112	2113-2114	2115-2116	2117-2118	2119-2120	2121-2122	2123-2124	2125-2126	2127-2128	2129-2130	2131-2132	2133-2134	2135-2136	2137-2138	2139-2140	2141-2142	2143-2144	2145-2146	2147-2148	2149-2150	2151-2152	2153-2154	2155-2156	2157-2158	2159-2160	2161-2162	2163-2164	2165-2166	2167-2168	2169-2170	2171-2172	2173-2174	2175-2176	2177-2178	2179-2180	2181-2182	2183-2184	2185-2186	2187-2188	2189-2190	2191-2192	2193-2194	2195-2196	2197-2198	2199-2200	2201-2202	2203-2204	2205-2206	2207-2208	2209-2210	2211-2212	2213-2214	2215-2216	2217-2218	2219-2220	2221-2222	2223-2224	2225-2226	2227-2228	2229-2230	2231-2232	2233-2234	2235-2236	2237-2238	2239-2240	2241-2242	2243-2244	2245-2246	2247-2248	2249-2250	2251-2252	2253-2254	2255-2256	2257-2258	2259-2260	2261-2262	2263-2264	2265-2266	2267-2268	2269-2270	2271-2272	2273-2274	2275-2276	2277-2278	2279-2280	2281-2282	2283-2284	2285-2286	2287-2288	2289-2290	2291-2292	2293-2294	2295-2296	2297-2298	2299-2300	2301-2302	2303-2304	2305-2306	2307-2308	2309-2310	2311-2312	2313-2314	2315-2316	2317-2318	2319-2320	2321-2322	2323-2324	2325-2326	2327-2328	2329-2330	2331-2332	2333-2334	2335-2336	2337-2338	2339-2340	2341-2342	2343-2344	2345-2346	2347-2348	2349-2350	2351-2352	2353-2354	2355-2356	2357-2358	2359-2360	2361-2362	2363-2364	2365-2366	2367-2368	2369-2370	2371-2372	2373-2374	2375-2376	2377-2378	2379-2380	2381-2382	2383-2384	2385-2386	2387-2388	2389-2390	2391-2392	2393-2394	2395-2396	2397-2398	2399-2400	2401-2402	2403-2404	2405-2406	2407-2408	2409-2410	2411-2412	2413-2414	2415-2416	2417-2418	2419-2420	2421-2422	2423-2424	2425-2426	2427-2428	2429-2430	2431-2432	2433-2434	2435-2436	2437-2438	2439-2440	2441-2442	2443-2444	2445-2446	2447-2448	2449-2450	2451-2452	2453-2454	2455-2456	2457-2458	2459-2460	2461-2462	2463-2464	2465-2466	2467-2468	2469-2470	2471-2472	2473-2474	2475-2476	2477-2478	2479-2480	2481-2482	2483-2484	2485-2486	2487-2488	2489-2490	2491-
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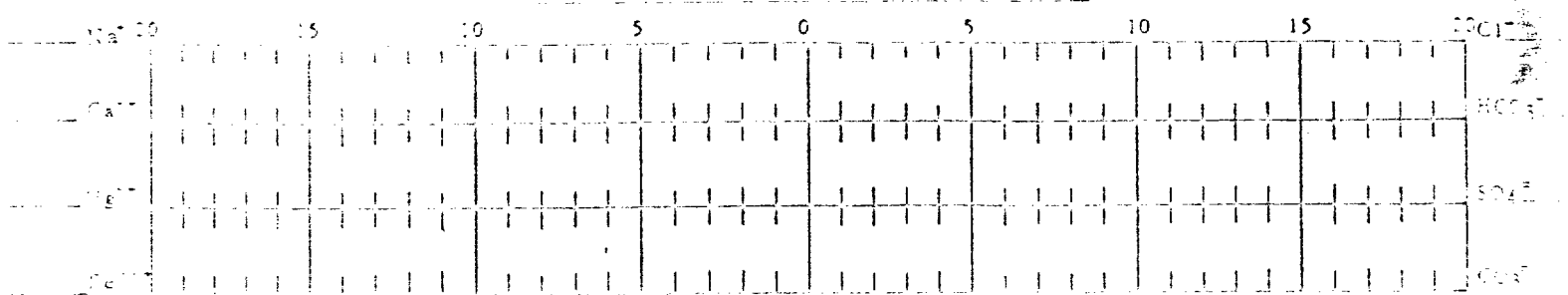
Chemical Consultants

WATER ANALYSIS TEST REPORT

Form No. 1 (Rev. 1-74)
 Form No. 1 (Rev. 1-74)

COMPANY				SHEET NUMBER			
DATE				DATE			
12-13-82				12-13-82			
FIELD				COUNTY OR PARISH			
Hicks				San Juan			
WELL(S) NAME OR NO.				WATER SOURCE (EXPLANATION)			
S.F. Cha Cha				39			
DEPTH, FT.		ELEV., FT.		TEMP., F.		WATER, EQL. DAY	
WATER, EQL. DAY		OIL, EQL. DAY		GAS, EQL. DAY			
WATER, EQL. DAY		OIL, EQL. DAY		GAS, EQL. DAY			
WATER, EQL. DAY		OIL, EQL. DAY		GAS, EQL. DAY			

WATER ANALYSIS PATTERN



DISSOLVED SOLIDS

Calc. Solids	15.1*	15.1*
Total Solids	9.2	9.2
Sulfate, SO ₄ ²⁻ (Calc.)	175.2	175.2
Calcium, Ca ²⁺	6.2	124.
Magnesium, Mg ²⁺	3.0	26.5
Iron (Total), Fe ²⁺	.05	1.0
Calc. Solids	15.1*	15.1*
Chloride, Cl ⁻	112.0	5000.
Sulfate, SO ₄ ²⁻	1.1	55.
Carbonate, CO ₃ ²⁻	3.6	103.
Bicarbonate, HCO ₃ ⁻	10.6	647.
Hydroxyl, OH ⁻	0	0
Sulfide, S ²⁻		
Fluoride, F ⁻ (Calc.)		
Fluoride, F ⁻ (Total)		

DISSOLVED GASES

Hydrogen Sulfide, H ₂ S	ng/l*
Carbon Dioxide, CO ₂	ng/l*
Oxygen, O ₂	ng/l*

PHYSICAL PROPERTIES

pH	8.3
Ch. (Redox Potential)	ng/l*
Specific Gravity	
Turbidity, JTU Units	
Total Dissolved Solids (Calc.)	10,956.5 ng/l*
Stability Index	0 F
CaSO ₄ Solubility	0 F
Max. CaSO ₄ Possible (Calc.)	ng/l*
Max. BaSO ₄ Possible (Calc.)	ng/l*
Residual Hydrocarbons	ng/l*

REMARKS AND RECOMMENDATIONS:

Calcium Chloride [] Acid Insoluble []

REMARKS AND RECOMMENDATIONS:

NOTE: The following values are only valid if the sample is analyzed immediately after collection. If the sample is stored for more than 24 hours, the values may change.

