FINAL CORE ANALYSIS REPORT

PARAMOUNT et al LIARD M-25
300/M-25-6030-12330/0

Prepared for:

NORTHWEST TERRITORIES GEOLOGICAL SURVEY
20RC31656

February 2020

"In Pursuit of Excellence"

3801 21st Street NE
Calgary, AB T2E 6T5

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Revision date: October 13, 2016

TABLE OF CONTENTS

General Information

CORE ANALYSIS DATA

PARAMOUNT et al LIARD M-25
300/M-25-6030-12330/0

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COMPANY : NORTHWEST TERRITORIES GEOLOGICAL SURVEY
LOCATION : 300/M-25-6030-12330/0
FORMATION : NAHANNI
WELL NAME : PARAMOUNT et al LIARD M-25
DRILLING FLUID : WATER BASE MUD

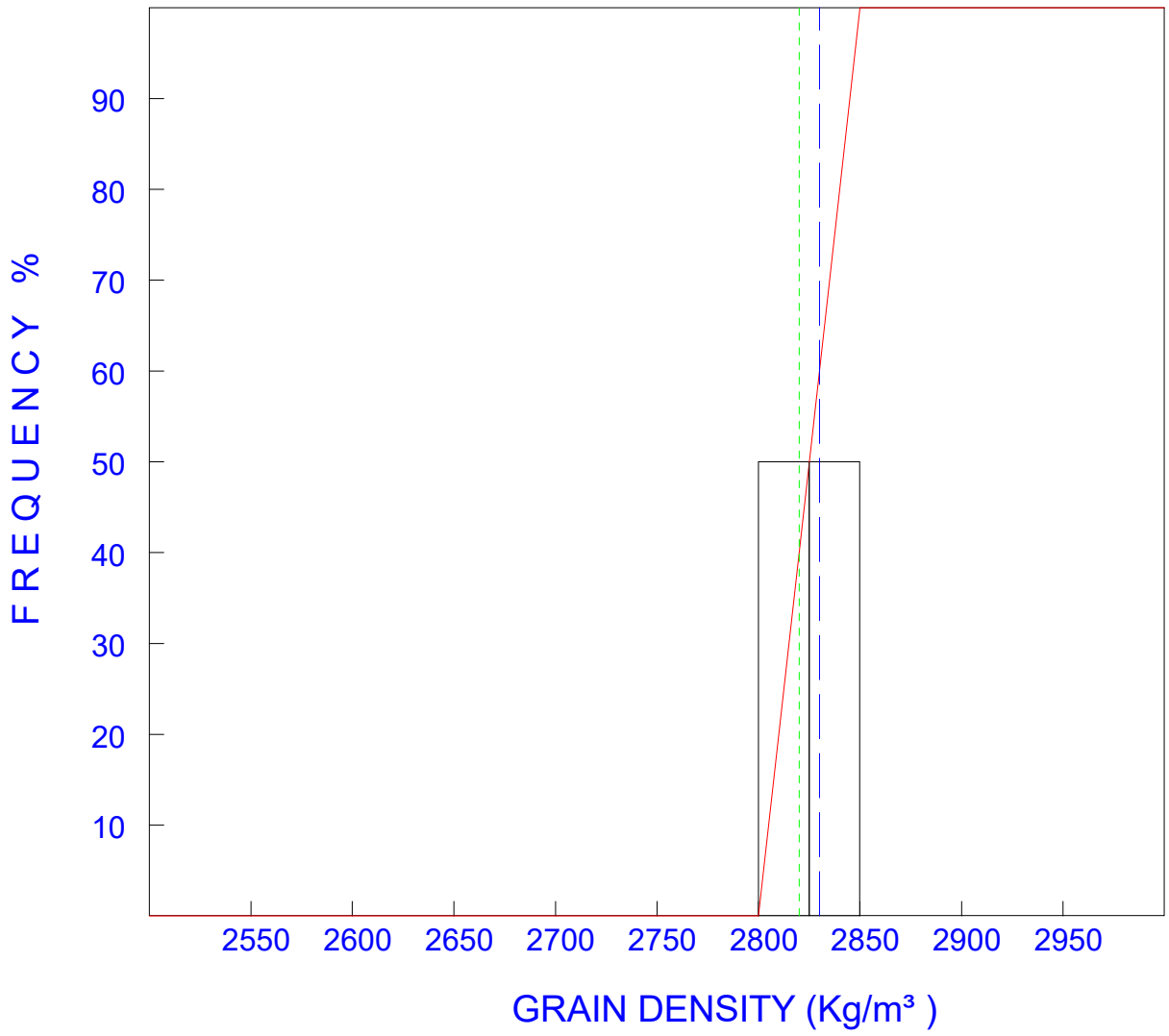
DATE : 26-Feb-2020
W/O No : RC31656

ROUTINE CORE ANALYSIS

Sample	Interval (m) Top	Interval (m) Base	Rep Thick (m)	Sample Length (m)	Gas Permeability Kmax (mD)	Gas Permeability K90 (mD)	Gas Permeability Kv (mD)	Capacity Kmax mD·m	Porosity	Capacity Ø·m	Density (Kg/m³) Bulk	Density (Kg/m³) Grain	Residual Saturation Oil	Residual Saturation Water	Remarks
