

U. S. NATURAL GAS CORPORATION
SANTA FE #1
SECTION 7, T-17-N, R-8-W
McKINLEY COUNTY, NEW MEXICO

SAMPLE DESCRIPTION

Samples Start in Cretaceous Menefee Formation

<u>FROM</u>	<u>TO</u>	<u>MIN. PER</u> <u>5 FEET</u>	
150' -	160'	4/3	Shale, light to medium gray, silty in part, bentonitic.
160' -	170'	3/4	Sandstone, light gray, very fine to fine grain, bentonitic, occasionally some medium grain, sub-round to round.
170' -	180'	3/3	Shale, light to medium gray, soft, bentonitic.
180' -	190'	2/2	Shale, as above, plus 50% Sandstone, as above.
190' -	200'	2/4	Shale, as above, plus trace Sandstone, as above.
200' -	210'	3/4	Shale, as above, plus trace Sandstone.
210' -	220'	4/4	Shale, as above, plus trace Sandstone, as above.
220' -	230'	5/4	Sandstone, light gray, fine to medium gray, sub-angular, friable, pink chert grains, bentonitic.
230' -	240'	4/4	Sandstone, as above.
240' -	250'	4/5	Sandstone, as above, becoming very fine to fine grain.
250' -	260'	6/4	Sandstone, as above, trace carbonaceous trash, plus Shale, light gray, bentonitic.
260' -	270'	4/2	Missing.
270' -	280'	2/3	Missing.
280' -	290'	2/2	Sandstone, as above, becoming very silty, plus 50% Shale, light gray, bentonitic.
290' -	300'	4/3	Sandstone, as above, trace Coal.
300' -	310'	3/4	Shale, light gray, silty, bentonitic, plus Sandstone, as above.



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SANTA FE #1
SAMPLE DESCRIPTION
PAGE TWO

<u>FROM</u>	<u>TO</u>	<u>MIN. PER</u> <u>5 FEET</u>	
310' -	320'	4/8	Sandstone, as above, plus Shale, light gray, bentonitic, silty, as above.
320' -	330'	3/2	Mixture Sandstone and Shale, as above.
330' -	340'	3/3	As above.
340' -	350'	4/4	Sandstone, as above, plus trace Shale, dark brown, carbonaceous plus trace Coal.
350' -	360'	5/3	Sandstone, as above, plus Shale, light gray, bentonitic.
360' -	370'	3/3	Sandstone, as above, plus Shale, light gray, bentonitic.
370' -	380'	2/2	Shale, light gray, bentonitic, silty plus Sandstone, as above.
380' -	390'	3/4	Shale, as above, plus Sandstone, as above.
390' -	400'	5/4	Sandstone, loose to firm, bentonitic.
400' -	410'	4/5	Sandstone, plus Shale, as above.
410' -	420'	4/4	Coal.
420' -	430'	4/5	Coal plus Shale, as above.
430' -	440'	4/5	Coal plus Shale, as above.
440' -	450'	5/5	Shale, light gray, very bentonitic, silty in part.
450' -	460'	5/5	Shale, as above.
460' -	470'	5/5	Shale, light gray brown, sandy, carbonaceous.
470' -	480'	6/4	Shale, light gray brown, light gray green, in part carbonaceous trash.
480' -	490'	4/3	Sandstone, light gray to light buff, some tan spots, very fine to fine grain.

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SAMPLE DESCRIPTION
PAGE THREE

<u>FROM</u>	<u>TO</u>	<u>MIN. PER</u> <u>5 FEET</u>	
490' -	500'	4/5	Sandstone, as above, very fine to fine with some fine to medium grain, angular to subround.
500' -	510'	3/4	Sandstone, as above.
510' -	520'	5/6	Sandstone, very light gray to white, fine grain, angular to subangular, salt and pepper, loose, sorted.
520' -	530'	10/12	Sandstone, as above, clean looking.
530' -	540'	5/7	Sandstone, as above.
540' -	550'	9/9	Sandstone, as above.
550' -	560'	12/14	Sandstone, as above.
560' -	570'	4/6	Sandstone, as above.
570' -	580'	7/10	Sandstone, as above.
580' -	590'	7/8	Sandstone, as above.
590' -	600'	6/10	Sandstone, as above.
610' -	620'	12/7	Sandstone, as above.
620' -	630'	5/6	Sandstone, as above.
630' -	640'	5/7	Sandstone, as above.
640' -	650'	8/	Sandstone, light gray, very fine grain, shaley, bentonitic.
650' -	660'		Sandstone, light gray, very fine to fine grain.
660' -	670'		Sandstone, light to medium gray, very fine grain, silty, shaley plus Shale, light to medium gray.
670' -	680'		Sandstone, as above.
680' -	690'	7/7	Sandstone, very light to light gray, very fine to fine grain, clean looking.

