

# HALLIBURTON

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## Sperry Drilling

### Cuttings Report

**Shell Offshore Inc.  
OCS Y-2321 #001  
Burger J  
Posey Block 6912  
API No. 55-352-00004-00**

**RIG: Polar Pioneer**

**SDL Personnel:**

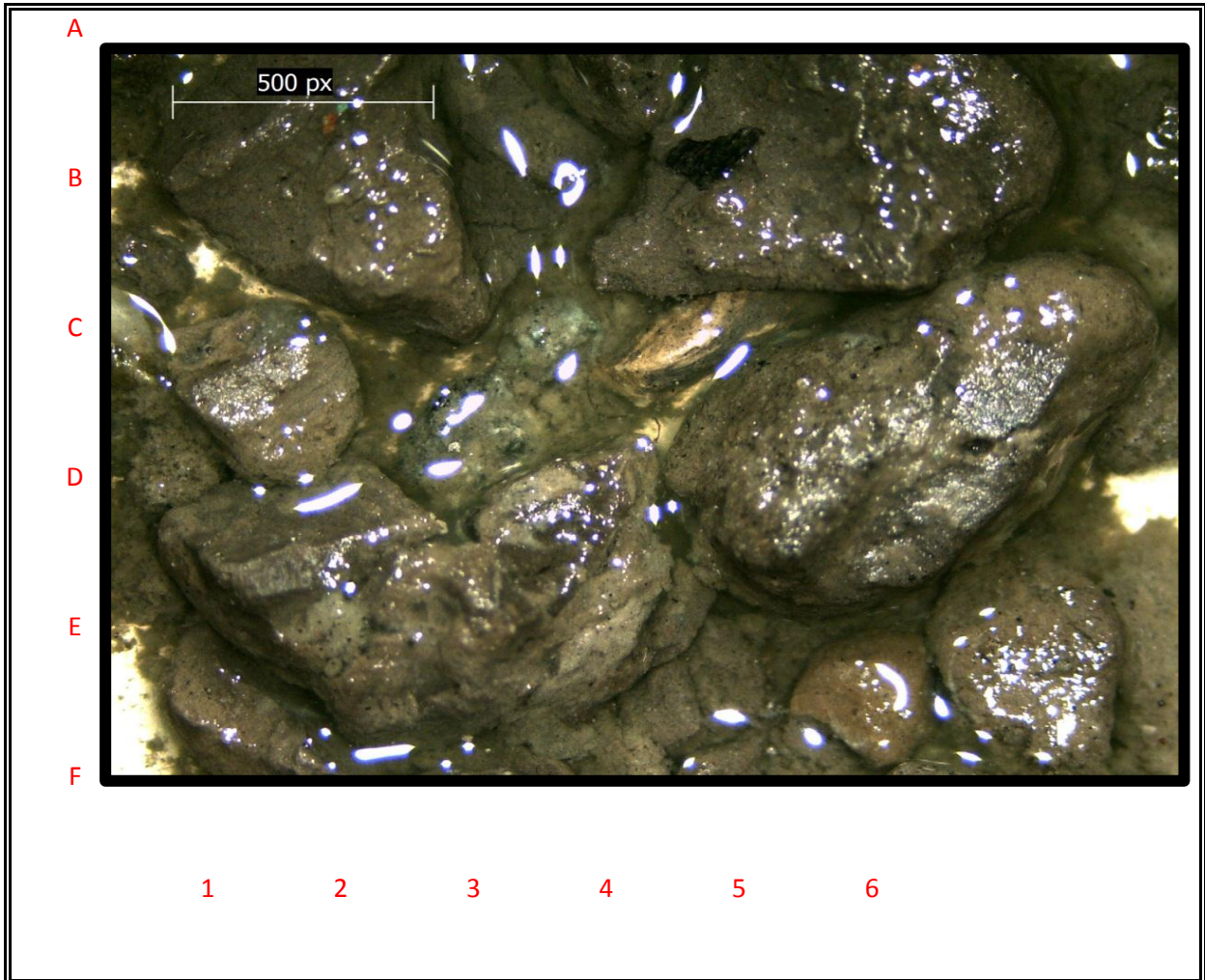
**Craig Amos– Unit Manager  
Rebecca Mulkey, Ryan Lynburg– Logging Specialists**



# DEPTH

**1530'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	1530'	TIME		DATE	9/5/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
70%	SLTST	lt gry, v sft, med grn, tr qrtz.			
30%	CMT				

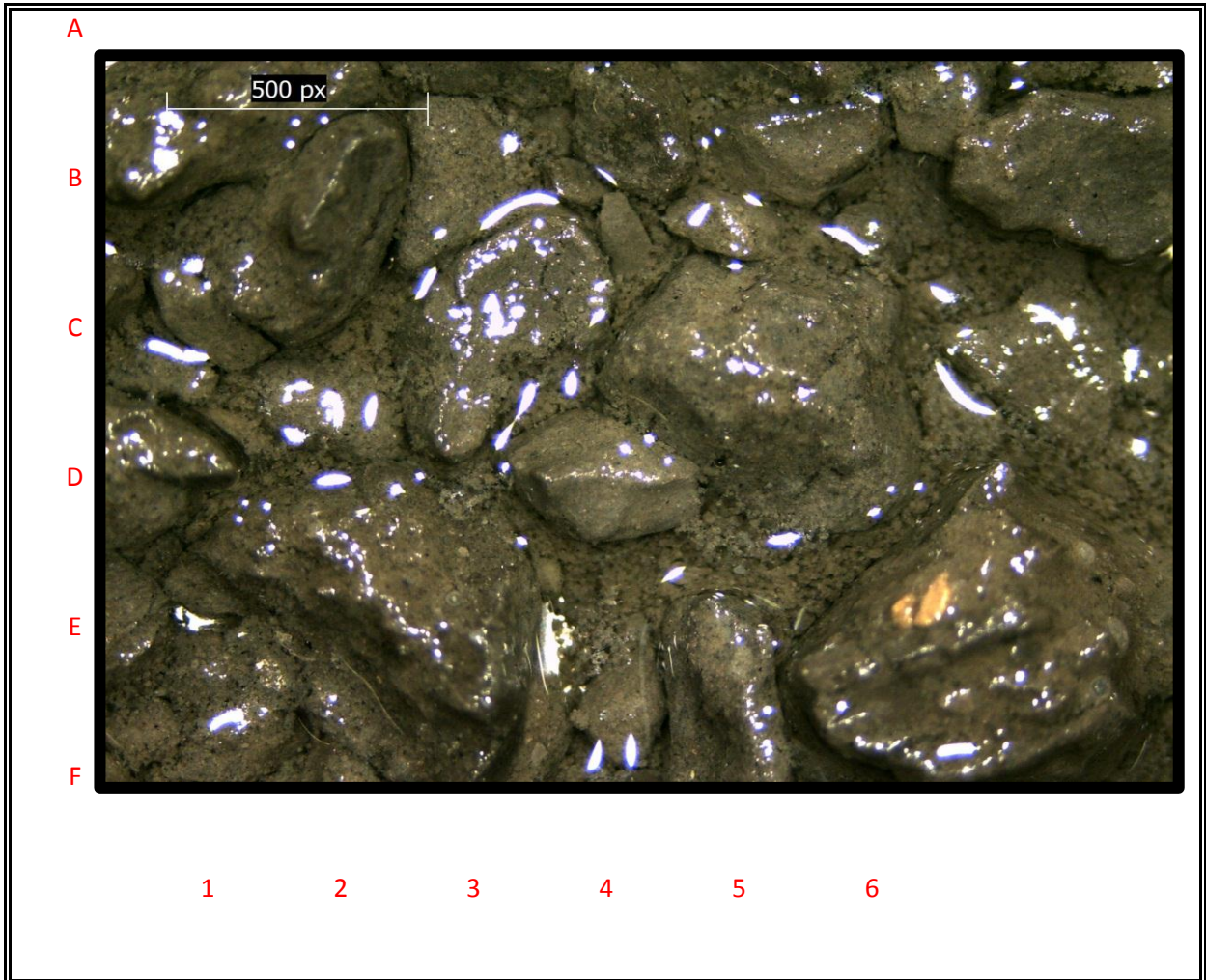




# DEPTH

**1560'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



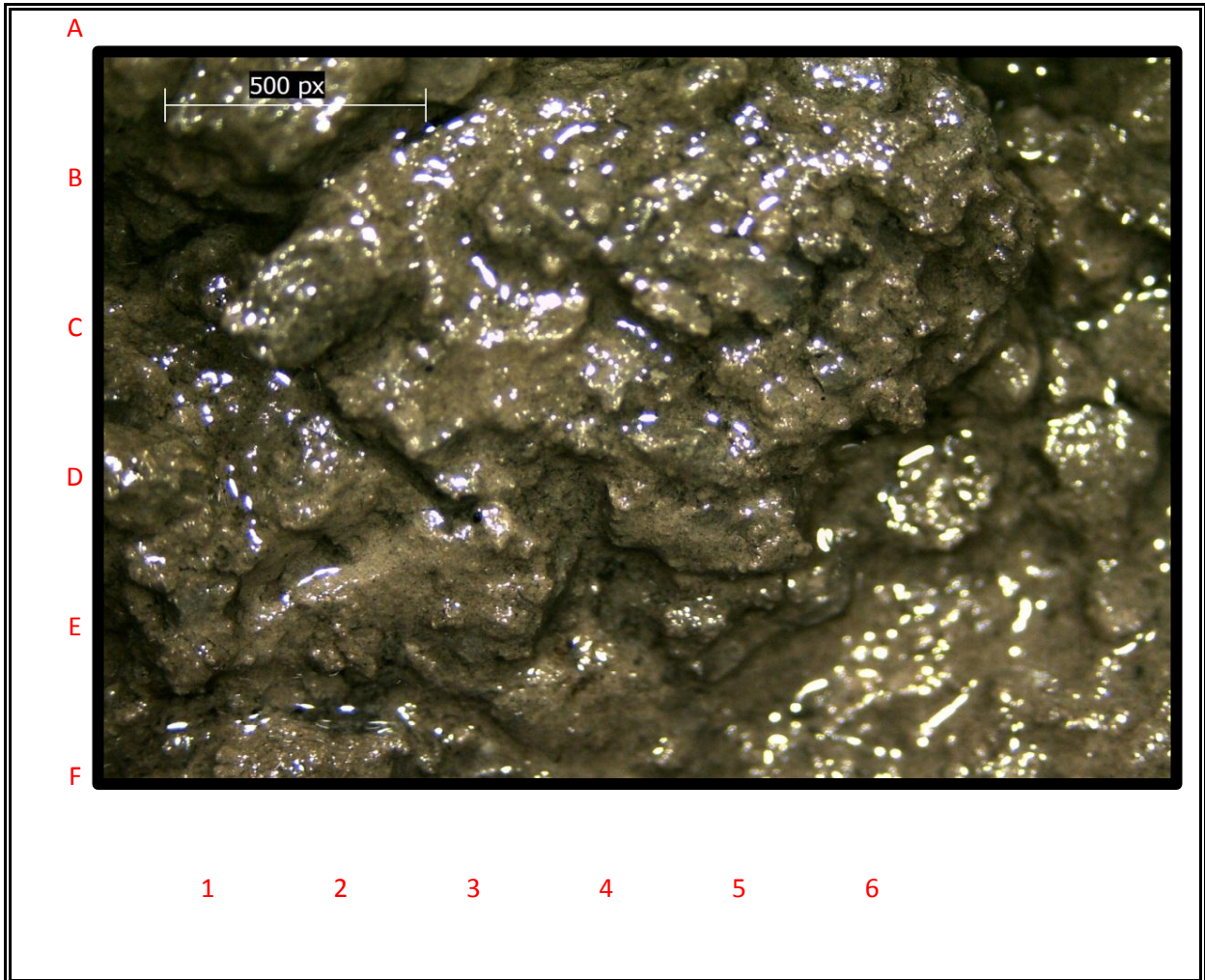
DEPTH	1560'	TIME		DATE	9/5/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
100%	CLYST	lt gry, v sft, v-fn gn, occ blk, wxy-erthy, slty.			
		tr cmt			



# DEPTH

**1590'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	1590'	TIME		DATE	9/5/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
100%	CLYST	lt gry, v sft, v-fn gn, occ blk, wxy-erthy, slty.			

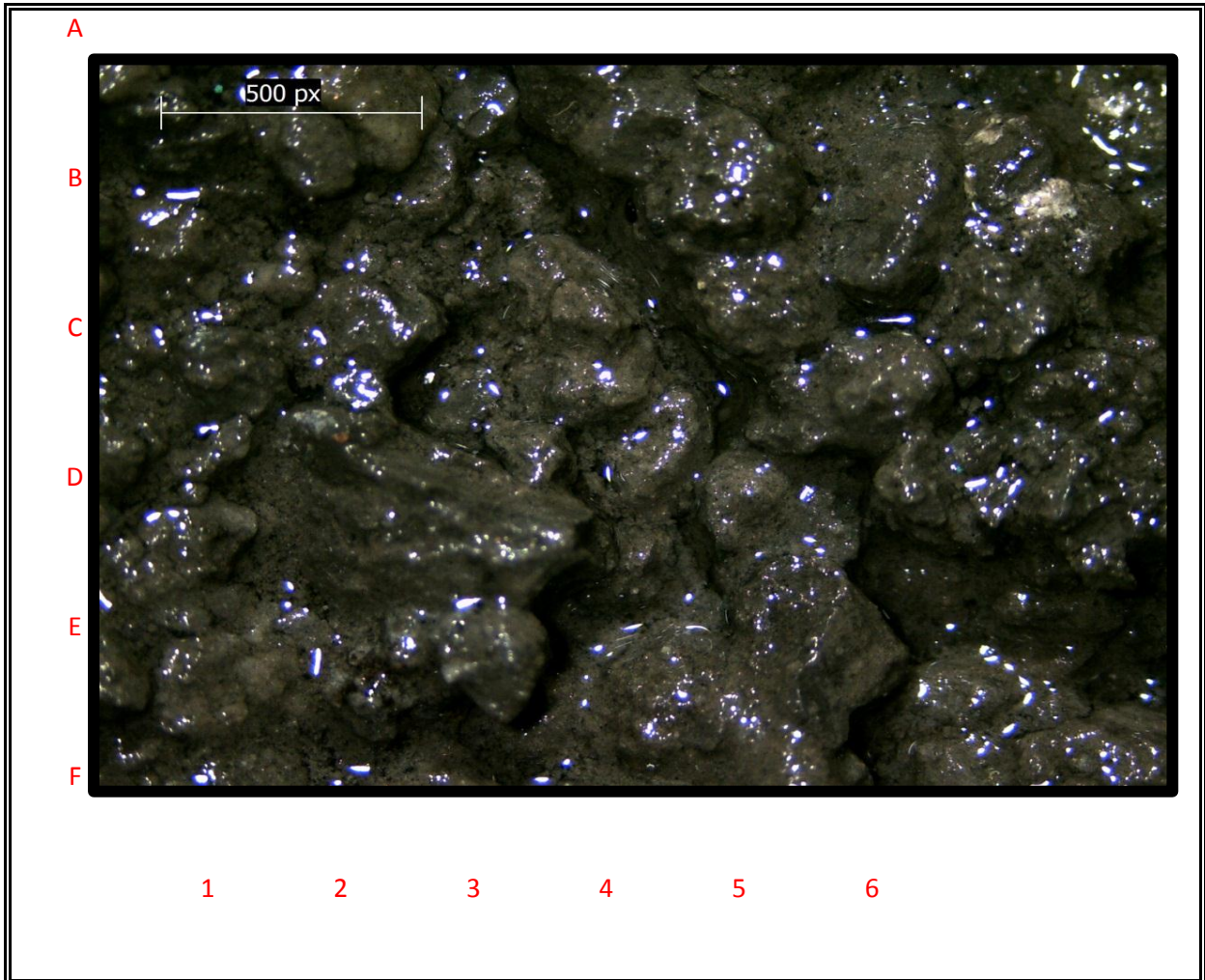




# DEPTH

**1620'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



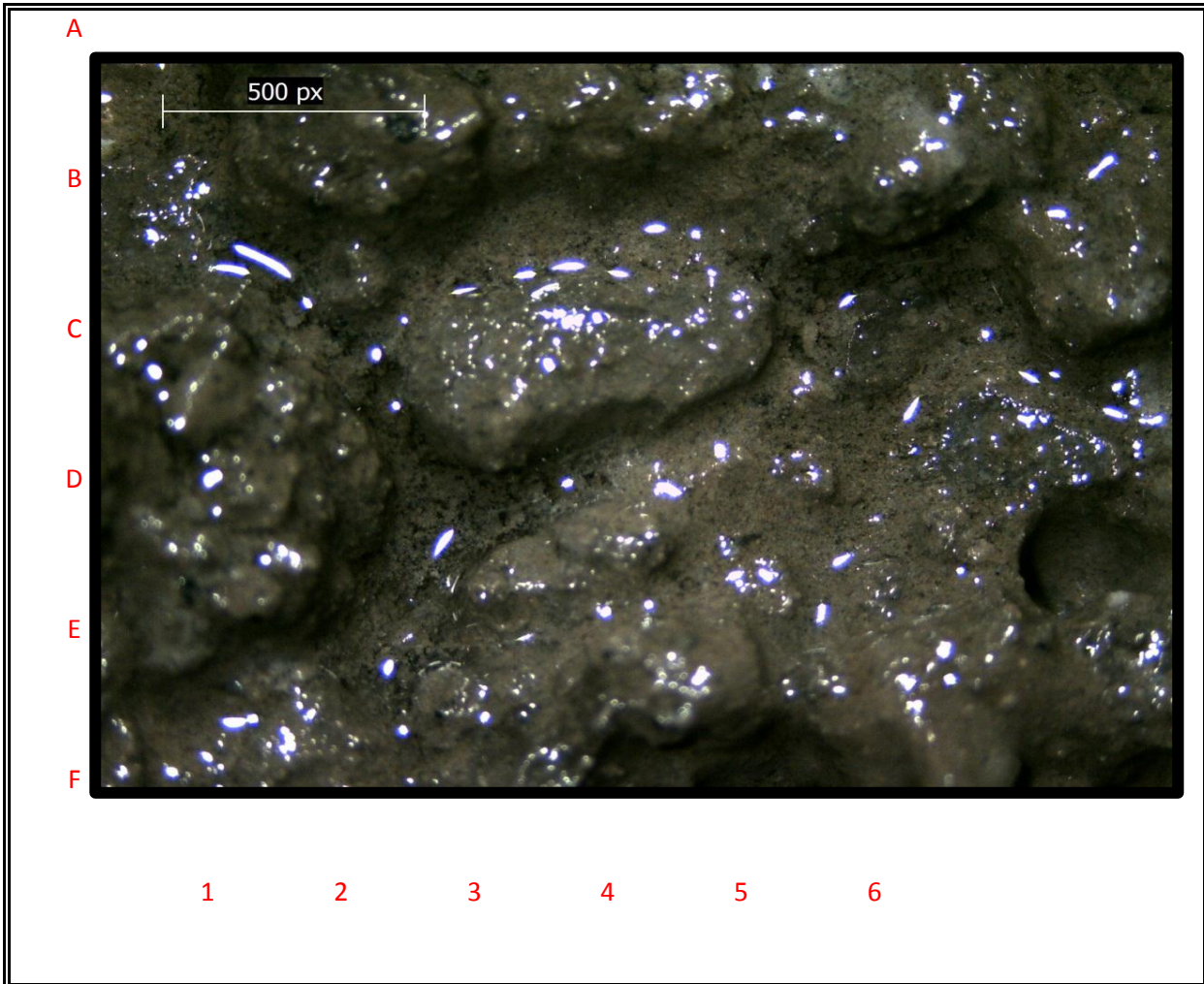
DEPTH	1620'	TIME		DATE	9/5/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
100%	CLYST	med-lt gry, v sft, v-fn gn, occ blk, tr sltst.			



# DEPTH

**1650'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



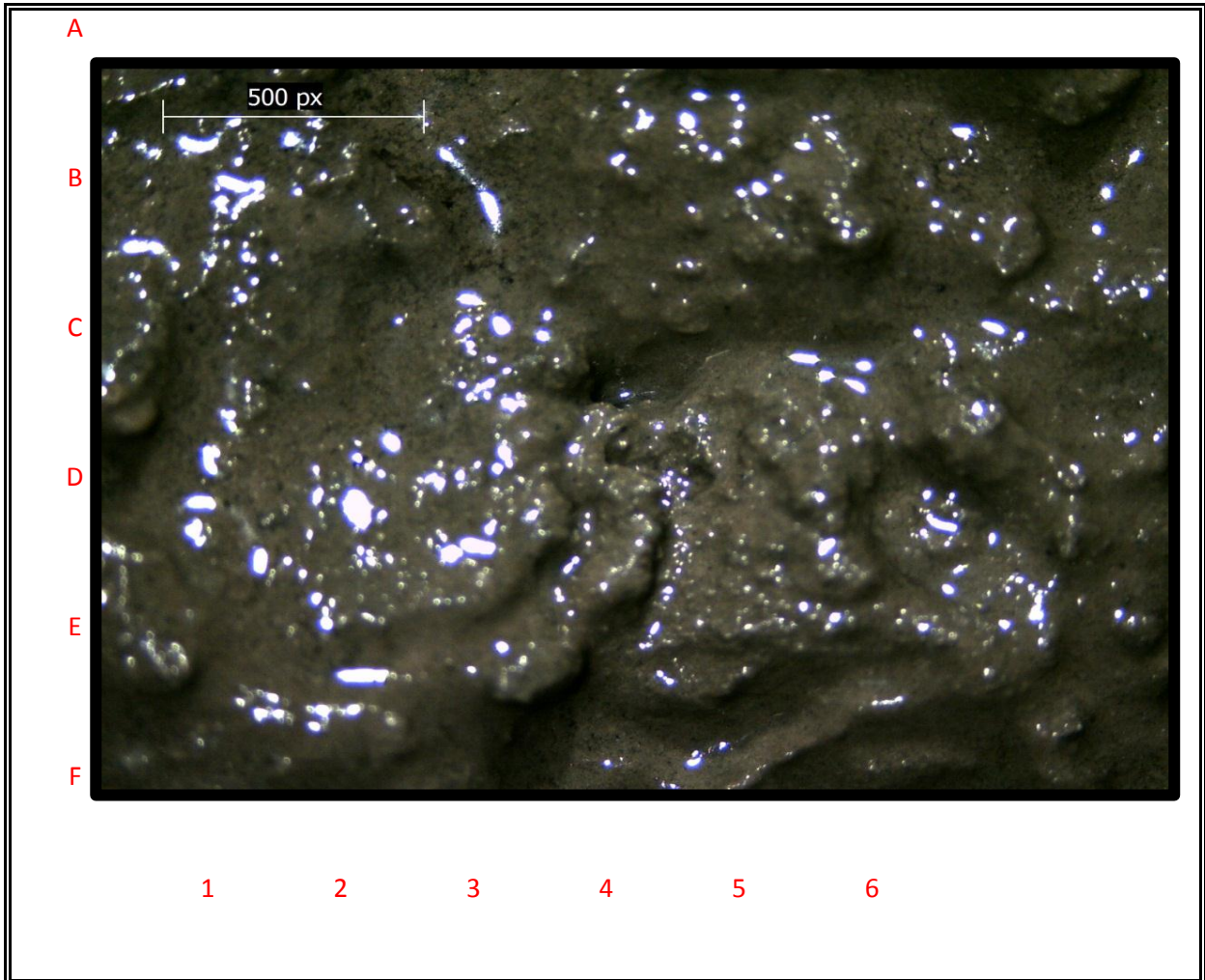
DEPTH	1650'	TIME		DATE	9/5/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
100%	CLYST	med-lt gry, v sft, v-fn gn, occ blk, tr sltst.			



# DEPTH

**1680'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	1680'	TIME		DATE	9/5/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
100%	CLYST	med-lt gry, v sft, v-fn gn, occ blk,			
		wl srt, tr sltst.			

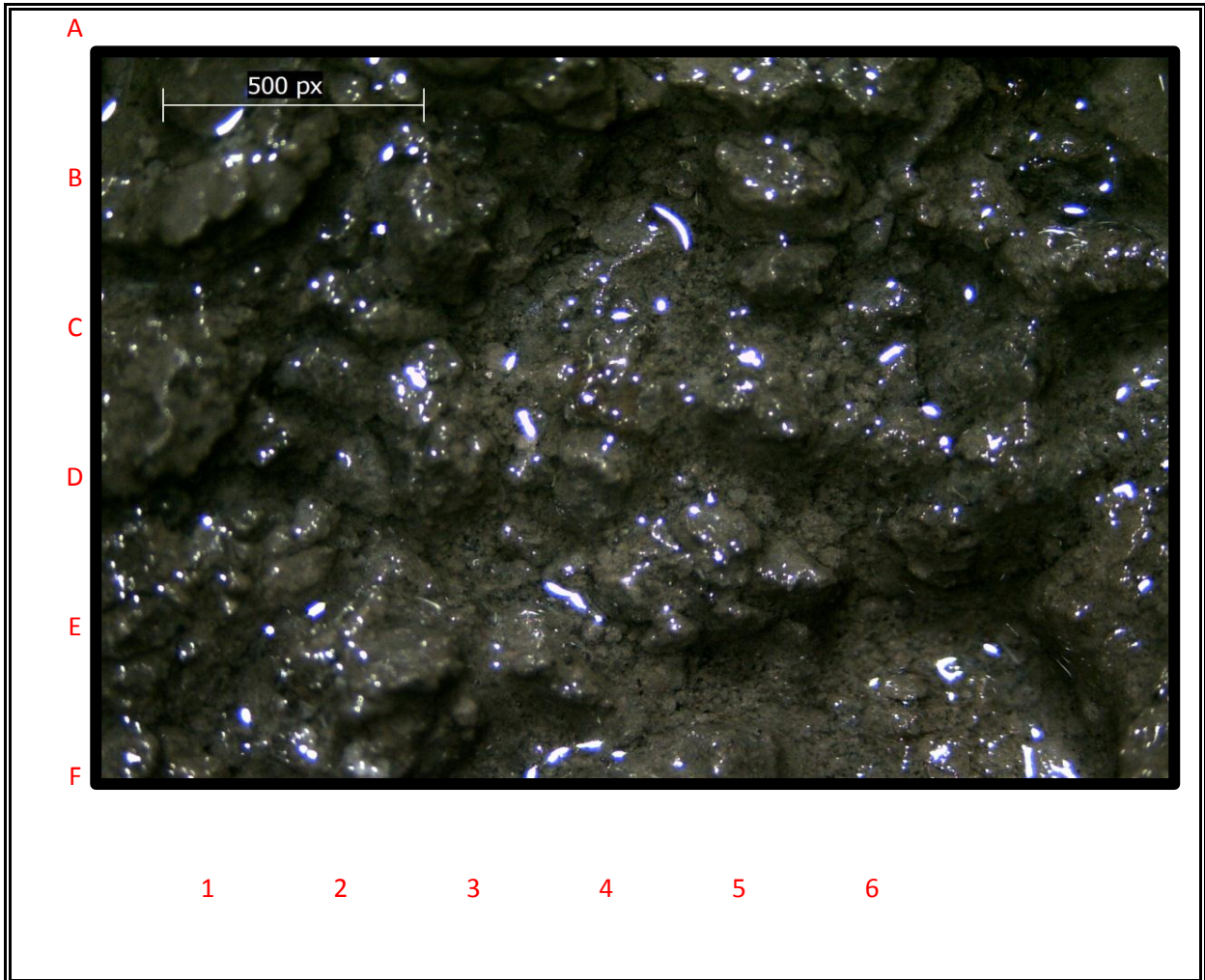




# DEPTH

**1710'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	1710'	TIME		DATE	9/5/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
100%	CLYST	med-lt gry, v sft, v-fn gn, occ blk,			
		wl srt, occ lithic, tr sltst.			



# DEPTH

**1740'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	1740'	TIME		DATE	9/5/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
100%	NO SAMPLE	due to computer error.			



# DEPTH

**1770'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



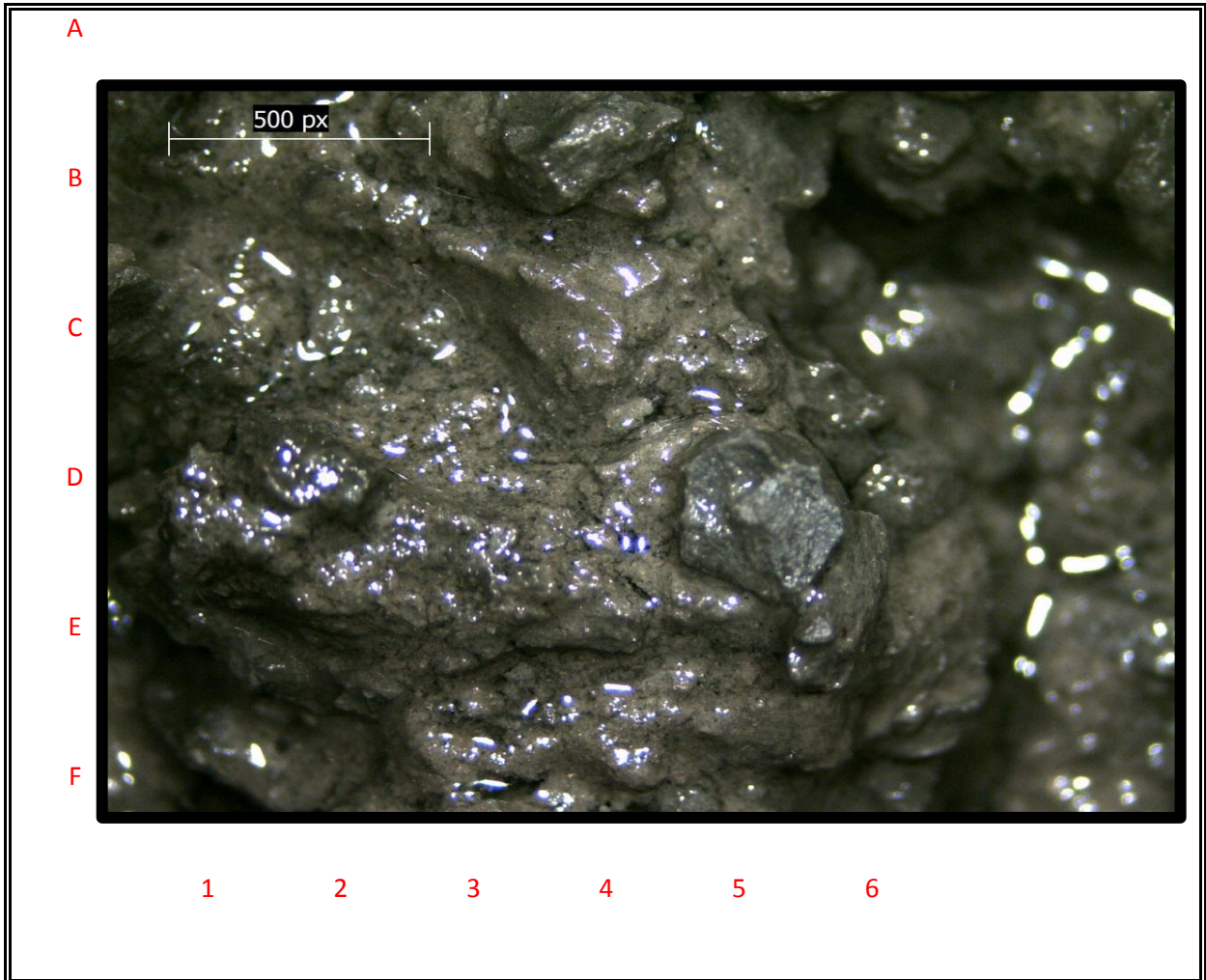
DEPTH	1770'	TIME		DATE	9/5/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
100%	NO SAMPLE	due to computer error.			



# DEPTH

**1800'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



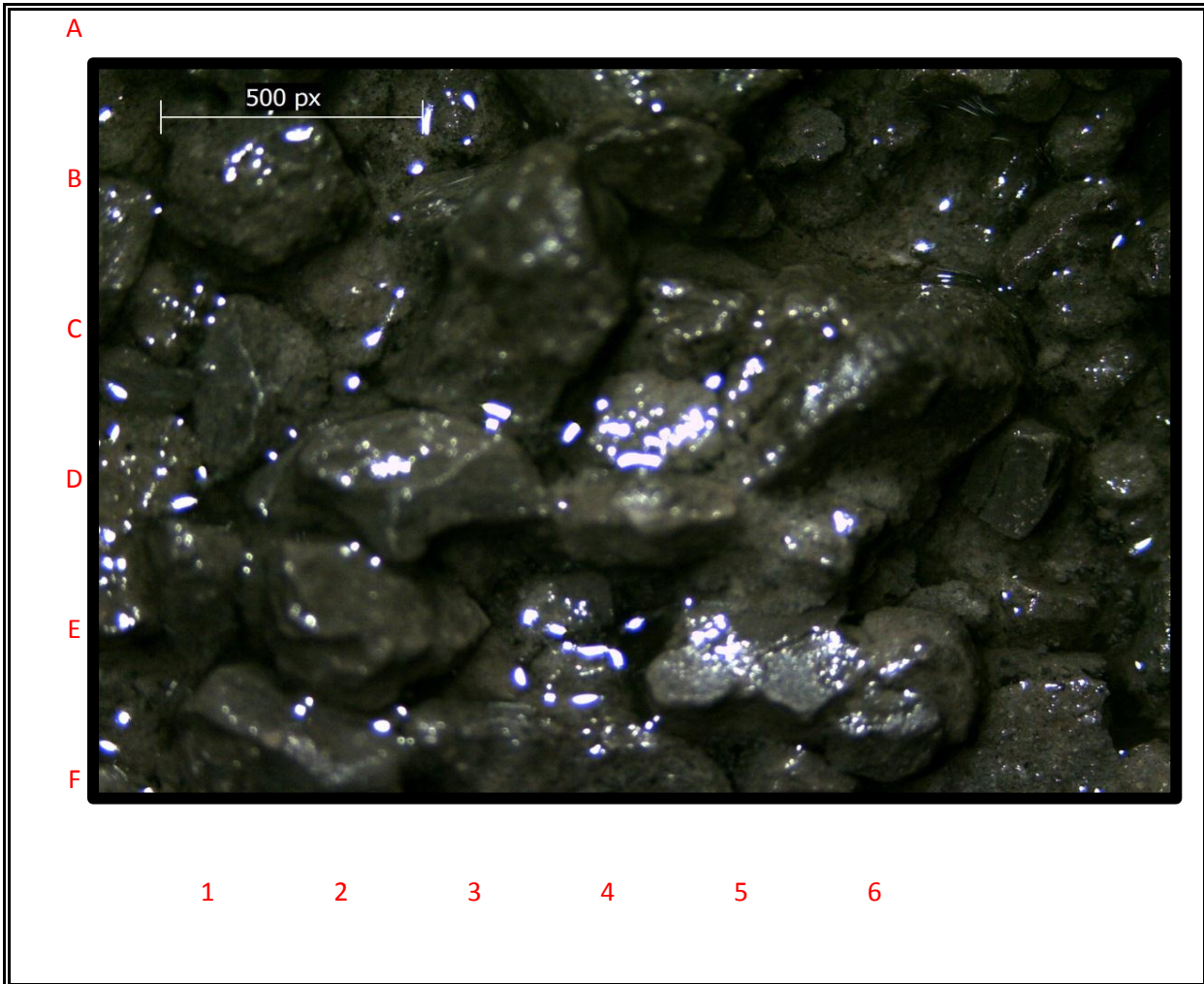
DEPTH	1800'	TIME		DATE	9/5/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
100%	CLYST	med gry-lt gry, v sft, v fn grn, occ blk, well srt.			



# DEPTH

**1830'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	1830'	TIME		DATE	9/5/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
90%	CLYST	med-lt gry, v sft, v fn, occ blk,			
10%	SLTST	lt gry, v sft, v fn.			

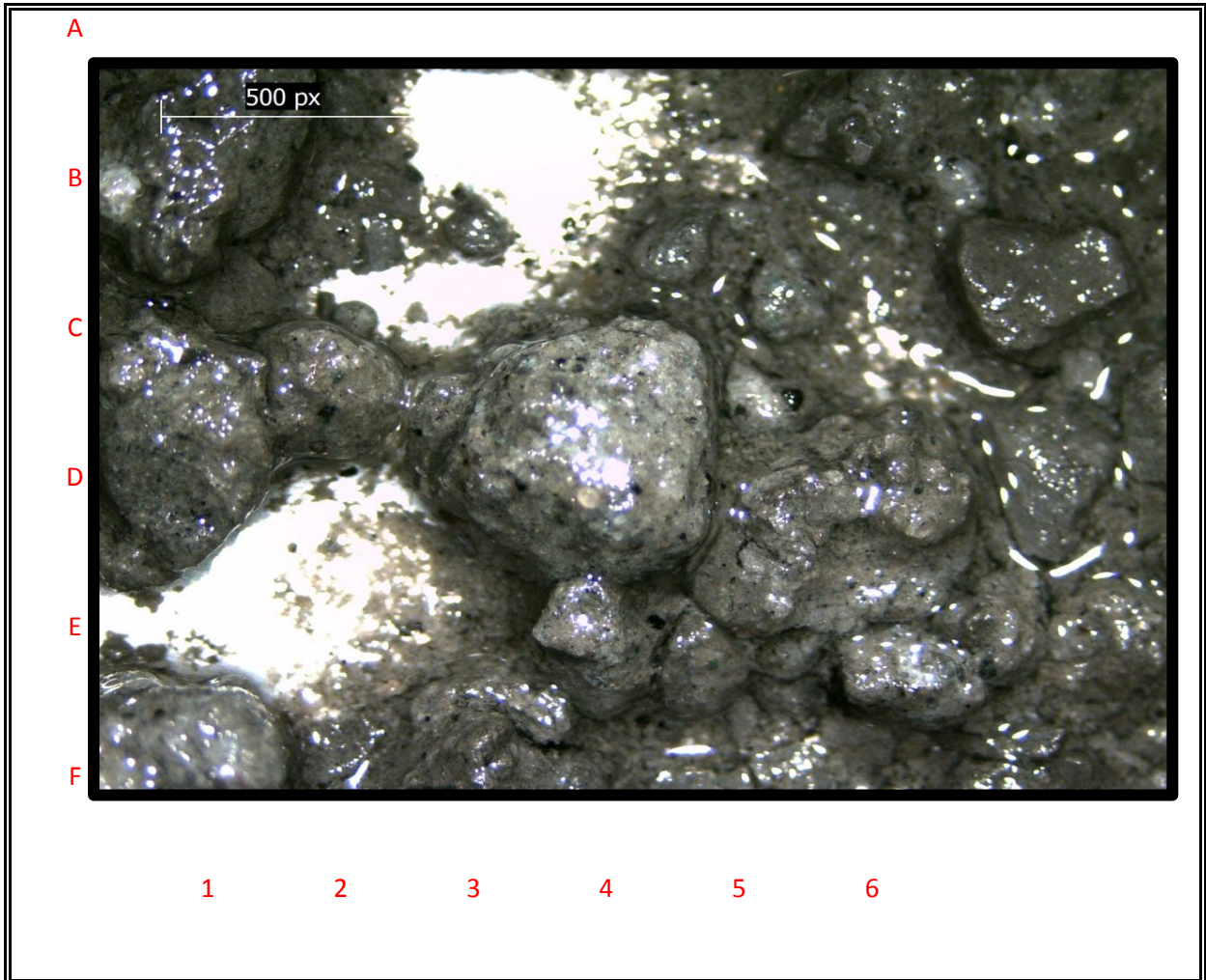




# DEPTH

**1860'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



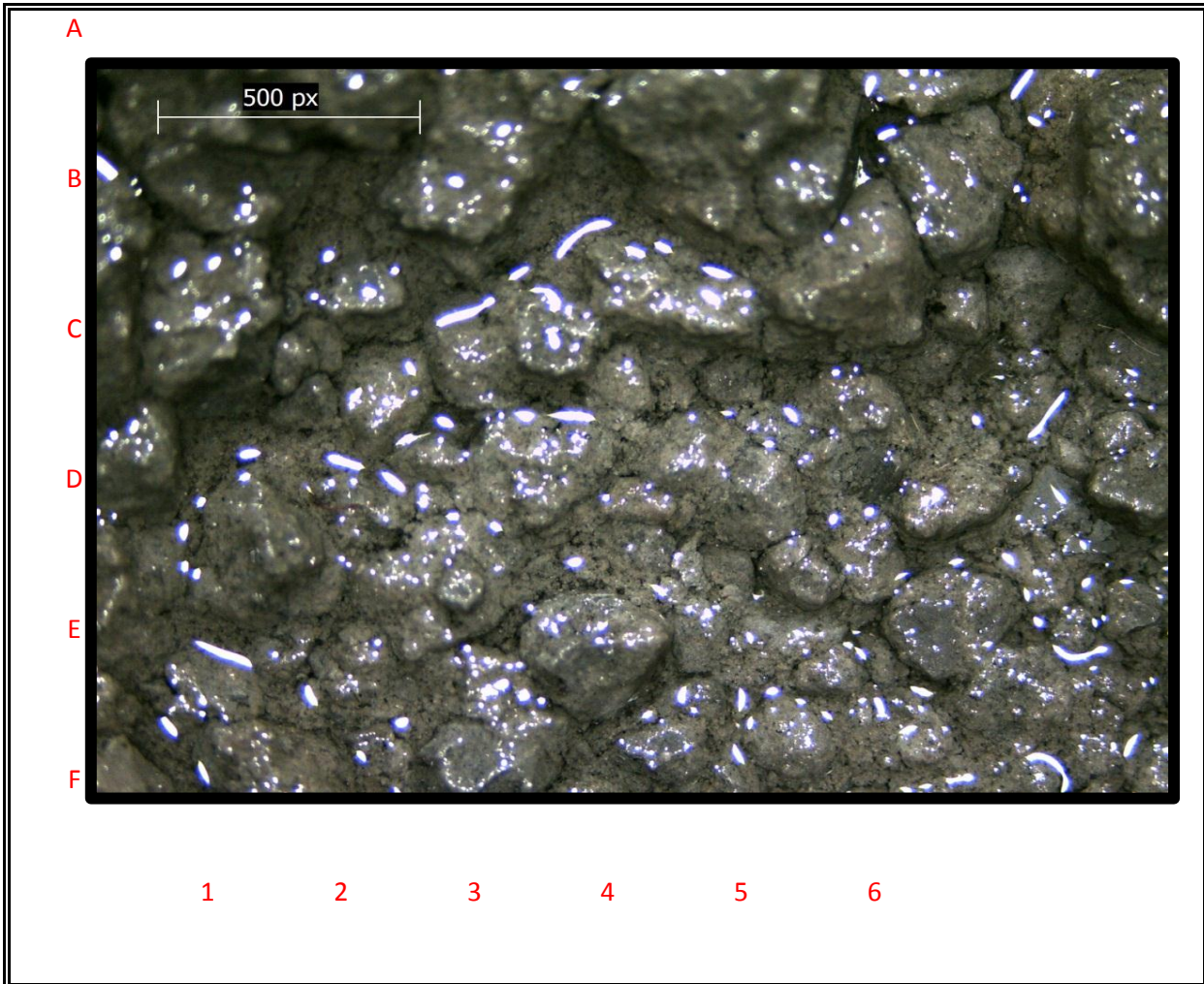
DEPTH	1860'	TIME		DATE	9/5/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
90%	CLYST	lt gry- med gry, v fn, tr blk, sft-v sft,			
10%	SST	lt gry, rnd-subrnd, wl srt, tr lithinc.			



# DEPTH

**1890'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	1890'	TIME		DATE	9/5/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
90%	CLYST	lt gry- tan, v sft, fri, ang to blk,			
10%	SST	lt gry, rnd-subrnd, wl srt,			

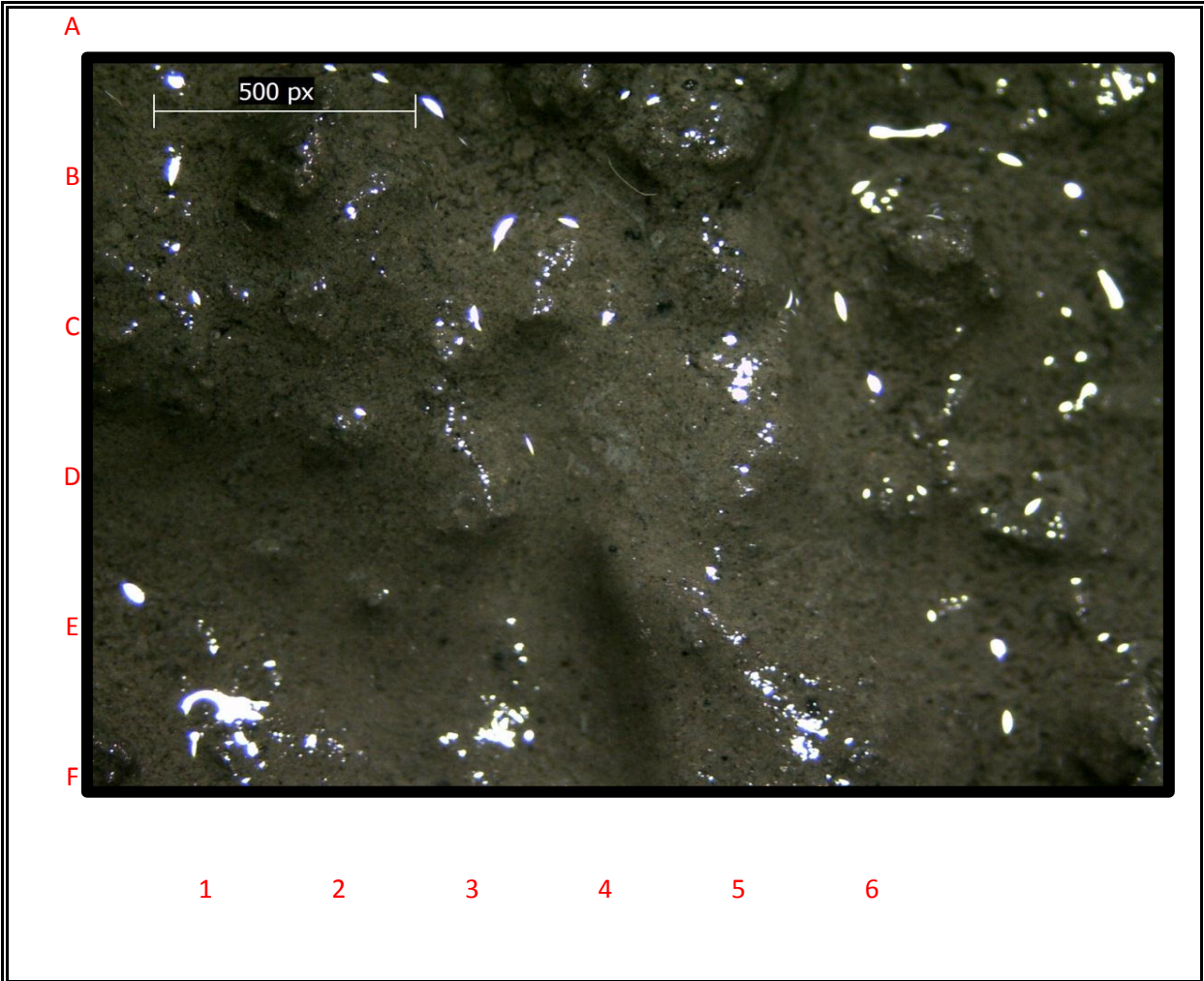




# DEPTH

**1920'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



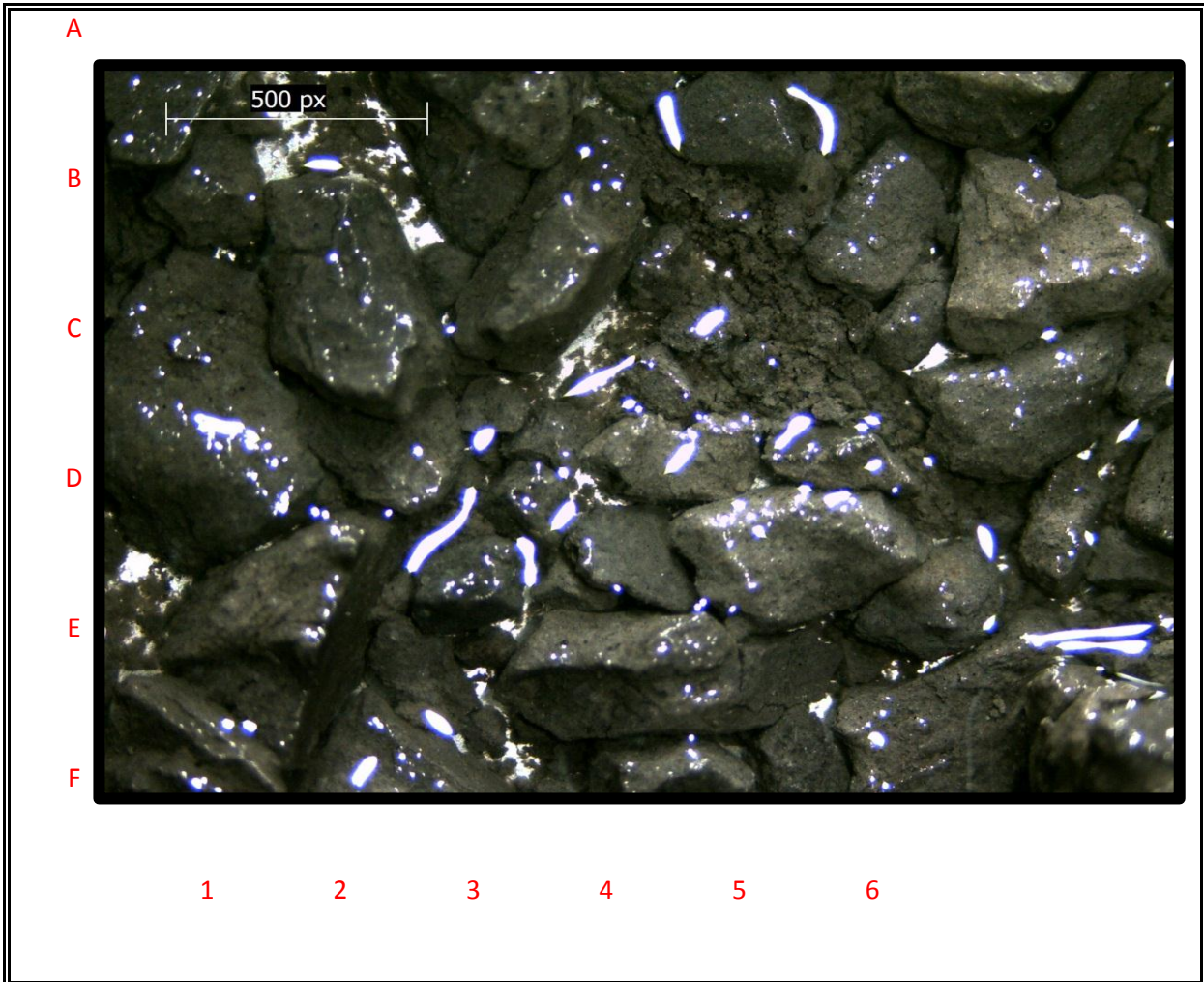
DEPTH	1920'	TIME		DATE	9/5/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
100%	CLYST	lt gry- lt tan, v sft, v fn, occ blk, fri, tr snd.			



# DEPTH

**1950'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	1950'	TIME		DATE	9/5/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
100%	CLYST	lt gry, v sft, vfn, blkly to ang, occ lam, tr plty, fri, occ snd.			

# DEPTH



**1980'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	1980'	TIME		DATE	9/5/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
100%	CLYST	lt-med gry,ang to blk, sft to v sft, occ lam, occ snd.			

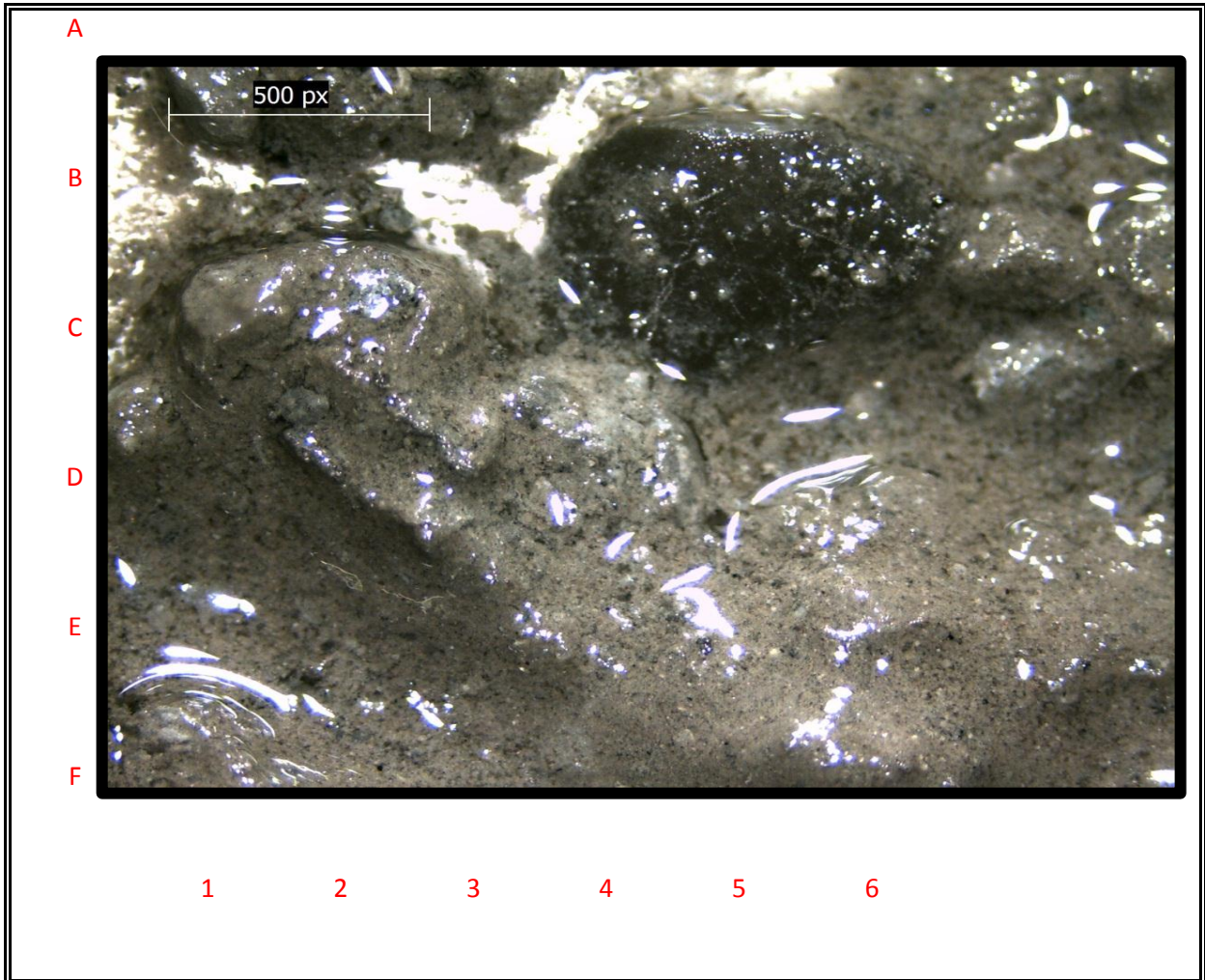




# DEPTH

**2010'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



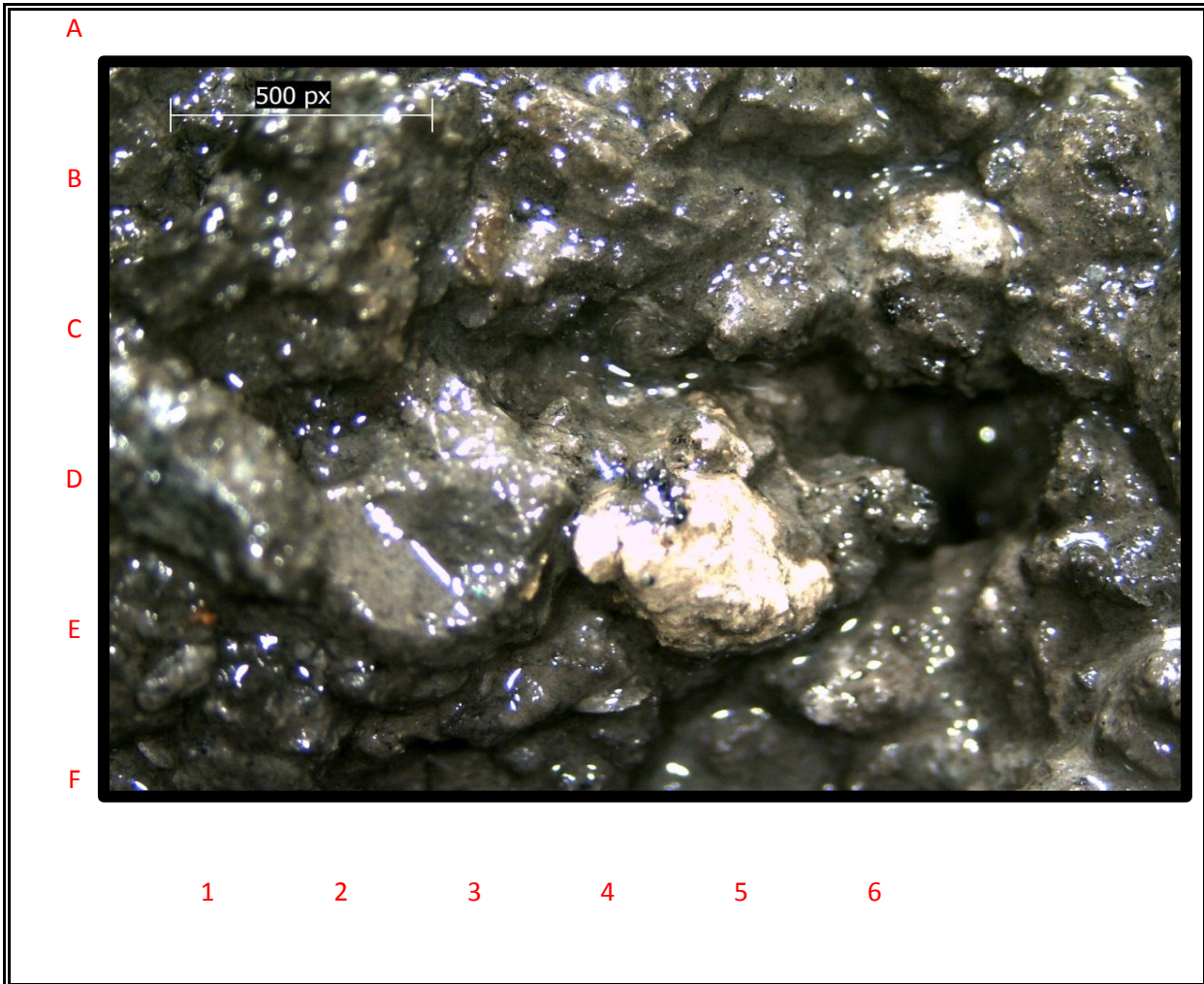
DEPTH	2010'	TIME		DATE	9/5/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
80%	CLYST	lt-med gry, sft- v sft, blk, erthy, tr sst,			
20%	LST	crm-lt gry, hrd frm, fn sub-rnd grns,			
		erthy, tr blk chrt, occ dol strgr.			



# DEPTH

**2040'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	2040'	TIME		DATE	9/5/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
90%	CLYST	lt-med gry, occ lt tan, v sft, blk, erthy-sm,			
10%	LST	crm-wht, hrd-frm, fn sub-rnd grns,			
		erthy, tr blk chrt, r dol strgr.			





# DEPTH

**2070'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



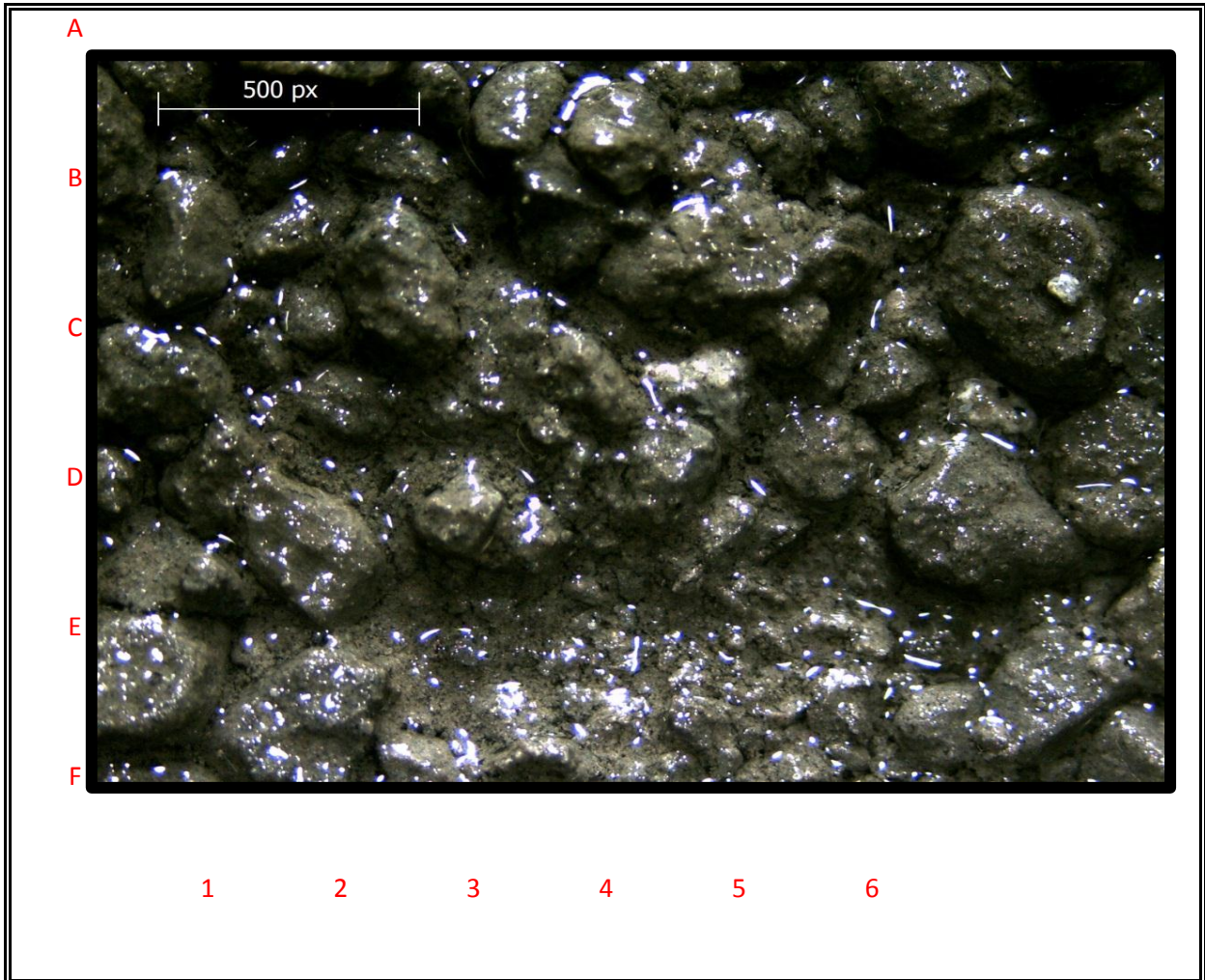
DEPTH	2070'	TIME		DATE	9/5/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
95%	CLYST	lt-med gry, occ lt tan, v sft, blk, erthy-sm,			
5%	LST	crm-wht, hrd-frm, fn sub-rnd grns,			
		erthy, tr blk chrt, r dol strgr.			



# DEPTH

**2100'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	2100'	TIME		DATE	9/5/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
90%	CLYST	lt-med gry, v fn, wl srt, arg, prly cmted, sft-vsft,			
10%	SLTST	lt-med gry, sft- v sft,			
		occ crm ls strgrs.			

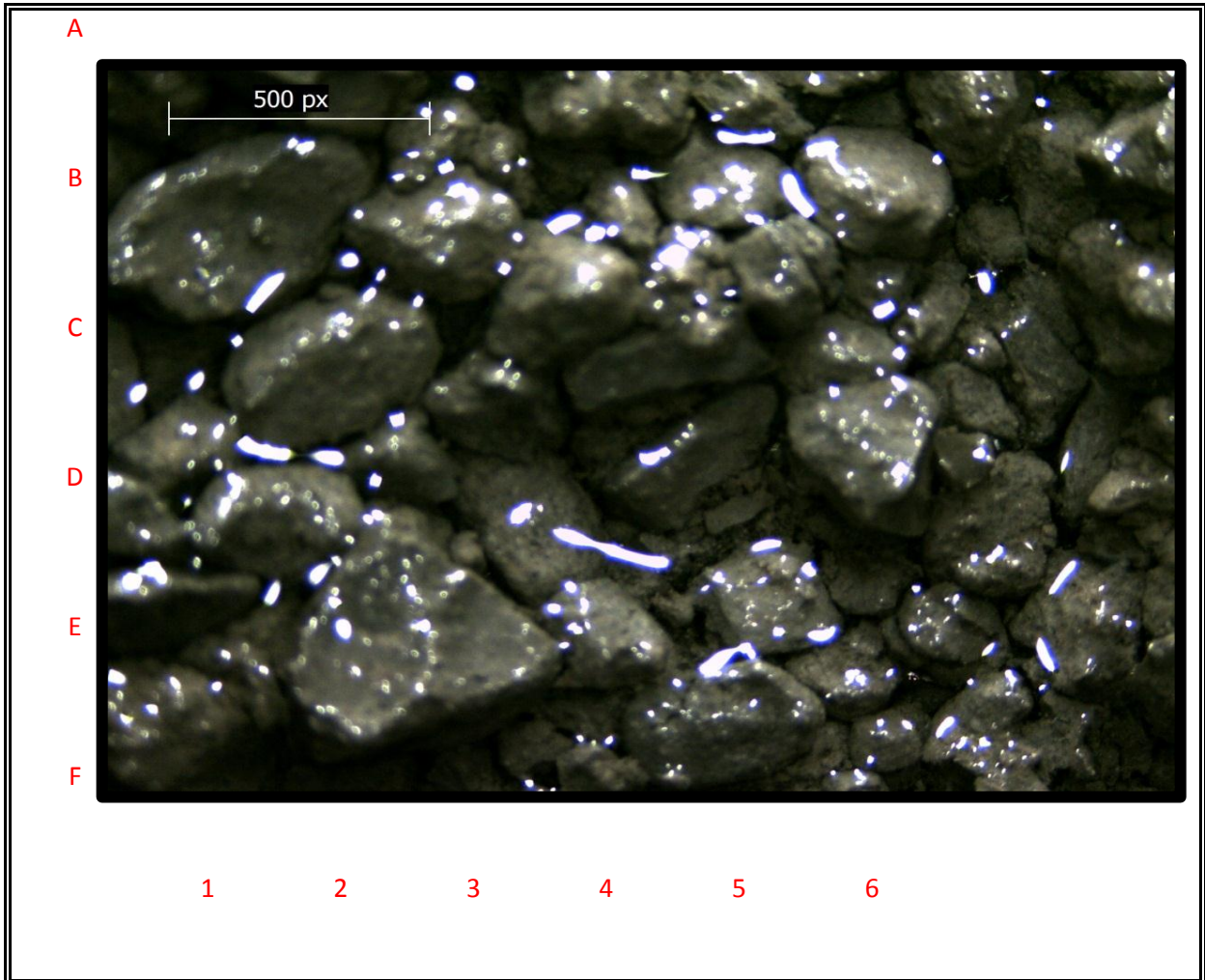




# DEPTH

**2130'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	2130'	TIME		DATE	9/5/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
90%	CLYST	lt-med gry, v fn, wl srt, arg, prly cmted, sft-vsft.			
10%	SLTST	lt-med gry, sft- v sft.			

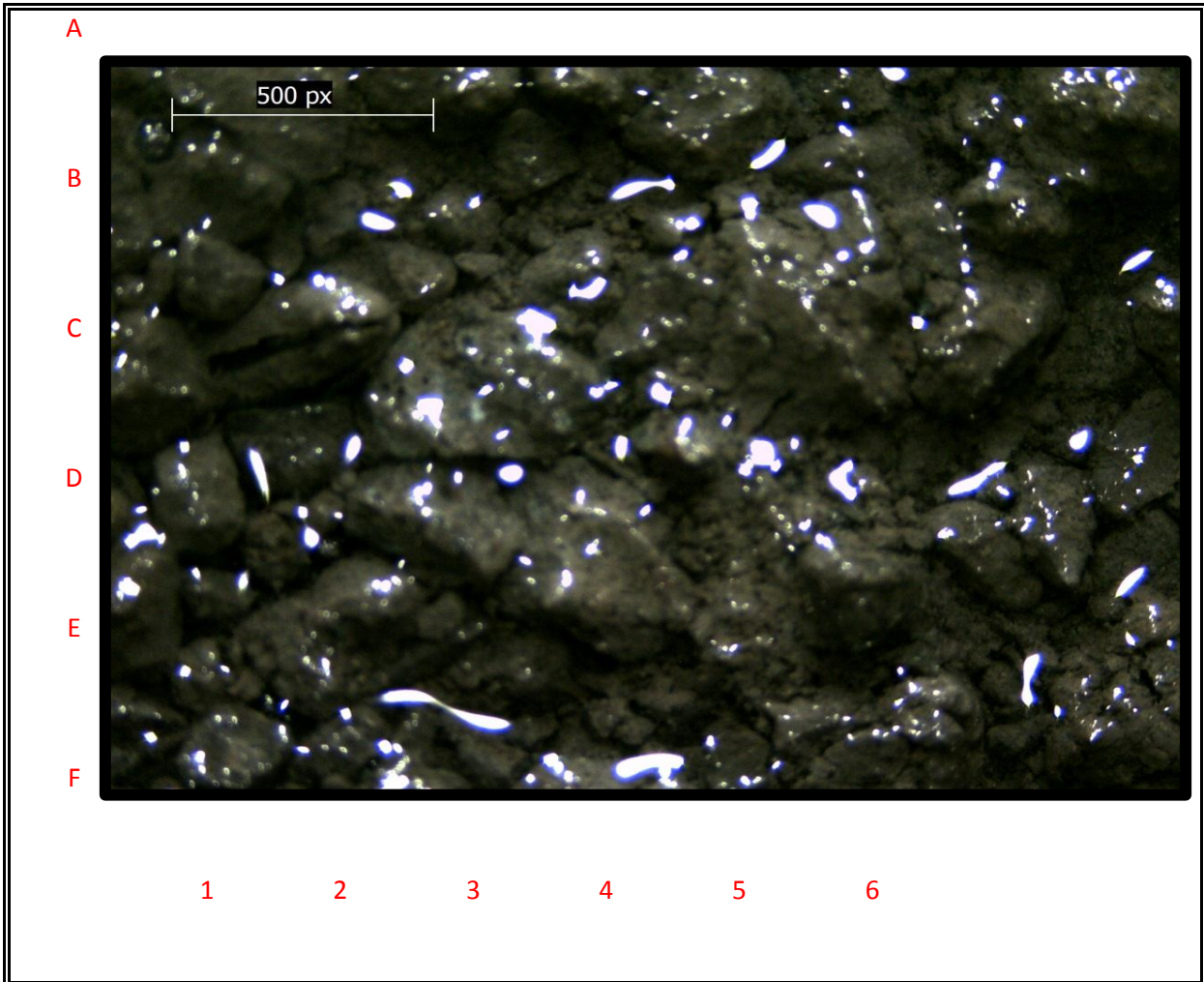




# DEPTH

**2160'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



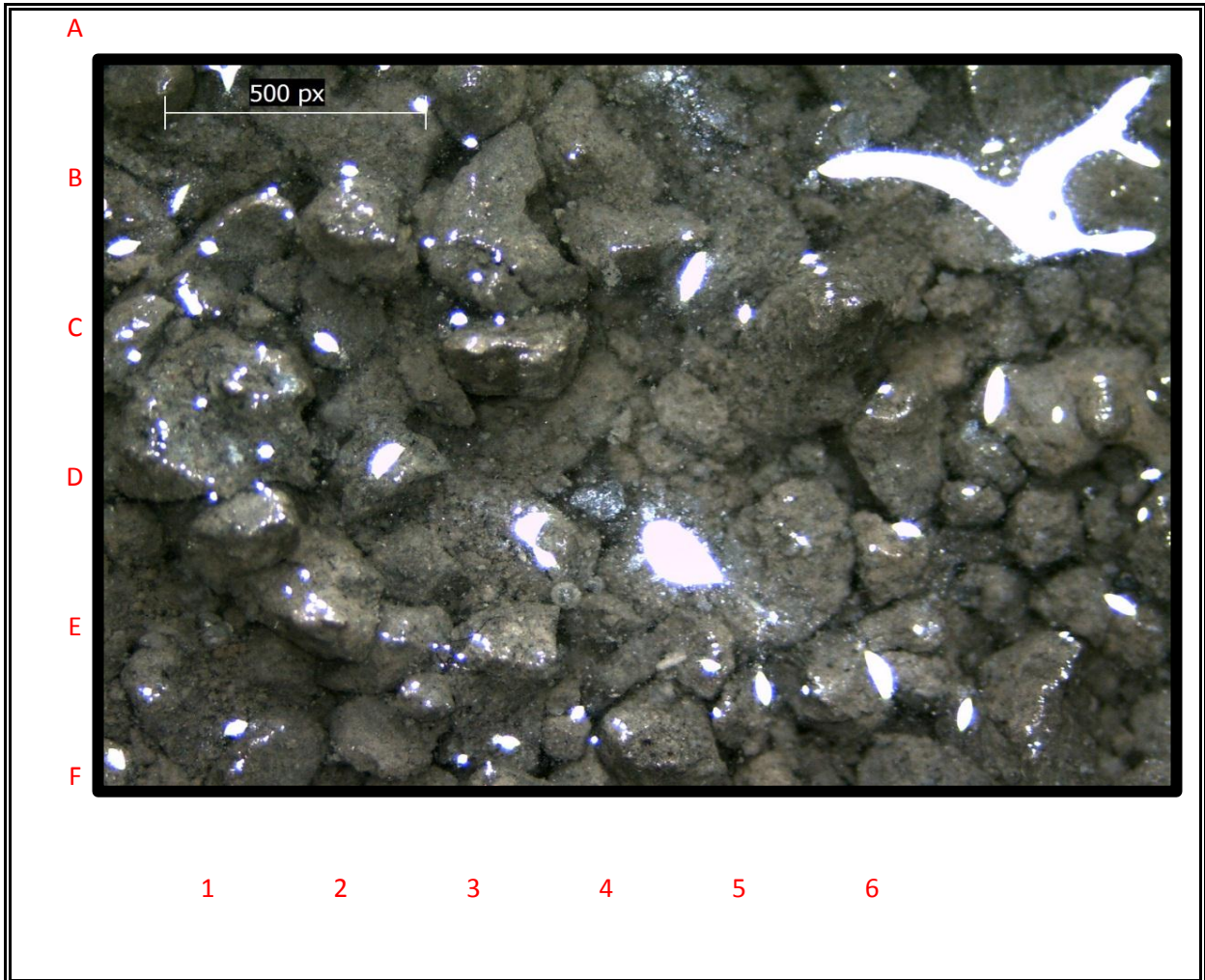
DEPTH	2160'	TIME		DATE	9/5/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
90%	CLYST	lt gry, sft, mod blk, sm to erthy.			
10%	SLTST	lt-med gry, sft- v sft.			



# DEPTH

**2190'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



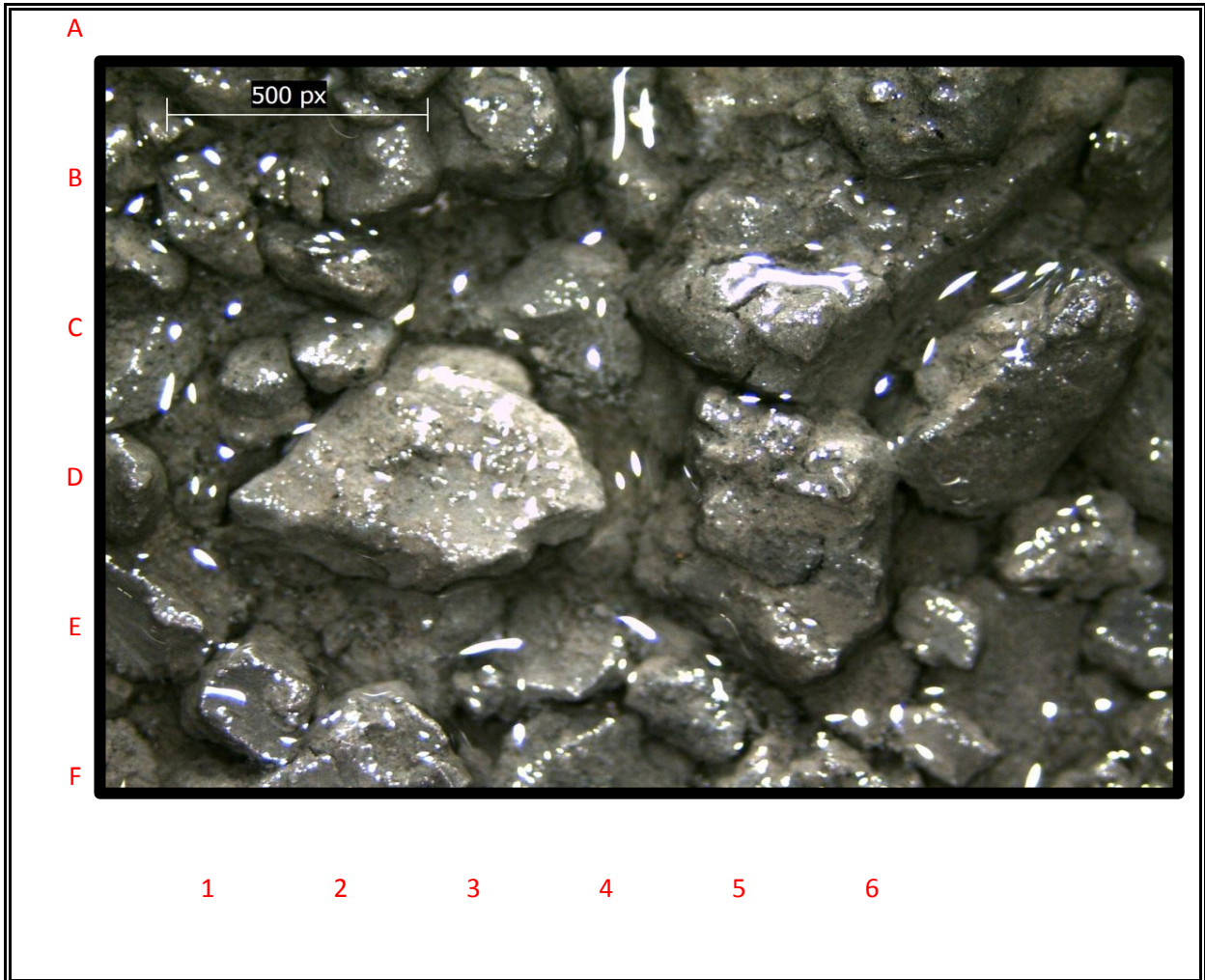
DEPTH	2190'	TIME		DATE	9/5/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
90%	CLYST	lt gry, sft, mod blk, sm to erthy.			
10%	SLTST	lt-med gry, sft- v sft.			



# DEPTH

**2220'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	2220'	TIME		DATE	9/5/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
100%	CLYST	lt gry, sft, mod blk, sm to erthy, r sltst gr.			

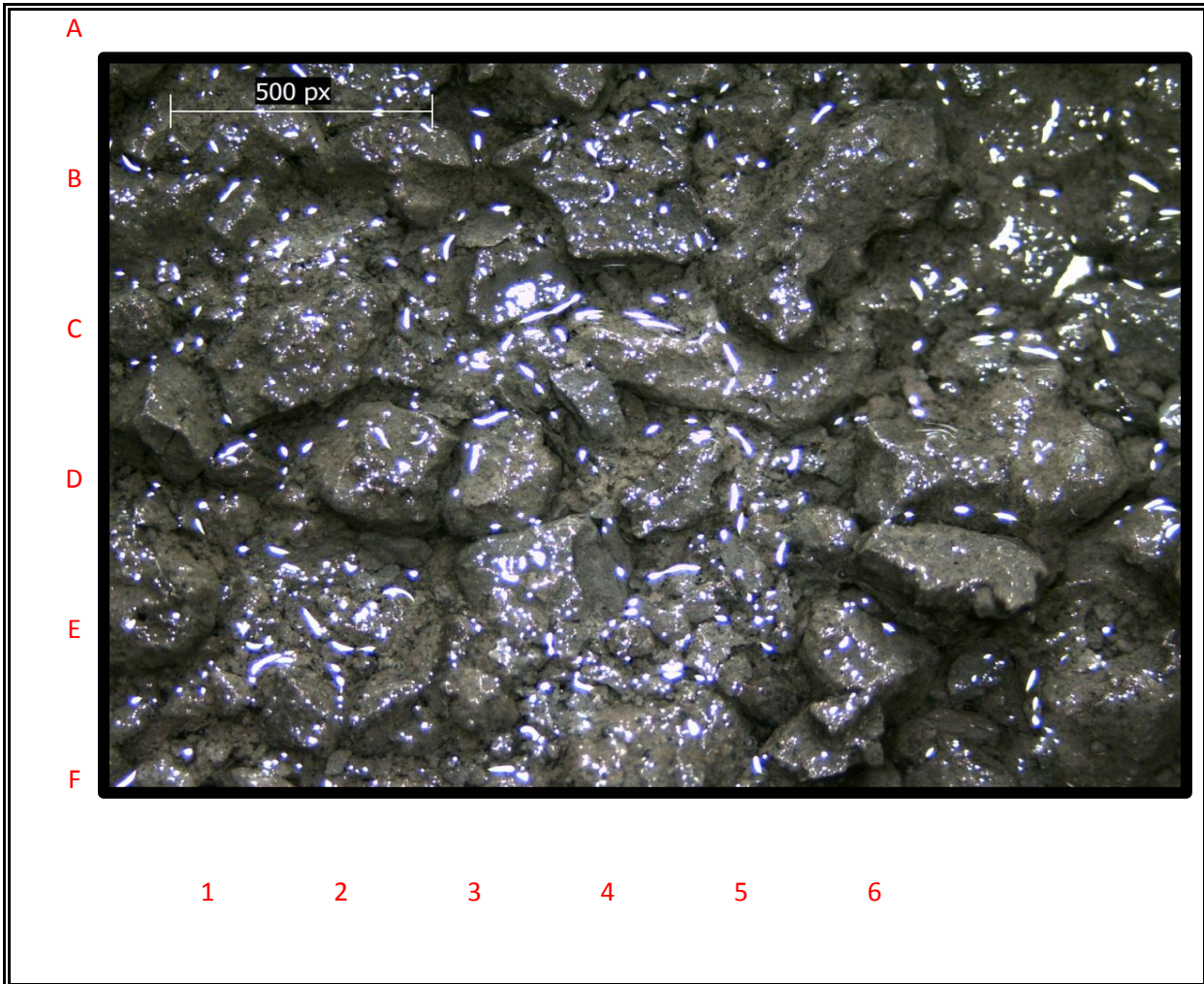




# DEPTH

**2250'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



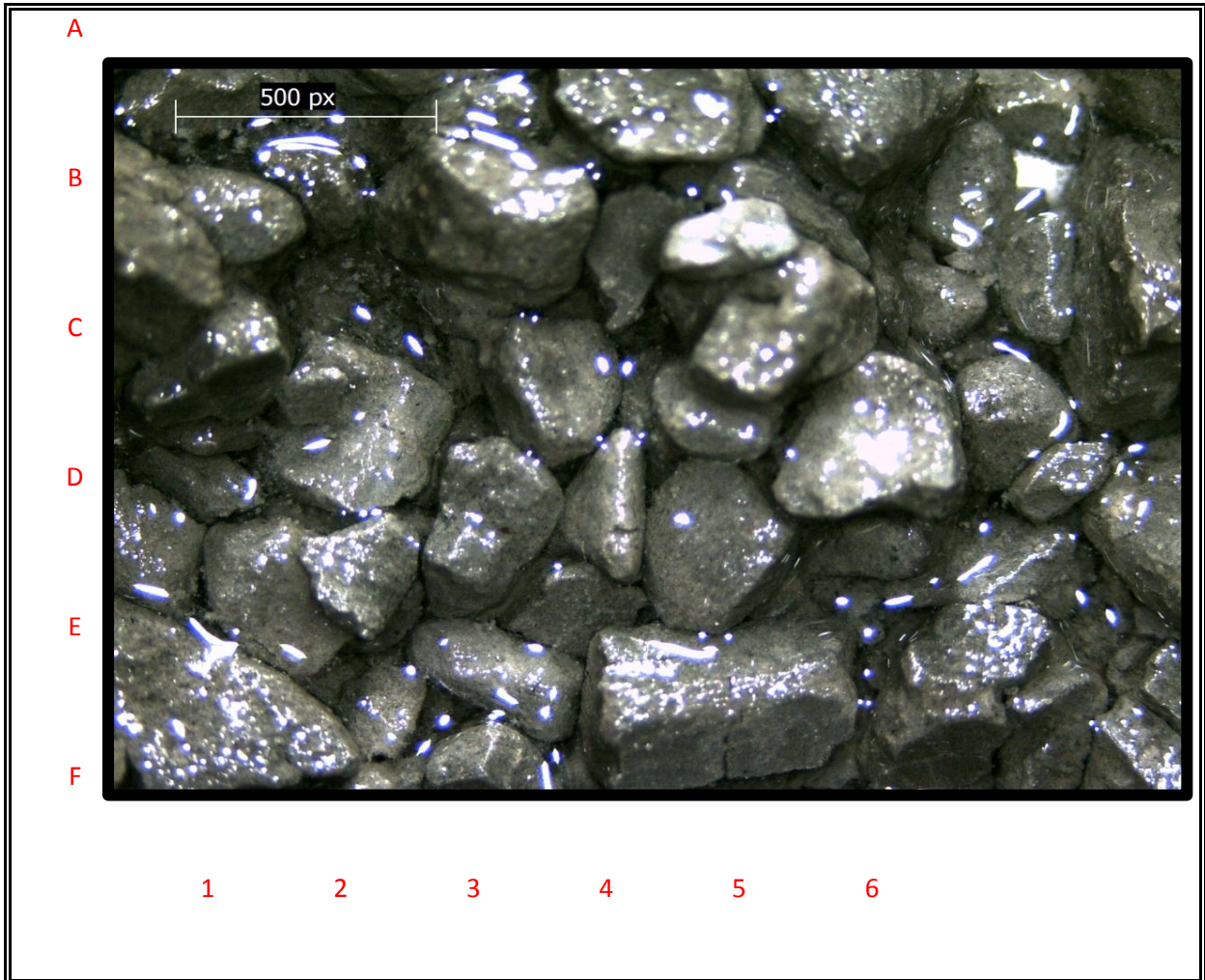
DEPTH	2250'	TIME		DATE	9/5/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
80%	CLYST	lt gry, v sft, com slty gr, mod blk,			
		erthy to slty, v sli calc,			
20%	SLTST	med gry, occ mott sltst.			