SP001	3360.30	3360.30	0.00	-	5.30	-	-		0.020	0.000	2770	2830	-	-	dol:vf-vcxln:vug:styl:pyr:frac(P6)
SP002	3395.00	3395.00	0.00	-	12.2	-	-		0.009	0.000	2800	2830	-	-	dol:vf-vcxln:ppvug:styl:frac(P5)
SP003	3452.00	3452.00	0.00	-	2.11	-	-		0.032	0.000	2710	2800	-	-	dol:vf-vcxln:ppvug:calc:frac(P4)
SP004	3452.50	3452.50	0.00	-	1.25	-	-		0.007	0.000	2810	2830	-	-	dol:vf-cxln:ppvugs:styl:fracs(P3)
SP005	3452.94	3452.94	0.00	-	12.1	-	-		0.019	0.000	2760	2820	-	-	dol:vf-vcxln:vug:styl:calc:frac(P2)
SP006	3556.55	3556.55	0.00	-	4.17	-	-		0.007	0.000	2800	2820	-	-	dol:vf-mxln:styl:calc:fracs(P1)

Company : NORTHWEST TERRITORIES GEOLOGICAL SURVEY
Location : 300/M-25-6030-12330/0 FIGURE : 1
Well Name : PARAMOUNT et al LIARD M-25 Date : 26-Feb-2020
Interval : 3360.30-3556.55m AGAT Job : RC31656
Formation : NAHANNI

GRAIN DENSITY DISTRIBUTION



Arithmetic Mean	.....	Mean: 2820
Median	- - - - - - -	Median: 2830
Cum. Frequency %	_____	