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SAMPLE DESCRIPTION
PAGE FOUR

<u>FROM</u>	<u>TO</u>	<u>MIN. PER</u> <u>5 FEET</u>	
690' -	700'	7/17	Sandstone, as above.
700' -	710'	8/7	Sandstone, as above.
710' -	720'	4/4	Sandstone, as above.
720' -	730'	4/4	Sandstone, as above.
730' -	740'	4/5	Sandstone, as above.
740' -	750'	5/6	Siltstone, light to medium gray, very finely sandy and shaley, pyritic, salt and pepper.
750' -	760'	6/6	Siltstone, as above.
760' -	770'	6/6	Siltstone, as above.
770' -	780'	5/7	Siltstone, less sandy, mostly shaley, grading to Shale, medium gray, silty.
780' -	790'	7/7	Shale, medium gray, silty, very bentonitic, grading to Siltstone, as above.
790' -	800'	8/7	Shale, medium gray, grading to Siltstone, as above.
800' -	810'	7/8	Siltstone, as above, grading to Shale, as above.
810' -	820'	9/9	Shale, light to medium gray, very bentonitic plus trace Siltstone, as above.
820' -	830'	8/8	Shale, light green, subwaxy, plus Shale, as above, plus Siltstone, as above.
830' -	840'	11/14	Shale, light gray, grading to Siltstone, as above.
840' -	850'	22/22	Sandstone, light to medium gray, very fine to fine grain, slightly glauconitic, firm to hard, clean looking, calcareous, plus Shale, silty and sandy, plus Siltstone, as above.

SANTA FE #1
SAMPLE DESCRIPTION
PAGE FIVE

FROM	TO	MIN. PER 5 FEET	
850' -	860'	9/9	Sandstone, light to medium gray, very fine grain, silty, friable, micaceous, very slightly glauconitic grading to Siltstone, as above.
860' -	870'	7/4	Sandstone, light to medium gray, very fine to fine grain, carbonaceous, rest as above, shaley in part, grading to Siltstone, as above, plus trace bright green Siltstone.
870' -	880'	5/5	Siltstone, medium gray, finely sandy and shaley, pyritic, plus Shale, medium gray.
880' -	890'	10/15	Siltstone, as above.
890' -	900'	11/6	Siltstone, as above, finely carbonaceous in part, plus Shale, as above.
900' -	910'	6/6	Siltstone, as above, plus Shale, as above.
910' -	920'	6/6	Siltstone, as above, plus Shale, as above.
920' -	930'	7/4	Siltstone, as above, grading to Shale, light to medium gray, finely silty.
930' -	940'	5/6	Siltstone, as above, grading to Shale, as above.
940' -	950'	5/6	Siltstone, as above, grading to Shale, as above.
950' -	960'	5/6	Siltstone, as above, shaley and micaceous, grading to Shale, as above.
960' -	970'	3/10	Siltstone, as above, shaley and micaceous, grading to Shale, as above.
970' -	980'	11/11	Siltstone, as above, shaley and micaceous, grading to Shale, as above.
980' -	990'	6/4	Sandstone, light gray, very fine grain, friable to firm, silty in part, grading to Siltstone, as above.
990' -	1000'	4/4	Siltstone, as above, grading to Sandstone, as above, plus Shale, as above.

SANTA FE #1
SAMPLE DESCRIPTION
PAGE SIX

<u>FROM</u>	<u>TO</u>	<u>MIN. PER</u> <u>5 FEET</u>	
1000' - 1010'	4/10	Sample, as above.	
1010' - 1020'	4/4	Sample, as above.	
1020' - 1030'	6/5	Sandstone, light gray, very fine grain, loose, salt and pepper, clean to dirty, slightly glauconitic, slightly micaceous.	
1030' - 1040'	6/10	Sandstone, as above, very fine to fine grain, pink chert grains, friable to loose, as above, trace pyrite.	
1040' - 1050'	6/6	Sandstone, as above, with some white clay matrix, friable to loose, as above, trace pyrite.	
1050' - 1060'	6/5	Sandstone, as above, with some white clay matrix, friable to loose, as above, trace pyrite.	
1060' - 1070'	5/5	Sandstone, as above, with some hard.	
1070' - 1080'	5/6	Sandstone, as above, becoming clay filled.	
1080' - 1090'	9/20	Sandstone, as above, silty in part.	
1090' - 1100'	9/8	Sandstone, as above, with streaks of Shale, light to medium gray, micaceous.	
1100' - 1110'	7/5	Sandstone, as above, pyritic, with streaks of Shale, light to medium gray, micaceous.	
1110' - 1120'	7/7	Sandstone, as above, with streaks of Shale, light to medium gray, micaceous.	
1120' - 1130'	12/5	Sandstone, as above, with streaks of Shale, as above.	
1130' - 1140'	5/5	Sandstone, as above, with streaks of Shale, as above.	
1140' - 1150'	6/7	Sandstone, as above, with streaks of Shale, as above.	
1150' - 1160'	5/16	Sandstone, as above, with streaks of Shale, as above.	