# DEPTH

**2280'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	2280'	TIME		DATE	9/5/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
90%	CLYST	lt gry, sft, com slty mtx, mod blk, erthy to slty, v sli calc,			
10%	SLTST	med gry, occ mott sltst.			

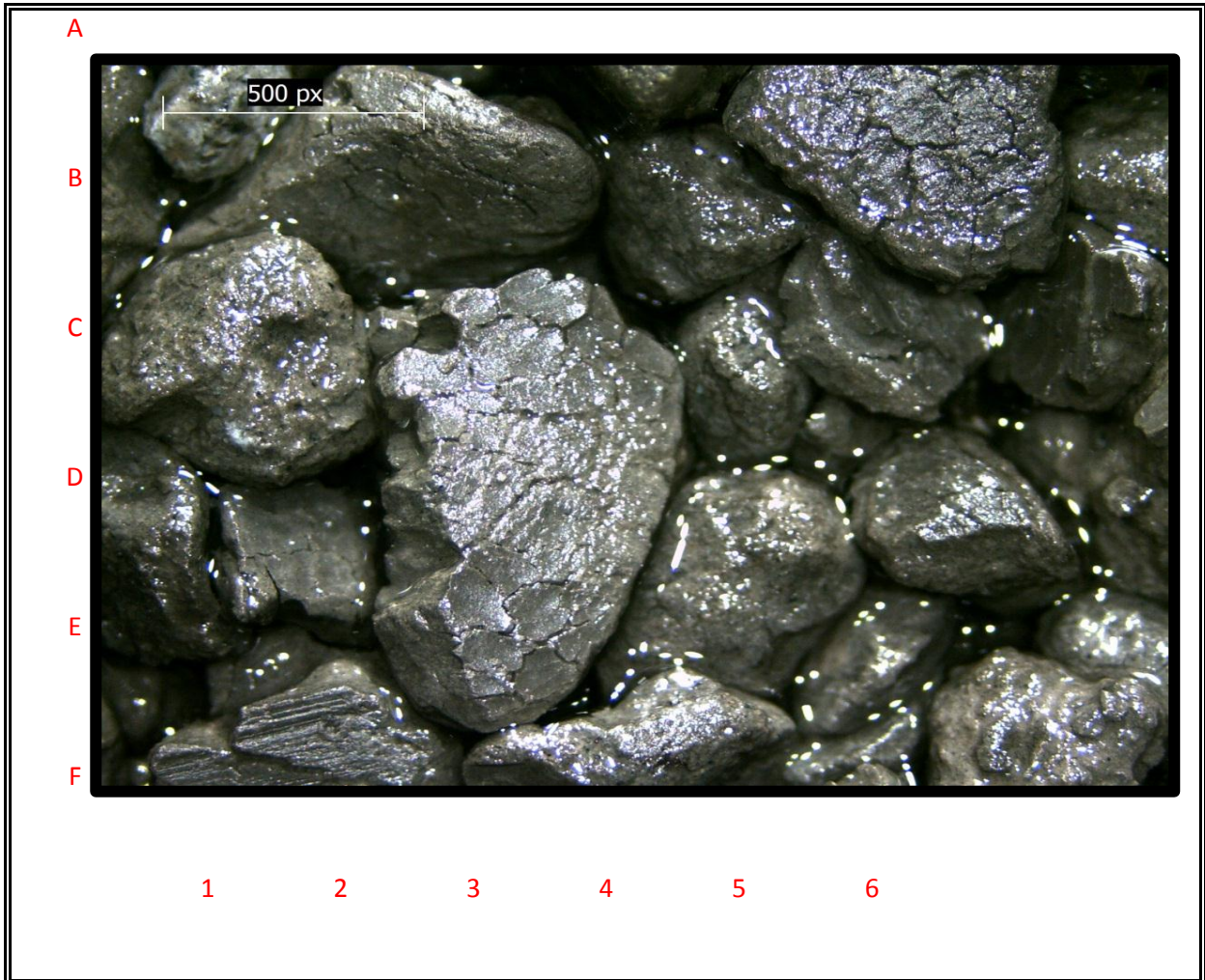




# DEPTH

**2310'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



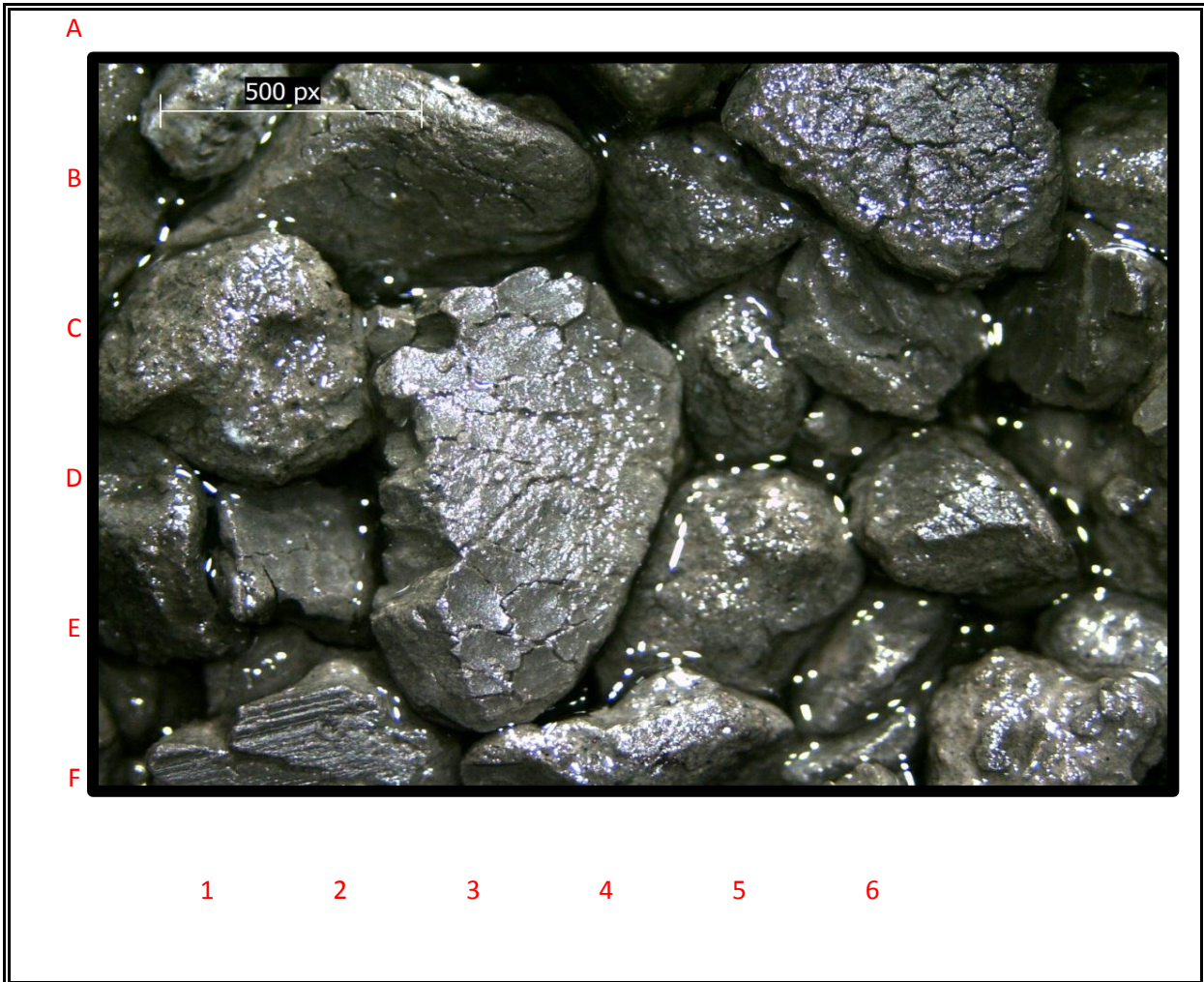
DEPTH	2310'	TIME		DATE	9/5/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
100%	CLYST	lt gry, v sft, occ slty mtx, mod blk, erthy to sm.			



# DEPTH

**2340'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	2340'	TIME		DATE	9/5/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
100%	CLYST	lt gry, mod sft, r slty mtx, mod blk, sm, occ mott.			

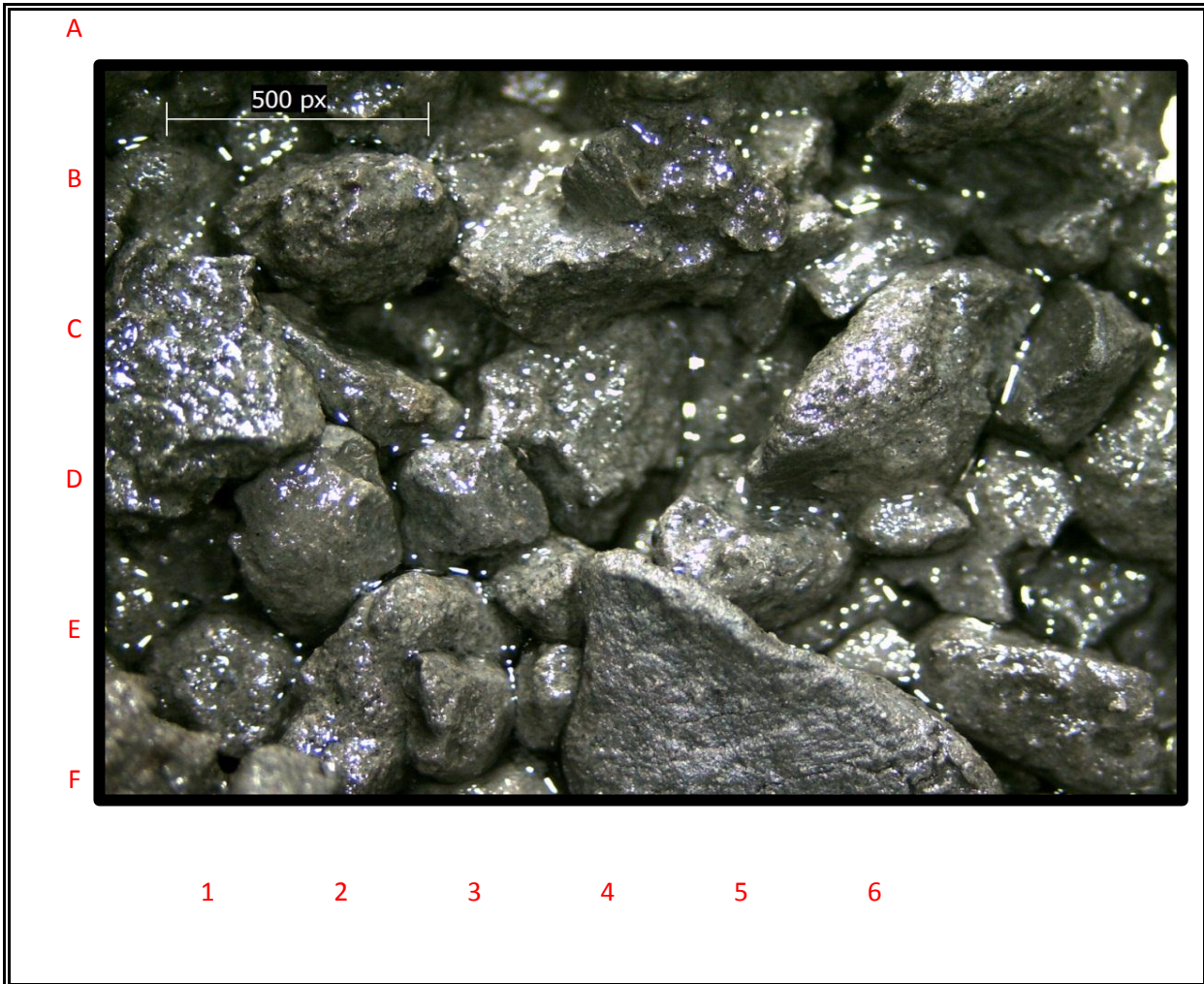




# DEPTH

**2370'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	2370'	TIME		DATE	9/5/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
80%	CLYST	lt gry, mod sft, occ slty mtx, mod blk, r mott, mod calc, erthy.			
20%	SLTST	lt-med gry,sft-vsft.			

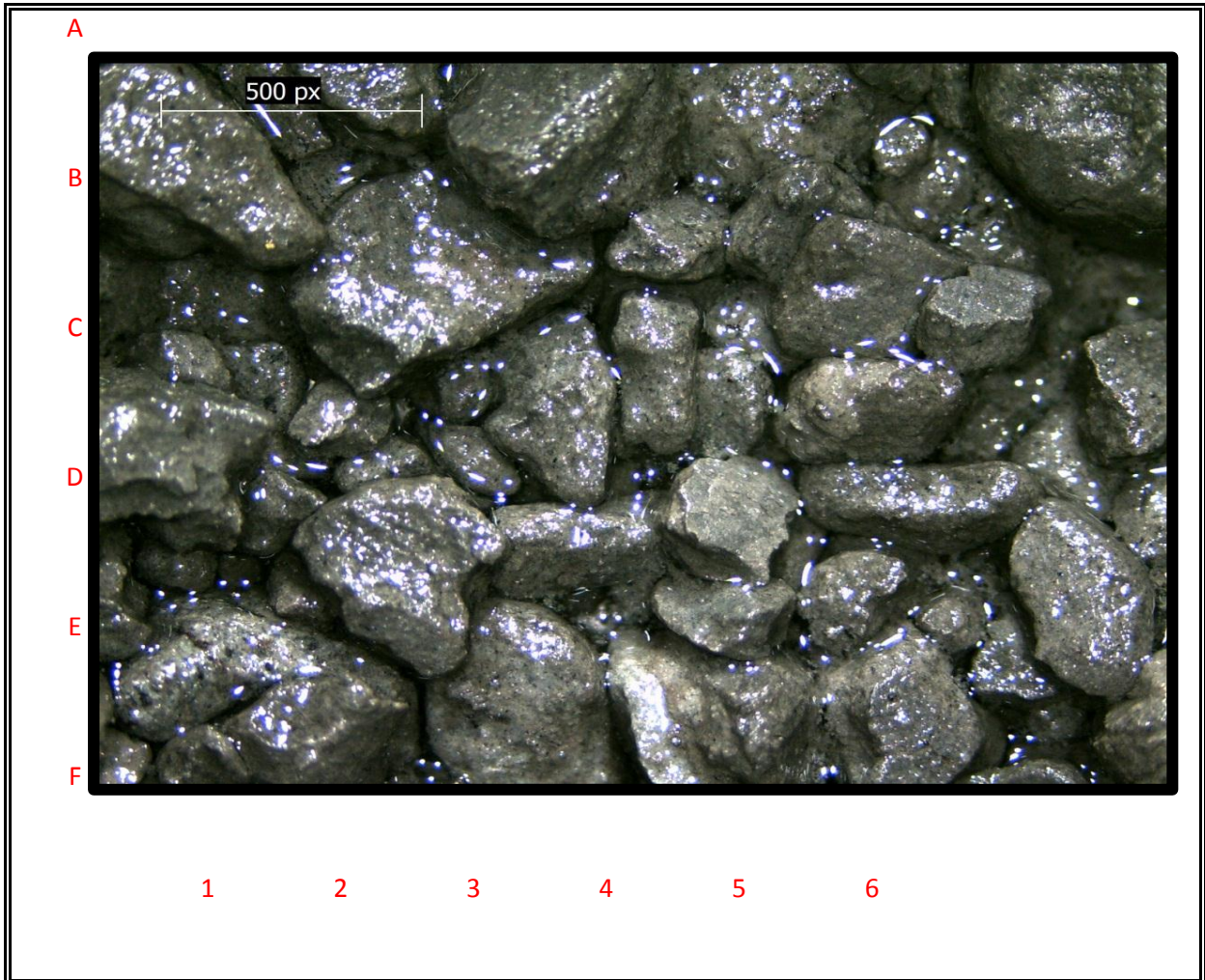




# DEPTH

**2400'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



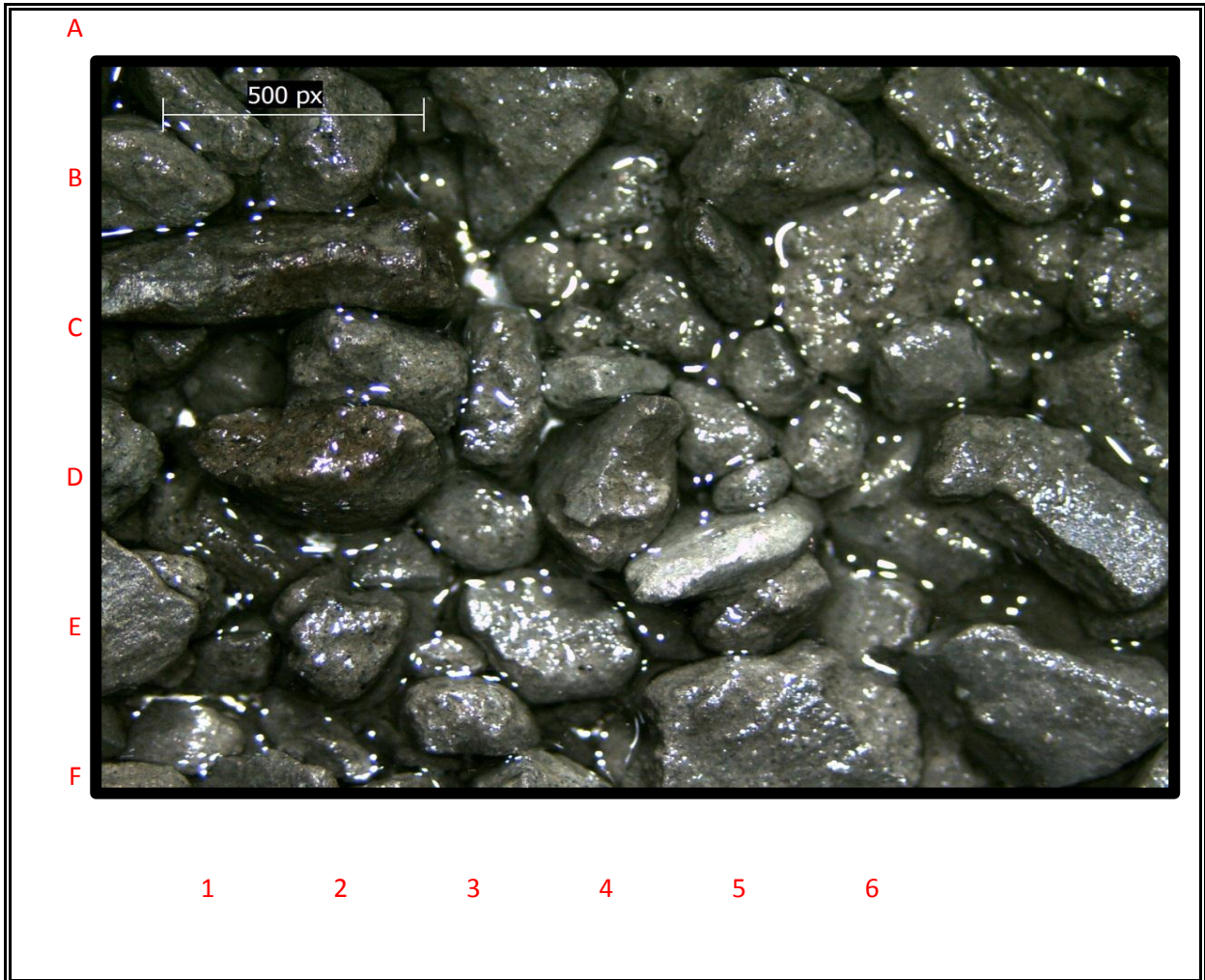
DEPTH	2400'	TIME		DATE	9/5/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
80%	CLYST	lt gry, mod sft, sli slty mtvx, mod blk, r mott, sl calc, erthy.			
20%	SLTST	lt-med gry,sft-vsft.			



# DEPTH

**2430'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	2430'	TIME		DATE	9/5/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
80%	CLYST	lt gry, mod sft, sli slty mtx, mod blk, occ mott, sl calc, rr blk lam.			
20%	SLTST	lt-med gry, sft-vsft.			

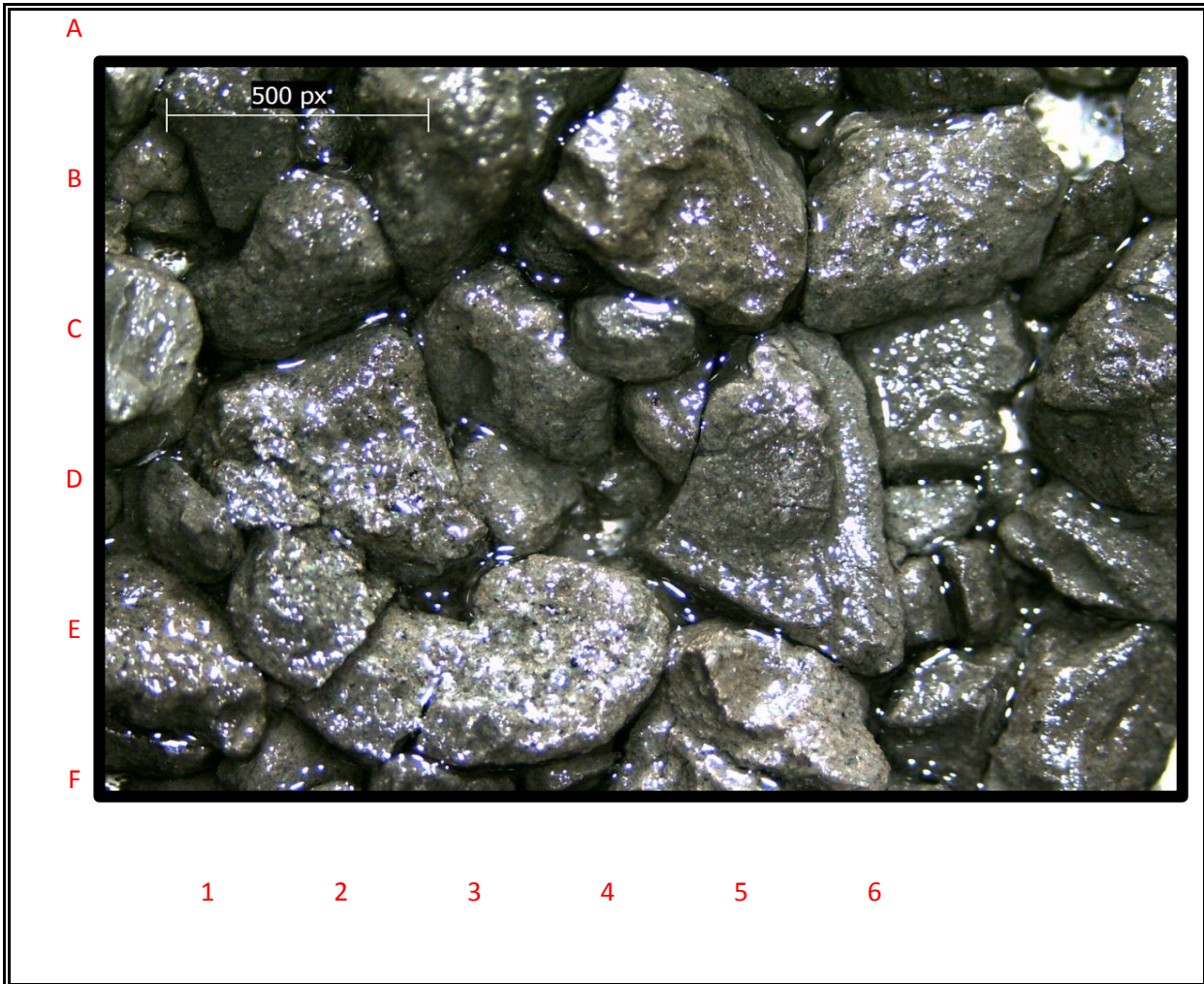




# DEPTH

**2460'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	2460'	TIME		DATE	9/5/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
90%	CLYST	lt gry, v sft, sli slty mtx, mod blk.			
10%	SLTST	lt-med gry,sft-vsft.			

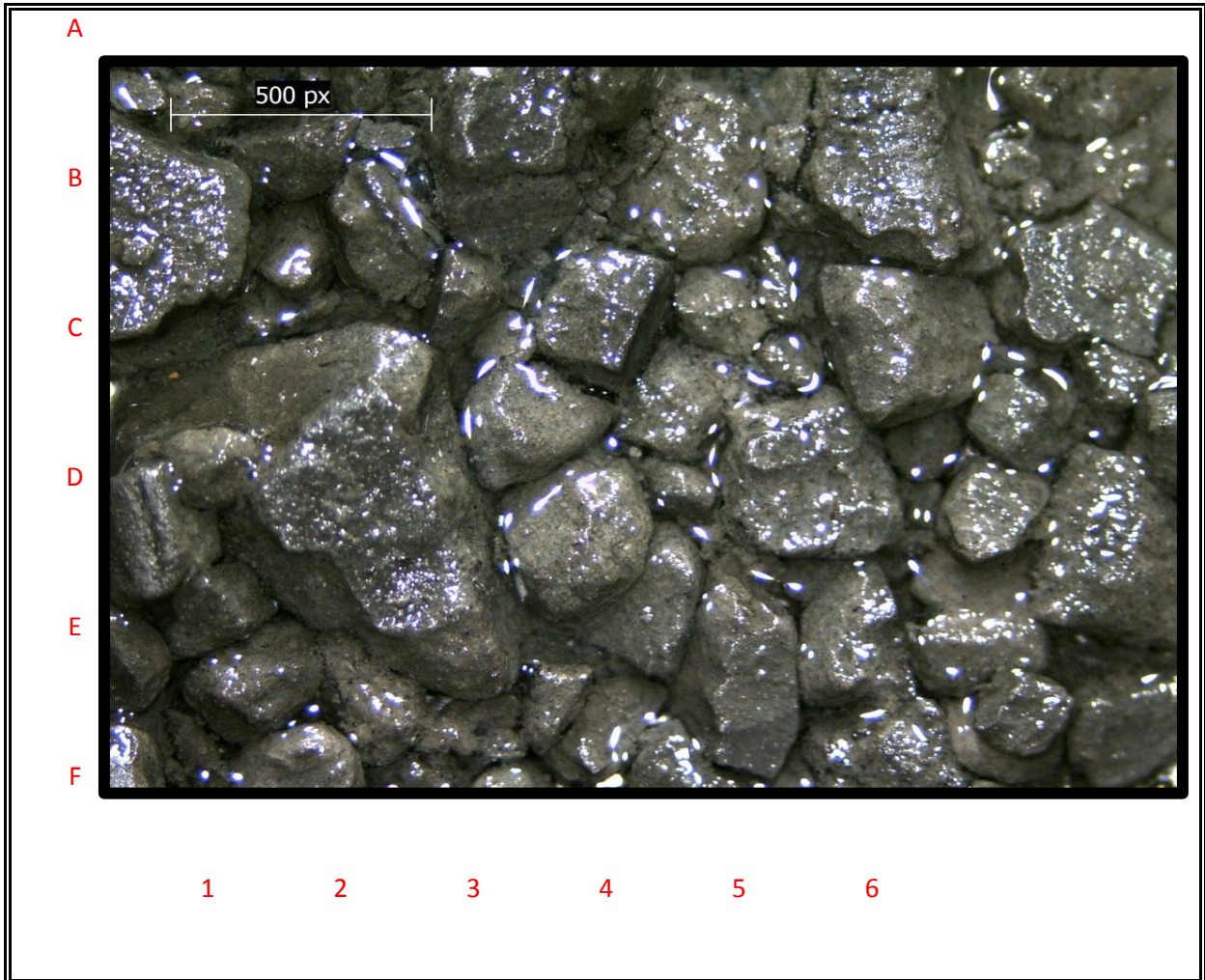




# DEPTH

**2490'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	2490'	TIME		DATE	9/5/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
90%	CLYST	lt-med gry, v sft, sli slty mtx, mod blk, occ nod, sm.			
10%	SLTST	lt-med gry, sft-vsft.			



# DEPTH

**2520'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	2520'	TIME		DATE	9/5/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
90%	CLYST	lt-med gry, fri, sli slty mtx, blk, occ nod, sm, sli calc.			
10%	SLTST	lt-med gry, sft-vsft.			

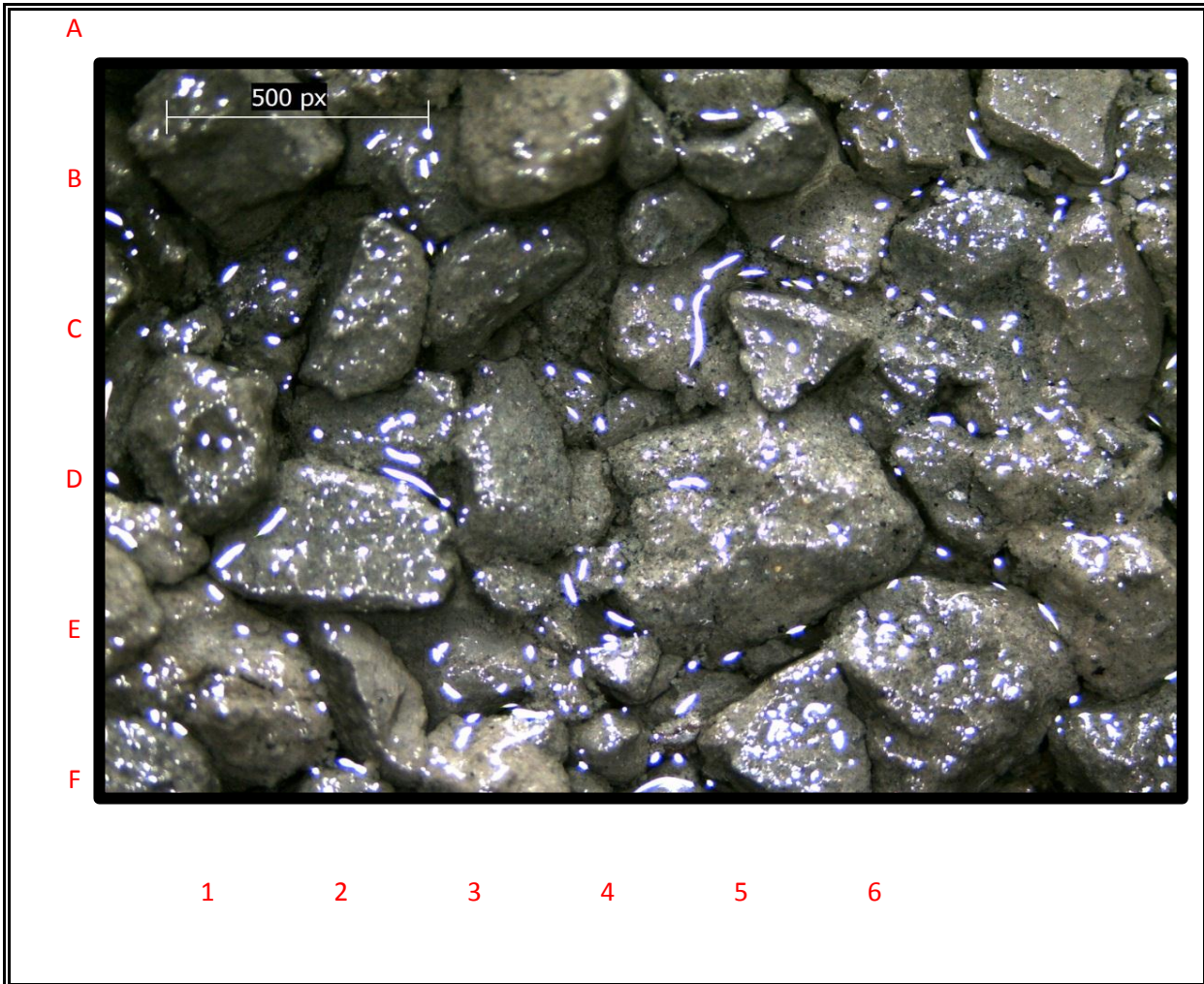




# DEPTH

**2550'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	2550'	TIME		DATE	9/5/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
80%	CLYST	lt-med gry, fri, sli slty mtx, blk, nod, sm, sli calc.			
20%	SLTST	lt-med gry, sft-vsft.			

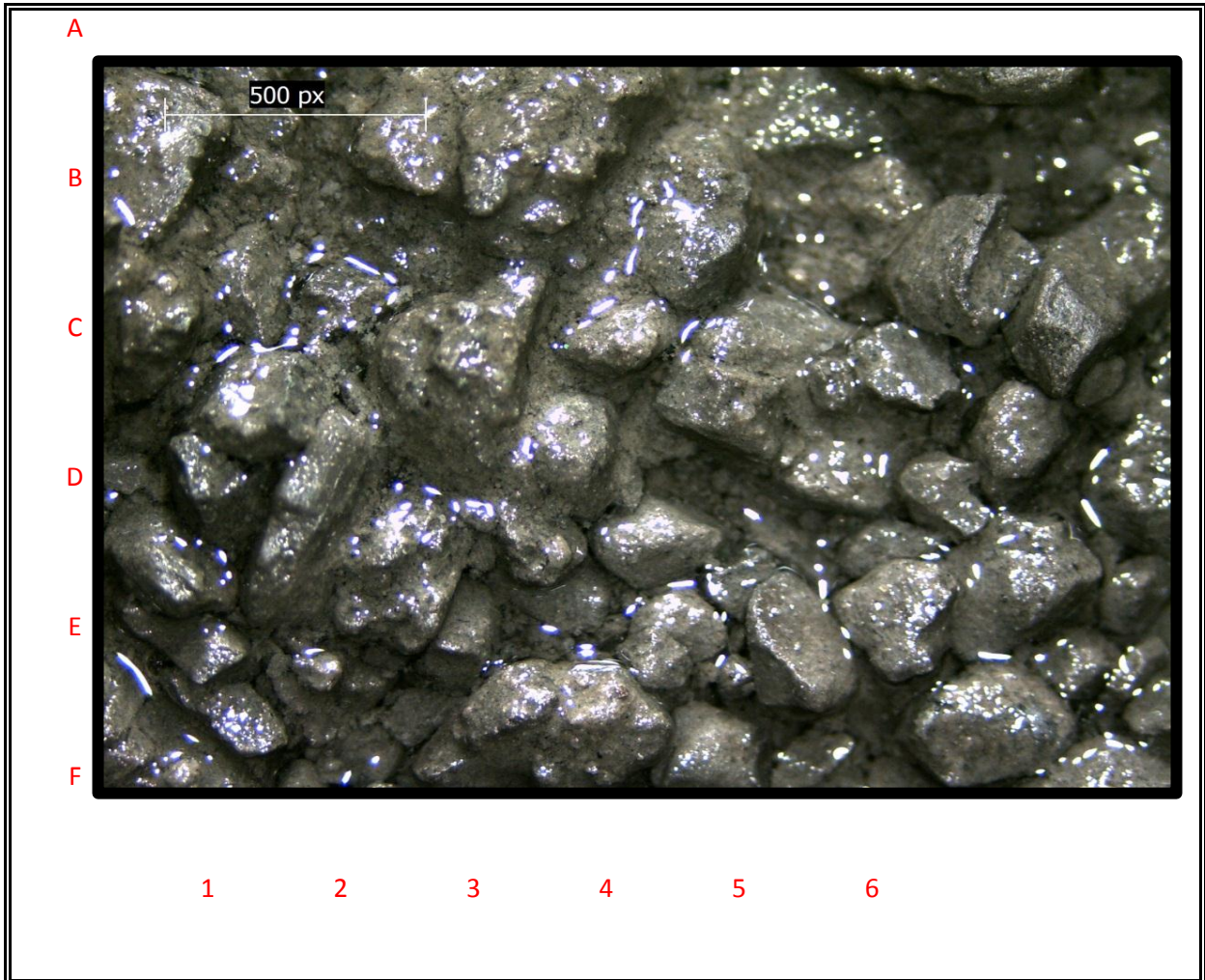




# DEPTH

**2580'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



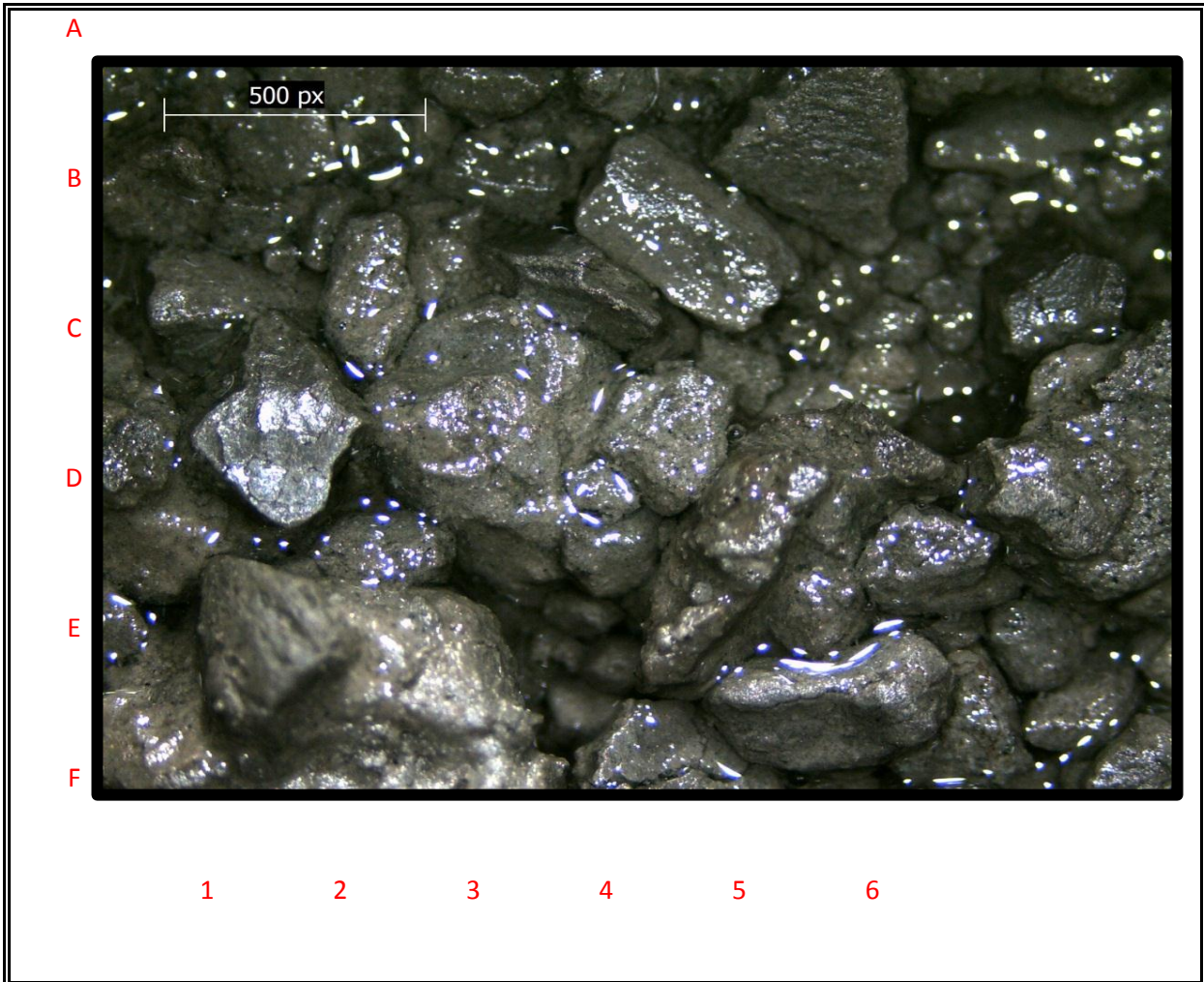
DEPTH	2580'	TIME		DATE	9/5/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
80%	CLYST	lt-med gry, mod sft, slty mtx, blk, nod, sm.			
20%	SLTST	lt-med gry, sft-vsft.			



# DEPTH

**2610'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	2610'	TIME		DATE	9/5/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
70%	CLYST	lt-med gry, fri, blk, nod, sm.			
30%	SLTST	lt-med gry, sft-vsft.			

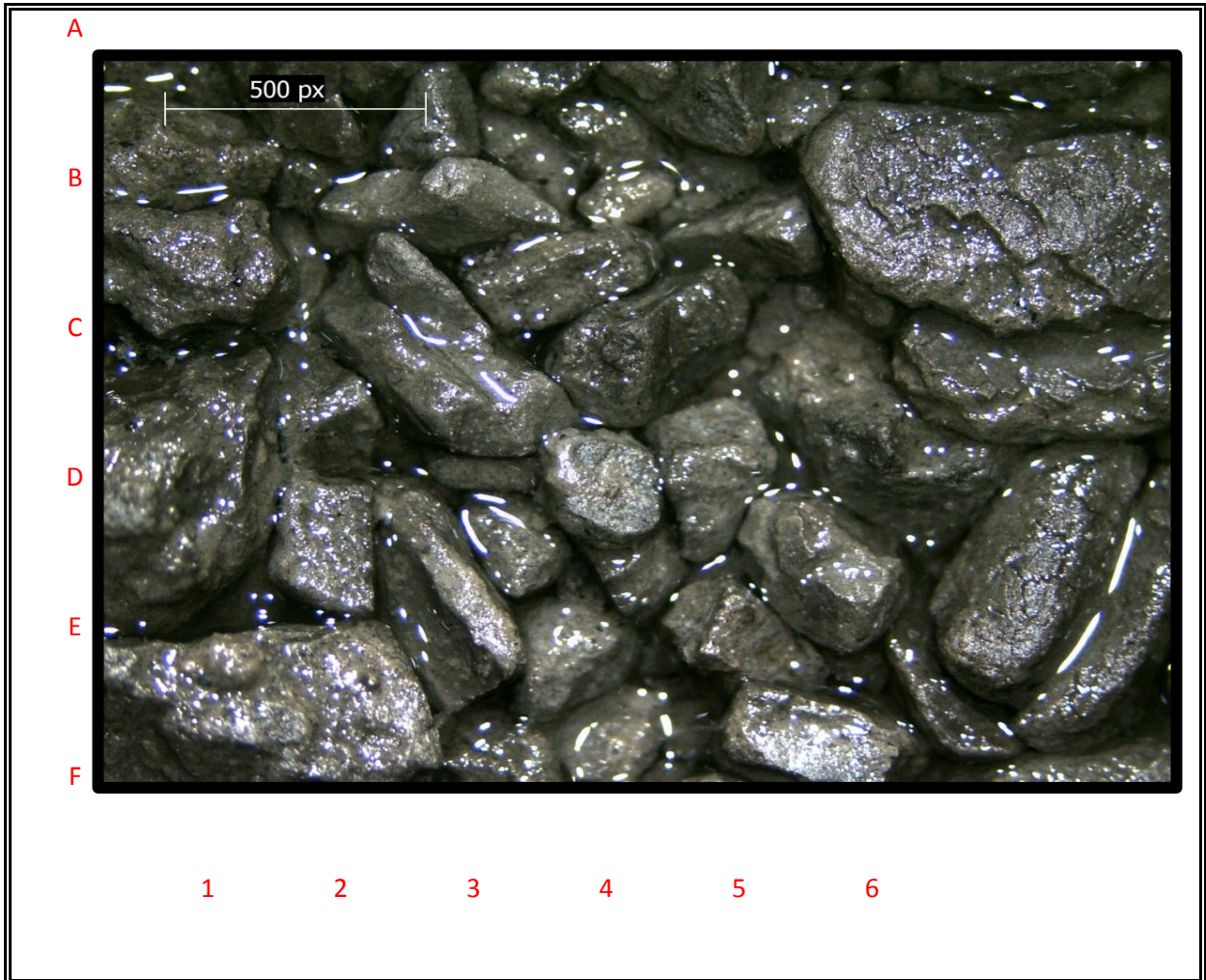




# DEPTH

**2640'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	2640'	TIME		DATE	9/5/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
90%	CLYST	lt-med gry, fri to frm, blk, nod, sm, mott, slic calc.			
10%	SLTST	lt-med gry, sft-vsft.			

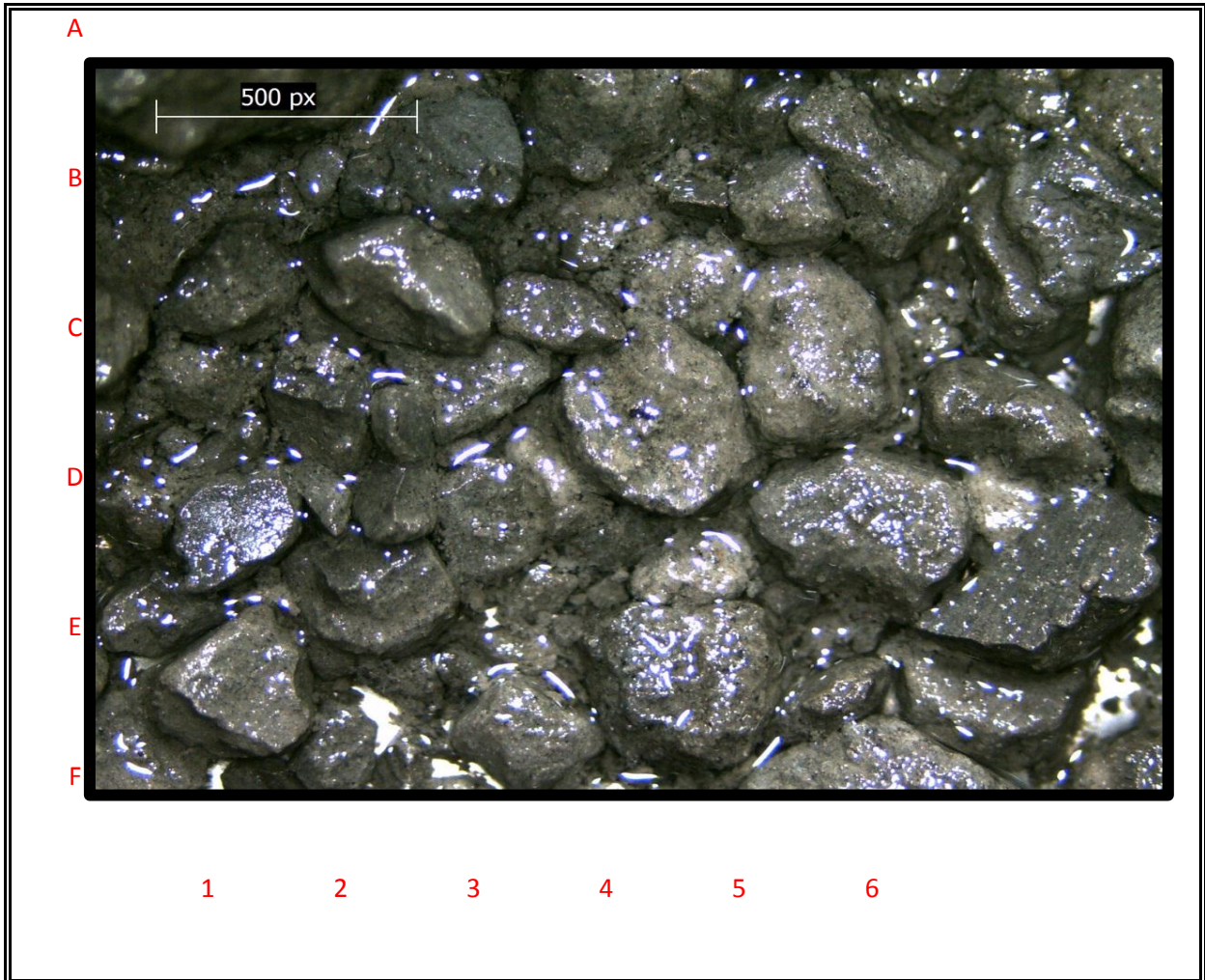




# DEPTH

**2670'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



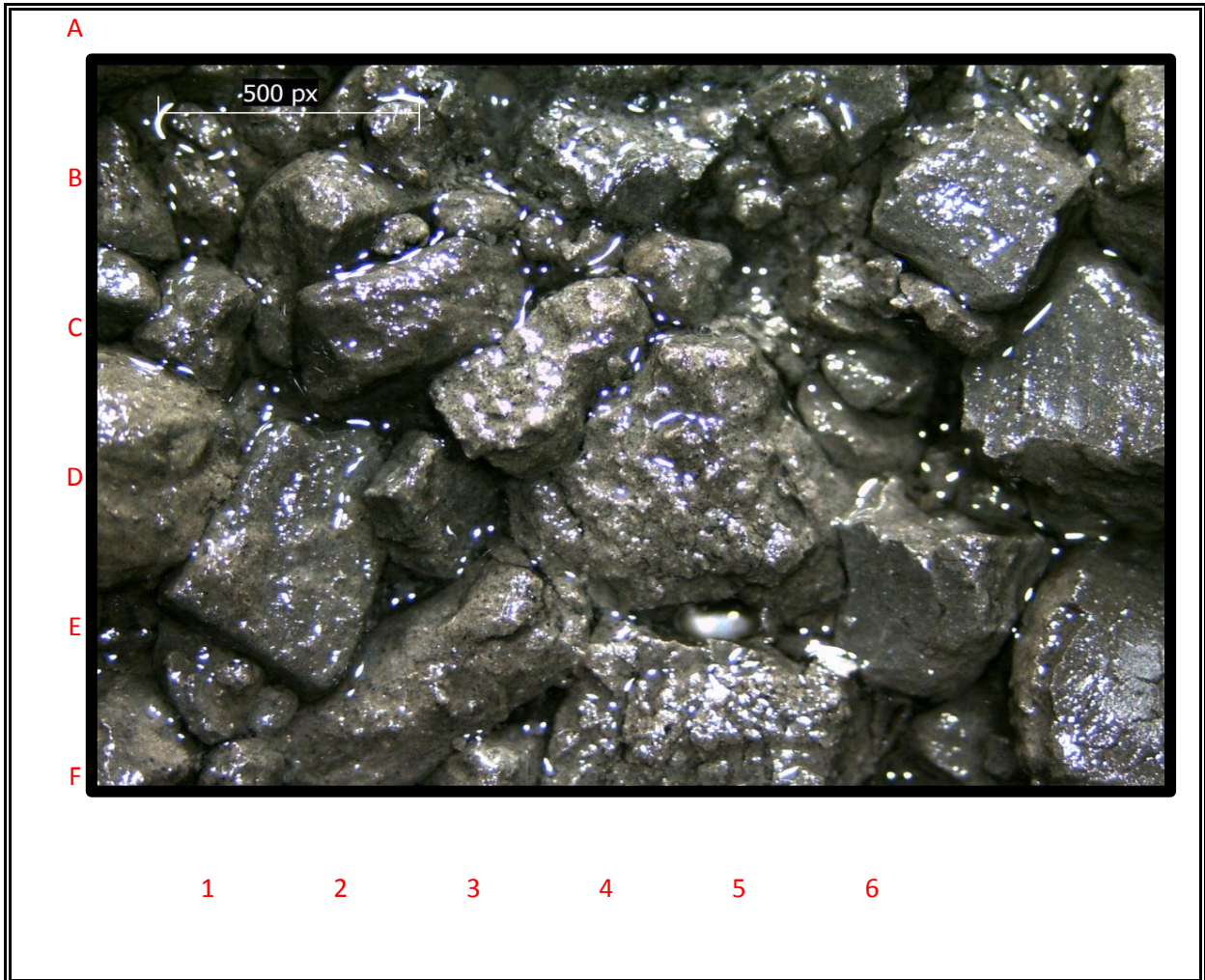
DEPTH	2670'	TIME		DATE	9/5/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
90%	CLYST	lt-med gry, fri to frm, blk, nod, sm, mott, slic calc.			
10%	SLTST	lt-med gry, sft-vsft.			



# DEPTH

**2700'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	2700'	TIME		DATE	9/5/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
90%	CLYST	lt-med gry, fri to frm, blk, nod, sm, mott, slic calc.			
10%	SLTST	lt-med gry, sft-vsft.			

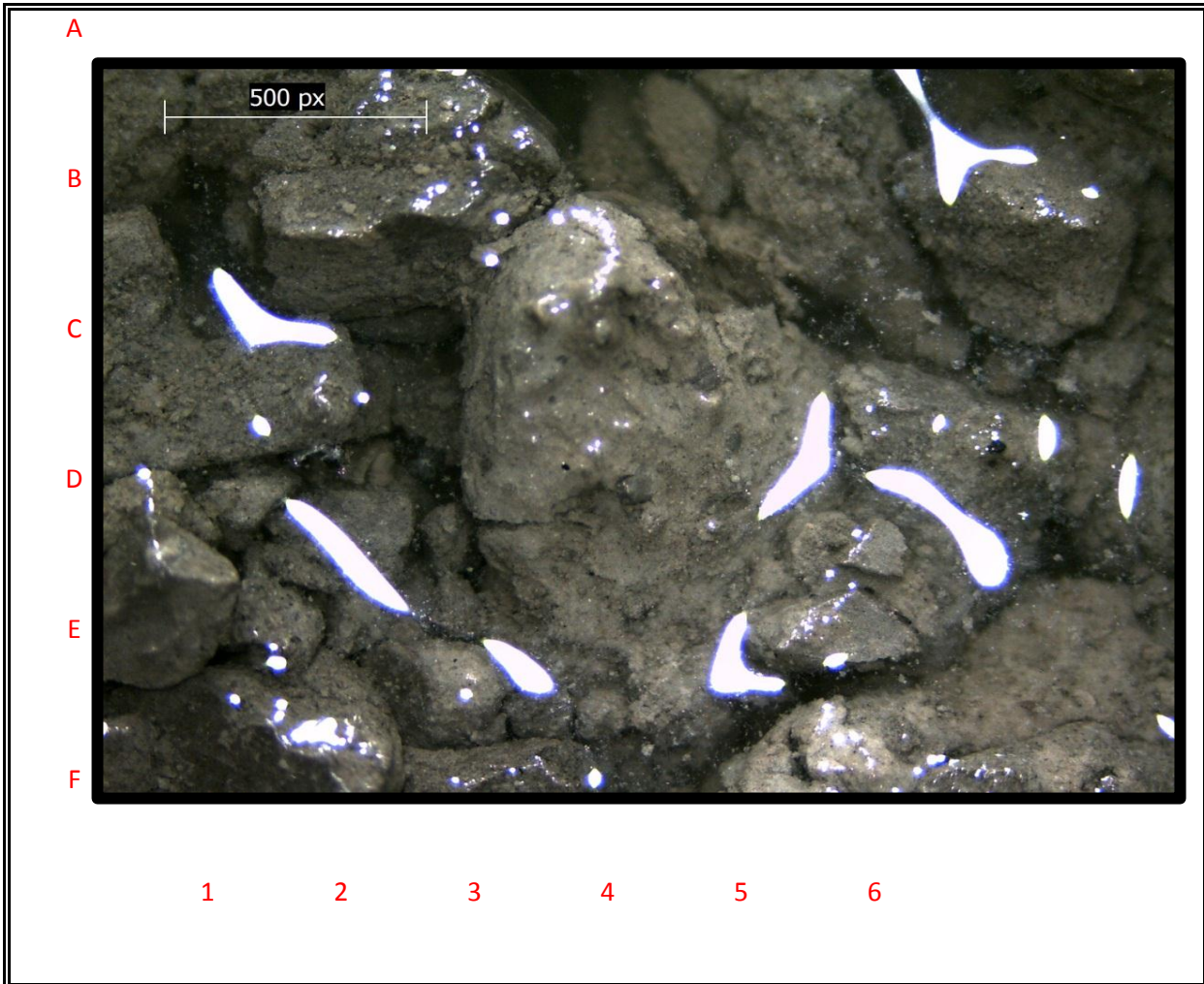




# DEPTH

**2730'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	2730'	TIME		DATE	9/5/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
80%	CLYST	lt-med gry, fri to frm, blk, nod, sm.			
20%	SLTST	Lt-med gry, sft-vsft.			

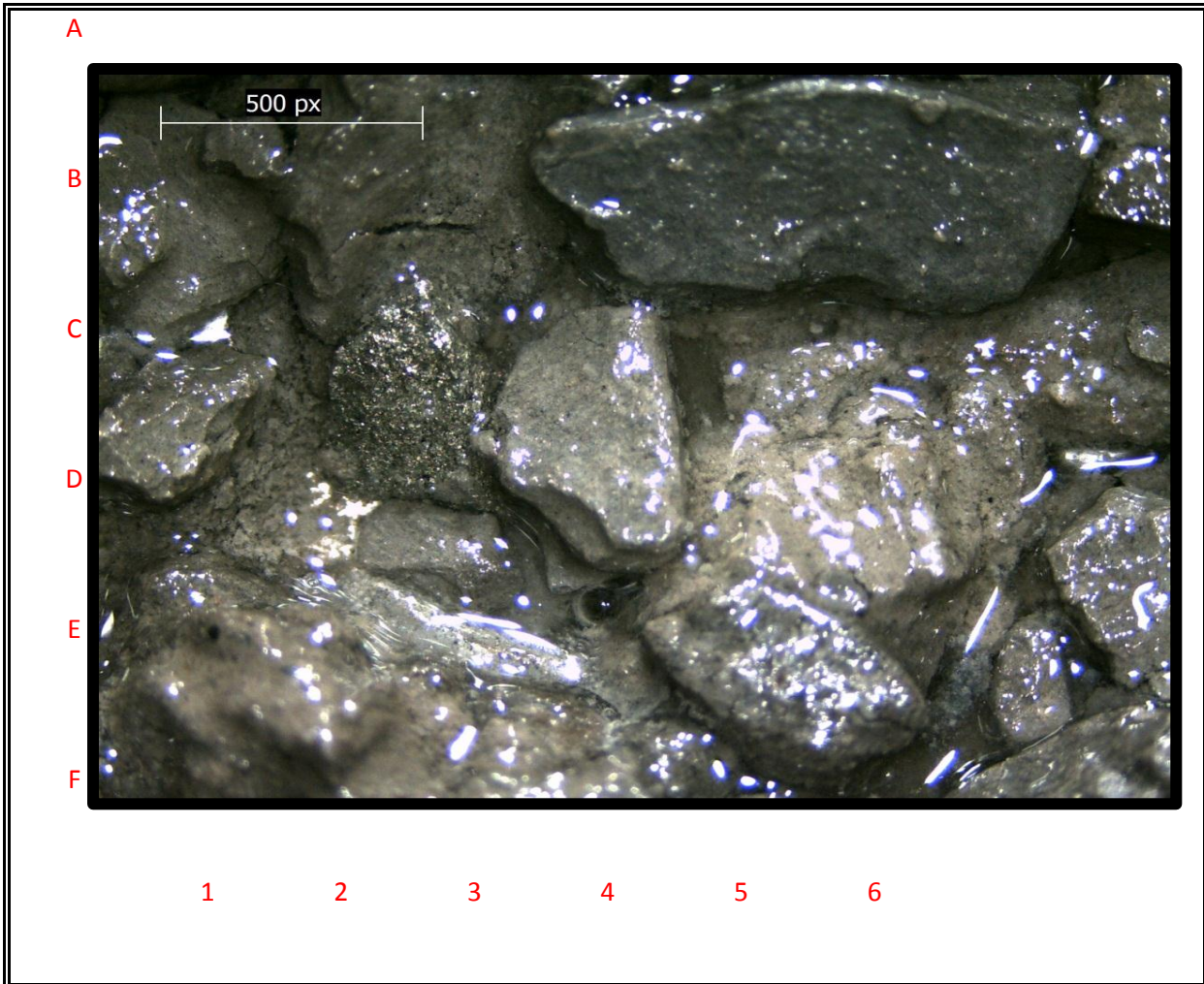




# DEPTH

**2760'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	2760'	TIME		DATE	9/5/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
20%	CLYST	lt-med gry, v fn, wl srt, sft-vsft, tr pyr.			
80%	SLTST	Lt-med gry,sft-vsft.			



# DEPTH

**2790'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	2790'	TIME		DATE	9/6/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
100%	CLYST	lt-med gry,fim, blk, sm, tr nod, tr calc, tr sltst.			

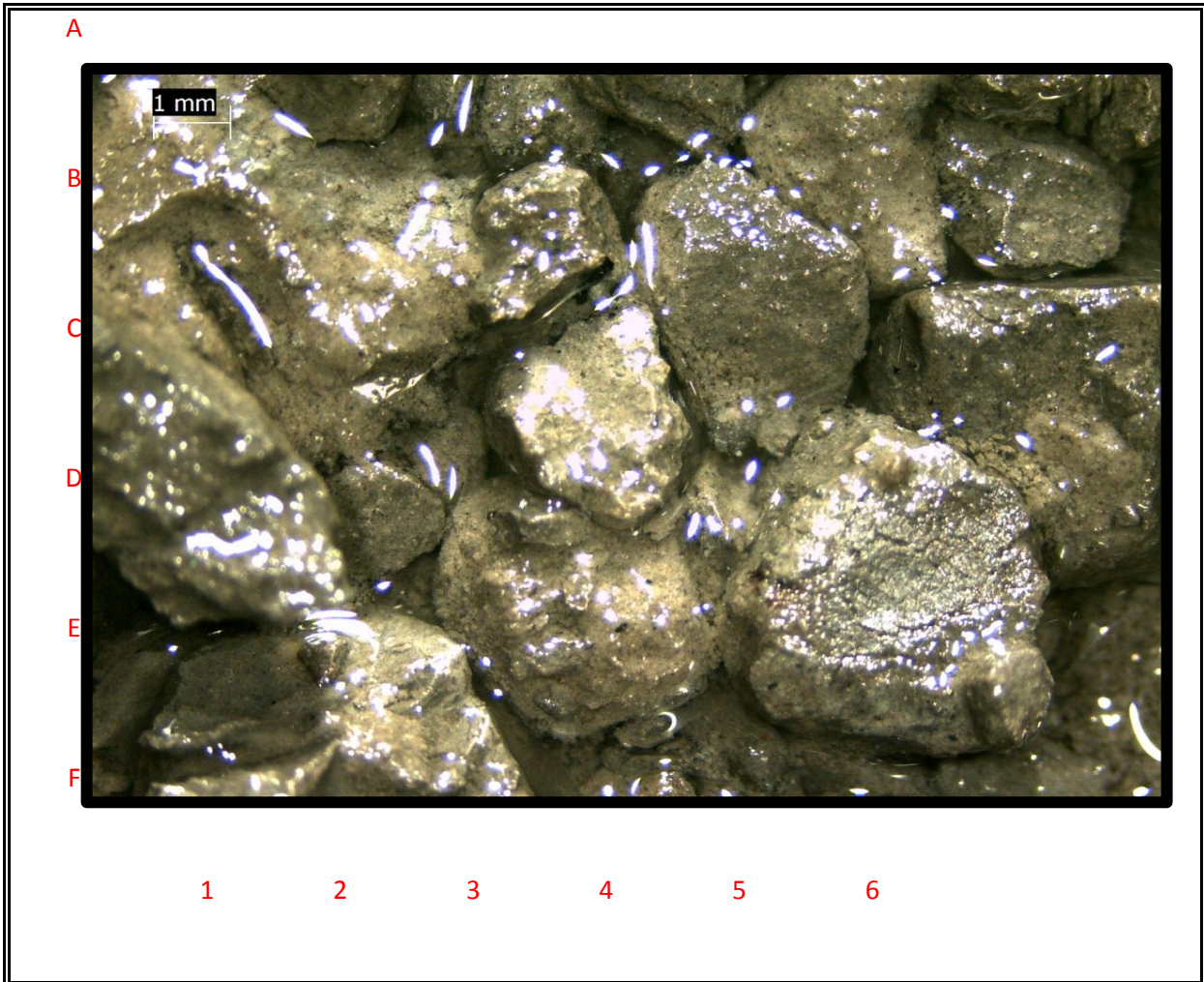




# DEPTH

**2820'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	2820'	TIME		DATE	9/6/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
100%	CLYST	lt-med gry, frm, blk, sm, tr nod, tr calc, tr sltst.			





# DEPTH

**2850'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



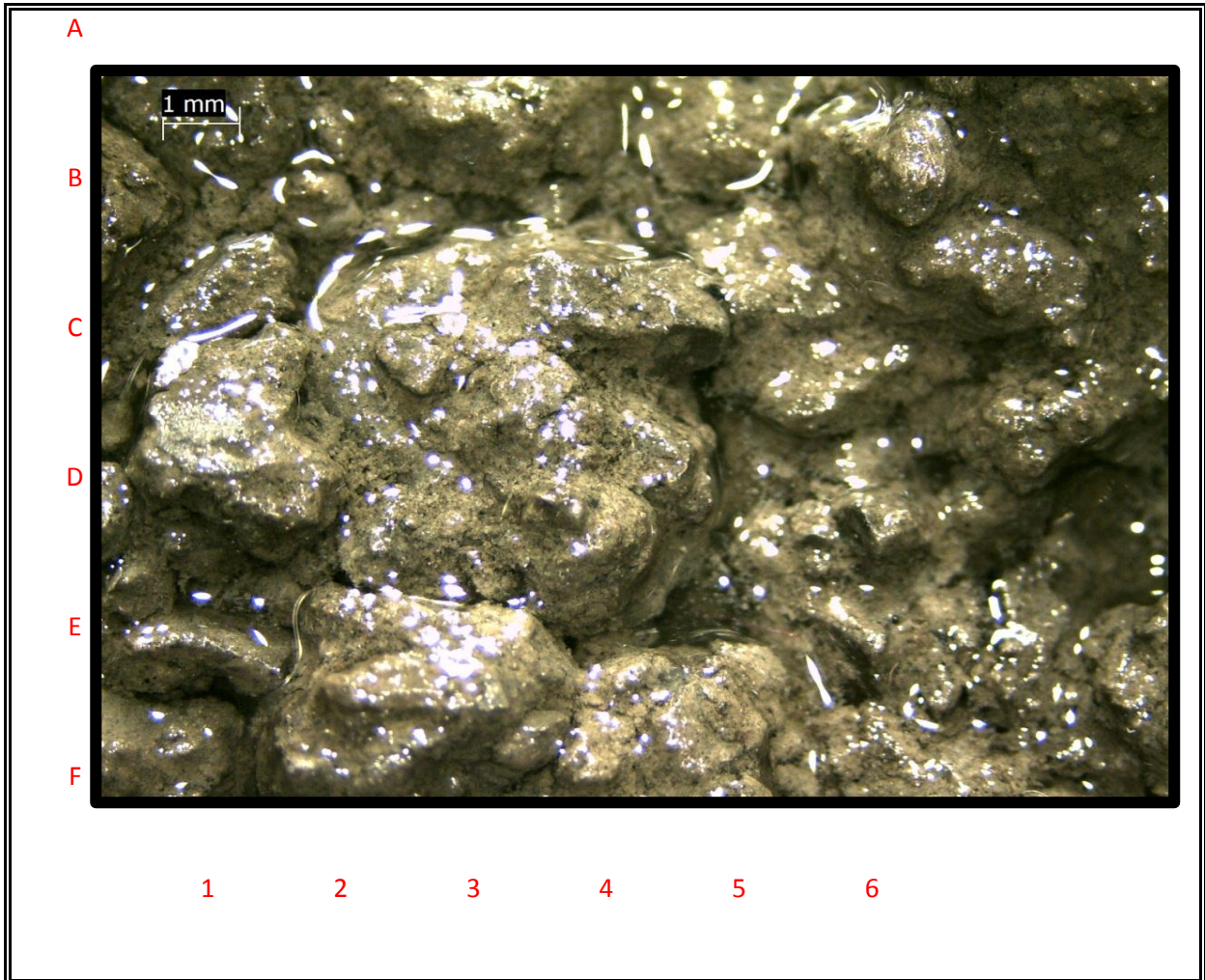
DEPTH	2850'	TIME		DATE	9/6/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
100%	CLYST	med-drk gry, frm, blk, sm, tr nod, tr calc, tr sltst.			



# DEPTH

**2880'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	2880'	TIME		DATE	9/6/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
100%	CLYST	med-drk gry, frm, blk, sm, vsft-sft, tr calc, tr sltst.			

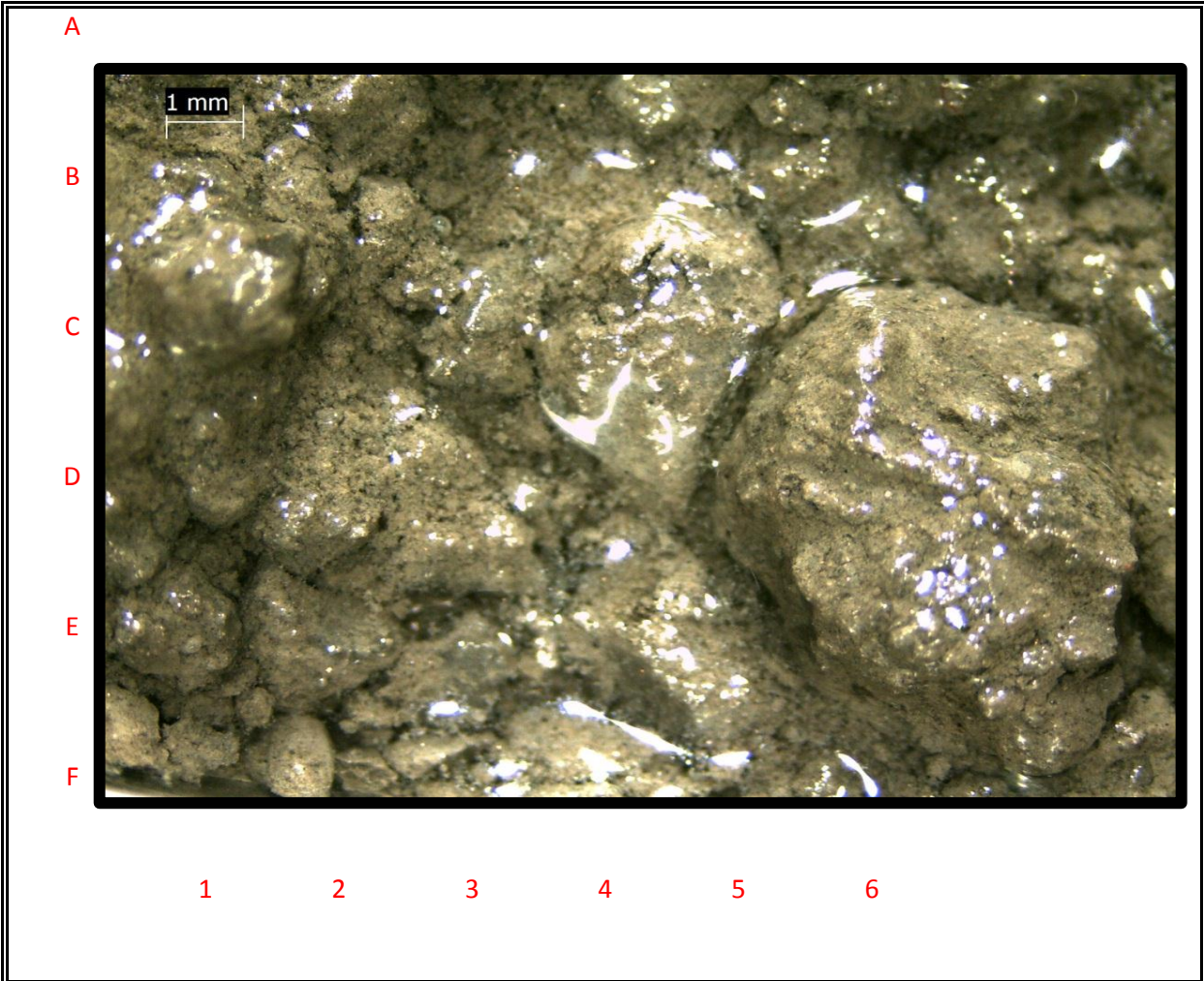




# DEPTH

**2910'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	2910'	TIME		DATE	9/6/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
100%	CLYST	med-drk gry, blk, sm, sft-fm, tr calc, tr sltst.			

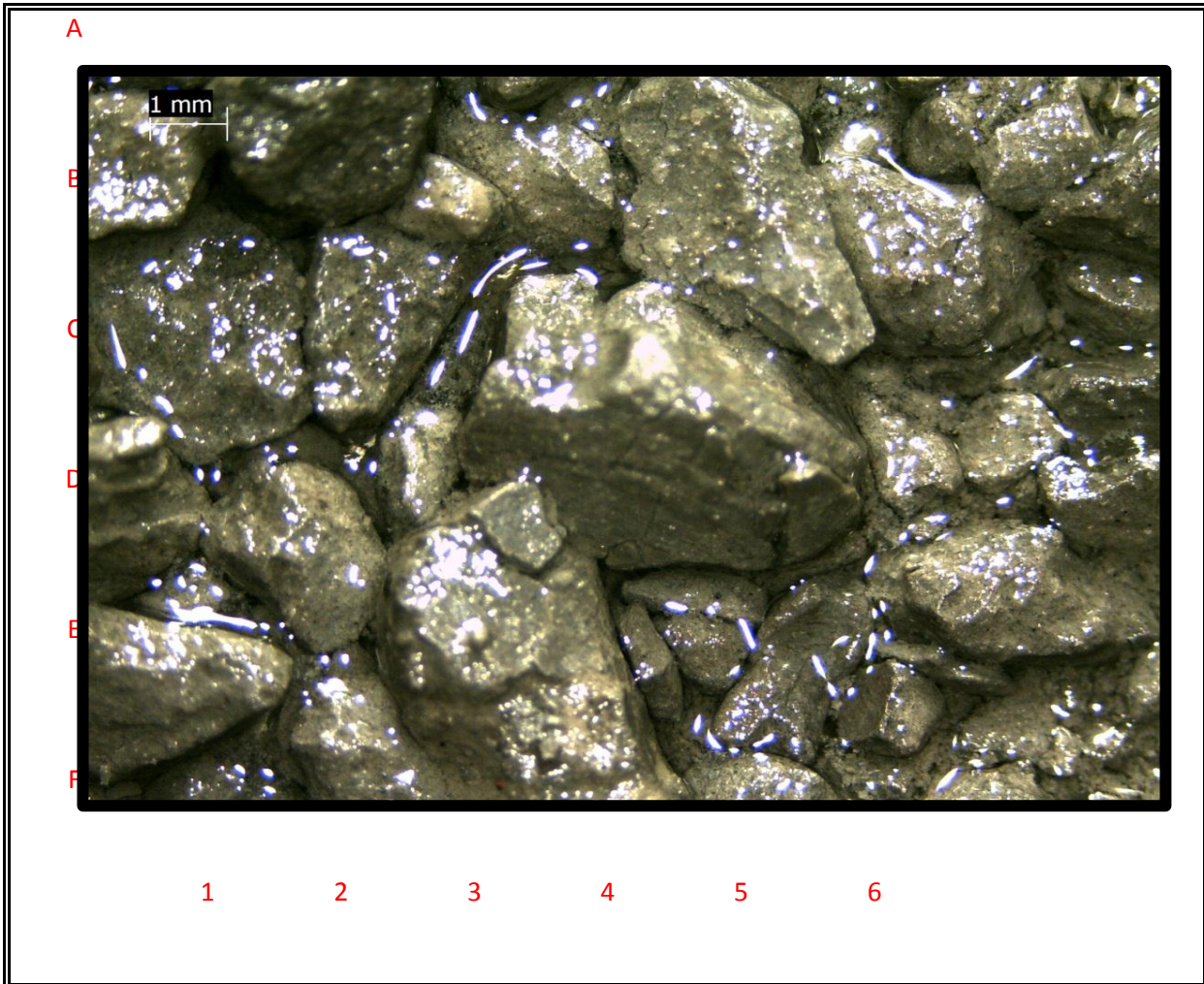




# DEPTH

**2940'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



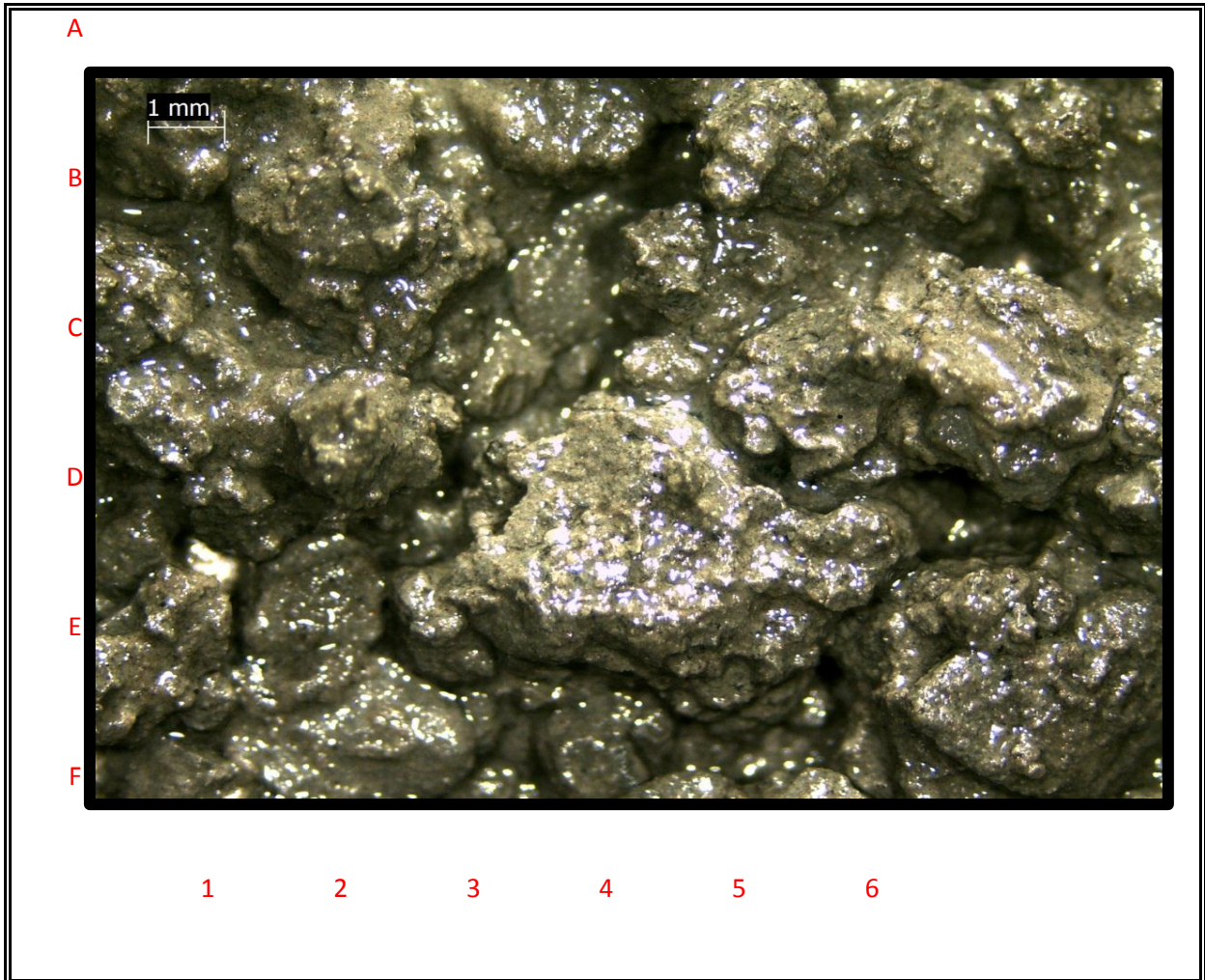
DEPTH	2940'	TIME		DATE	9/6/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
100%	CLYST	med-drk gry, sm, sft-frm, occ nod, tr calc, tr sltst.			



# DEPTH

**2963'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	2963'	TIME		DATE	9/6/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
100%	CLYST	med-drk gry, sm, sft frm, occ nod, tr calc, occ sltst.			

