File Notations

Entered in NID File Prior to OGC ..... Checked by Chief .....

Location Map Pinned ..... Approval Letter .....

Card Indexed ✓ ..... Disapproval Letter .....

COMPLETION DATA:

Date Well Completed 9-..-54 Location Inspected .....

OW..... WW..... TA..... Bond released

GW..... OS..... PA.✓... State or Fee Land .....

LOGS FILED

Driller's Log ✓.....

Electric Logs (No.) .....

E..... I..... Dual I Lat..... GR-N..... Micro.....

BHC Sonic GR..... Lat..... M-L..... Sonic.....

CBLog..... CCLog..... Other ....

Budget Bureau 42-R358.2.
Approval expires 12-31-62.

Land Office SALT LAKE CITY

Lease No. SL-070515

Unit Not Unitized

(SUBMIT IN TRIPLICATE)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

ORIGINAL FORWARDED TO CASPER

RECEIVED
JUN 4 - 1954
SALT LAKE CITY, UTAH

SUNDRY NOTICES AND REPORTS ON WELLS

NOTICE OF INTENTION TO DRILL	X	SUBSEQUENT REPORT OF WATER SHUT-OFF	
NOTICE OF INTENTION TO CHANGE PLANS		SUBSEQUENT REPORT OF SHOOTING OR ACIDIZING	
NOTICE OF INTENTION TO TEST WATER SHUT-OFF		SUBSEQUENT REPORT OF ALTERING CASING	
NOTICE OF INTENTION TO RE-DRILL OR REPAIR WELL		SUBSEQUENT REPORT OF RE-DRILLING OR REPAIR	
NOTICE OF INTENTION TO SHOOT OR ACIDIZE		SUBSEQUENT REPORT OF ABANDONMENT	
NOTICE OF INTENTION TO PULL OR ALTER CASING		SUPPLEMENTARY WELL HISTORY	
NOTICE OF INTENTION TO ABANDON WELL			

(INDICATE ABOVE BY CHECK MARK NATURE OF REPORT, NOTICE, OR OTHER DATA)

June 4, 1954

Well No. 1 is located 660 ft. from {N/S} line and 660 ft. from {E/W} line of sec. 20

NE 1/4 Sec. 20 (¼ Sec. and Sec. No.) 23 S (Twp.) 19 E (Range) Salt Lake (Meridian)

Wildcat (Field) Grand County (County or Subdivision) Utah (State or Territory)

The elevation of the derrick floor above sea level is ..... ft. To be determined

DETAILS OF WORK

(State names of and expected depths to objective sands; show sizes, weights, and lengths of proposed casings; indicate mudding jobs, cementing points, and all other important proposed work)

This well will be carried in our files as THE EQUITY OIL COMPANY
No. 1 Donohue (Gov't)
(Stratigraphic Test)

Since the well is to be a stragigraphic test, it is requested that all information relative to the well be kept confidential.

The well will commence in the Mancos shale section of Cretaceous age and be drilled to a depth of approximately 5000 feet or to a depth sufficient to penetrate beds believed to be Permian in age. Do to the high degree of variation in thickness of the local stratigraphic section, no estimate will be submitted as to the anticipated depth of marker formations. Formation tops will be reported as soon as recognized.

(O V E R)

I understand that this plan of work must receive approval in writing by the Geological Survey before operations may be commenced.

Company EQUITY OIL COMPANY

Address 806 Utah Oil Building

Salt Lake City, Utah

By V. C. Peterson

Title Vice President

Form 9-331a
(Feb. 1951)

Budget Bureau 42-R358.2.
Approval expires 12-31-52.

(SUBMIT IN TRIPLICATE)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

ORIGINAL FORWARDED TO CASPER

Land Office Salt Lake City
Lease No. SL-070515
Unit Not Unitized

RECEIVED
JUN 22 1954
GEOLOGICAL SURVEY
SALT LAKE CITY, UTAH

SUNDRY NOTICES AND REPORTS ON WELLS

NOTICE OF INTENTION TO DRILL		SUBSEQUENT REPORT OF WATER SHUT-OFF	
NOTICE OF INTENTION TO CHANGE PLANS		SUBSEQUENT REPORT OF SHOOTING OR ACIDIZING	
NOTICE OF INTENTION TO TEST WATER SHUT-OFF		SUBSEQUENT REPORT OF ALTERING CASING	
NOTICE OF INTENTION TO RE-DRILL OR REPAIR WELL		SUBSEQUENT REPORT OF RE-DRILLING OR REPAIR	
NOTICE OF INTENTION TO SHOOT OR ACIDIZE		SUBSEQUENT REPORT OF ABANDONMENT	
NOTICE OF INTENTION TO PULL OR ALTER CASING		SUPPLEMENTARY WELL HISTORY	
NOTICE OF INTENTION TO ABANDON WELL		Subsequent Report of Setting Surface Pipe	X

(INDICATE ABOVE BY CHECK MARK NATURE OF REPORT, NOTICE, OR OTHER DATA)

June 21, 1954

Well No. 1 is located 660 ft. from {N/S} line and 660 ft. from {E/W} line of sec. 20

NE¼ Sec. 20 (¼ Sec. and Sec. No.) 23 So. (Twp.) 19 E. (Range) SLM (Meridian)

Wildcat Courthouse (Field) Grand (County or Subdivision) Utah (State or Territory)

The elevation of the derrick floor above sea level is ..... ft.

DETAILS OF WORK

(State names of and expected depths to objective sands; show sizes, weights, and lengths of proposed casings; indicate mudding jobs, cementing points, and all other important proposed work)

6-9-54 - Set 270.28 feet (From Surface - 293-28 from R T) 10 3/4" OD, 32# Surface Casing with 145 sacks. Cement circulated to surface. Halliburton shoe and float used. Float 30 feet above shoe.

I understand that this plan of work must receive approval in writing by the Geological Survey before operations may be commenced.

Company Equity Oil Company

Address 806 Utah Oil Building

Salt Lake City, Utah

By W. B. Peterson

Title Vice President

Approved 6-28-54

District Engineer

U. S. GOVERNMENT PRINTING OFFICE 16—84237-4

Form 9-331a
(Feb. 1951)

Budget Bureau 42-R358.2.
Approval expires 12-31-52.

20

(SUBMIT IN TRIPLICATE)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

ORIGINAL FORWARDED TO CASPER

Land Office Salt Lake City
Lease No. SL-070515
Unit Not Unitized

RECEIVED
SEP 9 - 1954

SUNDRY NOTICES AND REPORTS ON WELLS

NOTICE OF INTENTION TO DRILL		SUBSEQUENT REPORT OF WATER SHUT-OFF	
NOTICE OF INTENTION TO CHANGE PLANS		SUBSEQUENT REPORT OF SHOOTING OR ACIDIZING	
NOTICE OF INTENTION TO TEST WATER SHUT-OFF		SUBSEQUENT REPORT OF ALTERING CASING	
NOTICE OF INTENTION TO RE-DRILL OR REPAIR WELL		SUBSEQUENT REPORT OF RE-DRILLING OR REPAIR	
NOTICE OF INTENTION TO SHOOT OR ACIDIZE		SUBSEQUENT REPORT OF ABANDONMENT	
NOTICE OF INTENTION TO PULL OR ALTER CASING		SUPPLEMENTARY WELL HISTORY	
NOTICE OF INTENTION TO ABANDON WELL	X		

(INDICATE ABOVE BY CHECK MARK NATURE OF REPORT, NOTICE, OR OTHER DATA)

September 8, 1954

Well No. 1 is located 660 ft. from {N/S} line and 660 ft. from {E/W} line of sec. 20

NE¼ 20 (¼ Sec. and Sec. No.) 23 S (Twp.) 19E (Range) SLM (Meridian)

Wildcat (Courthouse) (Field) Grand (County or Subdivision) Utah (State or Territory)

The elevation of the derrick floor above sea level is 4515 ft. KB
4503 ft. Gr.

DETAILS OF WORK

(State names of and expected depths to objective sands; show sizes, weights, and lengths of proposed casings; indicate mudding jobs, cementing points, and all other important proposed work)

No. 1 Donohue has been drilled to a total depth of 6,618 feet. We propose to plug and abandon as per telephone approval by Mr. Seeville given this morning as follows: Cored from 3922' to T.D. No tests, No lost circulation.
Set cement plug bottom at 4,020 with 35 sacks. Set cement plug bottom at 310 feet with 35 sacks.

Placed ten sacks in top of surface casing and weld plate on top of surface casing with 4" marker 4 feet high welded to this plate with regulation markings on marker.

I understand that this plan of work must receive approval in writing by the Geological Survey before operations may be commenced.

Company Equity Oil Company

Address 800 Utah Oil Building

Salt Lake City, Utah

By J. T. Dougan

Title President

Approved 9-9-54
E. C. Smith

U. S. GOVERNMENT PRINTING OFFICE 16—43219-4

Form 9-331a
(Feb. 1961)

Budget Bureau 42-R358.2.
Approval expires 12-31-52.

	2	5	

(SUBMIT IN TRIPLICATE)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Land Office Salt Lake City
Lease No. 070515
Unit Not Unitized

ORIGINAL FORWARDED TO U.S.G.S.

JAN 14 1955

SUNDRY NOTICES AND REPORTS ON WELLS

NOTICE OF INTENTION TO DRILL		SUBSEQUENT REPORT OF WATER SHUT-OFF	
NOTICE OF INTENTION TO CHANGE PLANS		SUBSEQUENT REPORT OF SHOOTING OR ACIDIZING	
NOTICE OF INTENTION TO TEST WATER SHUT-OFF		SUBSEQUENT REPORT OF ALTERING CASING	
NOTICE OF INTENTION TO RE-DRILL OR REPAIR WELL		SUBSEQUENT REPORT OF RE-DRILLING OR REPAIR	
NOTICE OF INTENTION TO SHOOT OR ACIDIZE		SUBSEQUENT REPORT OF ABANDONMENT	X
NOTICE OF INTENTION TO PULL OR ALTER CASING		SUPPLEMENTARY WELL HISTORY	
NOTICE OF INTENTION TO ABANDON WELL			

(INDICATE ABOVE BY CHECK MARK NATURE OF REPORT, NOTICE, OR OTHER DATA)

Jan. 12, 19 55

Well No. 1 is located 660 ft. from {N/S} line and 660 ft. from {E/W} line of sec. 20

NE¼ Sec. 20 (¼ Sec. and Sec. No.) 23S (Twp.) 19E (Range) SLM (Meridian)

Wildcat-Court House Area (Field) Grand County (County or Subdivision) Utah (State or Territory)

The elevation of the derrick floor above sea level is 4515 ft. KB

DETAILS OF WORK

(State names of and expected depths to objective sands; show sizes, weights, and lengths of proposed casings; indicate mudding jobs, cementing points, and all other important proposed work)

No. 1 Donohue was drilled to a total depth of 6,618 feet, having been cored from 3,922 to 6,618. The well has been abandoned after placing cement plugs as follows:

A plug to 4,020 with 35 sacks of cement
A plug to 310 feet with 35 sacks of cement
Ten sacks of cement placed in the top of the surface pipe.