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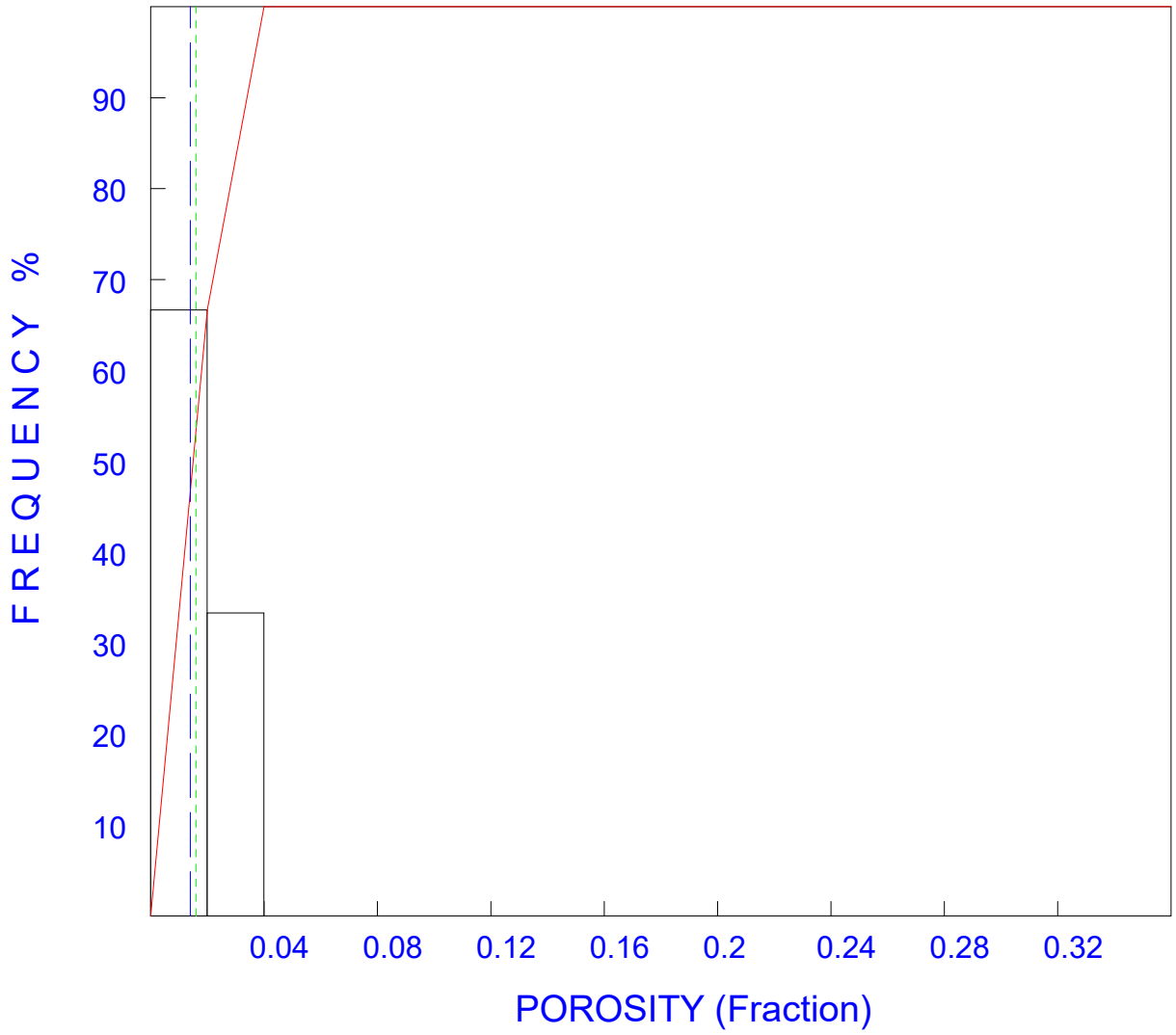
Company : NORTHWEST TERRITORIES GEOLOGICAL SURVEY
Location : 300/M-25-6030-12330/0
Well Name : PARAMOUNT et al LIARD M-25
Interval : 3360.30-3556.55m
Formation : NAHANNI

FIGURE : 2
Date : 26-Feb-2020
AGAT Job : RC31656

POROSITY DISTRIBUTION



Arithmetic Mean	.....	Mean: 0.016
Median	- - - - - - -	Median: 0.014
Cum. Frequency %	_____	