# HALLIBURTON

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## Sperry Drilling

### Cuttings Report

**Shell Offshore Inc.  
OCS Y-2321 #001  
Burger J  
Posey Block 6912  
API No. 55-352-00004-00**

**RIG: Polar Pioneer**

**SDL Personnel:**

**Craig Amos– Unit Manager  
Rebecca Mulkey, Ryan Lenberg– Logging Specialists**

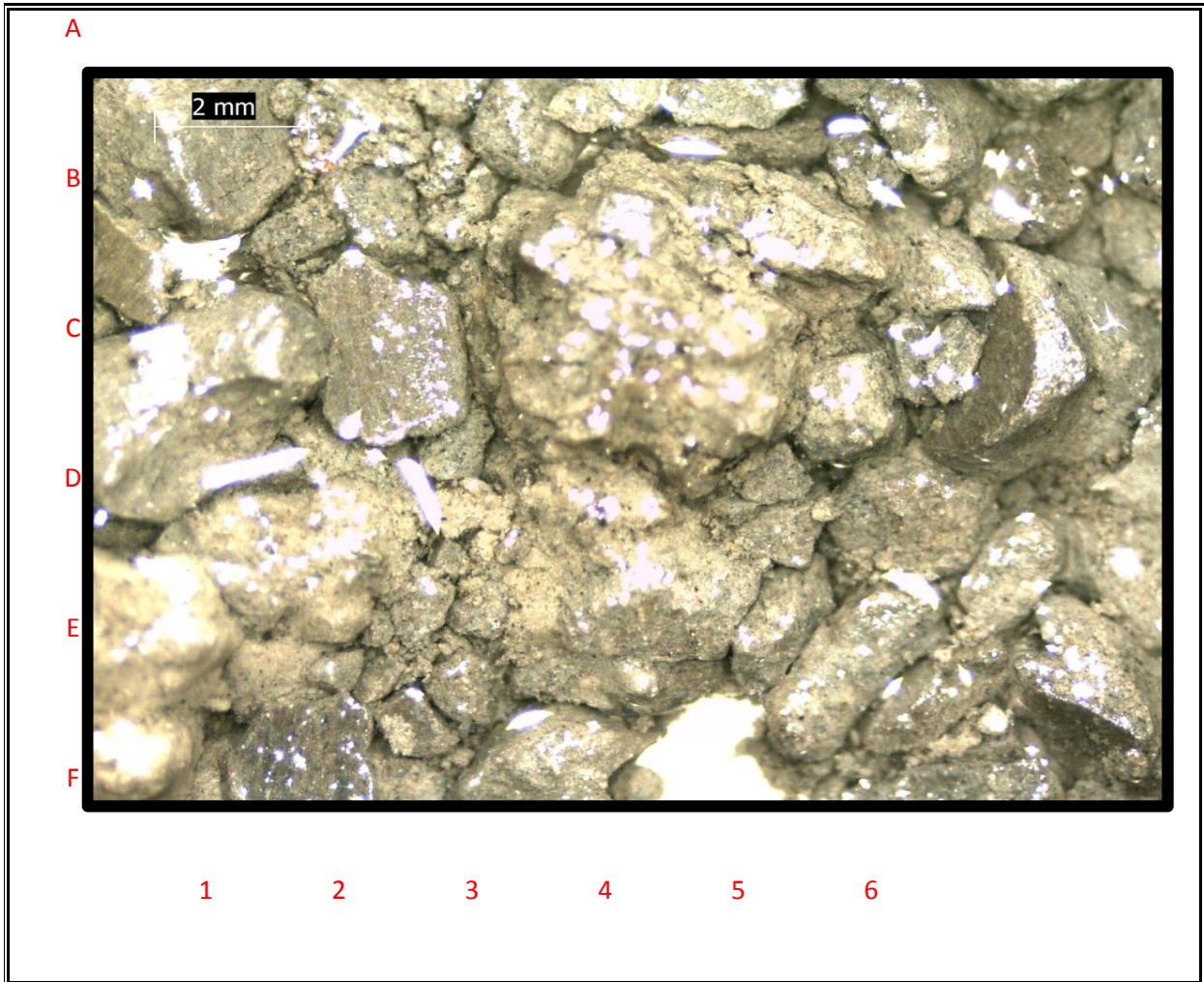




# DEPTH

**3000'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



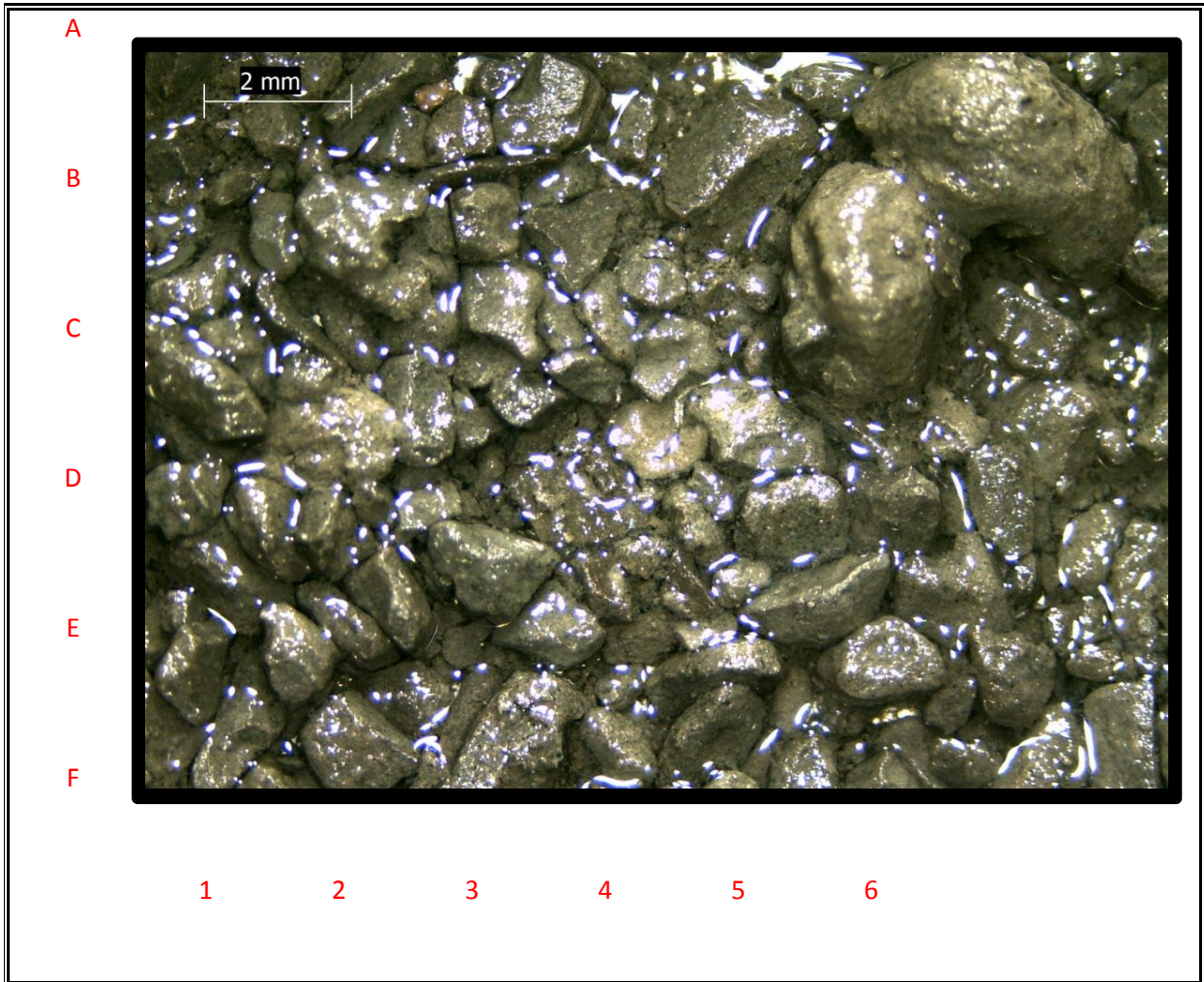
DEPTH	3000'	TIME		DATE	9/12/2015
LOGGING ENGINEER		Ryan Lenberg			
PERCENT	FORMATION	DESCRIPTION			
100%	CLYST	Lt gry, fri to mod frm, blk, grty, mod calc tr sltst.			



# DEPTH

**3030'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	3030'	TIME		DATE	9/12/2015
LOGGING ENGINEER		Ryan Lenberg			
PERCENT	FORMATION	DESCRIPTION			
100%	CLYST	lt gry, mod frm, blk, grty, sm slty mtx, calc, tr sltst.			

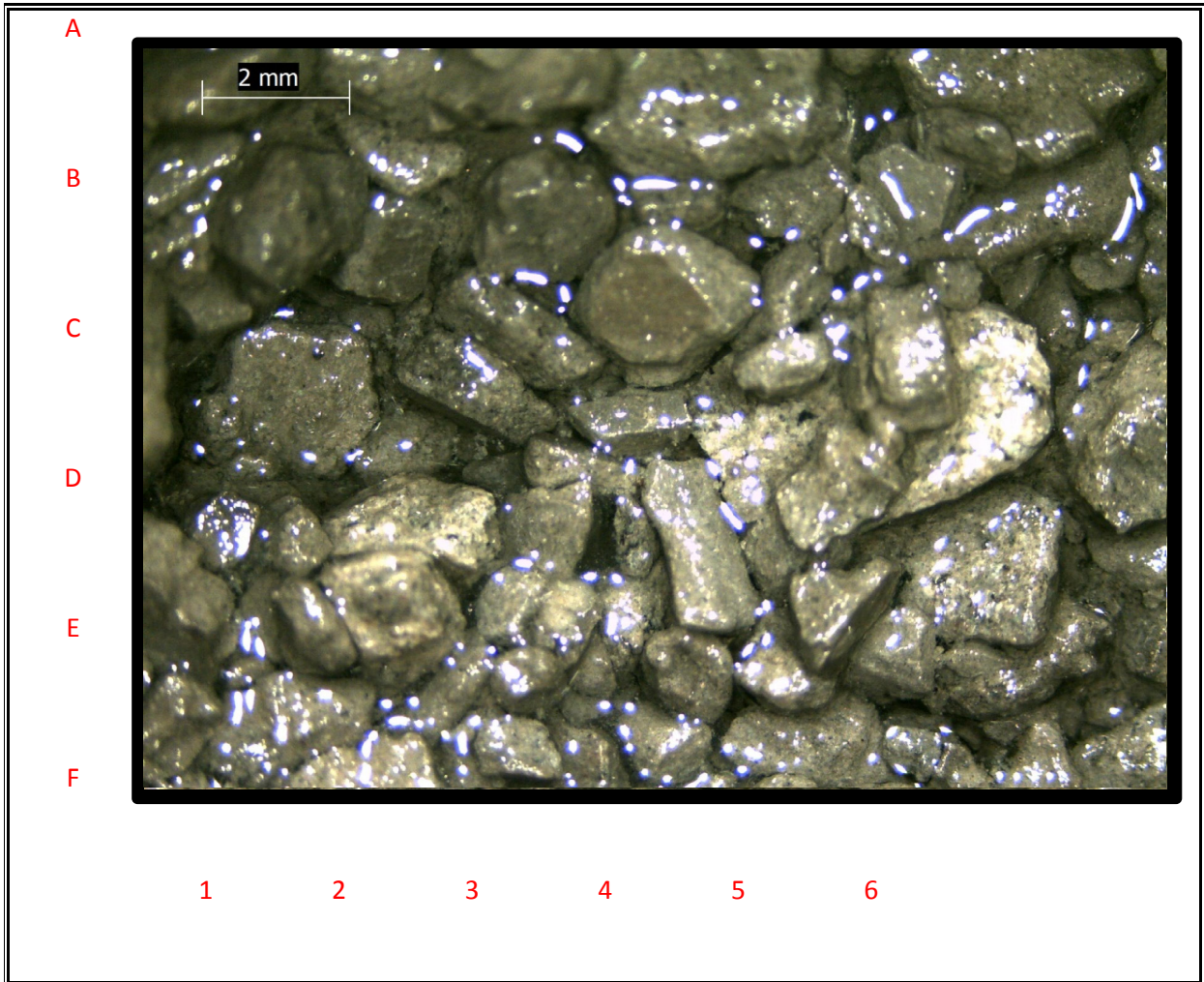




# DEPTH

**3060'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	3060'	TIME		DATE	9/12/2015
LOGGING ENGINEER		Ryan Lenberg			
PERCENT	FORMATION	DESCRIPTION			
90%	CLYST	med to dk gry, fri to frm, blk, grty, sm slty mtx			
10%	SLTST	sli calc			

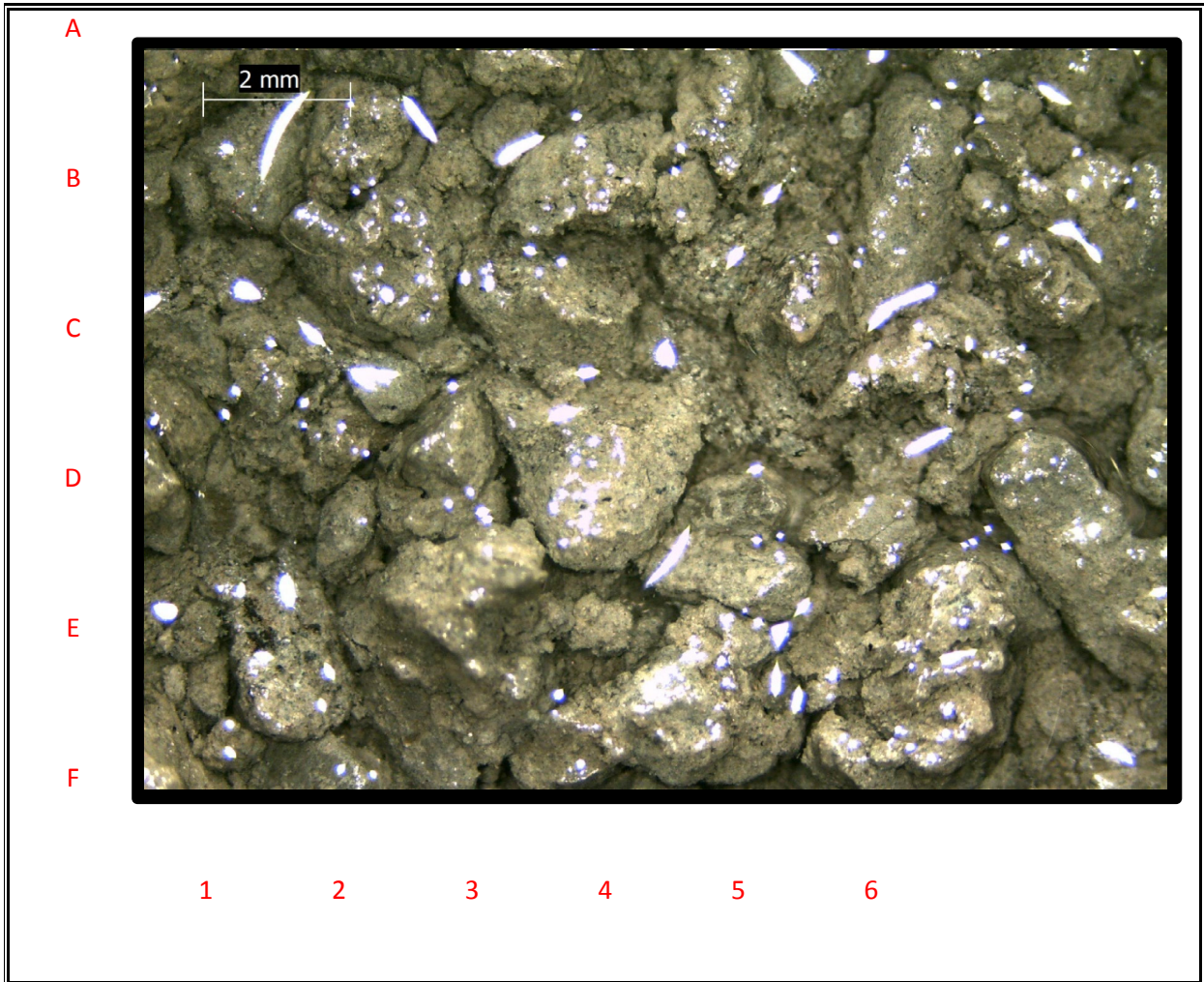




# DEPTH

**3090'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



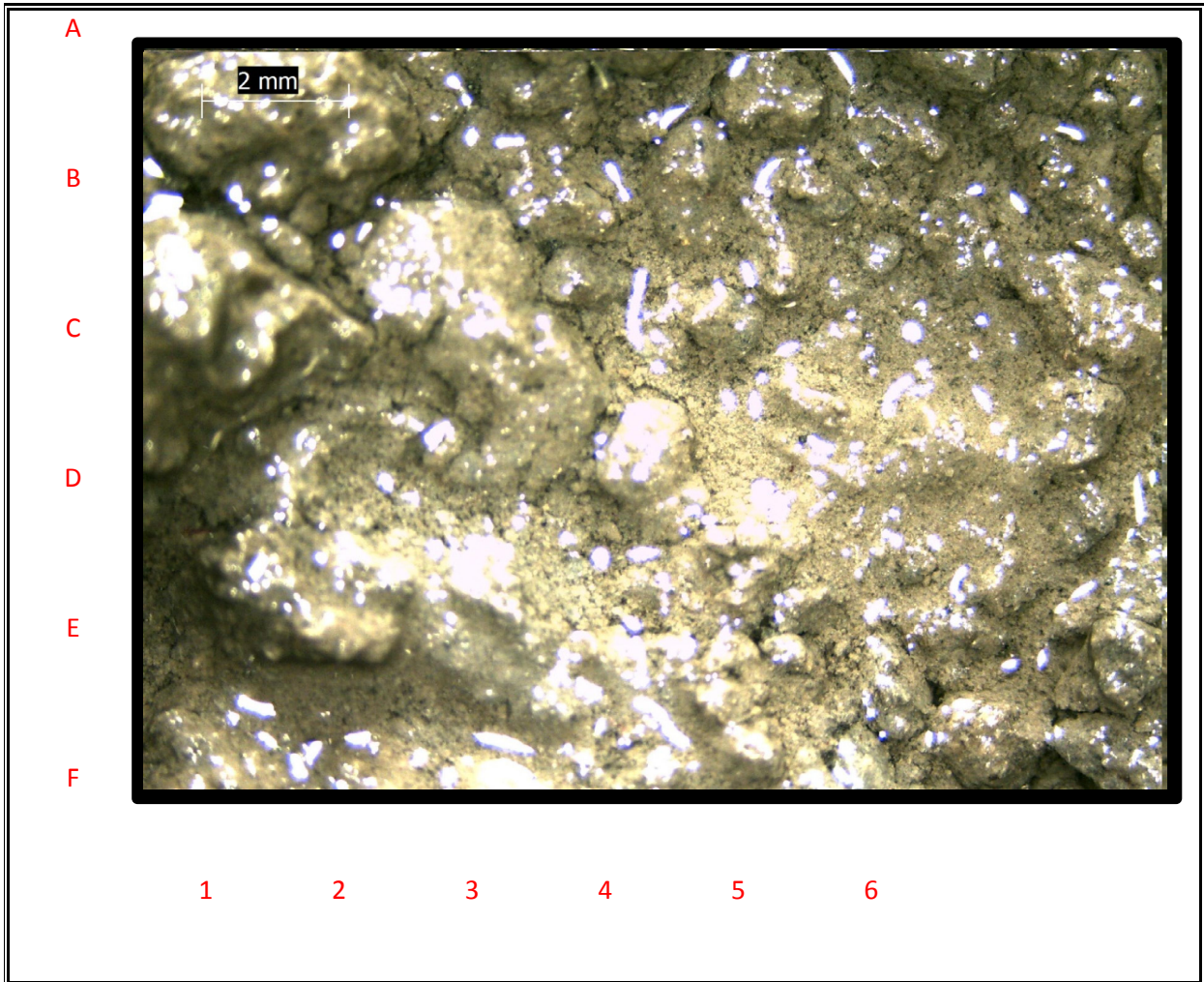
DEPTH	3090'	TIME		DATE	9/12/2015
LOGGING ENGINEER		Ryan Lenberg			
PERCENT	FORMATION	DESCRIPTION			
90%	CLYST	med to dk gry, fri to frm, blk, grty, sm slty mtx			
10%	SLTST	sli calc			



# DEPTH

**3120'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	3120'	TIME		DATE	9/12/2015
LOGGING ENGINEER		Ryan Lenberg			
PERCENT	FORMATION	DESCRIPTION			
80%	CLYST	med to lt gry, fri to frm, blk, grty, sm slty mtx			
20%	SLTST	tr calc			

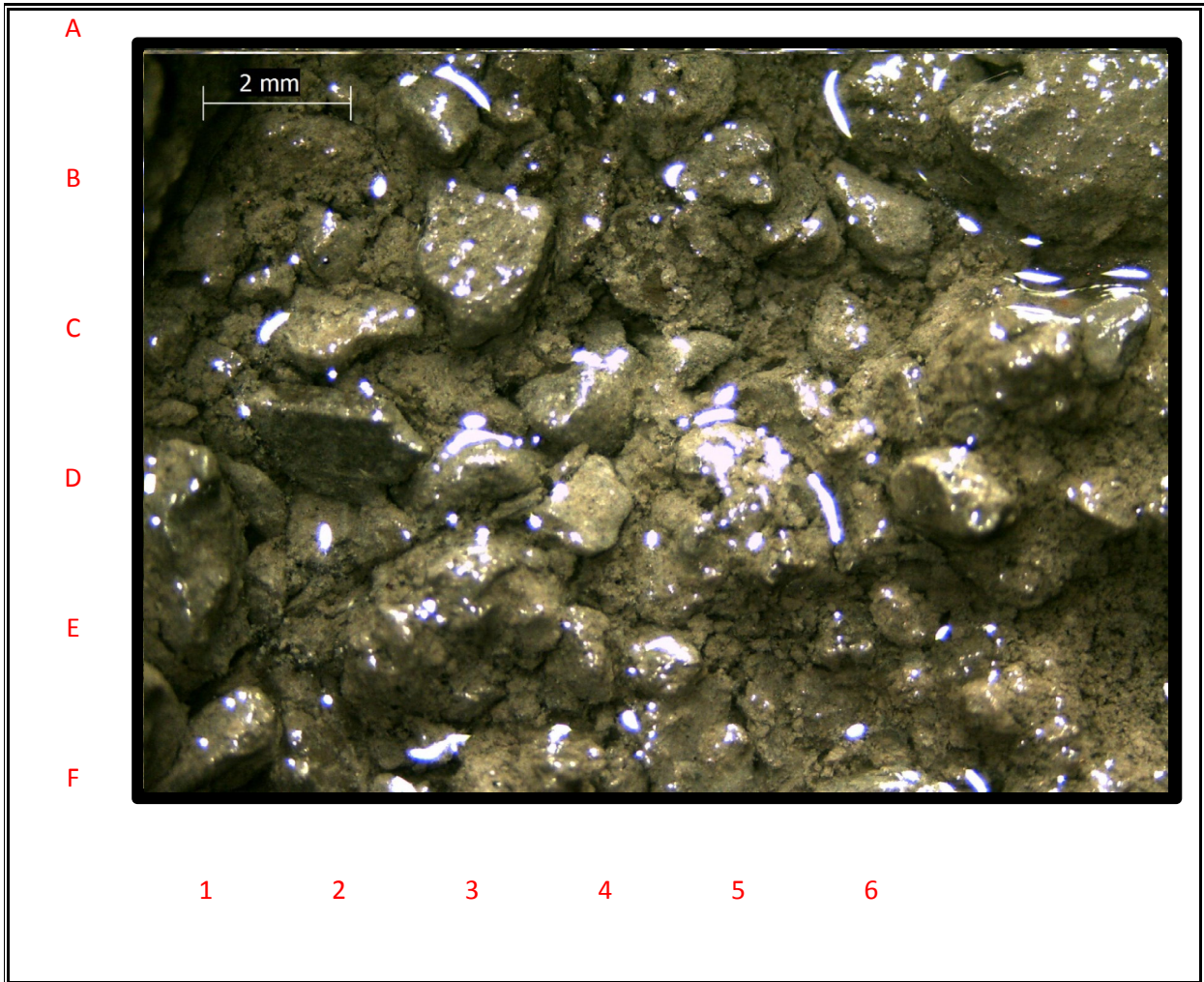




# DEPTH

**3150'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	3150'	TIME		DATE	9/12/2015
LOGGING ENGINEER		Ryan Lenberg			
PERCENT	FORMATION	DESCRIPTION			
70%	CLYST	med to lt gry, fri to frm, blk, grty, sm slty mtx			
30%	SLTST				

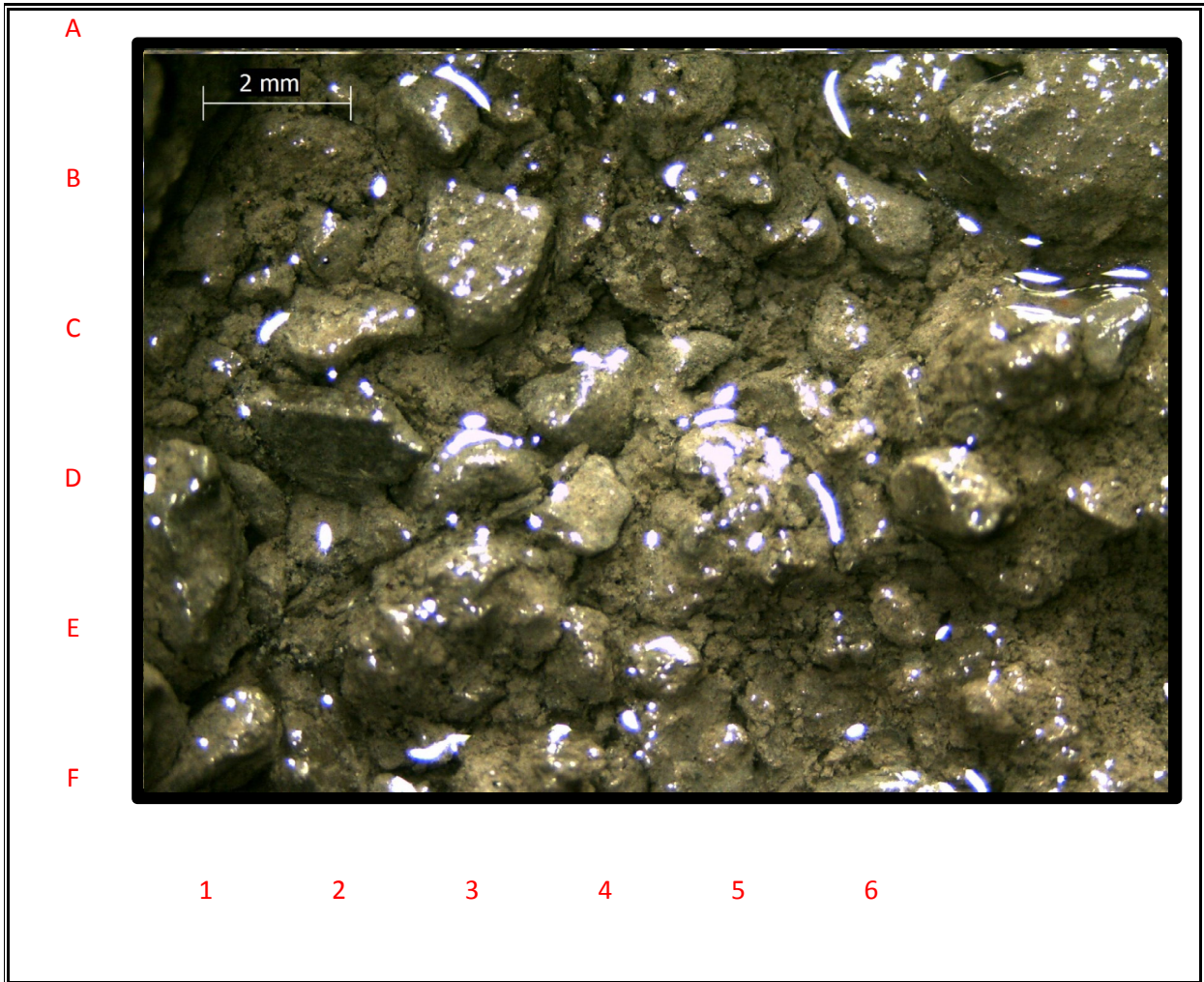




# DEPTH

**3180'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



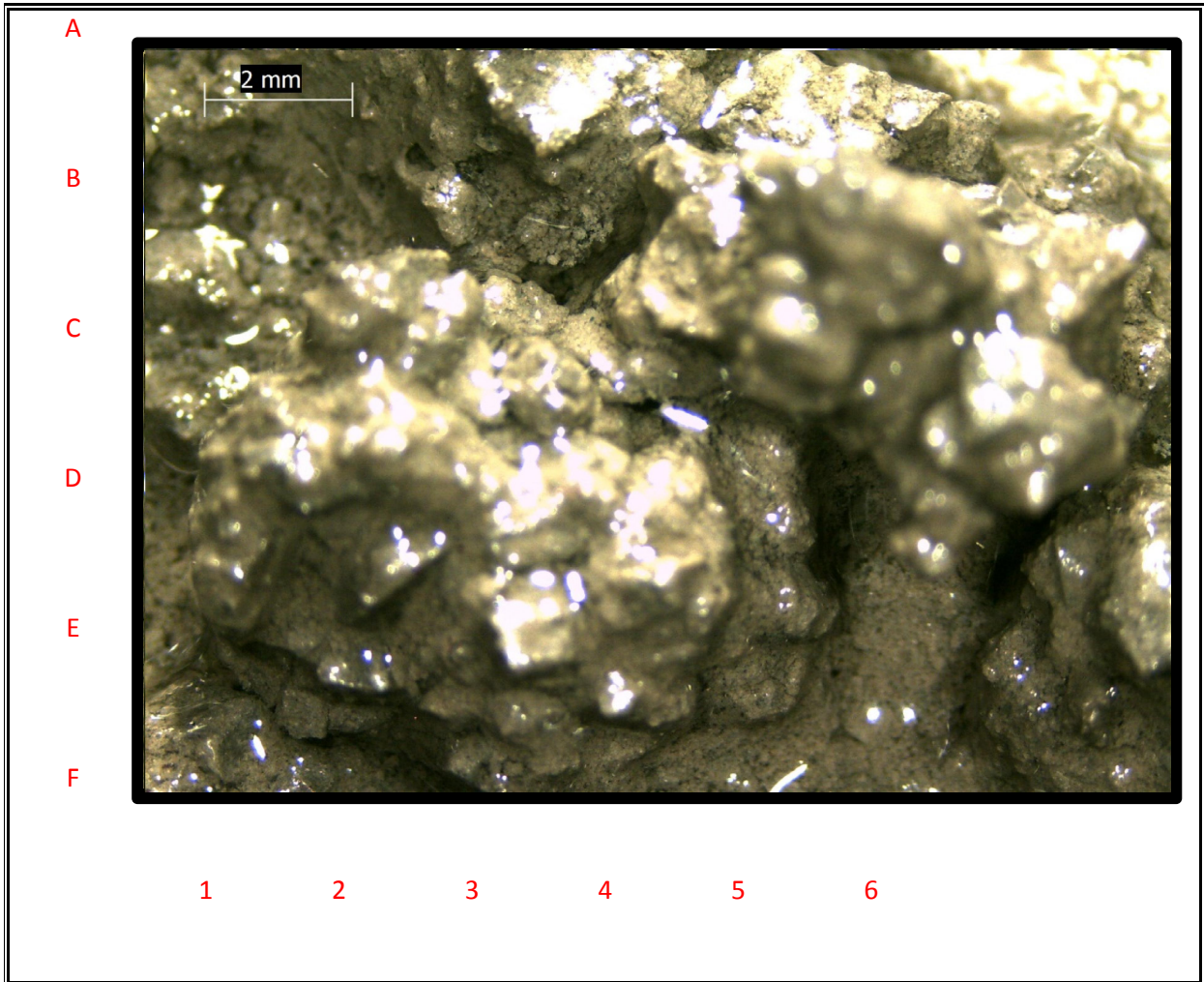
DEPTH	3180'	TIME		DATE	9/12/2015
LOGGING ENGINEER		Ryan Lenberg			
PERCENT	FORMATION	DESCRIPTION			
70%	CLYST	med to lt gry, fri to frm, blk, grty, sm slty mtx			
30%	SLTST				



# DEPTH

**3210'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	3210'	TIME		DATE	9/12/2015
LOGGING ENGINEER		Ryan Lenberg			
PERCENT	FORMATION	DESCRIPTION			
80%	CLYST	med to lt gry, fri to frm, blk, grty, sm slty mtx			
20%	SLTST				

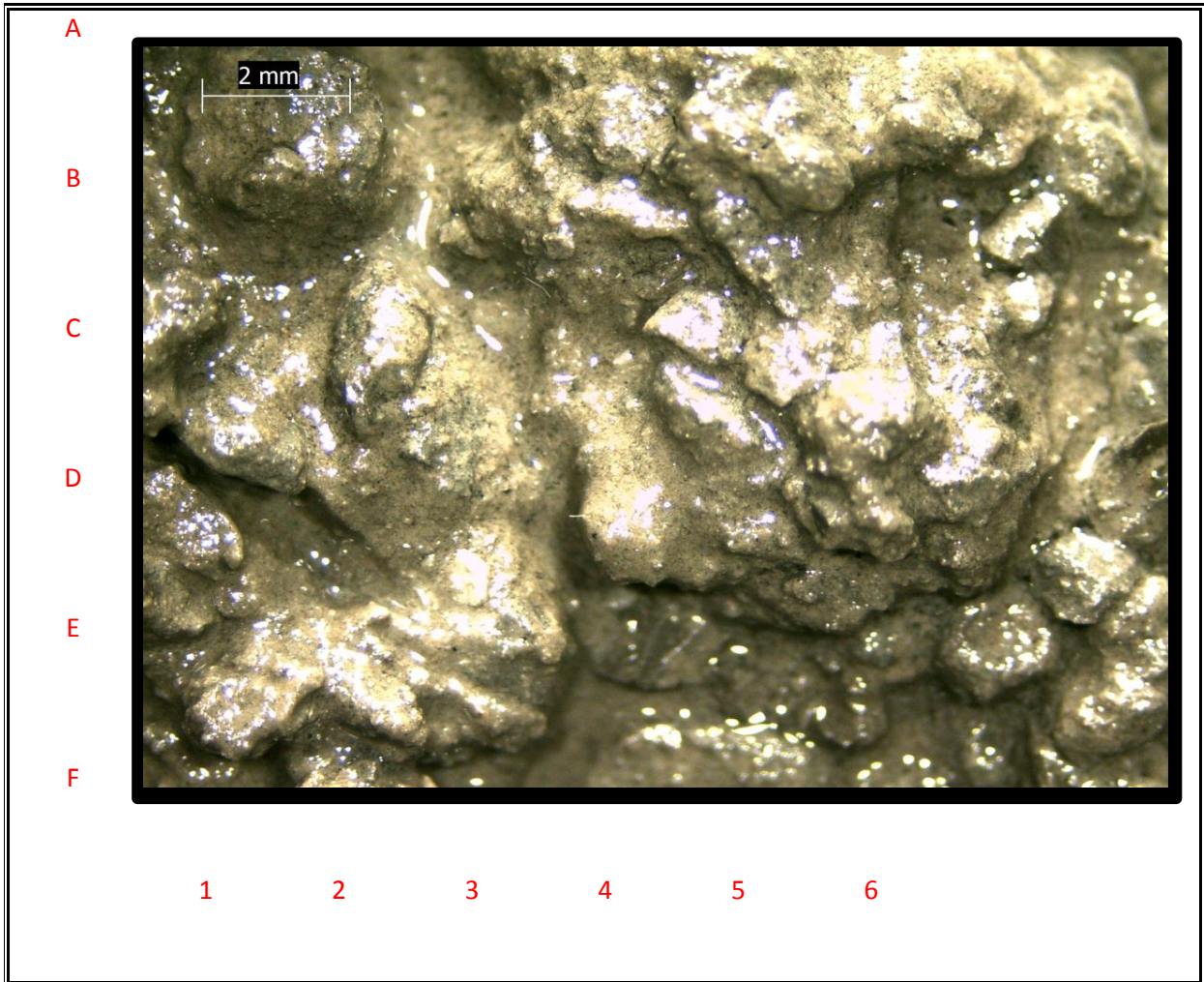




# DEPTH

**3240'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



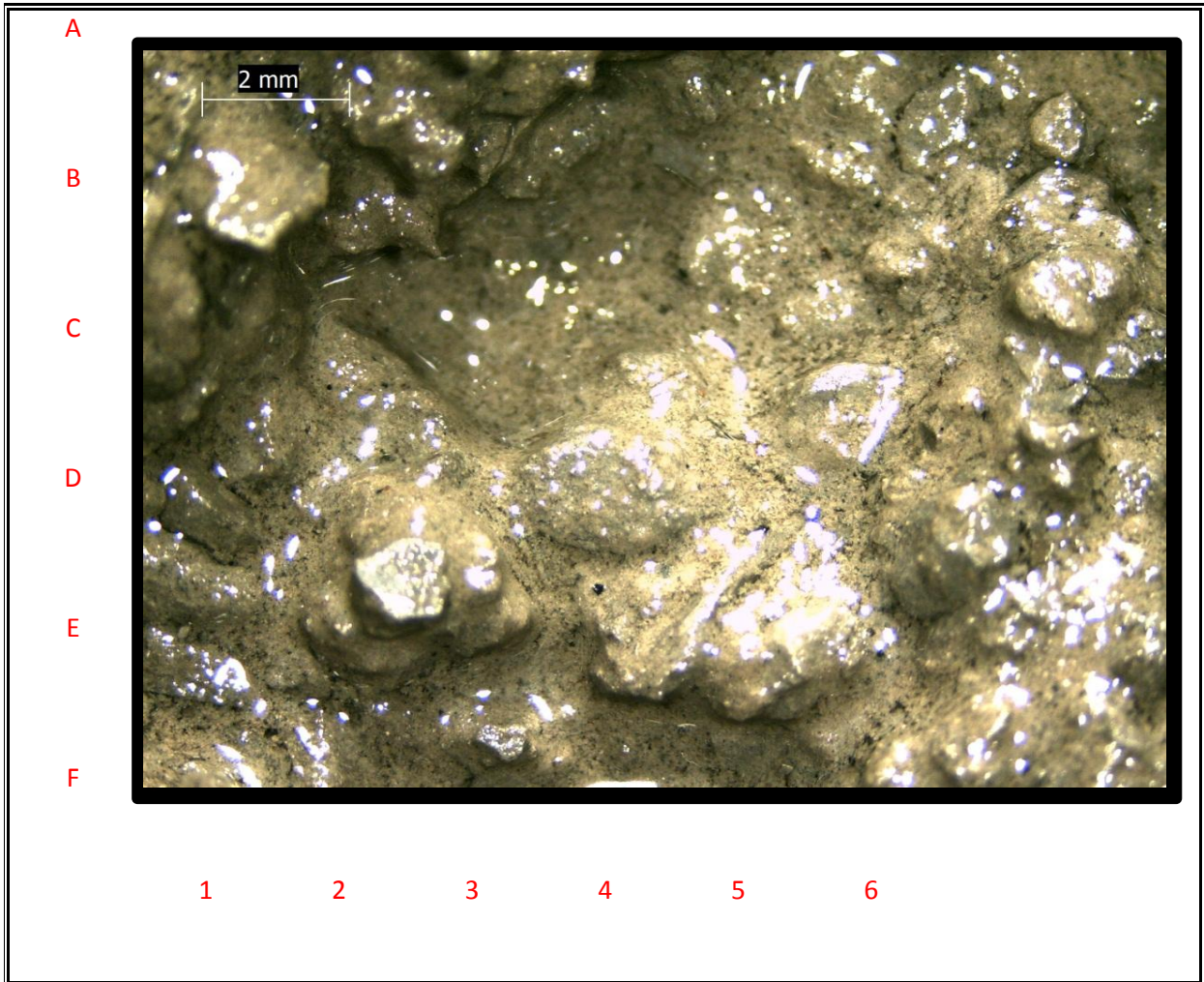
DEPTH	3240'	TIME		DATE	9/12/2015
LOGGING ENGINEER		Ryan Lenberg			
PERCENT	FORMATION	DESCRIPTION			
90%	CLYST	med to dk gry, fri to frm, blk, grty, sm slty mtx			
10%	SLTST				



# DEPTH

**3270'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	3270'	TIME		DATE	9/12/2015
LOGGING ENGINEER		Ryan Lenberg			
PERCENT	FORMATION	DESCRIPTION			
90%	CLYST	med to dk gry, fri to frm, blk, grty, sm slty mtx			
10%	SLTST	Tr calc			

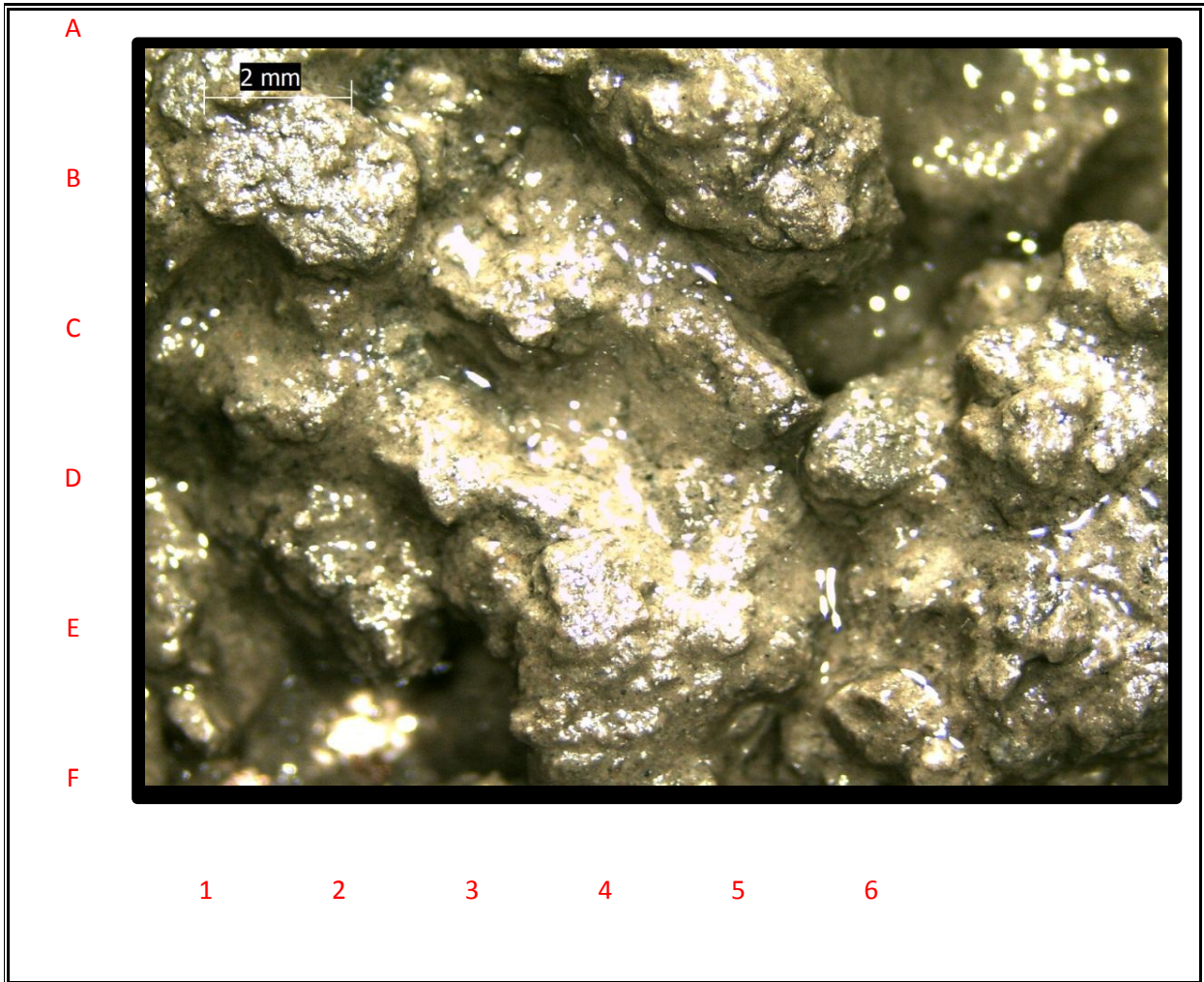




# DEPTH

**3300'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



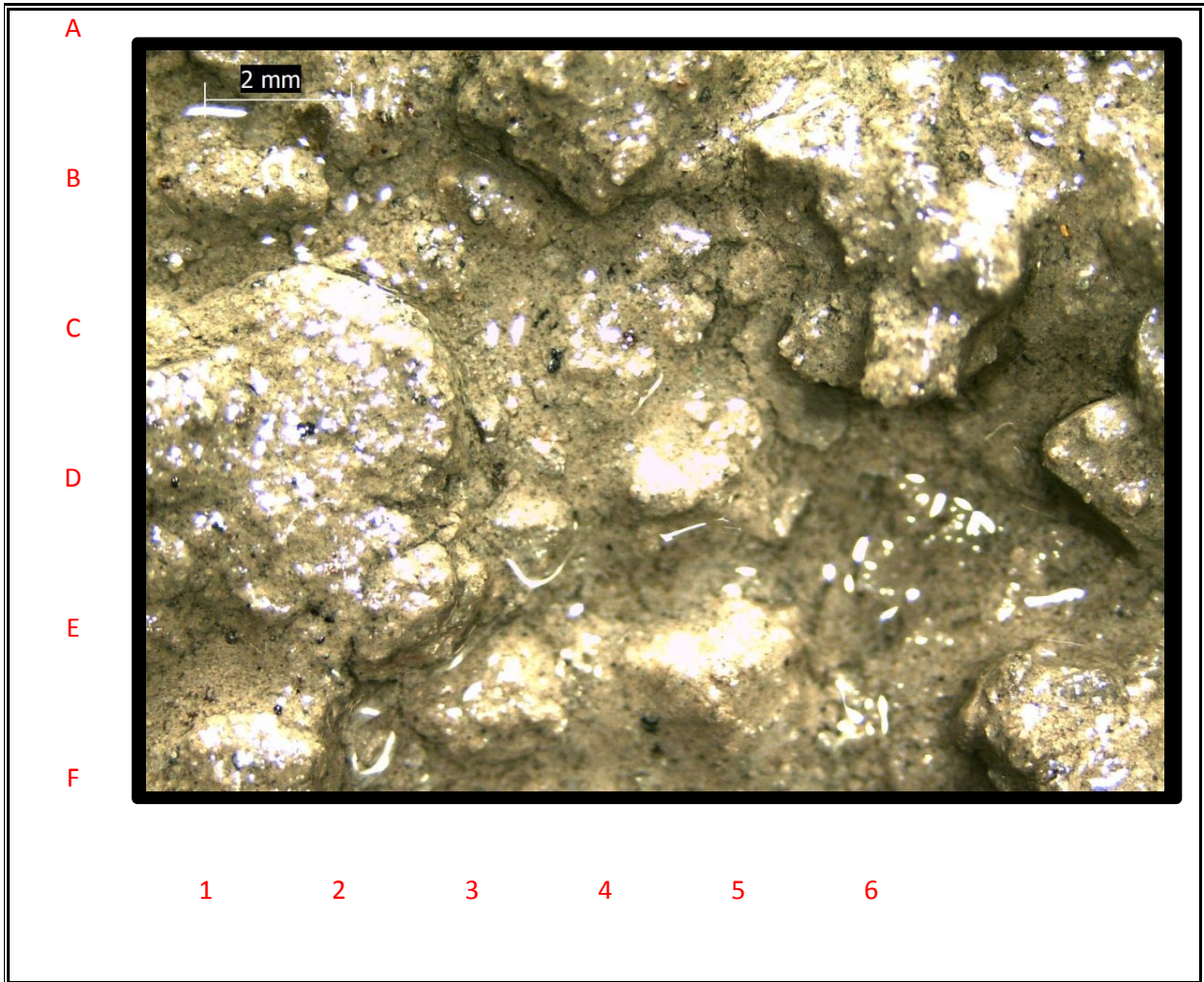
DEPTH	3300'	TIME		DATE	9/12/2015
LOGGING ENGINEER		Ryan Lenberg			
PERCENT	FORMATION	DESCRIPTION			
90%	CLYST	med to dk gry, fri to frm, blk, grty, sm slty mtx			
10%	SLTST	Tr calc			



# DEPTH

**3330'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	3330'	TIME		DATE	9/12/2015
LOGGING ENGINEER		Ryan Lenberg			
PERCENT	FORMATION	DESCRIPTION			
80%	CLYST	med to dk gry, fri to frm, blk, grty, sm slty mtx			
10%	SLTST	Tr calc			
10%	SS	No fluor, no cut.			

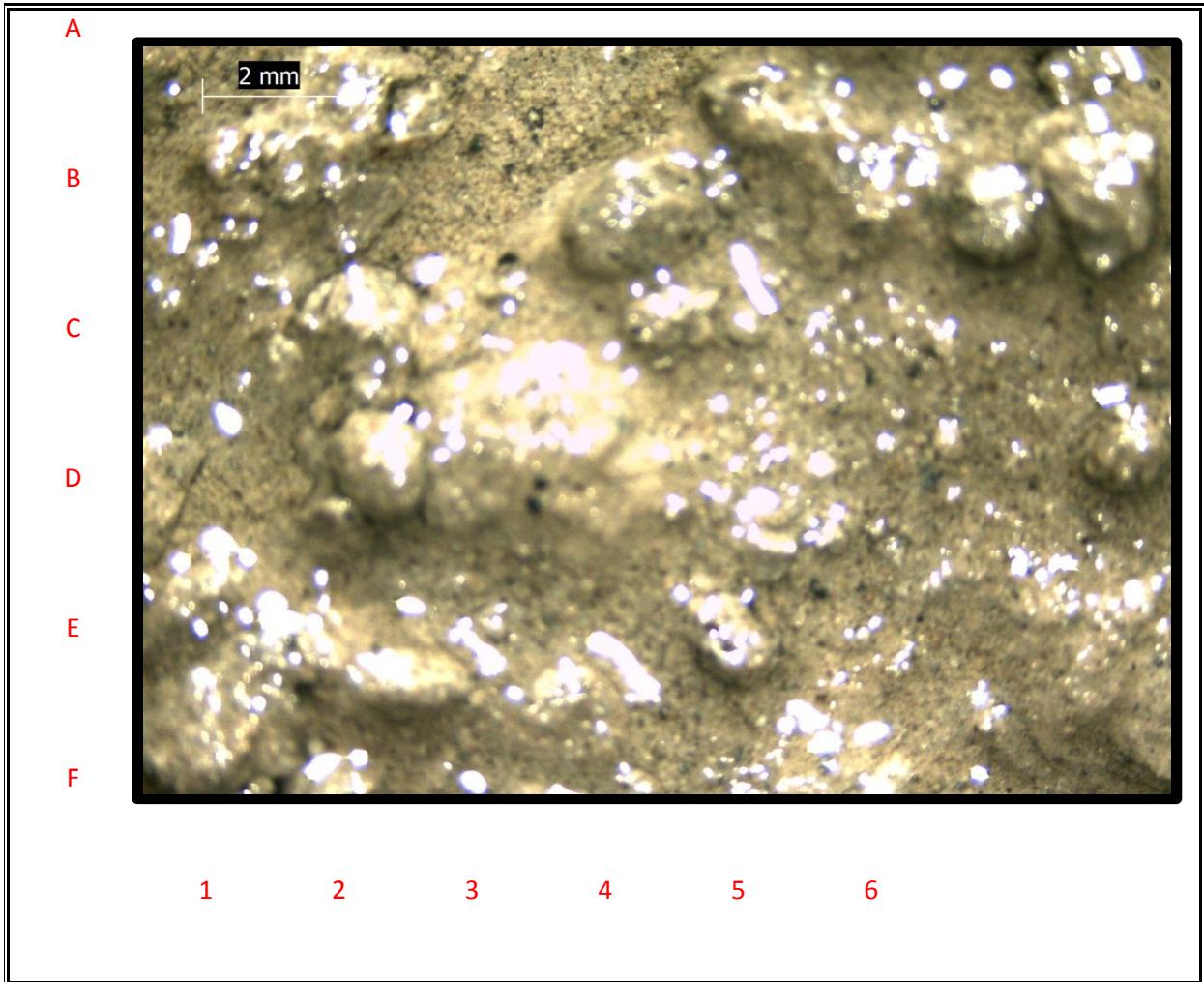




# DEPTH

**3360'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



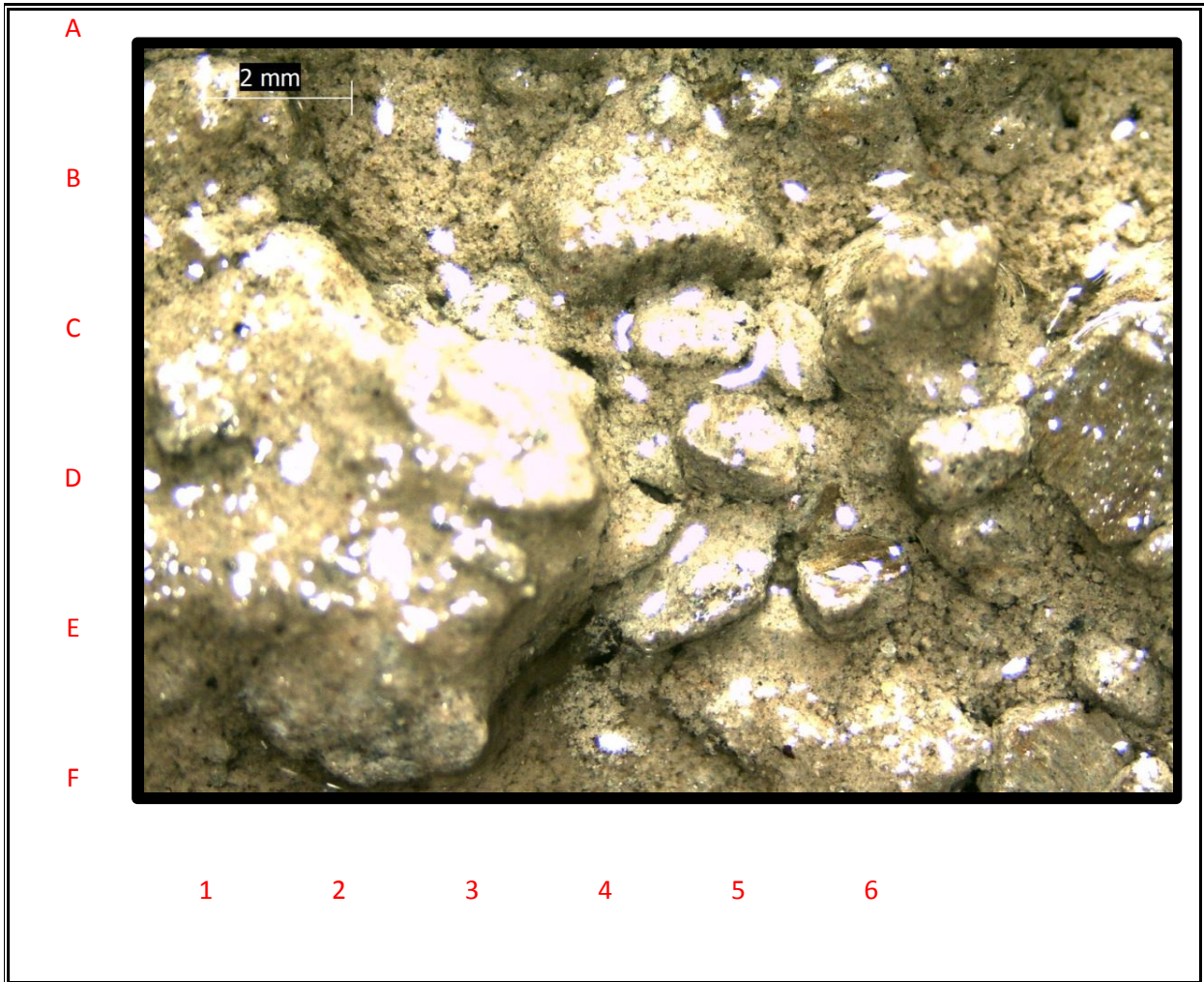
DEPTH	3360'	TIME		DATE	9/12/2015
LOGGING ENGINEER		Ryan Lenberg			
PERCENT	FORMATION	DESCRIPTION			
70%	CLYST	med to dk gry, fri to frm, blk, grty, sm slty mtx			
20%	SS	No fluor, no cut.			
10%	SLTST				



# DEPTH

**3390'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	3390'	TIME		DATE	9/12/2015
LOGGING ENGINEER		Ryan Lenberg			
PERCENT	FORMATION	DESCRIPTION			
80%	CLYST	med to dk gry, fri to frm, blk, grty, sm slty mtx			
10%	SS	No fluor, no cut.			
10%	SLTST				

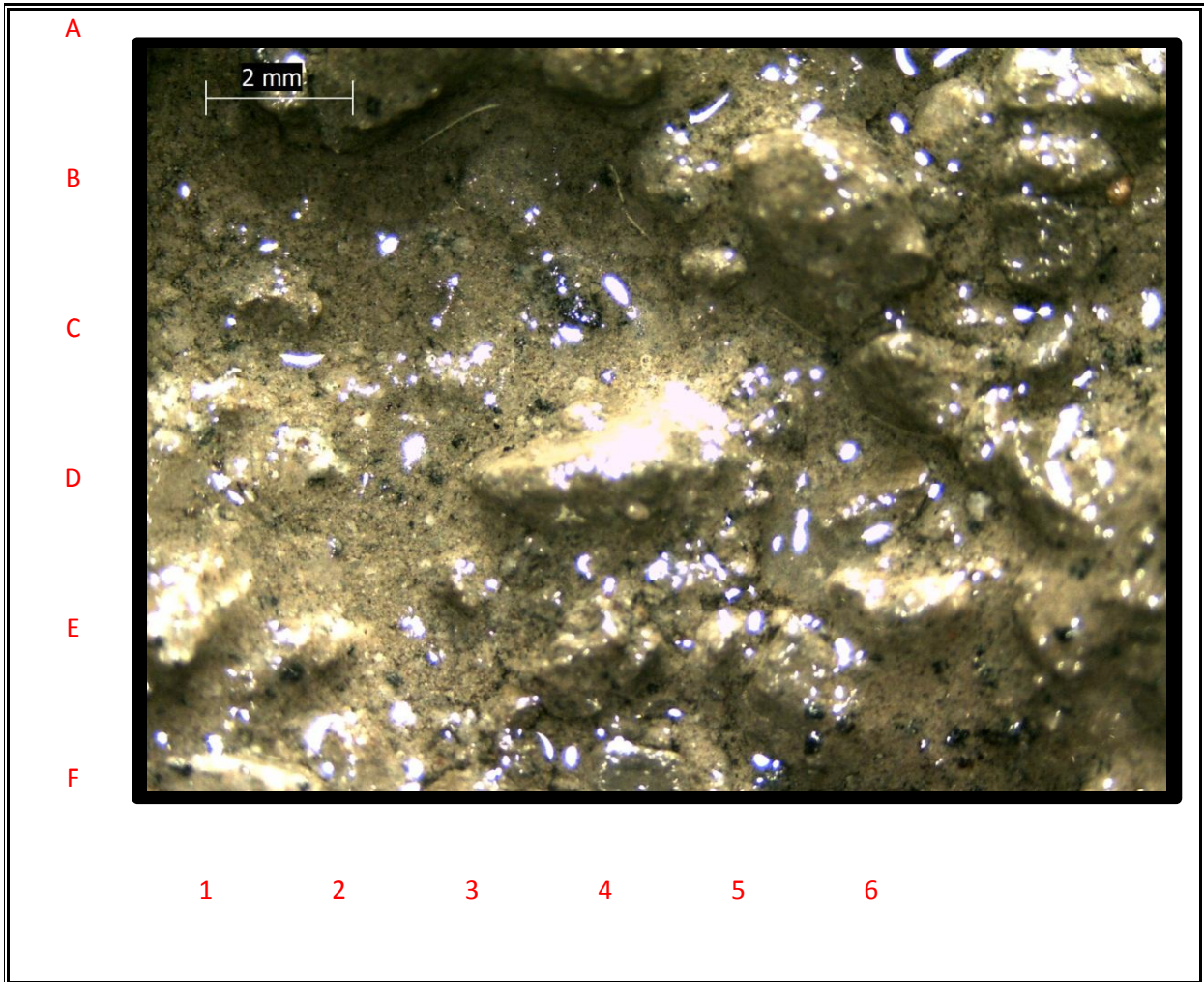




# DEPTH

**3420'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



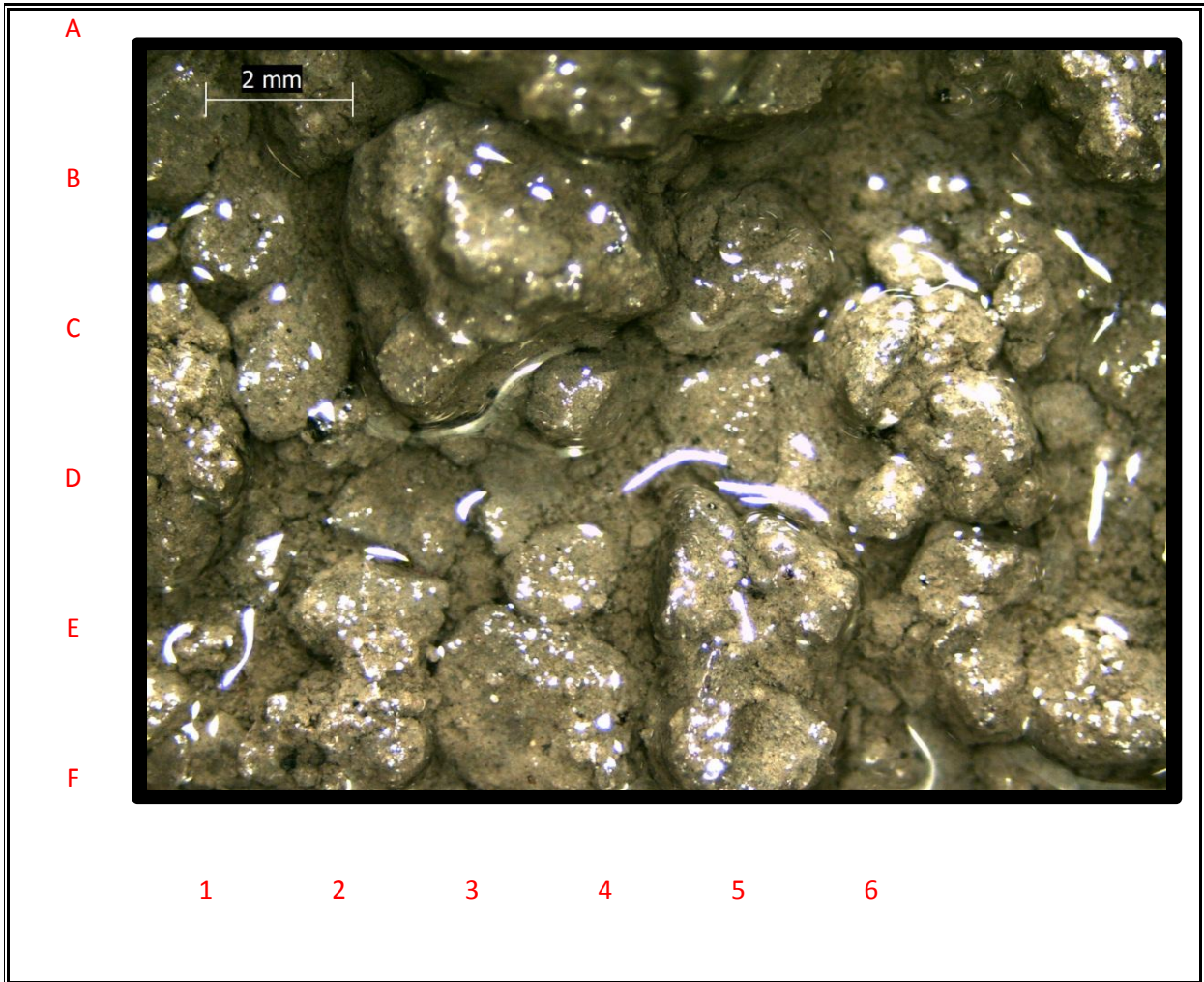
DEPTH	3420'	TIME		DATE	9/12/2015
LOGGING ENGINEER		Ryan Lenberg			
PERCENT	FORMATION	DESCRIPTION			
80%	CLYST	med to dk gry, fri to frm, blk, grty, sm slty mtx			
10%	SS	No fluor, no cut.			
10%	SLTST				



# DEPTH

**3450'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	3450'	TIME		DATE	9/12/2015
LOGGING ENGINEER		Ryan Lenberg			
PERCENT	FORMATION	DESCRIPTION			
90%	CLYST	med to dk gry, fri to frm, blk, grty, sm slty mtx			
10%	SS				

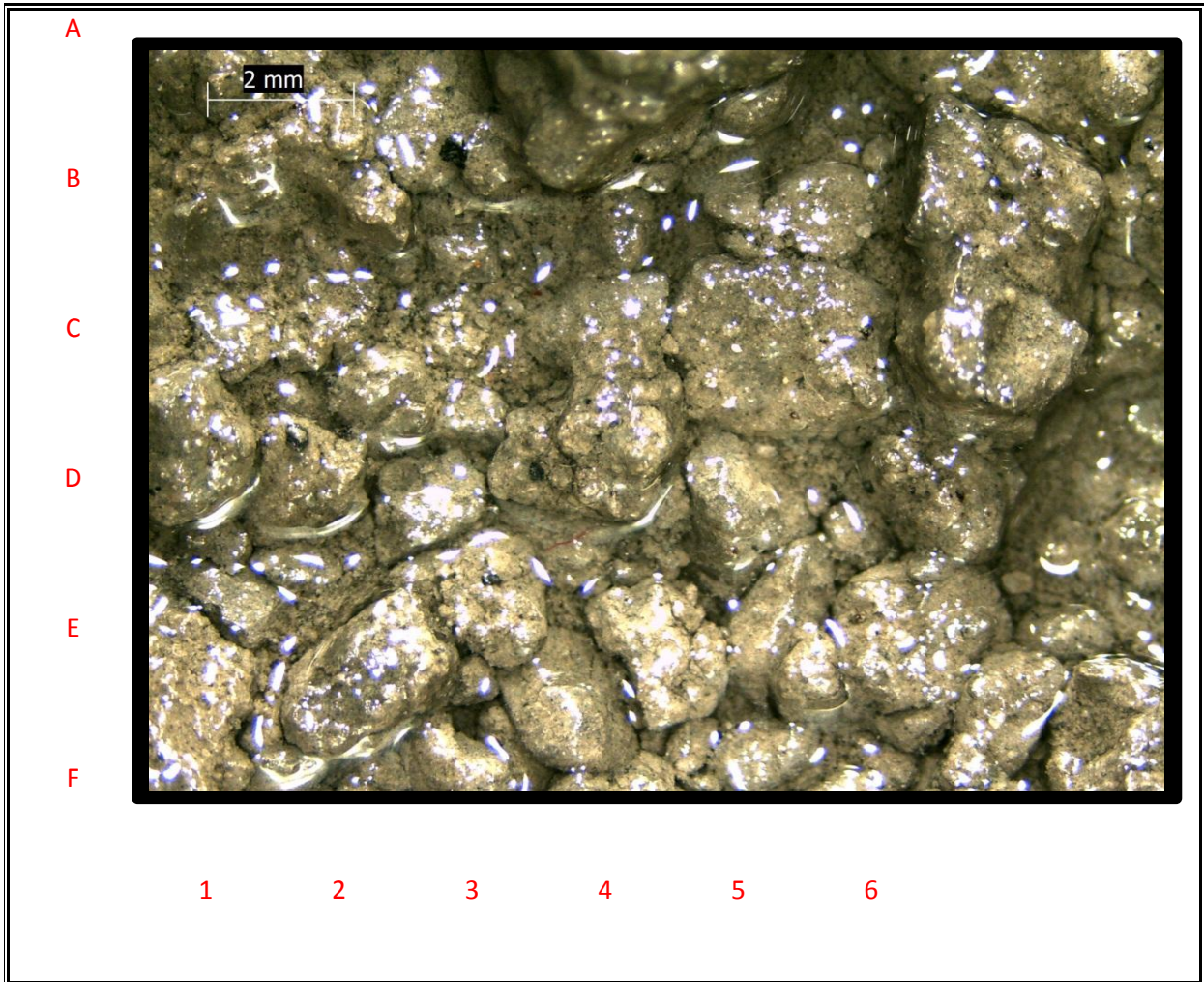




# DEPTH

**3480'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



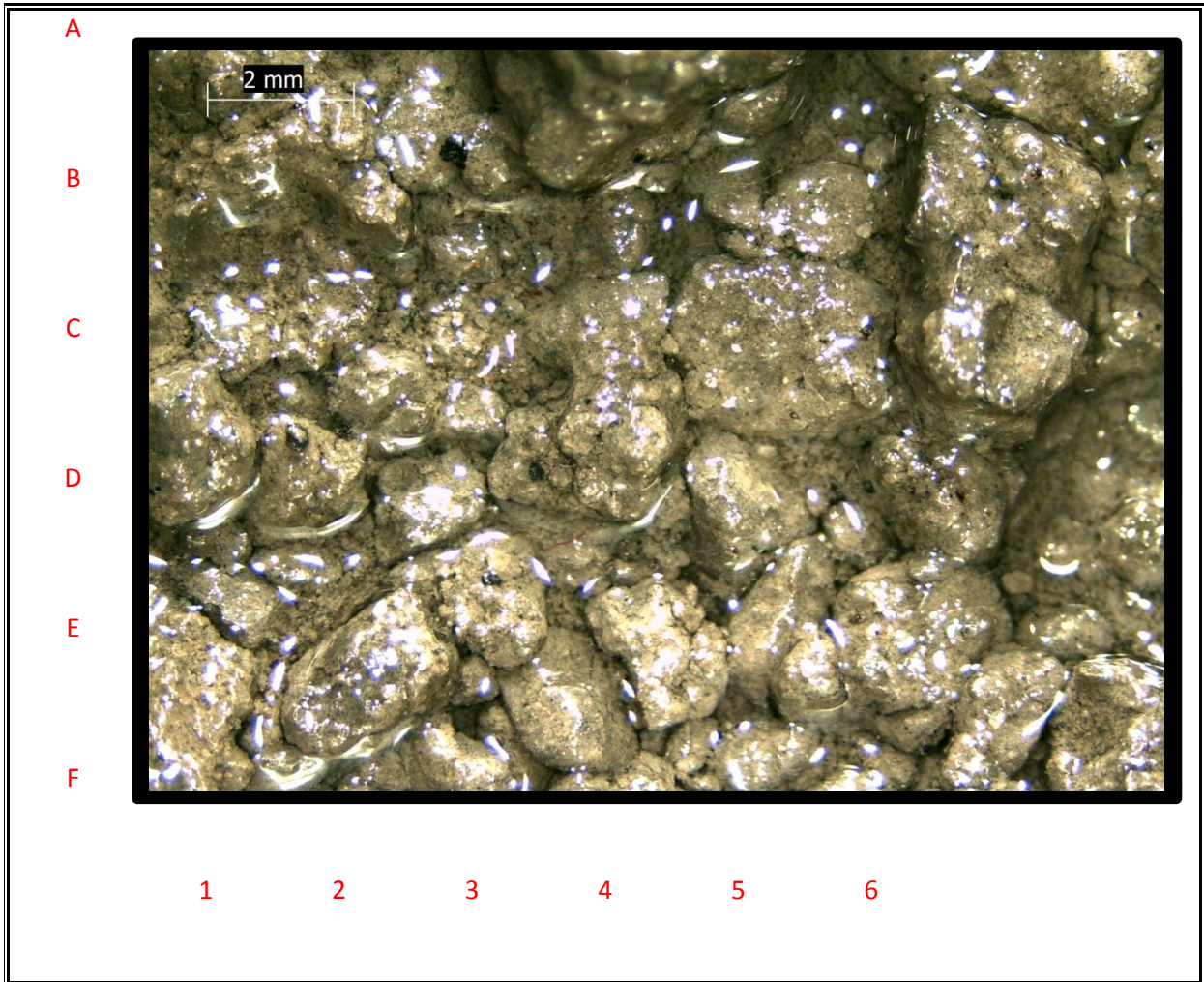
DEPTH	3480'	TIME		DATE	9/12/2015
LOGGING ENGINEER		Ryan Lenberg			
PERCENT	FORMATION	DESCRIPTION			
90%	CLYST	med to dk gry, fri to frm, blk, grty, sm slty mtx			
10%	SLTST				



# DEPTH

**3510'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	3510'	TIME		DATE	9/12/2015
LOGGING ENGINEER		Ryan Lenberg			
PERCENT	FORMATION	DESCRIPTION			
80%	CLYST	med to dk gry, fri to frm, blk, grty, sm slty mtx			
10%	SLTST				
10%	SS	No fluor, no cut			

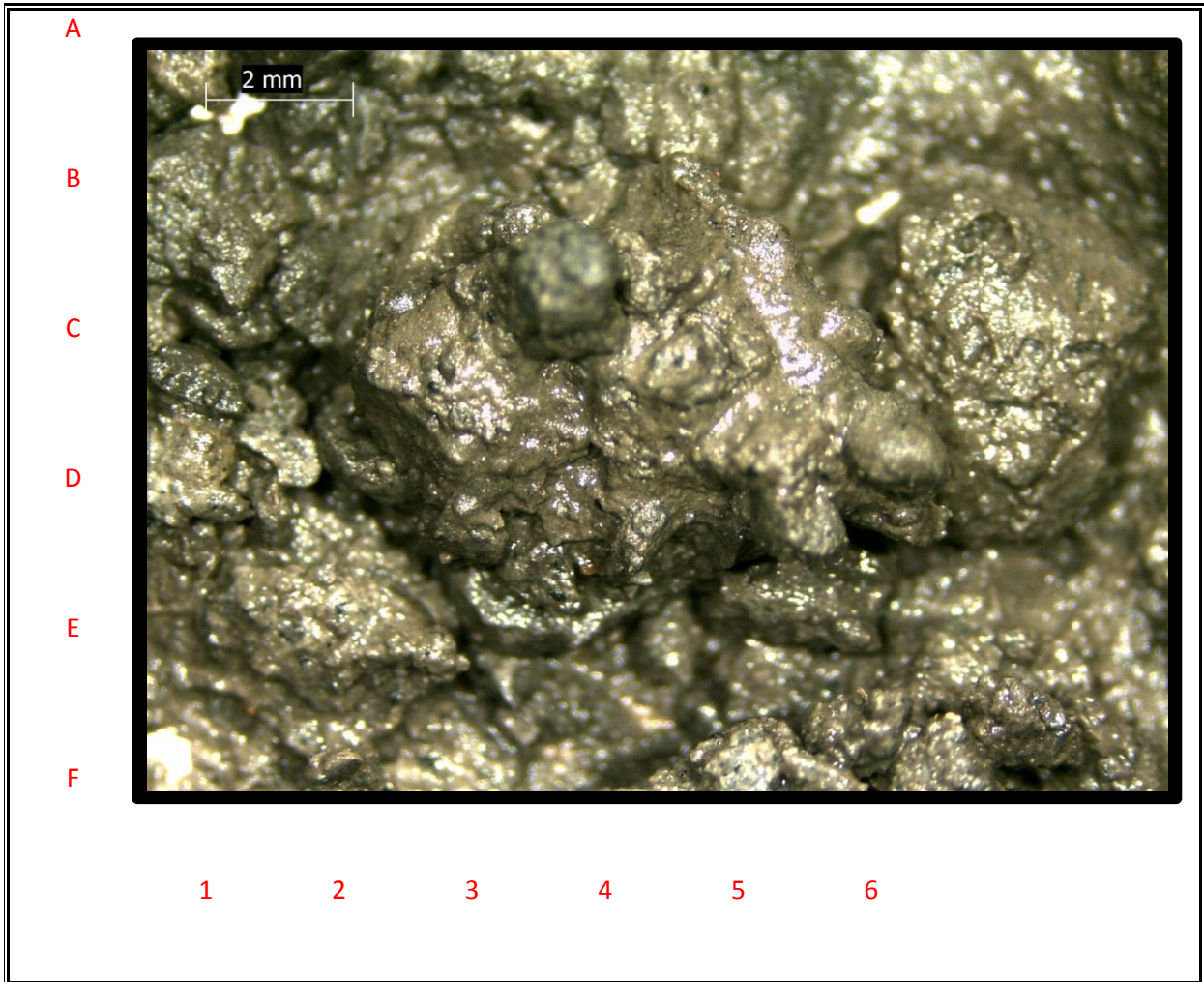




# DEPTH

**3540'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



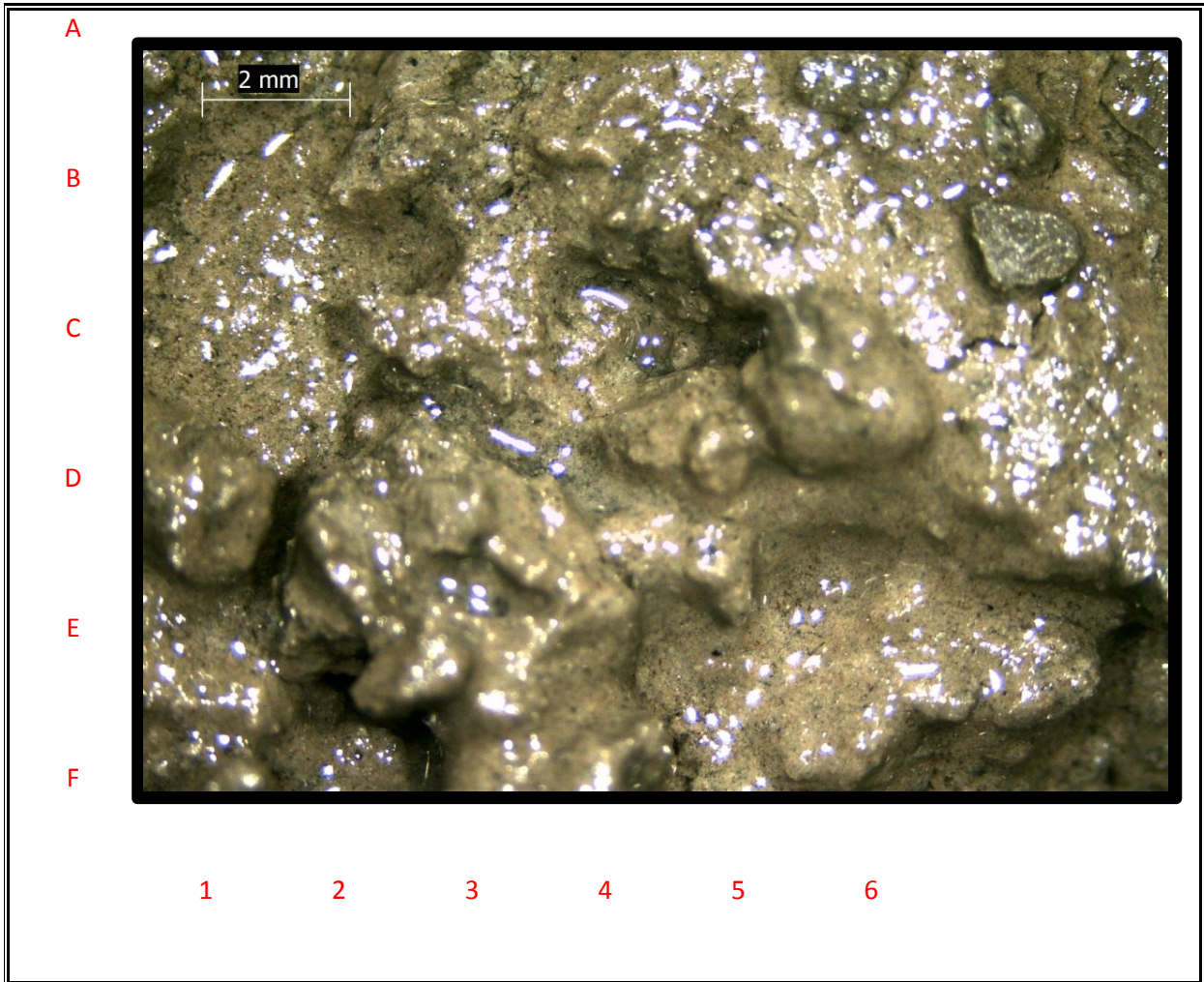
DEPTH	3540'	TIME		DATE	9/12/2015
LOGGING ENGINEER		Ryan Lenberg			
PERCENT	FORMATION	DESCRIPTION			
90%	CLYST	med to dk gry, fri to frm, blk, grty, sm, mod calc			
10%	SLTST				



# DEPTH

**3570'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	3570'	TIME		DATE	9/12/2015
LOGGING ENGINEER		Ryan Lenberg			
PERCENT	FORMATION	DESCRIPTION			
90%	CLYST	med to dk gry, fri to frm, blk, grty, sm, mod calc			
10%	SLTST	W/ tr ss, no fluor, no cut			

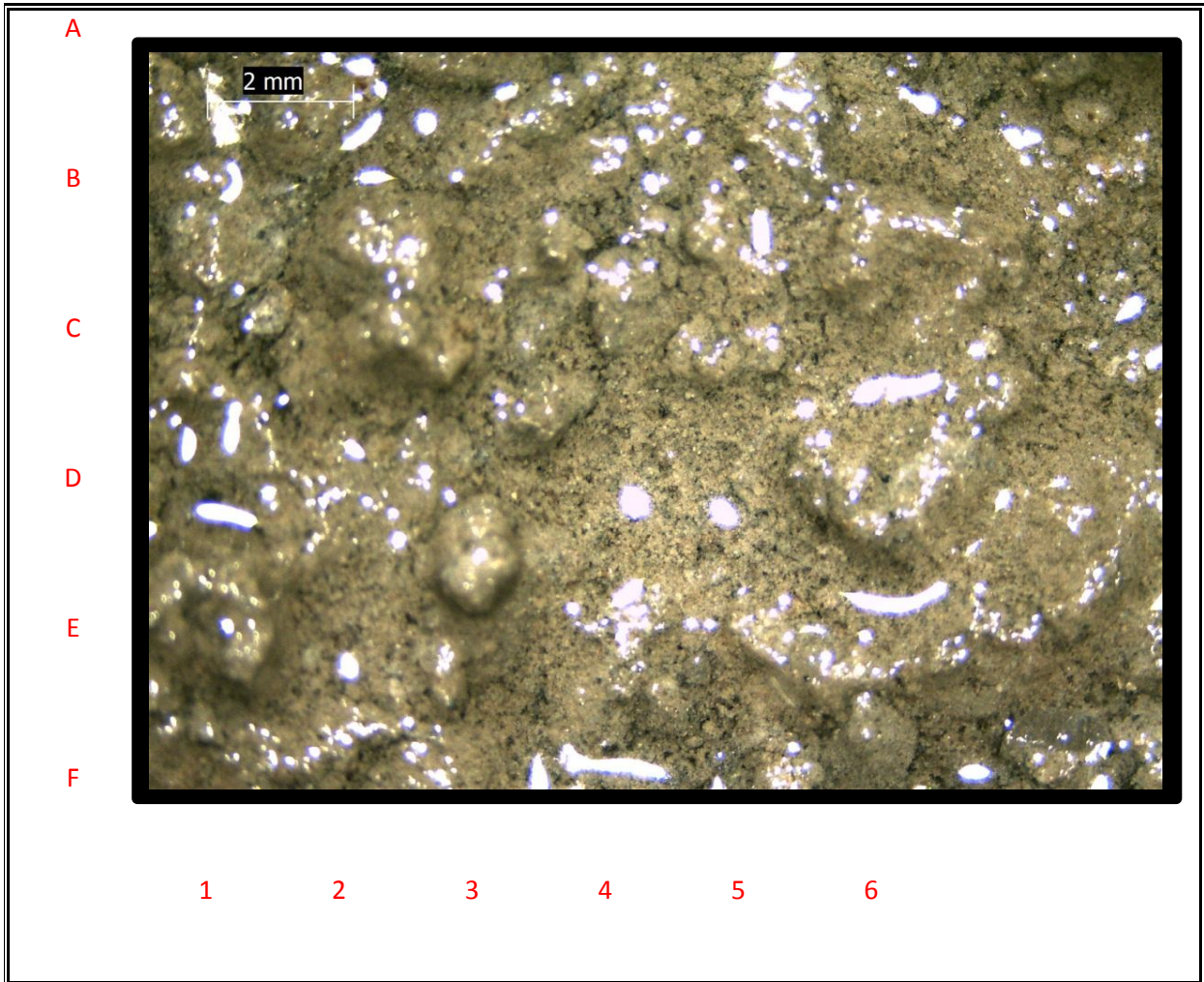




# DEPTH

**3600'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



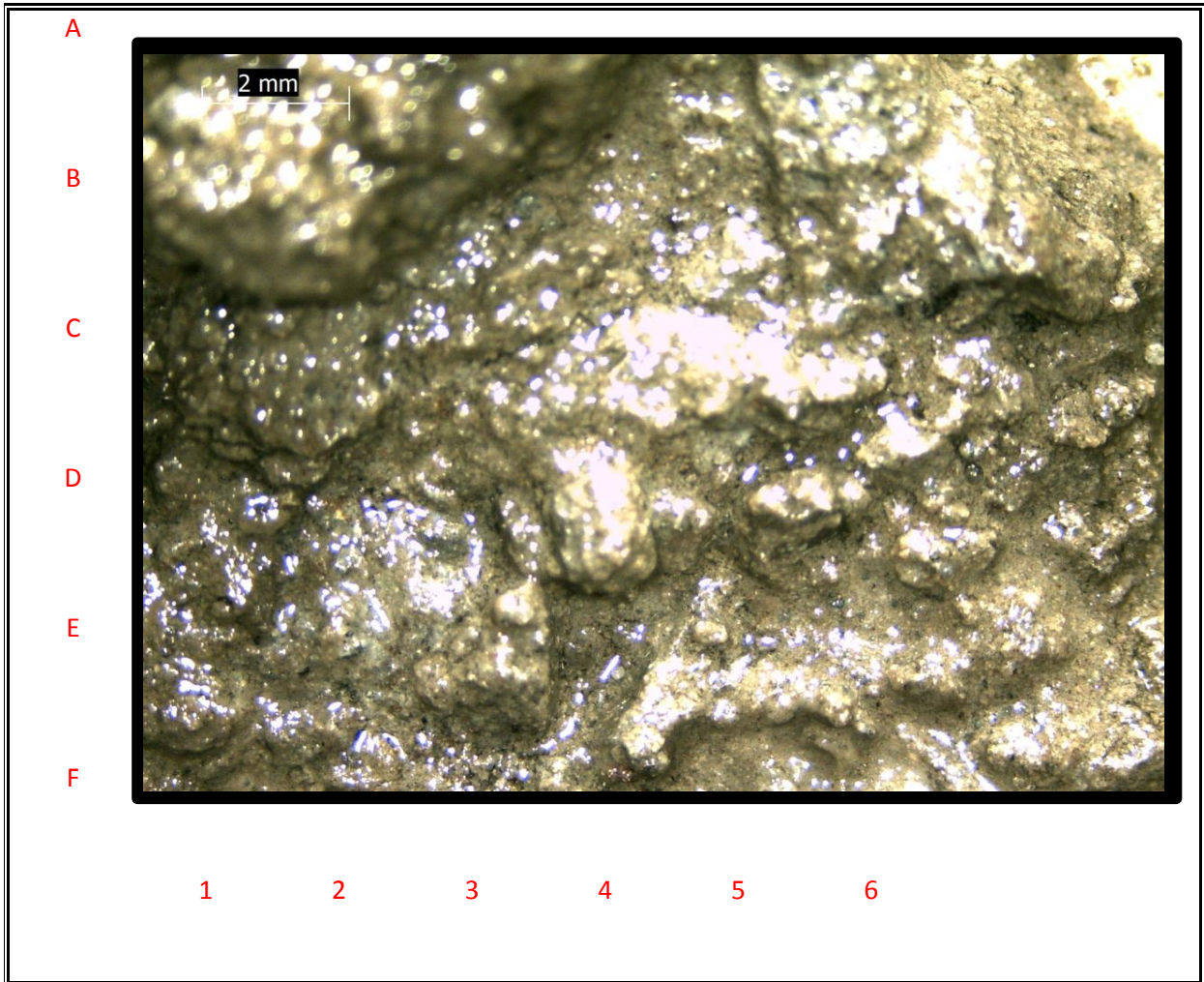
DEPTH	3600'	TIME		DATE	9/12/2015
LOGGING ENGINEER		Ryan Lenberg			
PERCENT	FORMATION	DESCRIPTION			
80%	CLYST	med to dk gry, fri to frm, blk, grty, sm, mod calc			
10%	SLTST				
10%	SS	No fluor, no cut			



# DEPTH

**3630'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	3630'	TIME		DATE	9/12/2015
LOGGING ENGINEER		Ryan Lenberg			
PERCENT	FORMATION	DESCRIPTION			
80%	CLYST	med to dk gry, fri to frm, blk, grty, sm, mod calc			
10%	SLTST				
10%	SS	No fluor, no cut			