A regulation marker consisting of a piece of pipe 4-inches in diameter and 4-feet high was welded into the top of a plate welded over the top of the surface pipe.

I understand that this plan of work must receive approval in writing by the Geological Survey before operations may be commenced.

Company EQUITY OIL COMPANY

Address 806 Utah Oil Bldg.

Salt Lake City, Utah

By [signature]

Title Vice President

Approved MAR 25 1955

District Engineer

U. S. GOVERNMENT PRINTING OFFICE 16—84374

ORIGINAL FORWARDED TO CASPER

Shale Descriptions

Rosity Oil Company

Rosetta #1 (Cont'd.)

(Stratigraphic Test)

JAN 14 1955

Location: 660 ft. from North line and 660 ft. from East line of Sec. 20, NE¼, Twp. 23 So., R. 19 E., SLM Grand County, Utah

(Samples start @ 310-320')

310 - 330	Shale	Dk. gry. to blk., finely mica, silty to finely aren., in part, fair fissil.; med. hard and brittle.
330 - 340	Shale	As above, w/trce. discem. pyrite.
340 - 360	Shale	As above, dull, w/strks. lt. gry. waxy, bent. shale.
360 - 370	Shale	As above, but commonly finely aren. Trce. lter. gry., waxy, bent. shale.
370 - 380	Shale	As above, w/thin discont. lenses lt. gry., fine, hd. sandstone, w/trce. glauc.
380 - 390	Shale	As above, w/common shaley sandstone strks., as above. Trc. of fellil shells.
390 - 430	Shale	As above, w/min. shaley sandstone or sandy shale.
430 - 470	Shale	Dk. gry. to blk., silty to finely aren. strks., w/common lt. gry. shaley sandstone lenses, all finely mica., dull, fair fillil. Trc. wh. fibrous calcite, glauc and lt. gry. mica bent.
470 - 510	Shale	As above, w/excellent fissil. Trc. pyrite. Comm. lt. gry. shaley sandstone stringers.
510 - 550	Shale	As above, commonly aren. w/less shaley sandstone stringers.
550 - 570	Shale	As above, becoming dull, subwaxy and bentonitic.
570 - 600	Shale	As above, w/trce. lt. gry. waxy, mica bent.
600 - 620	Bentonite	Lt. gry., waxy, finely mica and aren., common qtz. "flinder" grs., min. chert nodules and min. dk. gry. to blk. shale partings.

Top Dakota Sandstone - 620'

620 - 630	Sandstone	Wh., fine to generally crs. and congl., well-rounded, frosted, pitted grs., poorly sorted, w/bent. cementing, abund. chert grs., common pyrite, and min. blk. shale partings.
630 - 640	Sandstone & Bentonite	As above, approx. 50/50.
640 - 660	Bentonite	As above, w/less than 5% sandstone, as above.
660 - 680	Bentonite, as above, commonly sandy, w/abund. chert nodules, pyritic.	
680 - 710	Shale	Pale dull dgrn., med. hd., crsly aren., in part, rare "floater" grs., Trc. pyrite and chert nodules. Trc. "fresh-water" ls.
710 - 720	Shale	Pale grn., med. gry. and faded purp. w/rare "floater" grs., chert nodules and commcng "fresh-water" ls.
720 - 730	Shale	As above, w/trc. lt. gry., fine gr. sandstone.
730 - 760	Shale	As above, w/a prox. 40% lt. gry. sandstone. Abund. lge. qtz. grs. well-rounded, frosted, and abund. chert nodules.
760 - 810	Shale	As above, w/trc. sandstone and chert.
810 - 850	Shale	As above, pred. med.-gry., comm. pale-grn. w/trc. mar. common "fresh-water" ls. & chert nod.
850 - 870	Shale	As above, w/comm. mar. siltstone, gypsy.
870 - 900	Shale	Var., as above, but, pred. maroon.
900 - 930	Shale	Var., pred. mar., as above, w/abund. wh. pulv. gyp. comm. chert nodules.
930 - 950	Shale	As above, w/increase of pale greens.
950 - 960	Shale	As above, w/approx. 30% lt. gry., bent., shale, w/rare sand grs.
960 - 1000	Shale	Pred. mar., w/common lt. gry. bent. shales and pale grns.
1000 - 1040	Shale 80%	Var. pred., mar. or faded-purp., comm. dull-grn., lt. gry., med. gry., silty to finely aren., in part, w/ approx. 20% lt. gry. to wh. Fine to crs. calc. ss. Trc. fresh water ls.
1040 - 1060	Shale 60%	As above, w/wh. sandstone increas. to 40% gen., med. crs. grd.
1060 - 1070	Shale 90%	As above, w/wh. sandstone decreas. to approx. 10%
1070 - 1100	Shale 60%	As above, w/wh. & lt. gry. ss @ approx 40%. Abund. lge. qtz. "floater" grs.

Top Salt Wash Sandstone - 1100'

1100 - 1140	Sandstone 100%		Wh. gen. crs. glassy, ang. grs., sli. calc. cement, gypsy w/good per. & perm. friable.
1140 - 1190	Sandstone 100%		Wh., as above, less comm. friable, gen. fine gr. w/common very calc.
1190 - 1230	Shale 80%		Var., w/approx. 15 to 20% lt. gry. to whish, fine calc. sandstone.
1230 - 1250	Sandstone 80%		Wh., calc., fine gr., hard & tight, w/approx. 20% var shale & siltstone.
1250 - 1270	Shale 90%		Var., w/approx. 10% wh. sandstone, as above.
1270 - 1300	Shale 85%	Gen. med.	gry., silty, w/comm. var., and approx. 10% wh. sandstone, all calc. approx. 5% gry, "fresh water" ls.

1300 - 1350	Shale	Var., pred. off-shaldes of grn. & gry., silty to finely aren., in part, w/rare "floater" grs., min. var. ls. stringers and common crm. to grn.-strain, fine gr. sandstone. Tre. pyrite and xstal calcite veinlets. Comm. anhy. veinlets.
1350 - 1360	Sandstone	Wh. & grn. stained, as above, gen. fine. well-round., w/common crs. & lge. "floater" grs., w/approx. 40% sh. as above.
1360 - 1370	Sandstone	As above, friable, occur. as lge., individi. grn. on grit. Less than 10% var. shale & siltstone.
1370 - 1380	Sandstone	As above, w approx. 40% var. shale.
1380 - 1390	Shale	Var., as above, w/less than 10% sandstone, as above.
1390 - 1400	Sandstone & Shale	Approx. 50/50, as above.
1400 - 1420	Sandstone	As above, gen. crs., well rounded, grs., w/approx. 30% var. sh.
1420 - 1450	Sandstone	As above, w/less than 10% var. shale. gen. crs., grd., w/min. fine.
1450 - 1460	Sandstone	As above, comm. friable, gyppy & highly pyritic.
1460 - 1470	Sandstone	As above, w/varish. slstone & ls. increase to approx. 40%
1470 - 1500	Shale	Var., as above, w/less than 10% sandstone, as above.
1500 - 1530	Shale	Var., as above, w/approx. 20% sandstone.
1530 - 1590	Shale	Var., w/min var. argil. ls. stringers. Cherty, w/tre. sandstone. Comm. well-round., individ "floater" grs. Pyritic.
1590 - 1630	Syale	Var., as above, w/approx. 40% wh. sandstone, as above.
1630 - 1670	Shale	Var., as above, w/less than 10% wh. sandstone.
1670 - 1700	Shale	Var., as above, w/wh. sandstone, increas. to approx. 20%.
1700 - 1750	Shale	Var., pred. redish-brn., mar., pale-grn, and grn.-mar. mottled, common silty to finely aren. Comm. wh. gyp. Tre. chert, lge. gts. "floater" grs. in shale, and wh. sandstone, fine to crs. poorly sorted, well-founded grs. Tre. varicolored fresh-water ls.
1750 - 1770	Shale	Var., as above, w/wh. fine to crs. sandstone increas. to approx. 10 or 15%. Tre. pyrite & fine mica throughout shales and siltstone.

Sample Descriptions - D. #1 (Gov't.)

1770 - 1780	Sandstone	Pred. rdish.-brn. to lt. orange, w/min. interfingered and mottled wh. sandstone. Common var. shales & siltstone.
1780 - 1790	Sandstone & Shale	Var., as above, w/abund. mustard & rd. mottled chert.

Top Entrada (?) - 1820 (?)

1790 - 1830	Sandstone & Shale	As above, w/less than 10% chert, as above.
1830 - 1840	Sandstone	Rdish-brn., gen fine. grd., finely mica, shaley, w/ common interbed. var. shale. Trc. gyp. and wh. sandstone mottling or interfingered.
1840 - 1880	Sandstone & Shale	Var., as above, w/trc. mustard & red spotted chert. Common varicol. "fresh-water" ls.
1880 - 1890	Sandstone	Rdish-brn., fine to crs., well-round, poorly sorted, w/min. wh. sand mottling, w/comm. interbed. var. shale, ls., yellow chert.
1890 - 1900	Sandstone	Rdish-brn., as above, w/min var. shale, siltstone, and ls. Trc. yellow chert. Comm. wh. pulv. gyp.
1900 - 1910	Sandstone	As above, but, occur. largely as individ. grs.

(Samples begin in Knt. approx. 100' from top)

1910 -1930	Sandstone	Rdish-brn. & lt. orange, fine to very crs., gen., well-round. frosted pitted grs., poorly sorted, med. to soft., gyppy, shaley cement, w/min rdish-brn., silty to finely aren. shale partings, and min. wh. pulv. gyp.
1930 - 1940	Sand	As above, occurr. as very crs. to congl. indiv. grs., w/min fine to crs. consolid. sandstone, as above, min. brn. shale, as above. Trc. chert.

Top Carmel (?) - 1940'

1940 - 1970	Sandstone	Maroon to faded purple, fine to crs., sub-ang. to well-round., frosted, shaley, poorly sort. w/equal part. crs. gen. crs., med hd., common mar. & orange individual. congl. grs. Trc. mar, shale, gyp & amber chert. Min. blk. carb. shale or lignite.
1970 - 1980	Sandstone	As above, but, gen., less crs. ground.
1980 - 1990	Sand	As above, gen., occurr as very crs. to congl. individ. grs. gyppy, cherty, w/min blk. carb. shale, as above.
1990 - 2000	Sandstone	As above, less crs. grd., and, gen., consolidated, w/ min. blk. carb. shale, and trc. maroon shale.

Sample Descriptions - Dennis #1 (Cont'd.)