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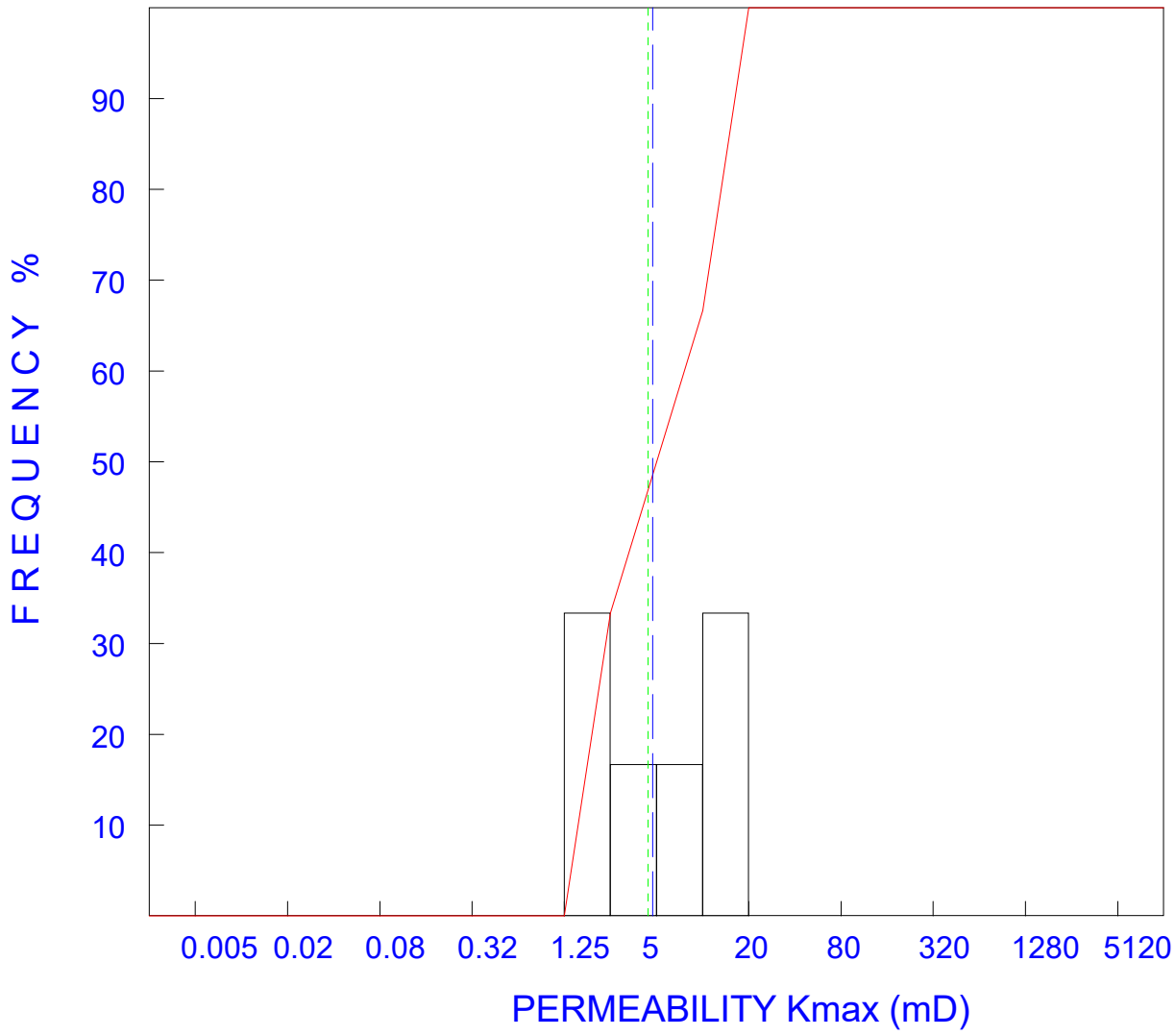
Company : NORTHWEST TERRITORIES GEOLOGICAL SURVEY
Location : 300/M-25-6030-12330/0 FIGURE : 3
Well Name : PARAMOUNT et al LIARD M-25 Date : 26-Feb-2020
Interval : 3360.30-3556.55m AGAT Job : RC31656
Formation : NAHANNI

PERMEABILITY Kmax DISTRIBUTION



Arithmetic Mean	.....	Mean: 4.53
Median	- - - - - - -	Median: 4.74
Cum. Frequency %	_____	