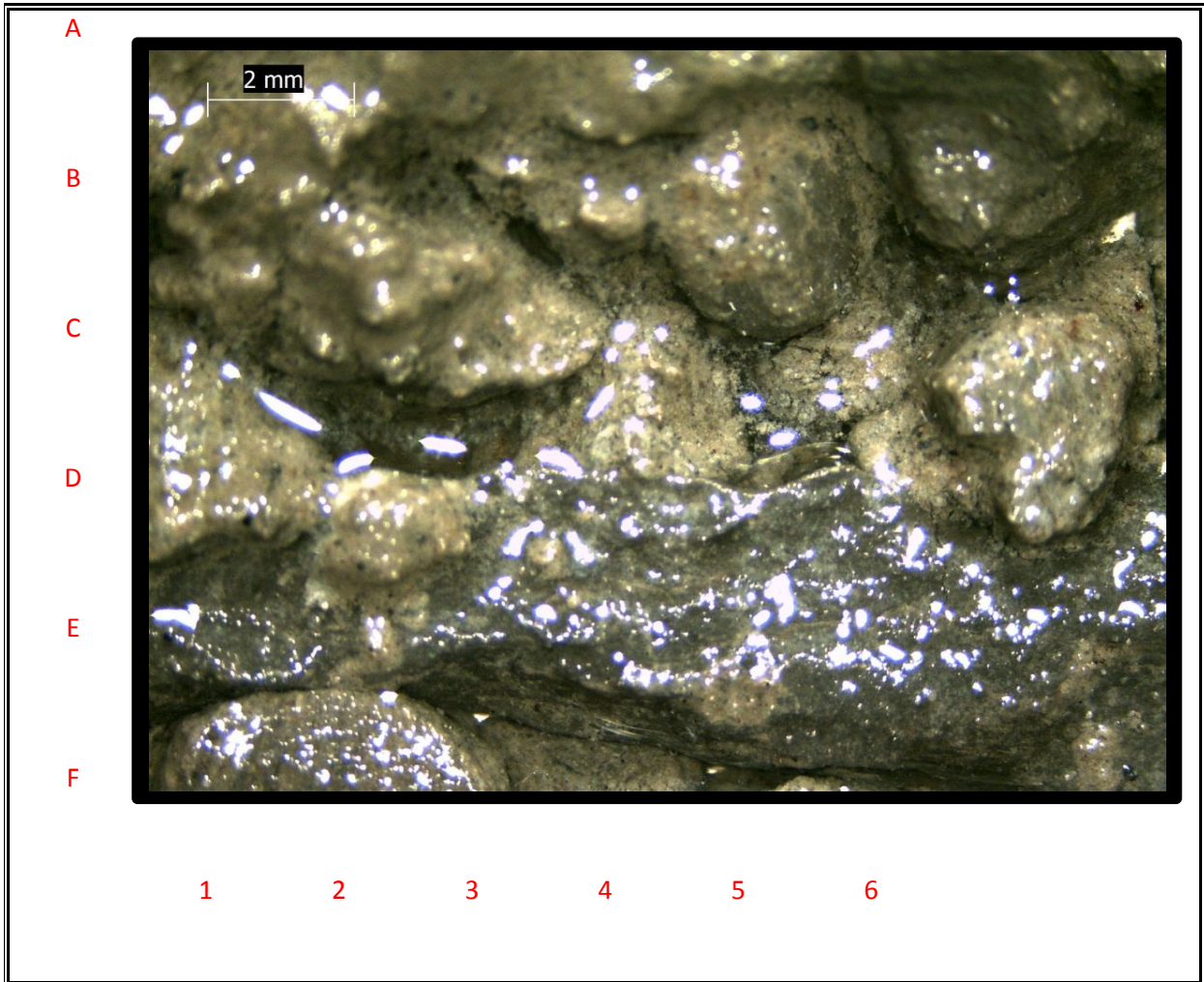




# DEPTH

**3660'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



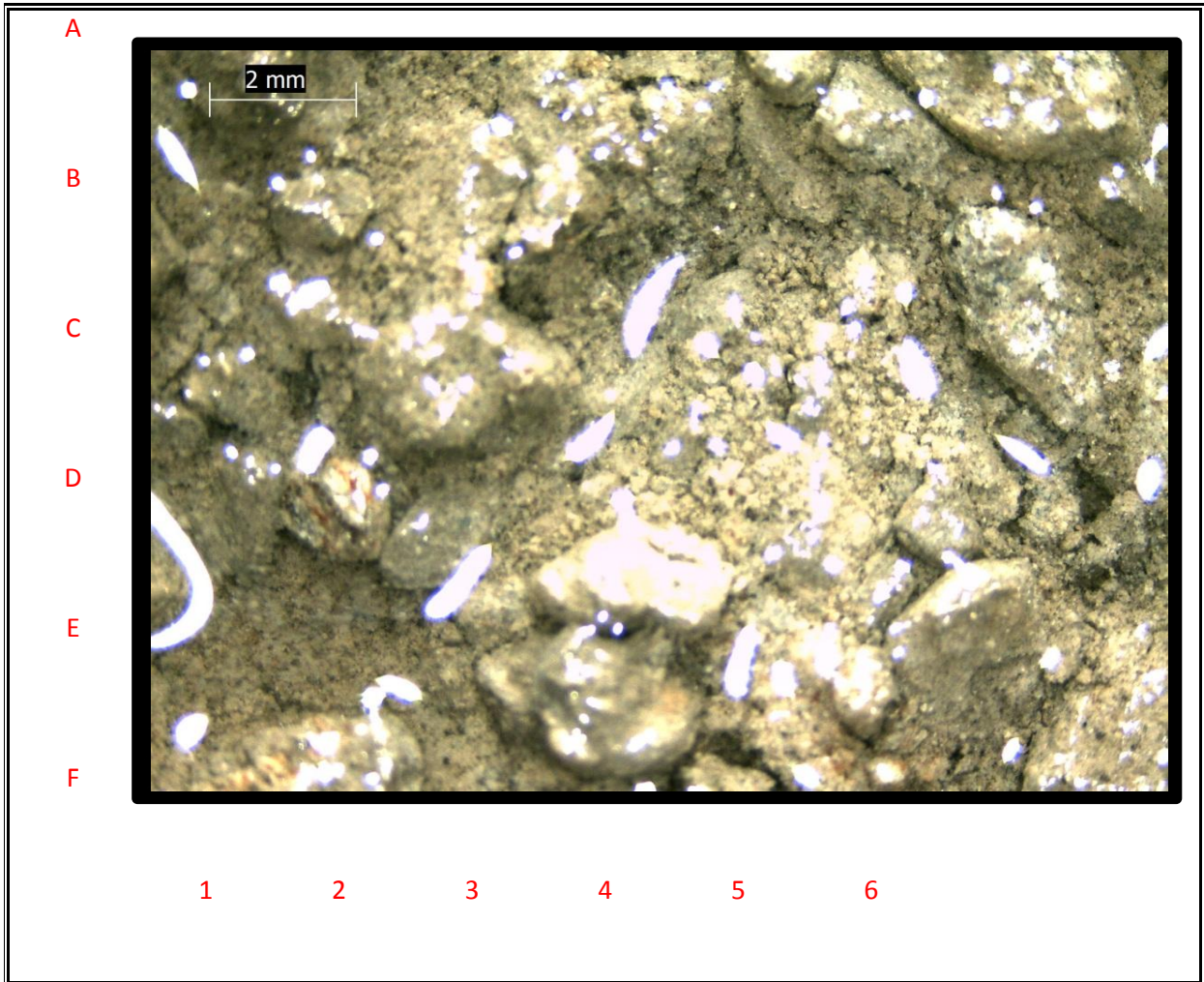
DEPTH	3660'	TIME		DATE	9/12/2015
LOGGING ENGINEER		Ryan Lenberg			
PERCENT	FORMATION	DESCRIPTION			
90%	CLYST	med to dk gry, fri to frm, blk, grty, r calc			
10%	SLTST				



# DEPTH

**3690'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	3690'	TIME		DATE	9/12/2015
LOGGING ENGINEER		Ryan Lenberg			
PERCENT	FORMATION	DESCRIPTION			
90%	CLYST	med to dk gry, fri to frm, blk, grty, r calc			
10%	SLTST				

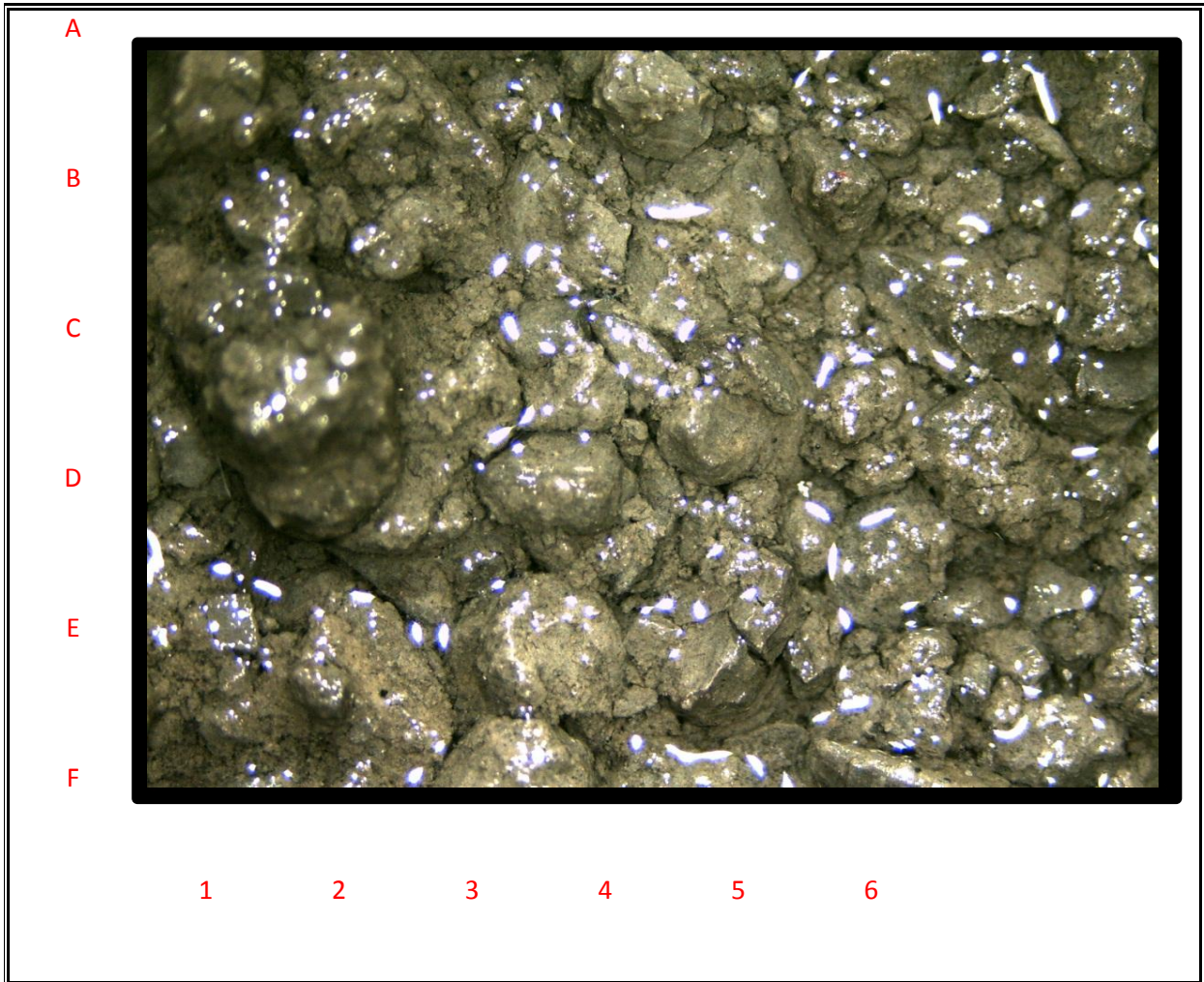




# DEPTH

**3720'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



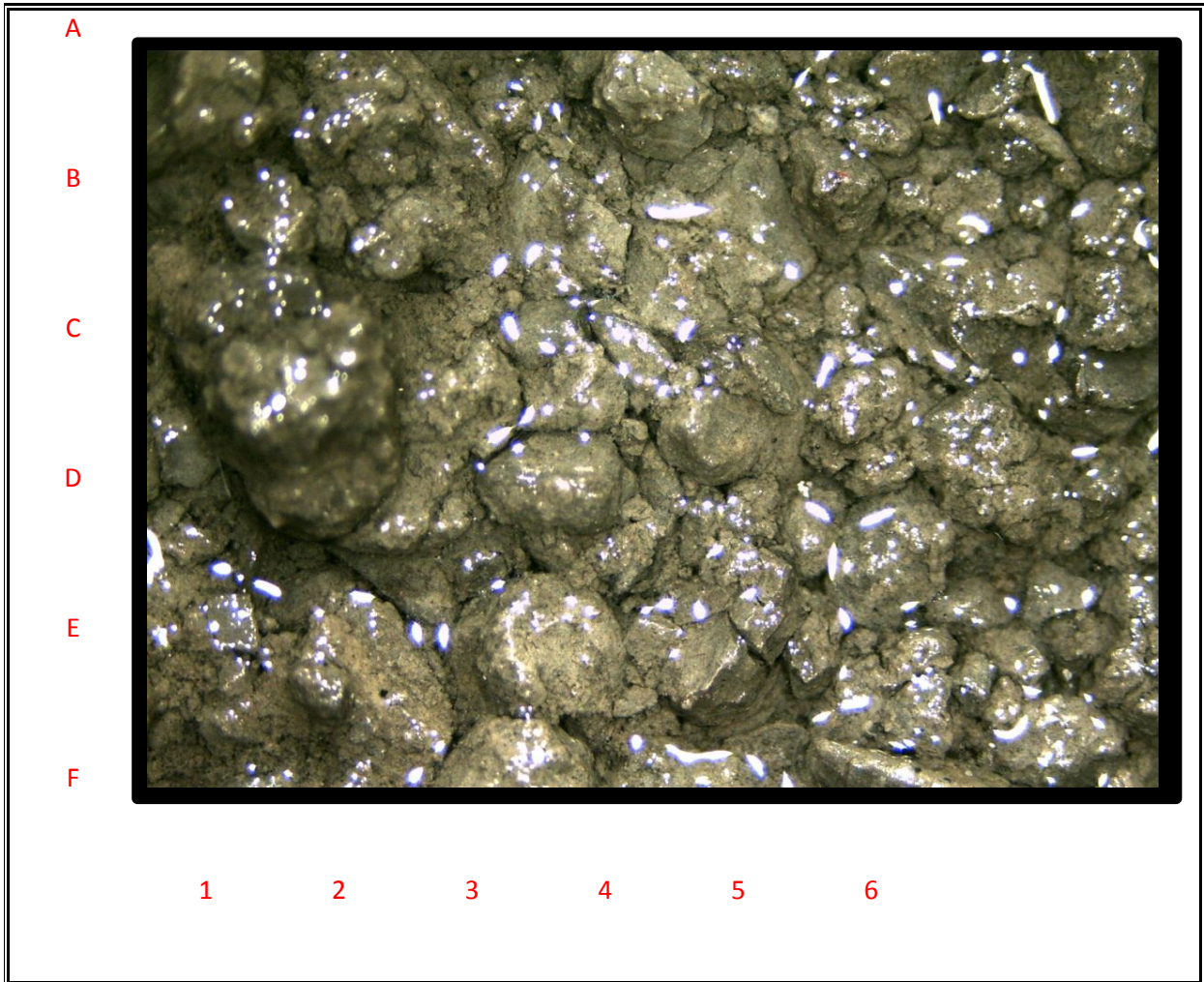
DEPTH	3720'	TIME		DATE	9/12/2015
LOGGING ENGINEER		Ryan Lenberg			
PERCENT	FORMATION	DESCRIPTION			
90%	CLYST	med to dk gry, fri to frm, blk, grty, r calc			
10%	SLTST				



# DEPTH

**3750'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	3750'	TIME		DATE	9/12/2015
LOGGING ENGINEER		Ryan Lenberg			
PERCENT	FORMATION	DESCRIPTION			
90%	CLYST	med to dk gry, fri to frm, blk, ang, r calc			
10%	SLTST	Tr ss, no fluor, no cut			

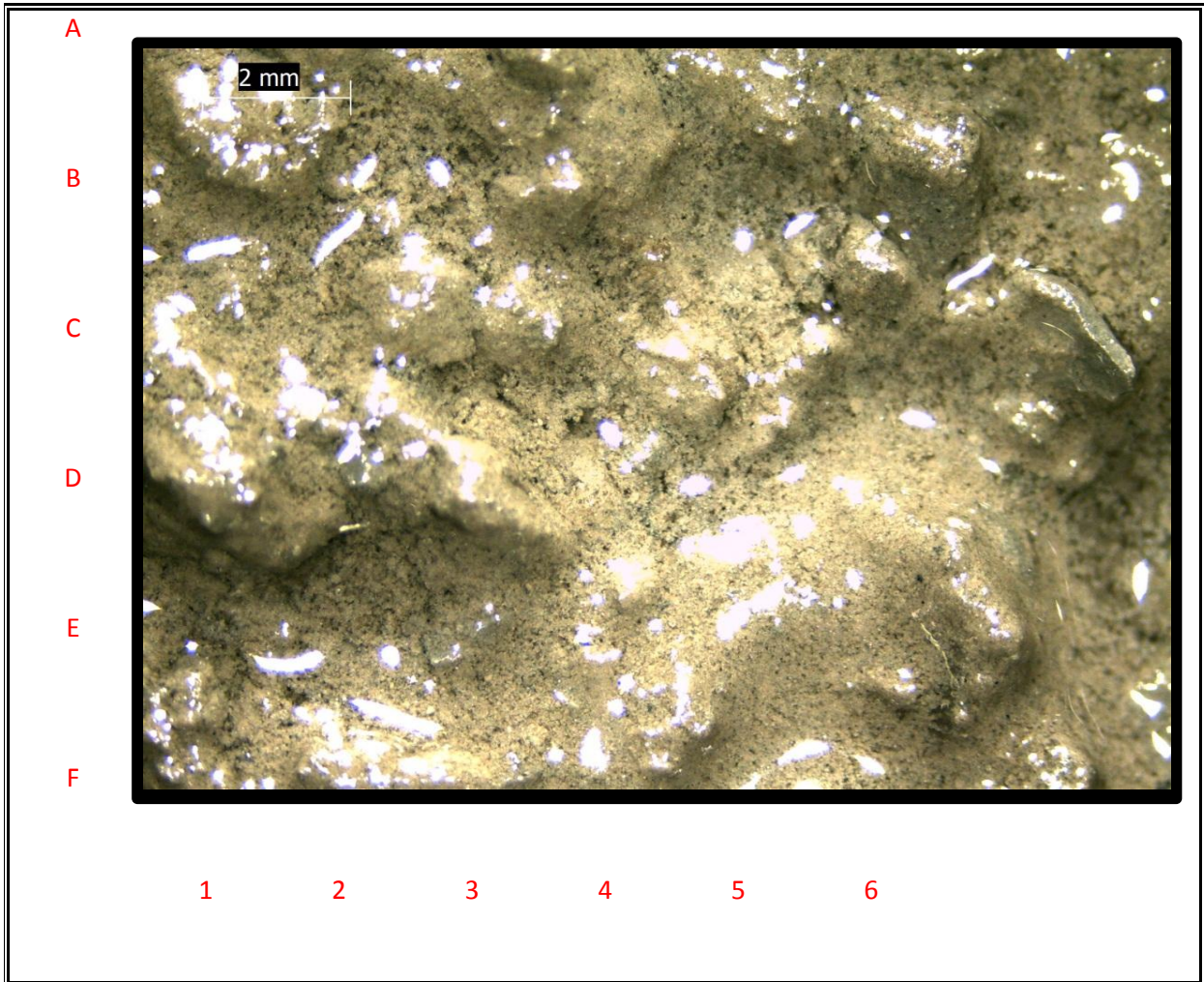




# DEPTH

**3780'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



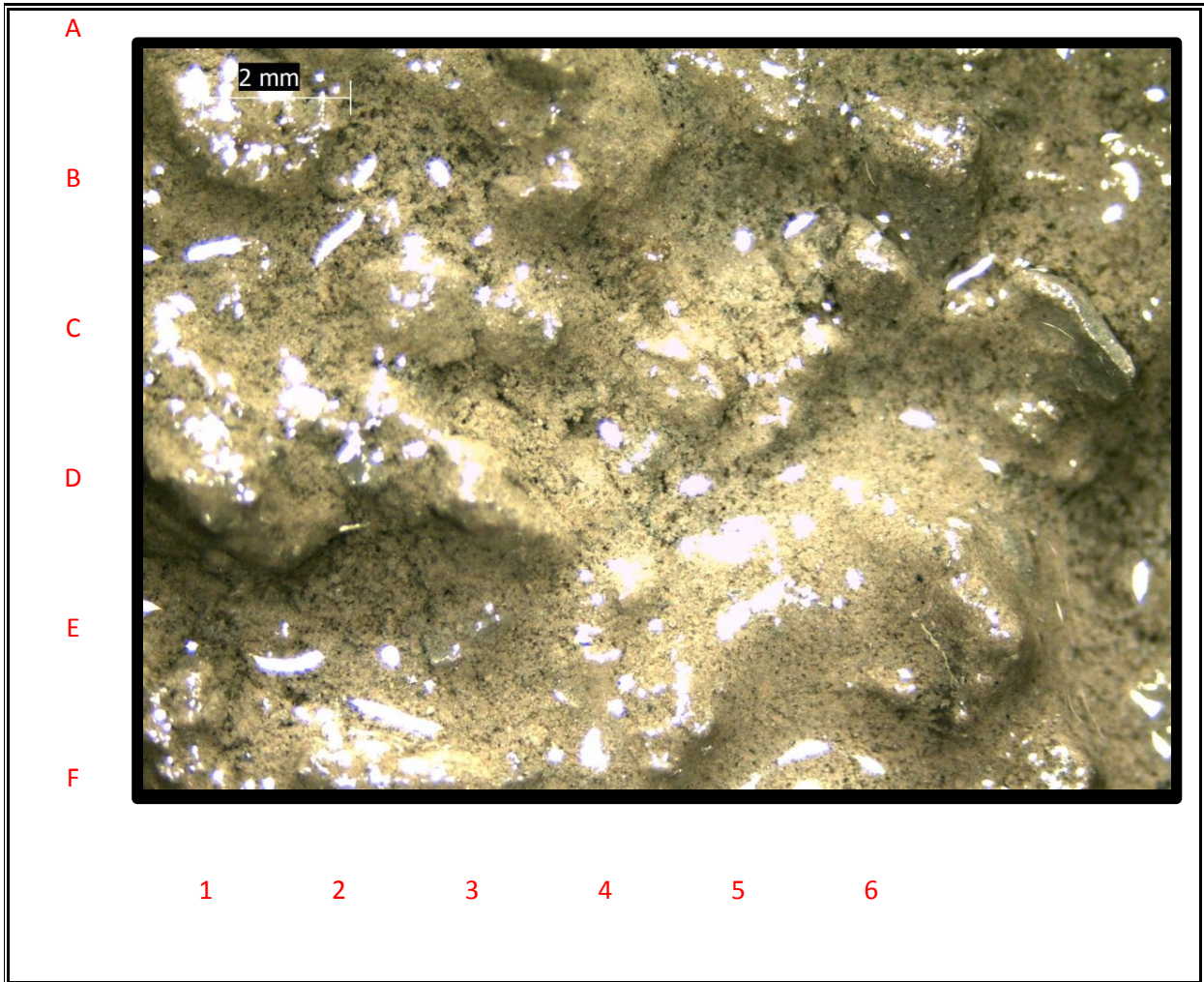
DEPTH	3780'	TIME		DATE	9/12/2015
LOGGING ENGINEER		Ryan Lenberg			
PERCENT	FORMATION	DESCRIPTION			
80%	CLYST	med to dk gry, fri to frm, occ v frm, blk, ang, r calc			
10%	SLTST				
10%	SS	tr sh, no fluor, no cut			



# DEPTH

**3810'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	3810'	TIME		DATE	9/12/2015
LOGGING ENGINEER		Ryan Lenberg			
PERCENT	FORMATION	DESCRIPTION			
90%	CLYST	med to dk gry, fri to frm, occ v frm, blk, ang, r calc			
10%	SLTST	No fluor, no cut			

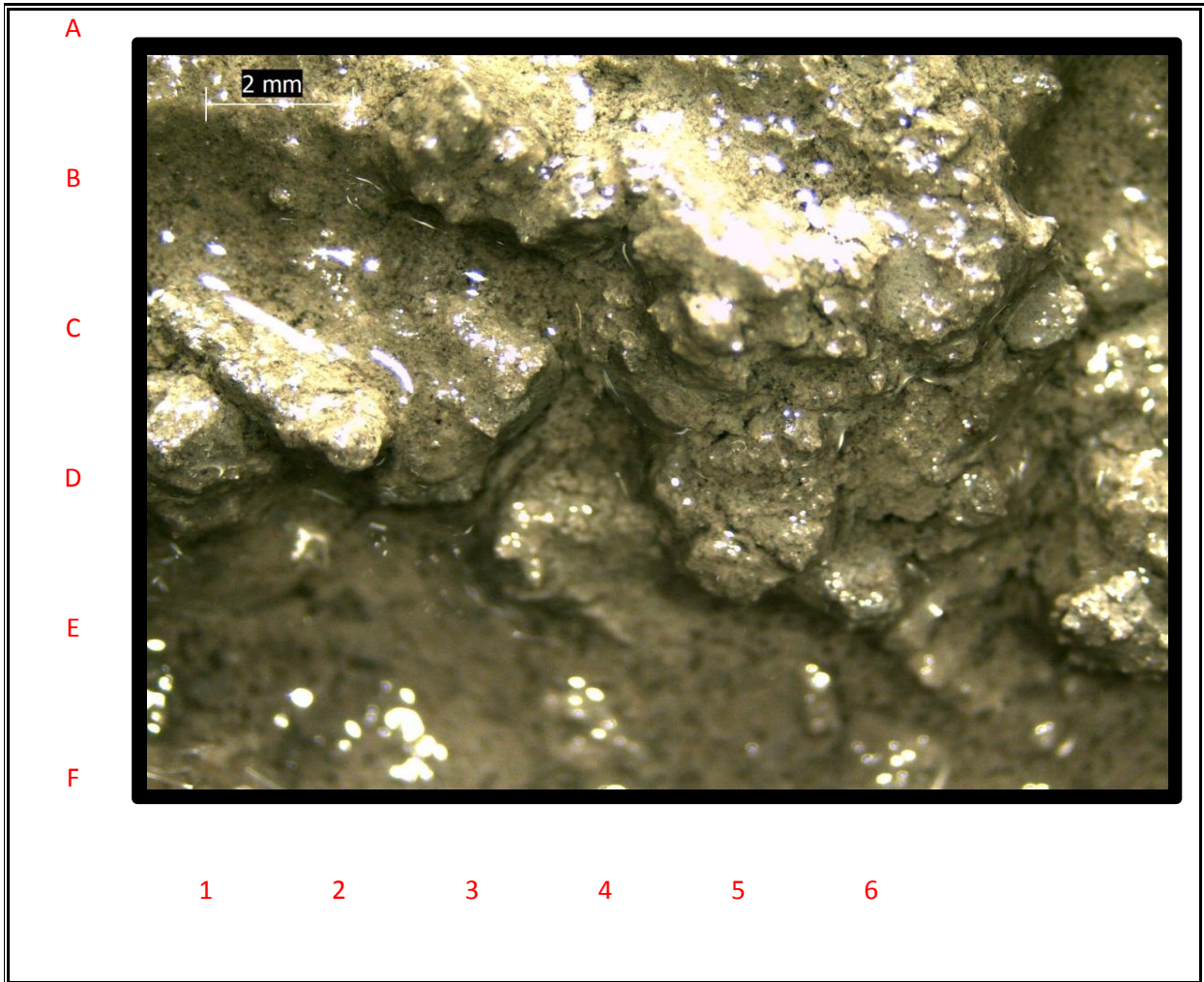




# DEPTH

**3840'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



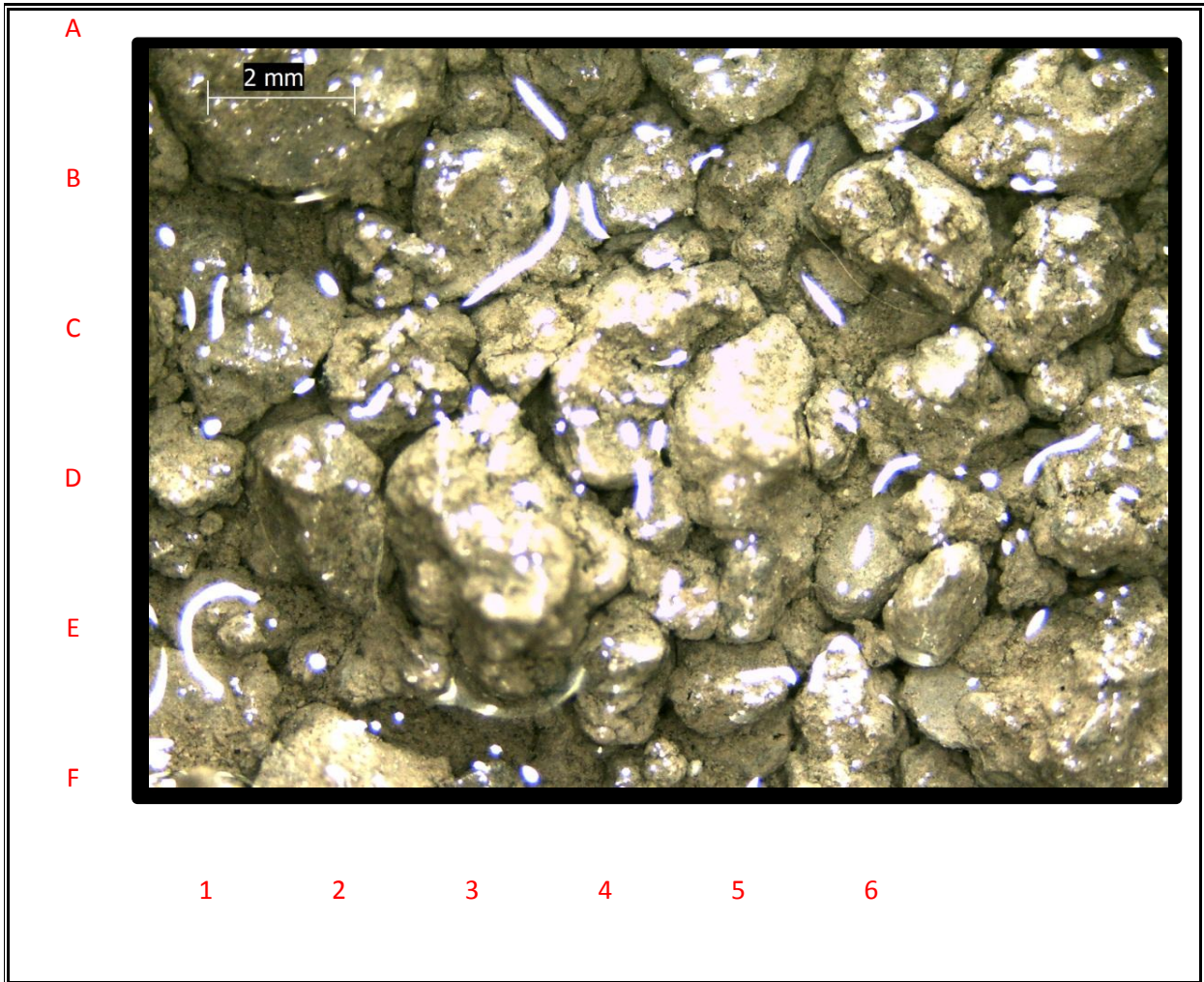
DEPTH	3840'	TIME		DATE	9/12/2015
LOGGING ENGINEER		Ryan Lenberg			
PERCENT	FORMATION	DESCRIPTION			
90%	CLYST	med to dk gry, fri to frm, occ v frm, blk, ang, r calc			
10%	SLTST				



# DEPTH

**3870'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	3870'	TIME		DATE	9/12/2015
LOGGING ENGINEER		Ryan Lenberg			
PERCENT	FORMATION	DESCRIPTION			
90%	CLYST	med to lt gry, fri to frm, occ v frm, blk, ang			
10%	SLTST				

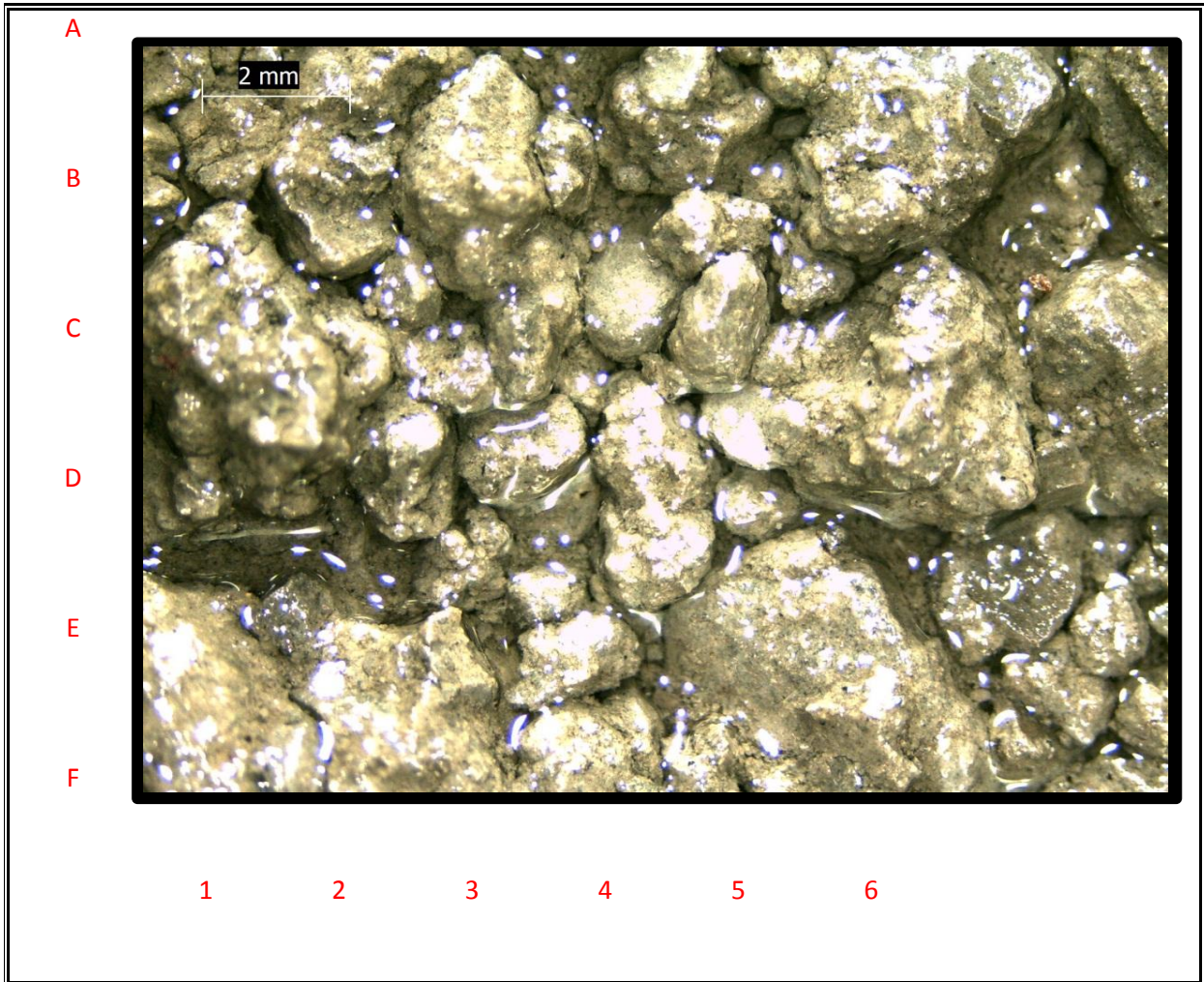




# DEPTH

**3900'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



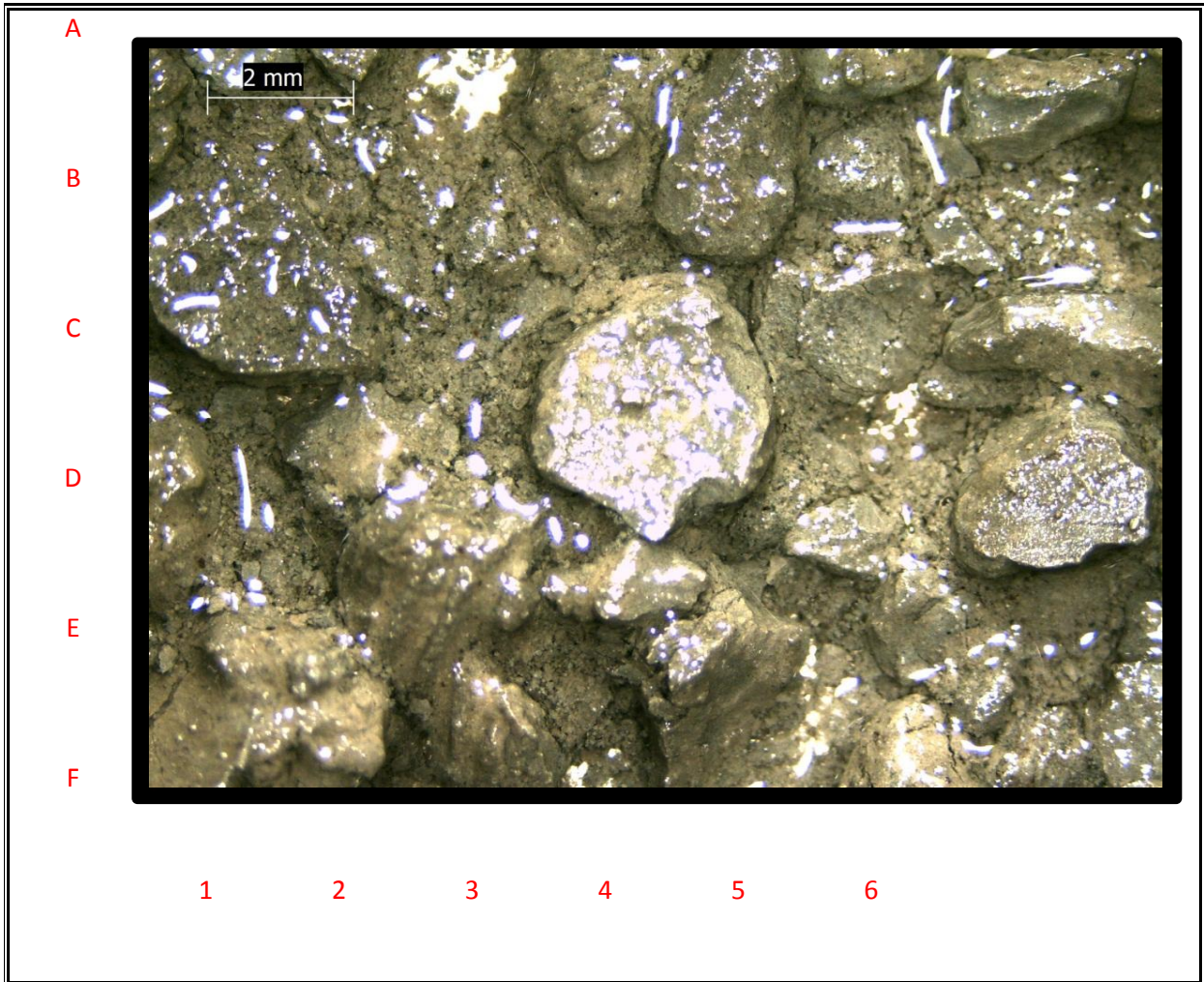
DEPTH	3900'	TIME		DATE	9/12/2015
LOGGING ENGINEER		Ryan Lenberg			
PERCENT	FORMATION	DESCRIPTION			
90%	CLYST	med to lt gry, fri to frm, occ v frm, blk, ang			
10%	SLTST				



# DEPTH

**3930'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	3930'	TIME		DATE	9/12/2015
LOGGING ENGINEER		Ryan Lenberg			
PERCENT	FORMATION	DESCRIPTION			
100%	CLYST	med to lt gry, fri to frm, sm to grty, sb-blky to			

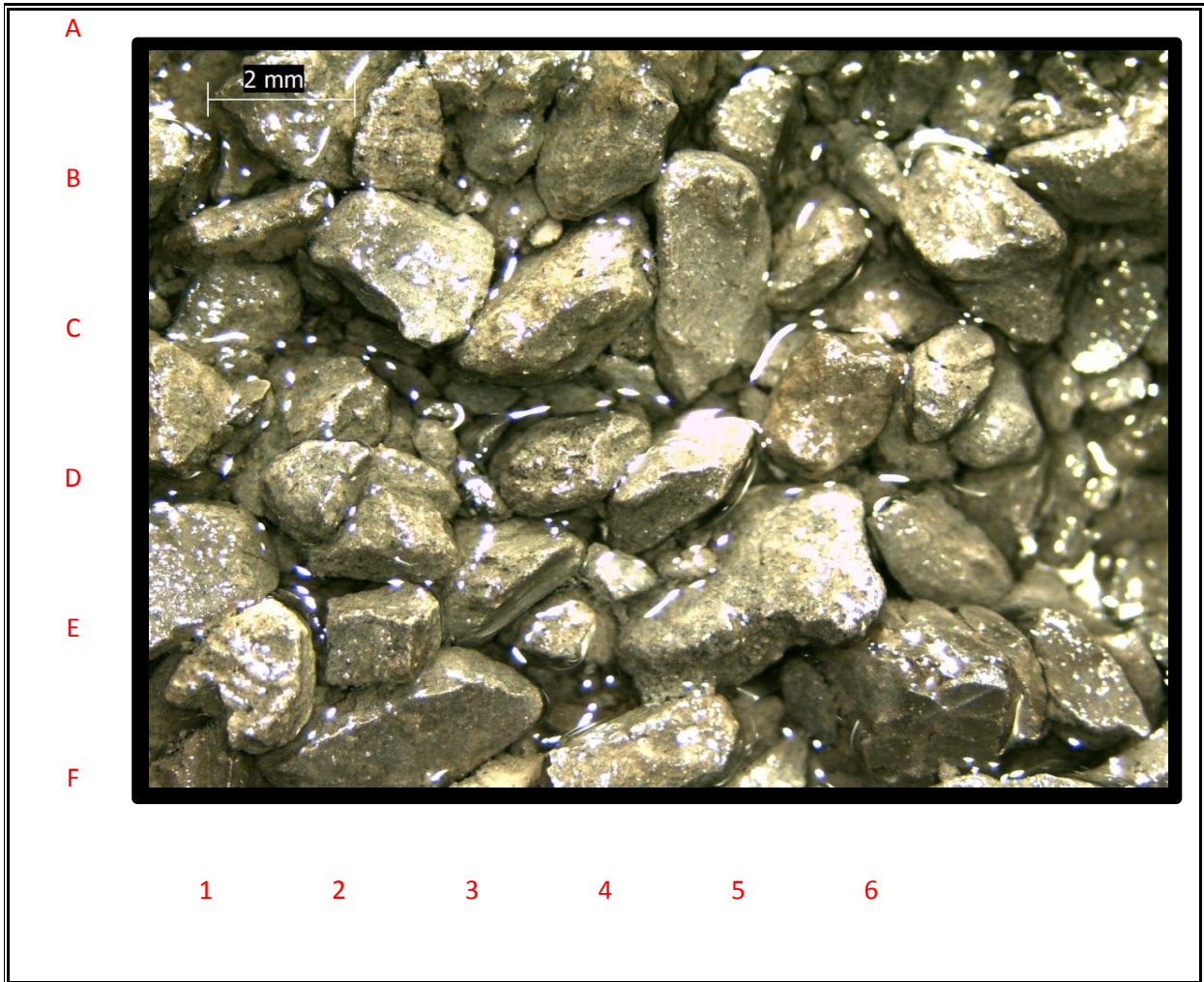




# DEPTH

**3960'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



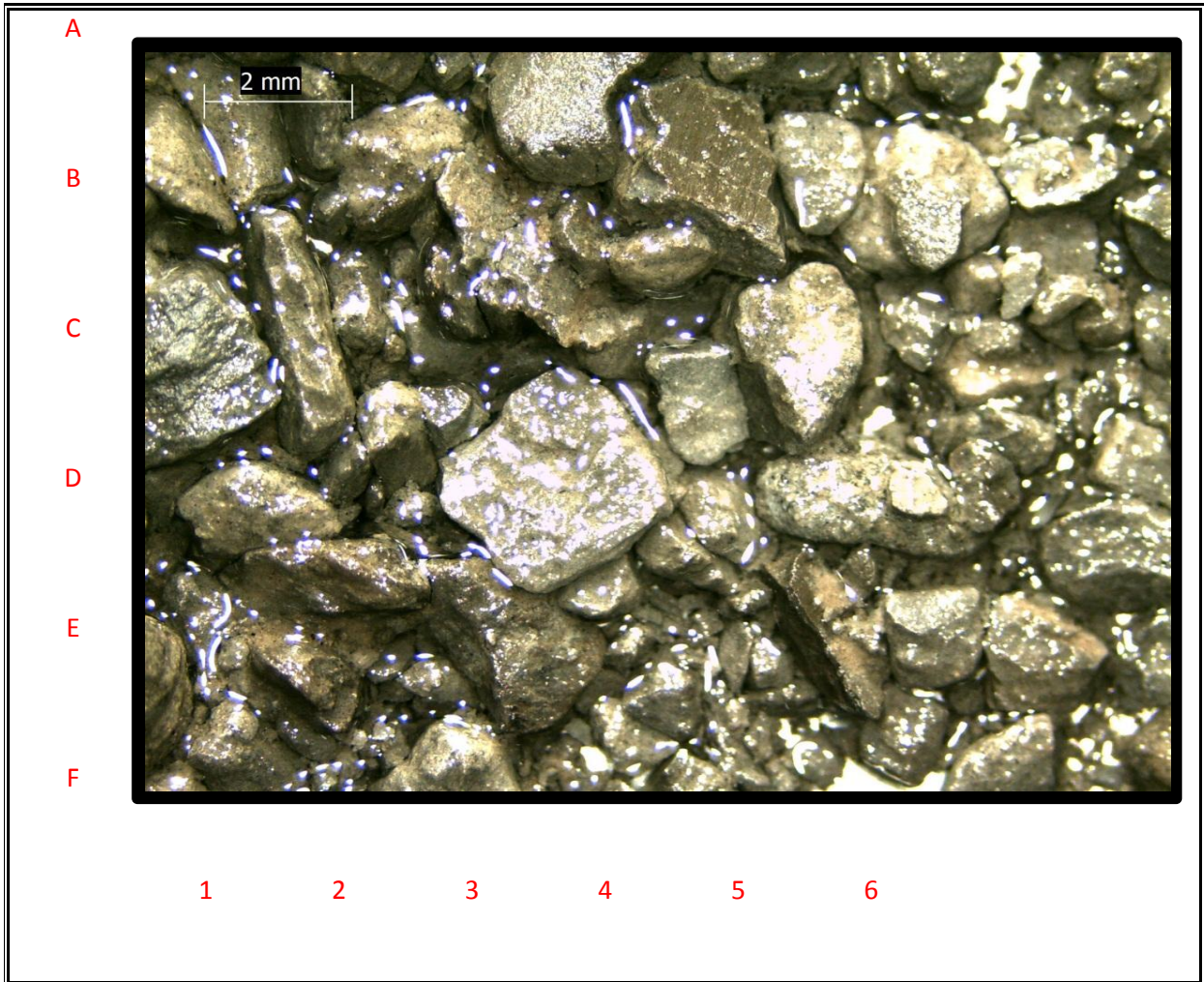
DEPTH	3960'	TIME		DATE	9/12/2015
LOGGING ENGINEER		Ryan Lenberg			
PERCENT	FORMATION	DESCRIPTION			
100%	CLYST	med to lt gry, fri to frm, sm to grty, sb-blky to			
		sb-ang			



# DEPTH

**3990'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	3990'	TIME		DATE	9/12/2015
LOGGING ENGINEER		Ryan Lenberg			
PERCENT	FORMATION	DESCRIPTION			
100%	CLYST	med to lt gry, fri to frm, sm to grty, sb-ang, occ sltst			

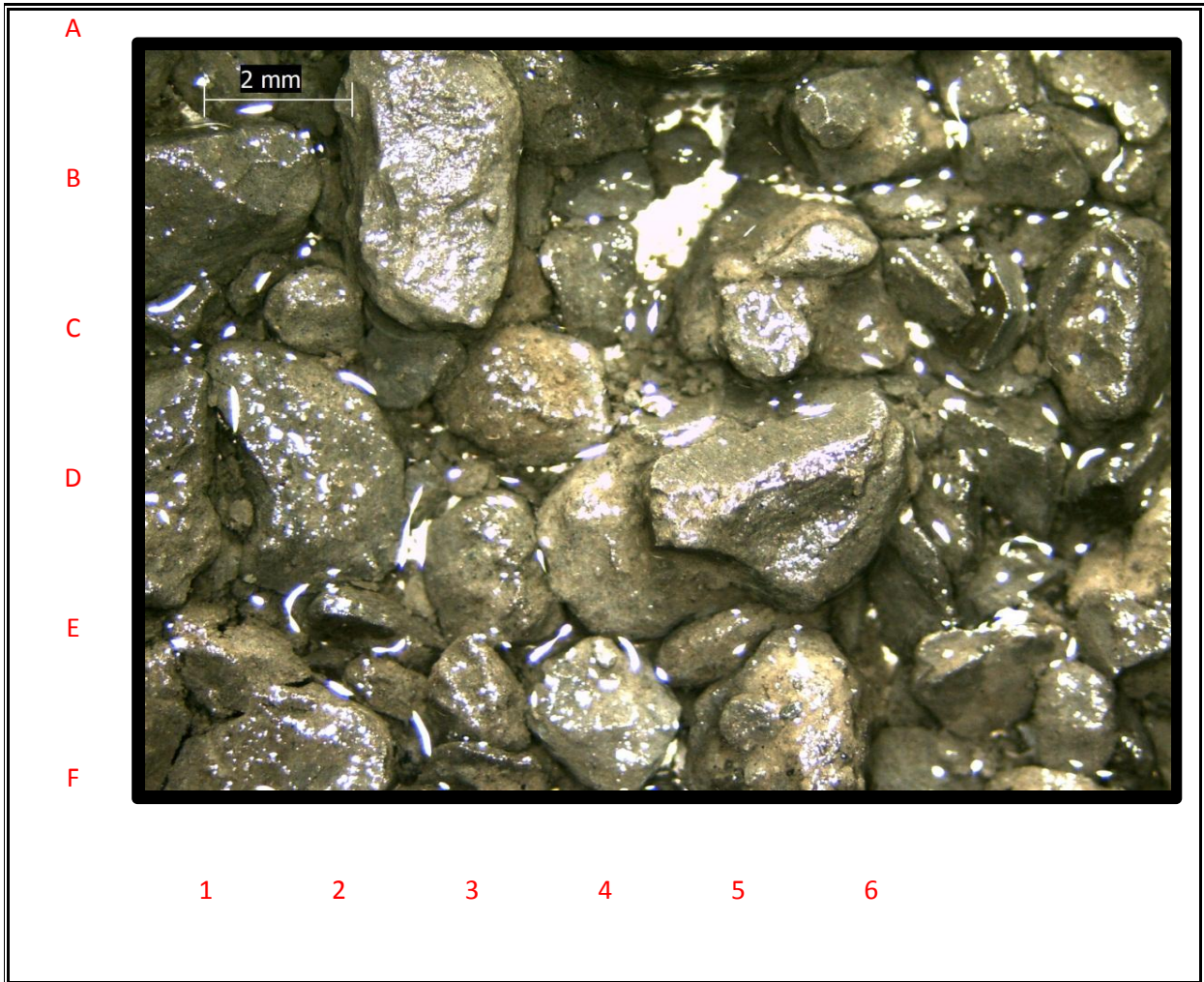




# DEPTH

**4020'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



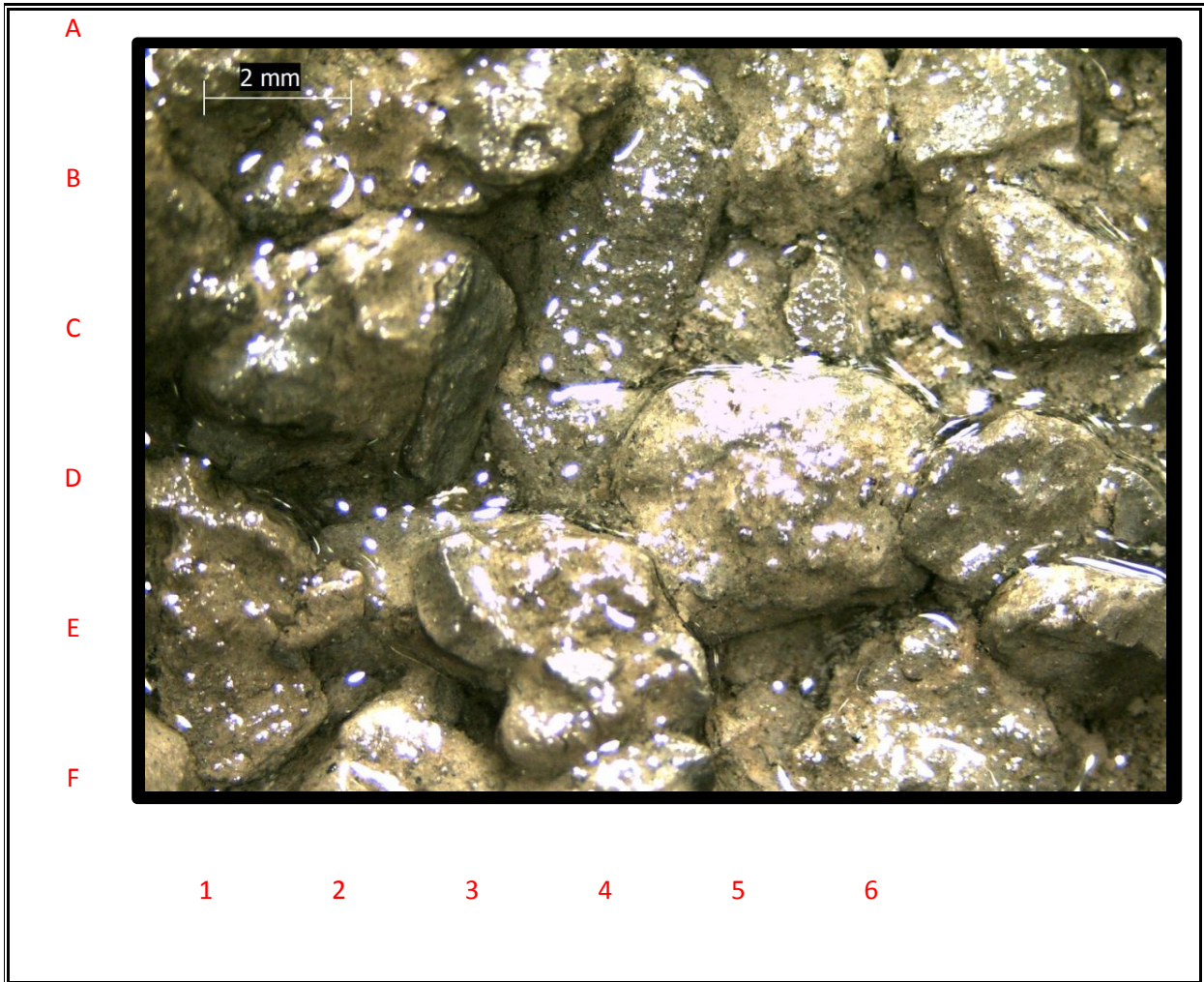
DEPTH	4020'	TIME		DATE	9/12/2015
LOGGING ENGINEER		Ryan Lenberg			
PERCENT	FORMATION	DESCRIPTION			
100%	CLYST	med to lt gry, fri, sm, sb-ang, rr sltst			



# DEPTH

**4050'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	4050'	TIME		DATE	9/12/2015
LOGGING ENGINEER		Ryan Lenberg			
PERCENT	FORMATION	DESCRIPTION			
100%	CLYST	med to lt gry, occ dk gry, sft- fri, grty, sb-ang,			
		Tr sltst mtx			

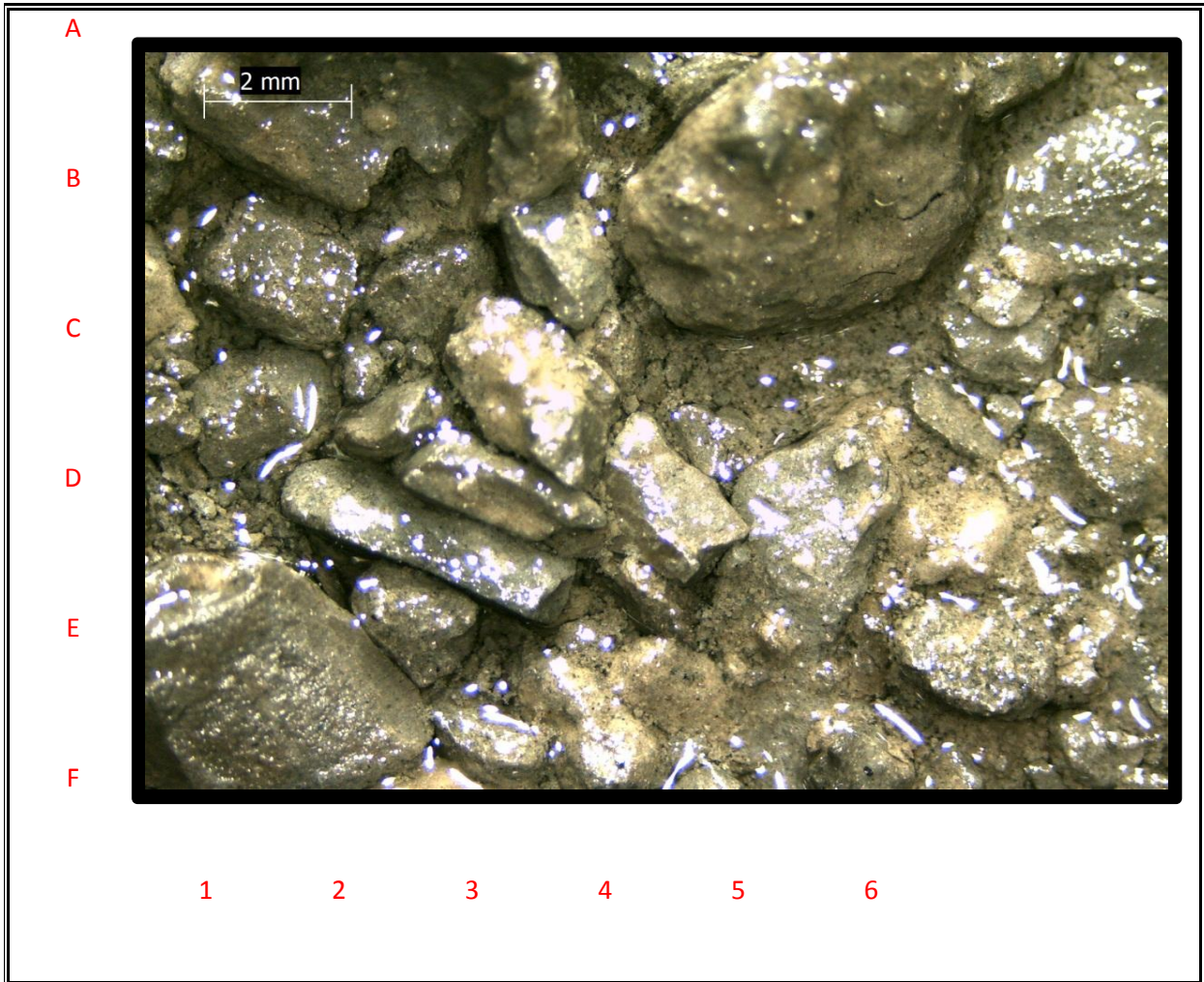




# DEPTH

**4080'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



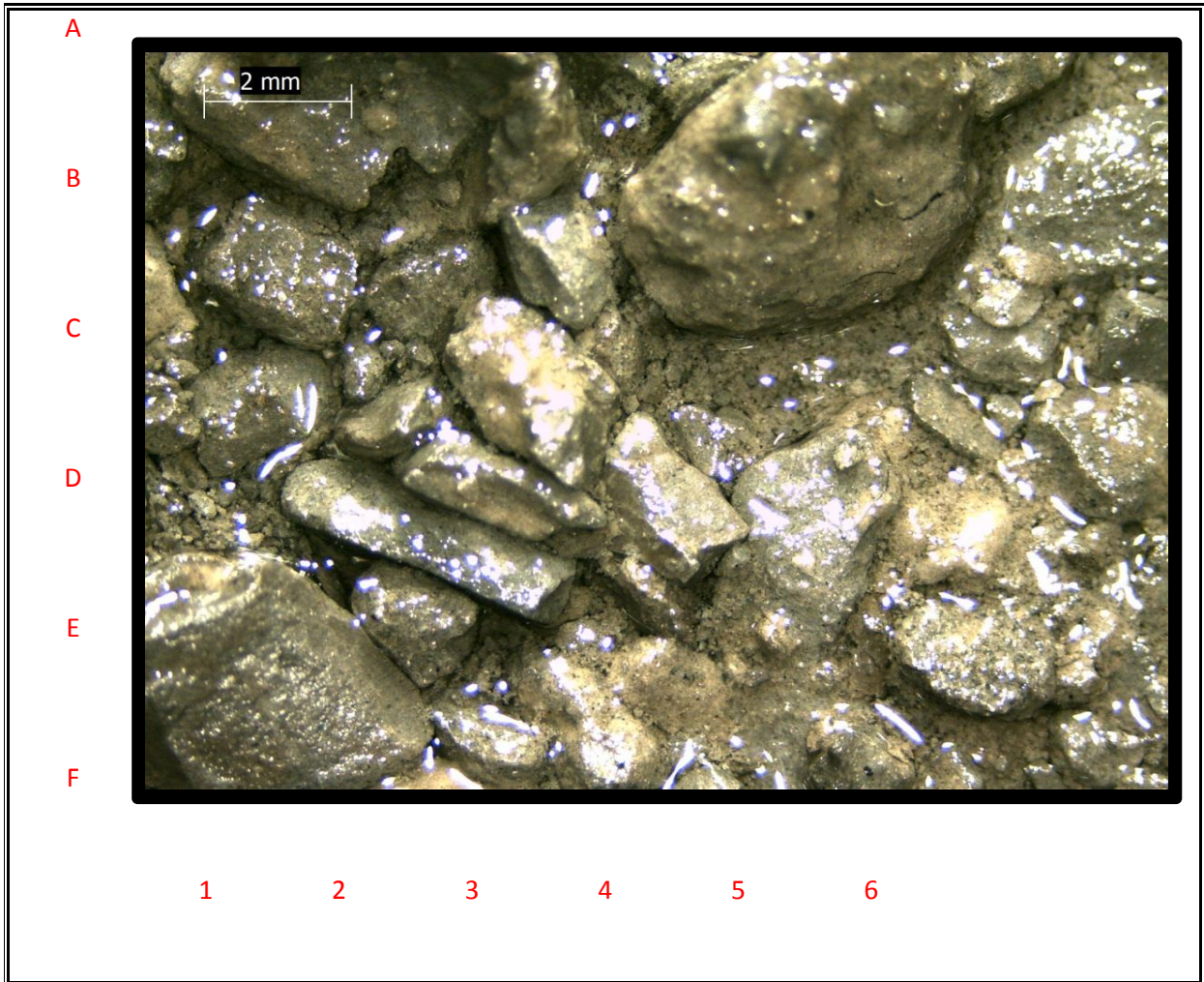
DEPTH	4080'	TIME		DATE	9/12/2015
LOGGING ENGINEER		Ryan Lenberg			
PERCENT	FORMATION	DESCRIPTION			
100%	CLYST	med to dk gry, fri to mod frm, grty, sb-ang,			
		occ sltst, w dk lams			



# DEPTH

**4110'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	4110'	TIME		DATE	9/12/2015
LOGGING ENGINEER		Ryan Lenberg			
PERCENT	FORMATION	DESCRIPTION			
100%	CLYST	med to dk gry, rr wh, fri to mod frm, sm to grty,			
		sb-ang to sb-rnd, rr sltst			

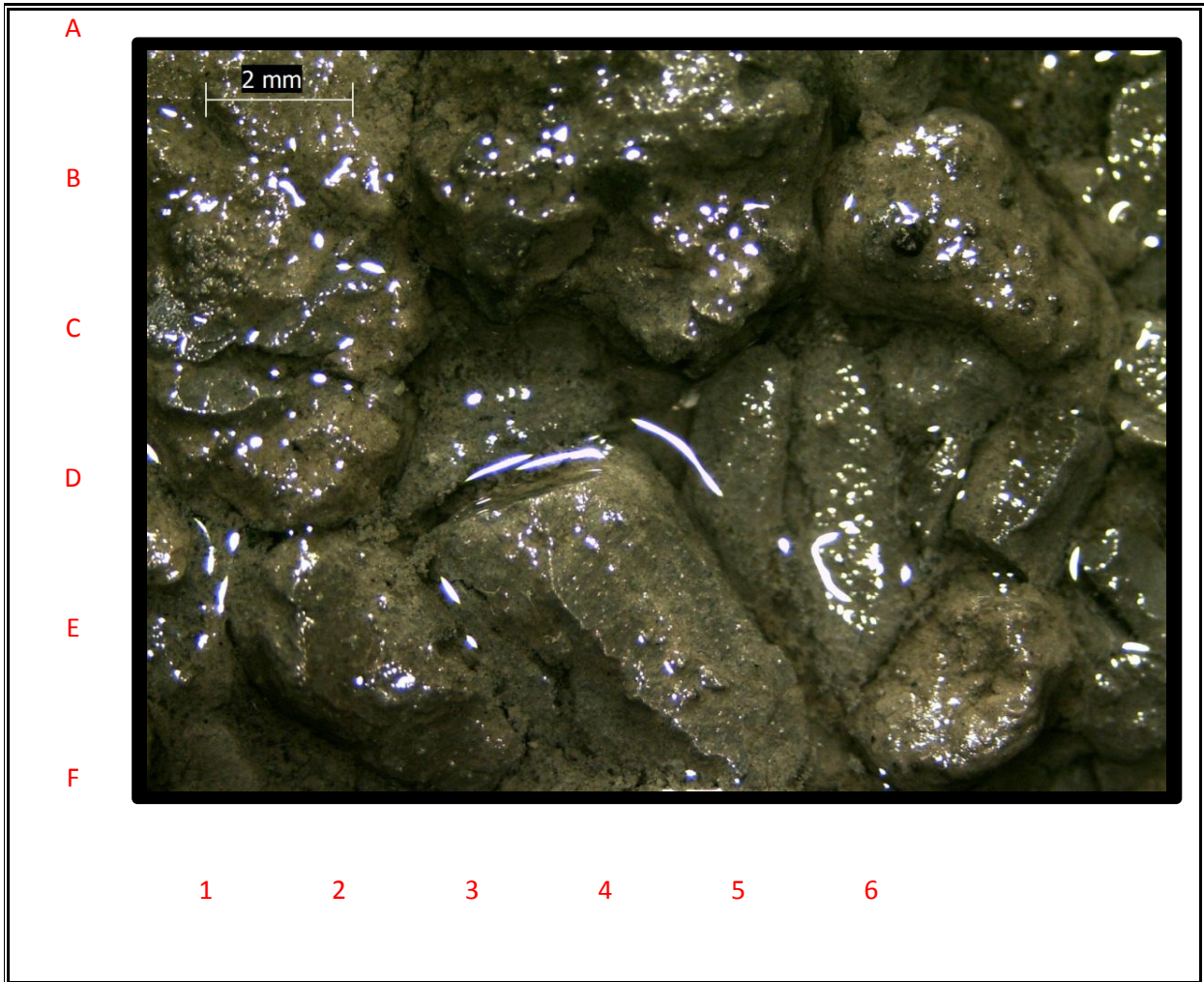




# DEPTH

**4140'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



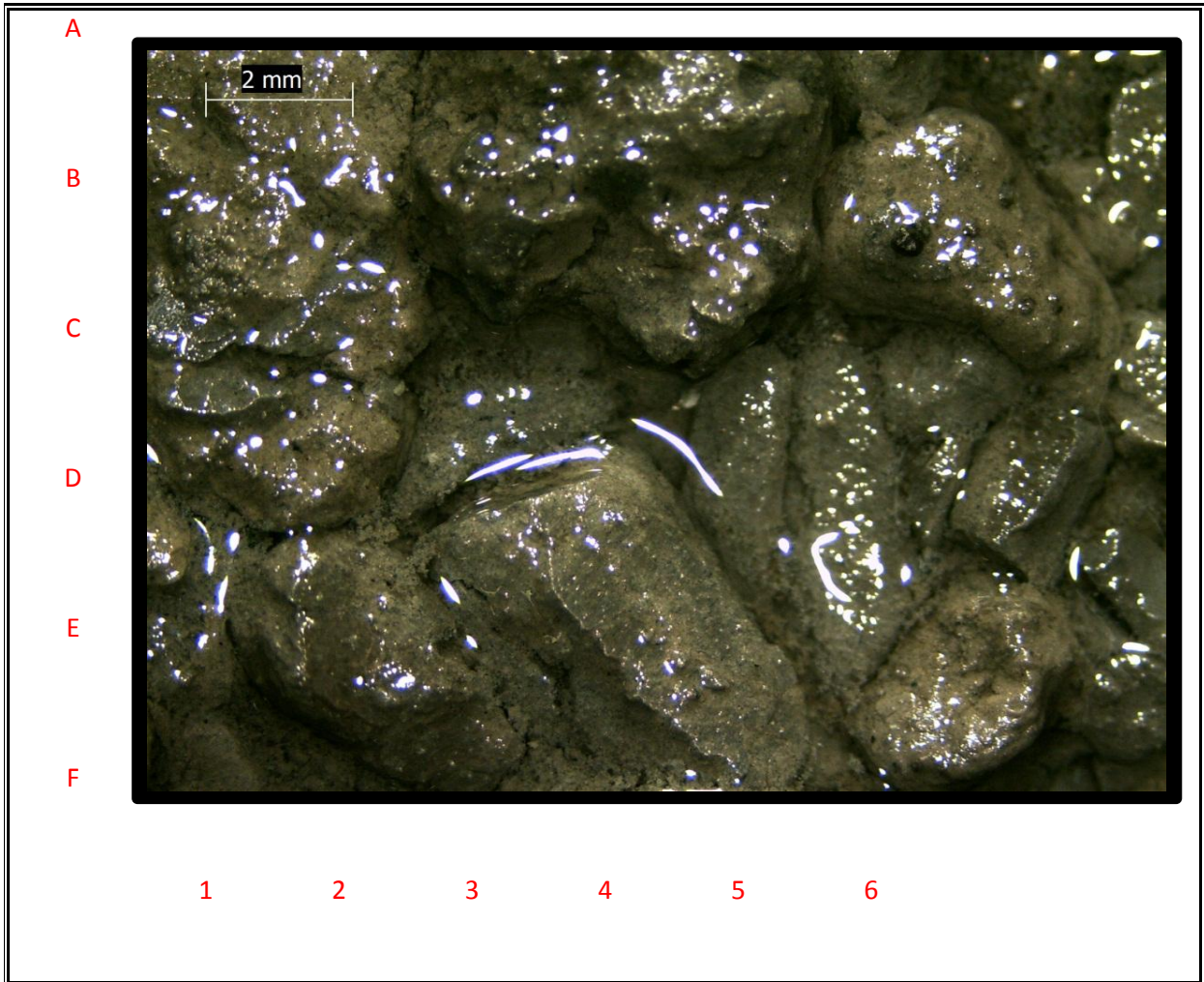
DEPTH	4140'	TIME		DATE	9/12/2015
LOGGING ENGINEER		Ryan Lenberg			
PERCENT	FORMATION	DESCRIPTION			
100%	CLYST	med to dk gry, fri to mod frm, sm,			
		sb-ang to sb-rnd, rr sltst			



# DEPTH

**4170'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	4170'	TIME		DATE	9/12/2015
LOGGING ENGINEER		Ryan Lenberg			
PERCENT	FORMATION	DESCRIPTION			
100%	CLYST	med to dk gry, fri to sft, sm, sb-blky, occ slt mtx,			
		tr sltst w dk lams			

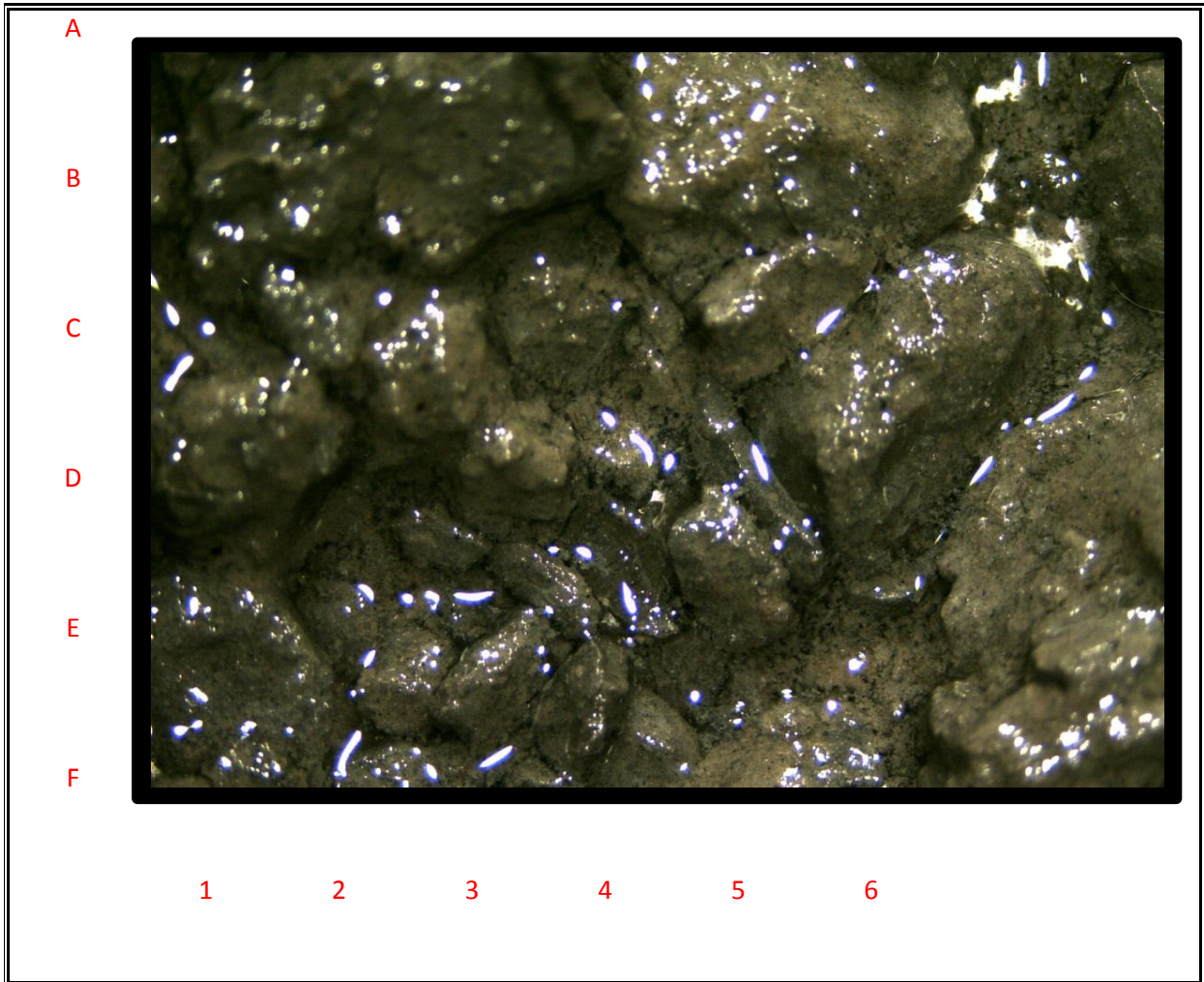




# DEPTH

**4200'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



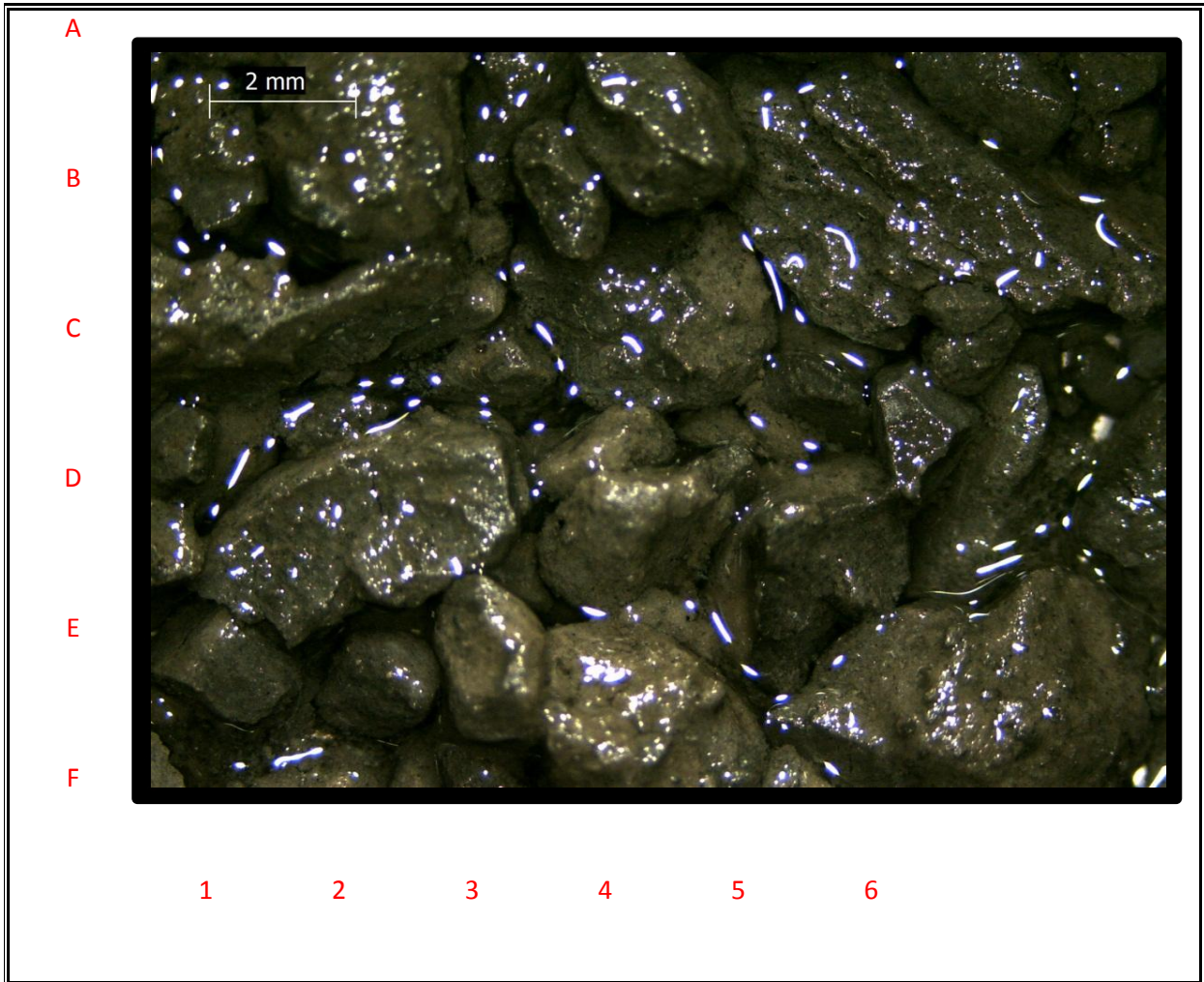
DEPTH	4200'	TIME		DATE	9/12/2015
LOGGING ENGINEER		Ryan Lenberg			
PERCENT	FORMATION	DESCRIPTION			
100%	CLYST	med to dk gry, fri to sft, sm, blk, rr sltst			



# DEPTH

**4230'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	4230'	TIME		DATE	9/12/2015
LOGGING ENGINEER		Ryan Lenberg			
PERCENT	FORMATION	DESCRIPTION			
90%	CLYST	med to dk gry, fri to sft, grty, com slty mtx			
10%	SLTST	blkly to plty			

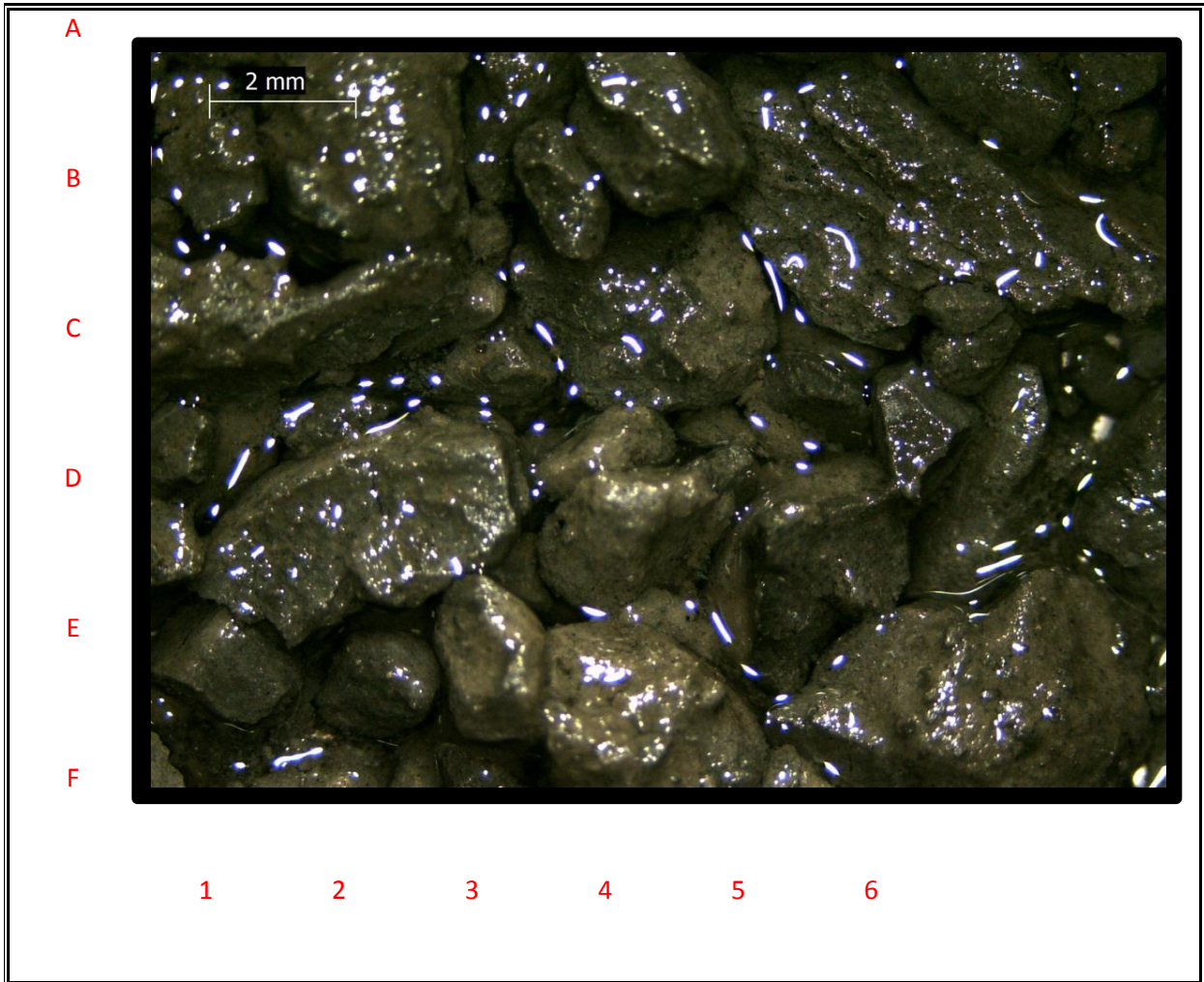




# DEPTH

**4260'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



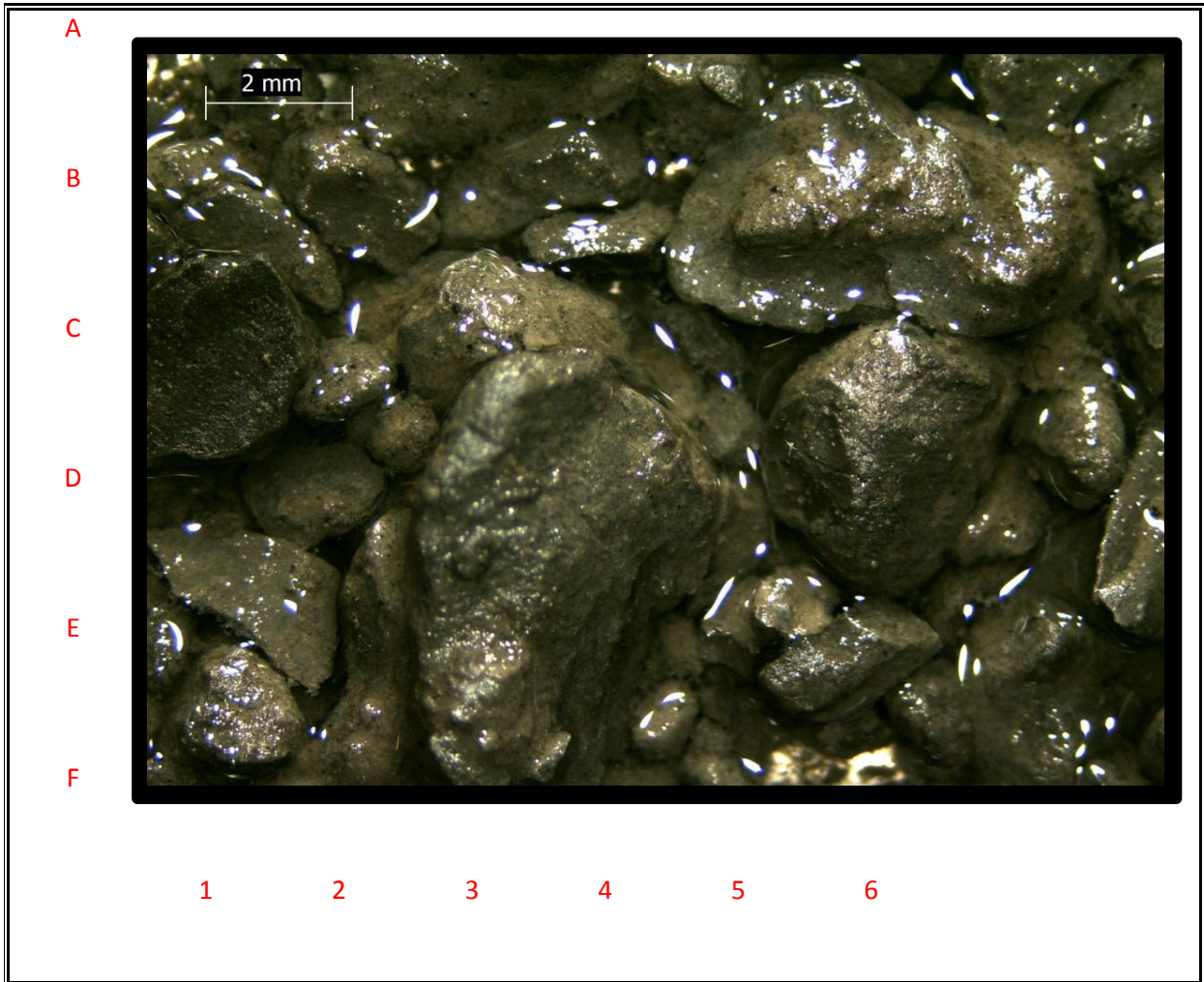
DEPTH	4260'	TIME		DATE	9/12/2015
LOGGING ENGINEER		Ryan Lenberg			
PERCENT	FORMATION	DESCRIPTION			
90%	CLYST	med to dk gry, fri to sft, grty, com slty mtx			
10%	SLTST	blkly to plty			