2000 - 2010	Sandstone	Lt. orange, crm. & faded purp., fine to crs., poorly sorted, gen, very crs. well-round. grs., w/common lt. orange "floater" "Entrada-type" sandstone. Common wh. pulv. gyp., mar., brn., and faded purp. shale & siltstone. Trc. chert.
2010 - 2060	Sandstone	Rdish-brn. and lt. orange,"Entrada type" sandstone, as above, Trc. chert, gyp. and mar. sh.
2060 - 2100	Sandstone	As above, w/comm. dk. mar. to purp. colored sandstone as near top of formation, gen. of very crs.-grd. size.
2100 - 2130	Sandstone	Gen. rdish-brn. to orange,"Entrada type", min. mar. fine to crs. poorly sorted.
2130 - 2140	Sandstone	As above, w/common occurr., individ., crs. grs., or sand, somewhat softer than above section.
2140 - 2160	Sandstone	As above, but, for most part, soft, unconsolid. occurring as individ. grs.
2160 - 2170	Sandstone	Lt. orange, as above, fine to crs., med. hd., consolid. gyppy, shaley cement. Trc. mar. shale. Trc. chert.
2170 - 2240	Sandstone	As above, w/comm. indiv. crs. grs.
2240 - 2260	Sandstone	Gen. crm., w/min. orange, med. hd., fine to crs. poorly sorted, sub-ang. to sub-roundgrs. common. wh. pulv. gyp. min faded grn. and gry. shales.
2260 - 2300	Sandstone	Gen. rdish-brn, w/common crm.-colored, and faded grn. to gry. shale, as above.
2300 - 2310	Sandstone	Rdish-brn. & crm., as above, w/trc. blk. carb. shale.
2320 - 2320	Sandstone	As above, w/trc. faded grn. lt. gry., and med. gry., platty, silty shale. Trc. chert.
		Top Navajo (?) - 2320'
2320 - 2330	Sandstone	Crm. to lt. buff, fine to crs., gen. sub-ang., min. subround, poorly sorted, hd. w/interstit. gyp. Approx. 30% blk. carb. shale. Comm. wh. gyp., and, min. faded grn., lt. gry, & med. gr sh.
2330- 2340	Sandstone	As above, w/abund. wh. pulv. gyp.
2340 - 2390	Sandstone	Crm., as above, sharp, glassy, hd. to gquitic stringers. Approx. 10% blk. carb. shale, common gyp. Trc. lt. gry. limestone.
2390 - 2360	Sandstone	Crm., as above, w/equal rdish-brn. to lt. orange interfing Trc. blk. car. shale, and common wh. gyp.

Sample Descriptions - Doughnut #1 - (Gov't.)

2360 - 2380	Sandstone	Crm. w/min. lt. orange, as above, common whi. gyp. and blk. carb. shale.
2380 - 2390	Sandstone	Varicol., crm, rdish brn. lt. orange and faded purp. inter-fing. common gyp. and min. varig. shale.
2390 - 2440	Sandstone	As above, but softer and less consolidated.
2440 - 2460	Sandstone	Gen. crm. w/tre. varicol. gen. fine, hd., glassy, w/ common gyp. interstit. Tre. blk. carb. shale.
2460 - 2470	Sandstone	Lt. orange, fine to med. good double sorting, gypsy cement, more of the "Engrada type" sandstone.
2470 - 2510	Sandstone	Lt. orange & crm. interfing., gen., as above. Tre. chert nodules.
2510 - 2530	Sandstone	Gen. crm., w/min. lt. orange. comm. wh. puv. gyp. hd., sharp & glassy.
2530 - 2590	Sandstone,	As above, w/min brn., finely mica silty shale and shaley sandstone partings. Common very crs. to congl. strks. of crm to buff, hard, glassy sandstone,w/interstit. gyp.
2590 - 2600	Sandstone	As above, w/abund. wh. pulv. gyp. or anhy.
2600 - 2630	Siltstone & Shale	Choc. brn., finely mica,
2630 - 2640	Sandstone	Crm., fine to crs., gen crs., hd., tight & glassy, w/common brn. shale, siltstone & sandstone, as above. Abundant wh. gyp.
2640 - 2690	Sandstone	Crm., gen. crs., as above, w/tre. brn. siltstone & shale. Common wh. gyp. Min. pale-grn. staining, massive, med. hard, w/friable zones.
2690 - 2700	Sandstone	Crm., as above, but commonly friable, w/abundant interstit. gyp. common choc. sandy shales.
2700 - 2710	Sandstone	Crm. & friable, as above, w/common gyp. Tre. brn. shales.
2710 - 2725	Sandstone	As above, but consolidated, w/min friable.
		<u>Top Kayenta (?) - 2725'</u>
2725 - 2750	Siltstone	Choc.-brn., finely mica, finely aren., transit. to fine gr. silty, shaley sandstone. Min. choc. silty shale. Rare lge. gyp. "floater" grs., Tre. grayish-grnish- shale partings & mottling.
2750 - 2755	Siltstone	As above, w/common crm., w/min. grn.-stain, fine gr. calc. sa stone, transit, in part, to finely aren. ls.

Top Wingate - 2255' (?)

2755 - 2770	Sandstone	Gen. crm., fine to med., subang. to subround., poorly sorted, gyppy, w/common calc., pink to lt. orange, hd., dense, glassy, in gen. Min. choc. shale and siltstone. Common wh gyp. Trc. chert.
2770 - 2780	Sandstone	As above, but gen. pink to lt. orange, w/common crs. gritty strks. Trc. dull grn. shale, calc., in part.
2780 - 2810	Sandstone	Lt. orange, fine to med., gen. well-rounded, well sorted grs. Med. hd. and dse. Trc. choc. siltstone & crm. sandstone, as above.
2810 - 2850	Sandstone	Lt. orange and brn., as above, w/choc. shale partings increase to 10 or 15%.
2850 - 2870	Sandstone	As above, 50-50 lt. orange & crm., w/min choc. shale. Common wh. gyp.
2870 - 2880	Sandstone	As above, w/choc. shale increas. to approx. 15% Common wh. gyp.
2880 - 2890	Sandstone	Pred. crm., as above, w/abund. wh. gyp. Trc. choc. shale.
2890 - 2940	Sandstone	Pred. lt. orange, as above, w/abund. gyp. and common, 5-10%, choc. shale partings. Trc. blk. carb. shale. Common dull grn. shale(cavings.)
2940 - 3010	Sandstone	As above, w/abund. gyp. common choc. & dull grn. shales (cavings?)
2010 - 3020	Sandstone	Lt. orange, fine gr., commonly gyppy, w/common strks of dolo. to silic darker colored orange sandstone. Less gyp. than above. Trc. very crs. crm. standstone. Siltstone 100% Calc., red salmon, pink.
3020 - 3040	Sandstone	As above, but, less commsilic.
3040 - 3050	Sandstone	As above, w/silic, zones recurring quite commonly.
3050 - 3060	Siltstone	Siltstone 95%. Cor. gr. calc., clean calc ls. 5% gfr lgr. silty in part.
3060 - 2070	Siltstone	Varicolored, abund. dolo. and anhydritic. Trc. chert & common choc. shale partings. Siltstone 70% lt. gr. to salmon pink. Vg. calcareous with transitions to silty ls. Limestone 30% Clean to vy silty, fgr. lt. gr., grd some pink.
3070 - 3080	Siltstone 90% Limestone 05%	Ditty Ditto
3080 - 3090		Sample all cavings.
3090 - 3200	Siltstone 100% Limestone	Quite clean, red & salmon red. calcareous. Tr. % fine grained, lt. gr. silty

3100 - 3110	Siltstone (100%)	Ditto
3110 - 3120	Siltstone 90%	Ditto
	Limestone 10%	Fine grained, lt. gr. to pink, clean to silty.
3120 - 3130	Siltstone 95%	Ditto
	Limestone 5%	Ditto
3130 - 3140	Siltstone 95%	Pink to red, calcareous. quite clean. Gen. hard. some slightly quartzitic.
	Limestone 5%	Lt. gr. to tr. pink, inclined to be silty but some clean.
3140 - 3150	Siltstone 95%	Ditto
	Limestone 5%	Ditto (Abund. cavings from Morrison)
3150 - 3160	Siltstone 95%	Ditto (More pink than red.)
	Limestone 05%	Ditto . Sample 58% cavings.
3160 - 3170	Siltstone 95%	Ditto.
	Limestone 05%	Ditto. Sample 58% cabings.
3170 - 3180	Siltstone 95%	Ditto
	Sanstone 5%	Med. to fine with both ang. & round frosted grs., lt. tan. Calcareous.
3180 - 3190	Siltstone 75%	Ditto.
	Sandstone 20%	Like above, lpos per. & perm. & much more calcareous.
	Limestone 5%	Ditto. Both sandy & silty.
3190 - 3200	Siltstone 85%	Ditto.
	Sandstone 5%	Ditto
	Limestone 10%	Fine grained, light to dark gr. Some silty but mainly clean.
3210 - 3220	Siltstone 95%	Ditto
	Limestone 05%	Ditto
3220 - 3230	Silstone 95%	Ditto
	Limestone 5%	Ditto . (Hole caving badly.)
3230 - 3240	Siltstone 100%	Clean, salmon pink to red, calcareous. A few small patches of xln wh. anhydrite.
3240 - 3250	Siltstone 100%	Ditto
	Limestone	Tr. % fine grained, light gr. to pink, clean to silty.
3250 - 3260	Siltstone 70%	Ditto
	Siltstone 20%	Gr., grnish. gr. Vg. calcareous with transitions to silty limestone. Contains a few floating grs. of rounded & frosted coarse sand.
	Limestone 10%	Fine grained, light to dark gr. & pink. Mainly silty, but some pieces clean.

3260 - 3280	Siltstone 50%	Red to salmon pink, calcareous, becoming sdy. in part with med. sized sand grs. included of both qts. and feldspar. Occasional gr. of rd. & frosted grit.
	Siltstone 30%	Ditto, but green to gray in color.
	Shale 10%	Silty, waxy mis. light green.
	Limestone 10%	Pink grained, light to dark gr. silty to clean.
3280 - 3290	Siltstone 90%	Red to salmon pink, calcareous, containing lenses of med. to fine grained red sandstone. Letter has predominately rounded grains. Aband. cavings.
	Shale 10%	Silty, waxy, light green
	Siltstone	Tr. % Like green siltstone.
	Limestone	Tr. % Like limestone above.
3290 - 3300		Ditto 3280-90, but containing a trace of coal (Pitchblende?)
3300 - 3350	Siltstone 90%	Var., pred. salmon, pink, & rdish-brn., w/min pale grn. & med. gry., all sli. calc., gyppy or anhyd., w/approx 5% lt. gry. anhy ls. Trc. pyrite.
3350 - 3355	Siltstone 75%	Var., as above, w/ls. increas. to approx. 20%, ls. light gry., but pred. yellow-stained.
33550- 3400	Siltstone 95%	Var., above, w/less than 10% ls. trc. yellow-stain.
3400 - 3415	Siltstone 90%	Var., pred. salmon & rdish-brn., w/trc. med. gry. & pale grn., w/less than 10% lt. gry. anhy. ls. All anhyd. or gyppy.
3415 - 3420	Siltstone 60%	Var., as above, anhy., w/approx. 40% lt. to med. grnish-gry, argil., silty ls., commonly anhydrit.
3420 - 3435	Siltstone 85%	Var., as above, w/ls. decreas. to approx. 10 or 15%. Trc. yellow-stained ls.
3435 - 3445	Siltstone 80%	Var., as above, w/anhy. increa. to approx. 10 or 15%. Trc. anhy ls. & dull grn. silty sh.
3445 - 3450	Silstone (70%)	Var., as above, w/10% wh. anhy. & approx. 10% blk. carb. sh. Trc. ls. & dull grn. sh.
3450 - 3465	Siltstone 90%	Var., as above, w/10% anhy. trc. ls. no blk. or grn. shale.
3465 - 3480	Siltstone (60%)	As above, w/lt. gry. anhy ls. in cr. to approx. 40%.
3480 - 3495	Siltstone 90%	As above, w/ approx. 10% lt. gry. anhy ls.
3495 - 3510	Siltstone 90%	As above, w/approx. 10% finely mica, and aren. chec. sh. all, sli, calc. & anhy.
3510 - 3535	Siltstone 70%	As above, w/ 10 or 15% chec., finely mica, sh. silty to finely aren., in part. w/approx 15 to 20% anhy. All, sli. calc.