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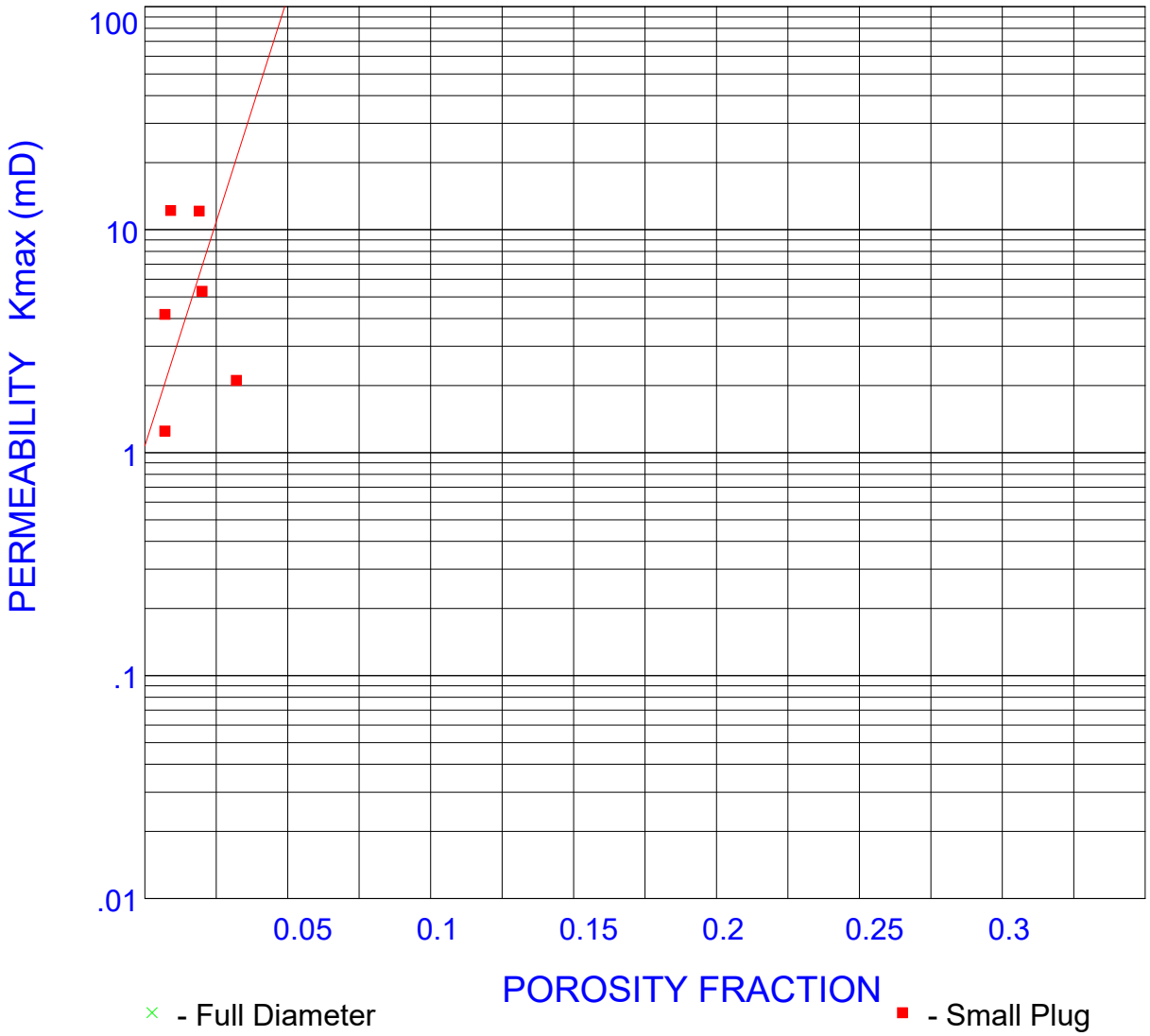
Company : NORTHWEST TERRITORIES GEOLOGICAL SURVEY
Location : 300/M-25-6030-12330/0 FIGURE : 4
Well Name : PARAMOUNT et al LIARD M-25 Date : 26-Feb-2020
Interval : 3360.30-3556.55m AGAT Job : RC31656
Formation : NAHANNI

POROSITY-PERMEABILITY CORRELATION



Equation of Line : Log (Kmax) = 0.03 + 40.26* Porosity
Correlation Coefficient r = -0.07