WATER ANALYSIS TEST REPORT

COMPANY
Hicks Oil & Gas
FIELD

501 502 503 504 505 506 507 508 509 510 511 512 513 514 515 516 517 518 519 520 521 522 523 524 525 526 527 528 529 530 531 532 533 534 535 536 537 538 539 540 541 542 543 544 545 546 547 548 549 550 551 552 553 554 555 556 557 558 559 560 561 562 563 564 565 566 567 568 569 570 571 572 573 574 575 576 577 578 579 580 581 582 583 584 585 586 587 588 589 590 591 592 593 594 595 596 597 598 599 600 601 602 603 604 605 606 607 608 609 610 611 612 613 614 615 616 617 618 619 620 621 622 623 624 625 626 627 628 629 630 631 632 633 634 635 636 637 638 639 640 641 642 643 644 645 646 647 648 649 650 651 652 653 654 655 656 657 658 659 660 661 662 663 664 665 666 667 668 669 670 671 672 673 674 675 676 677 678 679 680 681 682 683 684 685 686 687 688 689 690 691 692 693 694 695 696 697 698 699 700 701 702 703 704 705 706 707 708 709 710 711 712 713 714 715 716 717 718 719 720 721 722 723 724 725 726 727 728 729 730 731 732 733 734 735 736 737 738 739 740 741 742 743 744 745 746 747 748 749 750 751 752 753 754 755 756 757 758 759 760 761 762 763 764 765 766 767 768 769 770 771 772 773 774 775 776 777 778 779 780 781 782 783 784 785 786 787 788 789 790 791 792 793 794 795 796 797 798 799 800 801 802 803 804 805 806 807 808 809 810 811 812 813 814 815 816 817 818 819 820 821 822 823 824 825 826 827 828 829 830 831 832 833 834 835 836 837 838 839 840 841 842 843 844 845 846 847 848 849 850 851 852 853 854 855 856 857 858 859 860 861 862 863 864 865 866 867 868 869 870 871 872 873 874 875 876 877 878 879 880 881 882 883 884 885 886 887 888 889 890 891 892 893 894 895 896 897 898 899 900 901 902 903 904 905 906 907 908 909 910 911 912 913 914 915 916 917 918 919 920 921 922 923 924 925 926 927 928 929 930 931 932 933 934 935 936 937 938 939 940 941 942 943 944 945 946 947 948 949 950 951 952 953 954 955 956 957 958 959 960 961 962 963 964 965 966 967 968 969 970 971 972 973 974 975 976 977 978 979 980 981 982 983 984 985 986 987 988 989 990 991 992 993 994 995 996 997 998 999 1000

DATE
11-29-92

COUNTY OF PARISH

CASE OF HIT

S.F. Cha Cha

* FILED IN NAME OF NO.

20

WATED SOURCE (FURNISHING)

2575-57

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THE JOURNAL OF THE

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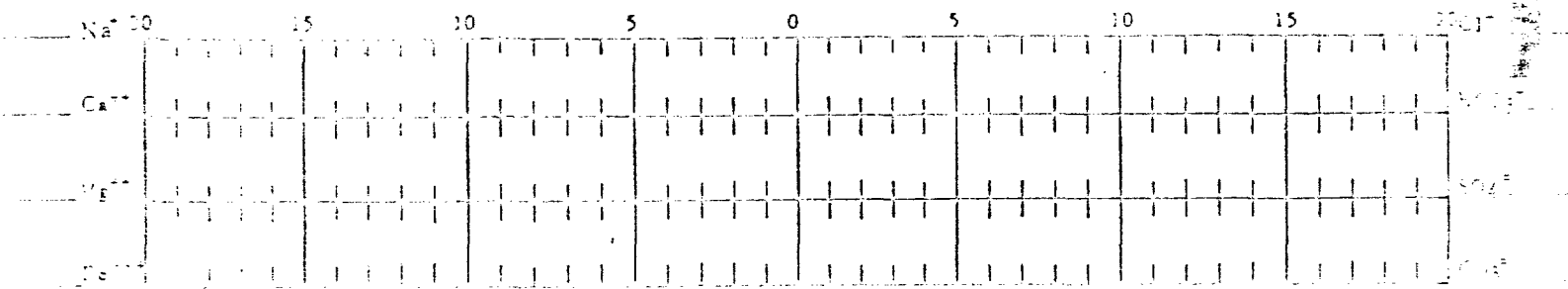
☐ REDUCED WATER

17 OCT 1968

07-238

WATER ANALYSIS PATTERN

1. THE UNITED STATES OF AMERICA - 100% SOLE UNIT



REFERENCES

	mg/l*	mg/l*
Calcium, Ca^{++}		
Total Hardness		
Chloride, Cl^- (ppm)		
Dissolved SO_4^{--}		
Total SO_4^{--} , Mg^{++}		
Total Iron, Fe^{++}		
Alkalinity		
Chloride, Cl^-	107.2	3,800
Sulfate, SO_4^{--}	.73	35
Carbonate, CO_3^{--}		
Bicarbonate, HCO_3^-		
Hydroxyl, OH^-		
Sulfide, S^{--}		
Phosphate-Mono, PO_3^{--}		
Phosphate-Di, PO_4^{--}		

DECEASED CITIZEN

Hydrogen Sulfide, H_2S	100	100	100
Carbon Dioxide, CO_2	100	100	100
Oxygen, O_2	100	100	100

PHYSICAL PROPERTIES

pH	_____	3.0
Eh (Index Potential)	_____	mV
Specific Gravity	_____	
Turbidity, JTU Units	_____	
Total Dissolved Solids (Calc.)	_____	mg/l
Stability Index	_____	F
	_____	F
CaSO ₄ Solubility	_____	mg/l
	_____	mg/l
Max. CaSO ₄ Possible (Calc.)	_____	mg/l
Max. BaSO ₄ Possible (Calc.)	_____	mg/l
Residual Hydrocarbons	_____	mg/l

EXERCISES (QUALITATIVE)

Non-Cryst. ☐ Non-Cryst. ☐ Calcium Carbonate ☐ Acid Insoluble ☐

CONCLUSIONS AND RECOMMENDATIONS:

* NOTE: Left and right hands are used nearly equal into the pool for spin and momentum activity. The spin and spin out should be done with arms extended to the front and arms should not be behind the body.