3535 - 3545	Sandstone 95%	Whi., pred. very crs. grit., gener ang. to sub-ang. frags., w/common well-round., frosted, pitted, crs. grs., and trs. fine to med. 5% wh. anhy. sli. calc. cement. No visible por. or perm. No shows!
3545 - 3560	Shale (95%)	Chec.,-brn. sli. calc., highly mica, common silty to aren., platty w/good fissile 5% anhy.
3560 - 3565	Sandstone 95%	Wh., very crs. ang. frags. or grit., as above. Approx. 5% wh. anhy.
3565 - 3580	Shale 95%	Chec., brn., mica., silty to finely aren., as above.
3580 - 3610	Shale 95%	Chec., brn., as above, w/trs. lt. gry. ls. and wh. pulv. gyp. or any.
3610 - 3640	Shale 95%	As above, w/trs. fine, wh. sandstone.
3640 - 3665	Shale 90%	As above, w/ approx. 5% dull-grn., argil. ls. Trs. wh. sandstone & gyp., as above.
3665 - 3685	Sahle 95%	Chec. brn., finely mica., silty, in part, w/ trs. dull grn. calc. shale.
3685 - 3690	Shale 75%	As above, w/approx. 25% crm. to whish., dolO. finely aren. siltstone, transit to silty dolo., in part.
3690 - 3700	Shale 90%	As above, w/less than 10% dolo. siltstone, as above.
3700 - 3720	Shale 100%	As above, w/trs. crm. siltstone and dull-grn. shale.
3720 - 3730	Shale 95%	As above, w/50% crm. siltstone, dull-grn. shale and wh. pulv. gyp.
3730 - 3765	Shale 90%	As above, w/crm. siltstone, grn. shale and wh. pulv. gyp. increas. to approx 10%.
3765 - 3770	Shale 75%	As above, w/crm. siltstone, incrs. to approx. 25%.
3770 - 3775	Shale 90%	As above, w/approx. 10% crm. siltstone & dull grn. sh.
3775 - 3810	Siltstone 60%	Cinnamon, sli. calc., w/approx 35% chec. mica. sh., and 5% grn. shale, crm. siltstn. and wh. anhy. All finely aren.
3810 - 3840	Siltstone 75%	Cinn., as above, w/approx. 20% chec., mica, sh., and 5% crm. siltstone, grn. sh. and wh. anhy. or gyp. as above. All finely aren.
3840 - 3865	Siltstone 70% Shale 30% Anhydrite Shale	Cinnamon, red, calcareous dirty. Chocolate red, silty. [illegible] [illegible]

3850 - 3855	Dolomite 50% Siltstone 30% Shale 20%	Ditto Ditto Ditto
3855 - 3860	Dolomite 20% Siltstone 40% Shale 40%	Ditto Ditto Ditto
3860 - 3865	Dolomie 10% Siltstone 60% Shale 30%	10% Ditto Ditto Ditto
3865 - 3870	Siltstone 90% Shale 10%	Calcareous, micaceous dirty, shaly dull red. Silty, choc. red.
3870 - 3875	Siltstone 90% Shale 10%	Ditto Ditto
3875 - 3880	Siltstone 80% Shale 20%	Ditto Ditto
3880 - 3885	Siltstone 70% Shale 30%	Ditto Ditto
3885 - 3890	Shale 100%	Dull choc. red., silty.
3890 - 3900	Shale 70% Siltstone 30%	Ditto Shaly, mica, calc. dirty, red.
3900 - 3905	Shale 70% Siltstone 30% Limestone	Ditto Ditto Tr. hd. fine ground greenish gray. Siltstone has a few interbedded round grs of sa.
3905 - 3910	Siltstone 10% Shale 70% Limestone Sandstone 20%	Ditto Ditto Tr. Ditto Mainly medium gr., but containing a few crs. gren Grs. are well rd. and frosted. Cemented with calcite & tight. Very hard

<u>Geconino Sandstone - 3904'</u>

3910 - 3915	Sandstone 100%	Ditto
3910 - 3922	Sandstone 100%	Ditto
Core #1 - Cored 3922-32, Rec. 10'		Sandstone 100%. Wh. calc., poor to good poem. and porosity. Sand grains mainly med., but with few crs. grs., mainly well rounded and medium to high porosity. Most showing frosted surface. Just a trace of white and green mica. First drawn core did not show any moisture or fresh fracture.
Core #2 Cored 3932 - 3946		Sandstone 100%. Like core above except for slight variations in permeability and porosity.

Core #3 3946 - 3960	Sandstone 100%	Ditto
Core #4 3960 - 2974	Sandstone 100%	Ditto
Core #5 3974 - 3988	Sandstone 100%	Ditto
Core #6 3988 - 3989		No recovery.
Core #7 3989 - 4003	Sandstone 100%	Sandstone mesocular in general to above, but pink to red in color and harder. Less porosity and with a sli. greater percentage of grit grains. Sand is well rounded, but with only med. grade sphurisity. Frosted surface. Steep dips in core (45°) indicate cross bedding.

Core #8 4003 - 4018, Rec. 15'	Sandstone	Lt. rdish or[illegible]e, fine to crs., gen. crs., poorly sorted, well-round, frosted, pitted grs. Hd. dse w/calc. cement. Approx. 5% chec. sh., occur. as thin distorted lenses giving irreg. banded appear. 10% interstit anhy. or gyp.
Core #9 4018 - 4032, Rec. 14'	Sandstone	Massive lt. to rdish orange, as above, w/ chec. finely mica sh. zones and distort. lenses increase to approx. 10%, one or two shale breaks of 1 to 2 inches. 10% interst. t. gyp.
Core #10 4032 - 4044, Rec. 10½'	Sandstone	As above, w/chec. sh. reduced to less than 5%. 1 inch zones interbed. wh. anhy. at 4032'. Approx. 10% interstit. gyp.
Core #11 4044 - 4058, Rec. 14'	Sandstone	As above, w/common lge. congl. "floater" grs. from 4051 - 4057', giving speckled appear. to core. 4057-4058, sandstone is very shaley.
Core #12 4058 - 4072, Rec. 10'	Sandstone	As above, but gen. fine to med. gr. w/common zones of large congl. "floater" espec., in lower five feet of core. C ec. shale content increas. to approx. 20 or 25%.
Core #13 4072 - 4086, Rec. 14'	Sandstone	Lt. orange, fine to med. gr., good sorting, calc. cement. hard, and tite w/common zones large qtz. "floater" grs. Massive, w/no discern. dips 20 to 25% sh. from 4072-4075.
Core #14 4086 - 4099, Rec. 13'	Sandstone	As above, w/poorly defined zones x-bedding. Common lge. "floater" grs. & thin conglom. strks. Tre. of distorted bedding w/c ec. sh. partings.
Core #15 4099 - 4113, Rec. 14'	Sandstone	As above, w/common large "floater" grs., poorly defined x-bedding, and min. thin chec. sh. partings.
Core #16 4113-4127, Rec. 14'	Sandstone	As above, w/chec. sh. content increas. to approx. 20% in bottom half core, in some zone, there are bleached or mottled whish zones. 4123-25', tre. of vuggy por., no perm. definitely anhy. sandstone that dried w/alkaline residue on surface.

Core #17 4127- 4141, Rec. 14'	Sandstone	As above, but drker rdish-orange colored, shaley cement, and very sli. calc., w/common paper thin choc. sh. partings, giving striped appear. to core. No. perm. or por.
Core #18 4141 - 4155, Rec. 12'	Sandstone	Siltstone. Rdish, orange, finely aren. & mica, sli. calc. in part. w/abund. lge "floater" grs., and done or two congl. strks. up to 1 foot in thickness. Approx. 5% choc. mica sh. partings.
Core #19 4155 - 4169, Rec. 14'	Siltstone	As above, abund. "floater" grs. one or two congl. strks. up to 1 inch in thickness, and one or two grnish-wh. aren., mica "bleached" zones, approx. 10% choc. sh. occur. as partings, one to two inches t ick, and common paper-thin, discont. lenses.
Core #20 4169 - 4183, Rec. 10½'	Sandstone	Dk. rdish-brn., fine to crs. & congle.,gen. very crs., frosted, pited, well-round. grs. w/abund. shaley, mica cement, sli. calc. in part, w/common "bleached" or mottled zones, Massive, w/poorly defined x-bedding. Med. hard & tite to friable, in part.
Core #21, 4183 - 4197, Rec. 14'	Sandstone	Rdish, orange, gen. fine gr., silty, shaley, finely mica, sli. calc., in part.,w/min. xbedding, in part. A few thin congl. strks. occurr,w/one zone approx 1 foot thick at top of core.
Core #22 4197 - 4211, Rec. 14'	Sandstone	As above, w/afew 6/8 inch. congl. strks. , very shaley, mica, hard, & tight. The last one foot bleaded and congl.
Core #23 4211 - 4225, Rec. 14'	Sandstone	As above, w/two or three "bleached" zones, up to three inches thick, w/common shale partings, distorted and crinkled, approx. 25% shale.
Core #24 4225 - 4239, Rec. 14'	Sandstone	Rdish-orange, fine gr., silty, shaley, finely mica, sli. cak, in part, w/common lge. "floater" grs., and one or two congl. zones up to 6" in thickness. Tre. interstit. shly. Approx. 20% silty to finely aren. shale zones, w/common blue-grn. mottling.