# DEPTH

**4290'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	4290'	TIME		DATE	9/12/2015
LOGGING ENGINEER		Ryan Lenberg			
PERCENT	FORMATION	DESCRIPTION			
100%	CLYST	med to dk gry, fri to sft, sm, blkly to plty			

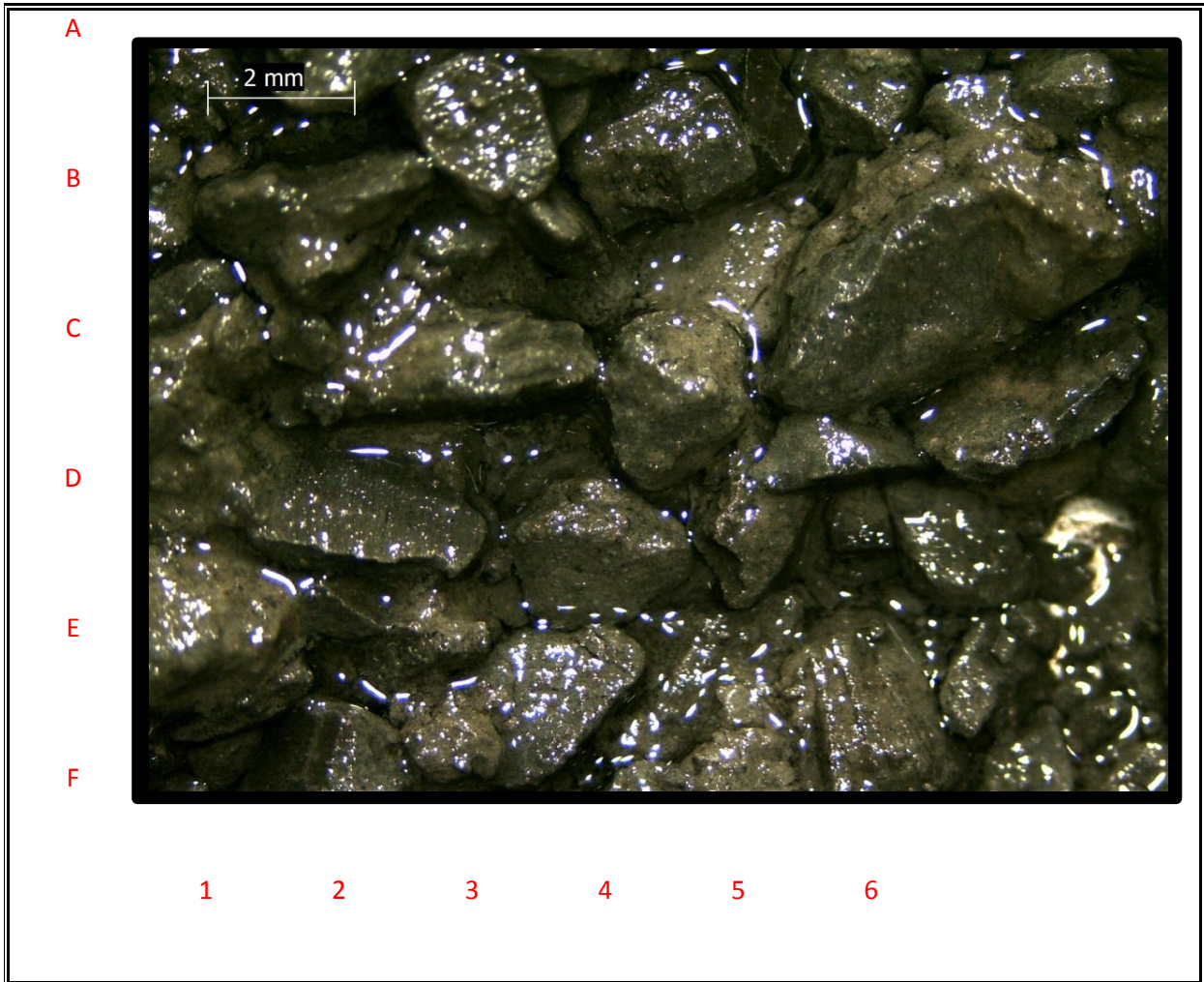




# DEPTH

**4320'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



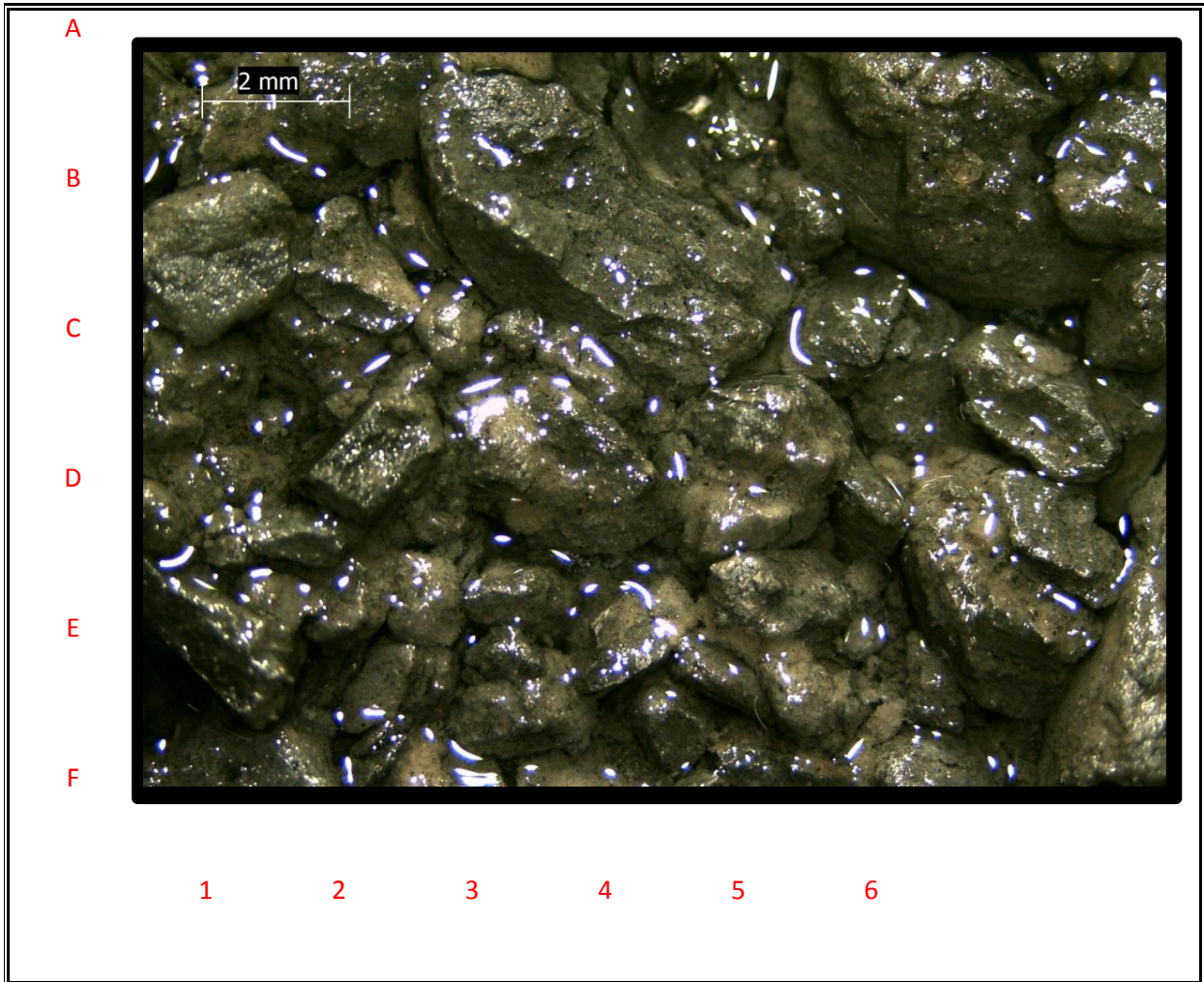
DEPTH	4320'	TIME		DATE	9/12/2015
LOGGING ENGINEER		Ryan Lenberg			
PERCENT	FORMATION	DESCRIPTION			
100%	CLYST	dk gry to med gry, fri to v sft, sm, plty			



# DEPTH

**4350'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	4350'	TIME		DATE	9/12/2015
LOGGING ENGINEER		Ryan Lenberg			
PERCENT	FORMATION	DESCRIPTION			
100%	CLYST	dk gry to med gry, fri to v sft, sm, blk			

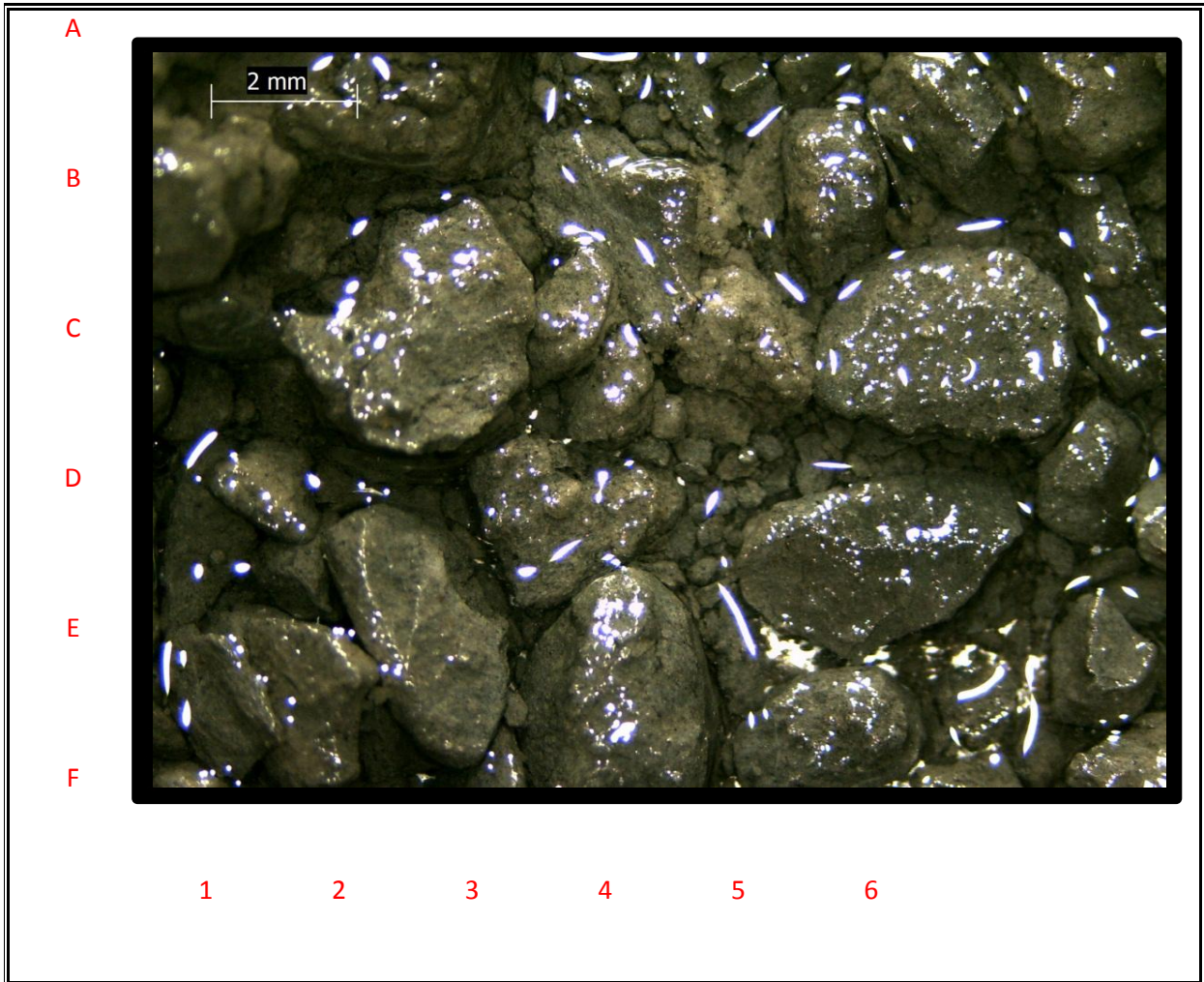




# DEPTH

**4380'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



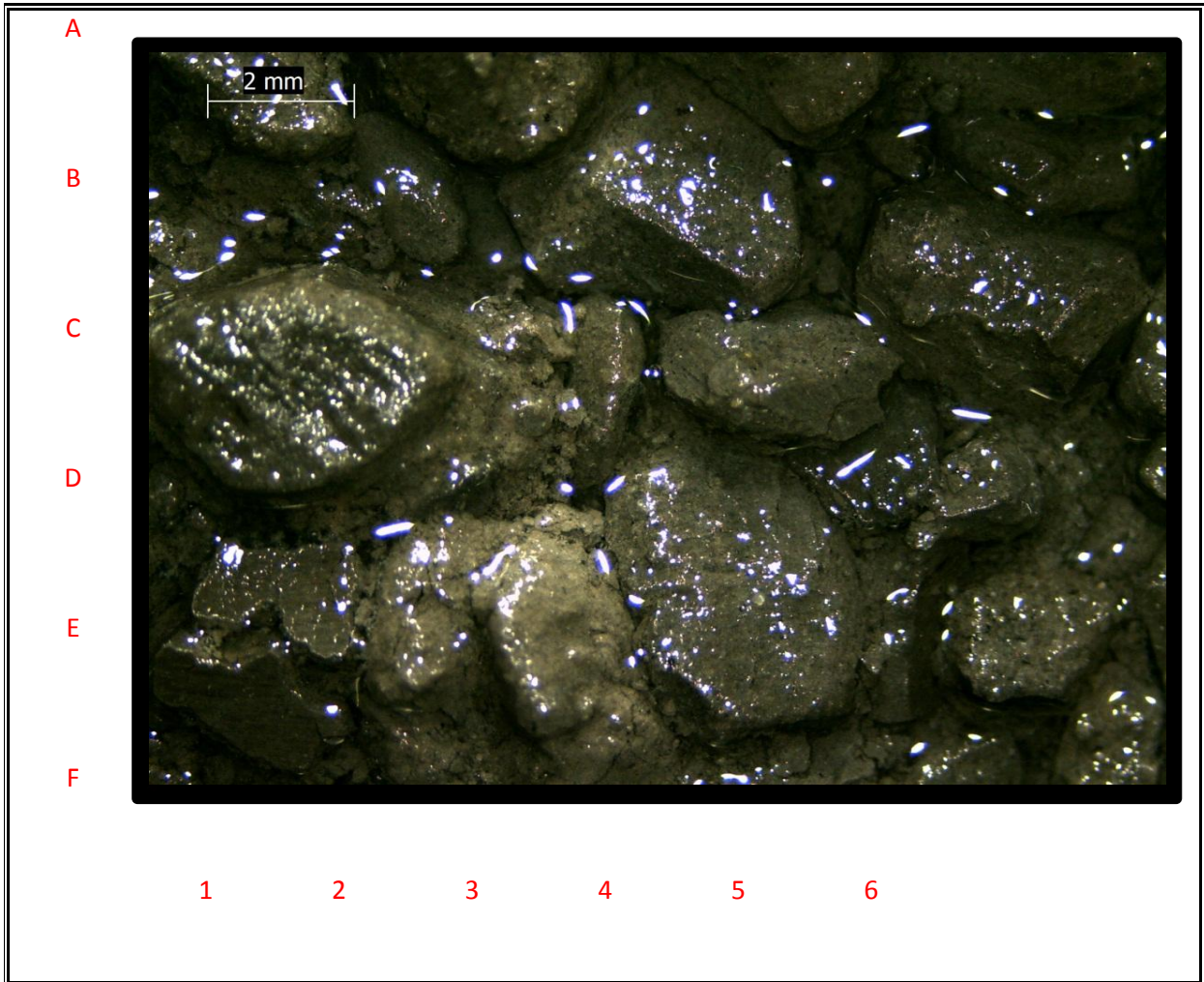
DEPTH	4380'	TIME		DATE	9/12/2015
LOGGING ENGINEER		Ryan Lenberg			
PERCENT	FORMATION	DESCRIPTION			
100%	CLYST	dk gry to med gry, fri to v sft, sm, blk			



# DEPTH

**4410'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	4410'	TIME		DATE	9/12/2015
LOGGING ENGINEER		Ryan Lenberg			
PERCENT	FORMATION	DESCRIPTION			
100%	CLYST	lt gry to med gry, fri to sft, v sm, blk, n calc			

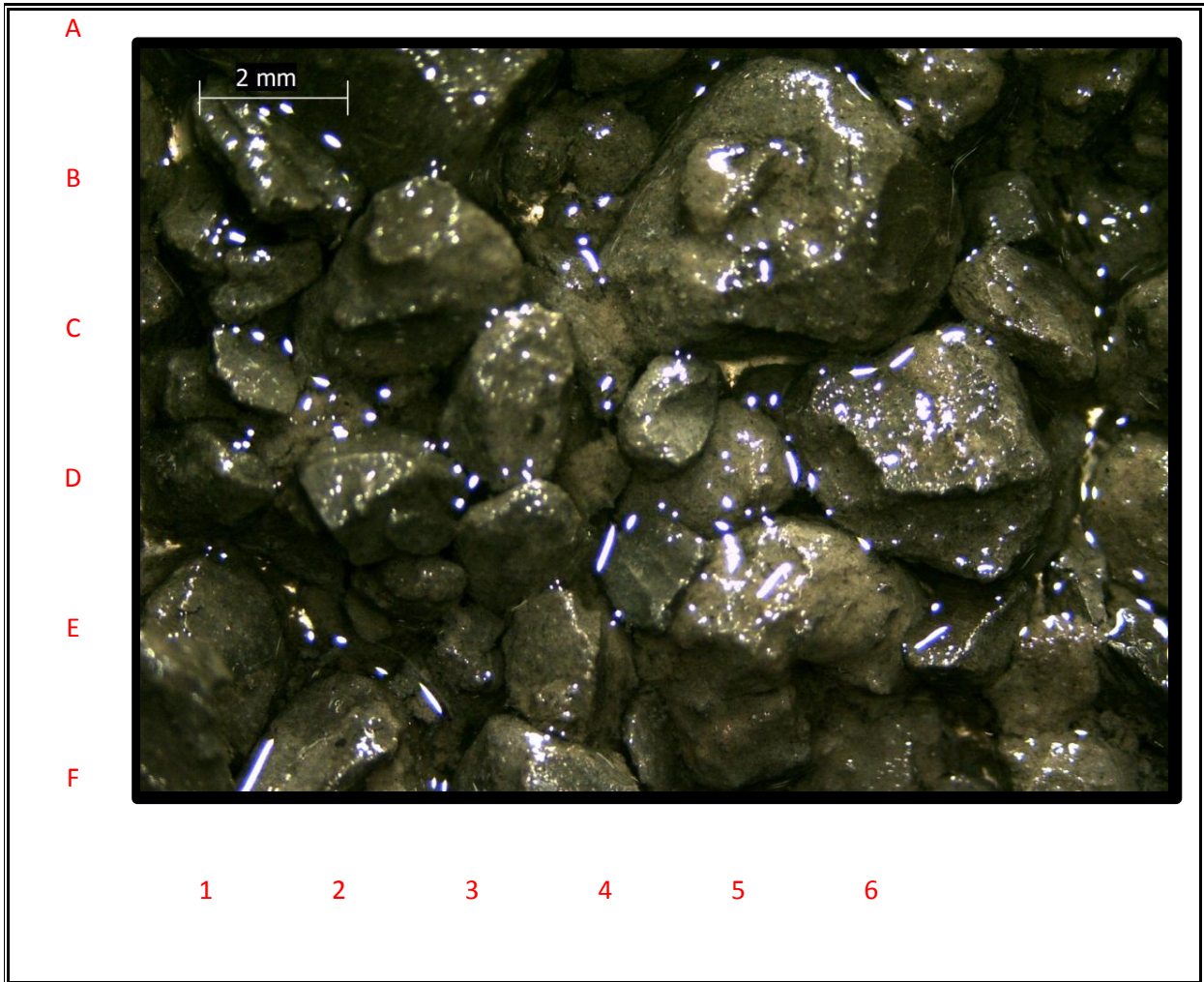




# DEPTH

**4440'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



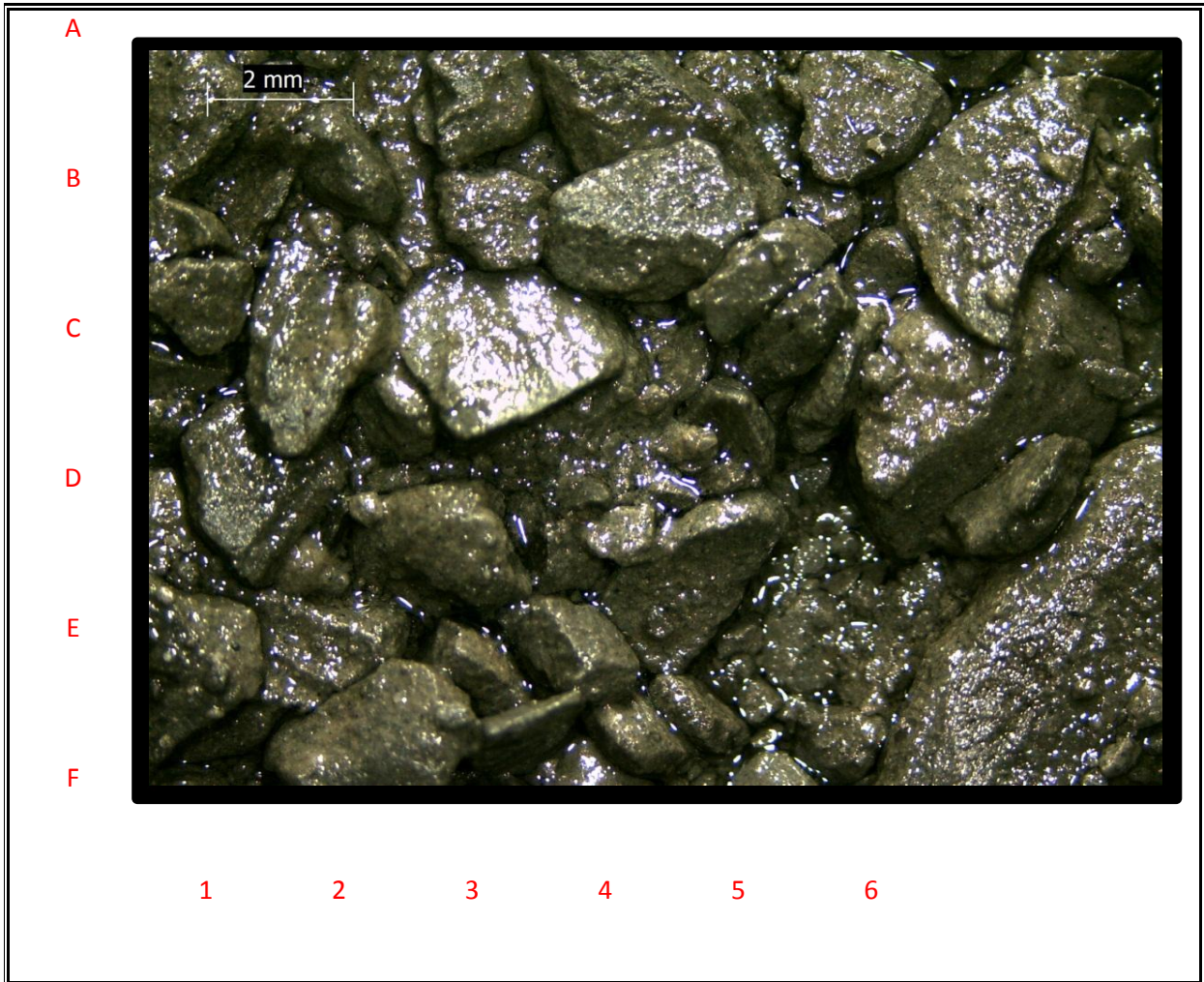
DEPTH	4440'	TIME		DATE	9/12/2015
LOGGING ENGINEER		Ryan Lenberg			
PERCENT	FORMATION	DESCRIPTION			
100%	CLYST	lt gry to med gry, fri to sft, v sm, blk, n calc			



# DEPTH

**4470'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	4470'	TIME		DATE	9/12/2015
LOGGING ENGINEER		Ryan Lenberg			
PERCENT	FORMATION	DESCRIPTION			
100%	CLYST	Dk to med gry, fri to sft, rr hd, sm, blk, occ grty			
		occ PDC bit crlng, rr tuf mtx			

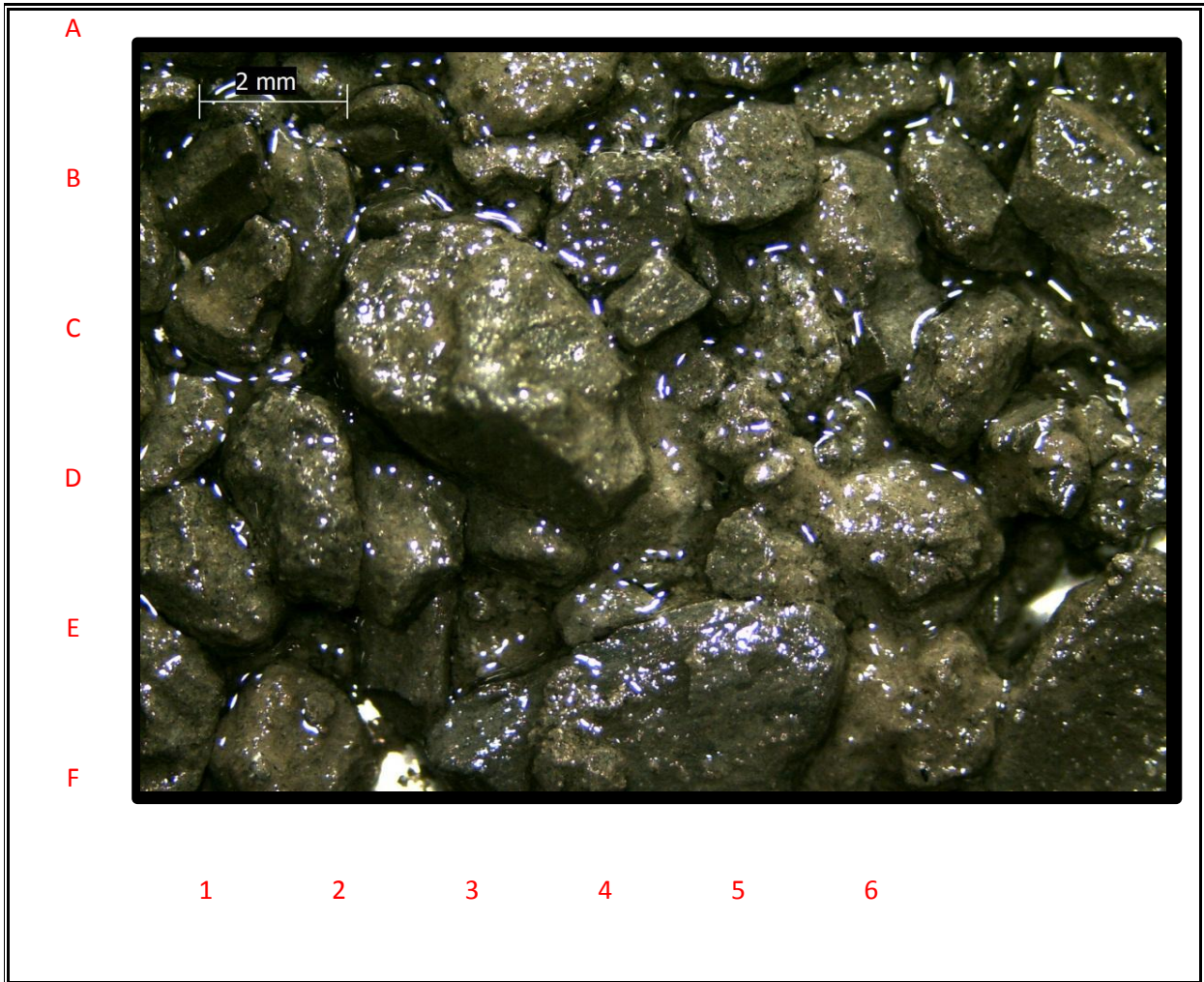




# DEPTH

**4500'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



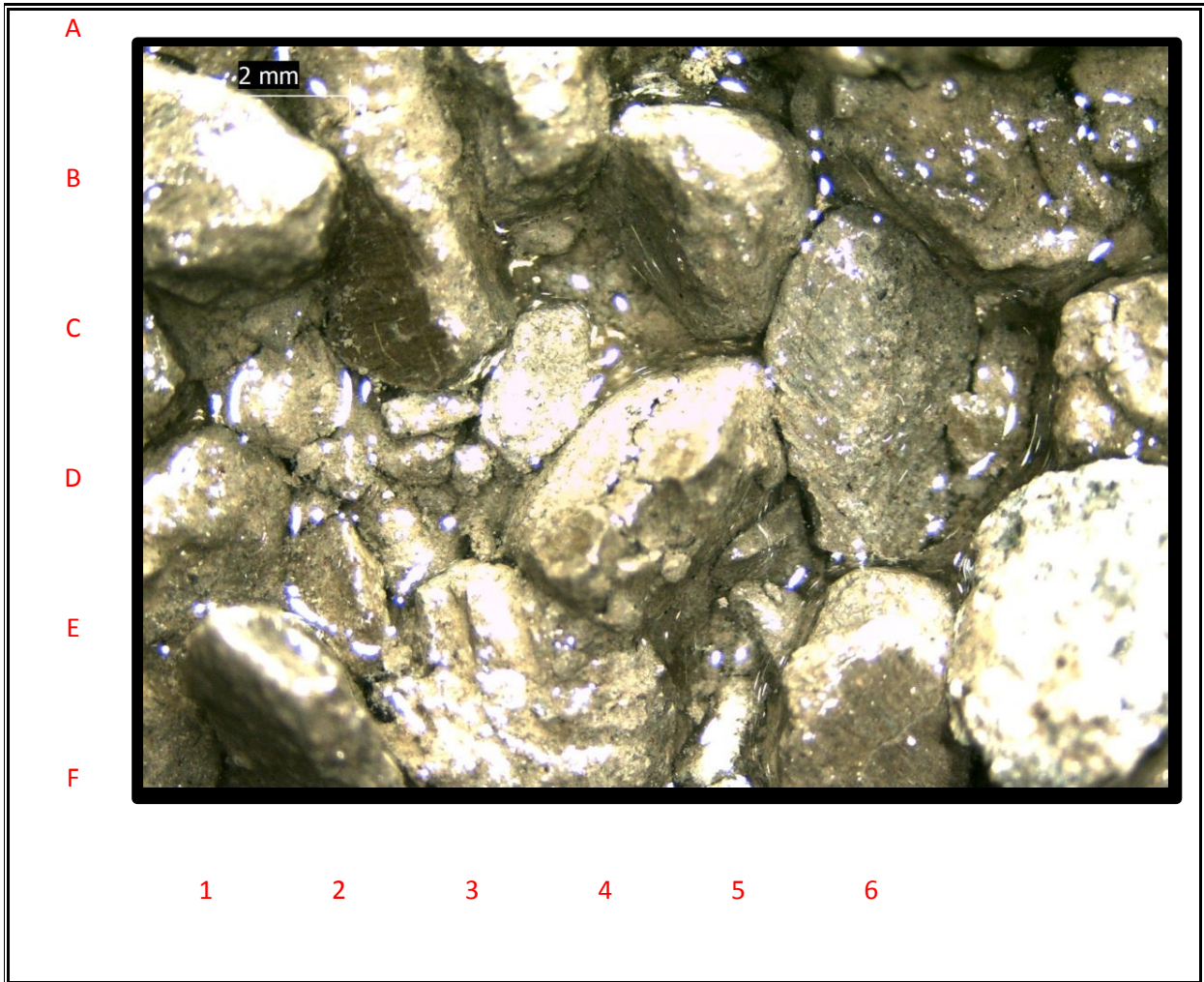
DEPTH	4500'	TIME		DATE	9/12/2015
LOGGING ENGINEER		Ryan Lenberg			
PERCENT	FORMATION	DESCRIPTION			
100%	CLYST	Dk to med gry, fri to sft, rr hd, sm, blk, occ grty			
		rr PDC bit crlng			



# DEPTH

**4530'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	4530'	TIME		DATE	9/12/2015
LOGGING ENGINEER		Ryan Lenberg			
PERCENT	FORMATION	DESCRIPTION			
100%	CLYST	Lt to med gry, fri to sft, grty, occ PDC bit crlng, rr ss w/ calc cmt			

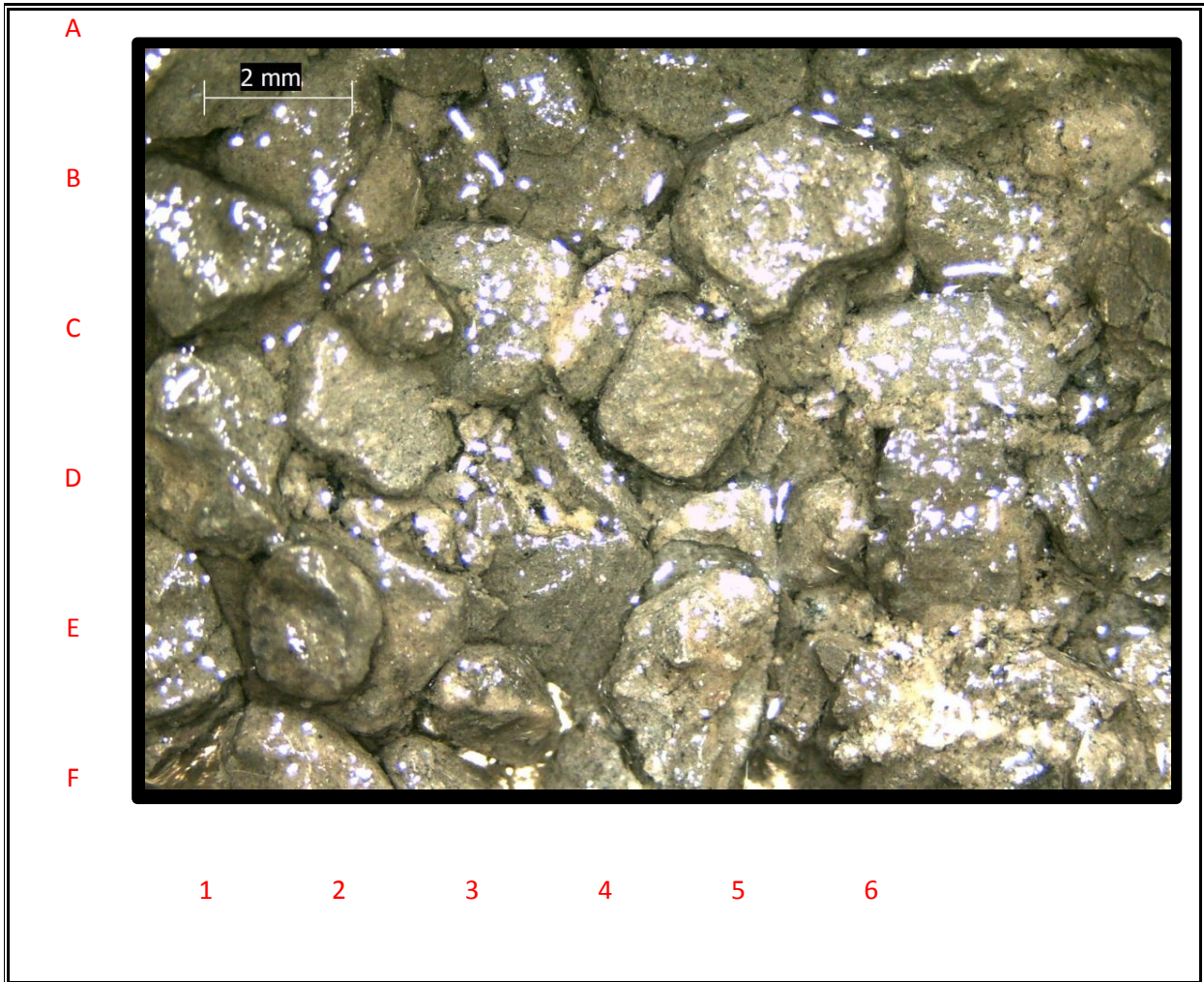




# DEPTH

**4560'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



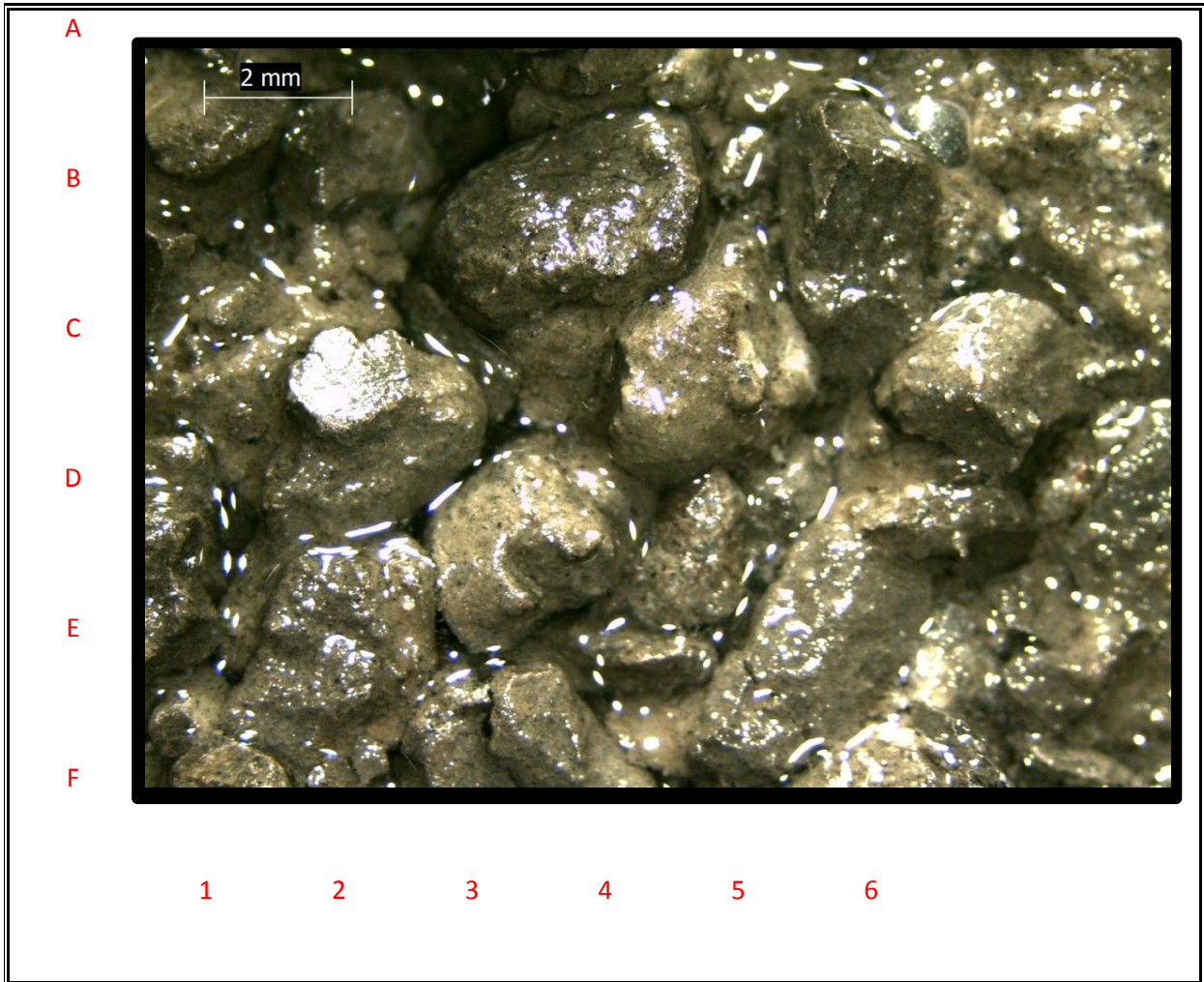
DEPTH	4560'	TIME		DATE	9/12/2015
LOGGING ENGINEER		Ryan Lenberg			
PERCENT	FORMATION	DESCRIPTION			
100%	CLYST	Lt to med gry, fri to frm, grty, sb-plty to blk			



# DEPTH

**4590'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	4590'	TIME		DATE	9/12/2015
LOGGING ENGINEER		Ryan Lenberg			
PERCENT	FORMATION	DESCRIPTION			
100%	CLYST	Lt to med gry, fri to frm, grty, sb-plty to blk			

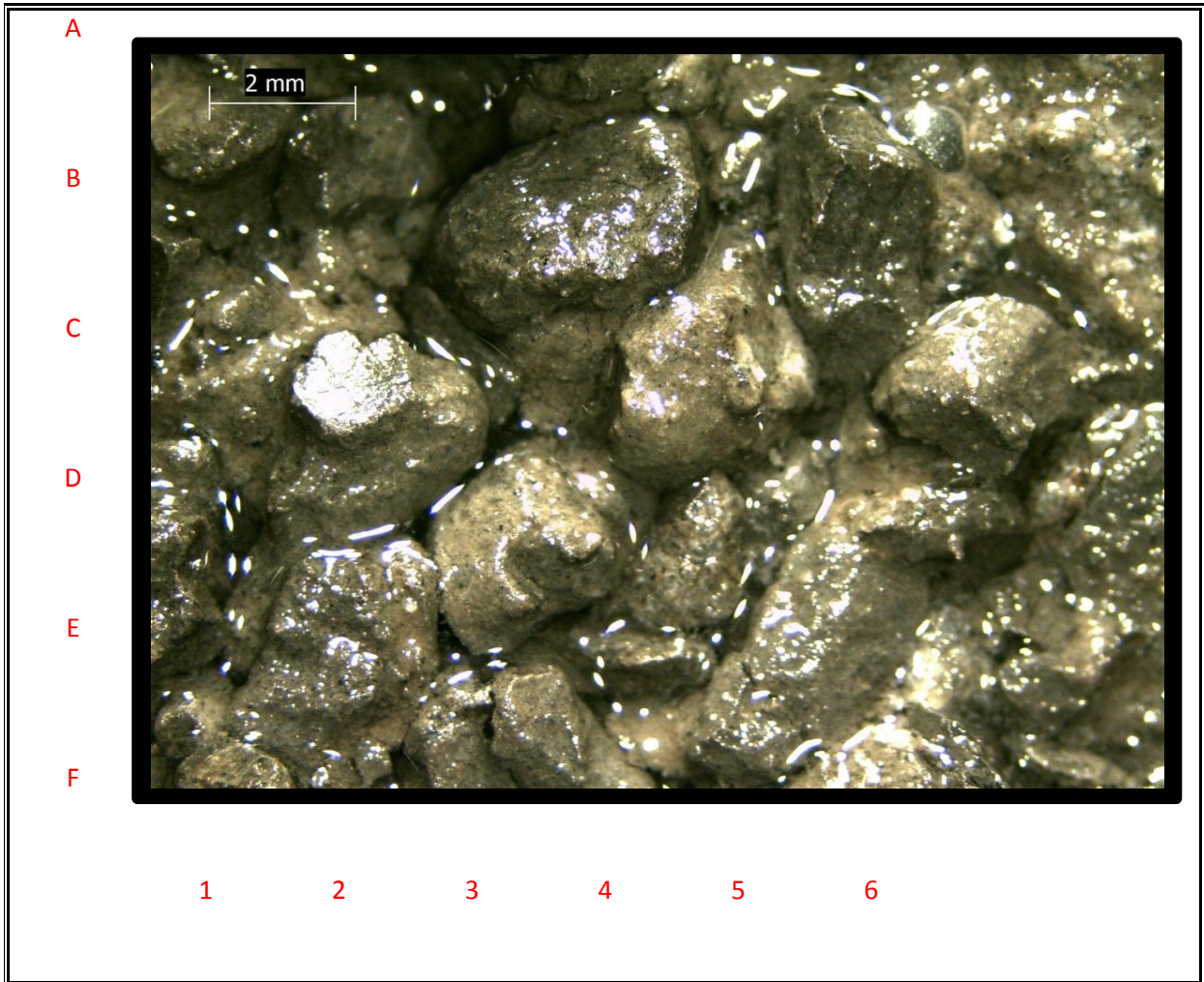




# DEPTH

**4620'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



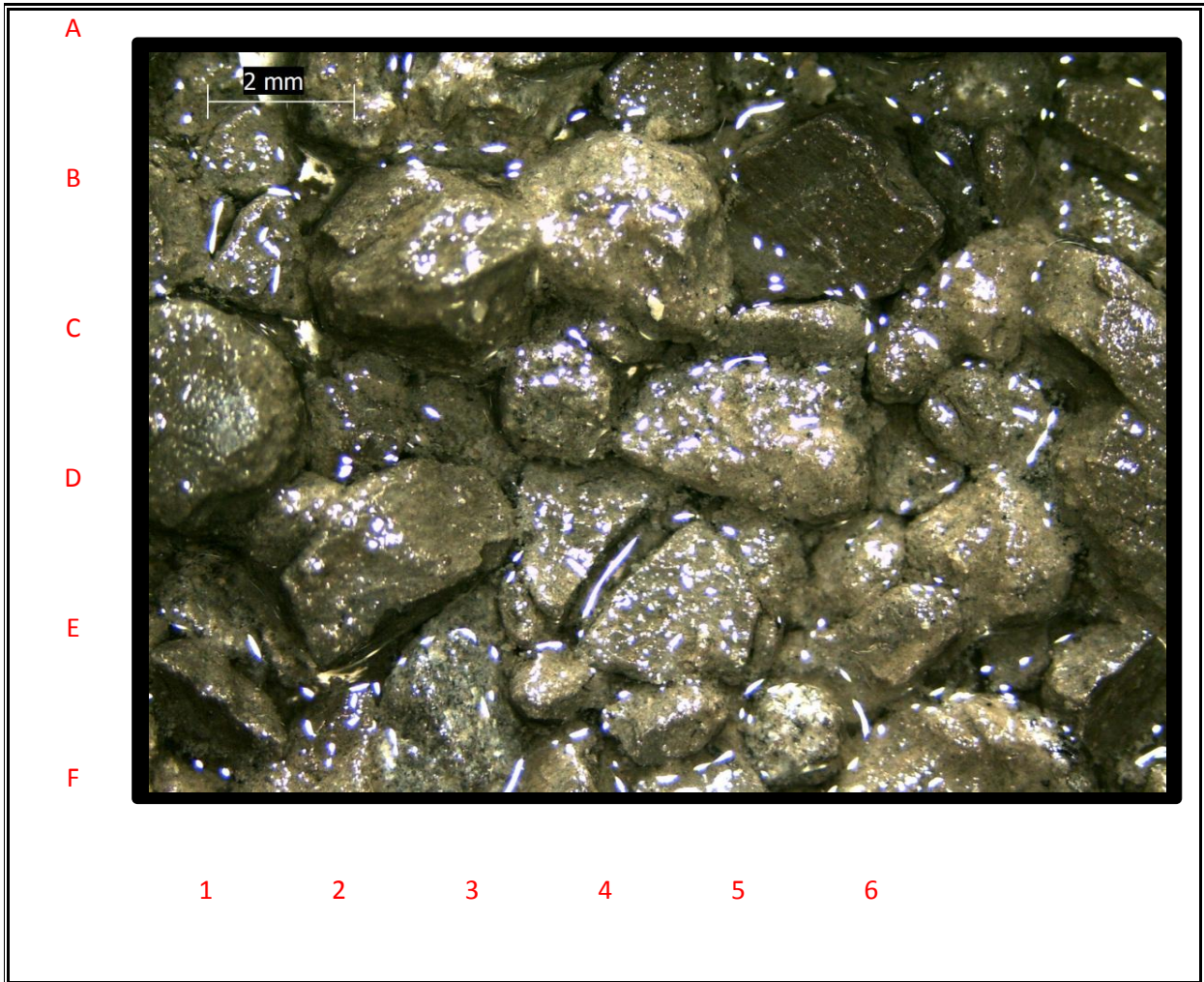
DEPTH	4620'	TIME		DATE	9/12/2015
LOGGING ENGINEER		Ryan Lenberg			
PERCENT	FORMATION	DESCRIPTION			
90%	CLYST	Lt to med gry, fri to frm, grty, sb-plty to blk			
10%	SS	vf gr, w srt, calc cmt, no fluor, no cut			



# DEPTH

**4650'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	4650'	TIME		DATE	9/12/2015
LOGGING ENGINEER		Ryan Lenberg			
PERCENT	FORMATION	DESCRIPTION			
100%	CLYST	Lt to med gry, fri to frm, grty, sb-plty to blk			
		tr vf gr, w srt, calc cmt, no fluor, no cut			

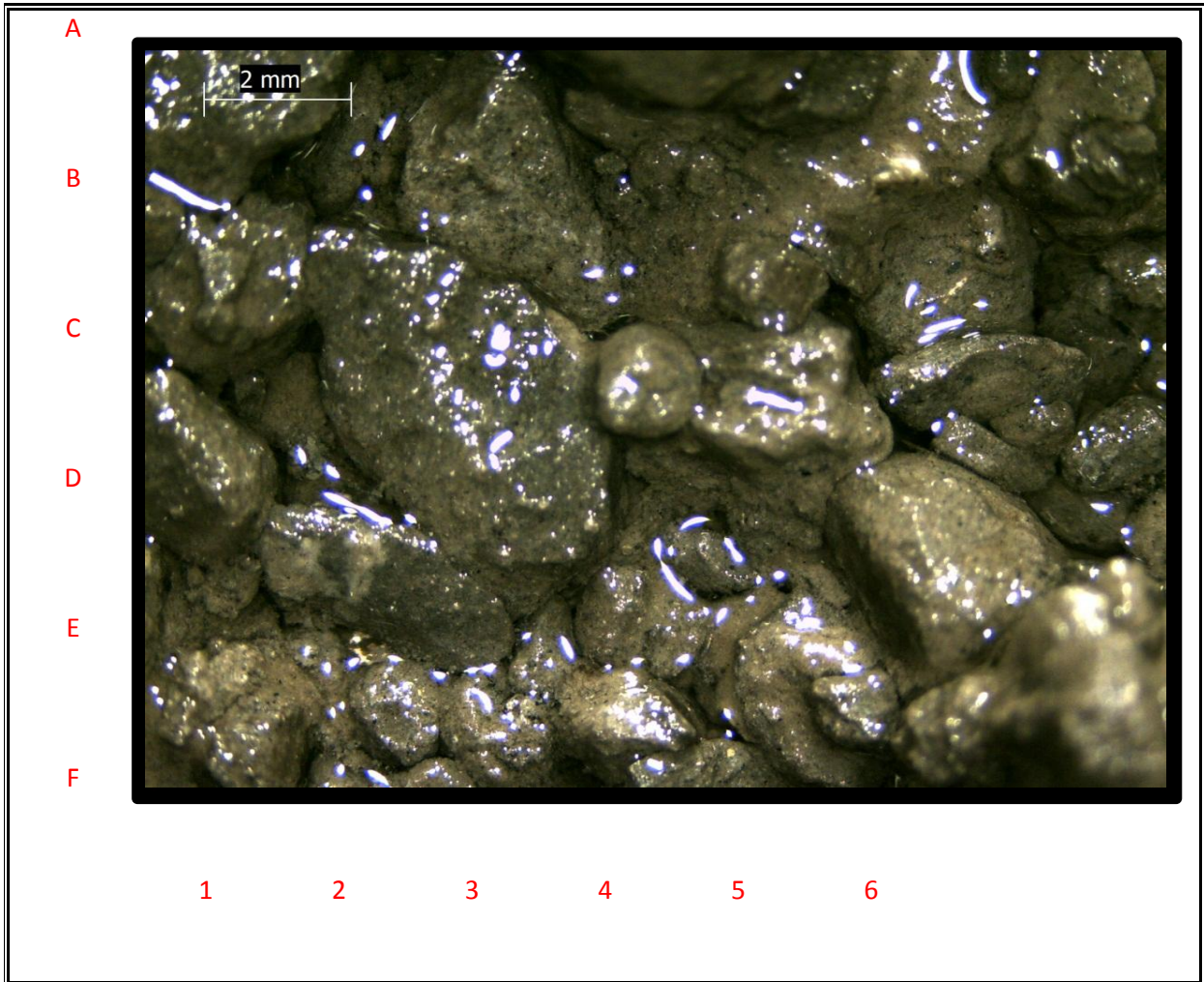




# DEPTH

**4680'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



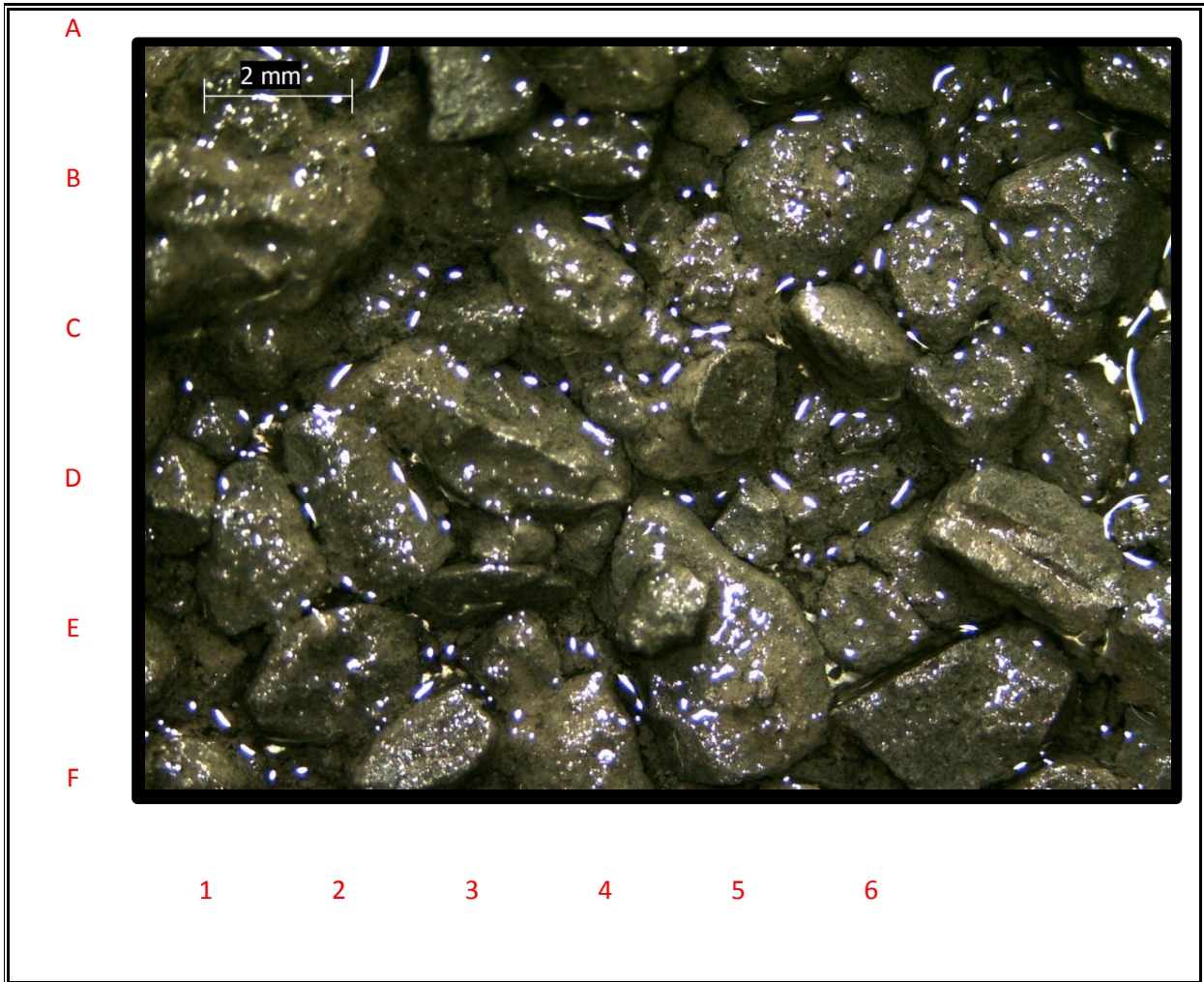
DEPTH	4680'	TIME		DATE	9/12/2015
LOGGING ENGINEER		Ryan Lenberg			
PERCENT	FORMATION	DESCRIPTION			
100%	CLYST	Lt to med gry, fri to frm, grty, sb-plty to blk			
		tr wh s&p vf gr ss, w srt, calc cmt, no fluor, no cut			



# DEPTH

**4710'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	4710'	TIME		DATE	9/12/2015
LOGGING ENGINEER		Ryan Lenberg			
PERCENT	FORMATION	DESCRIPTION			
100%	CLYST	Lt to med gry, fri to frm, grty, sb-plty to blk			
		tr wh s&p vf gr ss, w srt, calc cmt, no fluor, no cut			

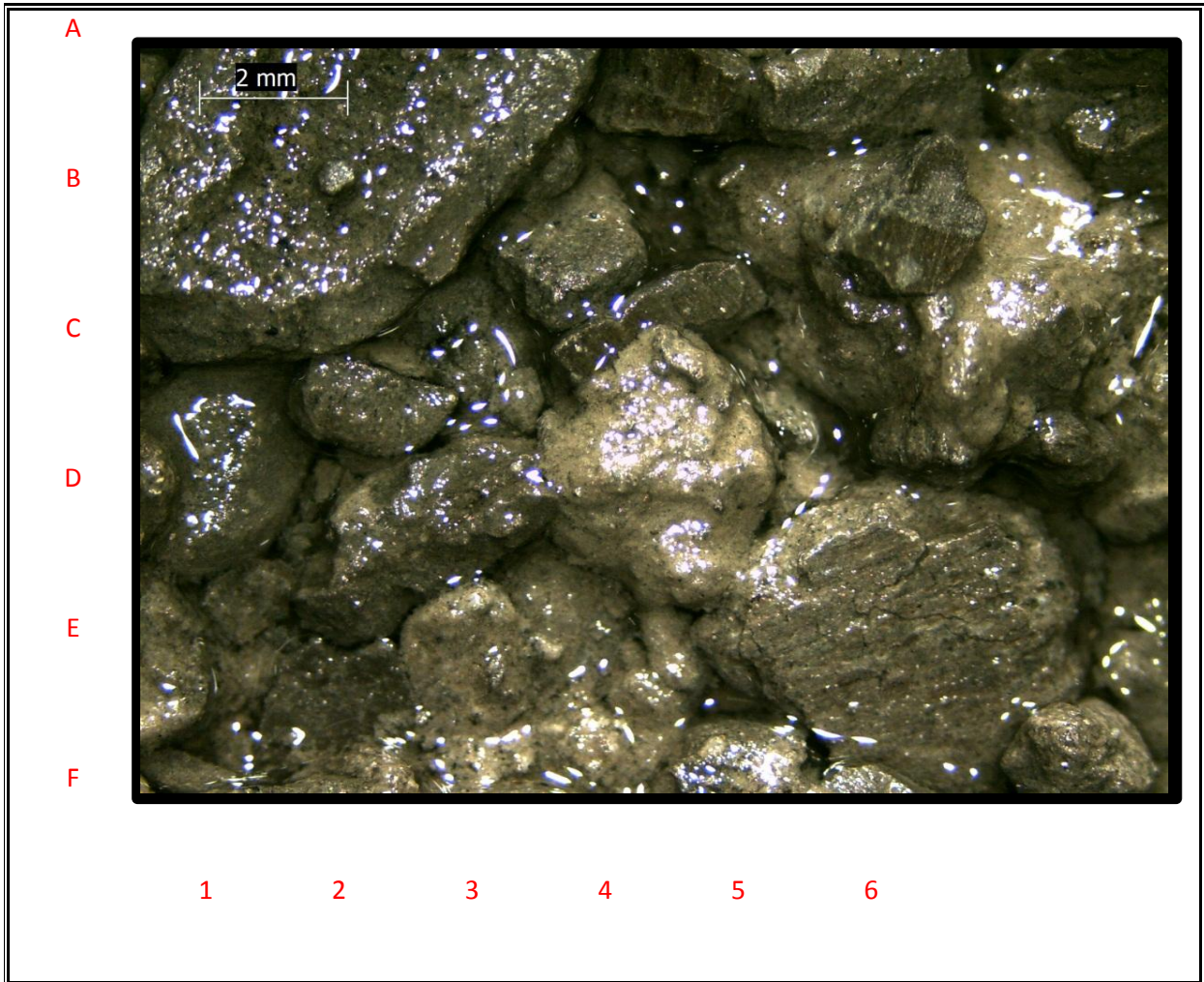




# DEPTH

**4740'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



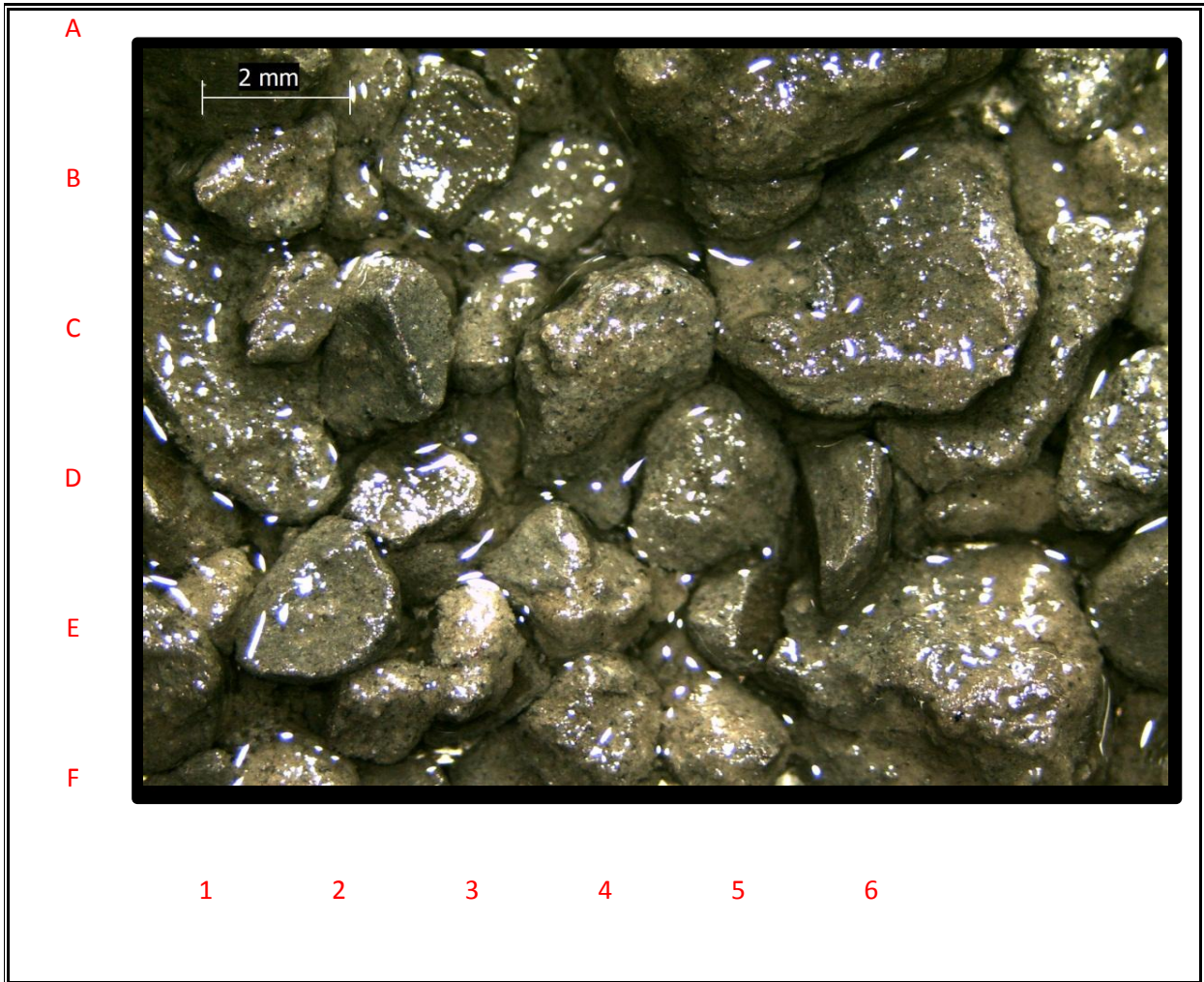
DEPTH	4740'	TIME		DATE	9/12/2015
LOGGING ENGINEER		Ryan Lenberg			
PERCENT	FORMATION	DESCRIPTION			
100%	CLYST	Lt to med gry, fri to frm, sb-plty to blk			
		tr wh s&p vf gr ss, w srt, calc cmt, no fluor, no cut			



# DEPTH

**4770'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	4770'	TIME		DATE	9/12/2015
LOGGING ENGINEER		Ryan Lenberg			
PERCENT	FORMATION	DESCRIPTION			
100%	CLYST	Lt to med gry, fri to frm, sb-plty to blk			
		tr wh s&p vf gr ss, w srt, calc cmt, no fluor, no cut			

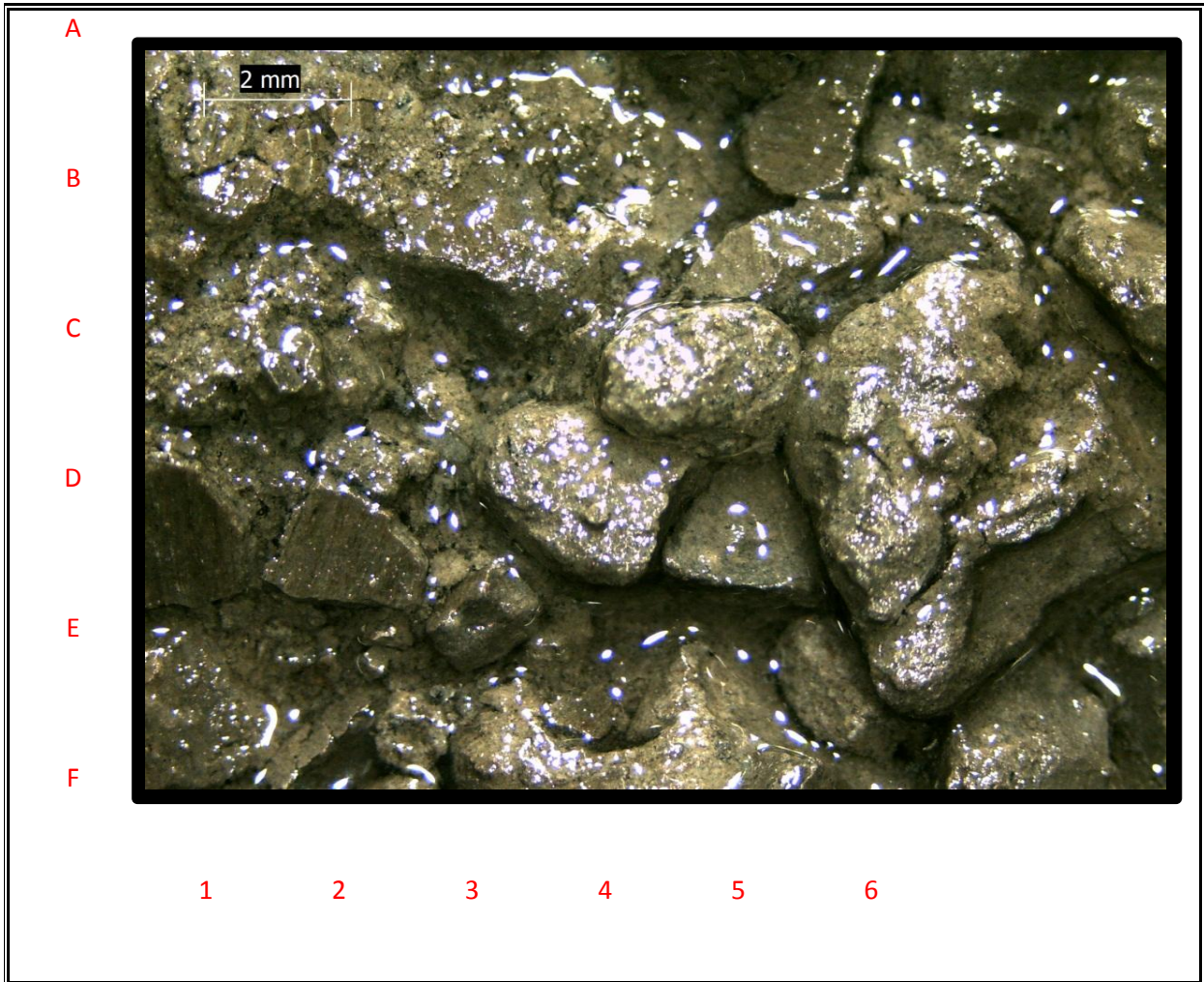




# DEPTH

**4800'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



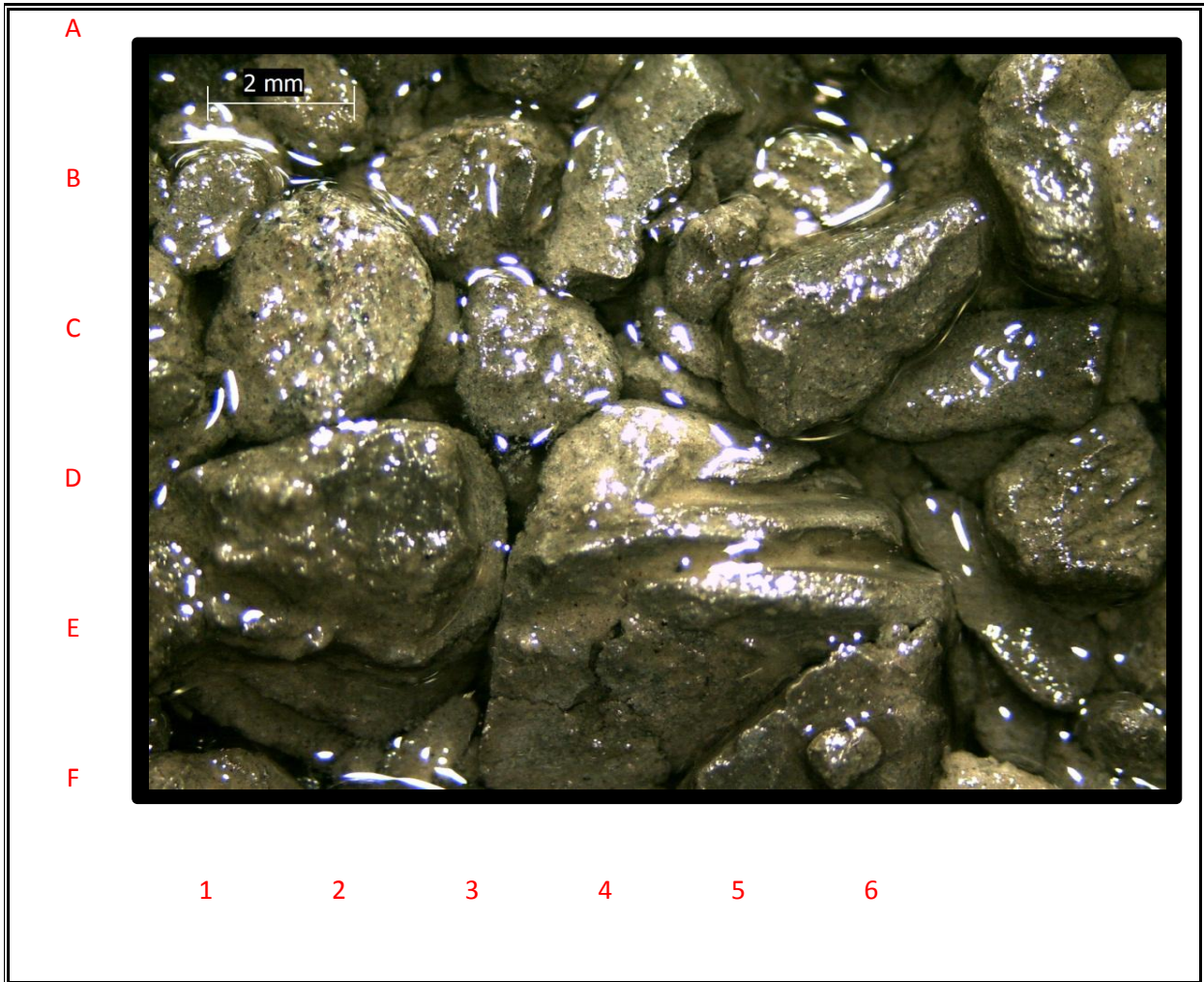
DEPTH	4800'	TIME		DATE	9/12/2015
LOGGING ENGINEER		Ryan Lenberg			
PERCENT	FORMATION	DESCRIPTION			
100%	CLYST	Lt to med gry, mod frm to frm, sb-plty, tr ss, tr calc			



# DEPTH

**4830'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	4830'	TIME		DATE	9/12/2015
LOGGING ENGINEER		Ryan Lenberg			
PERCENT	FORMATION	DESCRIPTION			
100%	CLYST	Lt to med gry, mod frm to frm, sb-plty, tr ss, tr calc			

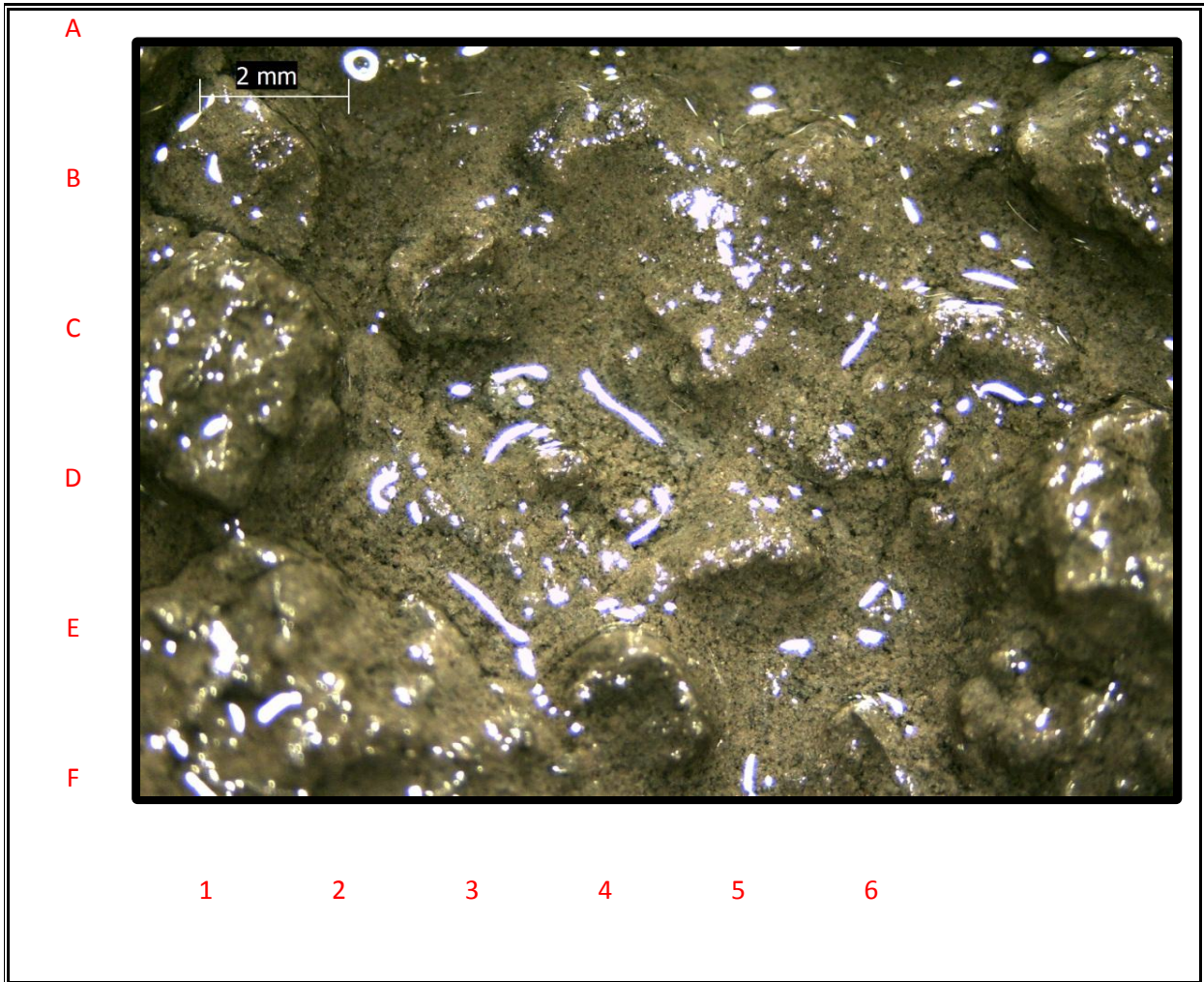




# DEPTH

**4860'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



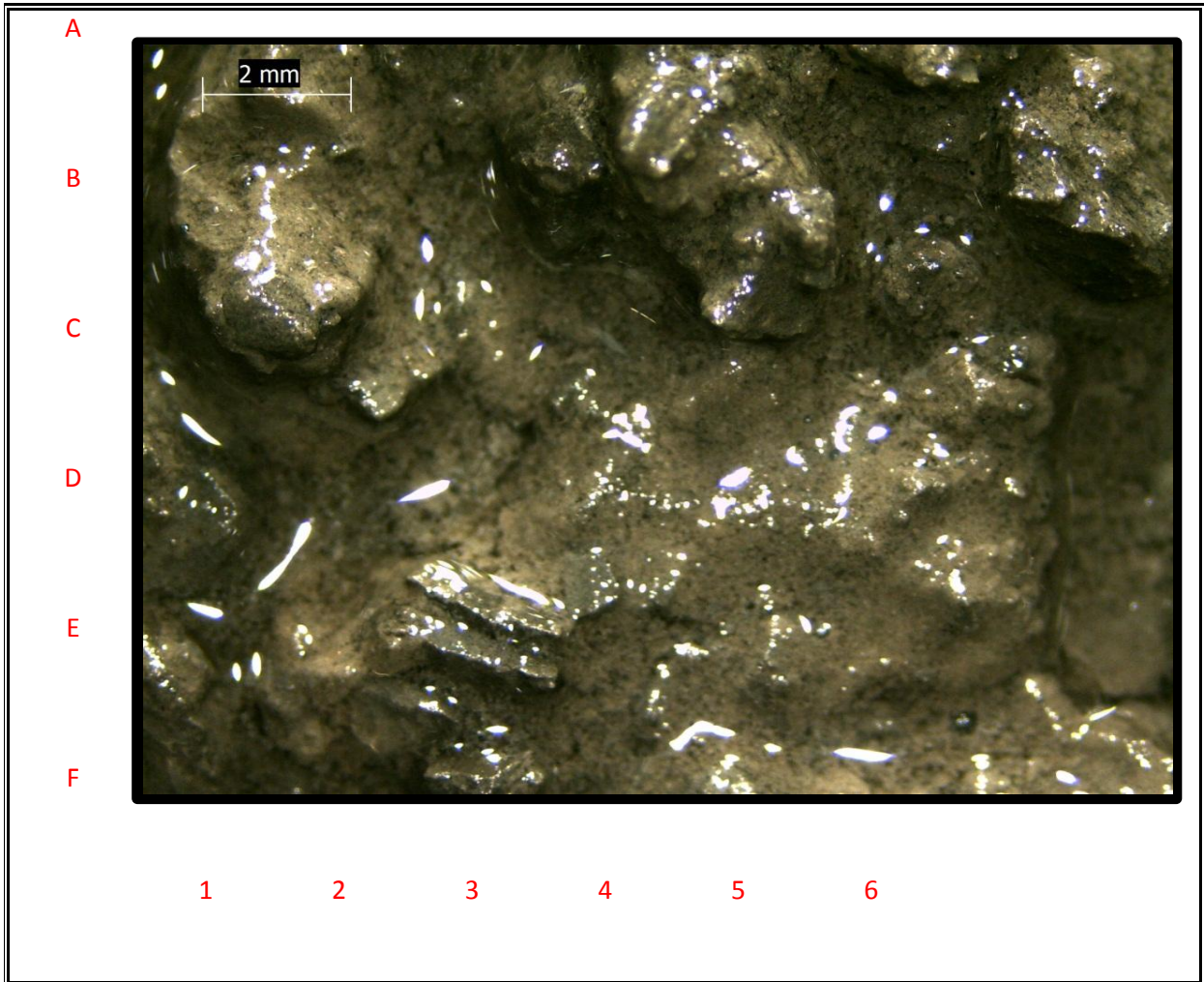
DEPTH	4860'	TIME		DATE	9/13/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
100%	CLYST	Lt to med gry, mod frm to frm, sb-plty, occ sltst			
		Tr ss			



# DEPTH

**4890'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	4890'	TIME		DATE	9/13/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
100%	CLYST	Lt to med gry, mod frm to frm, sb-plty, occ sltst			