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SAMPLE DESCRIPTION
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FROM	TO	MIN. PER 5 FEET	
1160' - 1170'	5/7	Sandstone, as above, with streaks of Shale, as above.	
1170' - 1180'	6/7	Sandstone, as above, very fine grain, white clay matrix, with streaks of Shale, as above.	
1180' - 1190'	7/7	Siltstone, light gray, very finely sandy, white clay matrix plus streaks of Shale, as above.	
1190' - 1200'	8/3	Sample, as above, (loose as very fine grain Sandstone) plus streaks of Shale, as above.	
1200' - 1210'	3/4	Siltstone, as above, plus streaks of Shale, as above.	
1210' - 1220'	4/4	Siltstone, as above, white clay matrix, plus streaks of Shale, as above.	
1220' - 1230'	5/5	Siltstone, as above, white clay matrix, plus streaks of Shale, as above.	
1230' - 1240'	4/5	Siltstone, as above, white clay matrix, plus streaks of Shale, as above.	
1240' - 1250'	5/5	Siltstone, as above, white clay matrix, plus streaks of Shale, as above.	
1250' - 1260'	5/4	Siltstone, as above.	
1260' - 1270'	4/5	Siltstone, as above.	
1270' - 1280'	5/5	Siltstone, as above.	
1280' - 1290'	4/5	Siltstone, as above.	
1290' - 1300'	6/6	Shale, very light gray, silty in part, bentonitic, trace carbonaceous trash, grading to Siltstone, light gray, finely sandy, bentonitic.	
1300' - 1310'	5/5	Siltstone, very light gray, very finely sandy, bentonitic, carbonaceous trash, firm, plus trace Shale, as above.	

SANTA FE #1
SAMPLE DESCRIPTION
PAGE EIGHT

FROM	TO	MIN. PER 5 FEET	
1310' - 1320'	5/4	Siltstone, as above, with some firm to hard.	
1320' - 1330'	5/5	Shale, as above, very bentonitic, silty, grading to Siltstone, as above, soft.	
1330' - 1340'	4/5	Siltstone, as above, soft to firm.	
1340' - 1350'	5/5	Siltstone, as above, soft.	
1350' - 1360'	6/6	Siltstone, as above.	
1360' - 1370'	7/8	Missed.	
1370' - 1380'	8/9	Siltstone, as above, plus 40% Shale, light gray, subwaxy, grading to Shale, as above.	
1380' - 1390'	8/10	Shale, as above, plus streak Siltstone, as above.	
1390' - 1400'	9/11	Shale, as above, buff to light brown, light gray green, blocky, subwaxy, trace carbonaceous trash.	
1400' - 1410'	12/11	Shale, as above, plus heavy trace Siltstone, as above.	
1410' - 1420'	16/15	Shale, light gray sheen, very bentonitic.	
1420' - 1430'	14/16	Shale, as above, less bentonitic, plus 25% Siltstone, as above.	
1430' - 1440'	17/16	Siltstone, as above, with 30-40% Shale, light gray, trace tan.	
1440' - 1450'	25/22	Siltstone, as above, slightly glauconitic, loose to friable with some friable to firm plus 20% Shale, light to medium grays.	
1450' - 1460'	14/15	Siltstone, as above, grading to Sandstone, white to light gray, very fine grain, very slightly glauconitic, in part clean, pyritic, plus Shale, as above.	
1460' - 1470'	40/6	Shale, as above, plus Sandstone, as above, plus Siltstone, as above.	