Core #25 4239 - 4254, Rec. 15'	Sandstone	As above, w/shale content increas. to approx. 40%. Min. mottling, commong "floater" grs. No congl. strks.
Core #26 4254 - 4268, Rec. 14'	Sandstone	As above, transit to finely aren. siltstone, very shaley, & finely mica. One zone of wh. interbed. anhy. ½" thick, U one zone wh., calc., sandstone, highly mica, approx. 3" thick shale approx 40%, becoming crse to congl. in bottom two feet.
Core #27 4268 - 4282, Rec. 14'	Sandstone	As above, but very crs. to congl. w/interstit. gyp. from 4274' to 4279'. Approx. 40% choc. sh. interzoned & cement agent.
Core #28 4282 - 4296	Siltstone	As above, w/approx. 20 to 25% choc. mica. shale partings. Comm thin "ble c ed" zones w/very crs. to congl. mica sandstone, maroon, from 4291 - 4296', med hard, shaley, sli. calc. w/trc. interstit. gyp.
Core #29 4296 - 4310, Rec. 14'	Sandstone	Lt. rdish-orange, pred. congl., arkosic & gritty, finely mica, calc., abund. s aley cement, w/trc. interstit. gyp. Med. hd. & tight.
Core #30 4310 - 4324, Rec. 14'	Sandstone	Congl., arkosic-grit, as above, med. hard, w/one or two semi-triable zones. Comm. interstit. gyp. No por. or perm. visible.
Core #31 4324 - 4338, Rec. 14'	Sandstone	Fine gr., lt. rdish. orange, transit, in part, to finely aren. siltstone. Trc. congl. strks. Common "blue-green" mottling, w/abund. wh. anhy. from, 4231-4237', apprlx. 25% anhy. & 20% choc. sh. in total core.
Core #32 4238 - 4252, Rec. 14'	Sandstone	As above, w/crs., congl., arkosic-grit, from 4241-4245, abund. interstit. gyp. Med. hard. No por. or perm.
Core #33 4352 - 4356, Rec. 11'	Anhydrite & Shale	Mottled & interbed, shale pred. faded purp. silty, finely mica, w/wh. anhy. sli. dolo.
4356 - 4362	Sandstone	Fine gr. transit to siltstone, as above, w/four or five arkosic-grit zones, 3" to 8" thick at fairly reg. intervals, throuout the last six feet of core.
Core #34 4363 - 4377, Rec. 14'	Arkosic	Arkosic grit, as above, w/one or two thin choc. shale breaks.
4367 - 4377	Shale	Choc. faded purp. & blue gr. mottled, silty

		finely mica & finely aren., in part. Comm. large "floater" grs. scattered at irreg. intervals thruout. Dips appear flat to 2 or 3o.
Core #35 4377 - 4391, Rec. 14'	Siltstone & Arkosic grit	Approx. 50-50, w/2 or 3 thin choc., mottled blue-grn., shale breaks. Anhy., in part, w/ common interstit. gyp. or anhy. thruout.
Core #36 4391 - 4405, Rec. 14'	Anhydrite 75%	Wh., dolo., silic., in part, w/ approx. 25% irreg. bed. or mottled, grn. mica, shale, and mar. grit.
4395 - 4405	Sandstone	Lt. rdish-orge, silty, shaley, finely mica, sli. calc., in part, w/interzoned choc. sh. and common pale-grn. to whish. grit, "bleached" mottled, and interzoned. Approx. 40% shale.
Core #37 4405 - 4419, Rec. 14'	Arkosic Grit Sandstone	Approx. 50-50 mar., calc., grit & lt. rdish. orange, fine gr. silty, shaley sandstone, w/ commong "bleached" & mottled zones, up to 1/2" or 1" in thickness. Common wh. interstit. gyp.
Core #38 4419- 4433, Rec. 14'	Sandstone	Lt. orange, as above, w/one or two grit strks. up to 6" thick, comm. mottling. Approx. 20% interfingered choc. sh.
Core #39-4419 - 4433, Rec. 14' 4433 - 39	Sandstone	As above
4439 - 4447	Arkosic, Grit	Mar. & wh. speckled, very crs. to congl., well-rounded, frosted, pitted grs. Abund. interstit. anhy.
Core #40 4447 - 4461', Rec 8½'	Arkosic Grit	As above, but commonly soft & firable - pumped 5½ ft. of core away.
Core #41 4461 - 4475, Rec. 14'	Siltstone	Rdish. orange, very shaley, finely mica, sli. calc., in part, w/approx. 40% interbed. choc. & mottled "pale-green" shale.
4471 - 4475	Arkosic Grit	Maroon, calc., w/wh. anhy, intersit., increasing to approx. 40% in bottom two feet.
Core #42 4475 - 4482, Rec. 7'	Anhy. & Arkosic Grit	Approx. 50-50 sli. calc. or dolo., in part, appears pink to whish on outside of core. Soft & friable. Common pip porosity w/guest perm.

Core #43 4482 - 4496, Rec. 14'	Arkosic Grit	Mar. to pink, calc., in part, semi-friable, w/ abund. w/. interstit. gyp. Approx. 10 or 15% interbed. rdish-orange shaley siltstone, as above.
Core #44 4496 - 4510, Rec. 14'	Siltstone	As above, approx. 75% w/two or three "mottled zones" of glue-grn. approx. 25% arkosic grit, as above, in two or three 1 foot zones.
Core #45 4510 - 4524, Rec. 14'	Arkosic Grit 80%	As above, w/20% interbed. fine gr., shaley, silty, finely mica sandstone, as above. One zone of blue-grn. "mottling".
Core #46 4524 - 4538, Rec. 14'	Arkosic Grit	As above, w/less than 10% choc. & blue-grn. sh., near bottom of core.
Core #47 4538 - 4552, Rec. 14'	Sandstone 60%	Lt. rdish. orange, as above, w/approx. 40% arkosic grit, as above.
Core #48 4552 - 4566, Rec. 14'	Sandstone 60%	As above, w/approx. 40% interbed. choc. & commonly "mottled" blue grn. sh.
Core #49 4566 0 4581, Rec. 14'	Shale	Choc., silty, finely mica w/approx. 20% intersoned arkosic grit & bleached congl. sandstone.
Core #50 4581 - 4595, Rec. 14'	Arkosic Grit	As above, w/ approx. 15% choc.,,mica. shale interbed.
Core #51 4595 - 4609, Rec. 14'	Arkosic Grit	Lt. mar. to pink, calc., mica., med. soft to friable, abund. interstit gyp. w/approx 20% choc. sh., w/min mottling.
Core #52 4609 - 4623, Rec. 9'	Arkosic Grit	As above, w/sli. increase of shaley cement, approx. 30% interbed. choc. to mar. sh., w/ min. mottling.
Core #53 4623 - 4637, Rec. 8½'	Arkosic Grit	As above, w/choc. sh., as above, becoming very crs. to brecciated near bottom, good pip. por.
Core #54 4637 - 4651, Rec. 12½'	Arkosic Grit	As above, very crs. to brec. in top four ft. w/approx. 10 to 15% choc. sh. interbed.
Core #55 4651 - 4665, Rec. 14'	Arkosic Grit	As above, w/thin strks. of very crs. to brec., 10 to 15% choc. sh., as above.
Core #56 4665 - 4679, Rec. 14'	Arkosic Grit	As above, w/min. mottled strks, and less than 10% interbed. choc. sh.

Core #57 4674 - 4691, Rec. 12'	Arkosic Grit	As above, w/ trc. choc. mica sh.
Core #58 4691 - 4705, Rec. 14'	Siltstone	Rdish.-brn., shaley, finely mica, sli. calc. in part, w/min blue-grn. mottling, and approx. 10% arkosic interbed.
Core #59 4750 - 4719, Rec. 4704 - 4713	Siltstone & fine Sandstone	Very mica, arkosic, angular, dark. red to reddish brn. Patches of blue-grn. of some lithlgre character.
4713 - 4719	Grit	Crse, arkosic, mica, pink to red grit, grs. to 1/4" in daimerter. Grs. mainly angular but showing some low grade rounding in a few of the larger grains. Mainly tight with a red shaley material filling interstices of grit.
Core #60, 4719 - 4733 4719 - 4722 4722 - 4733	Grit Siltstone	Like 4713 - 4719 Like 4705 - 4713
Core #61 4733 - 4747	Siltstone 50% Shale 50%	Like above Red, verg micaceous, silty.
Core #62 4747 - 4761		
4747 - 4750	Shale	100% dark gry. silty mica.
4750 - 4752	Shale	100% dk. red, micaceous.
4752 - 4753	Sandstone	100% calcareous, med. grained. tight, lt. gry. with patches of red. Grs. rounded, minly qtz. but with some arkose.
4753 - 4754	Siltstone	100% red, sandy, very micaceous arkosic.
4754 - 4761	Sandstone	Crse, grained, angular, arkosic, red, mic. very sli. micaceous. Conglomeratic. Few grs. 1/4" in diameter.
Core #63 4761 - 4774,	Sandstone 100%	Like 4754 - 4761.
Core #64 4774 - 4788, Rec. 14' 4774 - 4785	Sandstone 100%	Medium grained, arkosic, mascecous pink to red sandstone. Tight with gypsiferes cementing material. Highly micaceous bedded. (Cleaner and lighter in color than above.)
4785 - 4788	Siltstone 100%	Fine, shaly, micaceous silty calcareous, med. irregular bedding.

Core #65		
4788 - 4802, Rec. 10'	Sandstone 100%	Med. grained, calcareous, arkosic, light gr. to pink hard sandstone.
4789 - 4802,	Sandstone 100%	Coarse, arkosic micaceous, angular dark red, silty calcareous, cross bedded, conglomerate.
Core #66		
4802 - 4816, Rec. 13'8"	Sandstone	100%, med. grained, angular, very micaceous, silty and shaly. Partings along bedding planes mainly dark mica. Bedding wavey and irregular. No suggestion of anything but low dips. Becoming very salty at base.
Core #67		
4816 - 4830, Rec. 14'	Siltstone 100%	Fine grained, angular, very micaceous, silty calcareous, shaly, red.
4822 - 4830	Siltstone	Dark dry, calcareous. Sdy lo streaks at base with a few large qtz grains.
<u>Top Hermosa</u>		
Core #68		
4830 - 4844, Rec. 14'		
4830 - 4840	Siltstone 100%	Red, salty calcareous, very micaceous, with irregular patches of gray and green siltstone.
Core #69		
4844 - 4858	Arkosic Grit 80%	Brick red, very shaley, sli. calc., gen. finer text. than grit in upper part of hole, w/approx. 20% interbed. rdish. siltstone w/one mottled "blue-green" zone, last two feet of grit coarser texture.
Core #70		
4858 - 4872, Rec. 14'	Arkosic Grit 70%	As above, w/ approx. 20% siltstone and 10% chec. mica, shale. Min. mottling, irreg. interbed.
Core #71		
4872 - 4886, Rec. 14'	Arkosic Grit 20%	As above, w/approx. the same percentage of interbed. siltstone and shale, as above, gen. the grit is of very crs. text., w/one or two "bleached" zones very quartzose and silic.
Core #72		
4886 - 4898, Rec. 12'	Siltstone (60%)	Rdish, finely aren., calc., w/tops two feet of core (20%) very crs. grit. Appr. 10% chec., mottled, mica shale.
Core #73		
4898 - 4912, Rec. 14'	Arkosic Grit & Shale	Approx. 50-50, w/grit pred. finer texture, than above, w/common mottling and one zone very crse. congl. appr. two inch thick.
Core #74		
4912 - 4926, Rec. 14'	Arkosic Grit (60%)	Brick red, finer texture, very shaley, w/ approx. 40% interbed. siltstone and shale, as above, w/min. mottling.