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UNICHEM INTERNATIONAL

601 NORTH LEECH

P.O. BOX 1499

HOBBS, NEW MEXICO 88240

COMPANY : ENERGY RESERVES GROUP
 DATE : 5-22-84
 FIELD, LEASE & WELL : E.H. PIPKIN Well #23 PICTURE CLIFF FIELD
 SAMPLING POINT: WELL HEAD
 DATE SAMPLED : 5-15-84

SPECIFIC GRAVITY = 1.018
 TOTAL DISSOLVED SOLIDS = 28012
 pH = 7.49

		ME/L	MG/L
CATIONS			
CALCIUM	(CA)+2	3.8	76.1
MAGNESIUM	(MG)+2	11	133.
SODIUM	(NA), CALC.	457.	10510.
ANIONS			
BICARBONATE	(HCO3)-1	21	1281.
CARBONATE	(CO3)-2	0	0
HYDROXIDE	(OH)-1	0	0
SULFATE	(SO4)-2	0	0
CHLORIDES	(CL)-1	451	16000
DISSOLVED GASES			
CARBON DIOXIDE	(CO2)	NOT RUN	
HYDROGEN SULFIDE	(H2S)	NOT RUN	
OXYGEN	(O2)	NOT RUN	
IRON(TOTAL)	(FE)		5.6
BARIUM	(BA)+2	.15	10.3
MANGANESE	(MN)	NOT RUN	

IONIC STRENGTH (MOIAL) = .49

SCALING INDEX	TEMP
	30C 90C
	86F 194F
	0.0 1.88
CARBONATE INDEX	
CALCIUM CARBONATE SCALING	LIKELY LIKELY
CALCIUM SULFATE INDEX	
CALCIUM SULFATE SCALING	-60. -57. UNLIKELY UNLIKELY

Pictorial Cliffs

UNICHEM INTERNATIONAL

601 NORTH LEECH

P.O. BOX 1499

HELENS, NEW MEXICO 88240

COMPANY : ENERGY RESOURCES CORP
DATE : 12-17-83
FIELD LEASHELF : G.O.M. 1115
WELLING POINT : WELLHEAD
WELL SAMPLE : 12-7-83

SPECIFIC GRAVITY = 1.08
TOTAL DISSOLVED SOLIDS = 01298
PH = 6.08

		MG/L	MG/L
CATIONS			
CALCIUM	(Ca) 42	80	1803.
MAGNESIUM	(Mg) 42	120	1408.
SODIUM	(Na) 1710	714.	15423.
ANIONS			
BICARBONATE	(HCO3) 1	12.4	756.
CARBONATE	(CO3) 2	0	0
NITROGEN	(NO3) 1	0	0
SULFATE	(SO4) 2	0	0
CHLORIDES	(Cl) 1	902	32000
DISSOLVED GASES			
CARBON DIOXIDE	(CO2)	NOT RUN	
HYDROGEN SULFIDE	(H2S)	NOT RUN	
OXYGEN	(O2)	NOT RUN	
IRON(TOTAL)	(FE)		109.
PLATINUM	(EA) 2	.82	56
MANGANESE	(Mn)	NOT RUN	

TENSILE STRENGTH (KCAL) = 1.082

SCALING INDEX		TEMP	
		80C	68.8C
		86F	120F
		.293	.694
CARBONATE INDEX		LIKELY	LIKELY
CALCIUM CARBONATE SCALING			
MAGNESIUM SULFATE INDEX		-34.	-34.
MAGNESIUM SULFATE SCALING		UNLIKELY	UNLIKELY
SODIUM SULFATE INDEX		-2.1	-3.3
SODIUM SULFATE SCALING		UNLIKELY	UNLIKELY

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201 NORTH LEECH

P.O. BOX 1499

MORRIS, NEW MEXICO 88240

COMPANY : ENERGY RESERVES GROUP
DATE : 12-17-83
FIELD : LEASEWELL C.O. U. 8315
SAMPLING POINT : WELLHEAD
DATE SAMPLED : 12-7-83

SPECIFIC GRAVITY = 1.04
TOTAL DISSOLVED SOLIDS = 59303
PH = 6.61

		MG/L	MG/L
CATIONS			
CALCIUM	(CA)+2	85	1603
MAGNESIUM	(MG)+2	90	1094
SODIUM	(NA), CALC.	834	19191
ANIONS			
BICARBONATE	(HCO3)-1	4.8	292
CARBONATE	(CO3)-2	0	0
HYDROXIDE	(OH)-1	0	0
SULFATE	(SO4)-2	0	0
CHLORIDES	(CL)-1	1000	37000
DISSOLVED GASES			
CARBON DIOXIDE	(CO2)	NOT RUN	
HYDROGEN SULFIDE	(H2S)	NOT RUN	
OXYGEN	(O2)	NOT RUN	
IRON(TOTAL)	(FE)		52.5
BARIUM	(BA)+2	1.7	121
MANGANESE	(MN)	NOT RUN	

IONIC STRENGTH (MOLAL) = 1.159

SCALING INDEX	TEMP	
	30C	48.8C
	86F	120F
CARBONATE INDEX	-40	0.0
CALCIUM CARBONATE SCALING	UNLIKELY	UNLIKELY
CALCIUM SULFATE INDEX	-57	-57
CALCIUM SULFATE SCALING	UNLIKELY	UNLIKELY
BARIUM SULFATE INDEX	-1.1	-1.7
BARIUM SULFATE SCALING	UNLIKELY	UNLIKELY