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SAMPLE HANDLING

Document # LAB-02-26509.001
Revision date: October 13, 2016

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SAMPLE HANDLING AND ANALYSIS INFORMATION

Company : NORTHWEST TERRITORIES GEOLOGICAL SURVEY
Well : PARAMOUNT et al LIARD M-25
Location : 300/M-25-6030-12330/0

Coring Equipment : Diamond
Coring Fluid : Water Base Mud

W/O Number : 20RC31656
Date : 26-Feb-20

HANDLING

Core Transported in : Boxes
Cutting Solution : Water
Drying Equipment : Convection Oven
Drying Time/Temp : 48 hours @ 108°C

ANALYSIS

Grain volume measured by Boyle's Law using helium
Bulk volume measured by calipering on right-cylindrical samples
Permeability measured by Steady State; Nitrogen to Air on 38.1/25.4mm diameter drilled plugs

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ABBREVIATIONS

COMMON ABBREVIATIONS

abnt	
abv	Abundant
Alg	Abbreviations
alt	Algae (al)
amor	Altered (ing)
Amph	Amorphous
ang	Amphipora
anhy	Angular
app	Anhydrite (ic)
apr	Appear
aprox	Apparent
arg	Approximate (ly)
ark	Argillaceous
asph	Arkose (ic)
AST	Asphalt (ic)
	Assigned similar to
apha	(no actual sample taken)
	Aphanitic
bcm	
bd	Become (ing)
bdd	Bed
bdg	Bedded
Belm	Bedding
bent	Belemnites
bf	Bentonite (ic)
biocl	Buff
bioturb	Bioclastic
bit	Bioturbated
bl	Bitumen (inous)
blk	Blue (ish)
blky	Black
bnd	Blocky
Brac	Band (ed)
brec	Brachiopod
bri	Breccia (ted)
brit	Bright
brn	Brittle
Bry	Brown
Bulb	Bryozoa
bur	Bulbous
	Burrowed

c	Coarse (ly)
calc	Calcite (areous)
carb	Carbonaceous
cbl	Cobble (64-256 mm)
Ceph	Cephalopod
cgl	Conglomerate
chk	Chalk (y)
chlor	Chlorite
cht	Chert
chty	Cherty
cl	Clastic
cln	Clean
clr	Clear
cly	Clay (ey)
com	Common
coq	Coquina
Cor	Coral
crbnt	Carbonate
Crin	Crinoid (al)
crm	Cream
crpxl	Cryptocrystalline
ctc	Contact
deb	Debris
decr	Decrease (ing)
desi	Desiccation
dism	Disseminated
dk	Dark (er)
dns	Dense (er)
dol	Dolomite (ic)
drsy	Drusy
dtrl	Detrital (us)
elg	Elongate
euhed	Euhedral

f	Fine (ly)
fau	Fauna
Fe	Iron-Ferruginous
Fe-mag	Feromagnesian
fenst	Fenestral
fis	Fissile
fl	Fill (ed)
fld	Feldspar (thic)
flk	Flake
flky	Flaky
flor	Fluorescence
flt	Fault (ed)
fltg	Floating
foram	Foraminifera
fos	Fossil (iferous)
fr	Fair
frac	Fracture (ed)
frag	Fragment (al)
fri	Friable
frmwk	Framework
fros	Frosted
g	Good
Gast	Gastropod
gl	Glass (y)
glau	Glauconite (ic)
gn	Green
gr	Grain (ed)
gran	Granular
grd	Grade (ed)
grnl	Granule (2-4 mm)
gy	Grey
gyp	Gypsum (iferous)