Core #75 4926 - 4940, Rec. 14'	Shale (90%)	Chec., mica., silty to finely aren., comm. "blue-grn." mottling thrsout, w/approx. 10% rdish siltstone lenses, and one the gritty strks.
Core #76, 4940 - 4954, No recovery.		
Core #77 4954 - 4957, No recovery.		
Core #78 4957 - 4959, No recovery.		
Core #79 4959 - 4973, Rec. 14'	Siltstone 59%	Rdish, brn., finely aren., as above, w/ approx. 20% whish to pink arkosic grit, very crs., and 30% interbed. chec. & blue-grn. mottled shale.
Core #80 4973 - 4986, Rec. 2'	Arkosic Grit	Pink to whish, very crs, as above.
Core #81 4986 - 4991, Rec. 5'	Sandstone	Orange, fine to crs., calc., poorly sorted, shaley, finely mica., massive, w/no perm. or pore.
Core #82 4991 - 5005, Rec. 14'	Sandstone	As above, w/approx. 20% gritty strks., poorly def. x-bedding, and approx. 5% chec. shale.
Core #83 5005 - 5019, Rec. 14'	Sandstone 60%	As above, w/min. paper thin gritty strks, good xstal bedding, in part, w/approx. 40% chec. to mar., mottled blue-green, mica sh.
Core #84 5019 - 5033, Rec. 14'	Arkosic Grit (75%)	Rdish, orange, as above, w/excell. xbed., approx. 25% chec. sh. interbed.
Core #85 5033 - 5040, No rec.		
Core #86 5040 - 5045, No rec.		
Core #87 5045 - 5059, Rec. 14'	Siltstone	Maroon & grn. (50-50), interbed, & mottled, calc., in part, highly mica., shaley, finely aren., min. crinoid stems, Hard, dense, dips flat to 3°.
Core #88 5059 - 5073, Rec. 14'	Limestone	Med. to dk. gry., argil, silty, finely mica transit. to calc. siltstone, less than 5% mar. shale partings. Tre. lter gry. mottling Common crinoid stems. Massive, hard and dse.

Core #89 5059 - 5073, Rec. 14'	Limestone	As above, less than 5% mar. mottling. Massive, hard, and dse. w/abund. crinoid stems, giving speckled appear. to core.
Core #90 5087 - 5101, Rec 14'	Arkosic Grit (90%)	Pale, green, to whish, w/sli. calc. dull grn. shaley cement, w/approx. 10% med. gry., sli. calc., mica siltstone, interbed. Massive. hard, dense, w/no por. or perm.
Core #91 5101 - 5115, Rec. 14'	Arkosic Grit 60%	As above, w/approx 40% lt. to med. gry., calc. mica siltstone, w/trc. mar. discont. shale lenses. Mass., hard, and dense. No dips appar.
Core #92 5115 - 5129, Rec. 14'	Siltstone 70%	Lt. gry., finely mica., highly calc., appears finely striped, w/dk. gry. to blk., paper thin distorted, discont. shale lenses, w/approx. 20% lt. gry. gritty congl. sandstone, highly calc., approx. 10% blk. shale interbed. thin to mass. bedd., w/3 or 4 degree dip. No poro. or perm.
Core #93 5129 - 5143, Rec. 14'	Shale 70%	Blk., calc., highly mica., w/irreg. lt. gry. siltstone bedding, w/approx. 25% lt. gry. calc., mica., siltstone, crsly sandy, interbed. 6 inch to one foot t ick. Massive hd. and dense.
Core #94 5143 - 5157	Siltstone 80%	Med. gry., w/comm. lt. gry. "bleached" zones, highly mica, calc., w/approx 15% crsly sandy to gritty zones. Less than 5% blk. shale partings. Mass, no dips.
Core #95 5157 - 5170, Rec. 13'	Siltstone 80%	As above, w/15% grit strks and 5% blk. shale partins, as above.
Core #96 5170 - 5173, Rec. 3'	Siltstone 80%	As above.
Core #97 5173 - 5187, Rec. 14'	Limestone 90%	Med. to dk. gry. argil., finely mica, w/ approx. 10% blk. paper-thin, shale laminae. Trc. crinoid stems. Massive, hard, & dense. Dips flat.
Core #98 5187 - 5201, Rec. 14'	Sandstone 60%	Med. gry. and lt. gry. mottled, highly calc. silty, finely mica, w/well sorted crs., well-rounded frosted grs., w/approx 35% dk. gry to blk., mica., calc. siltstone, w/approx 5% blk. shale laminae. One calc. filled vert free., 5193 - 5194', massive hd. and dse.

Core #99 5201 - 5215, Rec. 14'	Siltstone 95%	Dk. gry. to blk., as above, w/approx 5% blk. shale laminae, as above.
Core #100 5215 - 5229, Rec. 14'	Siltstone 95%	Med. dk. gry. to blk., as above, w/5% blk. sh. lamanae, as above, trc. grit in bottom two feet.
Core #101 5229 - 5243', Rec. 13½'	Siltstone 85%	Lt. gry., highly calc. & finely mica, finely aren., w/thin congl. strks. (5%), approx. 10% blk. sh. laminae and discont. lenses. Massive, hd., and dse.
Core #102 5243 - 5255, Rec. 12'	Siltstone	Lt. gry., as above, w/gritty strks. and blk. sh., as above.
Core #103 5255 - 5269, Rec. 14'	Siltstone 60%	Lt. gry., sandy, as above, w/blk. shale 50% interbedded, 'thick bed. rathr than laminae.)
Core #104 5269 - 5283, Rec. 14'	Siltstone 100%	Lt. gry., sandy, as above. Massive, hd., & dse /
Core #105 5283 - 5297, Rec. 14'	Arkosic Grit 70%	Varicolored, in lt. gry. calc. siltstone matrix, grit varies from trc. to abund. concentration, w/bottom two feet 20% med. gry. dse ls., w/approx 10% blk. shale partings, giving thin irreg. banded appear. to core. No poro, or perm. visible.
Core #106, 5829 0 5311, Rec. 14'	Siltstone 60%	Lt. gry. highly calc., finely mica & aren. sugary, w/well develop. x-bedding hard & dse, probably reworked ls., w/approx. 40% (top 5' of core) dse gry. ls. & shale partings, as above.
Core #107 5311 - 5325, Rec. 14'	Siltstone 100%	As above, w/two (one inch) arkosic-grit zones.
Core #108 5325 - 5339, Rec. 14'	Siltstone 90%	Lt to med. gry., mica, transit to silty med. xstal. reworked ls., approx. 10% or less paper thin shale laminae.
Core #109 5339 - 5353, Rec. 13½'	Siltstone 75%	As above, but gen. dk. gry. to blk., w/shale laminae increa. to approx. 25%.
Core #110 5353 - 5367, Rec. 14'	Siltstone 25%	W/approx 25% blk. sh. partings, as above.
Core #111 5367 - 5381, Rec.	Siltstone 50%	As above, w/10% blk. sh. partings, as above. Trc. silic. material or chert nodules, w/ approx. 40% dk. gry. to blk. gritty calc. sandstone. Massive hd., and dense.

Core #112 5381 - 5395, Rec. 14'	Siltstone	Lt. grey to whish, med crs. grd., calc., highly mica, mass., hd. & dse, w/trace blk. sh. laminae.
Core #113 5395 - 5409, Rec. 14'	Sandstone	As above, becoming very crs., to gritty, w/dsem. lge. chert fragments & pebbles.
Core #114 5409 - 5423, Rec. 14'	Siltstone 60%	Lt. & dk. gry., calc., mica, w/blk. sh. laminae, transit to dk. gry. silty, mica ls. (30%) abund. fossils, w/a prox. 10% blk. shale partings, w/ trc. blk. styolites.
Core #115 5423 - 5435, Rec. 12'	Siltstone 90%	Lt. gry., calc., mica, finely aren. to less than 5% crs. grit, w/less than 5% dk. cr. gry. siltstone & approx. 5% dk. gry. to blk. in mica sh. Trc. chert pebbles.
Core #116 5435 - 5449, Rec. 14'	Siltstone 100%	Dk. gry. to blk., w/trc. lt. gry. silic. mottling or "bleached" zones. Massive, hd. and dse. No per. or perm.
Core #117 5449 - 5463 - No recovery		
Core #118 5463 - 5473 - No recovery		
5463, 5473	Siltstone Siltstone 85%	Dk. gry. to blk. as above, w/ approx. 15% lt. gry. fine to crs. and gritty, calc., mica sandstone interbedd. Mass hd. & dse.
Core #119 5473 - 5487, Rec. 14'	Siltstone 85%	As above, w/approx. 15% lt. gry. sandstone lenses, giving irreg. mottled or lamin. appear to core. Massive, hd. and dse.
Core #120 5487 - 5501, Rec. 14'	Siltstone 90%	As above w/less than 10% sandy lenses.
Core #121 5501 - 5515, Rec. 14'	Sandstone 90%	Lt. gry., fine to crs., highly mica & calc., mass. hd. & dse, w/less than 10% interbed. dk. gry. siltstone, as above.
Core #122 5515 - 5529, Rec. 14'	Siltstone 70%	Med. grnish gry., calc, mica, finely aren., in part, w/min. mar. mottling, w/approx. 30% lt. gry. to tan or pink, med. crs. sandstone, becoming rdish-brn. toward bottom of core, friable, massive & dense, w/well-rounded, frosted grs. & highly mica.
Core #123 5529 - 5543, Rec. 14'	Sandstone 90%	Rdish, brn, to fine to med. double-sorted, w/ calc. shaley cement, w/approx 5% mar. sh. and lt. gry. sli. arkosic sandstone. Massive, med. hd. w/no visible per. or perm.