SANTA FE #1
SAMPLE DESCRIPTION
PAGE NINE

FROM	TO	MIN. PER <u>5 FEET</u>	
1470' - 1480'	6/7		Sandstone, very light gray, very fine to occasionally fine grain, friable to firm, occasionally slightly glauconitic, pyritic, grading to Siltstone, finely sandy, as above, plus Shale, as above.
1480' - 1490'	6/6		Sandstone, as above, finely carbonaceous, grading to Siltstone, as above, plus Shale, as above.
1490' - 1500'	6/6		Sandstone, as above, some hard, grading to Siltstone, as above.
1500' - 1510'	6/8		Sandstone, white to light gray, bentonitic in part, friable to hard, micaceous in part, silty, glauconitic grading in part to Siltstone, finely sandy, shaley.
1510' - 1520'	8/9		Sandstone, as above, micaceous in part, shaley in part, grading to Siltstone, as above.
1520' - 1530'	10/15		Sandstone, light gray, mostly hard to very hard, calcareous, grading to Siltstone, finely sandy, firm plus 30-40% Shale, medium to dark gray, (all laminated).
1530' - 1540'	15/17		Sandstone, very fine grain to Siltstone, as above, grading to Siltstone, as above, silty.
1540' - 1550'	18/20		Sandstone, as above, scattered stain, grading to Siltstone.
1550' - 1560'	22/30		30% Siltstone, light to medium gray, firm to very hard, calcareous, finely sandy plus Shale, medium gray, silty, trace Inoceramous.
1560' - 1570'	35/25		Siltstone, as above, alternating with laminae of Shale, as above, firm in part, trace Inoceramous.
1570' - 1580'	24/28		Siltstone, as above, alternating with laminae of Shale, as above, trace Inoceramous.
1580' - 1590'	20/25		Siltstone, as above, grading to Shale, as above.
1590' - 1600'	20/25		Siltstone, as above, plus Shale, as above, silty, trace Inoceramous.

SANTA FE #1
SAMPLE DESCRIPTION
PAGE TEN

FROM	TO	MIN. PER 5 FEET	
1600' - 1610'		20/	Samples, as above.
1610' - 1620'			Samples, as above.
1620' - 1630'			Samples, as above.
1630' - 1635'			Sandstone, white to light gray, friable, clean looking, some clay matrix, spotty brown stain, occasional medium grain to subround.
1636' - 1661'			<u>Core #1</u> Recovered 25 feet. 12' Shale, dark gray to black, hard, calcareous with streak silty Shale fossil. 13' Shale, medium to dark gray, silty and finely sandy, grading in part to Siltstone, light to medium gray, finely sandy and shaley with streaks of Shale, dark gray to black, as above, trace carbonaceous trash and plant impressions.
1660' - 1670'		15/15	Caving, Shale, dark gray, silty and finely sandy in part.
1670' - 1680'		25/20	Shale, as above, grading to Siltstone, medium gray, finely sandy, glauconitic, trace pyrite.
1680' - 1690'		10/10	Shale, as above, grading to Siltstone, as above, plus Sandstone, white to very light gray, very fine to fine grain, white clay matrix, friable, slightly glauconitic.
1690' - 1700'		15/10	Sandstone, white to light gray, very fine grain, clean clay filled, friable to firm, slightly glauconitic, questionable light spotty stain and yellow fluorescence, tight to fair porosity and permeability.
1700' - 1710'		15/11	Sandstone, as above, very fine to fine grain, rest as above, pyritic, questionable light brown spotty stain and yellow fluorescence, tight to fair porosity and permeability.

SANTA FE #1
SAMPLE DESCRIPTION
PAGE ELEVEN

FROM	TO	MIN. PER 5 FEET
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1710' - 1720'	11/16	Sandstone, as above, plus some fine to medium grain subround, salt and pepper, rest, as above, some good porosity and permeability.
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1720' - 1724'		Sandstone, as above, pink chert grains, as above.
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1724' - 1750'		<u>Core #2</u>
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Recovered 26 feet.

2' Sandstone, light gray, very fine grain, silty in part, clay filled, tight, Shale lamination, no show. 4' Shale, black, hard, calcareous. 9' Sandstone, light gray, very fine to fine grain, very silty, micaceous, clay filled, tight to fair porosity and permeability, numerous Shale laminations, no show. 11' Shale, black, alternating with thin streaks and blebs of Siltstone, light to medium gray, very finely sandy.

1750' - 1775'		<u>Core #3</u>
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Recovered 25 feet.

9' Sandstone and Shale in alternating laminations to 1" streaks. 3½' Sandstone, light gray, fine grain, clean looking, sorted, fair to good porosity and permeability, looks wet, no show. 10½' Shale, black with occasional laminations and stringers of Sandstone and Siltstone, as above. 2' Sandstone, light gray, fine grain, friable to firm with numerous laminations of Shale, no show.

1775' - 1810'		Sandstone, very light gray, fine grain with some fine to medium grain, loose to friable, subangular to subround, some clay matrix, good sorting, clean looking, occasional coarse angular grain, good to excellent porosity and permeability, trace Glauconite, no show, looks wet.
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1810' - 1870'		Sandstone, light gray, very fine to fine grain, as above, increase in clay matrix in part, pyritic in part, occasional trace pink and amber grains, no show, looks wet.
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