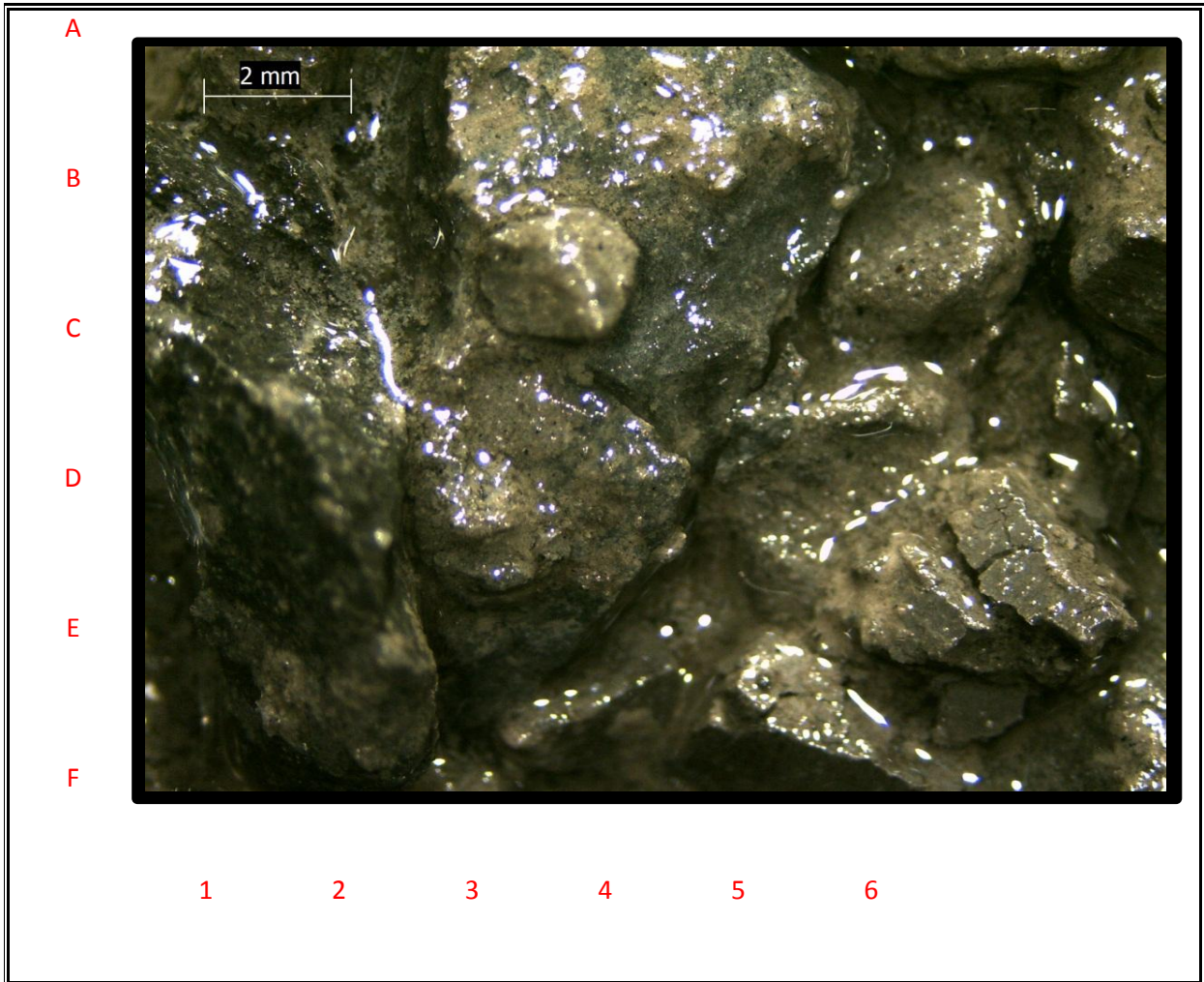




# DEPTH

**4920'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



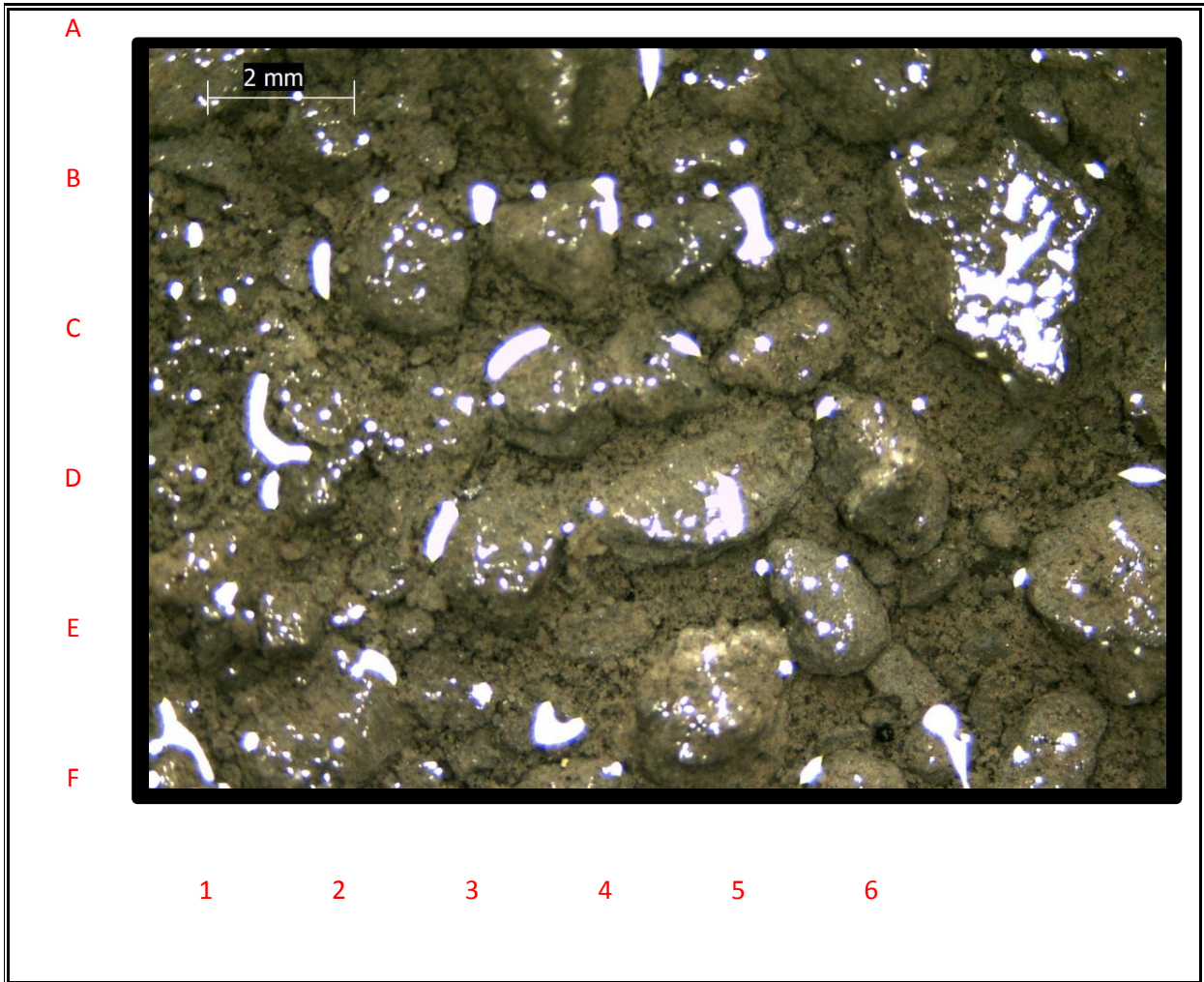
DEPTH	4920'	TIME		DATE	9/13/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
100%	CLYST	Lt to med gry, mod frm to frm, sb-plty, occ sltst			
		Tr drk gry sh			



# DEPTH

**4950'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	4950'	TIME		DATE	9/13/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
100%	CLYST	Lt to med gry, mod frm to frm, sb-plty, occ sltst			
		Tr drk gry sh			

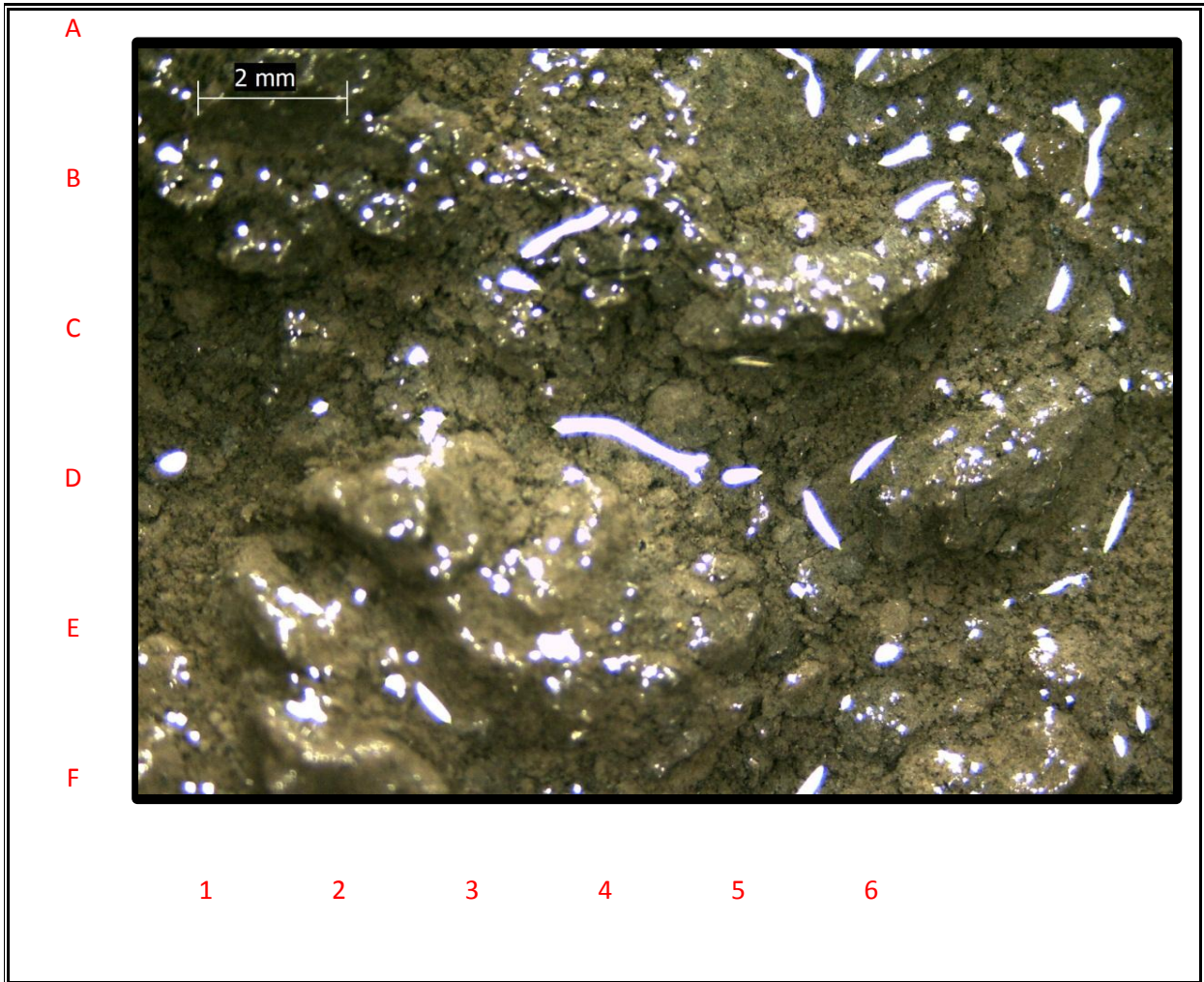




# DEPTH

**4980'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



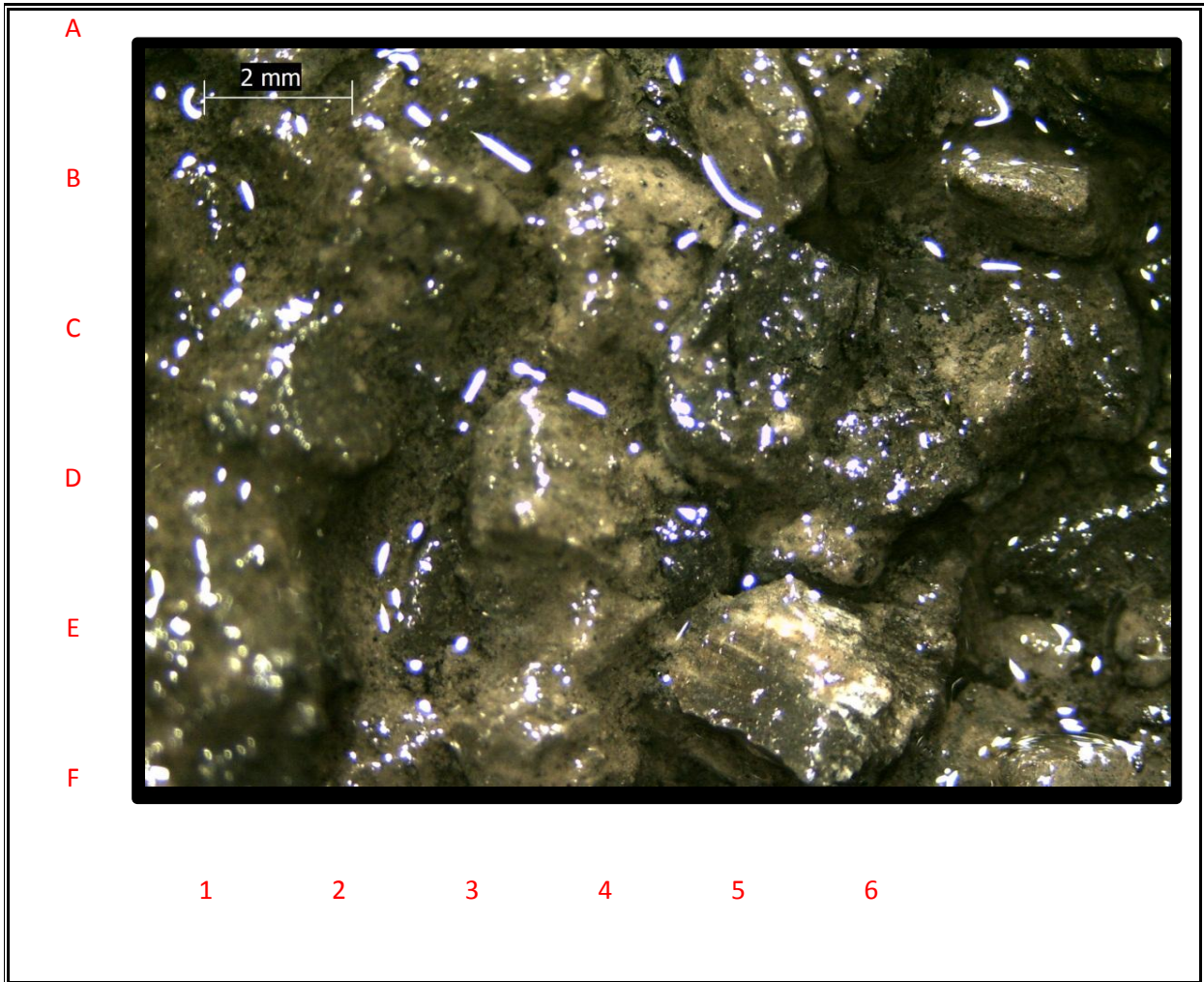
DEPTH	4980'	TIME		DATE	9/13/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
100%	CLYST	Lt to med gry, mod frm to frm, plty to blk, tr sltst			



# DEPTH

**5010'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	5010'	TIME		DATE	9/13/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
100%	CLYST	Lt to med gry, mod frm to frm, plty to blk, tr sltst			
		tr ss			

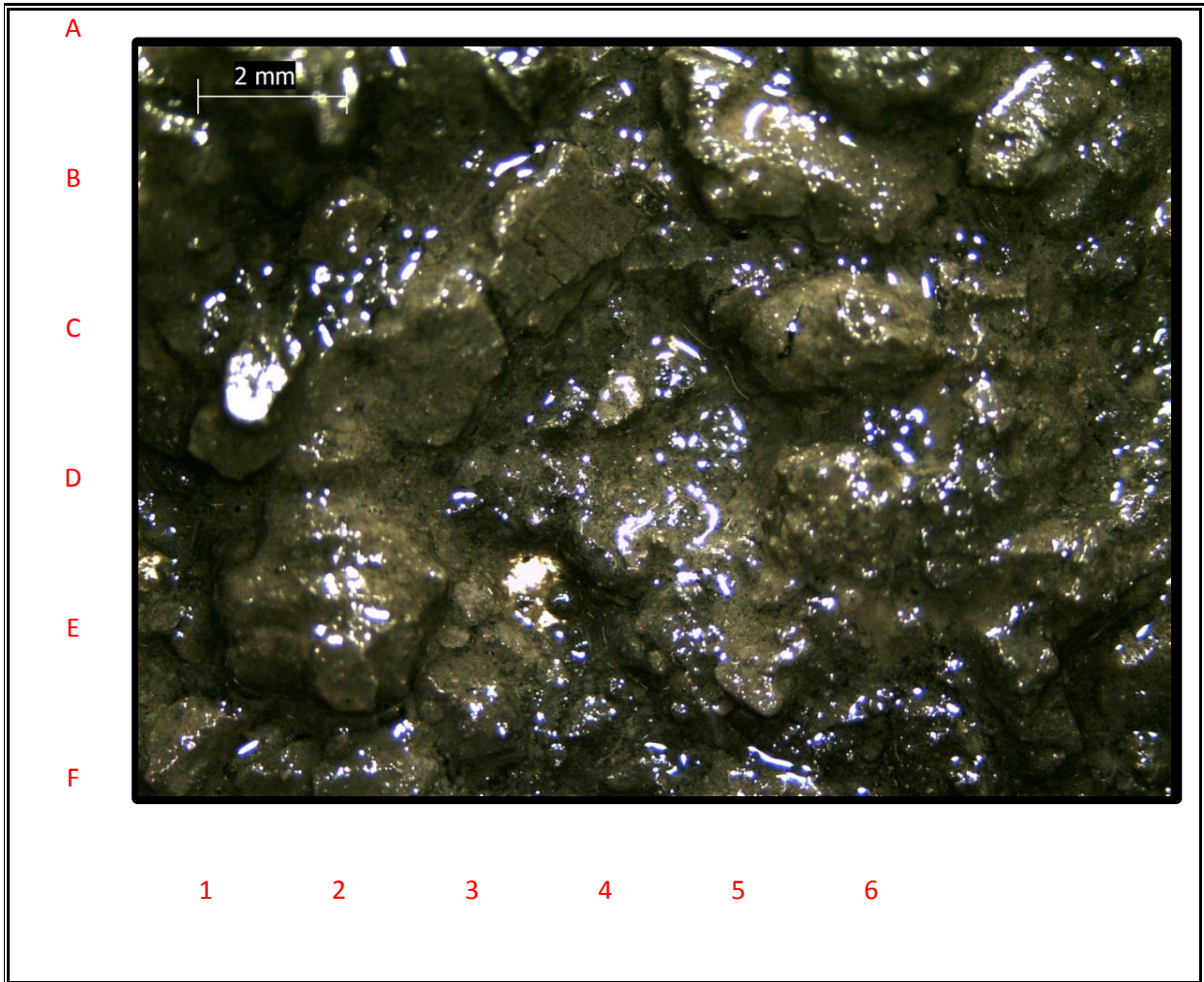




# DEPTH

**5040'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



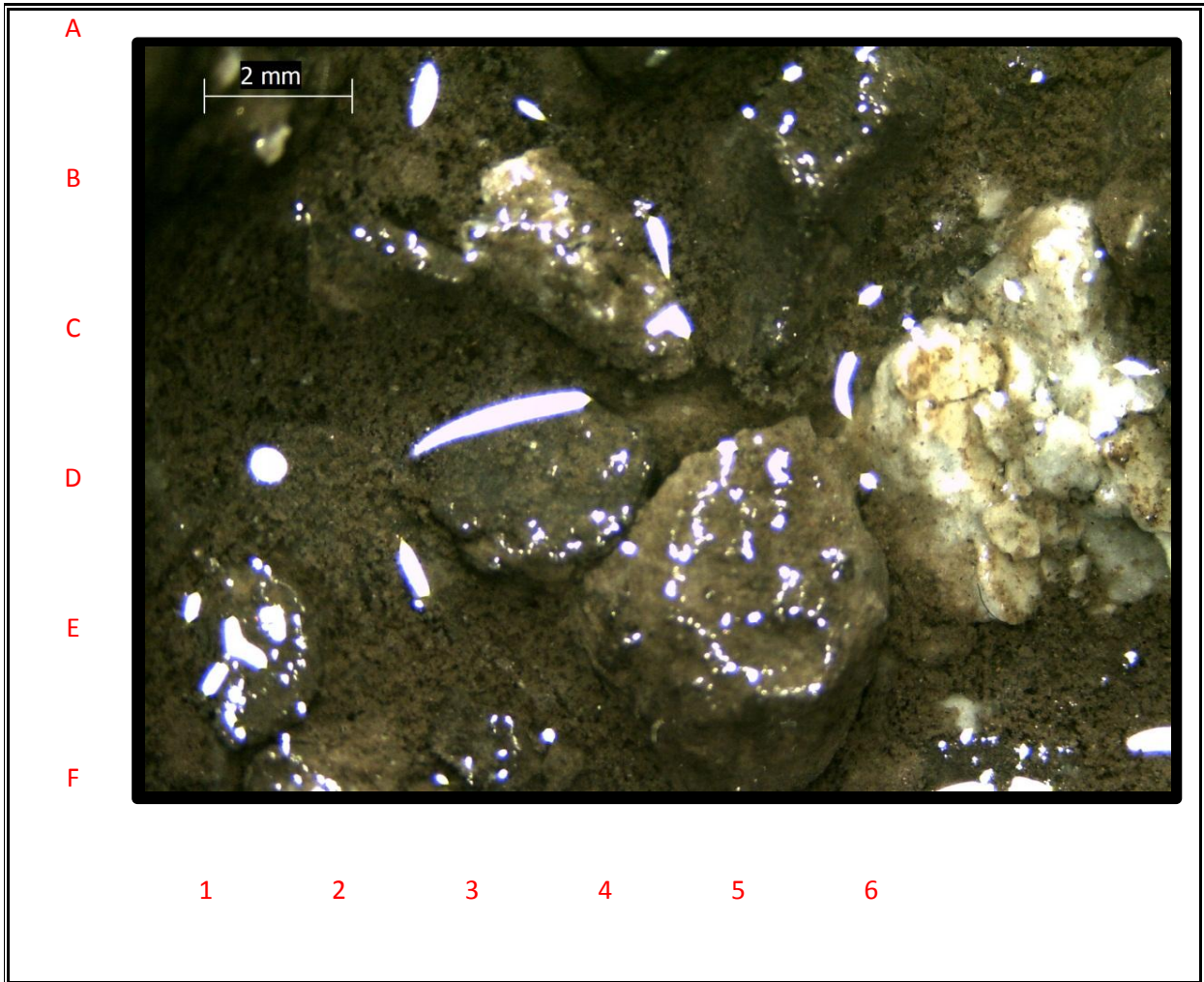
DEPTH	5040'	TIME		DATE	9/13/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
100%	CLYST	Lt to med gry, mod frm to frm, plty to blk, tr pyr			



# DEPTH

**5070'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	5070'	TIME		DATE	9/13/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
100%	CLYST	Lt to med gry, mod frm to frm, plty to blk, tr pyr			

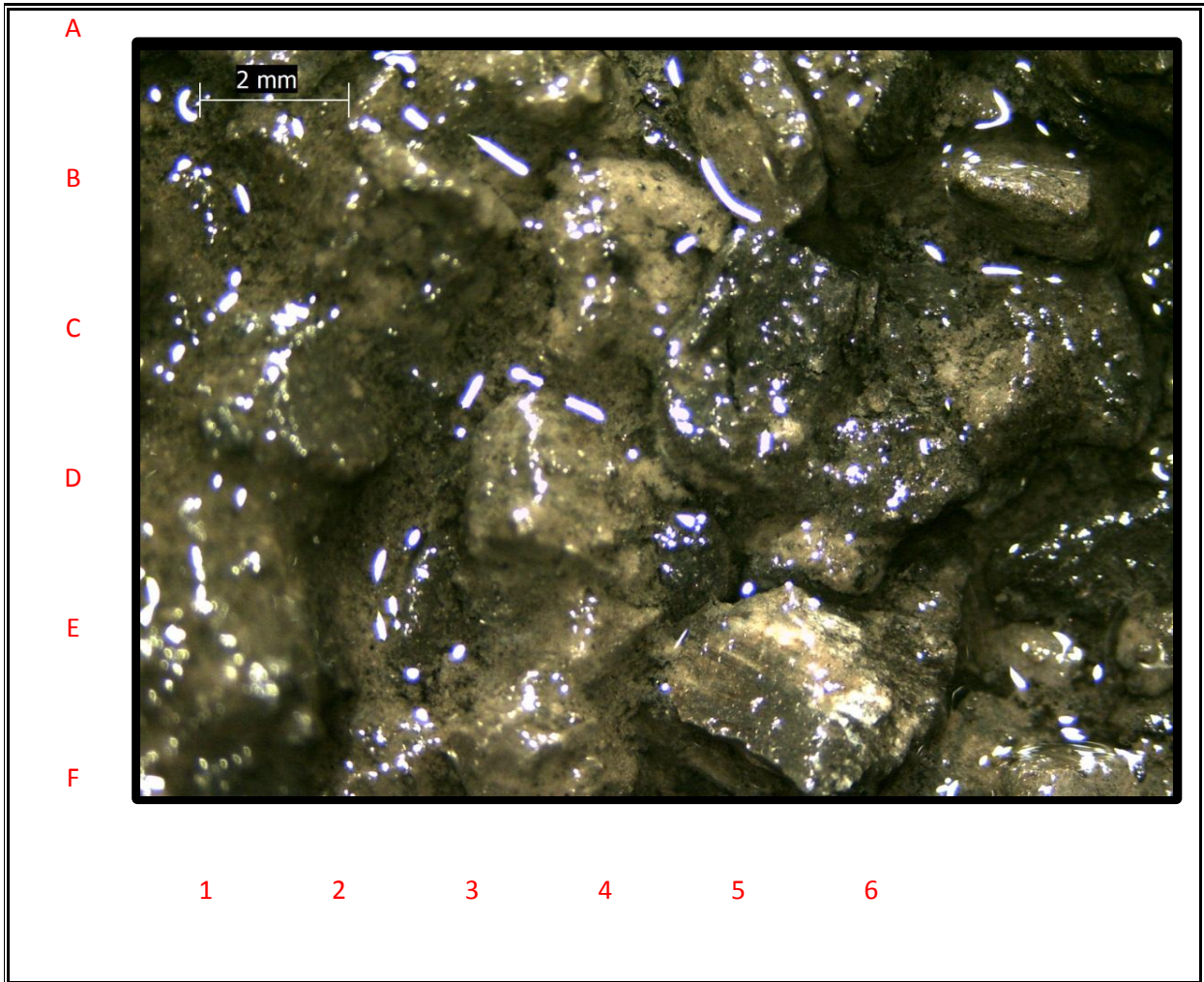




# DEPTH

**5100'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



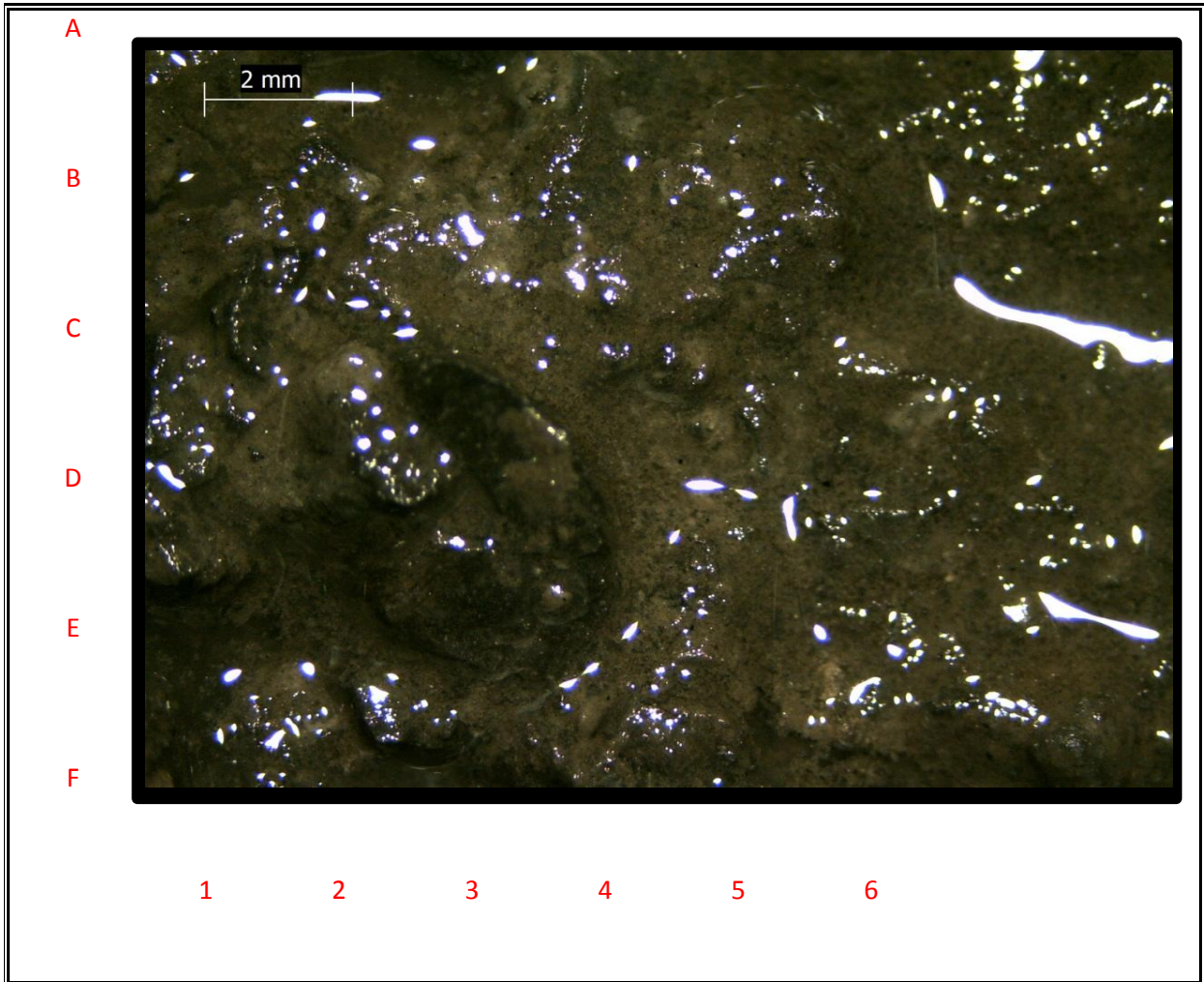
DEPTH	5100'	TIME		DATE	9/13/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
100%	CLYST	Dk to med gry, mod frm to frm, plty to blk			
		Tr wht tuff			



# DEPTH

**5130'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	5130'	TIME		DATE	9/13/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
100%	CLYST	Dk to med gry, mod frm to frm, plty to blk			
		Tr wht tuff			

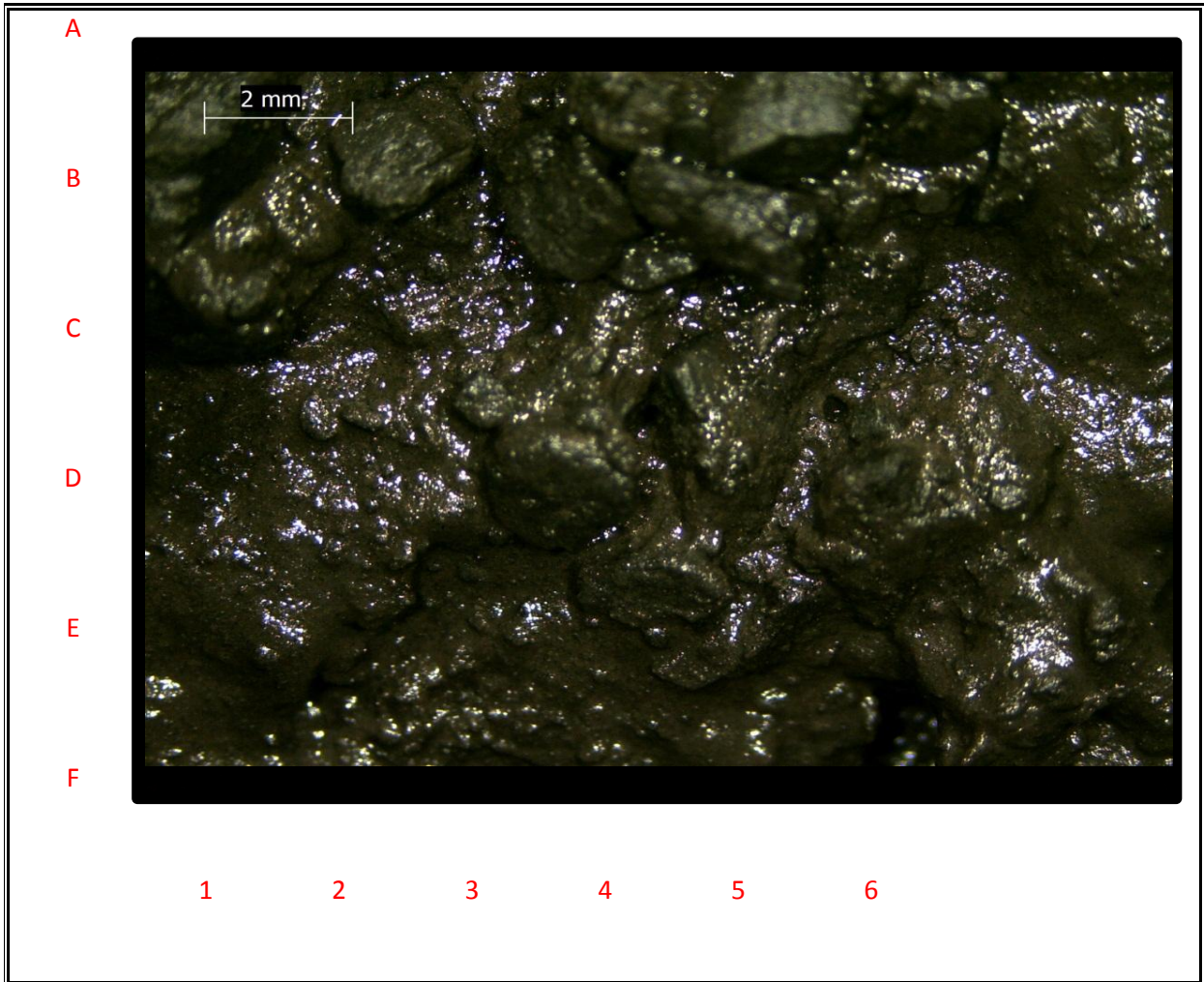




# DEPTH

**5160'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



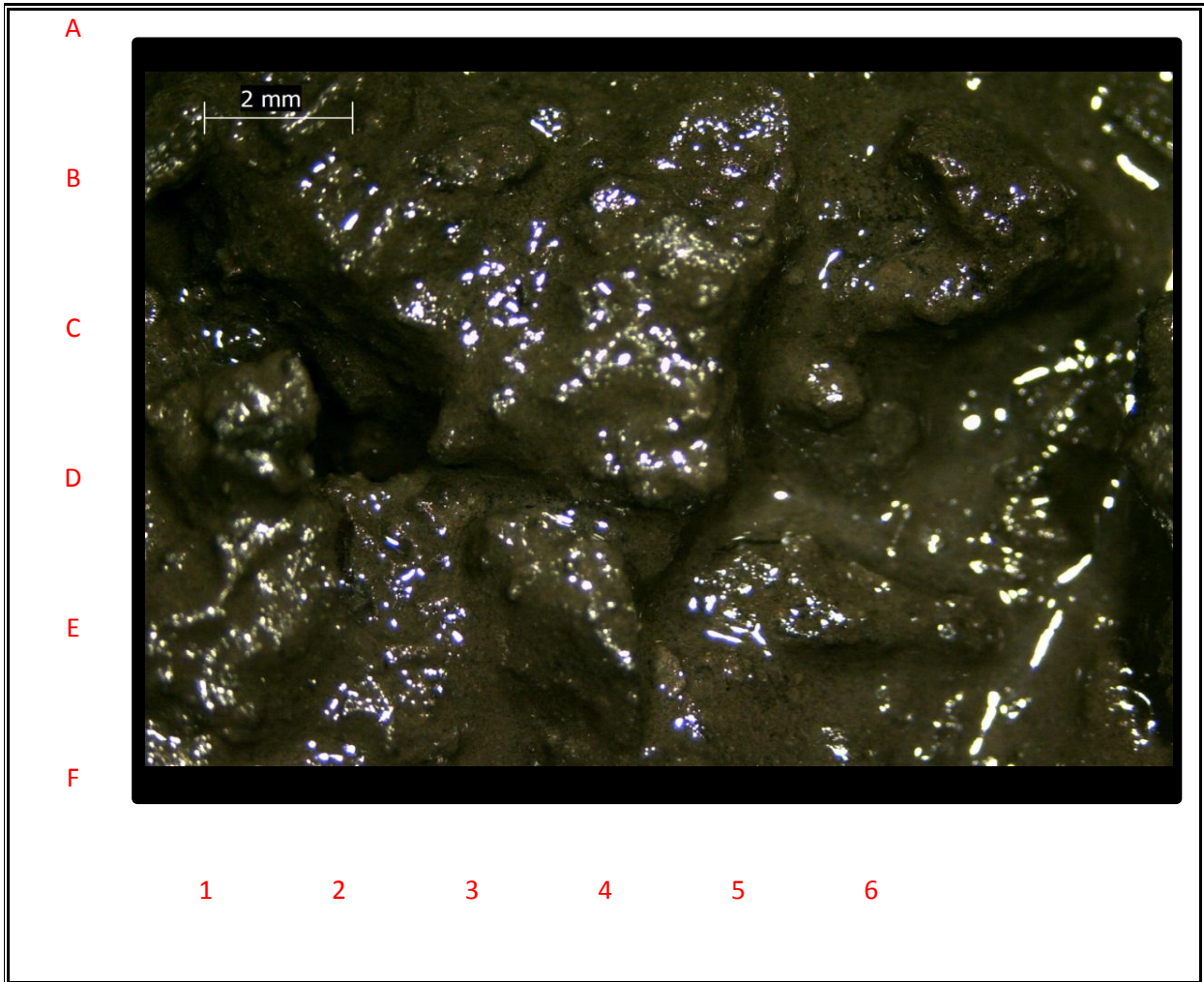
DEPTH	5160'	TIME		DATE	9/13/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
100%	CLYST	med to drk gry, mod frm to frm, plty to blk			



# DEPTH

**5190'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	5190'	TIME		DATE	9/13/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
100%	CLYST	drk to med gry, mod frm to frm, occ sft, blkly to plty			

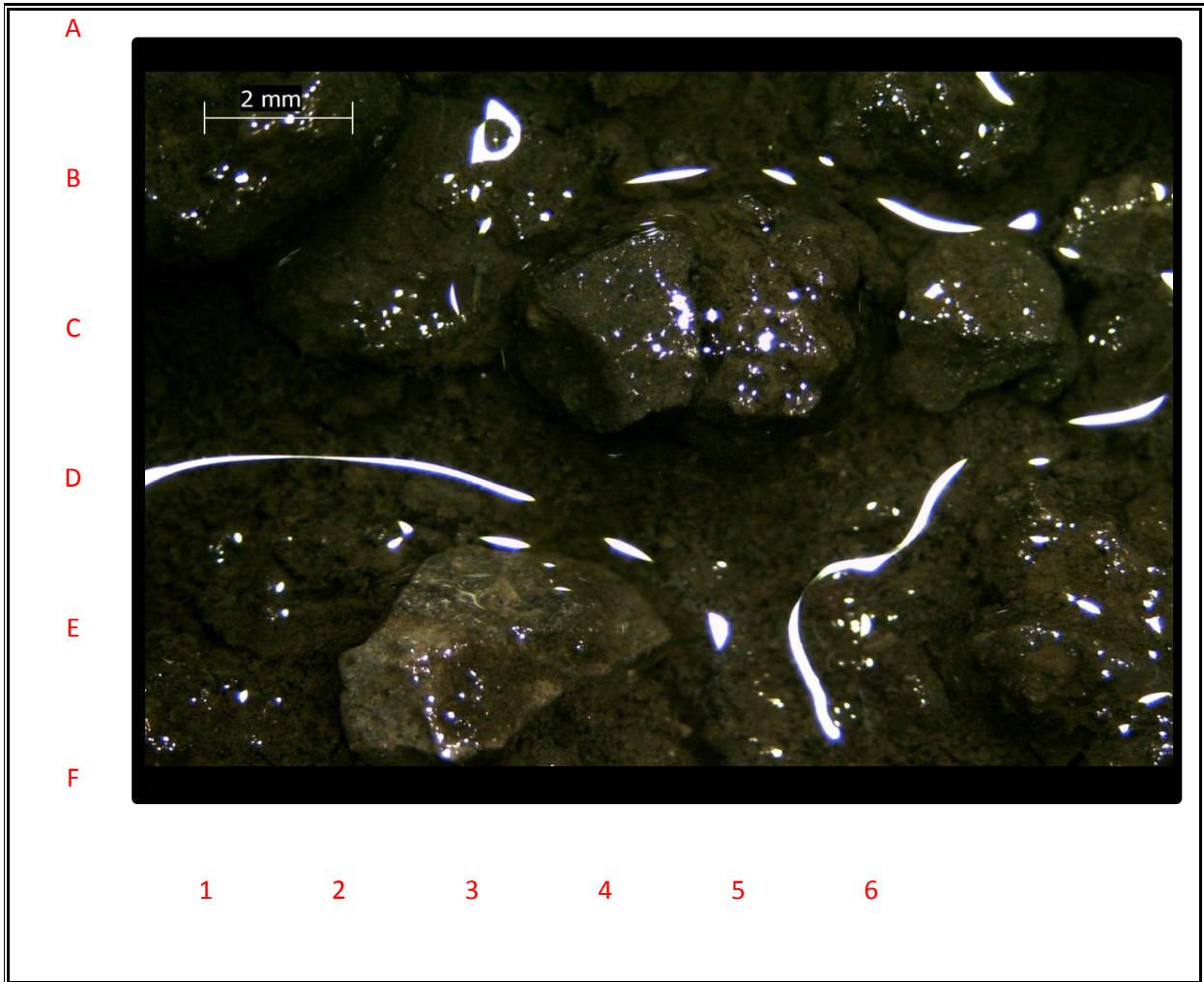




# DEPTH

**5220'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



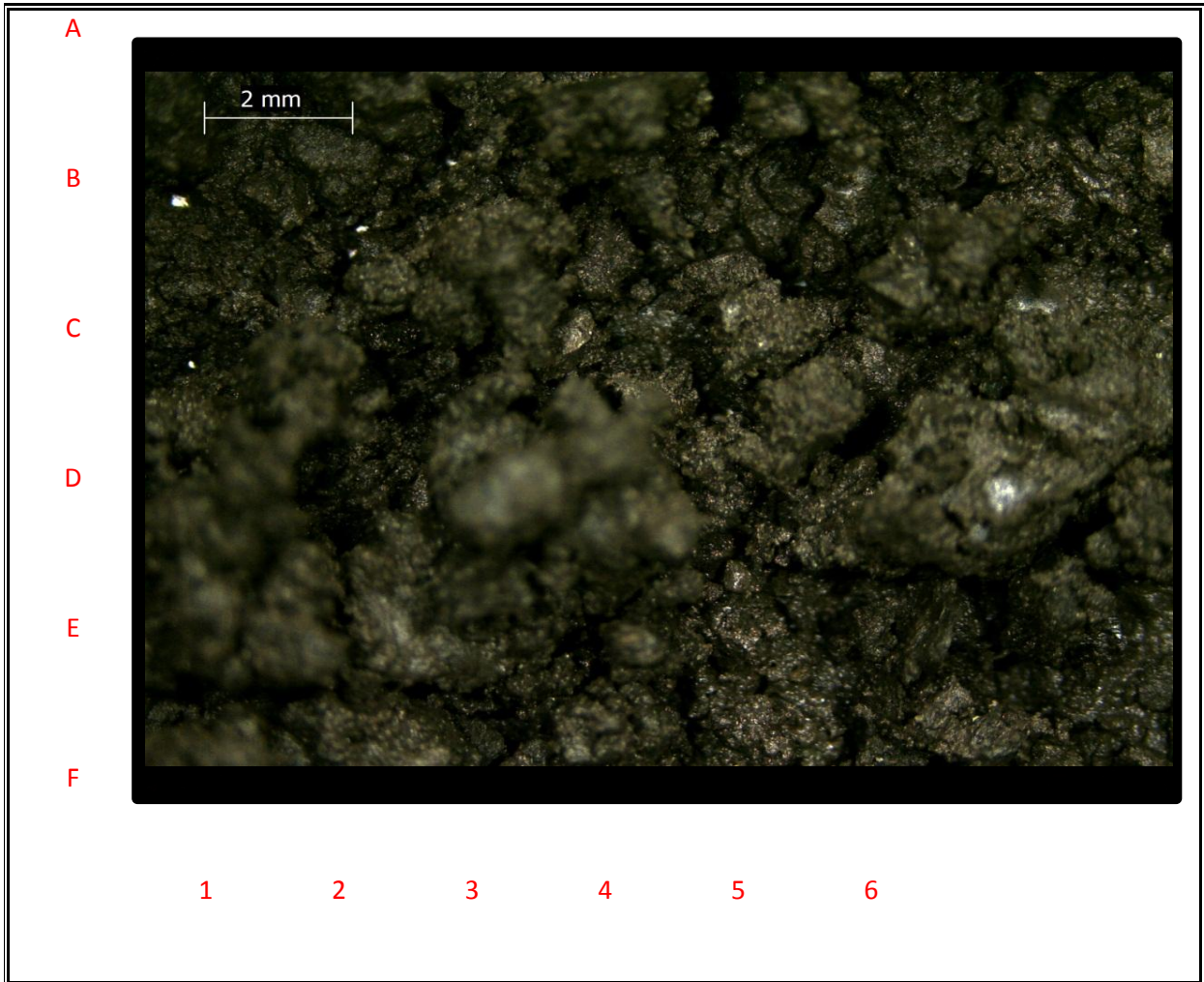
DEPTH	5220'	TIME		DATE	9/13/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
100%	CLYST	drk to med gry, mod frm to frm, occ sft, blkly to plty			



# DEPTH

**5250'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	5250'	TIME		DATE	9/13/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
90%	CLYST	drk to med gry, mod frm to frm, occ sft, blkly to plty			
10%	SLTST	lt to med gry, v fn, wl srt, v sft to sft.			

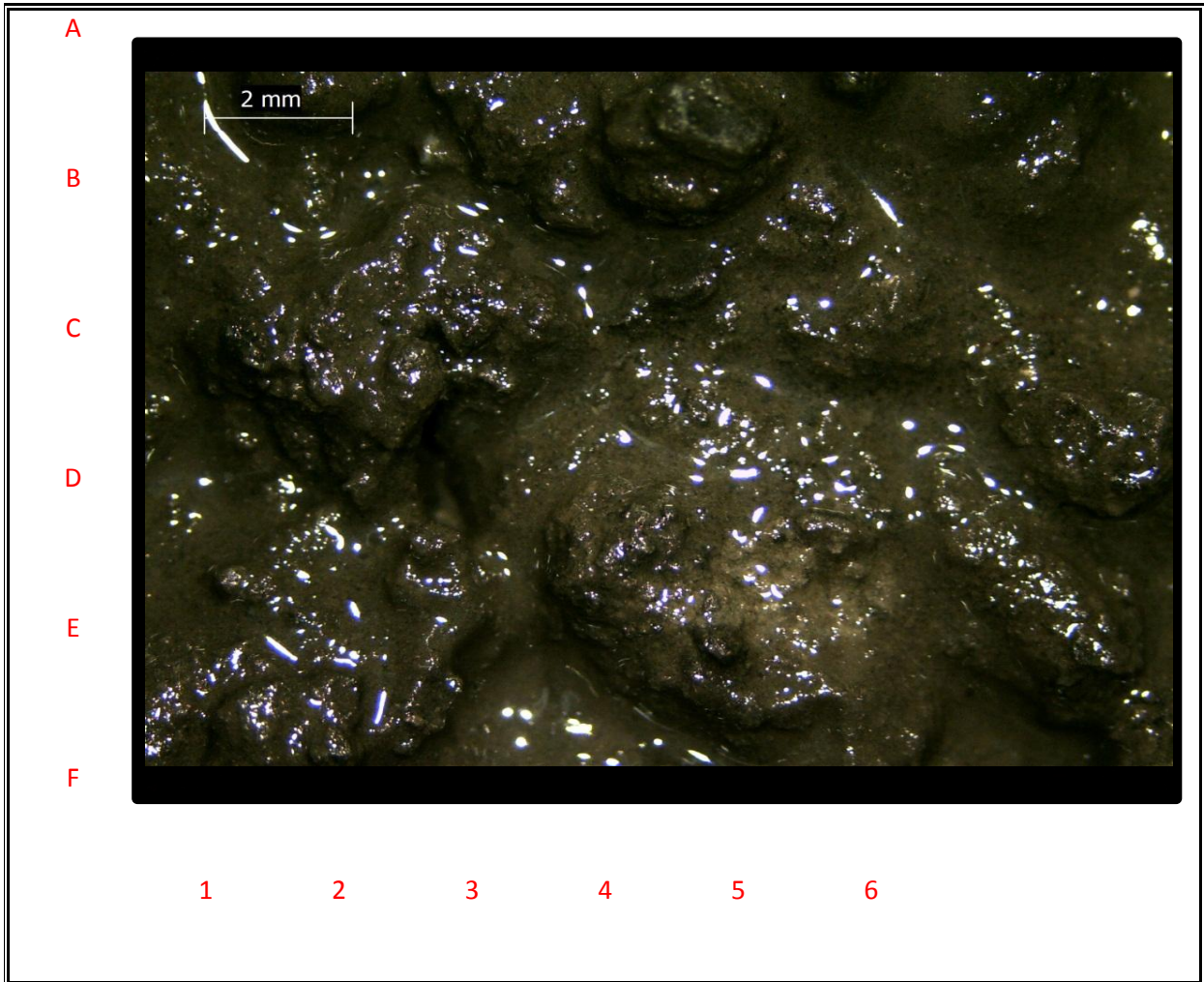




# DEPTH

**5280'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



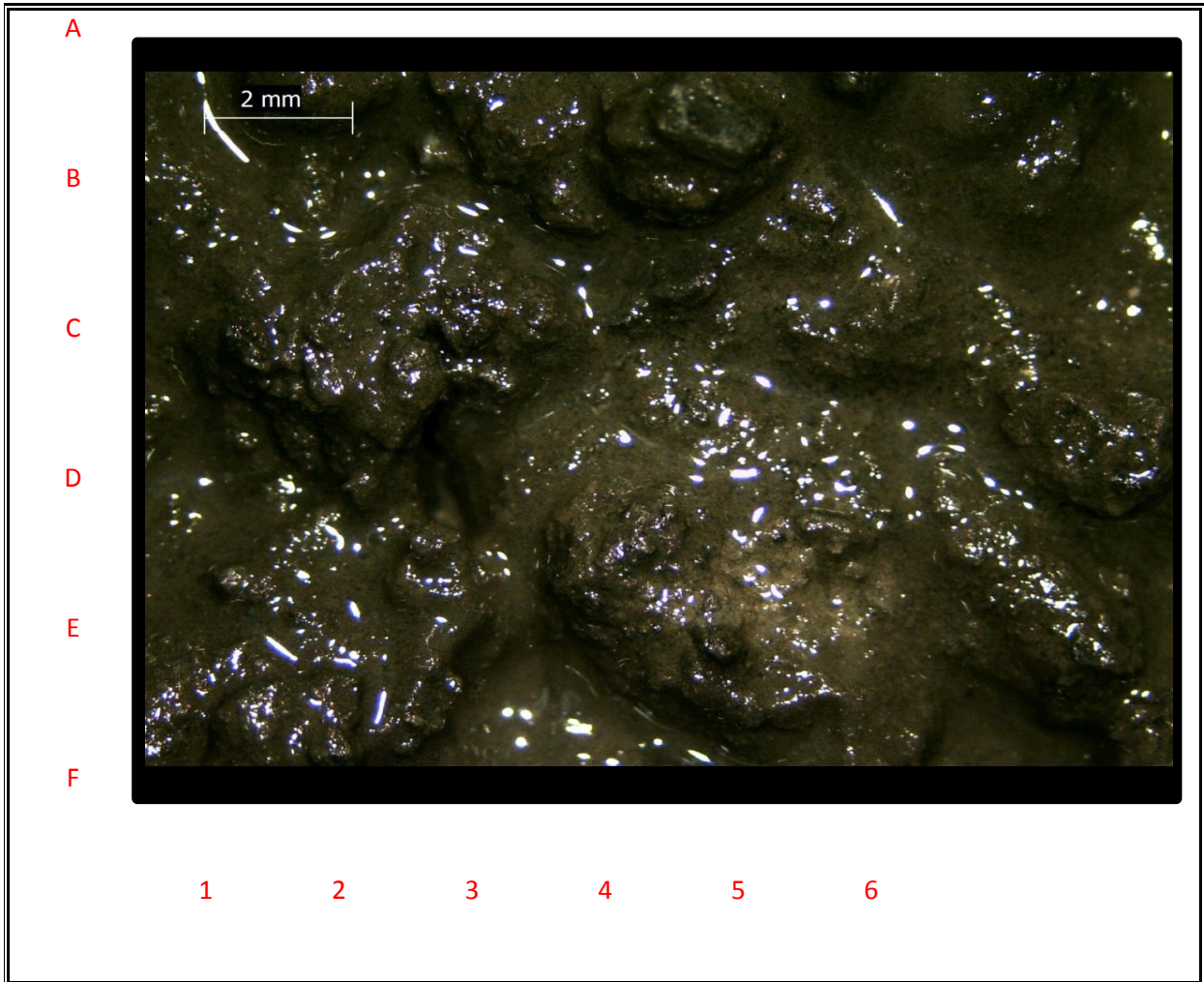
DEPTH	5280'	TIME		DATE	9/13/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
90%	CLYST	drk to med gry, mod frm to frm, occ sft, blk to plty			
10%	SLTST	lt to med gry, v fn, wl srt, v sft to sft.			



# DEPTH

**5310'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	5310'	TIME		DATE	9/13/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
80%	CLYST	drk to med gry, mod frm to frm, occ sft, blk to plty			
20%	SLTST	lt to med gry, v fn, wl srt, v sft to sft.			





# DEPTH

**5340'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



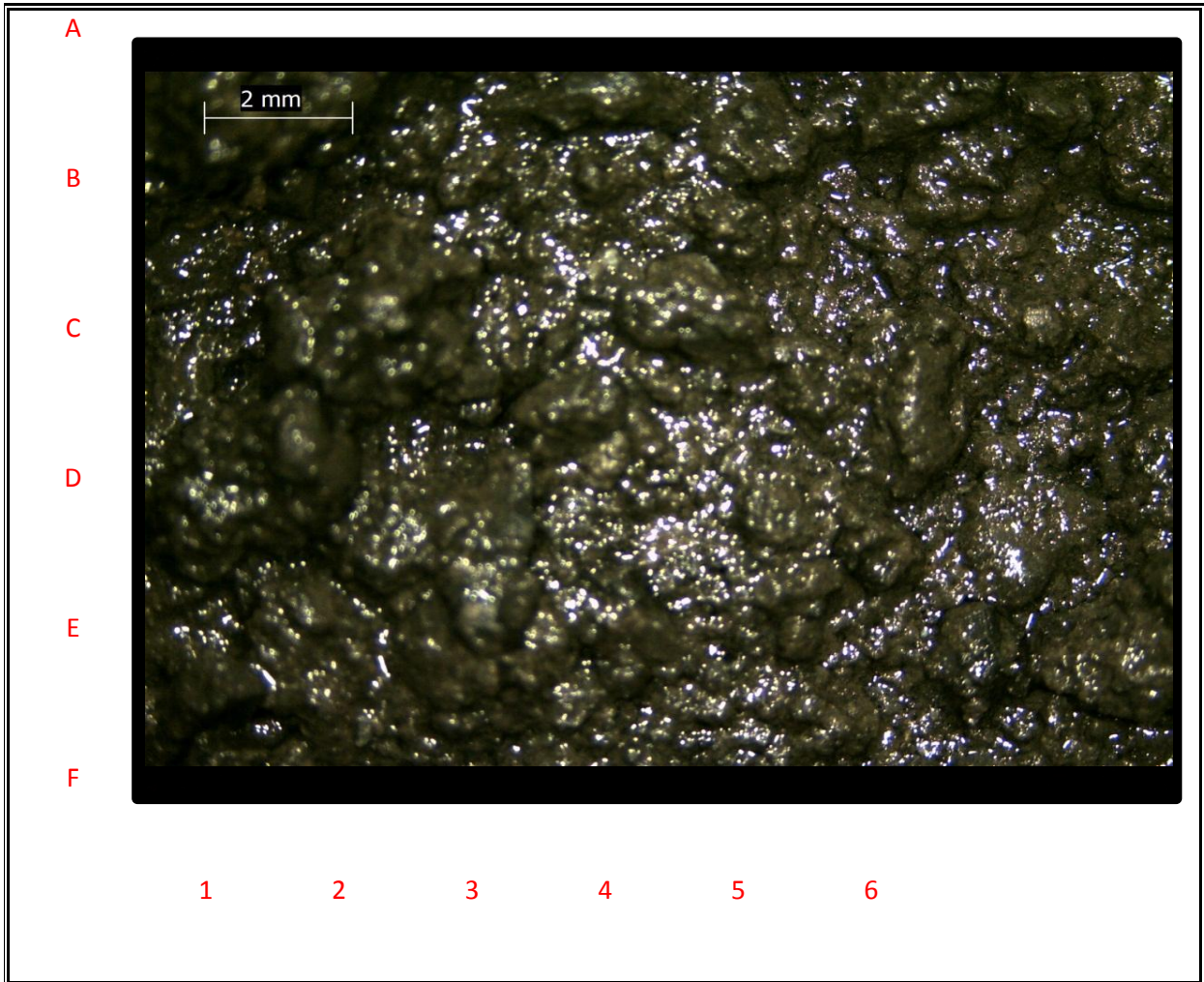
DEPTH	5340'	TIME		DATE	9/13/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
90%	CLYST	drk to med gry, mod frm to frm, blk to plty, tr calc,			
10%	SLTST	lt to med gry, v fn, wl srt, v sft to sft.			



# DEPTH

**5370'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	5370'	TIME		DATE	9/13/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
80%	CLYST	drk to med gry, mod frm to frm, blk to plty, tr calc,			
20%	SLTST	lt to med gry, v fn, wl srt, v sft to sft.			

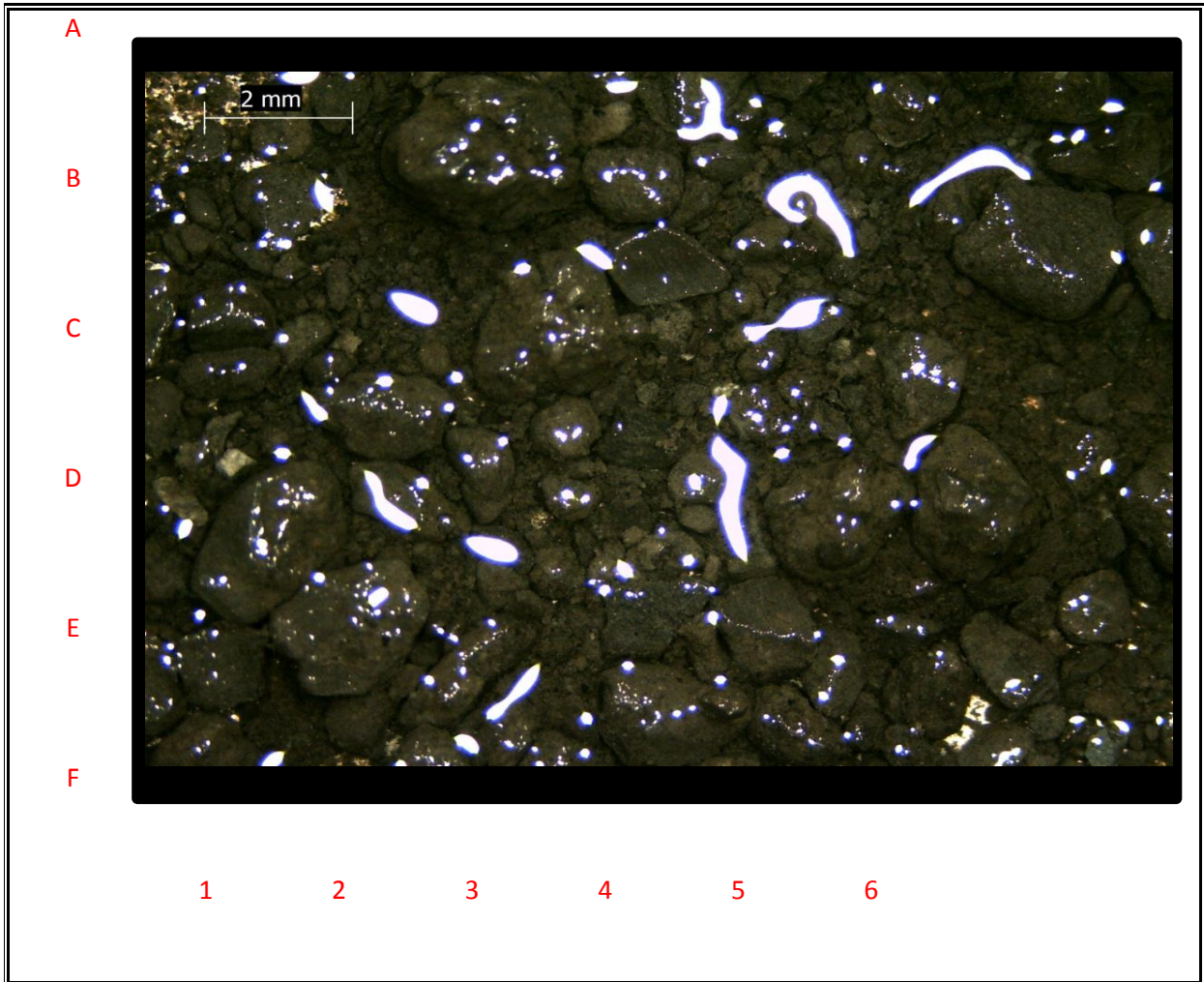




# DEPTH

**5400'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



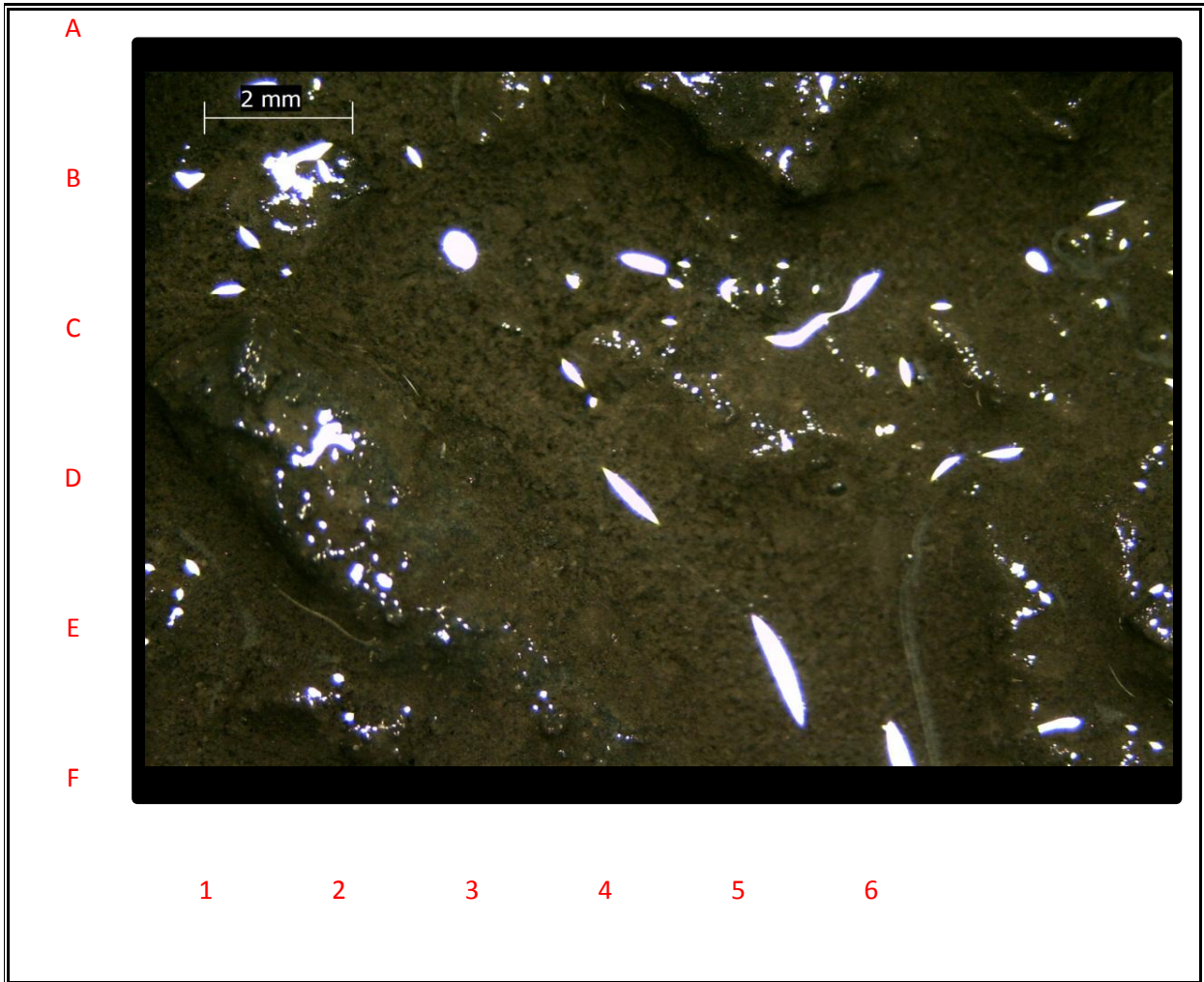
DEPTH	5400'	TIME		DATE	9/13/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
90%	CLYST	drk to med gry, mod frm to frm, blk to plty,			
10%	SLTST	lt to med gry, v fn, wl srt, v sft to sft.			



# DEPTH

**5423'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	5423'	TIME		DATE	9/13/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
90%	CLYST	drk to med gry, mod frm to frm, blk to plty,			
10%	SLTST	lt to med gry, v fn, wl srt, v sft to sft.			



# HALLIBURTON

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## Sperry Drilling

### Cuttings Report

**Shell Offshore Inc.  
OCS Y-2321 #001  
Burger J  
Posey Block 6912  
API No. 55-352-00004-00**

**RIG: Polar Pioneer**

**SDL Personnel:**

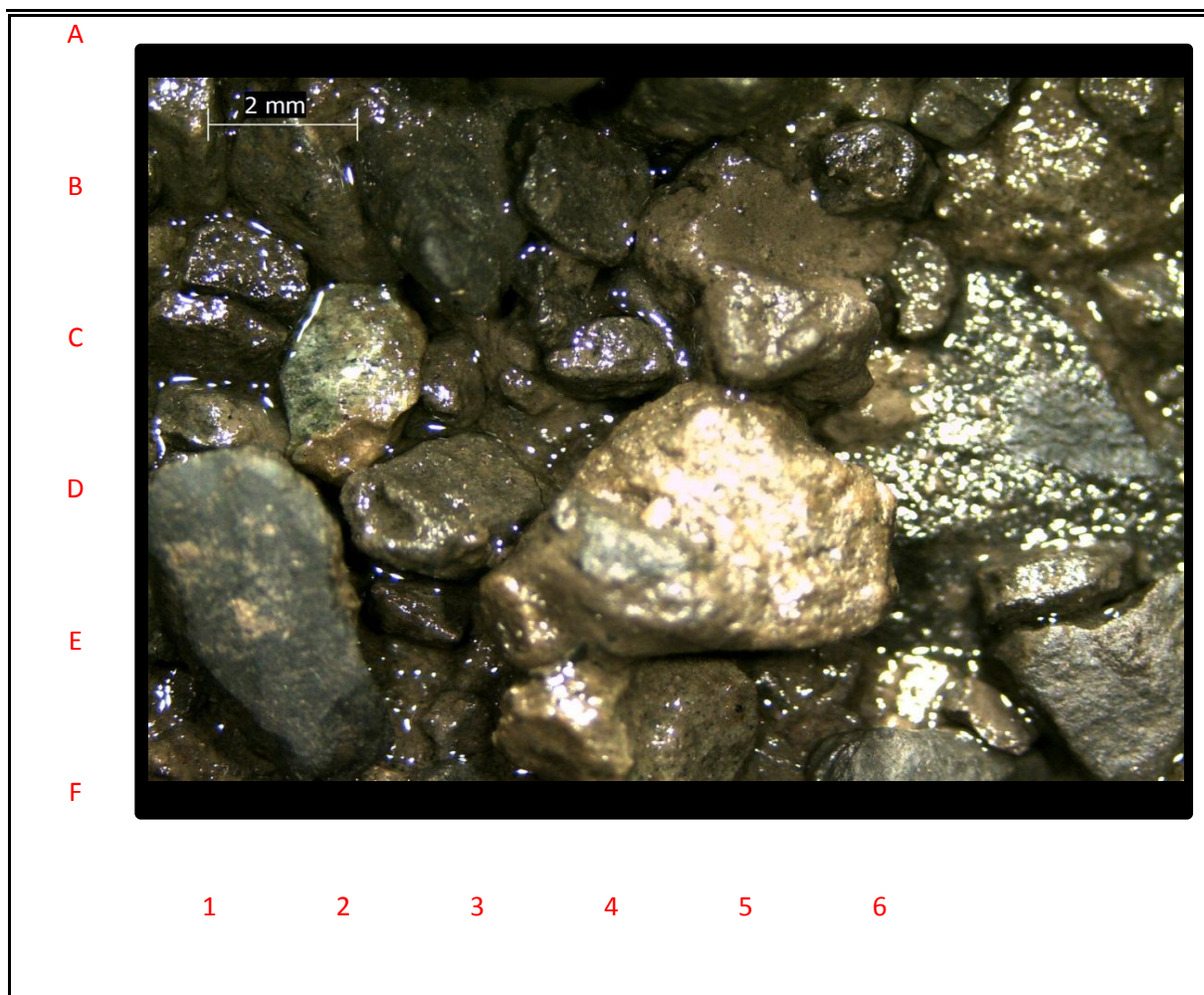
**Craig Amos– Unit Manager  
Rebecca Mulkey, Eli Callan– Logging Specialists**



# DEPTH

**5460'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	5460'	TIME		DATE	9/20/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
70%	CLYST	light to medium gray, firm to soft, blocky to platy,			
20%	SH	dark gray to med gray, firm to v firm, angular to blocky,			
		occasional brittle, trace siltstone			
10%	CMT				

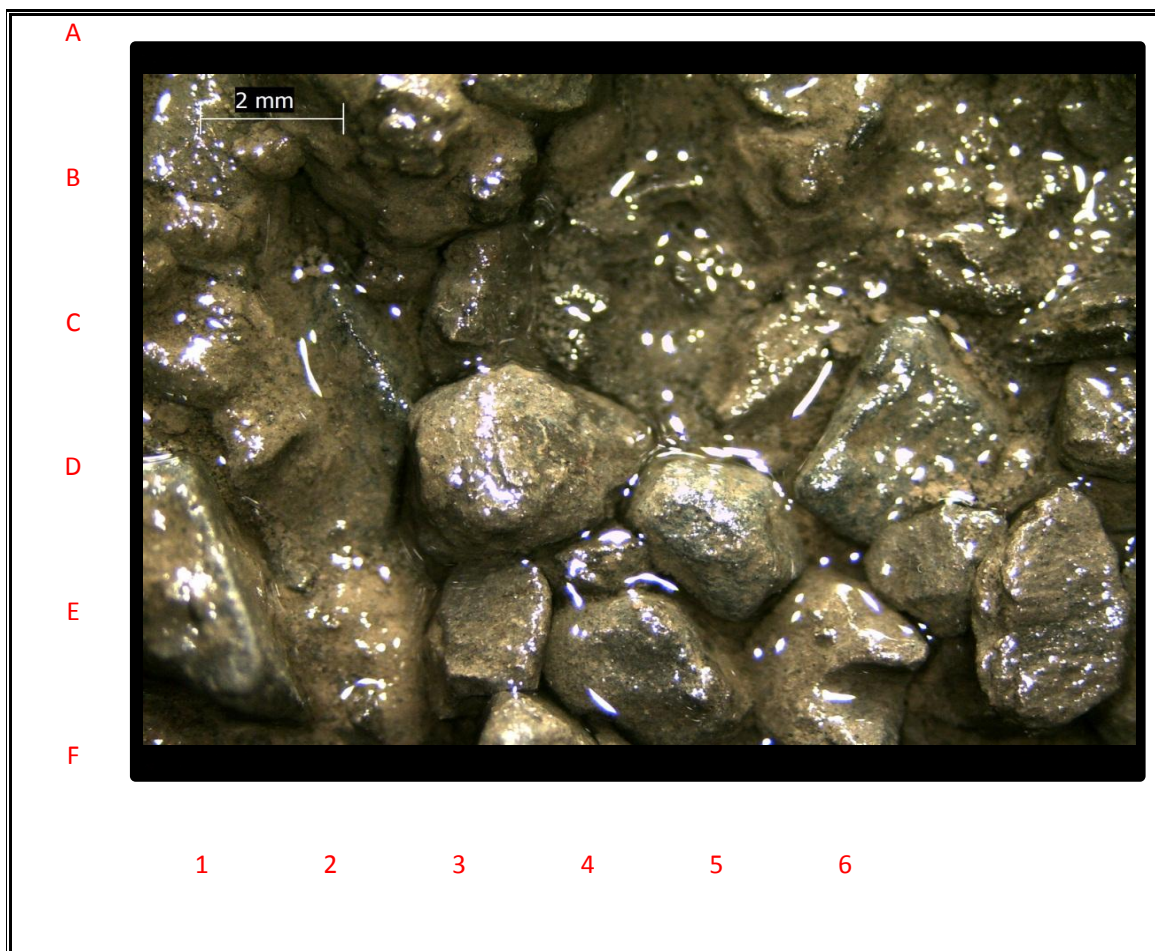




# DEPTH

**5490'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



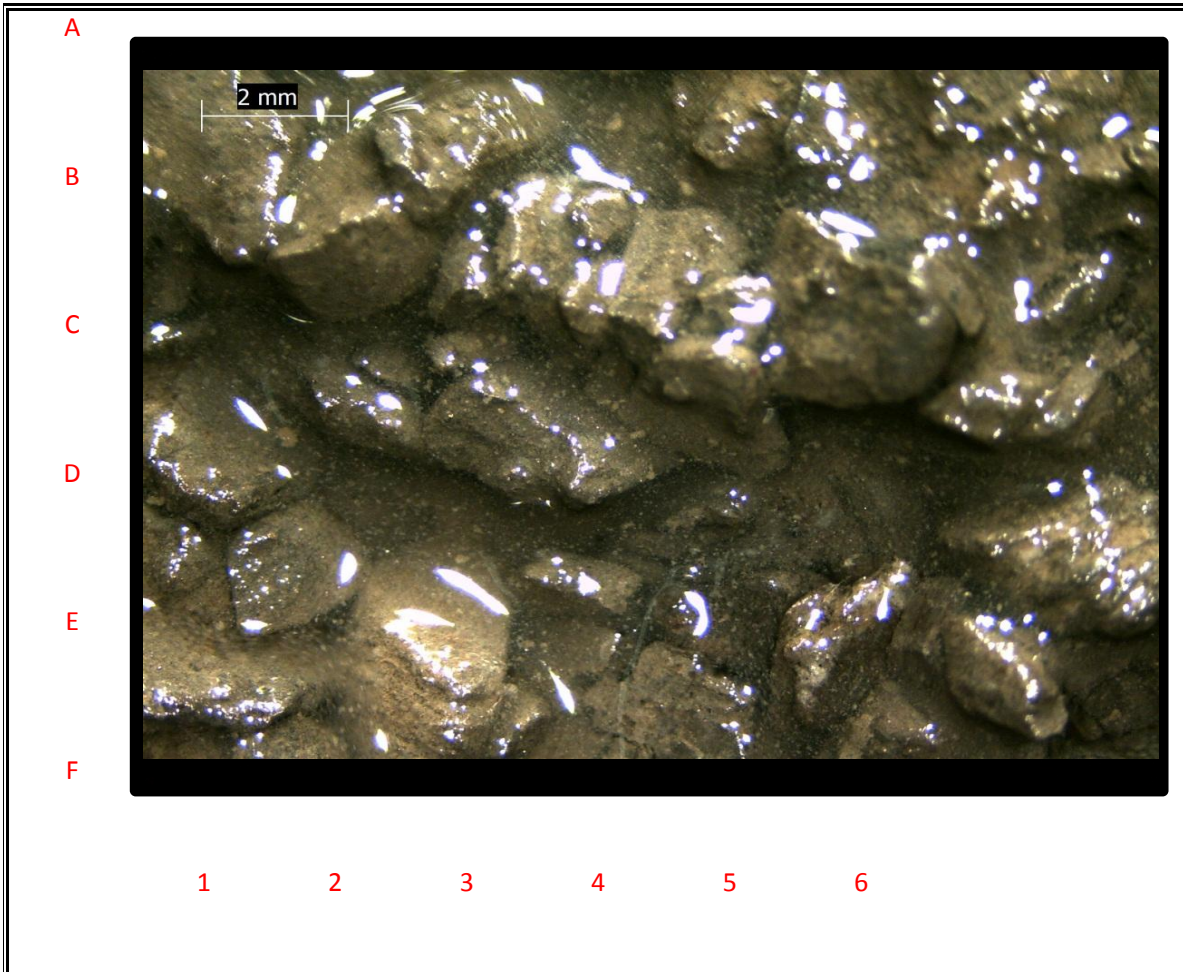
DEPTH	5490'	TIME		DATE	9/20/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
80%	CLYST	light to med gray, mod firm to soft, blocky to platy, trace calcareous tuff,			
10%	SH	dark gray to med gray, firm to v firm, angular to blocky,			
10%	SLTST	med gray to light brown, soft to very soft,			



# DEPTH

**5520'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	5520'	TIME		DATE	9/20/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
80%	CLYST	light to med gray, mod firm to soft, blocky to platy, trace pyrite,			
10%	SH	dark gray to med gray, firm to v firm, angular to blocky,			
10%	SLTST	med gray to light brown, soft to very soft,			

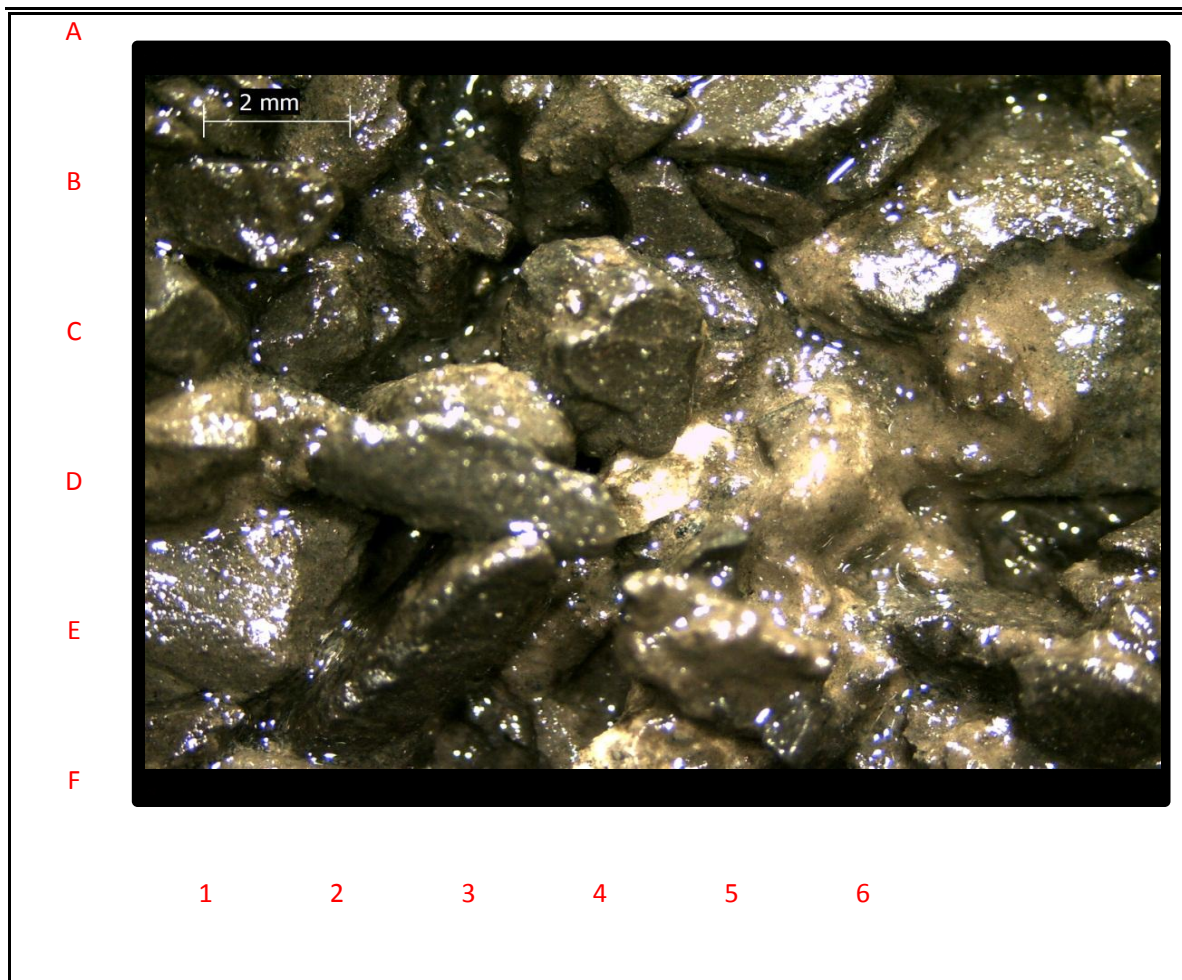




# DEPTH

**5550'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



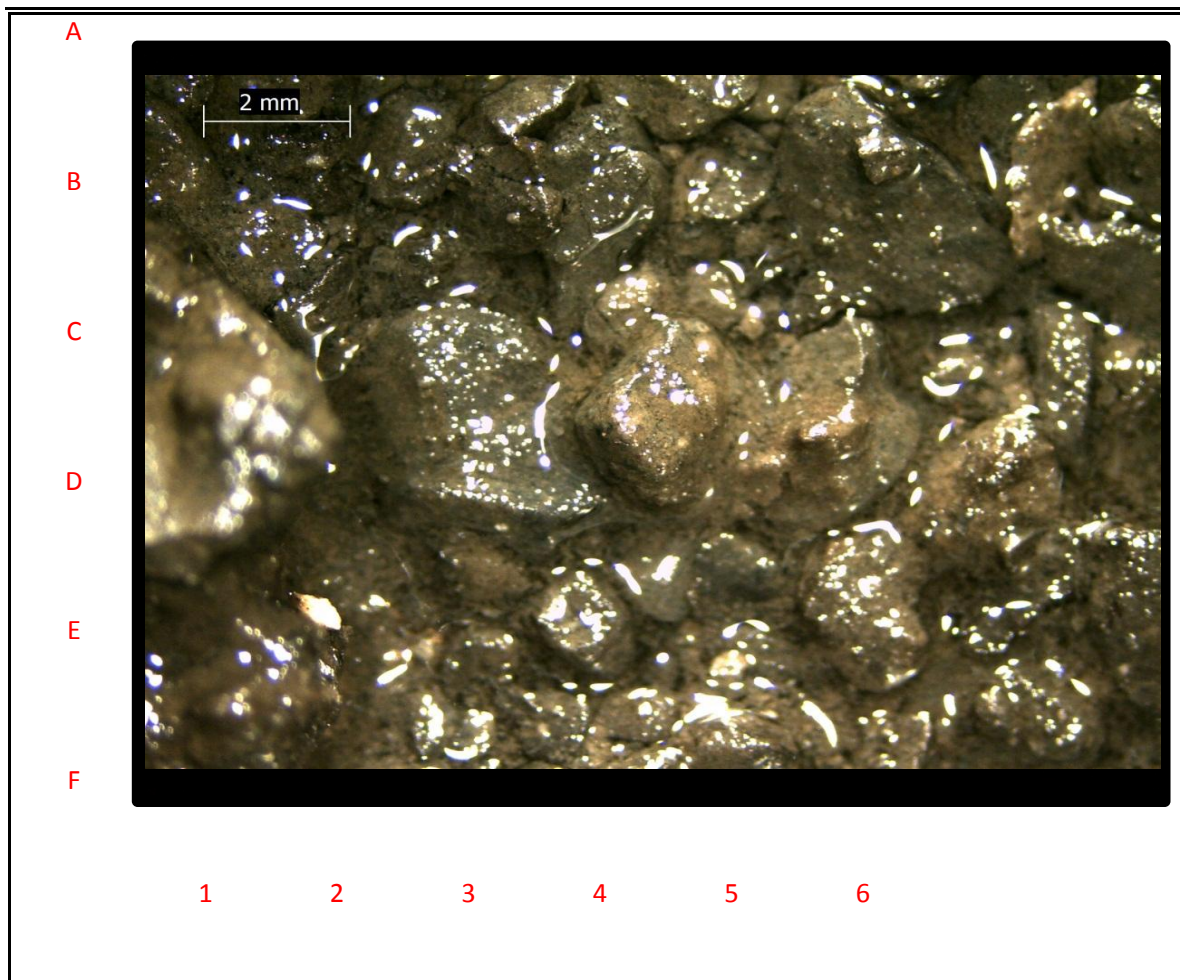
DEPTH	5550'	TIME		DATE	9/20/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
90%	CLYST	light to med gray, mod firm to soft, blocky to platy,			
10%	SLTST	med gray to light brown, soft to v soft,			



# DEPTH

**5580'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	5580'	TIME		DATE	9/20/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
90%	CLYST	light to med gray, mod firm to soft, blocky to platy, trace tuff, trace fine grain sandstone,			
10%	SLTST	med gray to light brown, soft to v soft,			