Core #124 5543 - 5557, Rec. 14'	Siltstone 60%	Brickred, 40% & med. grn. 20%, calc., very shaley, mica, w/rare crs. grs., w/approx. 30% brick red sandstone, as above, & 10% mar. mica shale interbed. Gen. mass. w/x-bed in grn. siltstone med. hd., and dse.
Core #125 5557 - 5571, Rec. 14'	Siltstone 100%	Brick red to mar. & med. grn. (mottling), as above, calc., mica & finely aren., in part, mass. med. hard and dse.
Core #126 5571 - 5585, Rec. 14'	Siltstone 80%	Brick-red, sandy and dull grn. 10%, w/approx. 20% brick red, sandstone, very shaley, calc., fine to crs., w/one or two thin congl. strks. Mass. med. hd. & dse.
Core #127 5585 - 5599, Rec. 13½'	Shale 70%	Mar., mica., platty, w/min dull grn. mottling, w/approx. 25% brickred siltstone, w/ trc. of sand strks. at top of core, w/approx. 5% gry. cherty to silic. ls. strks. from 97 - 99 (½" to 3" thick) Gen. hard, thinly bed. & dse. Dips 3° to 4°.
Core #128 5599 - 5612, Rec. 14' (1 ft. corr. on Kelley)	Siltstone 60%	Gen. med. grn., w/trc. mar. mottling, w/approx. 5% mar. shale partings, w/approx. 40% brick, red calc., sandstone, as above. Med. hd. & dse. Massive to thin bed. & mottled. Poorly def. dips.
Core #129 Rec. 14' 5612 - 5626, San	Sandstone 70%	Brick red, as above, w/ approx. 25% dull grn. siltstone, w/5% mar. shale partings, as above. Med. hd. cdse.
Core #130 5626 - 5640, Rec. 14'	Shale 85%	Mar., mica, thickly bed. to platty, in part, w. approx. 10% thinly interbed, brick red siltstone, sandy & calc, w/ approx 5% lt. gry. & brn. mottled grit (bottom ~~15~~ 1 foot). Mass. dse. & calc.
Core #131 5640 - 5654, Rec. 14'	Arkosic Grit 100%	Lt. rdish brn. to pink, calc., mass. hd. & dse, w/abund. angular feldspar frags & comm. angular qts. frags. Cores, med. soft.
Core #132 5654 - 5668, Rec. 14'	Arkosic Grit	100% as above.
Core #133 5668 - 5682, Rec. 14'	Arkosic Grit	(100%) as above, but, somewhat finer texture, w/comm. highly mica partings, giving finely banded appear. to lower 1/2 of core.
Core #134 5682 - 5696, Rec. 14'	Arkosic Grit	60% as above, lower 1/2 of core #133, w/approx. 40% dull grn. mica siltstone in lower 1/3 of core.

Core #135 5696 - 5710, Rec. 14'	Arkosic-Grit 60%	Very crs. ang. frags. abund. feldspar, w/approx. 10% dull. grn. siltstone & 30% brickred, fine to crs. sandstone or grit. Mass. med. hd. & dse.
Core #136 5710 - 5722, Rec. 12'	Arkosic-Grit 100%	Very crs., ang. , as above. Massive & dse.
Core #137 5722 - 5736, Rec. 14'	Shale 60%	Mar., mica., platty, w/a prox. 10% dull-grn. siltstone, interbed, & mottled, w/approx. 30% brick red med. gr. calc. sandstone, w/one whish, "bleached" zone, mass. hd. & dse.
Core #138, 5736' - 5745', No recovery.		
Core #139, 5745 - 5758, Rec. 13'	Sanstone 80%	Lt. gry. fine to crs., poorly sorted, well-rounded. grs. sli. calc., hd., dse, mass., w/ approx. 10% mar. sh., & 10% dull grn. siltstone Trc. arkosic material.
Core #140 5758 - 5772', Rec. 14'	Sandstone 70%	Lt. gry., arkosic, as above, & brick-red, fine gr., silty, calc., w/approx 25% gry. limey silt-stone trans. to silty ls., w/less than 5% md. gry. distort. sh. lenses. Mass. to poorly def. x-bed No por. or perm.
Core #141, 5772 - 5786, Rec. 14'	Sandstone 95%	Lt. gry., fen. very crs. grit, sli. calc., silic. to qtzitic, trc. arkosic, w/less than 5% dull-gry.-grn. mica, calc. siltstone partings.
Core #142 5786 - 5800, Rec. 14'	Quartzite 50%	Lt. gry., to whish., very sli. calc., silic, mica, fine to crs., poorly sorted, feldspathic, in part, mass., very hd. & dse, w/approx. 50% dk. gry. to blk., mass., mica, calc. siltstone No por. or perm. Comm. thin, irreg., distort., mica. concentr. banding.
Core #143 5800 - 5814, Rec. 14'	Siltstone 60%	Dk. gry. to blk., very shaley, mica, w/approx 40% crsly xstal. dolo., lt. gry. hd. & dse w/ thin blk. siltstone laminae. Trc. xstal. anhy. & calcite. One or two, calc.-filled vert. fracs. Mass. to laminated. No por. or perm.
Core #144 5814 - 5826', Rec. 12'	Quartzite 75%	Lt. gry. to whish, trc. arkosic, as above, (bottom 9'), w/25% blk. shaley, mica siltstone (top 3'). Mass. very hd. & dse.
Core #145 5826 - 5840', Rec. 14'	Siltstone 75%	Dk. gry. to blk., sli. calc., mica., w/approx. 5% black shale laminae, wavey and distrct., w/ approx. 20% lt. gry. grit (very crse) or quartzite as above, mass to laminated. No evid. of good dips.

Core #146 5840 - 5854, Rec. 14'	Siltstone 95%	Lt. & md. gry., calc., mica, finely aren. to silic. & quartzitic, w/approx. 5% blk. mica, sh., partings. Mass., very hd. & dse.
Core #147 5854 - 5868, Rec. 14'	Siltstone 95%	Lt. gry., dse., finely mica, very sli. calc. banded, x-bed., sli. sandy, in part, w/approx 5% blk. mica sh. Trc. gry. stylolites. Hd. & dse., no por. or perm.
Core #148 5868 - 5878', Rec. 10'	Siltstone 95%	Lt. gry., as above, w/approx 5% blk. sh., as above.
Core #149 5878 - 5891, Rec. 13'	Siltstone 95%	Lt. gry., as above, but incrs. of caco3 content. w/approx. 5% blk. sh. partings. Mass., hd. & dse.
Core #150 5891 - 5905, Rec. 15'	Siltstone 90%	Lt. gry. calc., as above, w/approx. 10% dk. gry. quartzite or grit, w/trc. arkose. Mass. hd. & dse.
Core #151 5905, 5912, Rec. 7'	Limestone 100%	Lt. gry., oraly xstal, mica, gritty, finely band. & xbed. No por. or perm.
Core #152 5912 - 5915, Rec. None		
Core #153 5915 - 5918, No Recovery		
Core #154 5918 - 5932, Recovery 14'	Siltstone 100%	Lt. gry. highly calc., finely aren., & mica, w/trc. lge qts. "floater" grs., Massive, med. soft & dse. No dips, no por. & no perm.
Core #155 5932 - 5946, Rec. 14'	Siltstone 100%	Lt. gry., as above, Mass., med. soft, w/no por. or perm.
Core #156 5946 - 5960, Rec. 14'	Siltstone 100%	60% lt. gry. to whish, highly calc., mica., mass, hd. & dse, w/min xbed. in part., w/approx. 40% dk. gry. to blk. sli. calc., mica, siltstone. No por. or perm.
Core #157 5960 - 5974, Rec. 14'	Siltstone 100%	As above, w/approx 75% lt. gry. to whish, and 25% dk. gry. mass., hd. & dse.
Core #158 5974 - 5988, Rec. 14'	Siltstone 100%	Dk. gry. to blk., sli. calc., finely mica., as above, w/trc. vert., calc.-filled, hairline fracs. Mass. hd. and dse.
Core #159 5988 - 6002, Rec. 6½'	Siltstone 100%	Dk. gry. to blk., as above.

Core #160 6002 - 6005, No recovery		
Core #161, 6005 - 6019', 13½' Rec.	Siltstone 100%	90% dark. gry to blk, as above, w/ approx 10% med. gry. dse, transit to silty ls. No por. or perm. visible.
Core #162 6019 - 6033, Rec. 14'	Siltstone 100%	Lt. to med. gry., dse, w/a trace of dk. gry., as above. Mass. hd. & dse, w/no visible por. or perm.
Core #163 6033 - 6047, Rec. 14'	Siltstone 100%	Lt. gry, as above, w/approx 5% dk. gry. to blk. as above.
Core #164 6047 - 6055, Rec. 8'	Siltstone 100%	Lt. gry, as above, w/trc. of blk. No por. or perm.
Core #165 6055 - 6068, Rec. 13'	Siltstone 95%	Dk. gry. to blk., sli. calc., finely mica, massive, w/comm. paper-thin, concentr. mica, banding, w/approx. 5% blk mica shale partings.
Core #166 6068 - 6082, Rec. 14'	Siltstone 95%	As above, w/approx. 5% blk. sh., as above. No. pore. or perm. visible.
Core #167 6082 - 6096, Rec. 15'	Siltstone 95%	Dk. gry. to blk. sli. calc., finely mica, w/ a trc. blk. mica shale partings (laminae). Gen. hard, dse. and massive, w/no dips.
Core #168 6096 - 6110, Rec. 14'	Siltstone 100%	As above, but finely banded w/lter. gry. & dk. gry. distorted and discont. lenses thru out. Hd. & dse, w/no por. or perm.
Core #169 6110 - 6124, Rec. 14'	Siltstone 95%	As above, w/trc. mar. mottling & ang. ls. breccia, trc. chert or silic. material. One vert. calc. filled frac. Mass. hd. & dse.
Core #170, 6124 - 6138, Rec. 14'	Siltstone 95%	Lt. gry., finely mica & glauconitic, w/min. (5%) mar. & grn. mottling in bottom 3 ft. of core. Mass, hd. & dse. Highly calc., in part.
Core #171 6138 - 6151, Rec. 13'	Arkosic Grit	85% Lt. rdish. brn., crs., poorly sorted, mica, calc. w/ alternating finer & crser. zones, w/ approx. 10% chac. mica sh. & 5% grn. mica shale, xbed. Hd. & dse. No visible por. or perm.
Core #172 6151 - 6165, Rec. 14'	Siltstone 95%	Md. grdish. gry., glauconitic, (glaus. & brownish) mica, calc., comm sandy or finely aren., w/less than 5% mar. mottling in bottom 2 ft. Common thinly banded thruout. No pore. or perm.