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603 NORTH LEECH

P.O. BOX 1499

MOBES, NEW MEXICO 88240

COMPANY ENERGY RESERVES GROUP
DATE 12-12-83
WELL LEWISWELL G C H 0227
SAMPLING POINT WELHEAD
DATE SAMPLED 12-7-83

SPECIFIC GRAVITY = 1.058
TOTAL DISSOLVED SOLIDS = 36706
H = 7.1

		MG/L	MG/L
CATIONS			
CALCIUM	(CA) + 2	39.3	788.
MAGNESIUM	(MG) + 2	28.6	470.
SODIUM	(NA) + CALC.	895.	20094.
ANIONS			
BICARBONATE	(HCO3) - 1	9.8	597.
CHLORIDE	(CL) - 1	0	0
HYDROXIDE	(OH) - 1	0	0
SULFATE	(SO4) - 2	0	0
NITRATE	(NO3) - 1	964	34200
DISSOLVED GASES			
CARBON DIOXIDE	(CO2)	NOT RUN	
HYDROGEN SULFIDE	(H2S)	NOT RUN	
OXYGEN	(O2)	NOT RUN	
IRON (TOTAL)	(FE)		48.6
BARIUM	(BA) + 2	1.4	90.8
MANGANESE	(MN)	NOT RUN	

ONIC STRENGTH (MOLAL) = 1.055

SCALING INDEX	TEMP
	30C 48.8C
	86F 120F
CARBONATE INDEX	.103
CALCIUM CARBONATE SCALING	LIFELY
CALCIUM SULFATE INDEX	.48.
CALCIUM SULFATE SCALING	UNLIKELY
BARIUM SULFATE INDEX	-1.3
BARIUM SULFATE SCALING	UNLIKELY

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601 NORTH LEECH

F.O. BOX 1499

HOBBS, NEW MEXICO 88240

COMPANY : ENERGY RESERVERS
DATE : 12-12-83
FIELD: LELSBWELL G.C.U. 4290
SYMPLEING POINT SEPRATOR
DATE SAMPLED : 12-7-83

SPECIFIC GRAVITY = 1.035
TOTAL DISSOLVED SOLIDS = 53469
PH = 7.08

		MG/L	MG/L
CATIONS			
CALCIUM	(CA)+2	41.3	828
MAGNESIUM	(MG)+2	36.6	142
SODIUM	(NA) CALC.	837.	19251
ANIONS			
BICARBONATE	(HCO3)-1	13.4	817.
CARBONATE	(CO3)-2	0	0
HYDROXIDE	(OH)-1	0	0
SULFATE	(SO4)-2	0	0
CHLORIDES	(CL)-1	902	37000
DISSOLVED GASES			
CARBON DIOXIDE	(CO2)	NOT RUN	
HYDROGEN SULFIDE	(H2S)	NOT RUN	
OXYGEN	(O2)	NOT RUN	
IRON(TOTAL)	(FE)		9.1
BARIUM	(BA)+2	1.7	120
MANCANESE	(MN)	NOT RUN	

IONIC STRENGTH (MOLAL) = .995

SCALING INDEX	TEMP	
	30C	48.8C
	88F	120F
CARBONATE INDEX	252	1692
CALCIUM CARBONATE SCALING	LIKELY	LIKELY
CALCIUM SULFATE INDEX	63.	66
CALCIUM SULFATE SCALING	UNLIKELY	UNLIKELY
BARIUM SULFATE INDEX	-1.0	-1.5
BARIUM SULFATE SCALING	UNLIKELY	UNLIKELY

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601 NORTH LEECH

P.O. BOX 1499

HOBBS, NEW MEXICO 88240

COMPANY: ENERGY RESERVERS GROUP
 DATE: 12-12-83
 FIELD: LEASEWELL G.C.U. 4291
 SAMPLING POINT: WELLHEAD
 DATE SAMPLED: 12-7-83

SPECIFIC GRAVITY = 1.046
 TOTAL DISSOLVED SOLIDS = 43770
 PH = 7.18

		MG/L	MG/L
CATIONS			
CALCIUM	(CA)+2	36.6	734
MAGNESIUM	(MG)+2	45.5	551
SODIUM	(NA)+CAIC	1029	23670
ANIONS			
BICARBONATE	(HCO3)-1	11.6	737
CARBONATE	(CO3)-2	0	0
HYDROXIDE	(OH)-1	0	0
SULFATE	(SO4)-2	0	0
CHLORIDES	(CL)-1	1100	38000
DISSOLVED GASES			
CARBON DIOXIDE	(CO2)	NOT RUN	
HYDROGEN SULFIDE	(H2S)	NOT RUN	
OXYGEN	(O2)	NOT RUN	
IRON (TOTAL)	(FE)		10.3
BARIUM	(BA)+2	1.5	106
MANGANESE	(MN)	NOT RUN	

IONIC STRENGTH (MOLAL) = 1.191

SCALING INDEX	TEMP	
	30C	65.8C
CARBONATE INDEX	84F	150F
	304	1708
CALCIUM CARBONATE SCALING	LIKELY	LIKELY
CALCIUM SULFATE INDEX	-72	-73
	UNLIKELY	UNLIKELY
CALCIUM SULFATE SCALING		
BARIUM SULFATE INDEX	-1.3	-2.0
	UNLIKELY	UNLIKELY
BARIUM SULFATE SCALING		

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201 NORTH LEECH

P.O. BOX 1499

HOBBBS, NEW MEXICO 88340

COMPANY - ENERGY RESERVES GROUP
DATE - 12-12-83
FIELD - LEASEWELL - C.O.U. #300
SAMPLING POINT - SEPARATOR
DATE SAMPLED - 12-7-83

SPECIFIC GRAVITY = 1.032
TOTAL DISSOLVED SOLIDS = 48189
PH = 7.11

		MG/L	MG/L
CATIONS			
CALCIUM	(CA)+2	33.3	268
MAGNESIUM	(MG)+2	51.4	628
SODIUM	(NA) CALC.	742	17076
ANIONS			
BICARBONATE	(HCO3)-1	9.8	597
CARBONATE	(CO3) 2	0	0
HYDROXIDE	(OH)-1	0	0
SULFATE	(SO4)-2	0	0
CHLORIDES	(CL)-1	818	79000
DISSOLVED GASES			
CARBON DIOXIDE	(CO2)	NOT RUN	
HYDROGEN SULFIDE	(H2S)	NOT RUN	
OXYGEN	(O2)	NOT RUN	
IRON(TOTAL)	(FE)		15.1
BARIUM	(BA)+2	2.0	138
MANCANESE	(MN)	NOT RUN	