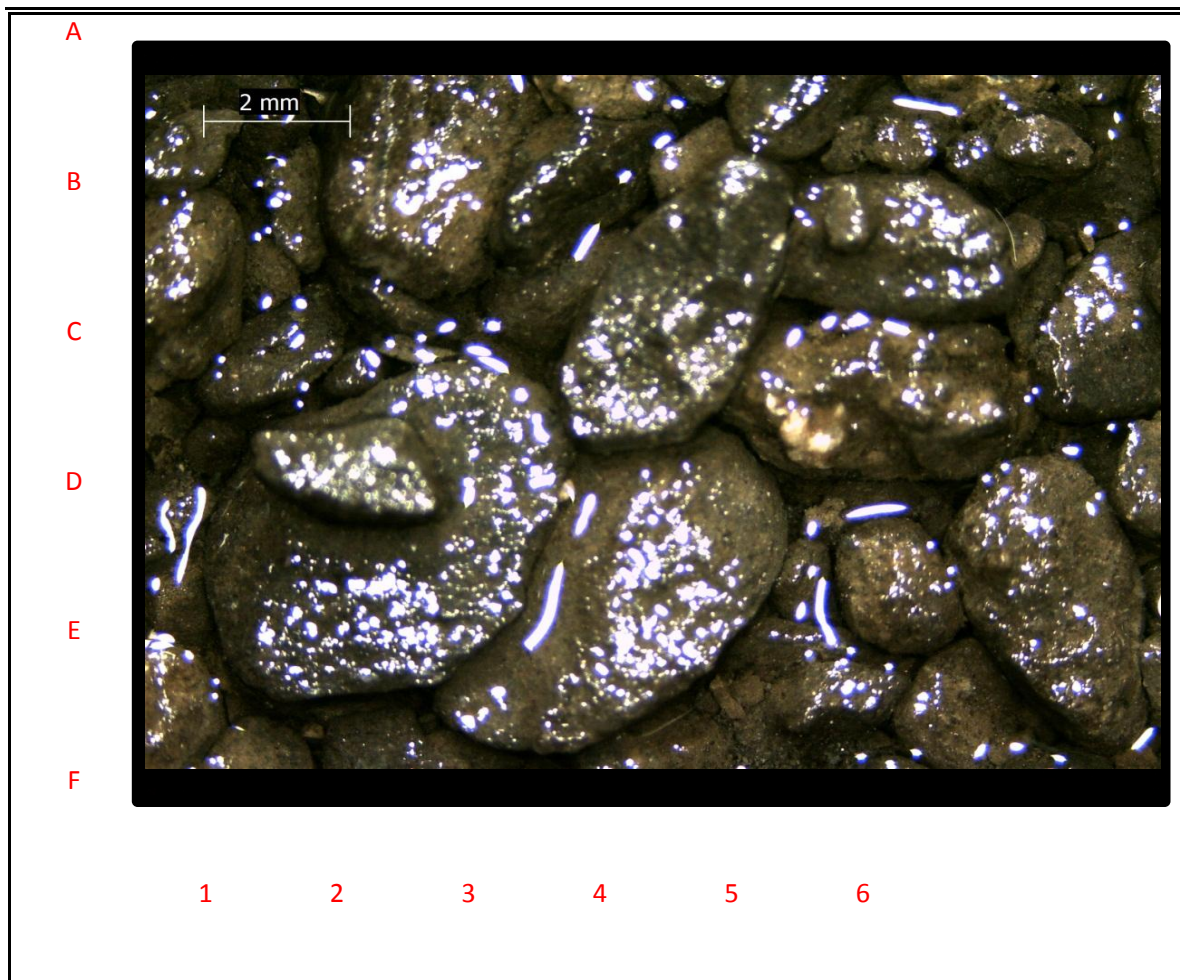




# DEPTH

**5610'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



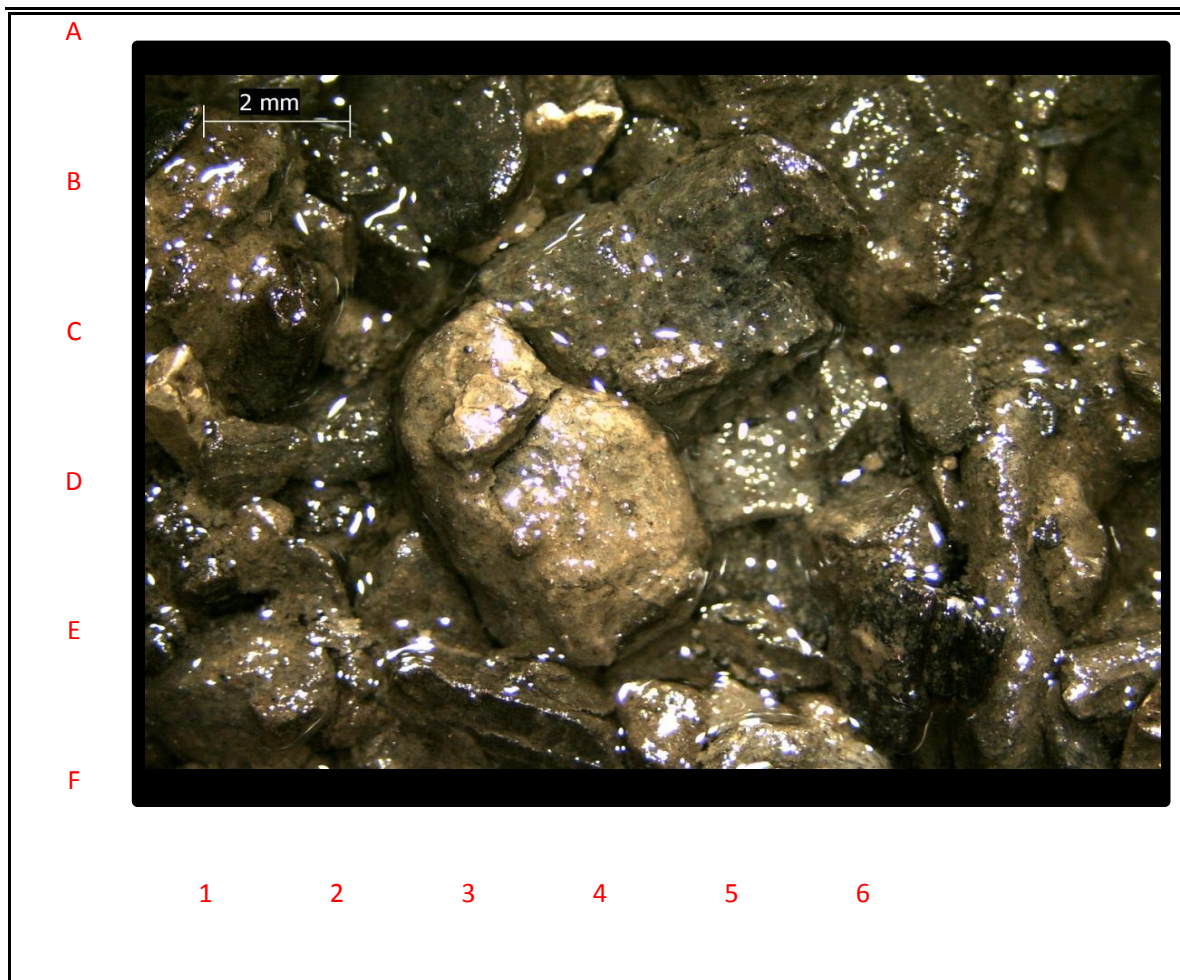
DEPTH	5610'	TIME		DATE	9/20/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
80%	CLYST	light to med gray, mod firm to soft, blocky to platy, trace tuff, trace fine grain sandstone,			
20%	SLTST	med gray to light brown, soft to v soft,			



# DEPTH

5640'

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	5640'	TIME		DATE	9/20/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
70%	CLYST	light to med gray, mod firm to soft, blocky to platy, trace fine grain sandstone,			
30%	SLTST	med gray to light brown, soft to v soft,			

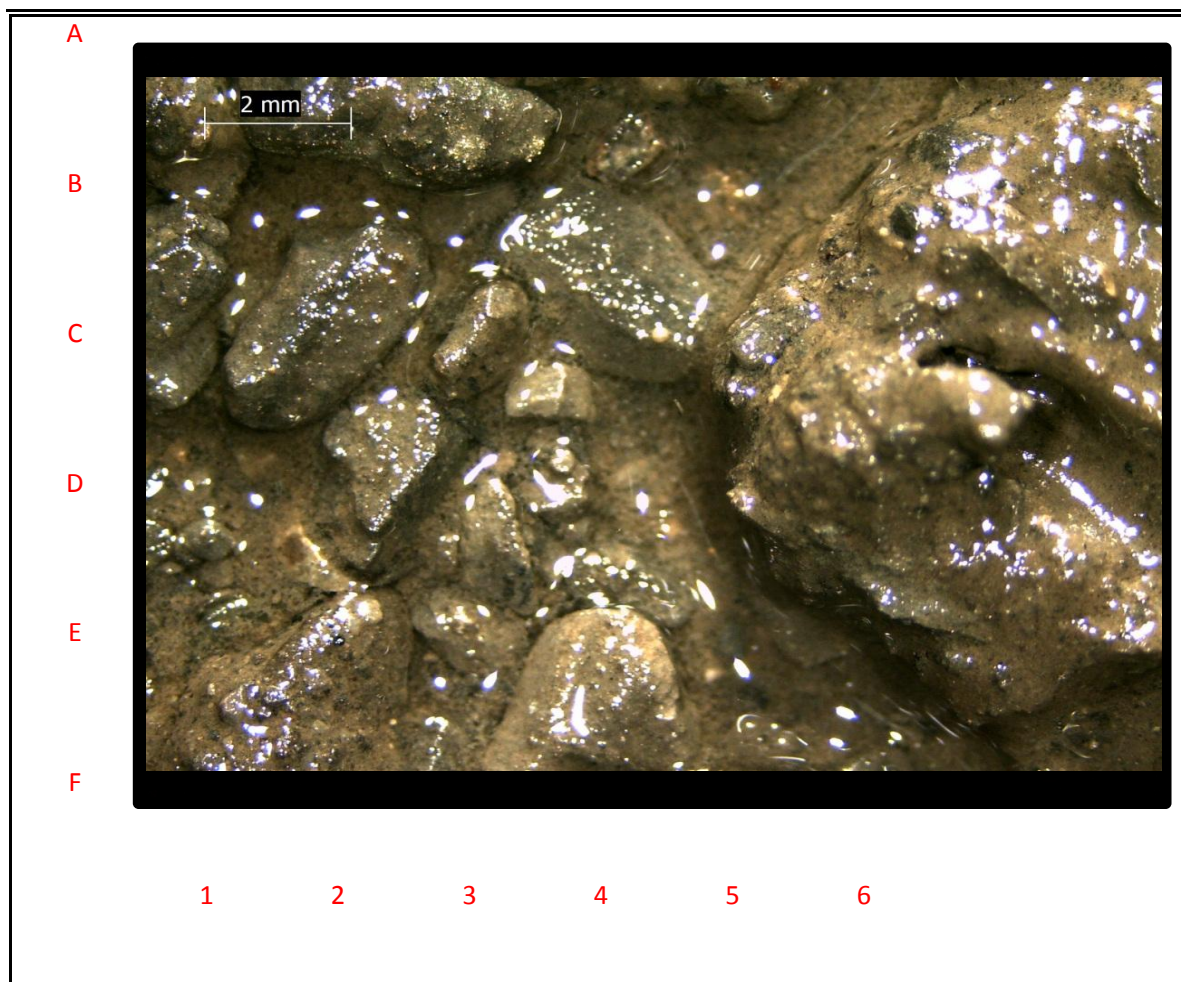




# DEPTH

**5670'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



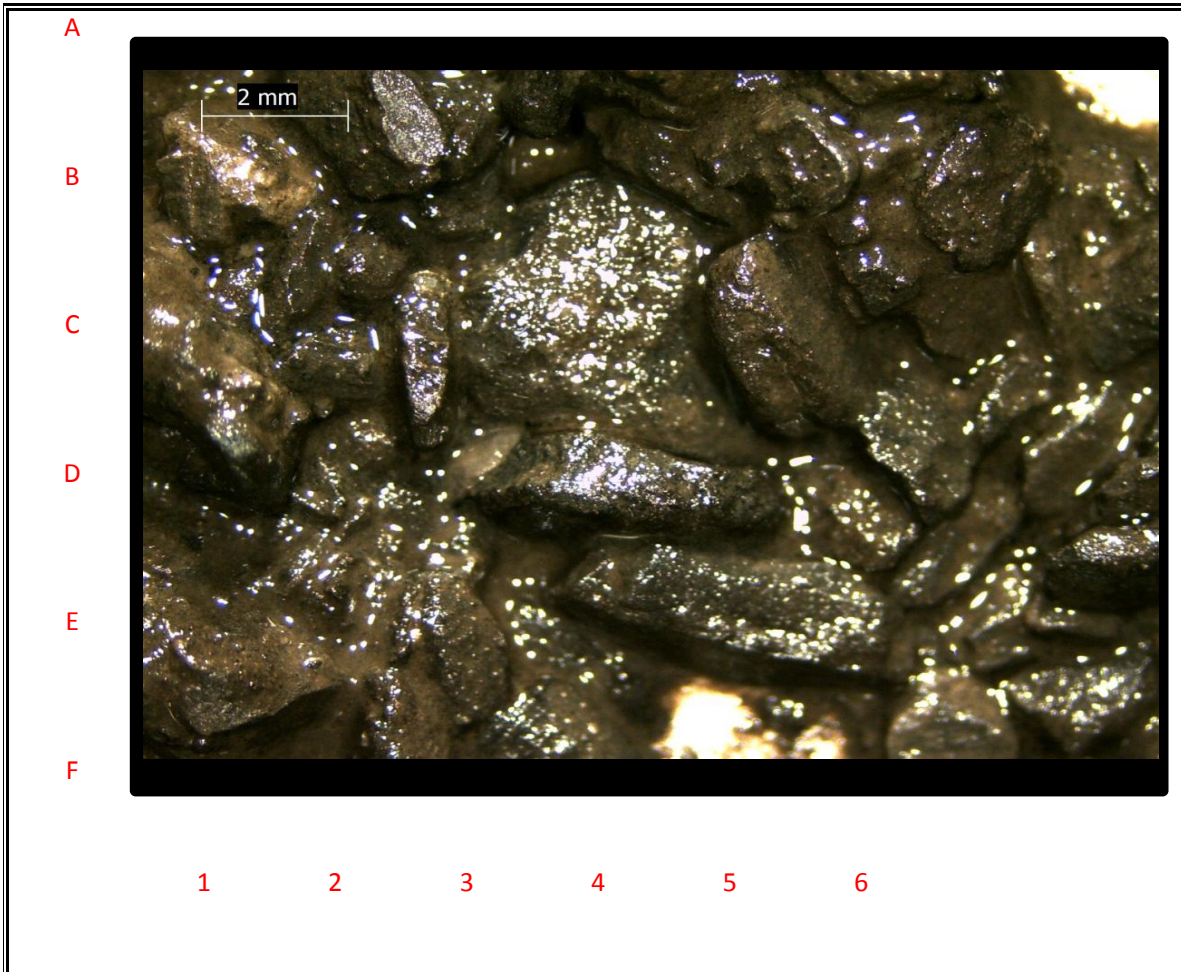
DEPTH	5670'	TIME		DATE	9/20/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
70%	CLYST	light to med gray, mod firm to soft, blocky to platy, trace fine grain sandstone,			
30%	SLTST	med gray to light brown, soft to v soft, earthy luster,			



# DEPTH

**5700'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	5700'	TIME		DATE	9/20/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
70%	CLYST	light to med gray, occasional light brown, very soft to soft, blocky to platy,			
30%	SLTST	med gray to light brown, soft to v soft, earthy luster, trace splintery shale			

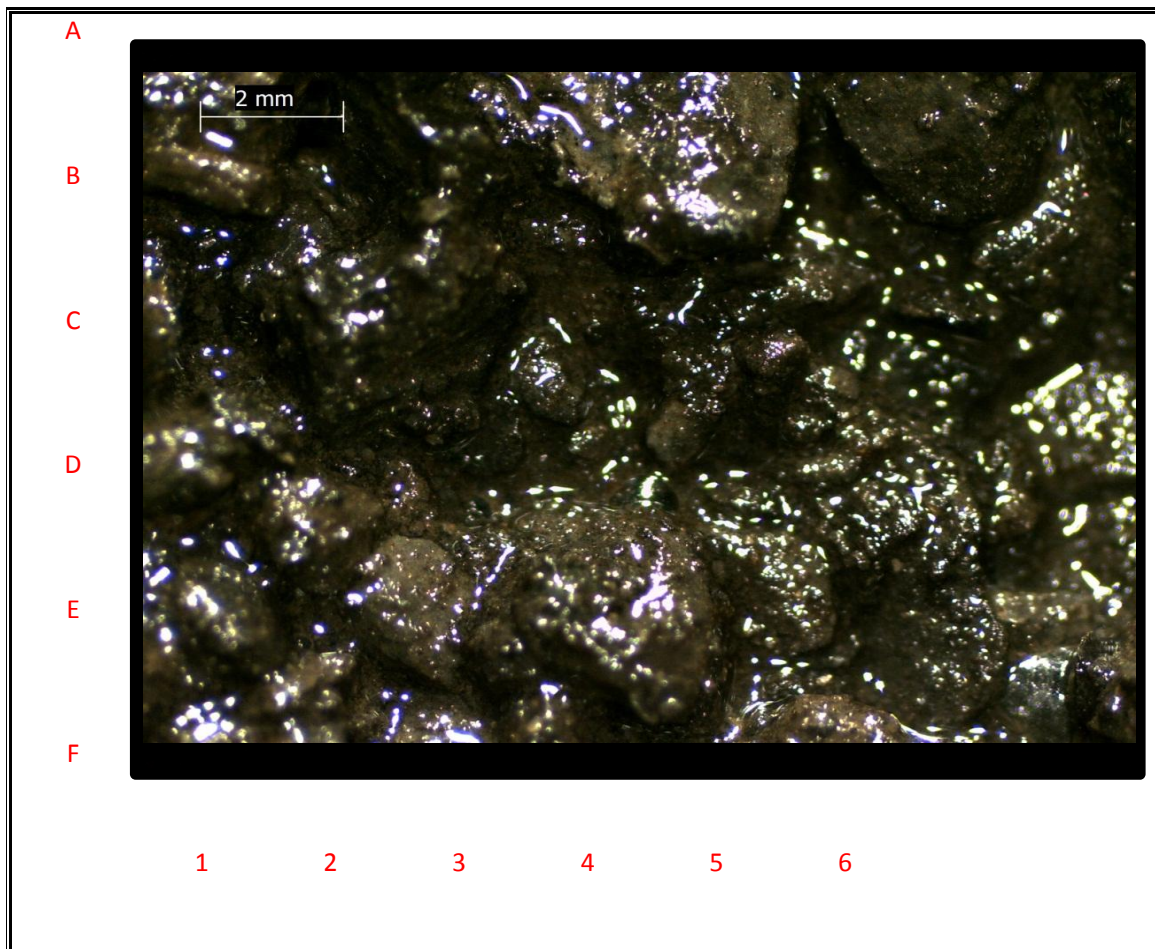




# DEPTH

**5730'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	5730'	TIME		DATE	9/20/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
80%	CLYST	light to med gray, occasional light brown, very soft to soft, blocky to platy,			
20%	SLTST	med gray to light brown, soft to v soft, earthy luster, trace splintery shale			



# DEPTH

**5750'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	5750'	TIME		DATE	9/20/2015
LOGGING ENGINEER		Rebecca Mulkey			

PERCENT	FORMATION	DESCRIPTION
60%	CLYST	light to med gray, occasional light brown, very soft to soft, blocky to platy,
30%	SLTST	med gray to light brown, soft to v soft, occ friable, earthy luster, trace splintery shale
10%	SST	transparent to translucent, fine to meduime grain, subangular to subrounded, moderate sorting, unconsolidated, predominintly quartz, no show

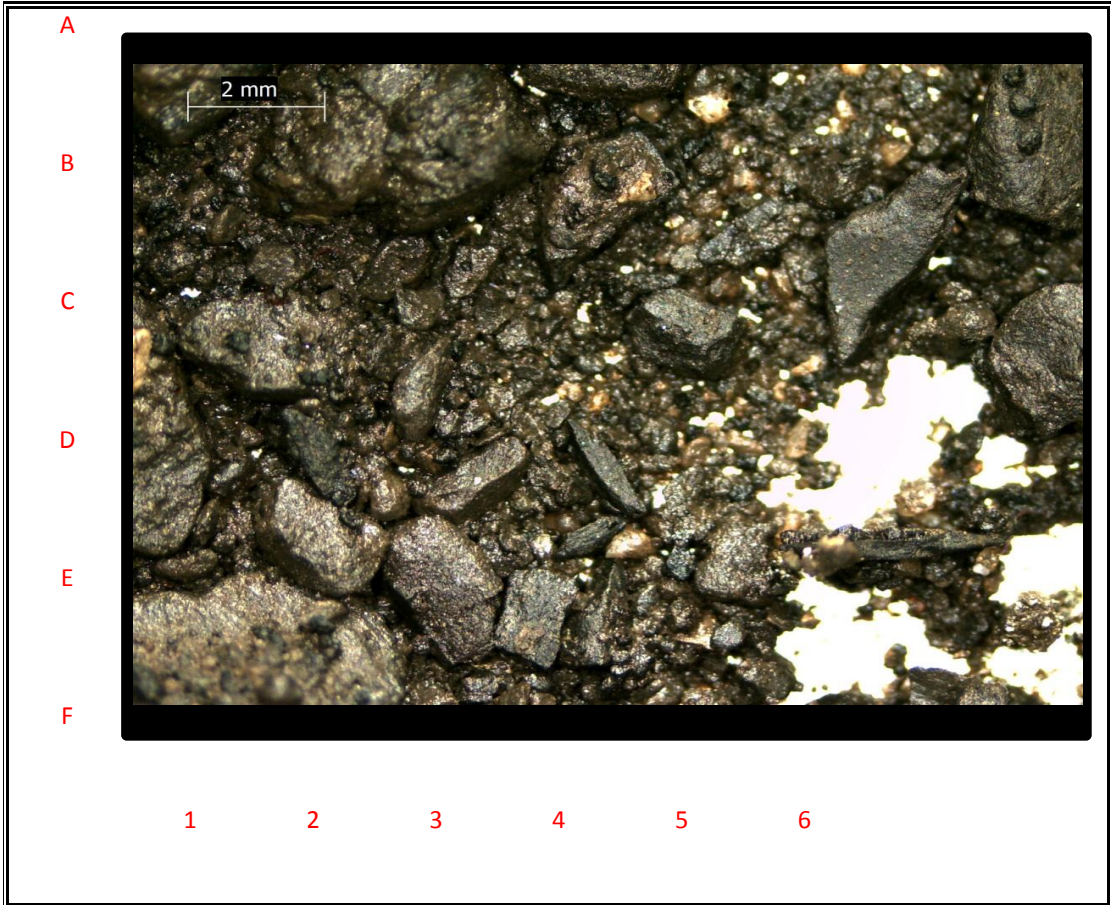




# DEPTH

**5760'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



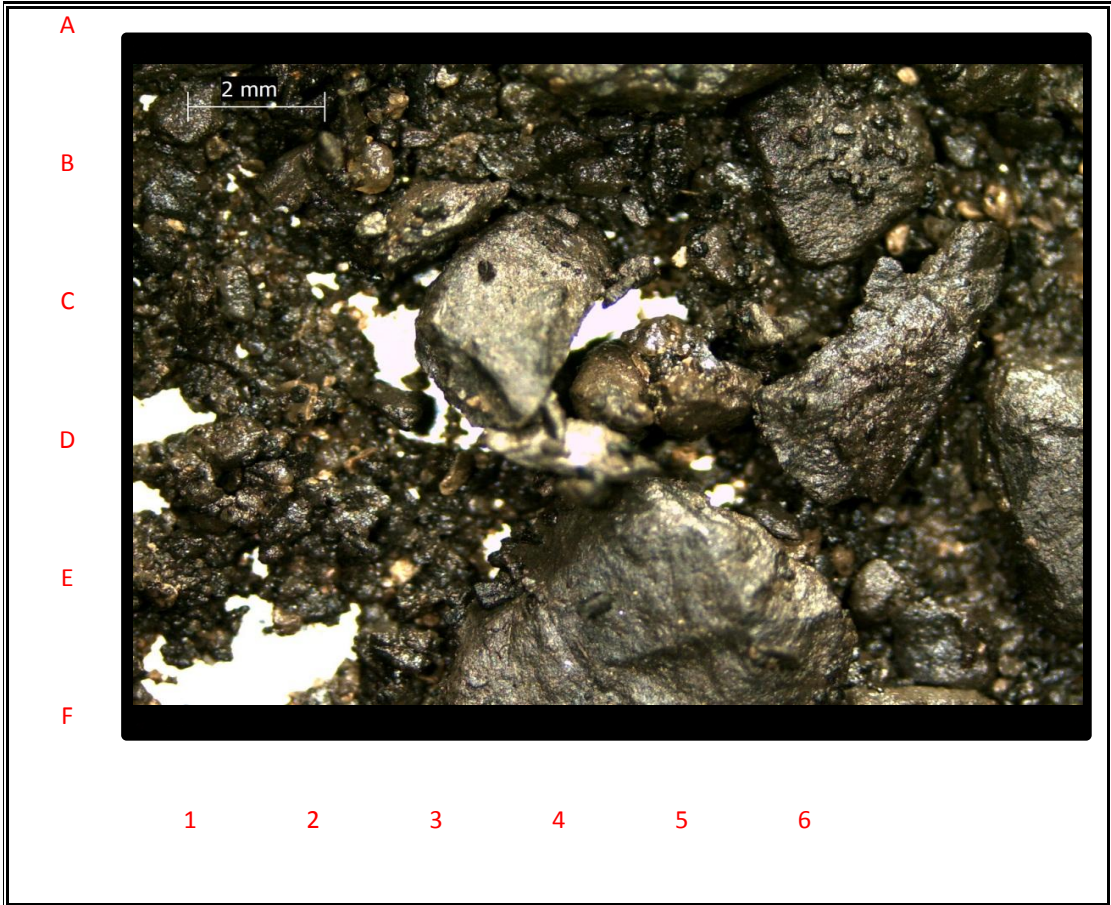
DEPTH	5760'	TIME		DATE	9/20/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
60%	CLYST	light to med gray, occasional light brown, very soft to soft, blocky to platy,			
30%	SLTST	med gray to light brown, soft to v soft, occasional friable, earthy luster, trace splintery shale			
10%	SST	transparent to translucent, fine to medium grain, subangular to surrounded, moderate sorting, unconsolidated, predominantly quartz, occasional glauconite, no show			



# DEPTH

**5770'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	5770'	TIME		DATE	9/20/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
50%	CLYST	light to med gray, occasional light brown, very soft to soft, blocky to massive,			
30%	SLTST	med gray to light brown, soft to v soft, occasional friable, earthy luster, trace splintery shale			
20%	SST	transparent to translucent, fine to medium grain, subangular to surrounded, moderate sorting, unconsolidated, predominantly quartz, occasional glauconitic, trace pyrite, no show			





# DEPTH

**5780'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	5780'	TIME		DATE	9/20/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
40%	CLYST	light to med gray, occasional light brown, very soft to soft, blocky to massive,			
30%	SLTST	med gray to light brown, soft to v soft, occasional friable, platy, earthy luster,			
30%	SST	transparent to translucent, fine to medium grain, subangular to surrounded, moderate sorting, unconsolidated, predominantly quartz, occasional glauconitic, trace pyrite, no show			



# DEPTH

**5790'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	5790'	TIME		DATE	9/20/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
40%	CLYST	light to med gray, occasional light brown, very soft to soft, blocky to massive,			
40%	SLTST	med gray to light brown, soft to v soft, occasional friable, platy, earthy luster,			
10%	SST	transparent to translucent, fine to medium grain, subangular to surrounded, moderate sorting, unconsolidated, predominantly quartz, occasional glauconitic, no show			
10%	SH	dark gray to dark brown, moderately hard to hard, splintery			





# DEPTH

**5820'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



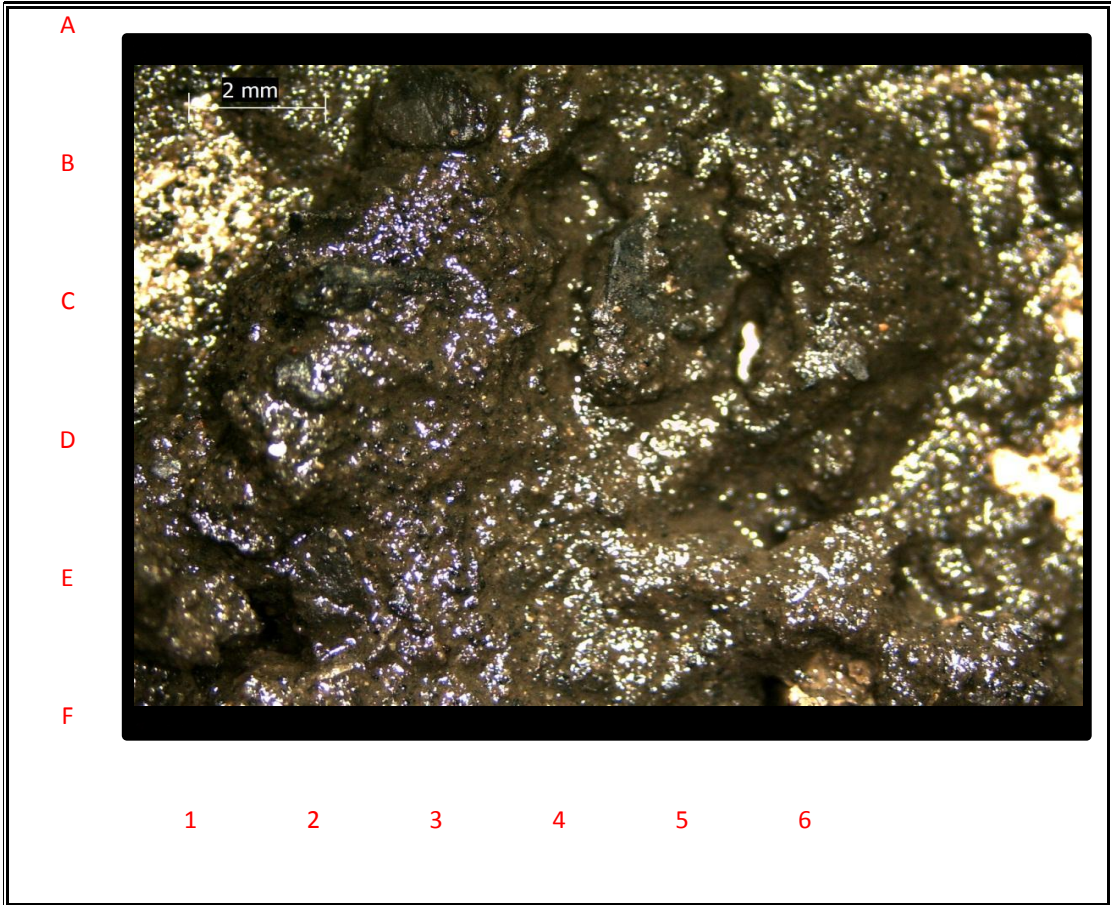
DEPTH	5820'	TIME		DATE	9/20/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
60%	CLYST	light to med gray, occasional light brown, very soft to soft, blocky to massive,			
20%	SLTST	med gray to light brown, soft to v soft, trace frim, occasional friable, platy, earthy to dull luster,			
10%	SST	transparent to translucent, fine to medium grain, subangular to surrounded, moderate sorting, unconsolidated, predominantly quartz, no show			
10%	SH	dark gray to dark brown, moderately hard to hard, splintery			



# DEPTH

**5850'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	5850'	TIME		DATE	9/21/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
50%	CLYST	light to med gray, occasional light brown, very soft to soft, blocky to massive,			
10%	SLTST	med gray to light brown, soft to firm, occasional friable, platy, earthy to dull luster,			
40%	SST	transparent to translucent, very fine to fine grain, subangular to surrounded, moderate sorting, unconsolidated, predominantly quartz, no show			

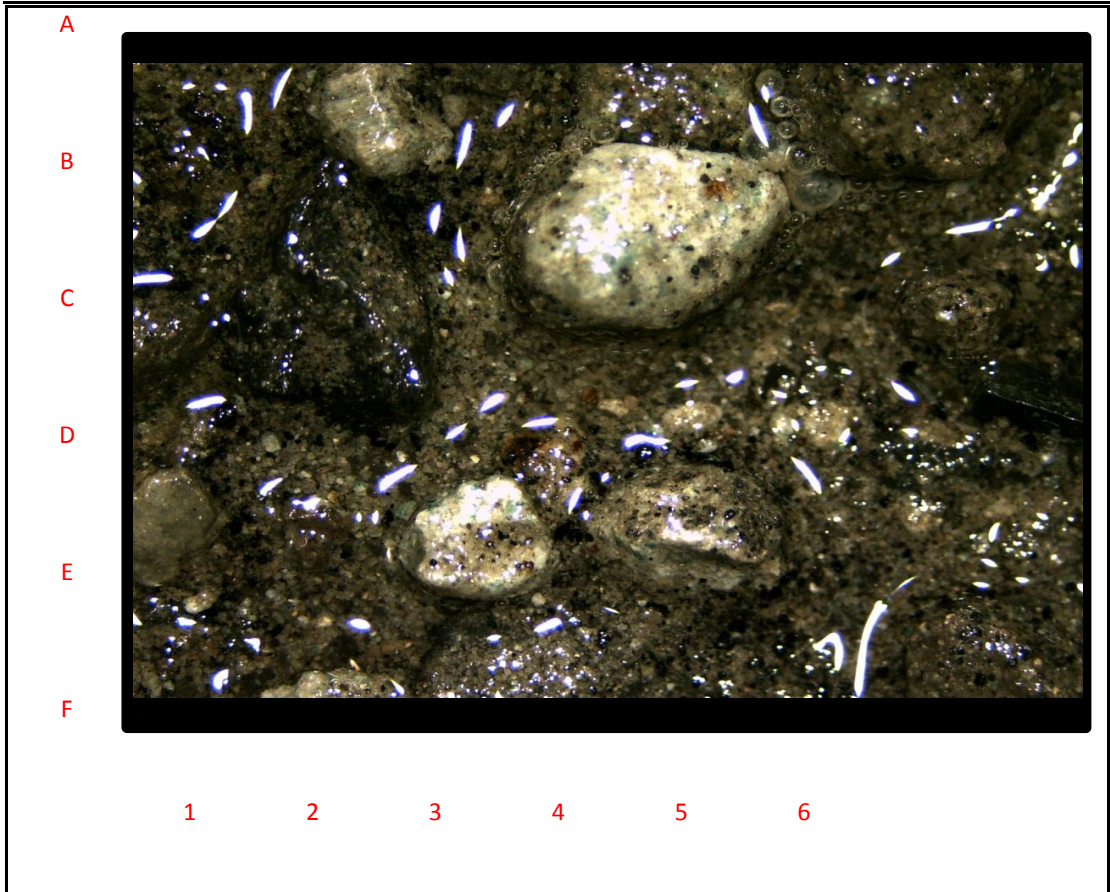




# DEPTH

**5880'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



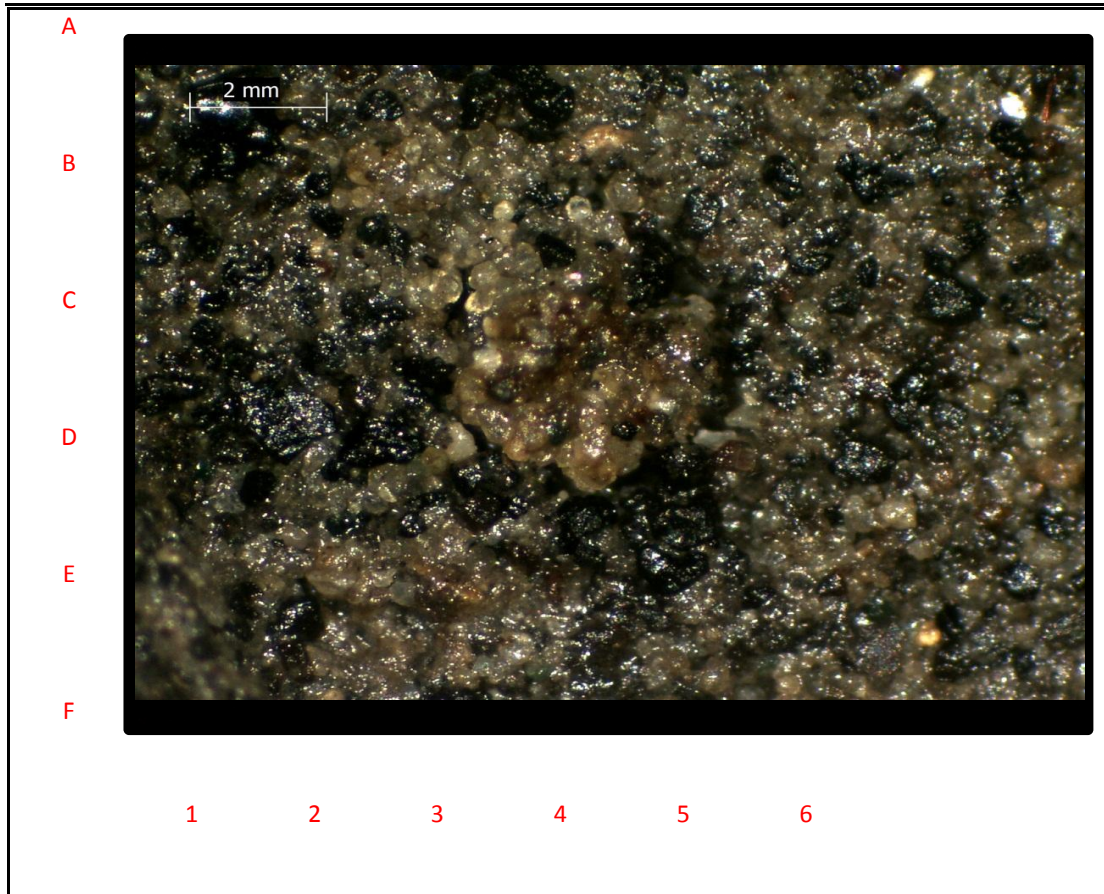
DEPTH	5880'	TIME		DATE	9/21/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
40%	CLYST	light to medium gray, occasional light brown, very soft to soft, blocky to massive,			
10%	SLTST	medium gray to light brown, soft to firm, occasional friable, platy, earthy to dull luster,			
50%	SST	transparent to translucent, very fine to fine grain, subangular to surrounded, moderate sorting, unconsolidated, predominantly quartz, trace calcareous, trace glauconite, no show			



# DEPTH

**5910'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	5910'	TIME		DATE	9/21/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
20%	CLYST	light to medium gray, occasional light brown, very soft to soft, blocky to platy,			
80%	SST	transparent to translucent, very fine to fine grain, subangular to surrounded, well sorted, unconsolidated, predominantly quartz, trace calcareous, trace tuff, no show			

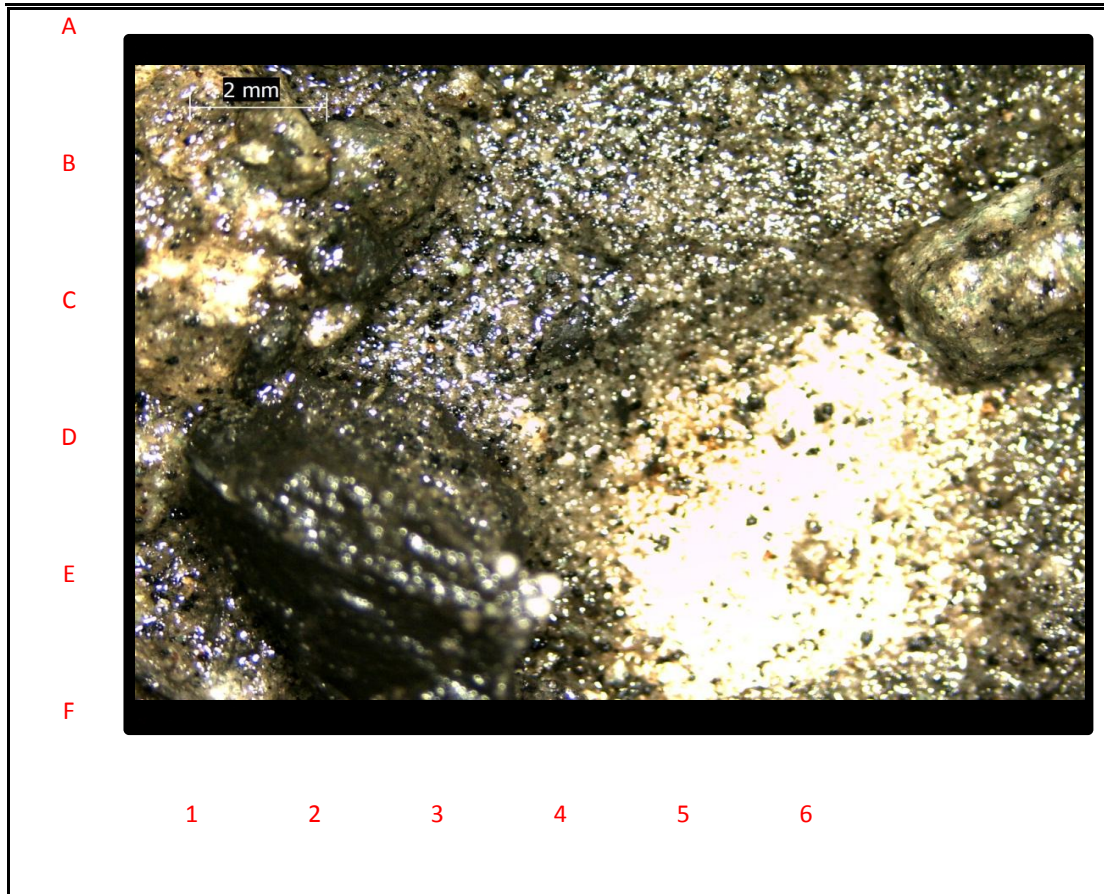




# DEPTH

**5940'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



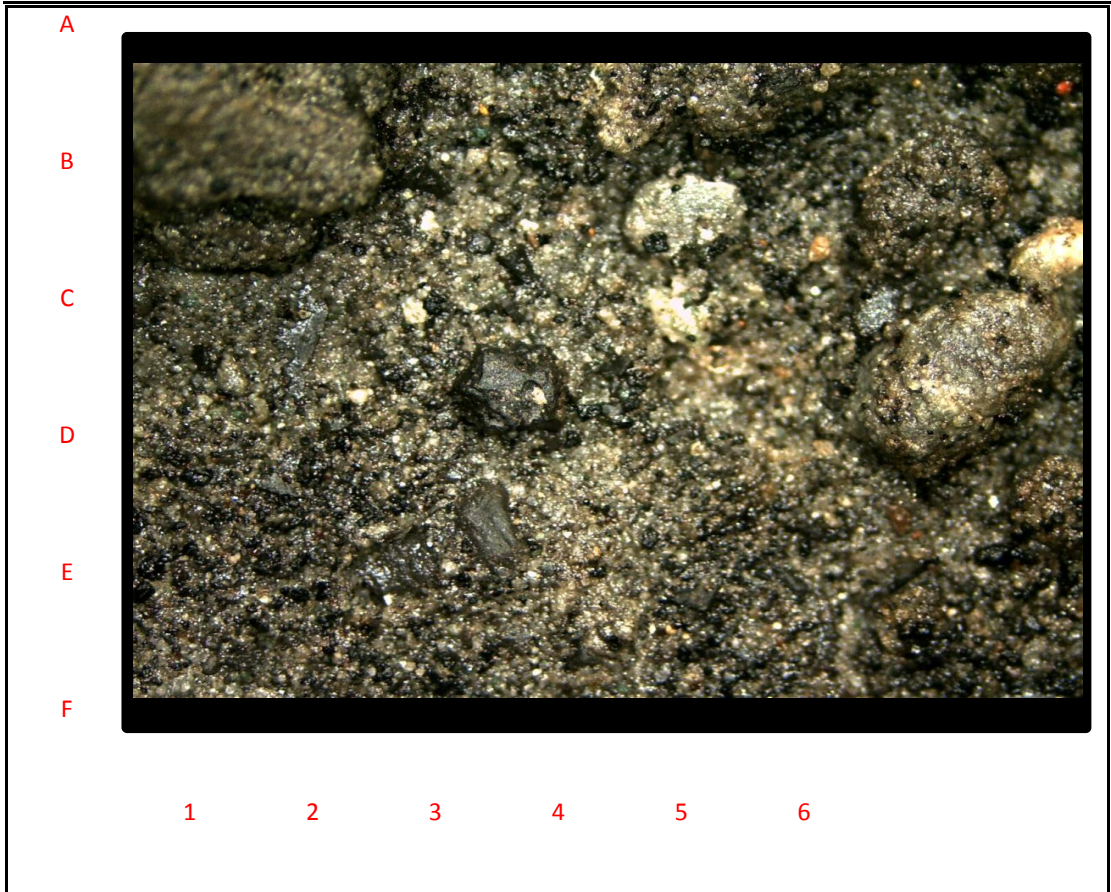
DEPTH	5940'	TIME		DATE	9/21/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
10%	CLYST	light gray to light brown, very soft to moderate hard, blocky to platy,			
10%	SH	dark gray to dark brown, moderately hard to hard, splintery to flaky			
80%	SST	transparent to translucent, very fine to fine grain, subangular to surrounded, well sorted, unconsolidated, predominantly quartz, trace calcareous, trace tuff, trace glauconite, no show			



# DEPTH

**5950'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	5950'	TIME		DATE	9/21/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
10%	CLYST	light gray to light brown, very soft to moderate hard, blocky to platy,			
90%	SST	transparent to translucent, very fine to fine grain, subangular to surrounded, well sorted, unconsolidated, predominantly quartz, abundant calcareous, trace tuff, trace glauconite, no show			

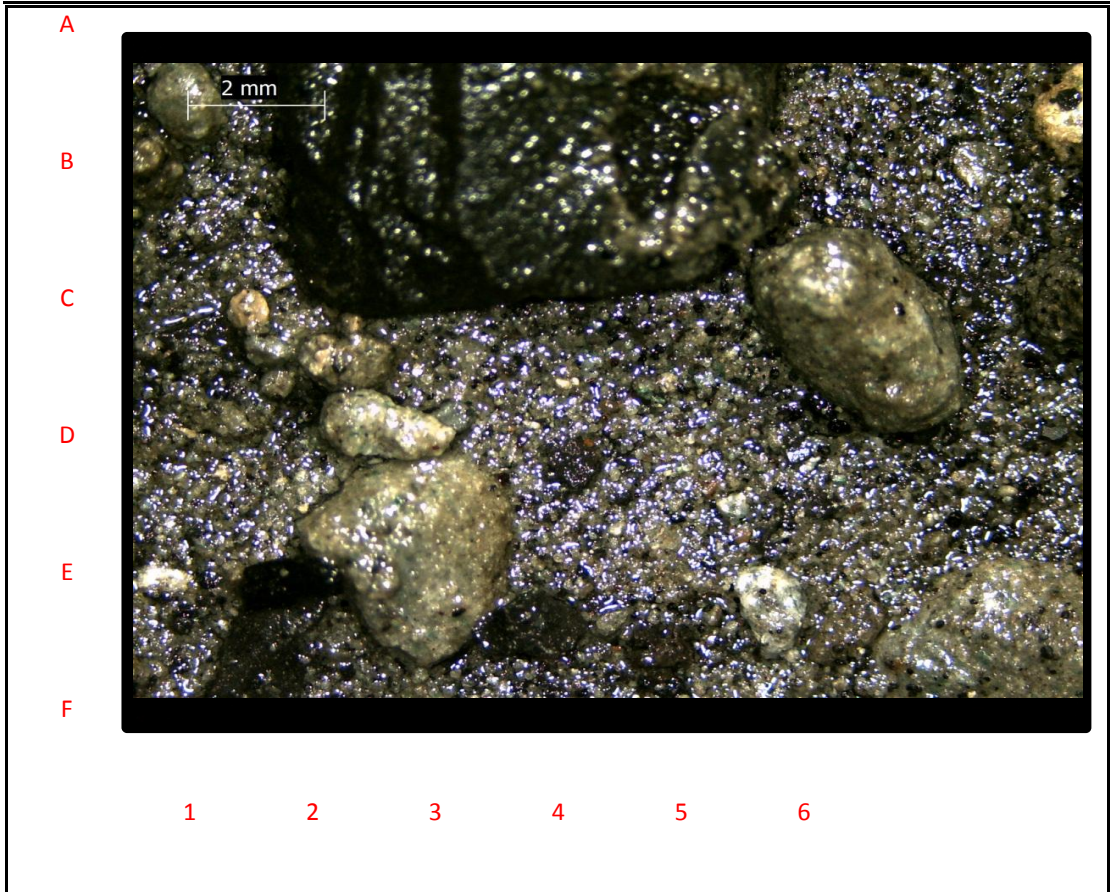




# DEPTH

**5960'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



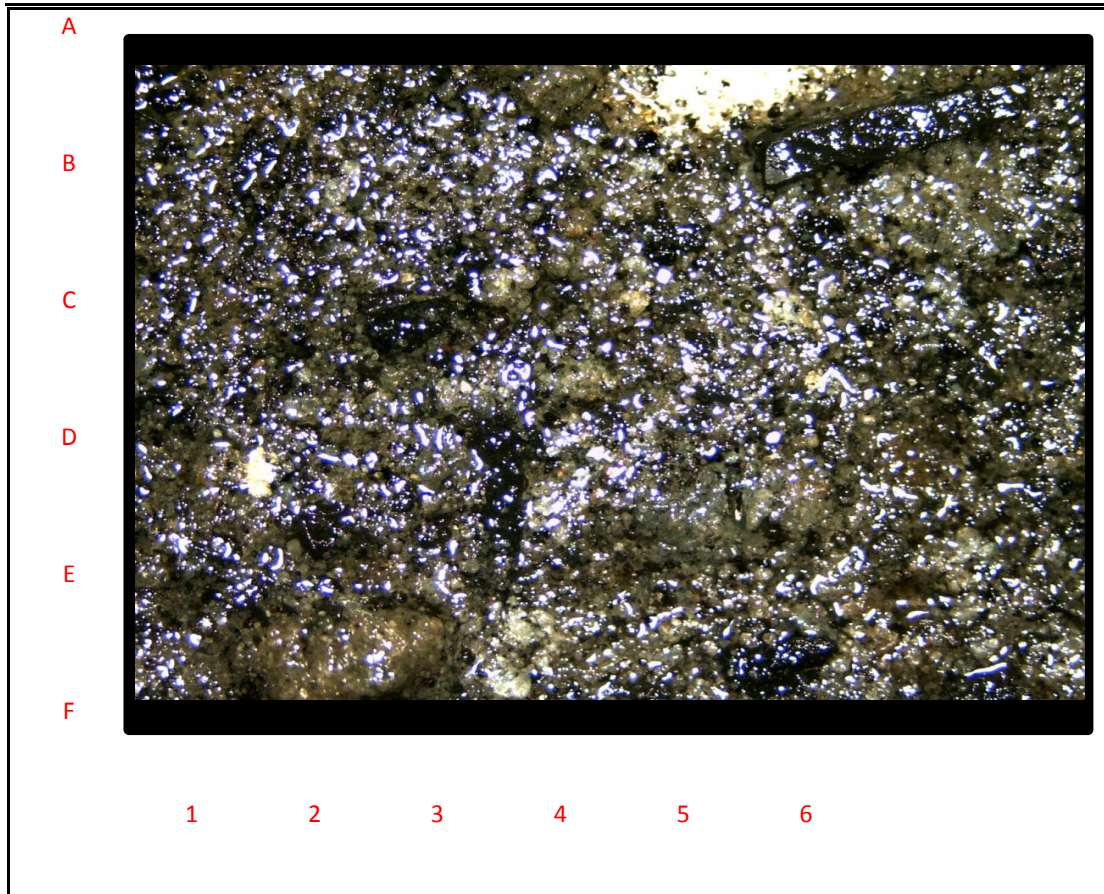
DEPTH	5960'	TIME		DATE	9/21/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
10%	CLYST	light gray to light brown, very soft to moderate hard, blocky to platy,			
90%	SST	transparent to translucent, very fine to fine grain, subangular to surrounded, well sorted, unconsolidated, predominantly quartz, abundant calcareous, trace tuff, trace glauconite, no show			



# DEPTH

**5970'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	5970'	TIME		DATE	9/21/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
10%	CLYST	light gray to light brown, very soft to moderate hard, blocky to platy,			
90%	SST	transparent to translucent, very fine to fine grain, subangular to surrounded, well sorted, unconsolidated, predominantly quartz, some calcareous, trace tuff, trace glauconite, no show			

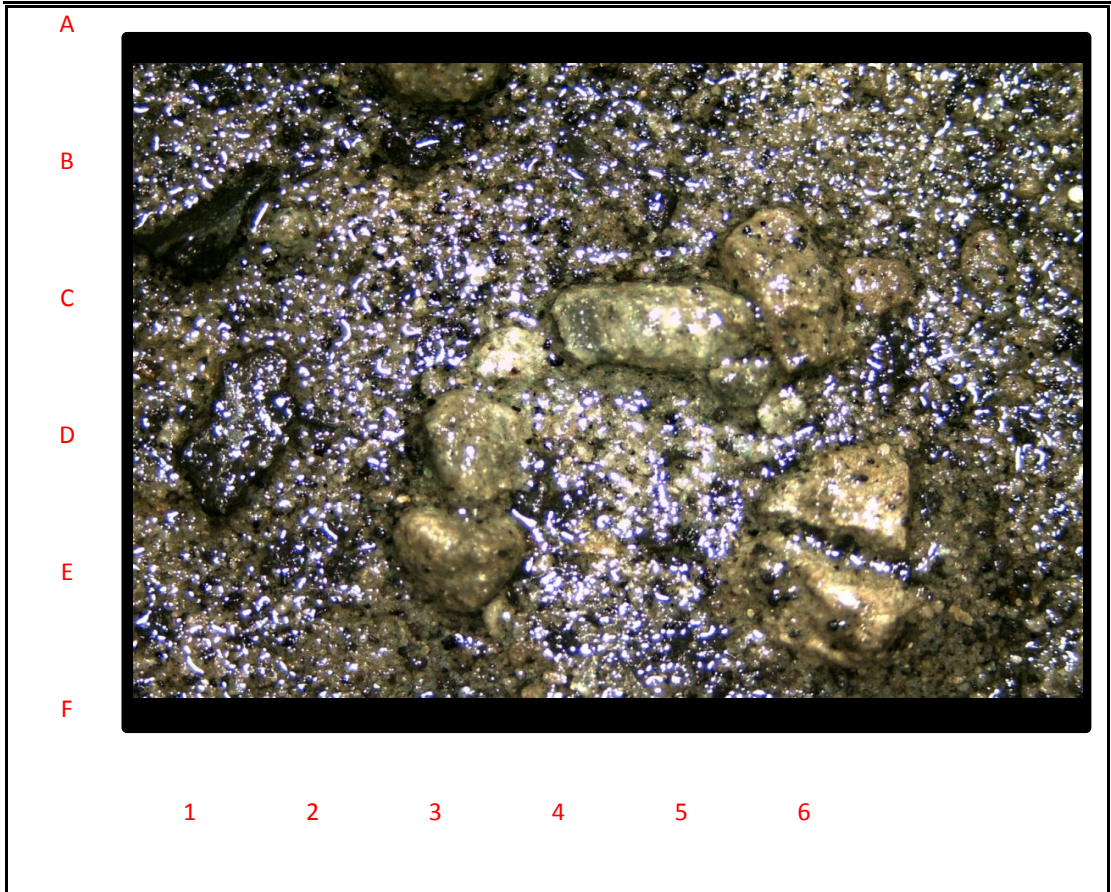




# DEPTH

**5980'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



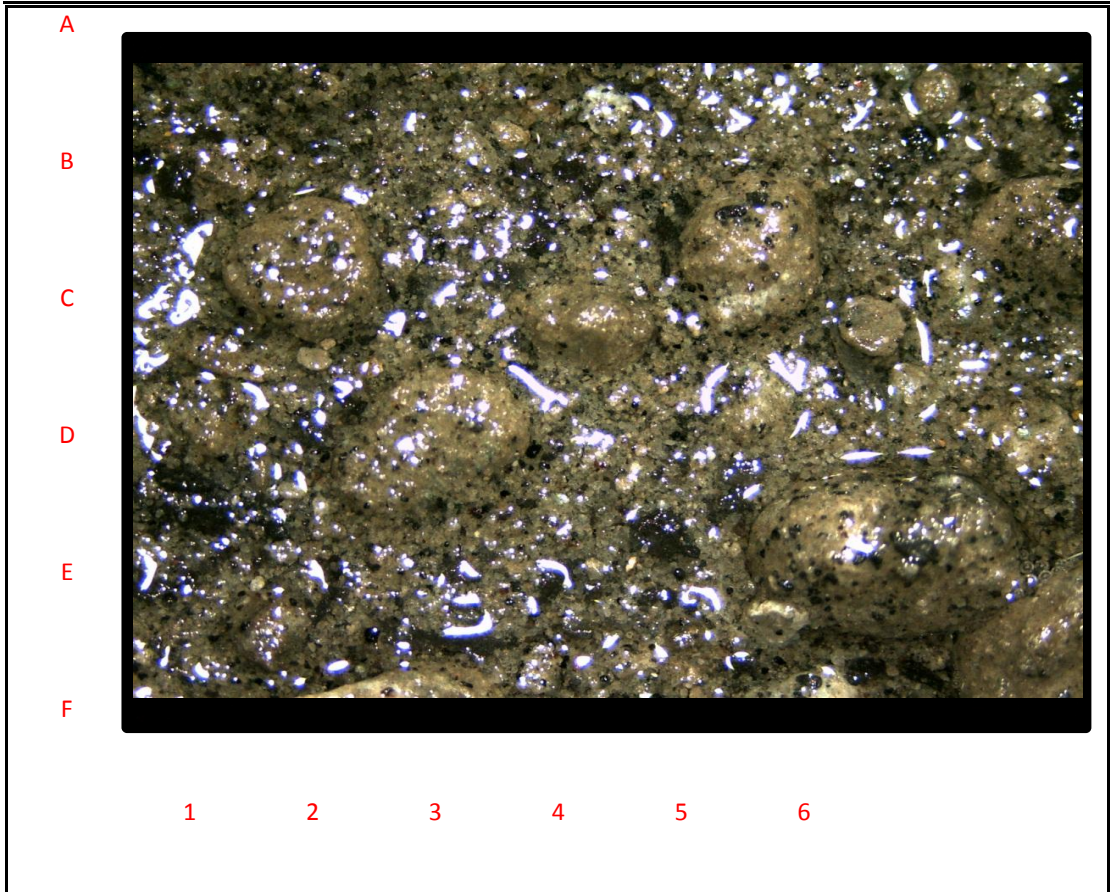
DEPTH	5980'	TIME		DATE	9/21/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
10%	SH	dark gray to dark brown, moderately hard to hard, splintery to flaky			
90%	SST	transparent to translucent, very fine to fine grain, subangular to surrounded, well sorted, unconsolidated, predominantly quartz, some calcareous, trace tuff, trace glauconite, no show			



# DEPTH

**5990'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	5990'	TIME		DATE	9/21/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
10%	SH	dark gray to dark brown, moderately hard to hard, splintery to flaky			
90%	SST	transparent to translucent, very fine to fine grain, subangular to surrounded, well sorted, unconsolidated, predominantly quartz, trace calcareous, trace tuff, no show			

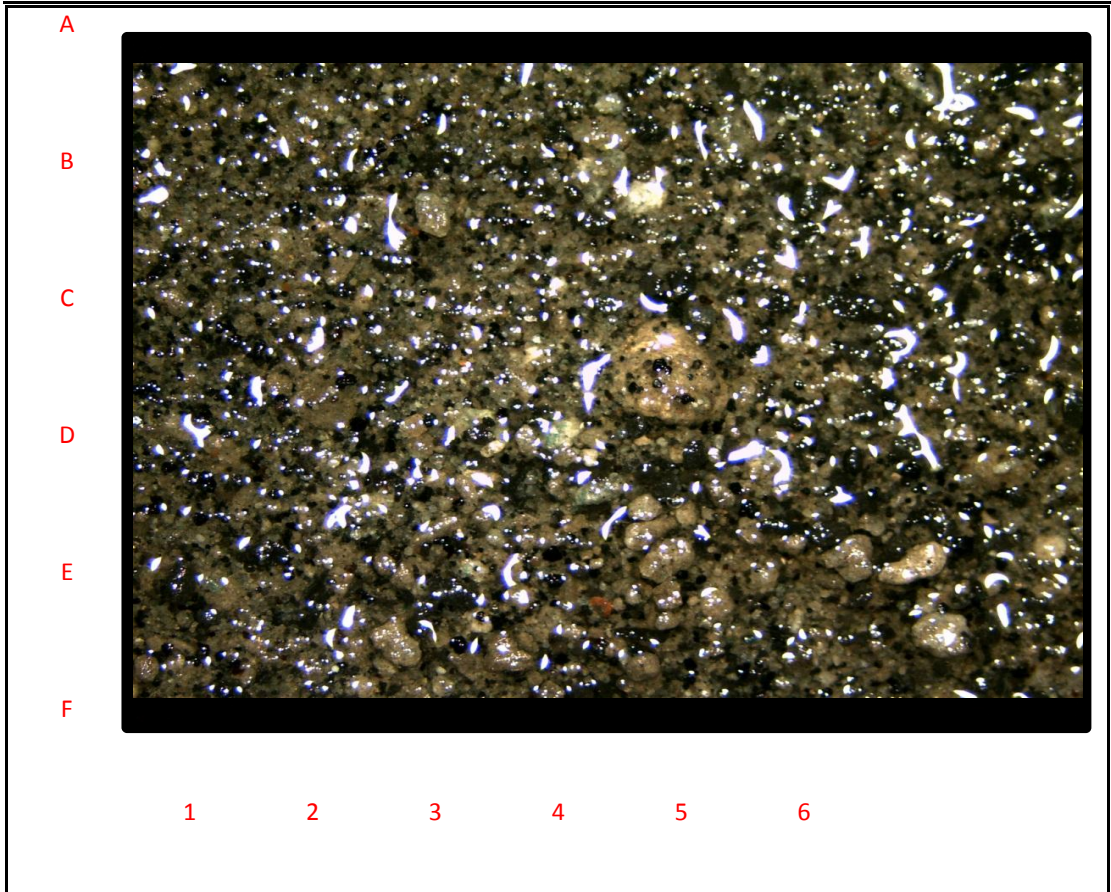




# DEPTH

**6000'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



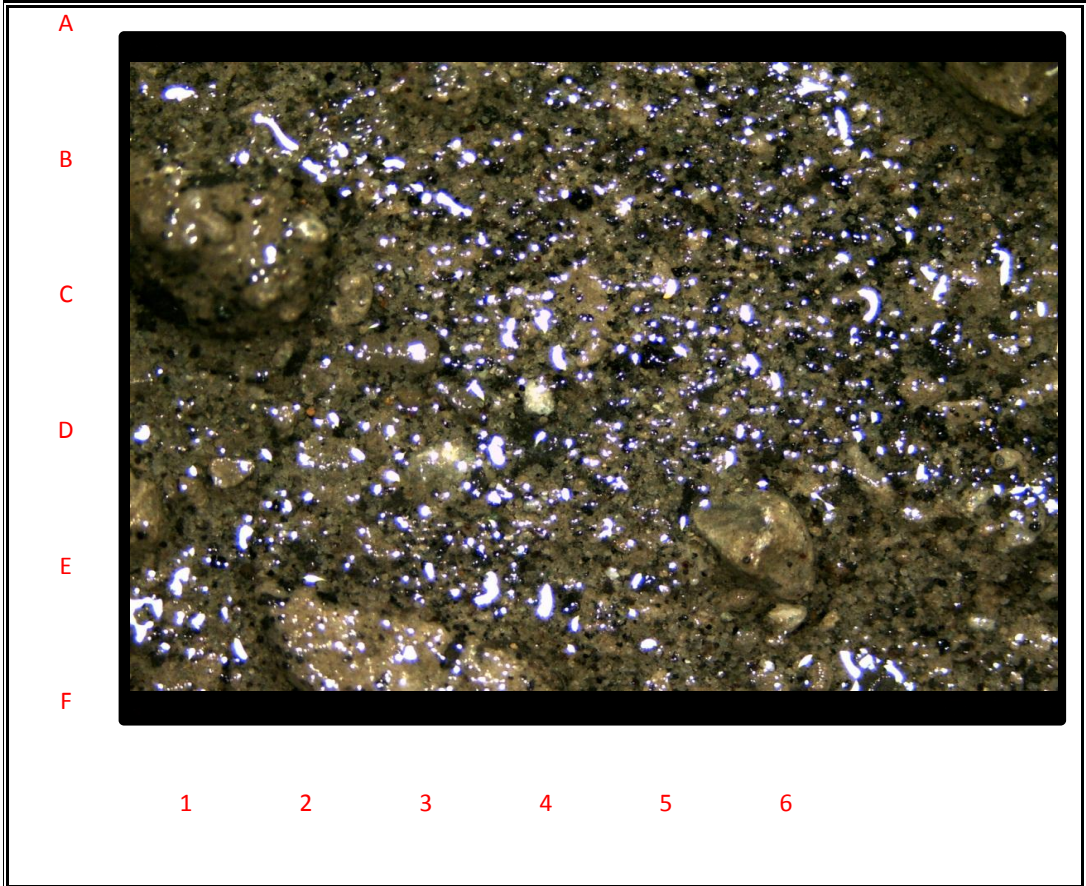
DEPTH	6000'	TIME		DATE	9/21/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
10%	SH	dark gray to dark brown, moderately hard to hard, splintery to flaky			
90%	SST	transparent to translucent, very fine to fine grain, subangular to surrounded, well sorted, unconsolidated, predominantly quartz, trace calcareous, trace tuff, no show			



# DEPTH

**6010'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	6010'	TIME		DATE	9/21/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
10%	SH	dark gray to dark brown, moderately hard to hard, splintery to flaky			
90%	SST	transparent to translucent, very fine to fine grain, subangular to subrounded, well sorted, unconsolidated, predominantly quartz, some carbonaceous material, trace calcareous, trace tuff, no show			

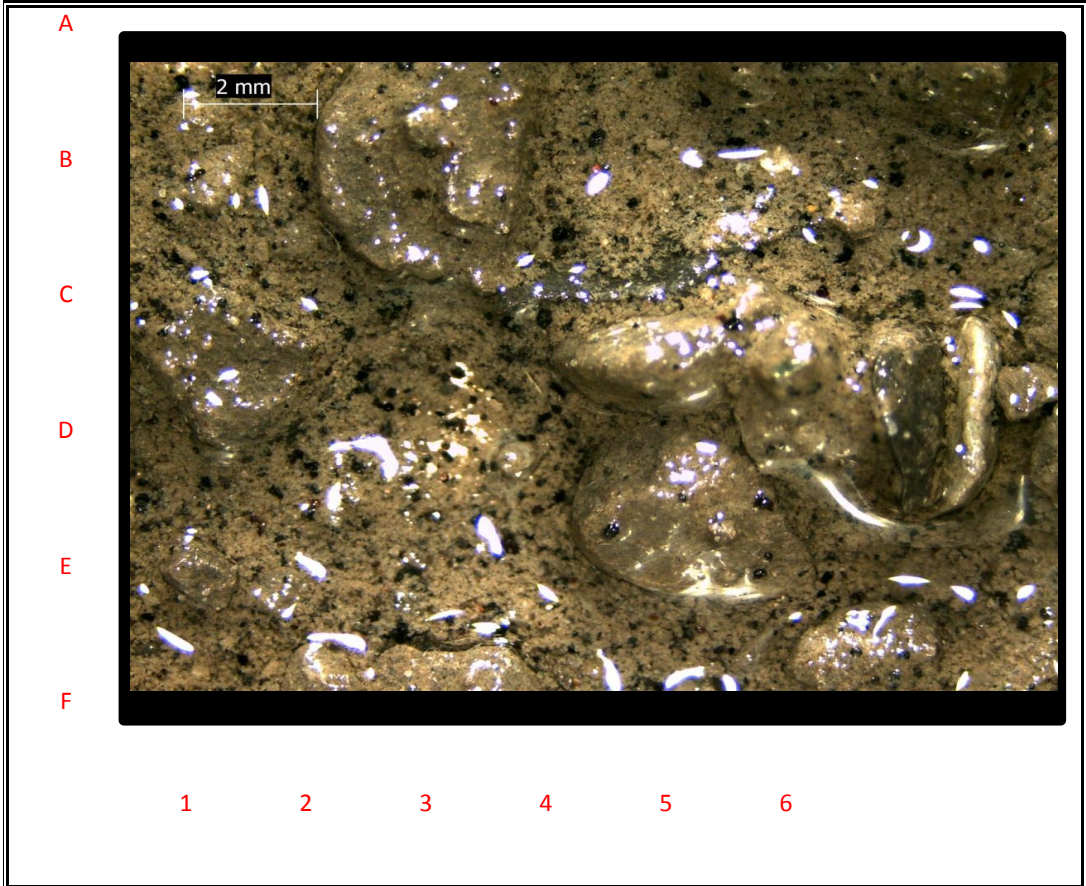




# DEPTH

**6050'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



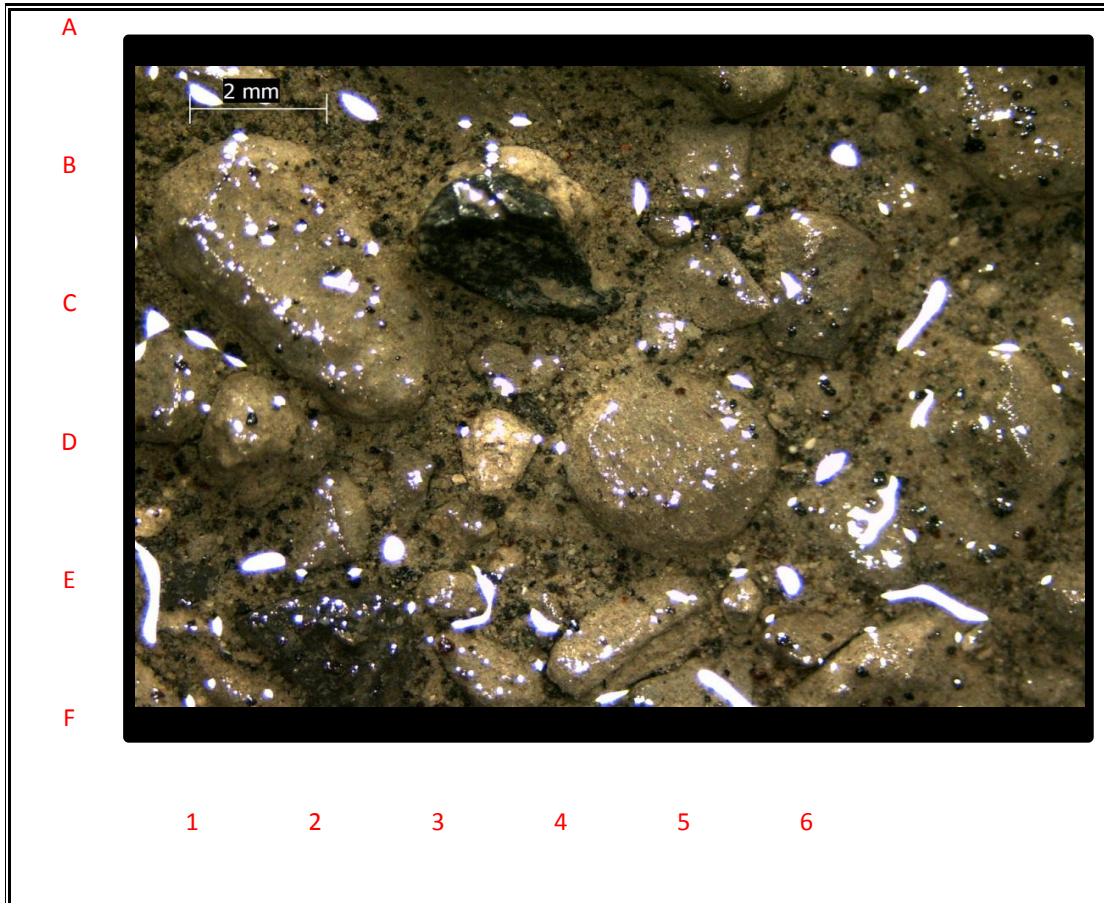
DEPTH	6050'	TIME		DATE	9/21/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
20%	CLYST	light gray to light brown, very soft to moderate hard, blocky to platy,			
80%	SST	transparent to translucent, very fine to fine grain, subangular to surrounded, well sorted, unconsolidated, predominantly quartz, some carbonaceous material, trace calcareous, trace tuff, no show			



# DEPTH

**6080'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	6080'	TIME		DATE	9/21/2015
LOGGING ENGINEER		Rebecca Mulkey			

PERCENT	FORMATION	DESCRIPTION
30%	CLYST	light gray to light brown, very soft to moderate hard, blocky to platy,
70%	SST	transparent to translucent, very fine to fine grain, subangular to surrounded, well sorted, unconsolidated quartz, trace calcareous, no show

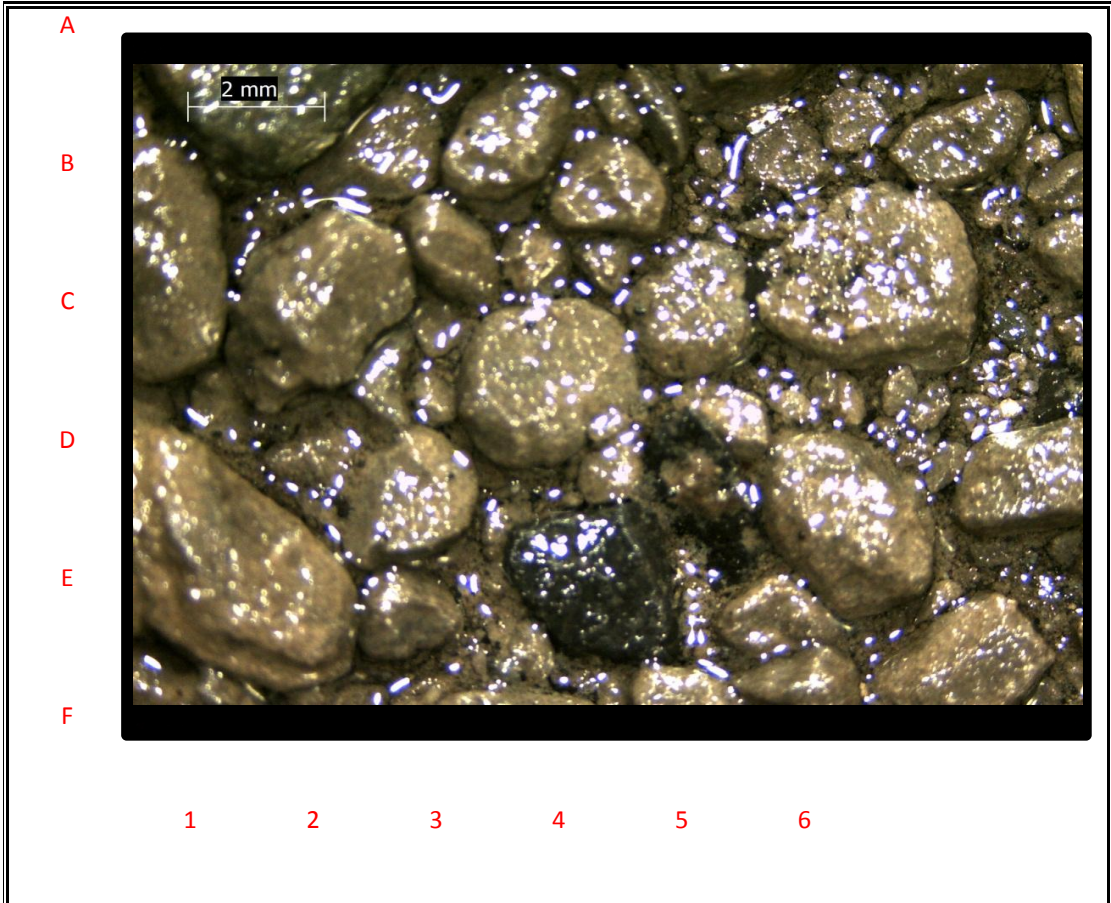




# DEPTH

**6110'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



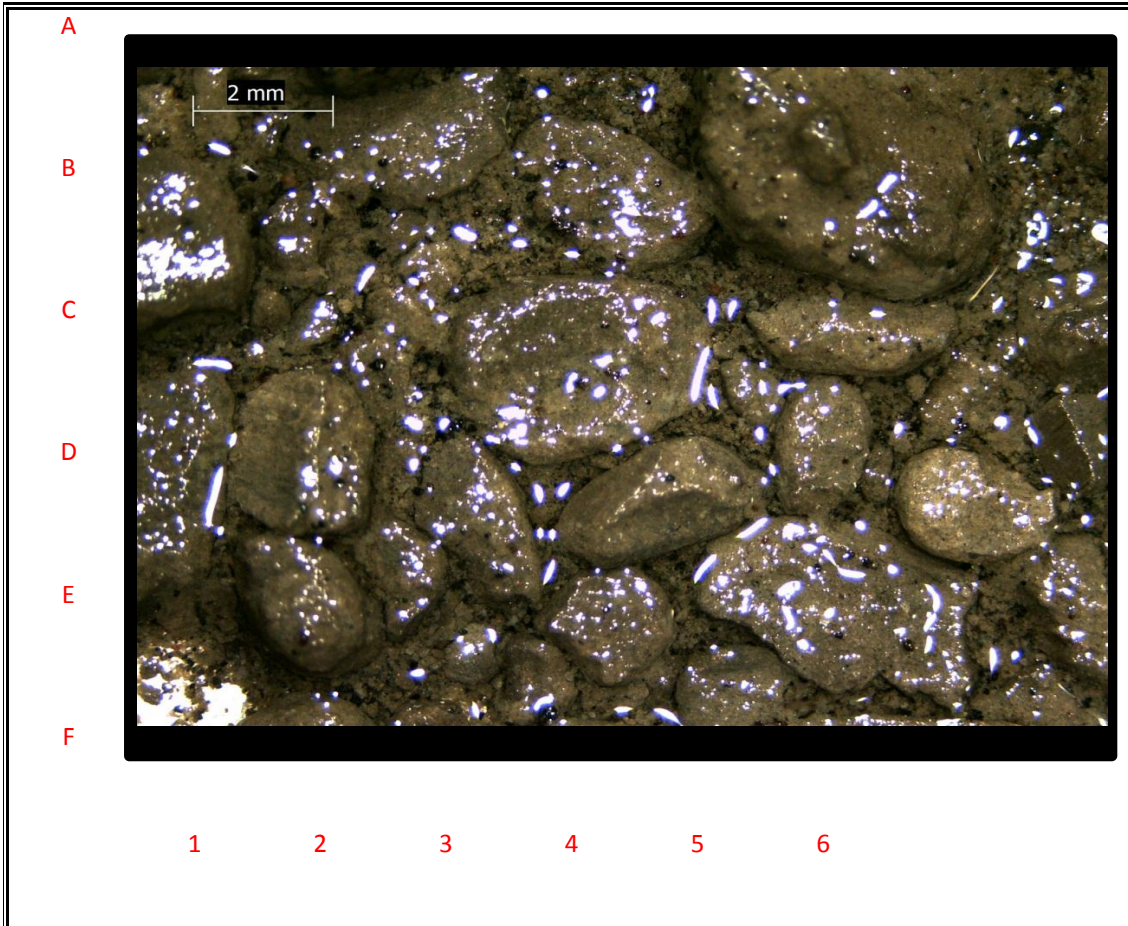
DEPTH	6110'	TIME		DATE	9/21/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
70%	CLYST	light gray to meduim gray, very soft to moderate hard, blocky to platy, firm, waxy to earthy, trace shale			
30%	SST	transparent to translucent, very fine to fine grain, subangular to surrounded, well sorted, unconsolidated quartz, trace calcareous, no show			



# DEPTH

**6140'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	6140'	TIME		DATE	9/21/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
90%	CLYST	light gray to medium gray, very soft to moderate hard, blocky to platy, firm, waxy to earthy, trace siltstone			
10%	SH	dark gray to medium gray, firm to moderately firm, splintery to flaky			

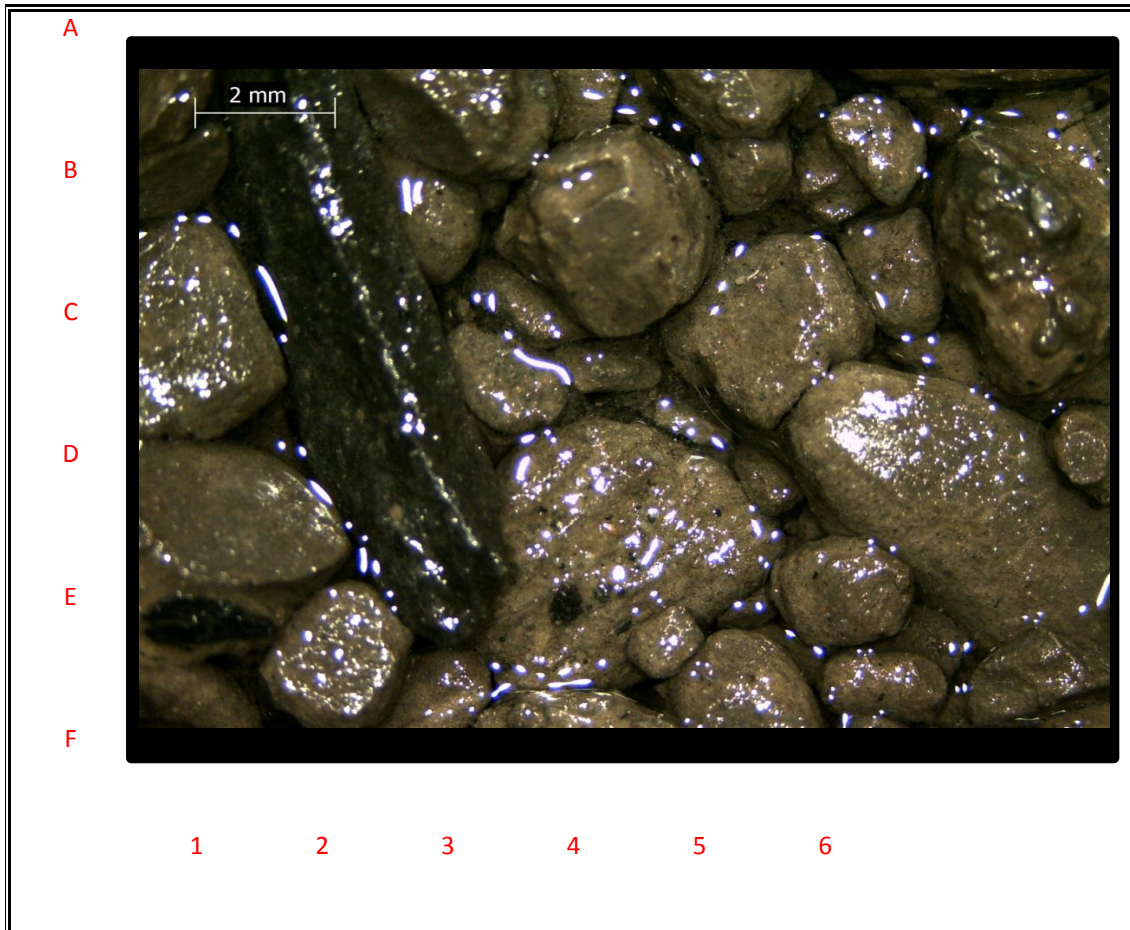




# DEPTH

**6170'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



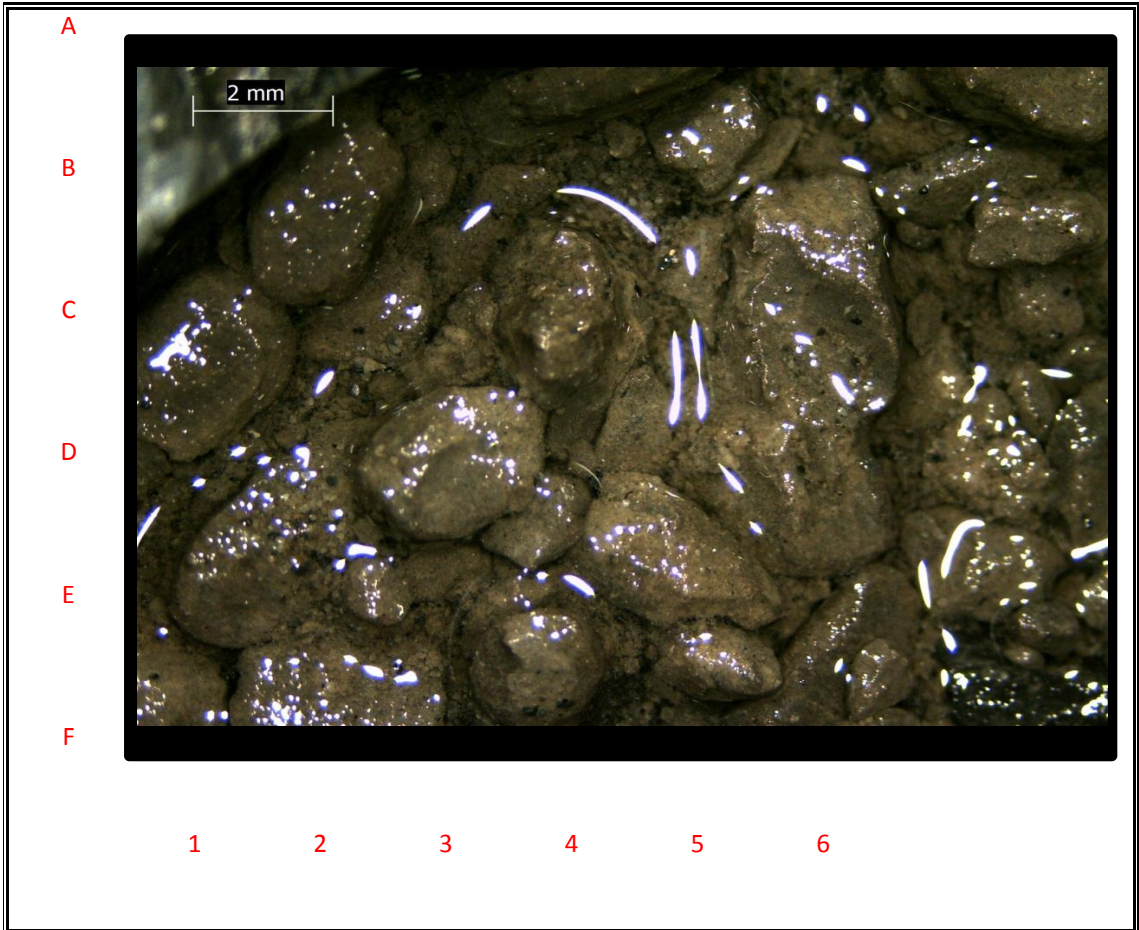
DEPTH	6170'	TIME		DATE	9/21/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
90%	CLYST	light gray to medium gray, very soft to moderate hard, blocky to platy, firm, waxy to earthy, trace slitstone			
10%	SH	dark gray to medium gray, firm to moderately firm, splintery to flaky			