Core #173 6165 - 6173, Rec. 8'	Siltstone 100%	As above
Core #174 6173 - 6179, Rec 6'	Siltstone 95%	As above, but dk. gry. to blk. w/ trace chert, massive, hd. & dse.
Core#174A 6179 - 6193, Rec. 14'	Siltstone 90%	Med. gry. transit to med. sdline ls., w/min. blk. sh. stylolites, one small vert. calc.-filled frac., w/approx. 10% lt. gry. sandy, siltstone, w/tre. chlorite grs. All mass. hd. and dse.
Core #175 6193 - 6203, Rec. 10'	Siltstone 95%	Lt. gry., calc., sandy, finely mica, chloritic, as above, w/tre. med. gry., as above. Mass, hd. & dse.
Core #176 6203 - 6217, Rec. 14'	Siltstone 90%	Dk. gry., calc., finely mica, w/approx. 10% lt. gry., mass., very calc., siltstone, interbed. bottom 1 feet is mottled lt. & drk. gry. siltstone. Mass. hd. & dse.
Core #177 6217 - 6231, Rec. 14'	Anhydrite 60%	Wh., sugary, sandy, reworked, w/hd. gry. siltstone mottling, w/approx. 40% lt. & dk. gry. siltstone laminated & min. mottled, as above. Thinly bed. to mass. All, hd. ded. No visible por. or perm. Common blk. sh. stylolites.
Core #178 6231 - 6245, Rec. 14'	Anhydrite 80%	As above, w/approx. 20% blk. silstone mottling, as above, mass. mottled, hd. & dse.
Core #179 6245 - 6259, Rec. 14'	Siltstone 70%	Dk. gry. to blk. thinly bed. to laminated, dk. gry & lter. gry. banding, w/common. blk. stylolites, w/approx. 30% wh. anhydrite, w/ dk. gry. silstone mottling. Massive, thin bed & mottled. All, hd. & dse. No por. or perm.
Core #180 6259 - 6271, Rec. 12'	Siltstone 100%	Dk. gry., finely banded, as above. No por. or perm.
Core #181 6271 - 6285, Rec. 14'	Silstone 100%	Dk. gry. and dk. gry. to blk. finely banded (50/50) sli. calc., mica. hd. & dse, w/no por. or perm.
Core #182 6285 - 6299, Rec. 14'	Siltstone 100%	As above, becoming less thinly banded in bottom 5 feet Hd & dse, w/no por. or perm.
Core #183 6299 - 6313, Rec. 14'	Siltstone 100%	75% med. gry., calc., finely mica, finely aren. in part, w/one seam (3½ inches) cherty & ls.

		inclusions, w/25% dk. gry. siltstone, thinly bedded, hd. & dse.
Core #184 6313 - 6319, Rec. 6'	Siltstone 100%	05% lt. gry., sandy, calc., w/approx. 5% md. gry. trc. blk. gilsonite-like material, finely banded, hd. & dse.
Core #185 6319 - 6333, Rec. 14'	Siltstone 100%	Med. gry., dse, calc., no sand, finely banded in part, to mass. No. pore. or perm. transit to ls.
Core #186 6333 - 6344, Rec. 11'	Siltstone 100%	Dk. gry. to blk., calc., mica., gen. mass., hd. & dse, w/bottom 3 feet irreg. band. No por. or perm.
Core #187 6344 - 6351, Rec. 7'	Siltstone 100%	Blk., calc., mica, banded, mass, w/shale cotent approx. 25 or 30%. No per. or perm. Trc. vert. "hair-line" calc.-filled" fracs.
Core #188 No recovery		
Core #189 6365 - 6369, Rec. 4'	Siltstone 100%	Dk. gry. to blk. mass., calc., mica, as above. No banding.
Core #190		2 cores (174-174A) renumb. sk. #190
Core #191 6369 - 6378, Rec. 9'	Siltstone 100%	Dk. gry. to blk., as above.
Core #192 6378 - 6392, Rec. 3'	Siltstone 100%	Transit to argill. ls.highly calc., clayey & silty, hd., dse. and brittle. No perm. or pore. massive, w/trc. micro-xstallinity.
Core #193 6382 - 6399, Rec. 14'	Siltstone or Argill Limestone	Blk. as above
Core #194 6399 - 6408, Rec. 10' (Made up 1 ft on kelly)	Siltstone or Argill Ls. 100%	Blk, as above, w/no per. or perm.
Core #195 6400 - 6422, Rec. 14'	Siltstone	Or argill ls. (100%) Blk, as above.
Core #196 6422 - 6436, Rec. 14'	Sandstone & Siltstone	Top 7 feet dk. gry to blk, alc., finely mica. siltstone, mass hd., & dse, w/bottom 7ft. lt. gry. fine gr. sandstone, calc., mica, mass, dh. & dse. No vis. per. or perm.

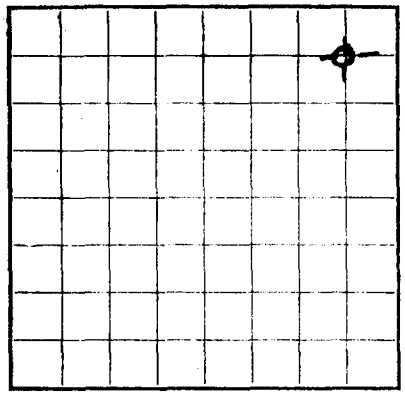
Core #197 6436 - 6450, Rec. 14'	Sandstone 80%	Lt. gry., calc., mass, as above, w/approx. 10% blk. siltstone, as above, and approx. 10% light gry. congl. sandstone. All, mass., hard, and dense, w/no pore. or perm.
Core #198 6450 - 6464, Rec. 4'	Siltstone 70%	Mod. gry., calc., highly mica, mass, w/approx. 30% wh., macroscic anhy. mottling, becoming dolo. at bottom. No vis. por., or perm.
Core #199 6464 - 6478, Rec. 14'	Siltstone (60%)	Lt. gry., calc., mica, finely aren., w/ approx. (5%) milky chert nodules, mass hd. & dse., w/approx 35% dk. gry. to blk. mass, siltstone. No vis. por. or perm.
Core #200 6478 - 6492, Rec. 14'	Siltstone 95%	Dk. gry. to blk., as above, w/tre. (less than 5%) mod. gry., cherty dolo. inclus. All mass., hd., & dense w/ no vis. por. or perm.
Core #201 6492 - 6494, Rec. 2'	Siltstone 100%	Dk. gry. to blk., mica, sli. calc., mass, hd., & dse, as above.
Core #202 & #203 6494 - 6509		No recovery.
Core #204 6509 - 6523, Rec. 14'	Siltstone 100%	Dk. gry. to blk., mica, sli. calc., mass. hard & dense, w/no pore. or perm., as above.
Core #205 6523 - 6537, Rec. 14'	Siltstone 100%	Dk. gry., to blk., mica., sli. calc., mass, hd., and dense, w/no vis. pore. or perm., as above.
Core #206 6537 - 6551, Rec. 14'	Siltstone 95%	50% Dk. gry to blk. and 40% lt. gry. sandy, w/ one zone, 6542-44', transit to dark. gry. microcrystal ls., highly fossil (chrinoid stems), w/approx. 5% whi. sugary anhy. mottling. One vert., calcite filled, hair-line fract. gen. mass, hd., & dse, w/no vis, por. or perm.
Core #207 6551 - 6565, Rec 14'	Siltstone 80%	Lt. gry., finely aren., finely mica, calc. w/ approx. 20% interbed dk. gry. to blk., sli. calc., mica, siltstone. All, hd. & dse, w/ no vis. pore. or perm.
Core #208 6565 - 6576, Rec. 11'	Sandstone 75%	Lt. gry., fine to cre., poorly sorted, calc. cement, w/a prox 20% dk. gry. to blk. finely banded silt., interbed., w/less than 5% wh. anhy. mottling. Trace silt-stain, [illegible] in blk. highly calc., earthly siltstone, no vis., pore, or perm. One or two tight vert. FRAC

Form 9-330

Budget Bureau No. 42-R-355.3.
Approval expires 12-31-55.

ORIGINAL FORWARDED TO CASPER

U. S. LAND OFFICE Salt Lake City
SERIAL NUMBER 070515
LEASE OR PERMIT TO PROSPECT



LOCATE WELL CORRECTLY

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

RECEIVED JAN 14 1955 U. S. OIL & GAS DIVISION U. S. GEOLOGICAL SURVEY SALT LAKE CITY, UTAH

LOG OF OIL OR GAS WELL

Company EQUITY OIL COMPANY Address 806 Utah Oil Bldg. Salt Lake City, Utah

Lessor or Tract Donohue Field Wildcat State Utah

Well No. 1 Sec. 20 T. 23S R. 19E Meridian SLM County Grand

Location 660 ft. {N. / S.} of N Line and 660 ft. {E. / W.} of E Line of Sec. 20 Elevation 4515 KB
(Derrick floor relative to sea level)

The information given herewith is a complete and correct record of the well and all work done thereon so far as can be determined from all available records.

Signed V E Peterson

Date January 12, 1955 Title Vice President

The summary on this page is for the condition of the well at above date.

Commenced drilling June 7, 19 54 Finished drilling Sept. 4, 19 54

OIL OR GAS SANDS OR ZONES

(*Denote gas by G*)

No. 1, from ..... to ..... No. 4, from ..... to .....

No. 2, from ..... to ..... No. 5, from ..... to .....

No. 3, from ..... to ..... No. 6, from ..... to .....

IMPORTANT WATER SANDS

No. 1, from ..... to ..... No. 3, from ..... to .....

No. 2, from ..... to ..... No. 4, from ..... to .....

CASING RECORD

Size casing	Weight per foot	Threads per inch	Make	Amount	Kind of shoe	Cut and pulled from	Perforated From—	Perforated To—	Purpose
10-3/4	32#	10	Nat,l	270.28	Hallib.				Surface

MUDDING AND CEMENTING RECORD

Size casing	Where set	Number sacks of cement	Method used	Mud gravity	Amount of mud used
	to 4020	35	Halliburton		
	to 310	35	"		

PLUGS AND ADAPTERS

Heaving plug—Material ..... Length ..... Depth set .....

Adapters—Material ..... Size .....

SHOOTING RECORD

FOLD | MARK

Adapters—Material ..... Size .....

SHOOTING RECORD

Size	Shell used	Explosive used	Quantity	Date	Depth shot	Depth cleaned out

TOOLS USED

Rotary tools were used from 0 feet to 6618 feet, and from ..... feet to ..... feet

Cable tools were used from ..... feet to ..... feet, and from ..... feet to ..... feet

DATES

..... , 19.....

Put to producing ..... , 19.....

The production for the first 24 hours was ..... barrels of fluid of which .....% was oil; .....% emulsion; .....% water; and .....% sediment.

Gravity, °Bé. .....

If gas well, cu. ft. per 24 hours .....

Gallons gasoline per 1,000 cu. ft. of gas .....

Rock pressure, lbs. per sq. in. .....

EMPLOYEES

W. D. Anderson ..... , Driller

B. G. Mortenson ..... , Driller

Dallas Goodrich ..... , Driller

..... , Driller

FORMATION RECORD

FROM—	TO—	TOTAL FEET	FORMATION
FORMATION TOPS AS DETERMINED FROM ELECTRICAL LOG			
Surface Mancos Shale.			
Dakota ss		620	
Morrison		635	
Salt Wash fm.		1095	
Summerville fm.		1183	
Moab ss		1686	
Entrada		~~1469~~ 1790	
Carmel		1940	A copy of the sample log description and electrical log are attached.
Navajo		2335	
Kayenta		2583	
Wingate		2760	
Chinle		3055	
Shinarump		3525	
Moenkopi		3570	
Coconino		3903	
Rico		5030	
Hermosa		5063	
Paradox Salt		6610	

[OVER]

16—43094-3