IONIC STRENGTH (MOLAL) = .902

SCALING INDEX	TEMP	
	30C	48.8C
CARBONATE INDEX	86F	120F
	.073	.473
	LIKELY	LIKELY
CALCIUM CARBONATE SCALING		
CALCIUM SULFATE INDEX	-65.	-66.
	UNLIKELY	UNLIKELY
CALCIUM SULFATE SCALING		
BARIUM SULFATE INDEX	-81	-1.2
	UNLIKELY	UNLIKELY
BARIUM SULFATE SCALING		

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203 NORTH LEECH

P.O. BOX 1499

HOBBS, NEW MEXICO 88240

COMPANY : ENERGY RESOURCES GROUP
DATE : 12-12-83
FIELD : LEASEWELL : G C U 8303
SAMPLING POINT : SEPARATOR
DATE SAMPLED : 12-7-83

SPECIFIC GRAVITY = 1.032
TOTAL DISSOLVED SOLIDS = 48101
PH = 7.15

		ME/L	MG/L
CATIONS			
CALCIUM	(CA)+2	38	761
MAGNESIUM	(MG)+2	37	409
SODIUM	(NA)+1	751	17289
ANIONS			
BICARBONATE	(HCO3)-1	8.2	500
CARBONATE	(CO3)-2	0	0
HYDROXIDE	(OH)-1	0	0
SULFATE	(SO4)-2	0	0
CHLORIDES	(CL)-1	818	29000
DISSOLVED GASES			
CARBON DIOXIDE	(CO2)	NOT RUN	
HYDROGEN SULFIDE	(H2S)	NOT RUN	
OXYGEN	(O2)	NOT RUN	
IRON(TOTAL)	(FE)		9.6
BARIUM	(BA)+2	1.7	123
MANGANESE	(MN)	NOT RUN	

IONIC STRENGTH (MOLAL) = .895

SCALING INDEX	TEMP	
	30C	48.8C
	86F	120F
CARBONATE INDEX	.194	.594
CALCIUM CARBONATE SCALING	LIKELY	LIFELY
CALCIUM SULFATE INDEX	-.63	-.64
CALCIUM SULFATE SCALING	UNLIKELY	UNLIKELY
BARIUM SULFATE INDEX	-.91	-1.4
BARIUM SULFATE SCALING	UNLIKELY	UNLIKELY

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601 NORTH LEECH

P.O. BOX 1499

HEERS, NEW MEXICO 88240

COMPANY ENERGY RESERVOIRS GROUP
DATE 12-12-88
FIELD ELFASTWELL C. O. U. #311
SAMPLING POINT WELHEAD
DATE SAMPLED 12-7-88

SPECIFIC GRAVITY = 1.085
TOTAL DISSOLVED SOLIDS = 53033
PH = 7.47

		MG/L	MG/L
CATIONS			
CALCIUM	(CA)+2	384	761
MAGNESIUM	(MG)+2	50	837
SODIUM	(NA)+2ALC	827	19026
ANIONS			
BICARBONATE	(HCO3)-1	13.6	829
CARBONATE	(CO3)-2	0	0
HYDROXIDE	(OH)-1	0	0
SULFATE	(SO4)-2	0	0
CHLORIDES	(CL)-1	902	32000
DISSOLVED GASES			
CARBON DIOXIDE	(CO2)	NOT RUN	
HYDROGEN SULFIDE	(H2S)	NOT RUN	
OXYGEN	(O2)	NOT RUN	
IRON(TOTAL)	(FE)		13
BARIUM	(BA)+2	1.5	108
MANGANESE	(MN)	NOT RUN	

IONIC STRENGTH (MOLAL) = .998

SCALING INDEX	TEMP	
	30C	48.8C
	86F	120F
CARBONATE INDEX	.611	1.01
CALCIUM CARBONATE SCALING	LIKELY	LIKELY
CALCIUM SULFATE INDEX	-.66	-.67
CALCIUM SULFATE SCALING	UNLIKELY	UNLIKELY
BARIUM SULFATE INDEX	-1.1	-1.7
BARIUM SULFATE SCALING	UNLIKELY	UNLIKELY

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UNICHEM INTERNATIONAL

601 NORTH LEECH

P.O. BOX 1499

MOESB, NEW MEXICO 88240

COMPANY : ENERGY RESERVERS GROUP
WTF : 12-12-82
WELL : LEASEDAWELL : G.D.U. 8813
WELLHEAD : POINT
DATE SAMPLED : 12-7-83

SPECIFIC GRAVITY = 1.035
TOTAL DISSOLVED SOLIDS = 53180
H = 6.93

		ME/L	MG/L
CATIONS			
ALCIUM	(CA)+2	44.6	895
MAGNESIUM	(MG)+2	48.3	967
SODIUM	(NA), CAIC.	820.	16670.
ANIONS			
BICARBONATE	(HCO3)-1	11.8	719.
CARBONATE	(CO3)-2	0	0
HYDROXIDE	(OH)-1	0	0
SULFATE	(SO4)-2	0	0
CHLORIDES	(CL)-1	902	37000
DISSOLVED GASES			
CARBON DIOXIDE	(CO2)	NOT RUN	
HYDROGEN SULFIDE	(H2S)	NOT RUN	
HYDROGEN	(O2)	NOT RUN	
IRON(TOTAL)	(FE)		57.4
ARIUM	(BA)+2	1.5	108.
MANGANESE	(MN)	NOT RUN	

ONIC STRENGTH (MOLAL) = 999

SCALING INDEX	TEMP	
	30C	45.8C
	86F	120F
	.079	.479
ASSOCIATE INDEX	LIKELY	LIKELY
ALCIUM CARBONATE SCALING		
ALCIUM SULFATE INDEX	-64.	-65.
ALCIUM SULFATE SCALING	UNLIKELY	UNLIKELY
ARIUM SULFATE INDEX	-1.1	-1.7
ARIUM SULFATE SCALING	UNLIKELY	UNLIKELY