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COMMON ABBREVIATIONS

hal	Halite
hd	Hard
hfrac	Horizontal Fracture
hi	High
hrtl	Horizontal
hvy	Heavy
hydc	Hydrocarbon
ig	Igneous
imbed	Imbedded
imp	Impression
incl	Included (sion)
incr	Increase
indst	Indistinct
intbd	Interbedded
intcl	Intraclast (s)
intfrag	Interfragmental
intgran	Intergranular
intlam	Interlaminated
intr	Intrusion (ive)
intv	Interval
intxl	Intercrystalline
ireg	Irregular
ird	Iridescent
intrsk	Intraskeletal
kao	Kaolin
lam	Laminated
lchd	Leached
len	Lentil (cular)
lith	Lithographic
lmy	Limy
lrg	Large (er)
ls	Limestone
lse	Loose
lstr	Lustre
lt	Light (er)
m	Medium
mar	Maroon
mas	Massive
mat	Material, matter
mica	Mica (ceous)
mic	Micro
mky	Milky
mnr	Minor
mnrl	Mineral (ized)
mnut	Minute
Mol	Mollusca
mot	Mottled
mrly	Marly
mtx	Matrix
n	No,none,non
nod	Nodule
num	Numerous
o	Oil
occ	Occasional
od	Odor
ool	Oolite (ic)
op	Opaque
org	Organic
orng	Orange
orth	Orthoclase
Ost	Ostracod
ovgth	Overgrowth
ox	Oxidized
p	Preliminary (as suffix)
pbl	Pebble (4-64 mm)
pel	Pellet
perm	permeability
pet	Petroleum (iferous)
phos	Phosphate (ic)
pk	Pink
plag	Plagioclase
plcy	Pelecypod
pl	Plant
plty	Platy
por	Porous (sity)
pos	Possible (ility)
p-p	Pin-Point
pred	Predominant (ly)
prim	Primary
prob	Probable (ly)
prom	Prominent (ly)
pt	Part (ly)
ptch	Patch (es)
ptg	Parting
purp	Purple
pyr	Pyrite (ic) (ized)
pyrbit	Pyrobitumen
qtz	Quartz
qtzc	Quartzitic
qtzs	Quartzose
rd	Round (ed)
repl	Replaced (ing) (ment)
rexl	Recrystallized
rmn	Remains (nant)
rr	Rare
rsns	Resinous
rthy	Earthy
s	Small
sa	Salt (y)
S	Sulphur
s&p	Salt & Pepper
sat	Saturated
sb	Sub

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COMMON ABBREVIATIONS (CONTINUED)

sc	Scales
scat	Scattered
sd	Sand (1/16 - 2mm)
sdy	Sandy
sec	Secondary
sed	Sediment (ary)
sft	Soft
sh	Shale
shad	Shadow
shy	Shaly
sid	Siderite (ic)
sil	Silica
sks	Slickensided
sl	Slight (ly)
sln	Solution
slt	Silt
sltst	Siltstone
slty	Silty
sm	Smooth
SP	Small Plug (as prefix)
sp	Spot (ted) (ty)
spec	Speck (led)
spl	Sample
srt	Sort (ed) (ing)
strg	Stringer
Strom	Stromatoporoid
stromlt	Stromatolite
struc	Structure
styl	Stylolite (ic)
suc	Sucrosic
sug	Sugary
sup	Supported
surf	Surface
sz	Size

tab	Tabular
tex	Texture
Tham	Thamnopora
thk	Thick
thn	Thin
thru	Throughout
tr	Trace
trnsl	Translucent
trnsp	Transparent
tt	Tight
tub	Tubular
uncons	Unconsolidated
unident	Unidentifiable
up	Upper
v	Very
var	Variable
vcol	Varicolored
vfrac	Vertical Fracture
vgt	Varigated
vn	Vein
vrtl	Vertical
vug	Vug (gy) (ular)
w	Well
wh	White
wk	Weak
wthrd	Weathered
wtr	Water
wvy	Wavy
wxy	Waxy
wsrt	Well sorted

xbd	Cross-bedded
xbdg	Cross-bedding
xl	Crystal (line)
xlam	Cross-laminated
yel	Yellow
zn	Zone
*	Broken core
/	With
>10000	Permeability over 10000 mD
<0.01	Permeability less than 0.01 mD
CC	Cracked Core
DR	Drilled
LC	Lost Core
RU	Rubble
mD	milliDarcy

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