Gallup

UNICHEM INTERNATIONAL

601 NORTH LEECH

P.O. BOX 1499

HOEBS, NEW MEXICO 88240

COMPANY : ENERGY RESERVES GROUP
 DATE : 7-5-84
 FIELD, LEASE & WELL : OH RANDAL GALLUP
 SAMPLING POINT: SEPERATOR
 DATE SAMPLED : 6-29-84

SPECIFIC GRAVITY = 1.007
 TOTAL DISSOLVED SOLIDS = 11292
 pH = 6.08

		ME/L	MG/L
CATIONS			
CALCIUM	(CA)+2	.96	19.3
MAGNESIUM	(MG)+2	.72	8.7
SODIUM	(NA), CALC.	171.	3939.
ANIONS			
BICARBONATE	(HCO3)-1	34	2074.
CARBONATE	(CO3)-2	0	0
HYDROXIDE	(OH)-1	0	0
SULFATE	(SO4)-2	26.0	1250
CHLORIDES	(CL)-1	113	4000
DISSOLVED GASES			
CARBON DIOXIDE	(CO2)	NOT RUN	
HYDROGEN SULFIDE	(H2S)	NOT RUN	
OXYGEN	(O2)	NOT RUN	
IRON (TOTAL)	(FE)		764
ARIUM	(BA)+2	.01	1
MANGANESE	(MN)	NOT RUN	

ONIC STRENGTH (MOLAL) = .189

SCALING INDEX	TEMP
	30C 48.8C
	86F 120F
CARBONATE INDEX	-1.4 -1.0
CALCIUM CARBONATE SCALING	UNLIKELY UNLIKELY
CALCIUM SULFATE INDEX	-28. -28.
CALCIUM SULFATE SCALING	UNLIKELY UNLIKELY

Gallop

UNICHEM INTERNATIONAL

601 NORTH LEECH

P.O. BOX 1499

HOBBS. NEW MEXICO 88240

COMPANY : ENERGY RESOURCES
DATE : 5-6-82
FIELD, LEASE & WELL : N.E. HOGBACK WELL #33
SAMPLING POINT:
DATE SAMPLED : 4-28-82

SPECIFIC GRAVITY = 1.04
TOTAL DISSOLVED SOLIDS = 59866
PH = 6.7

		ME / L	MG / L
CATIONS			
CALCIUM	(CA)+2	70	1402.
MAGNESIUM	(MG)+2	20	243.
SODIUM	(NA), CALC.	936.	21538.
ANIONS			
BICARBONATE	(HCO3)-1	10	610.
CARBONATE	(CO3)-2	0	0
HYDROXIDE	(OH)-1	0	0
SULFATE	(SO4)-2	1.6	80
CHLORIDES	(CL)-1	1015.	35991.
DISSOLVED GASES			
CARBON DIOXIDE	(CO2)	NOT RUN	
HYDROGEN SULFIDE	(H2S)	1	17.0
OXYGEN	(O2)	NOT RUN	
IRON(TOTAL)	(FE)		3.2
ARIUM	(BA)+2	1.0	73.2
MANGANESE	(MN)	NOT RUN	

SCALING INDEX	TEMP
	30C
	86F
CARBONATE INDEX	.952
CALCIUM CARBONATE SCALING	LIKELY
SULFATE INDEX	-34.
CALCIUM SULFATE SCALING	UNLIKELY

Gallup

UNICHEM INTERNATIONAL

601 NORTH LEECH

P.O. BOX 1499

HOBBS, NEW MEXICO 88240

COMPANY : ENERGY RESOURCES

DATE : 5-6-82

FIELD, LEASE & WELL : N.E. HOGBACK TANK BATTERY #2

SAMPLING POINT: HEATER TREATER

DATE SAMPLED : 4-28-82

SPECIFIC GRAVITY = 1.027

TOTAL DISSOLVED SOLIDS = 40747

PH = 7.42

		ME/L	MG/L
CATIONS			
CALCIUM	(CA)+2	17.3	347.
MAGNESIUM	(MG)+2	19.6	239.
SODIUM	(NA), CALC.	657.	15110.
ANIONS			
BICARBONATE	(HCO3)-1	16.8	1025.
CARBONATE	(CO3)-2	0	0
HYDROXIDE	(OH)-1	0	0
SULFATE	(SO4)-2	.65	31.5
CHLORIDES	(CL)-1	676.	23994.
DISSOLVED GASES			
CARBON DIOXIDE	(CO2)	NOT RUN	
HYDROGEN SULFIDE	(H2S)	NOT RUN	
OXYGEN	(O2)	NOT RUN	
IRON(TOTAL)	(FE)		3.6
BARIUM	(BA)+2	.36	25.1
MANGANESE	(MN)	NOT RUN	

SCALING INDEX	TEMP
	30C
	86F
CARBONATE INDEX	1.15
CALCIUM CARBONATE SCALING	LIKELY
SULFATE INDEX	-100
CALCIUM SULFATE SCALING	UNLIKELY

Gallup

UNICHEM INTERNATIONAL

601 NORTH LEECH

P.O. BOX 1499

HOBBS, NEW MEXICO 88240

COMPANY : ENERGY RESOURCES
 DATE : 5-6-82
 FIELD, LEASE & WELL : N.E. HOGBACK WELL #8
 SAMPLING POINT:
 DATE SAMPLED : 4-28-82

SPECIFIC GRAVITY = 1.029
 TOTAL DISSOLVED SOLIDS = 43892
 PH = 7.12

		ME/L	MG/L
CATIONS			
CALCIUM	(CA)+2	23.3	467.
MAGNESIUM	(MG)+2	12.6	153.
SODIUM	(NA).CALC.	712.	16371.
ANIONS			
BICARBONATE	(HCO3)-1	14.4	878.
CARBONATE	(CO3)-2	0	0
HYDROXIDE	(OH)-1	0	0
SULFATE	(SO4)-2	.54	26
CHLORIDES	(CL)-1	733.	25994.
DISSOLVED GASES			
CARBON DIOXIDE	(CO2)	0	0
HYDROGEN SULFIDE	(H2S)	4.5	76.6
OXYGEN	(O2)	NOT RUN	
IRON(TOTAL)	(FE)		1.6
BARIUM	(BA)+2	.07	5.3
MANGANESE	(MN)	NOT RUN	

SCALING INDEX	TEMP
	30C
	86F
CARBONATE INDEX	.968
CALCIUM CARBONATE SCALING	LIKELY
SULFATE INDEX	-121
CALCIUM SULFATE SCALING	UNLIKELY

Analysis of Water
Report

UNICHEM INTERNATIONAL

601 NORTH LEECH

P.O. BOX 1499

HOBBS, NEW MEXICO 88240

COMPANY : CHACE OIL CO.
DATE : 9-5-84
FIELD, LEASE & WELL : JICARILLA 71-30
SAMPLING POINT: SEPERATOR
DATE SAMPLED : 8-27-84

SPECIFIC GRAVITY = 1.01
TOTAL DISSOLVED SOLIDS = 17892
PH = 7.67

		ME/L	MG/L
CATIONS			
CALCIUM	(CA)+2	5	100.
MAGNESIUM	(MG)+2	5	60.7
SODIUM	(NA), CALC.	290.	6674.
ANIONS			
BICARBONATE	(HCO3)--1	13.4	817.
CARBONATE	(CO3)-2	0	0
HYDROXIDE	(OH)-1	0	0
SULFATE	(SO4)-2	4.9	237.
CHLORIDES	(CL)-1	282	10000
DISSOLVED GASES			
CARBON DIOXIDE	(CO2)	NOT RUN	
HYDROGEN SULFIDE	(H2S)	NOT RUN	
OXYGEN	(O2)	NOT RUN	
IRON(TOTAL)	(FE)		1.7
BARIUM	(BA)+2	.03	1.8
MANGANESE	(MN)	NOT RUN	

IONIC STRENGTH (MOLAL) = .313

SCALING INDEX	TEMP
	30C 48.8C
	86F 120F
	.252 .653
CARBONATE INDEX	
CALCIUM CARBONATE SCALING	LIKELY LIKELY
CALCIUM SULFATE INDEX	
CALCIUM SULFATE SCALING	-46. -46.
	UNLIKELY UNLIKELY

Dakota/Greenhorn
Gallup - Combined

UNICHEM INTERNATIONAL

601 NORTH LEECH

P.O. BOX 1499

HOBBS, NEW MEXICO 88240

COMPANY : CHACE OIL CO.
DATE : 9-5-84
FIELD, LEASE & WELL : JICARILLA 71-27
SAMPLING POINT: SEPERATOR
DATE SAMPLED : 8-27-84

SPECIFIC GRAVITY = 1.003
TOTAL DISSOLVED SOLIDS = 6747
PH = 7.96

		ME/L	MG/L
CATIONS			
CALCIUM	(CA)+2	1.5	30.0
MAGNESIUM	(MG)+2	1.8	22.2
SODIUM	(NA), CALC.	110.	2533.
ANIONS			
BICARBONATE	(HCO3)-1	.6	36.6
CARBONATE	(CO3)-2	0	0
HYDROXIDE	(OH)-1	0	0
SULFATE	(SO4)-2	10.9	525.
CHLORIDES	(CL)-1	102	3600
DISSOLVED GASES			
CARBON DIOXIDE	(CO2)	NOT RUN	
HYDROGEN SULFIDE	(H2S)	NOT RUN	
OXYGEN	(O2)	NOT RUN	
IRON(TOTAL)	(FE)		1.4
BARIUM	(BA)+2	0	.2
MANGANESE	(MN)	NOT RUN	

IONIC STRENGTH (MOIAL) = .122

SCALING INDEX	TEMP	
	30C	48.8C
	86F	120F
CARBONATE INDEX	-.88	-.47
CALCIUM CARBONATE SCALING	UNLIKELY	UNLIKELY
CALCIUM SULFATE INDEX	-26.	-26.
CALCIUM SULFATE SCALING	UNLIKELY	UNLIKELY

not to be used / Duplicate
Unrefined

UNICHEM INTERNATIONAL

601 NORTH LEECH

P.O. BOX 1499

MOBES, NEW MEXICO 88240

COMPANY : LEASE OIL COMPANY
DATE : 4-19-84
FIELD, LEASE, WELL : WELL #71-14
SAMPLING POINT: SEPARATORS
DATE SAMPLED : 4-11-84

SPECIFIC GRAVITY = 1.009
TOTAL DISSOLVED SOLIDS = 17604
PH = 7.69

		MG/L	MC/L
CATIONS			
CALCIUM	(CA)+2	5.3	106.
MAGNESIUM	(MG)+2	1.3	16.2
SODIUM	(NA), CALC.	289.	6657.
ANIONS			
BICARBONATE	(HCO3)-1	10.6	646.
CARBONATE	(CO3)-2	0	0
HYDROXIDE	(OH)-1	0	0
SULFATE	(SO4)-2	3.6	175
CHLORIDES	(CL)-1	282	10000
DISSOLVED GASES			
CARBON DIOXIDE	(CO2)	NOT RUN	
HYDROGEN SULFIDE	(H2S)	NOT RUN	
OXYGEN	(O2)	NOT RUN	
IRON(TOTAL)	(FE)		11
BARIUM	(BA)+2	63	2
MANGANESE	(MN)	NOT RUN	

IONIC STRENGTH (MOLAL) = .306

SCALING INDEX	TEMP
	30C 48.8C
	86F 120F
CARBONATE INDEX	.206 .607
CALCIUM CARBONATE SCALING	LIKELY LIKELY
CALCIUM SULFATE INDEX	-.46. -.46.
CALCIUM SULFATE SCALING	UNLIKELY UNLIKELY

Dakota /Gallup /Greenhorn - Combined

UNICHEM INTERNATIONAL

401 NORTH LEECH

P.O. BOX 1499

MOERS, NEW MEXICO 88240

COMPANY : CHASE OIL COMPANY
DATE : 4-19-84
FIELD/LEASE/WELL : WELL #71-21
SAMPLING POINT: SEPARATORS
DATE SAMPLED : 4-11-84

SPECIFIC GRAVITY = 1.009
TOTAL DISSOLVED SOLIDS = 15493
FM = 8.3

		MG/L	MG/L
CATIONS			
CALCIUM	(CA)+2	2.6	53.4
MAGNESIUM	(MG)+2	2.6	32.3
SODIUM	(NA), CALC.	257.	5910.
ANIONS			
BICARBONATE	(HCO3)-1	7	427.
CARBONATE	(CO3)-2	0	0
HYDROXIDE	(OH)-1	0	0
SULFATE	(SO4)-2	1.4	68
CHLORIDES	(CL)-1	254	9000
DISSOLVED GASES			
CARBON DIOXIDE	(CO2)	NOT RUN	
HYDROGEN SULFIDE	(H2S)	NOT RUN	
OXYGEN	(O2)	NOT RUN	
IRON(TOTAL)	(FE)		6.4
BARIUM	(BA)+2	.03	2.4
MANGANESE	(MN)	NOT RUN	

IONIC STRENGTH (MOLAL) = .269

SCALING INDEX	TEMP	
	30C	48.8C
	86F	120F
CARBONATE INDEX	.382	.781
CALCIUM CARBONATE SCALING	LIKELY	LIKELY
CALCIUM SULFATE INDEX	-.45	-.46
CALCIUM SULFATE SCALING	UNLIKELY	UNLIKELY

UNICHEM INTERNATIONAL

601 NORTH LEECH

P.O. BOX 1499

HOBBS, NEW MEXICO 88240

COMPANY : ENERGY RESERVES GROUP
 DATE : 7-3-84
 FIELD, LEASE & WELL : OH RANDAL DAKOTA
 SAMPLING POINT: SEPARATOR
 DATE SAMPLED : 6-29-84

SPECIFIC GRAVITY = 1
 TOTAL DISSOLVED SOLIDS = 48
 PH = 6.29

		ME/L	MG/L
CATIONS			
CALCIUM	(CA)+2	.4	8.0
MAGNESIUM	(MG)+2	.2	2.4
SODIUM	(NA).CALC.	.02	.45
ANIONS			
BICARBONATE	(HCO3)-1	.6	36.6
CARBONATE	(CO3)-2	0	0
HYDROXIDE	(OH)-1	0	0
SULFATE	(SO4)-2	.02	1
CHLORIDES	(CL)-1	0	0
DISSOLVED GASES			
CARBON DIOXIDE	(CO2)	NOT RUN	
HYDROGEN SULFIDE	(H2S)	NOT RUN	
OXYGEN	(O2)	NOT RUN	
IRON(TOTAL)	(FE)		27.1
BARIUM	(BA)+2	0	.2
MANGANESE	(MN)	NOT RUN	

ONIC STRENGTH (MOLAL) = 1E-03

SCALING INDEX	TEMP
	30C 48.5C
	86F 120F
CARBONATE INDEX	2.66 3.06
CALCIUM CARBONATE SCALING	LIKELY LIKELY
CALCIUM SULFATE INDEX	-19. -19.
CALCIUM SULFATE SCALING	UNLIKELY UNLIKELY

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601 NORTH LEECH

P.O. BOX 1499

HOBBS, NEW MEXICO 88240

COMPANY : ODESSA NATURAL
DATE 10-14-83
FIELD, LEASE & WELL CHACON JICARILLA D #3
SAMPLING POINT: WELLHEAD
DATE SAMPLED : 10-7-83

SPECIFIC GRAVITY = 1.01
TOTAL DISSOLVED SOLIDS = 16158
PH = 6.98

		ME/L	MG/L
CATIONS			
CALCIUM	(CA)+2	10	200.
MAGNESIUM	(MG)+2	39	474.
SODIUM	(NA).CALC.	231.	5325.
ANIONS			
BICARBONATE	(HCO3)-1	6.4	390.
CARBONATE	(CO3)-2	0	0
HYDROXIDE	(OH)-1	0	0
SULFATE	(SO4)-2	3.5	170
CHLORIDES	(CL)-1	270.	9597.
DISSOLVED GASES			
CARBON DIOXIDE	(CO2)	NOT RUN	
HYDROGEN SULFIDE	(H2S)	NOT RUN	
OXYGEN	(O2)	NOT RUN	
IRON(TOTAL)	(FE)		3712.
BARIUM	(BA)+2		0.68
MANGANESE	(MN)	NOT RUN	

SCALING INDEX	TEMP
	30C
	86F
CARBONATE INDEX	-1.45
CALCIUM CARBONATE SCALING	UNLIKELY
SULFATE INDEX	-14.
CALCIUM SULFATE SCALING	UNLIKELY

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601 NORTH LEECH

P.O. BOX 1499

HORRES, NEW MEXICO 88240

COMPANY : ENERGY RESERVES GROUP

DATE : 5-22-84

FIELD, LEASE & WELL : E.H. PIPKIN WELL #8 DAKOTA FIELD

SAMPLING POINT: WELLHEAD

DATE SAMPLED : 5-15-84

SPECIFIC GRAVITY = 1

TOTAL DISSOLVED SOLIDS = 734

PH = 7.61

		ME/L	MG/L
CATIONS			
CALCIUM	(CA)+2	.6	12.0
MAGNESIUM	(MG)+2	.5	6.0
SODIUM	(NA).CALC.	9.6	222.
ANIONS			
BICARBONATE	(HCO3)-1	3.2	195.
CARBONATE	(CO3)-2	0	0
HYDROXIDE	(OH)-1	0	0
SULFATE	(SO4)-2	.58	28
CHLORIDES	(CL)-1	7	260
DISSOLVED GASES			
CARBON DIOXIDE	(CO2)	NOT RUN	
HYDROGEN SULFIDE	(H2S)	NOT RUN	
OXYGEN	(O2)	NOT RUN	
IRON(TOTAL)	(FE)		23.3
BARIUM	(BA)+2	.16	11
MANGANESE	(MN)	NOT RUN	

IONIC STRENGTH (MOLAL) = .012

SCALING INDEX	TEMP	
	30C	90C
	86F	194F
CARBONATE INDEX	1.28	3.17
CALCIUM CARBONATE SCALING	LIKELY	LIKELY
CALCIUM SULFATE INDEX	-19.	-19.
CALCIUM SULFATE SCALING	UNLIKELY	UNLIKELY