# DEPTH

**6200'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	6200'	TIME		DATE	9/21/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
90%	CLYST	light gray to meduim gray, very soft to firm, blocky, firm, waxy to earthy, trace slitstone			
10%	SH	dark gray to meduim gray, frim to moderattly firm, splintery to flaky			

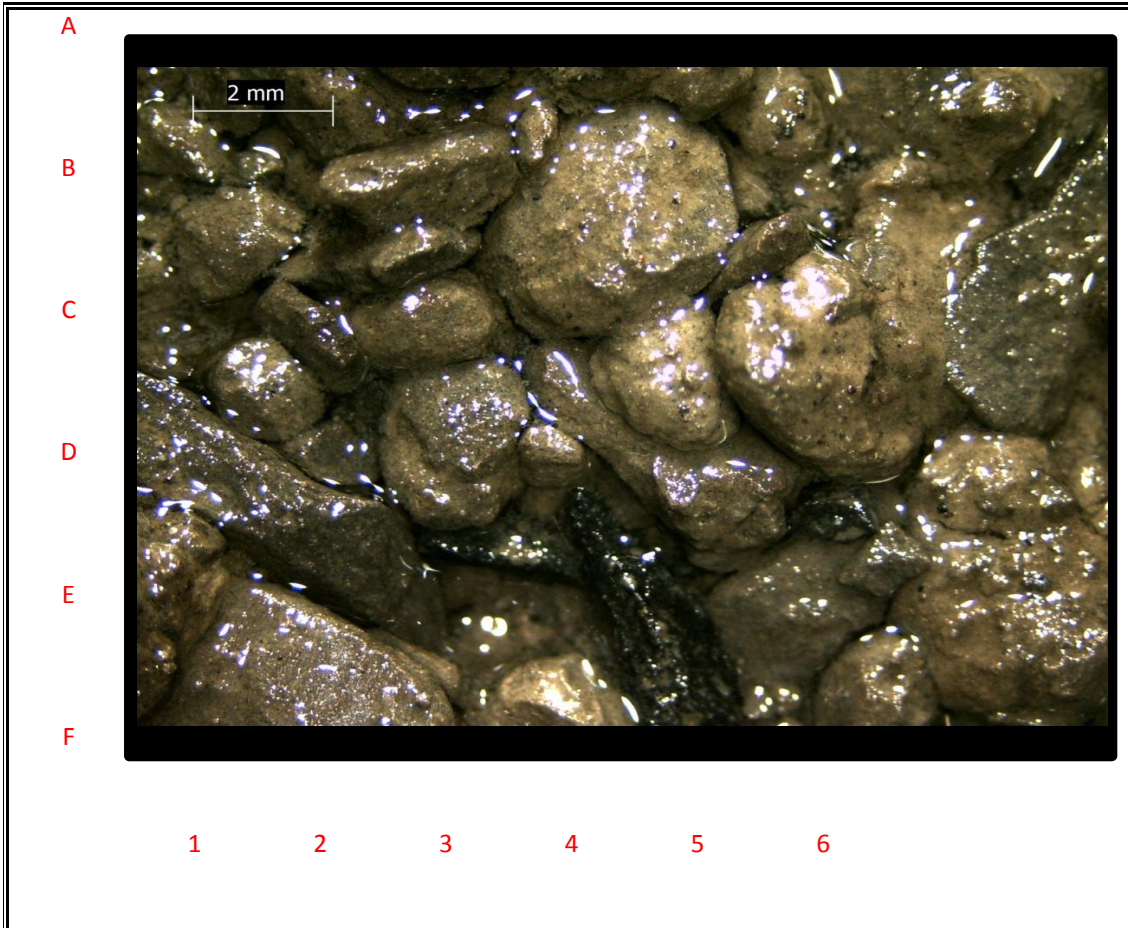


# DEPTH



**6230'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



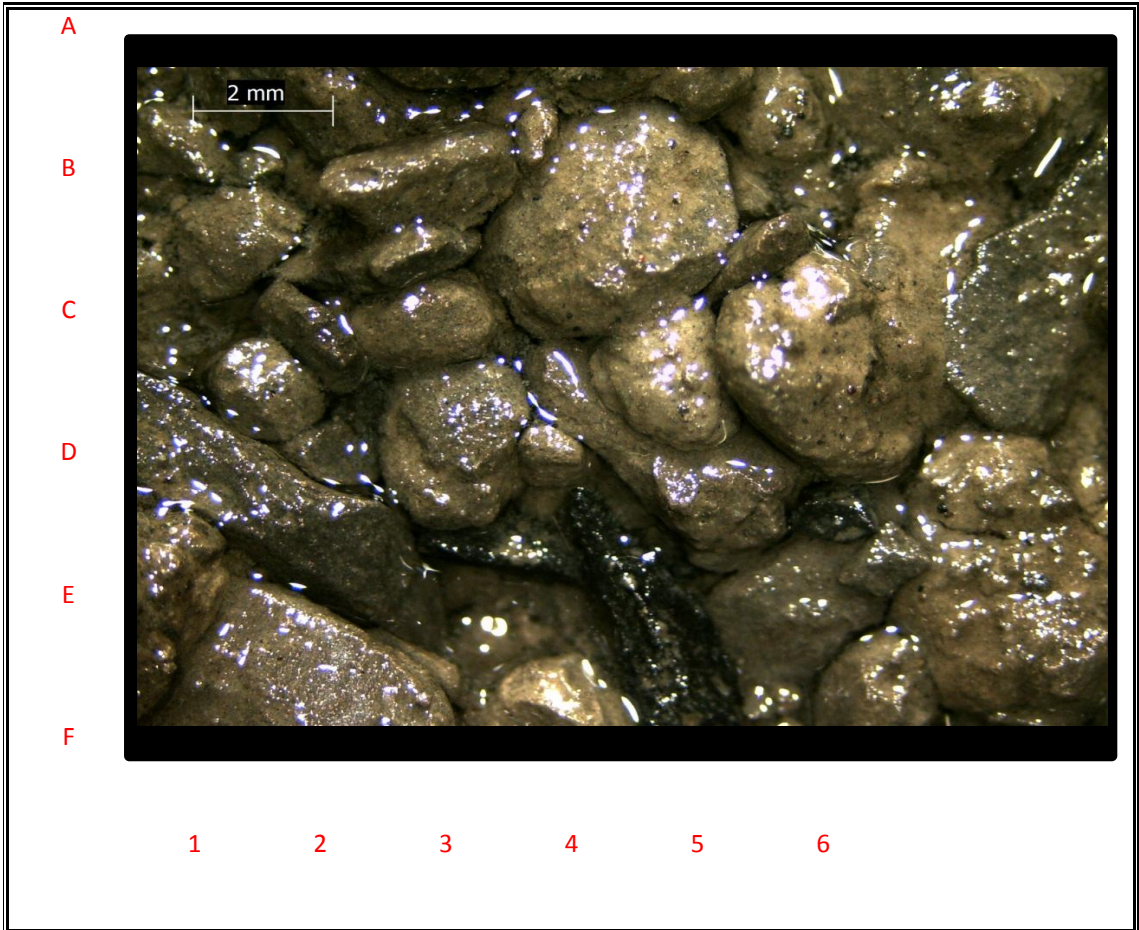
DEPTH	6230'	TIME		DATE	9/21/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
90%	CLYST	light gray to meduim gray, very soft to firm, blocky, firm, waxy to earthy, trace slitstone			
10%	SLTST	med gray to light brown, soft to v soft, occasional friable, platy, earthy luster,			



# DEPTH

**6260'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	6260'	TIME		DATE	9/21/2015
LOGGING ENGINEER		Rebecca Mulkey			

PERCENT	FORMATION	DESCRIPTION
90%	CLYST	light gray to meduim gray, very soft to firm, blocky, firm, waxy to earthy, trace white tuff, trace shale,
10%	SLTST	med gray to light brown, soft to v soft, occasional friable, platy, earthy luster,





# DEPTH

**6290'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



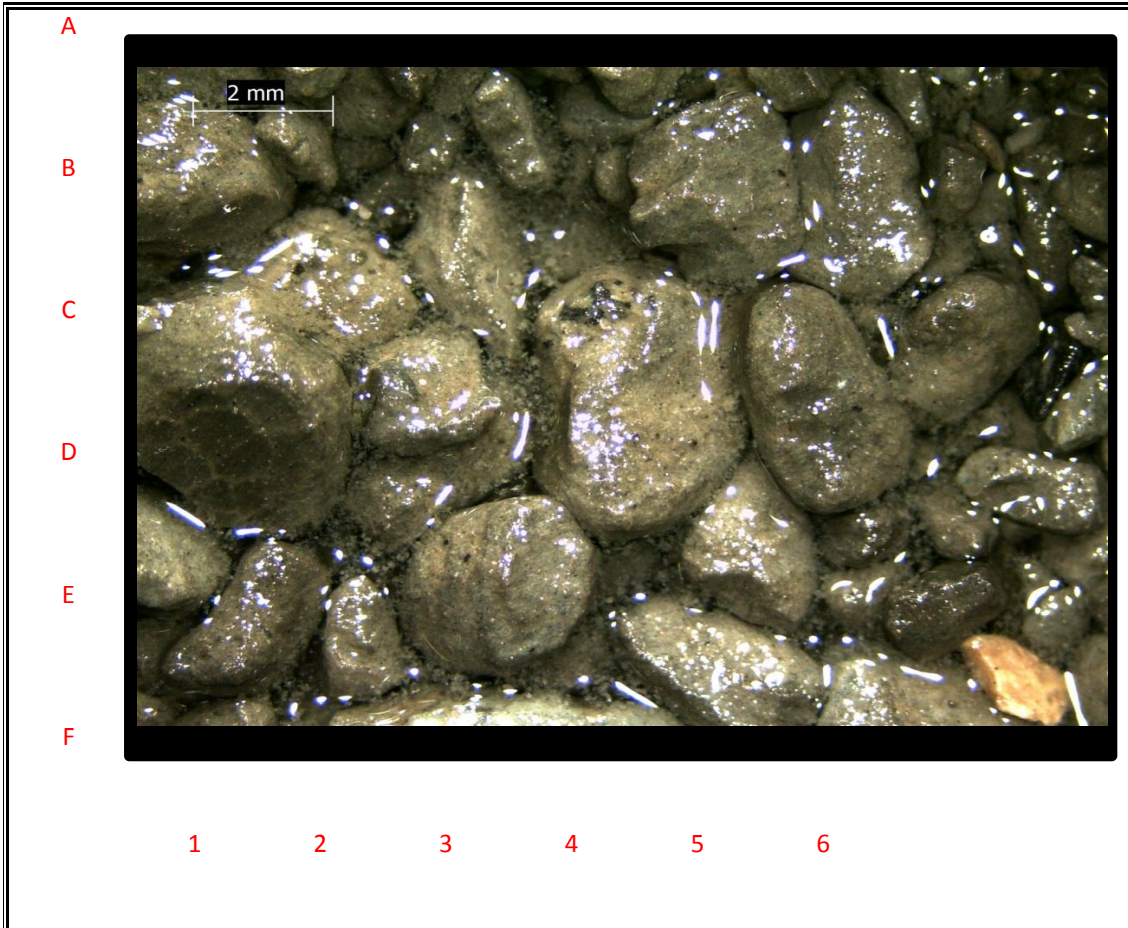
DEPTH	6290'	TIME		DATE	9/21/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
90%	CLYST	light gray to medium gray, very soft to firm, blocky, firm, waxy to earthy, trace siderite, trace shale,			
10%	SLTST	medium gray to light gray, soft to v soft, occasional friable, platy, earthy to waxy luster,			



# DEPTH

**6320'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	6320'	TIME		DATE	9/21/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
90%	CLYST	light gray to medium gray, very soft to firm, blocky, firm, waxy to earthy, trace shale,			
10%	SLTST	medium gray to light gray, soft to v soft, occasional friable, platy, earthy to waxy luster,			

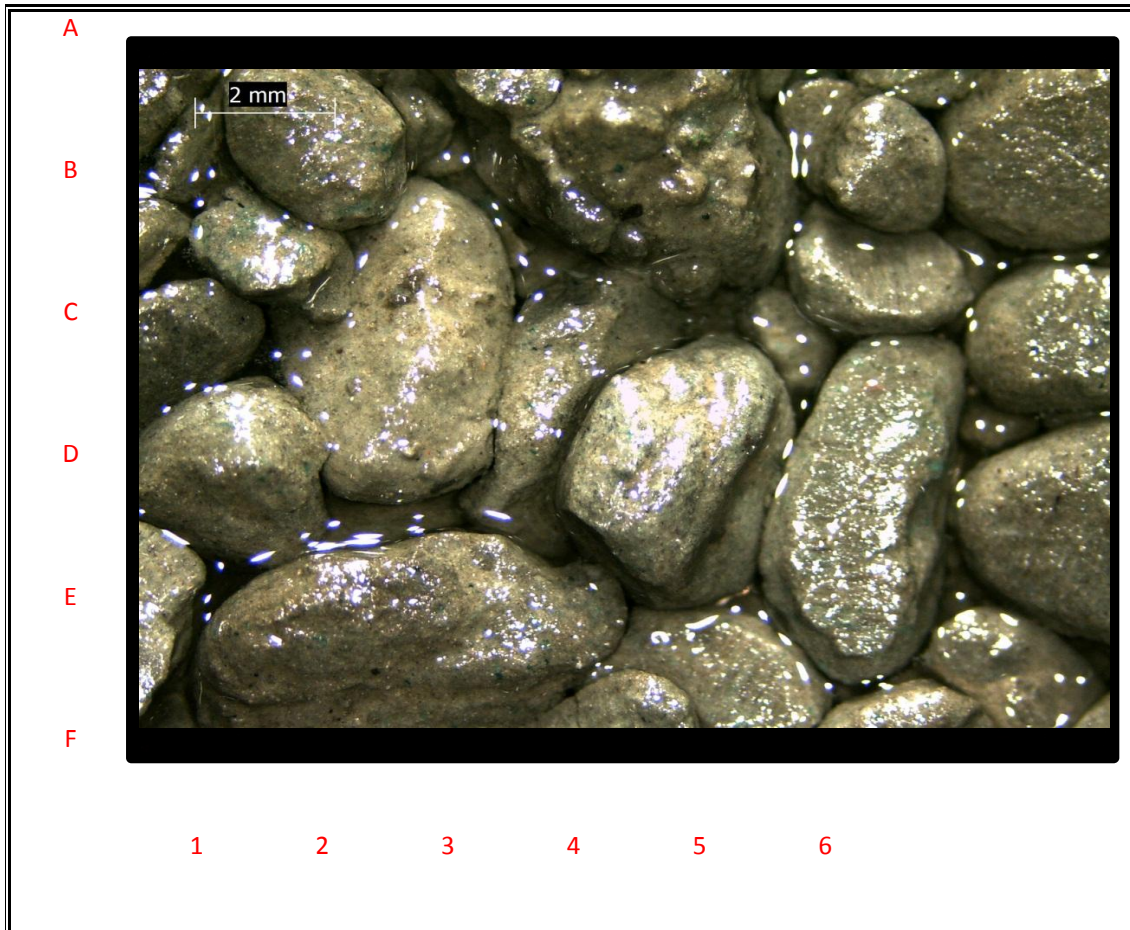




# DEPTH

**6350'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	6350'	TIME		DATE	9/21/2015
LOGGING ENGINEER		Rebecca Mulkey			

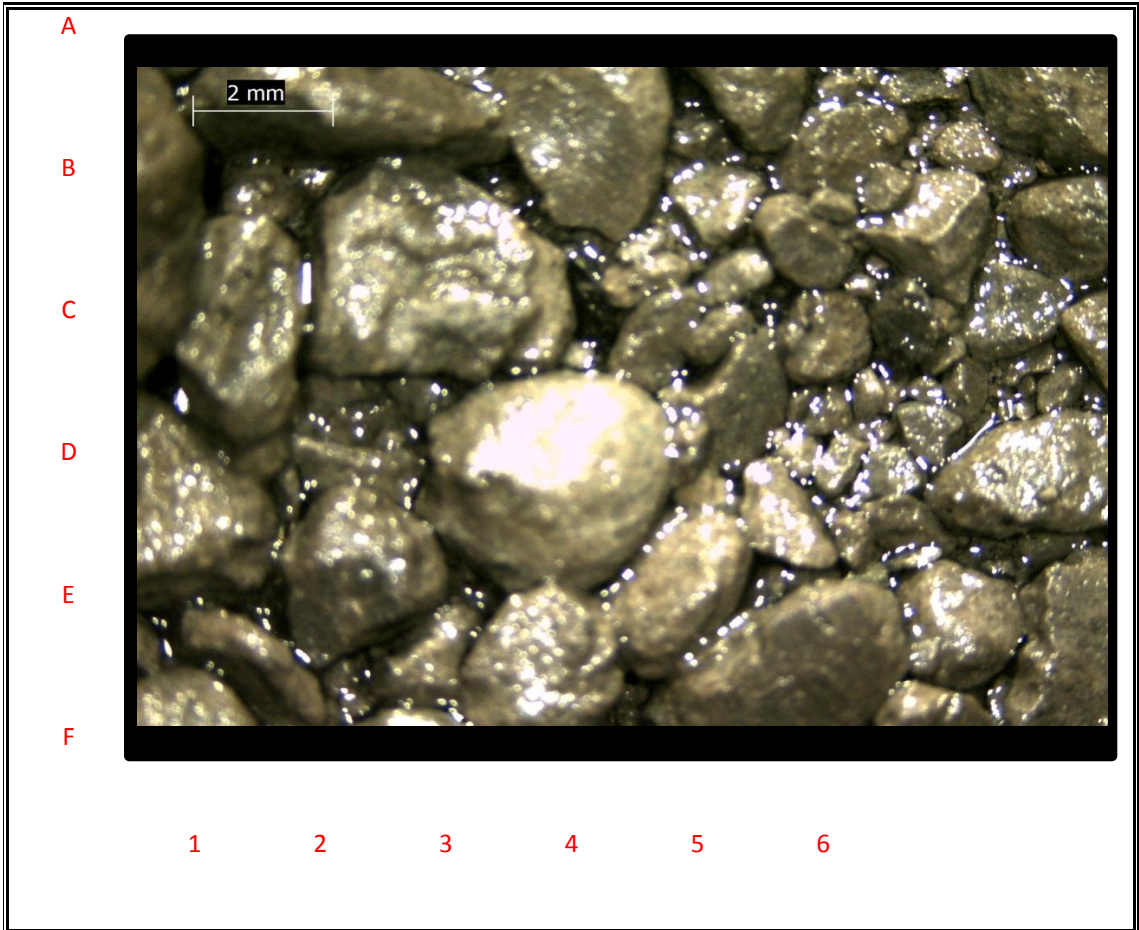
PERCENT	FORMATION	DESCRIPTION
90%	CLYST	light gray to medium gray, very soft to firm, blocky, firm, earthy, trace shale,
10%	SLTST	medium gray to light gray, soft to v soft, occasional friable, platy, earthy to waxy luster,



# DEPTH

**6380'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	6380'	TIME		DATE	9/21/2015
LOGGING ENGINEER		Rebecca Mulkey			

PERCENT	FORMATION	DESCRIPTION
80%	CLYST	light gray to medium gray, very soft to firm, blocky, firm, earthy, trace shale,
20%	SLTST	medium gray to light gray, soft to v soft, occasional friable, platy, earthy to waxy luster,

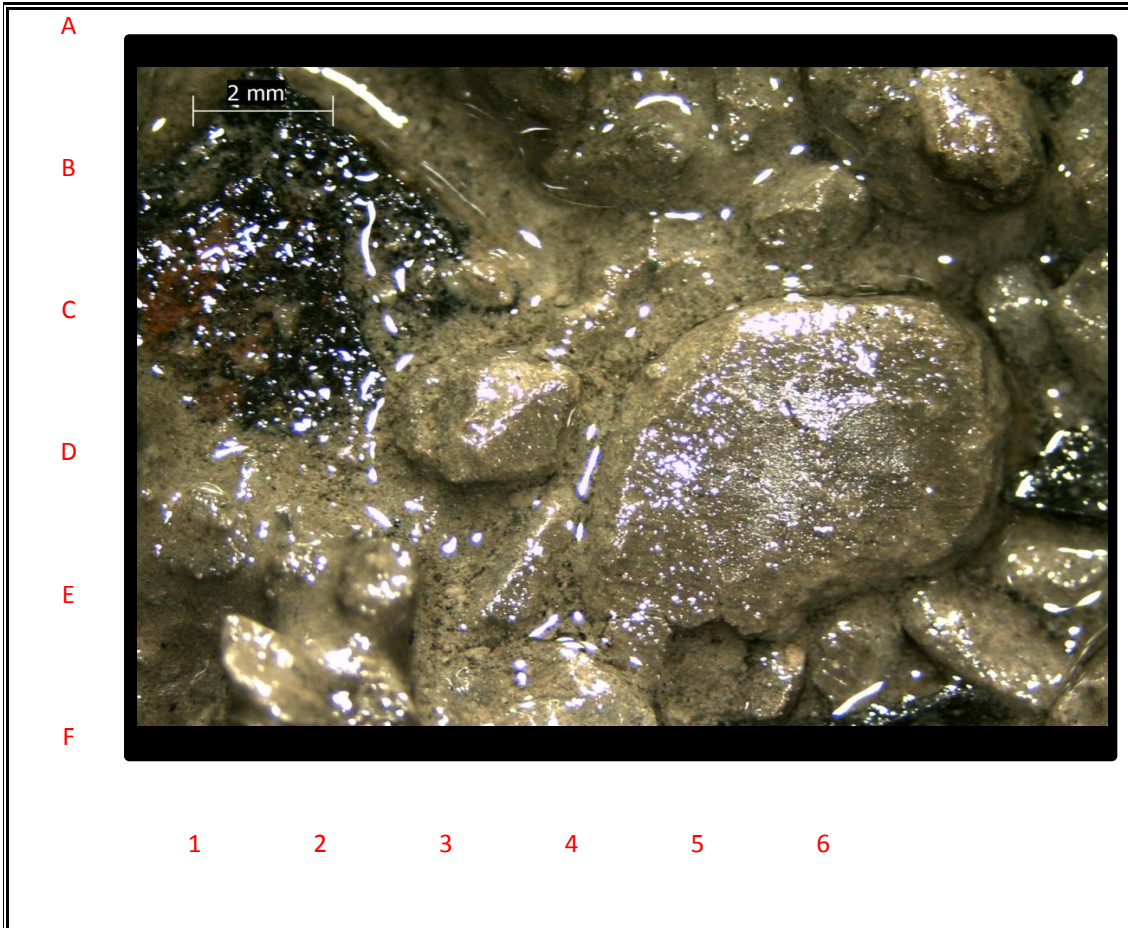




# DEPTH

**6410'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



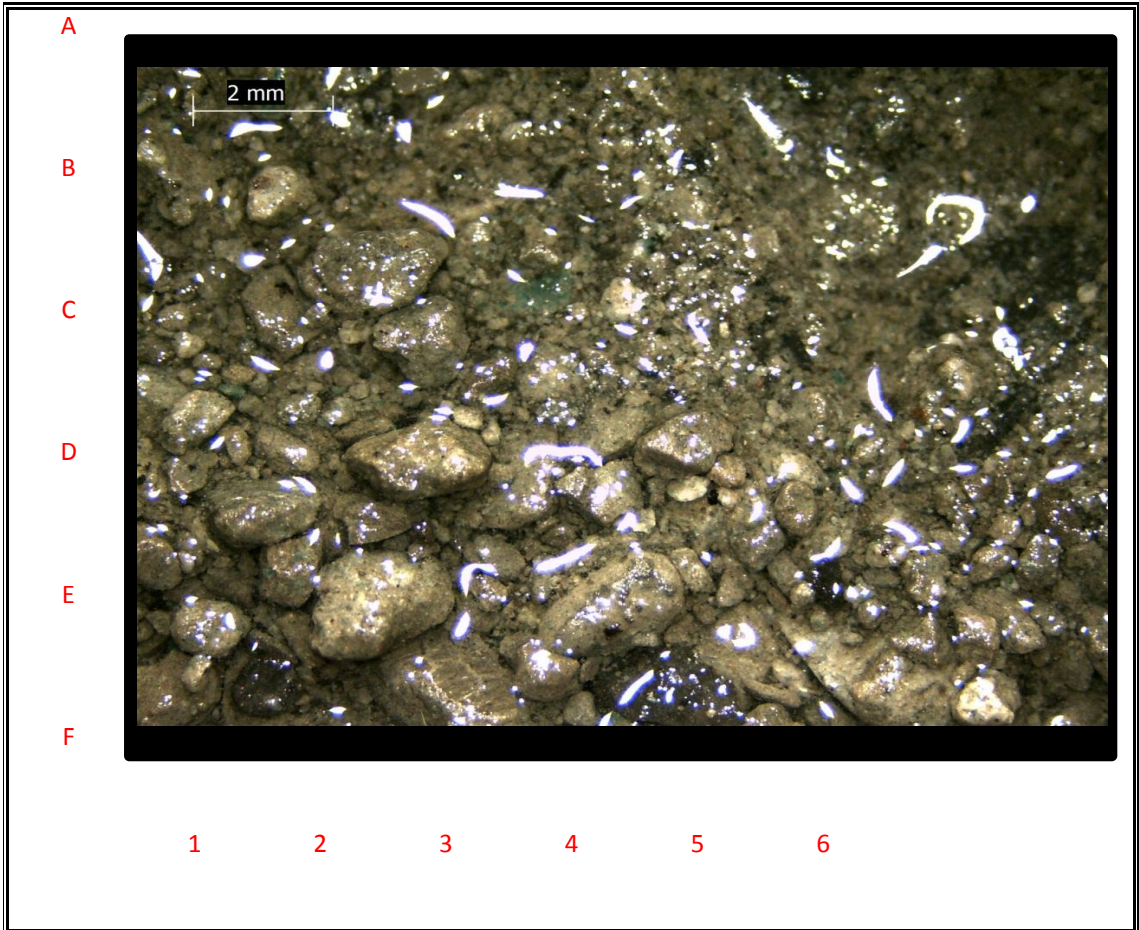
DEPTH	6410'	TIME		DATE	9/21/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
80%	CLYST	light gray to medium gray, very soft to firm, blocky, firm, earthy, occasional dark gray shale, rare glauconite,			
20%	SLTST	medium gray to light gray, soft to v soft, occasional friable, platy, earthy to waxy luster,			



# DEPTH

**6440'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	6440'	TIME		DATE	9/21/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
80%	CLYST	light gray to medium gray, very soft to firm, blocky, firm, earthy, rare glauconite,			
20%	SLTST	medium gray to light gray, soft to v soft, occasional friable, platy, earthy to waxy luster,			

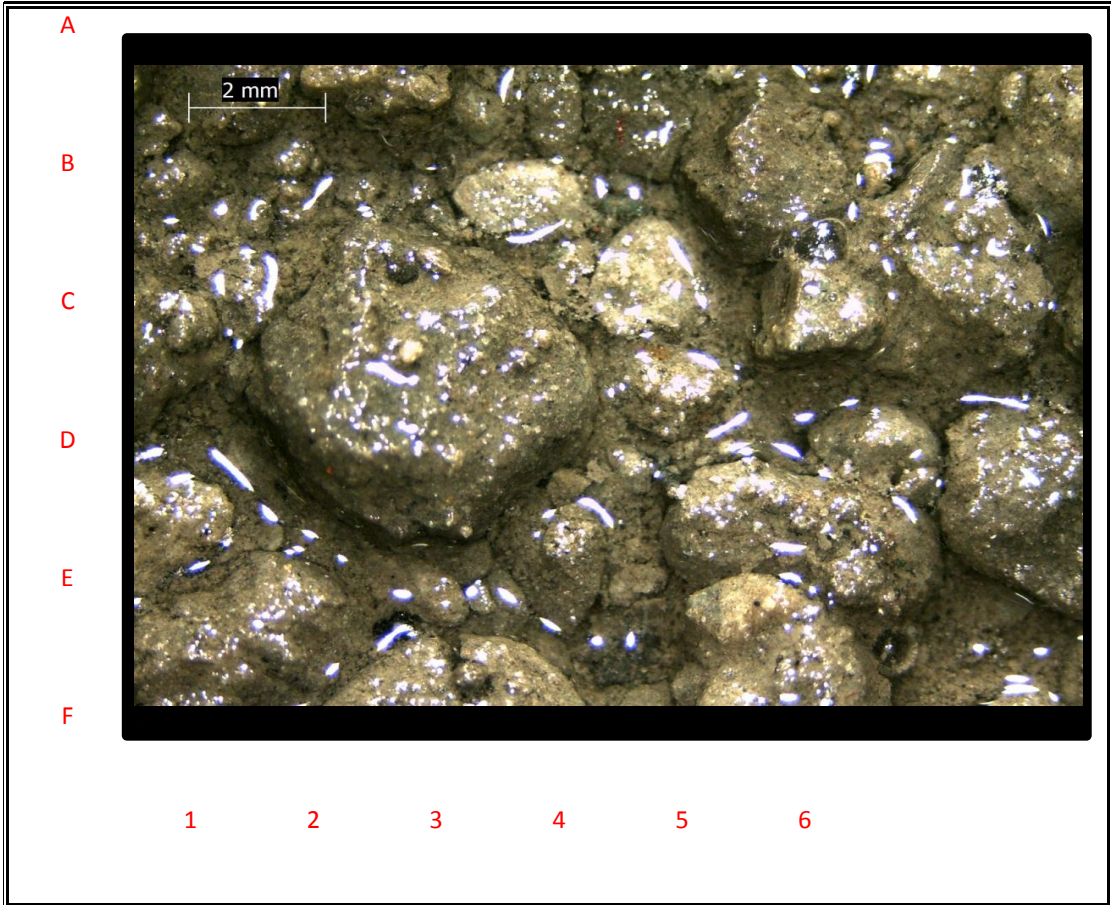




# DEPTH

**6460'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



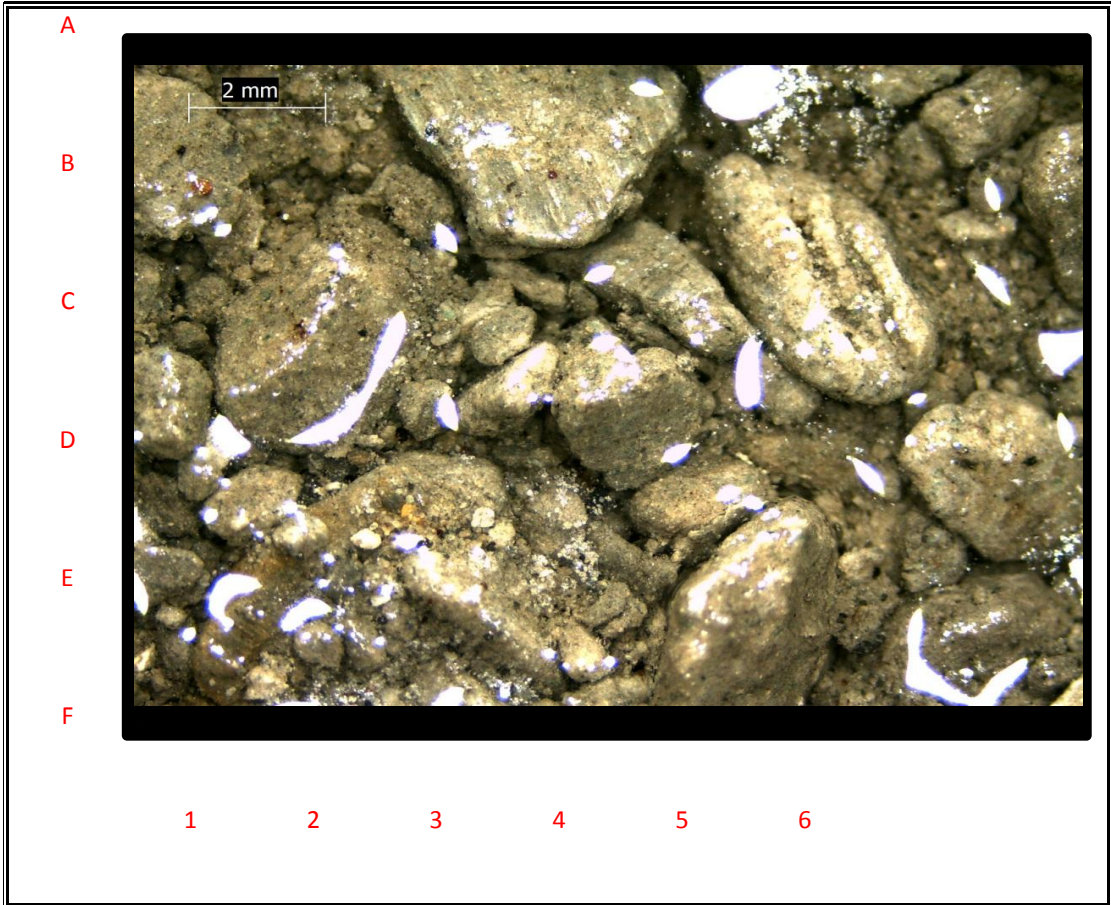
DEPTH	6460'	TIME		DATE	9/21/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
70%	CLYST	light gray to medium gray, very soft to firm, blocky, firm, earthy, rare glauconite,			
10%	SLTST	medium gray to light gray, soft to v soft, occasional friable, platy, earthy to waxy luster,			
20%	SST	transparent to translucent, very fine to fine grain, subangular to surrounded, well sorted, unconsolidated quartz, no show			



# DEPTH

**6470'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	6470'	TIME		DATE	9/21/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
80%	CLYST	light gray to medium gray, very soft to firm, blocky, firm, earthy, trace glauconite,			
10%	SLTST	medium gray to light gray, soft to v soft, occasional friable, platy, earthy to waxy luster,			
10%	SST	transparent to translucent, very fine to fine grain, subangular to surrounded, well sorted, unconsolidated quartz, no show			

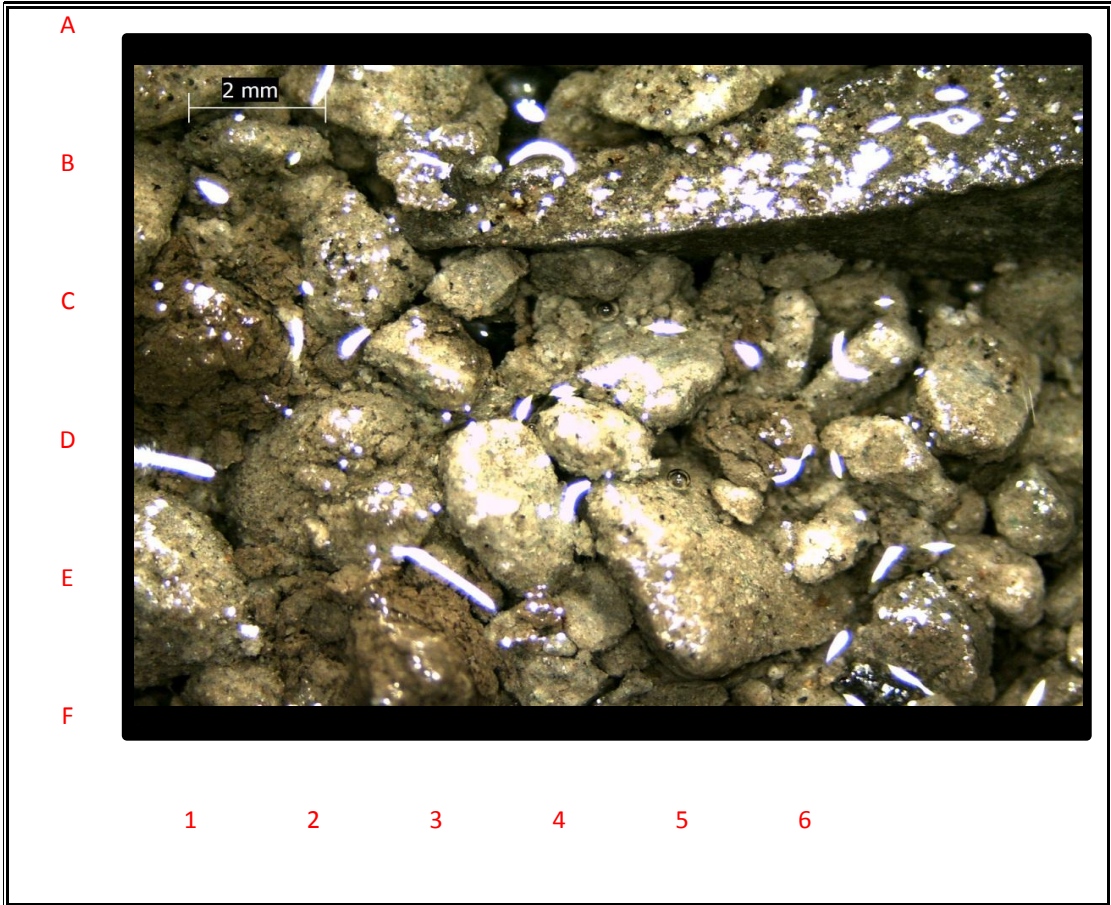




# DEPTH

**6480'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



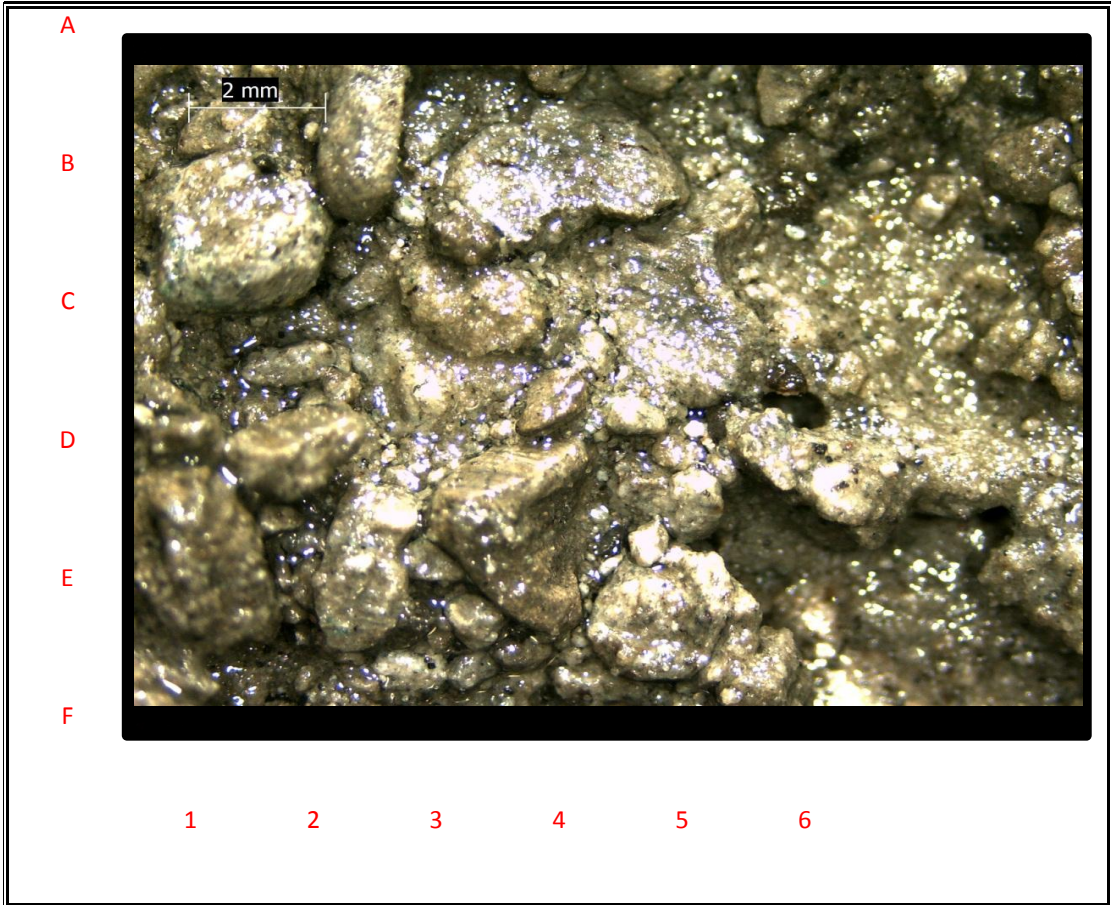
DEPTH	6480'	TIME		DATE	9/21/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
80%	CLYST	light gray to medium gray, very soft to firm, blocky, firm, earthy, trace glauconite,			
10%	SLTST	medium gray to light gray, soft to v soft, occasional friable, platy, earthy to waxy luster,			
10%	SST	transparent to translucent, very fine to fine grain, subangular to surrounded, well sorted, unconsolidated quartz, no show			



# DEPTH

**6490'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	6490'	TIME		DATE	9/21/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
80%	CLYST	light gray to medium gray, very soft to firm, blocky, firm, earthy, trace glauconite,			
10%	SLTST	medium gray to light gray, soft to v soft, occasional friable, platy, earthy to waxy luster,			
10%	SST	transparent to translucent, very fine to fine grain, subangular to surrounded, well sorted, unconsolidated quartz, no show			





# DEPTH

**6500'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



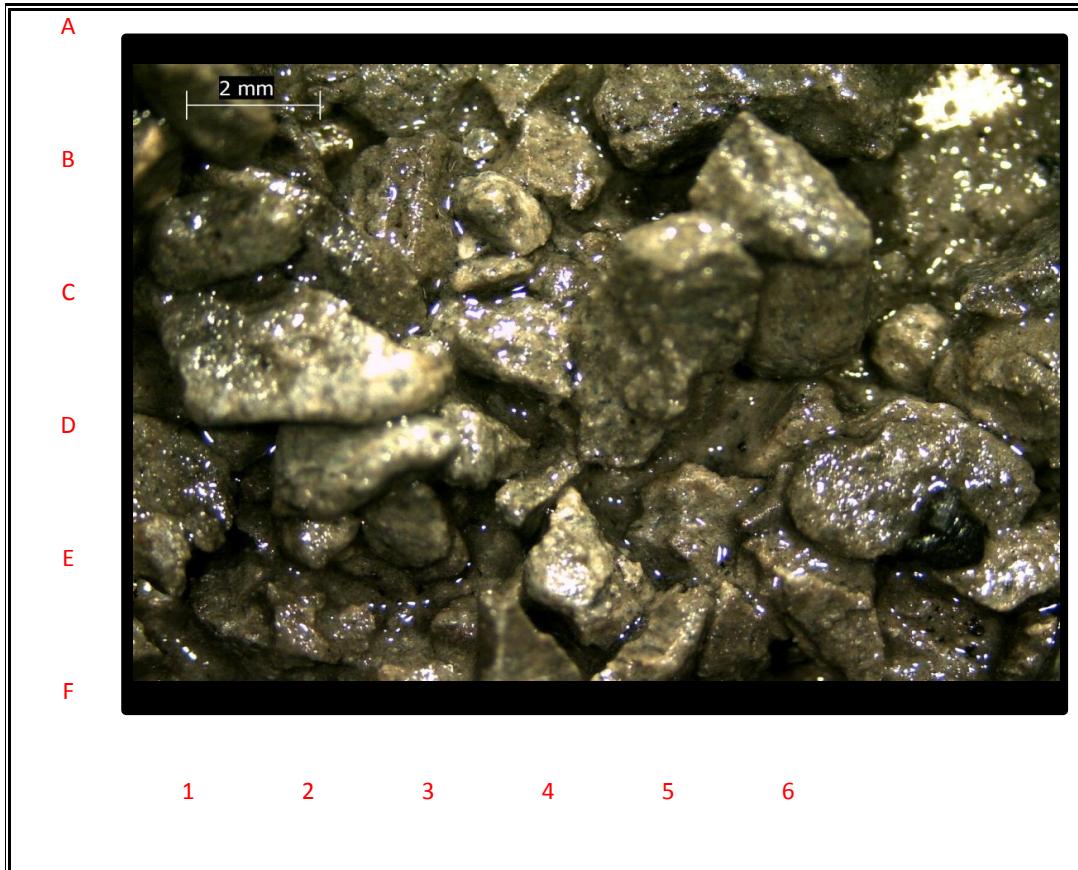
DEPTH	6500'	TIME		DATE	9/21/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
40%	CLYST	light gray to medium gray, soft to firm, blocky, firm, earthy, trace glauconite,			
20%	SLTST	medium gray to light gray, soft to moderately firm, brittle, platy, earthy to dull luster,			
40%	SST	transparent to translucent, very fine to fine grain, subangular to surrounded, well sorted, unconsolidated quartz, occasional calcareous			
		dull yellow fluorescence over 40% of the sample, slow dull yellow crush cut, dull yellow residual fluorescence.			



# DEPTH

**6520'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	6520'	TIME		DATE	9/21/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
40%	CLYST	light gray to medium gray, soft to firm, blocky, firm, earthy, trace glauconite,			
20%	SLTST	medium gray to light gray, soft to moderately firm, brittle, platy, earthy to dull luster,			
40%	SST	transparent to translucent, very fine to fine grain, subangular to surrounded, well sorted, unconsolidated quartz, occasional calcareous			
		dull yellow fluorescence over 40% of the sample, bright yellow crush cut, dull yellow residual fluorescence.			

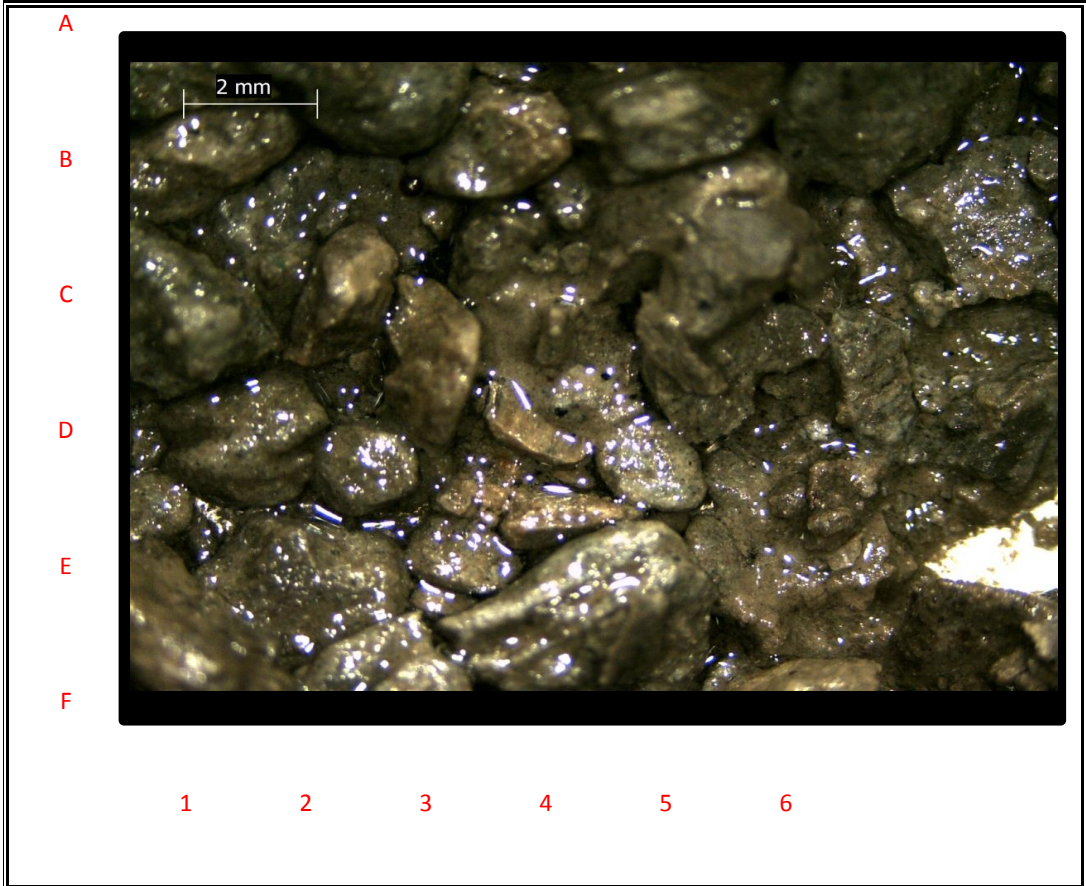




# DEPTH

**6530'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	6530'	TIME		DATE	9/21/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
20%	CLYST	light gray to medium gray, soft to firm, blocky, firm, earthy,			
60%	SLTST	medium gray to light gray, soft to moderately firm, brittle, platy, earthy luster,			
20%	SST	transparent to translucent, very fine to fine grain, subangular to surrounded, well sorted, unconsolidated quartz, occasional calcareous			
		dull yellow fluorescence, bright yell crush cut, dull yellow residual fluorescence.			



# DEPTH

**6540'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	6540'	TIME		DATE	9/21/2015
LOGGING ENGINEER		Rebecca Mulkey			

PERCENT	FORMATION	DESCRIPTION
20%	CLYST	light gray to medium gray, soft to firm, blocky to crumbly, earthy,
60%	SLTST	medium gray to light gray, soft to moderately firm, brittle, platy, earthy luster,
20%	SST	transparent to translucent, very fine to fine grain, subangular to surrounded, well sorted, unconsolidated quartz, occasional calcareous
		dull yellow fluorescence, bright yell crush cut, dull yellow residual fluorescence.

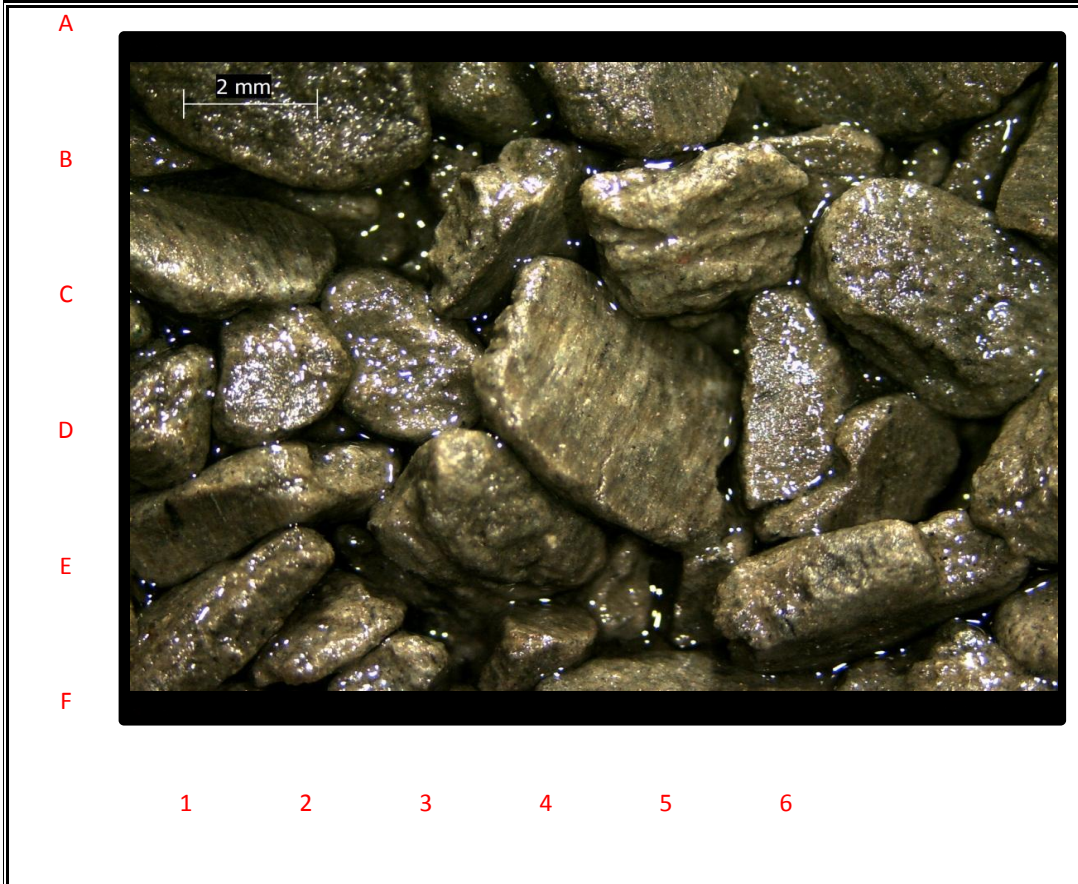




# DEPTH

**6550'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



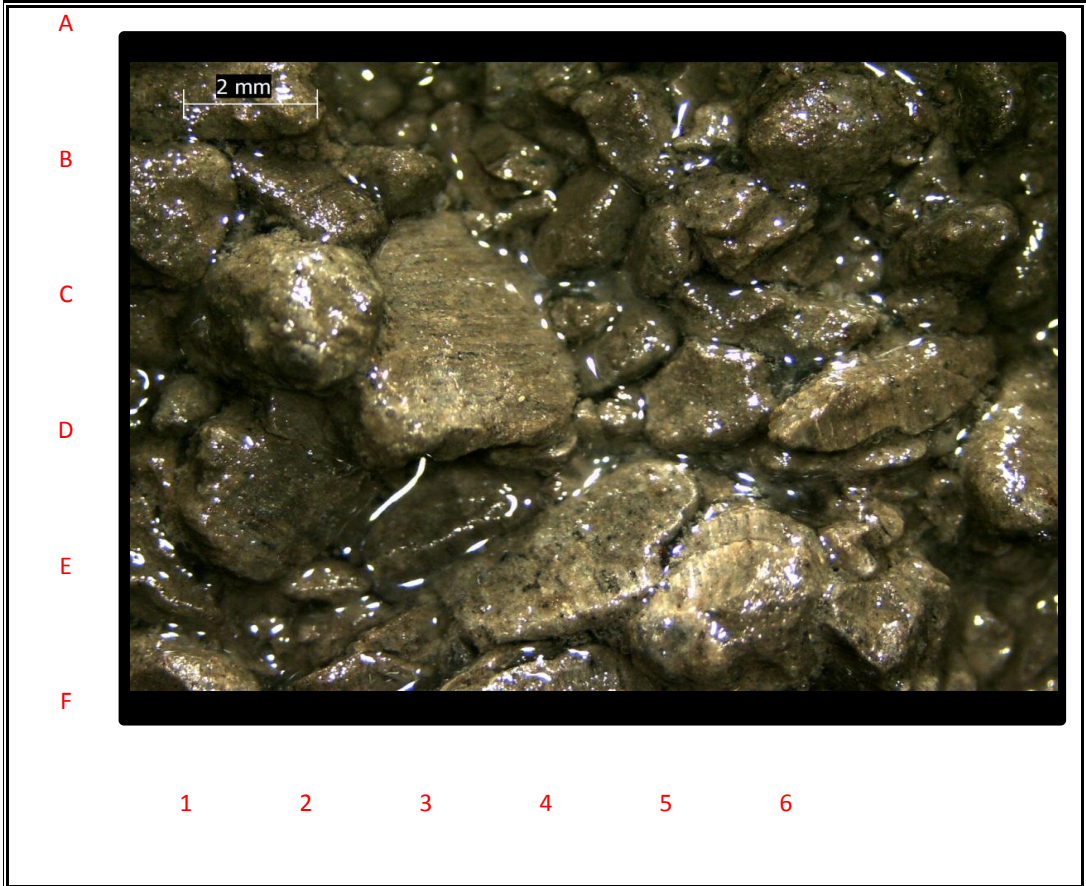
DEPTH	6550'	TIME		DATE	9/21/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
10%	CLYST	light gray to medium gray, soft to firm, blocky to crumbly, earthy,			
70%	SLTST	medium gray to light gray, soft to moderately firm, brittle, platy, earthy luster,			
20%	SST	transparent to translucent, very fine to fine grain, subangular to surrounded, well sorted, unconsolidated quartz, occasional calcareous			
		dull yellow fluorescence over 40% of sample, bright yellow crush cut, dull yellow residual fluorescence.			



# DEPTH

**6560'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	6560'	TIME		DATE	9/21/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
10%	CLYST	light gray to medium gray, soft to firm, blocky to crumbly, earthy,			
70%	SLTST	medium gray to light gray, firm to moderately hard, brittle, platy, earthy luster,			
20%	SST	transparent to translucent, very fine to fine grain, subangular to surrounded, well sorted, unconsolidated quartz, occasional calcareous			
		dull yellow fluorescence over 40% of sample, bright yellow crush cut, dull yellow residual fluorescence.			

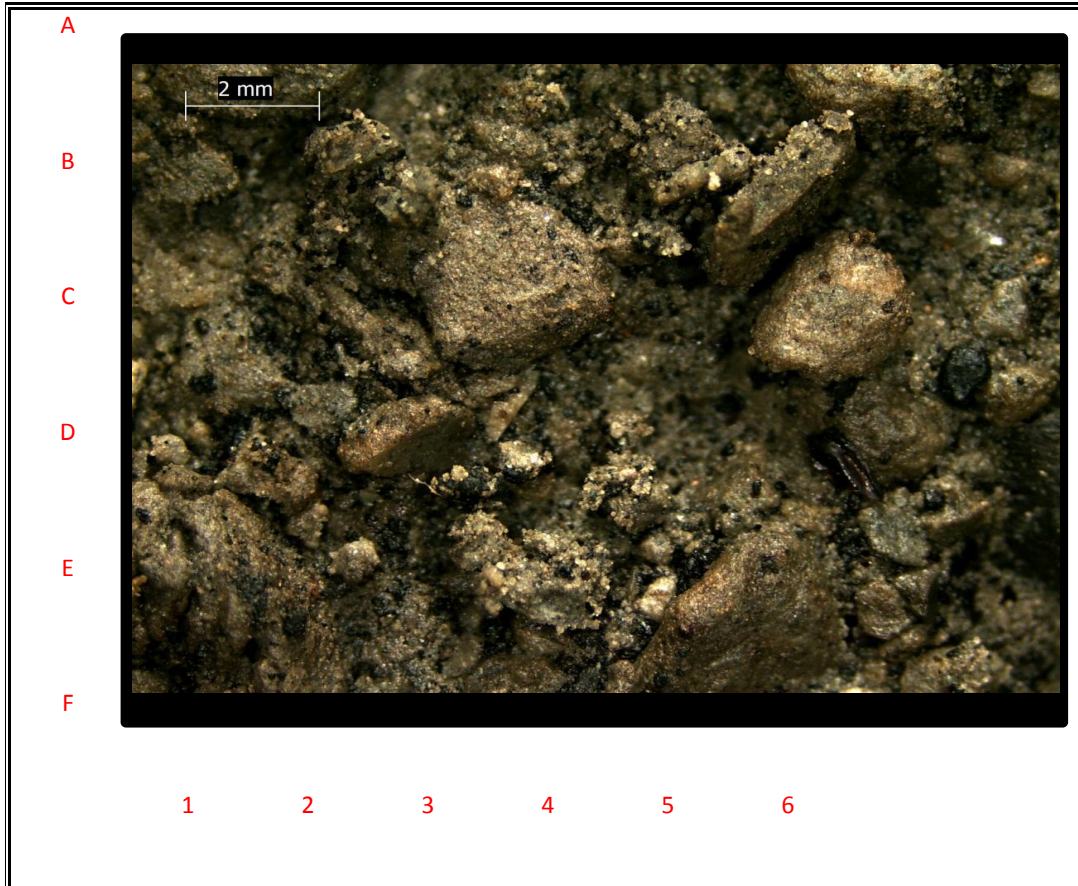




# DEPTH

**6570'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



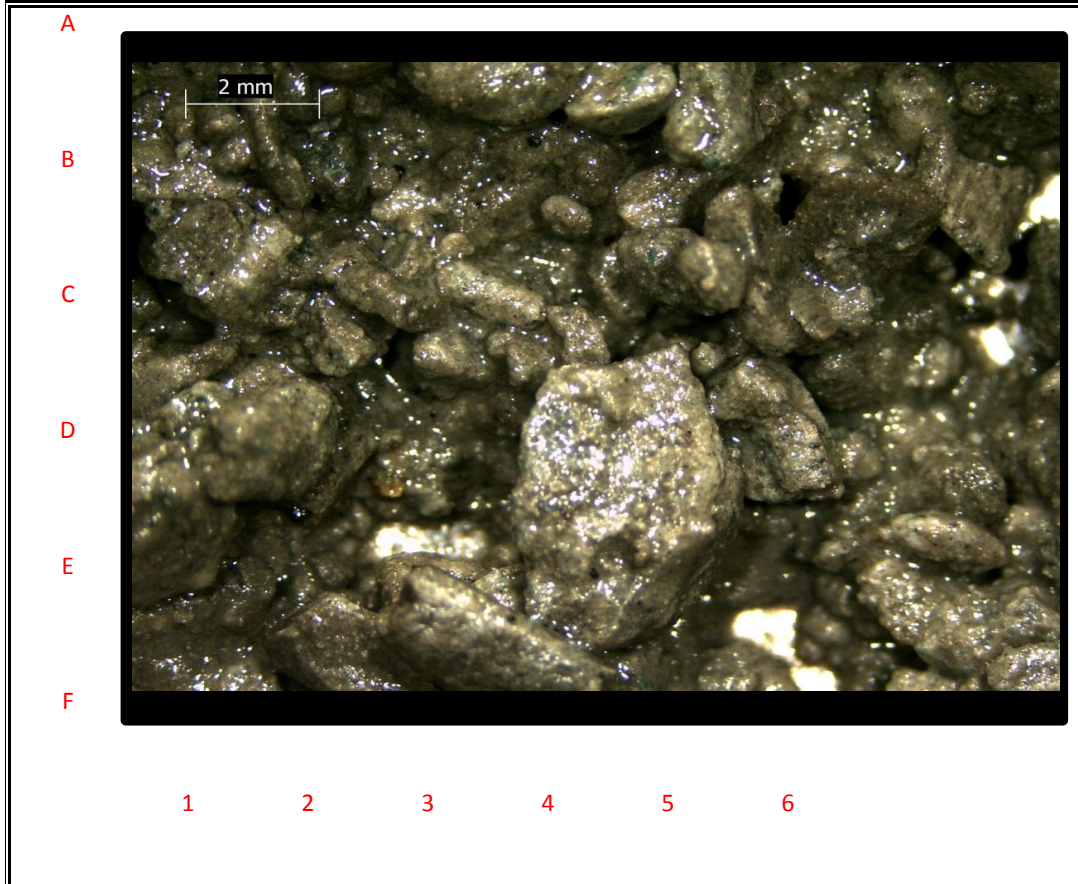
DEPTH	6570'	TIME		DATE	9/21/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
10%	CLYST	light gray to medium gray, soft to firm, blocky to crumbly, earthy,			
30%	SLTST	medium gray to light gray, firm to moderately hard, brittle, platy, earthy luster,			
60%	SST	transparent to translucent, very fine to fine grain, subangular to surrounded, well sorted, unconsolidated quartz, occasional calcareous			
		dull yellow fluorescence over 40% of sample, bright yellow crush cut, dull yellow residual fluorescence.			



# DEPTH

**6580'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	6580'	TIME		DATE	9/21/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
20%	CLYST	light gray to medium gray, soft to firm, blocky to crumbly, earthy,			
60%	SLTST	medium gray to light gray, firm to moderately hard, brittle, platy, earthy luster,			
20%	SST	transparent to translucent, very fine to fine grain, subangular to surrounded, well sorted, unconsolidated quartz, occasional calcareous			
		dull yellow fluorescence over 40% of sample, bright yellow crush cut, dull yellow residual fluorescence.			

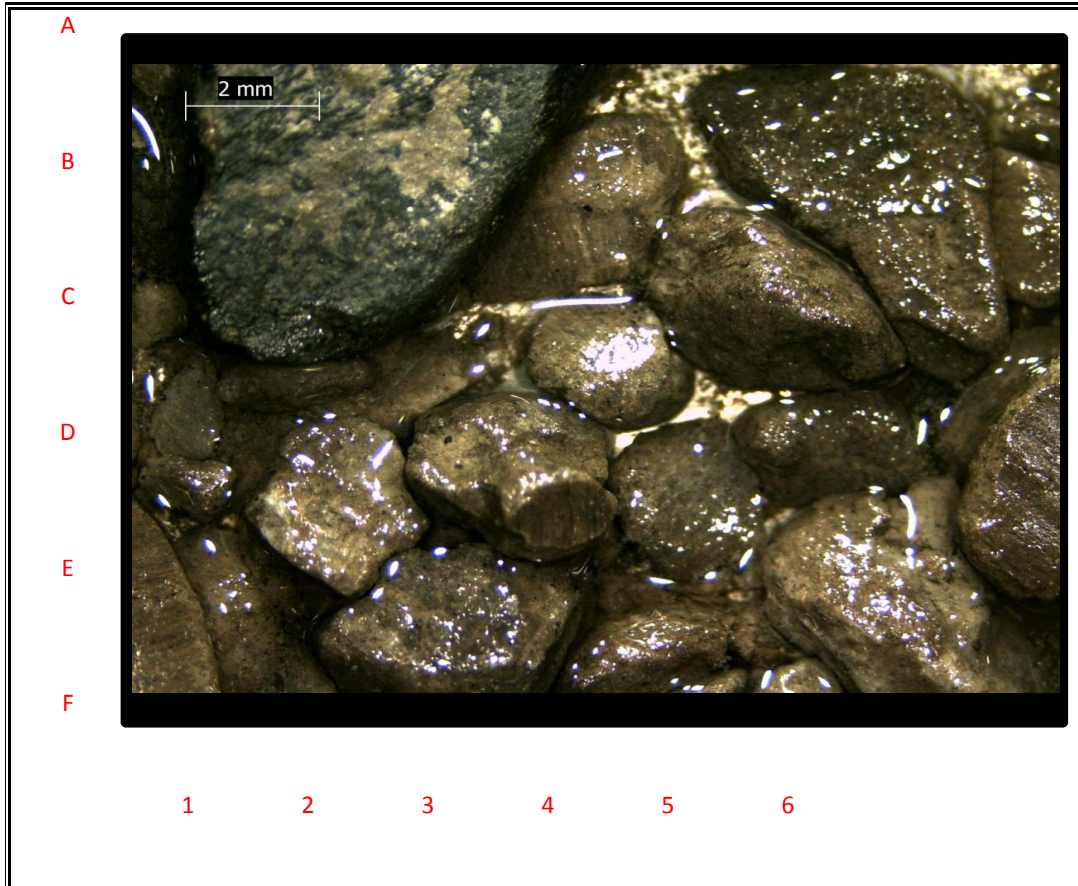




# DEPTH

**6600'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



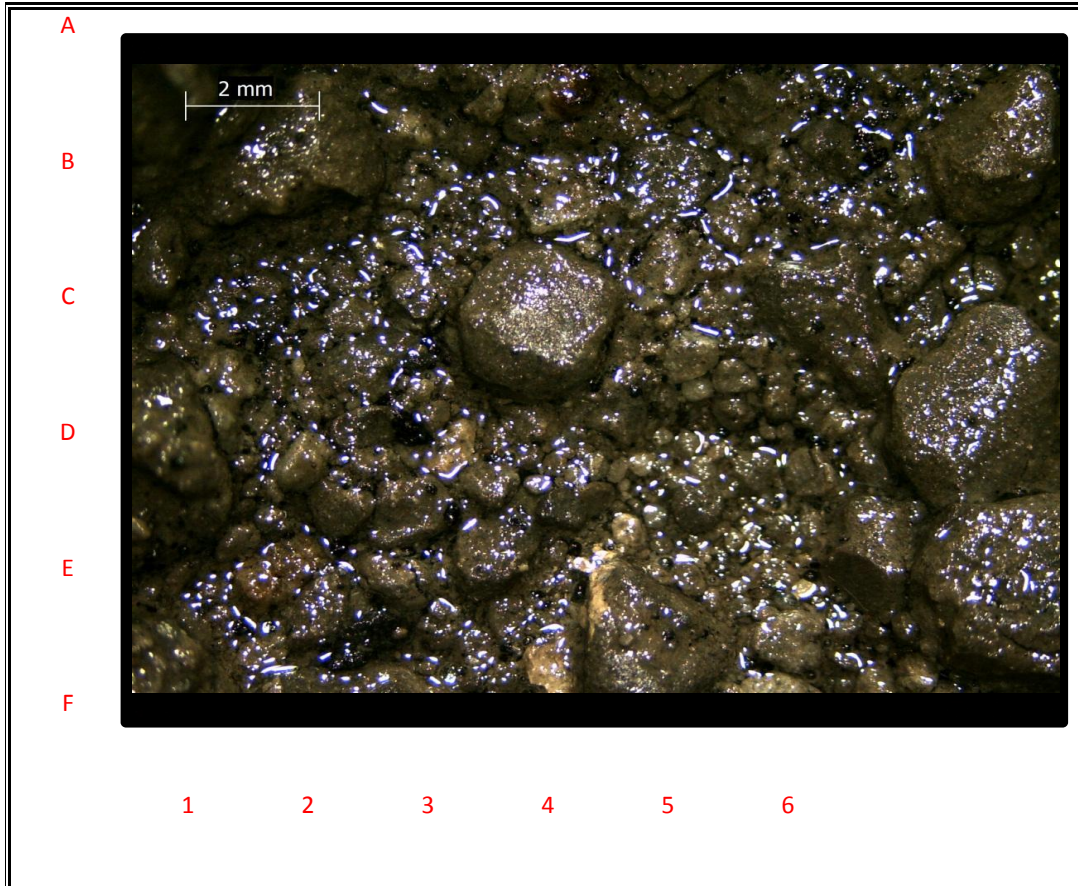
DEPTH	6600'	TIME		DATE	9/21/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
90%	SLTST	medium gray to light gray, firm to moderately hard, brittle, platy, earthy luster,			
10%	SST	transparent to translucent, very fine to fine grain, subangular to surrounded, well sorted, unconsolidated quartz, occasional calcareous			



# DEPTH

**6630'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	6630'	TIME		DATE	9/21/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
60%	SLTST	medium gray to light gray, firm to moderately hard, brittle, platy, earthy,			
20%	SST	transparent to translucent, very fine to fine grain, subangular to surrounded, well sorted, unconsolidated quartz, occasional calcareous			
20%	CLYST	light gray to medium gray, soft to firm, blocky to crumbly, earthy,			

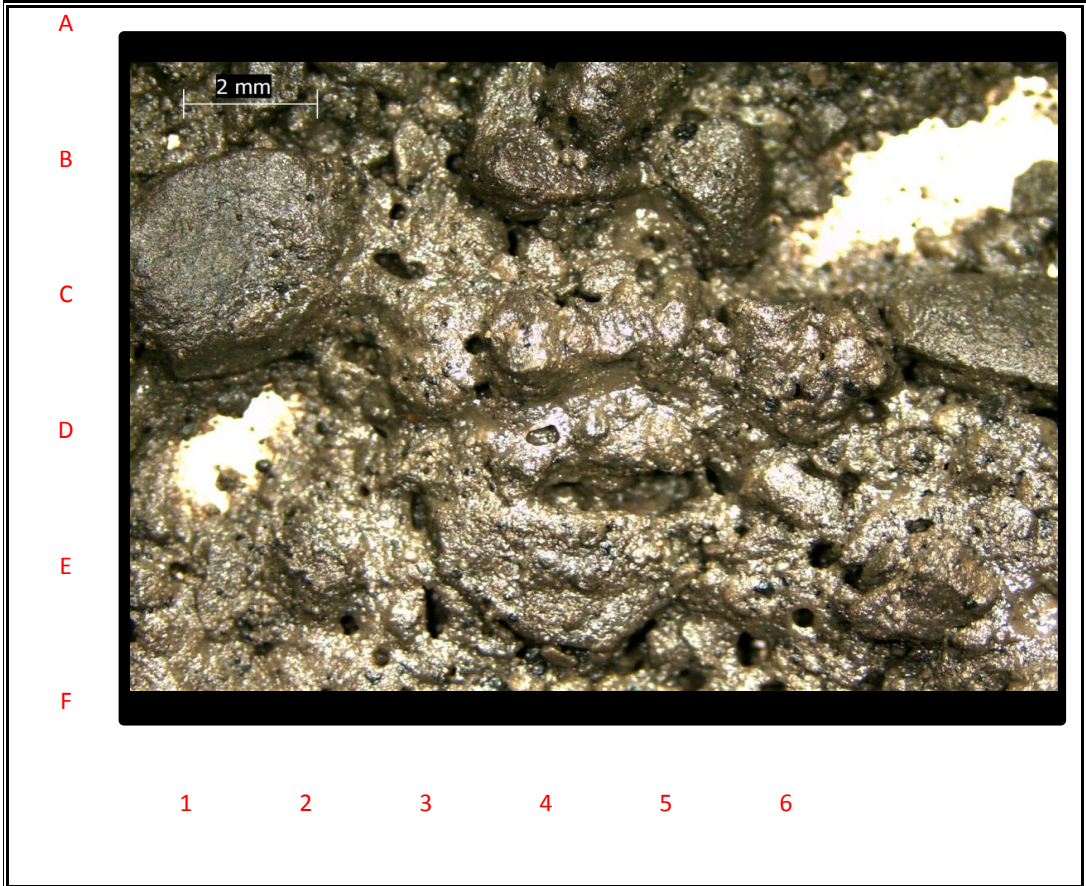




# DEPTH

**6660'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



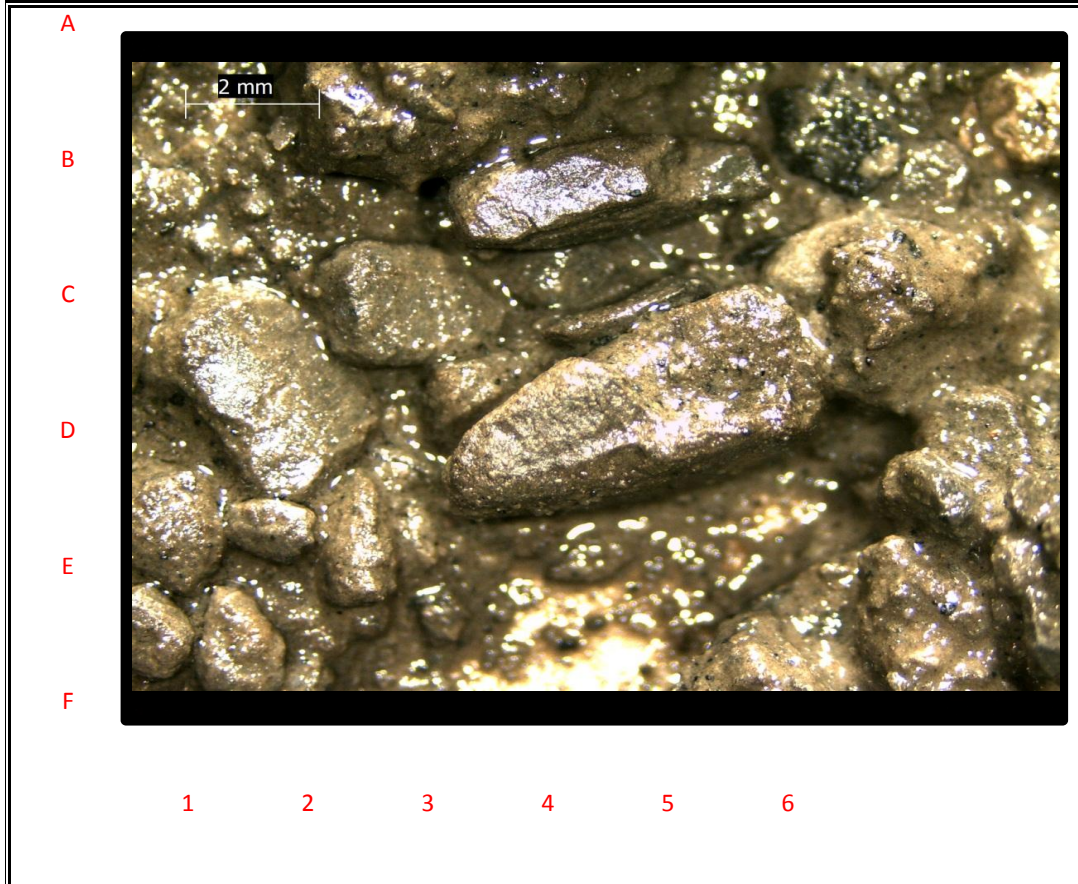
DEPTH	6660'	TIME		DATE	9/21/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
10%	SLTST	medium gray to light gray, firm to moderately hard, brittle, platy, earthy,			
30%	SST	transparent to translucent, light gray, very fine to fine grain, subangular to surrounded, well sorted, unconsolidated quartz, occasional calcareous			
60%	CLYST	light gray to medium gray, soft to firm, blocky to crumbly, earthy,			



# DEPTH

**6690'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	6690'	TIME		DATE	9/21/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
30%	SLTST	medium gray to light gray, firm to moderately hard, brittle, platy, earthy,			
10%	SST	transparent to translucent, light gray, very fine to fine grain, subangular to surrounded, well sorted, unconsolidated quartz, occasional calcareous			
60%	CLYST	light gray to medium gray, soft to firm, blocky to crumbly, earthy,			

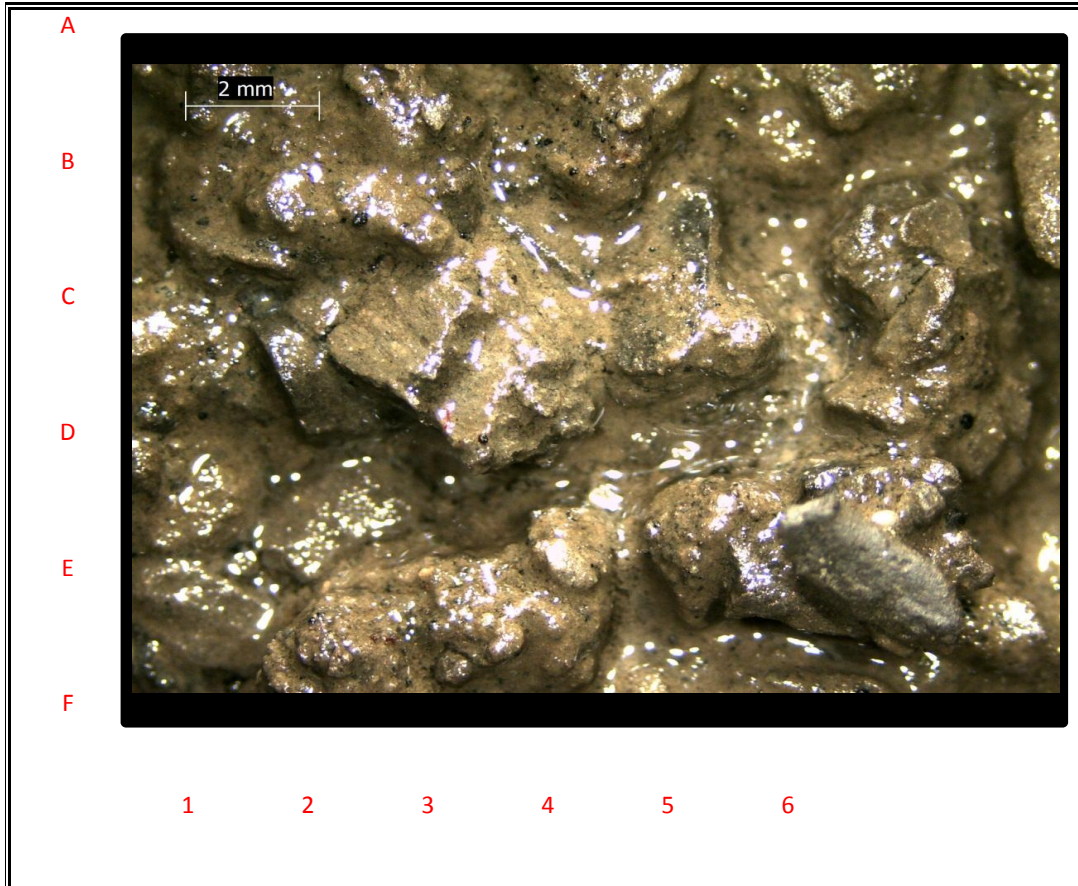




# DEPTH

**6720'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



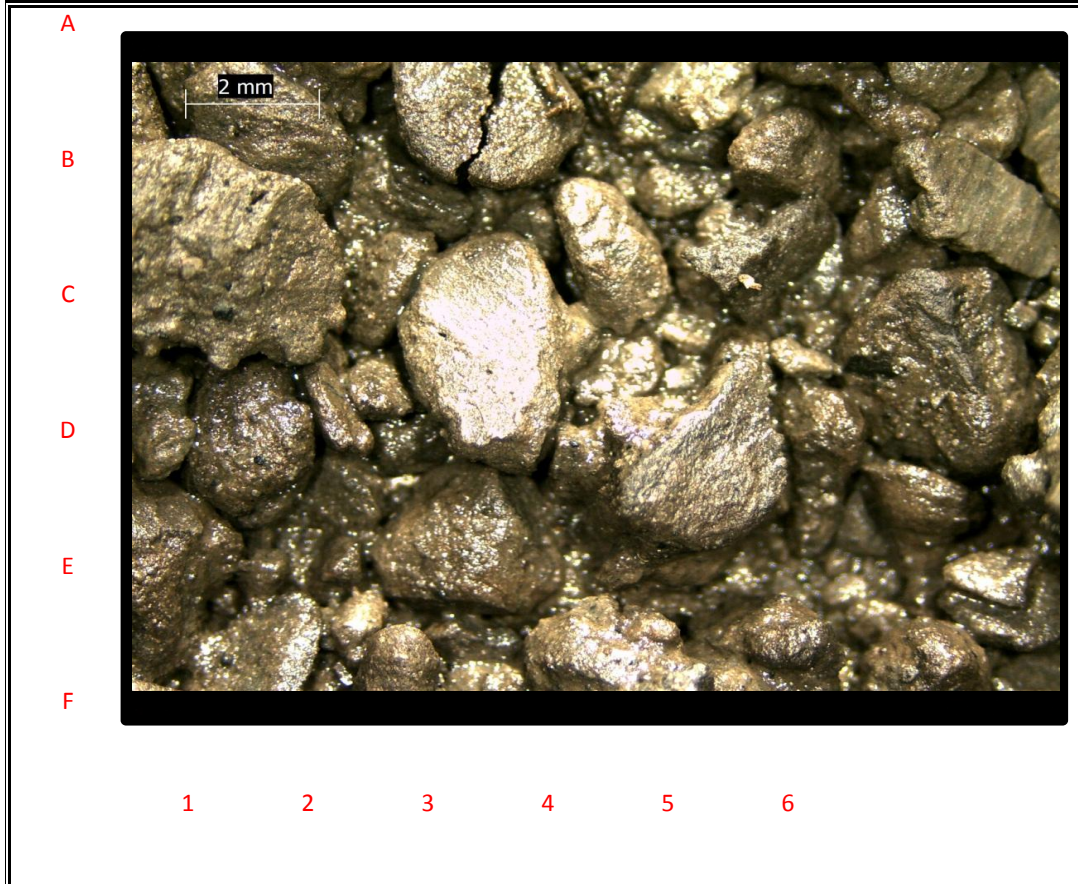
DEPTH	6720'	TIME		DATE	9/21/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
50%	SLTST	medium gray to light gray, firm to moderately hard, brittle, platy, earthy,			
10%	SST	transparent to translucent, light gray, very fine to fine grain, subangular to surrounded, well sorted, unconsolidated quartz, occasional calcareous			
40%	CLYST	light gray to medium gray, soft to firm, blocky to crumbly, earthy,			



# DEPTH

**6750'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	6750'	TIME		DATE	9/21/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
50%	SLTST	medium gray to light gray, firm to moderately hard, brittle, platy, earthy,			
10%	SST	transparent to translucent, light gray, very fine to fine grain, subangular to surrounded, well sorted, unconsolidated quartz, occasional calcareous			
40%	CLYST	light gray to medium gray, soft to firm, blocky to crumbly, earthy,			

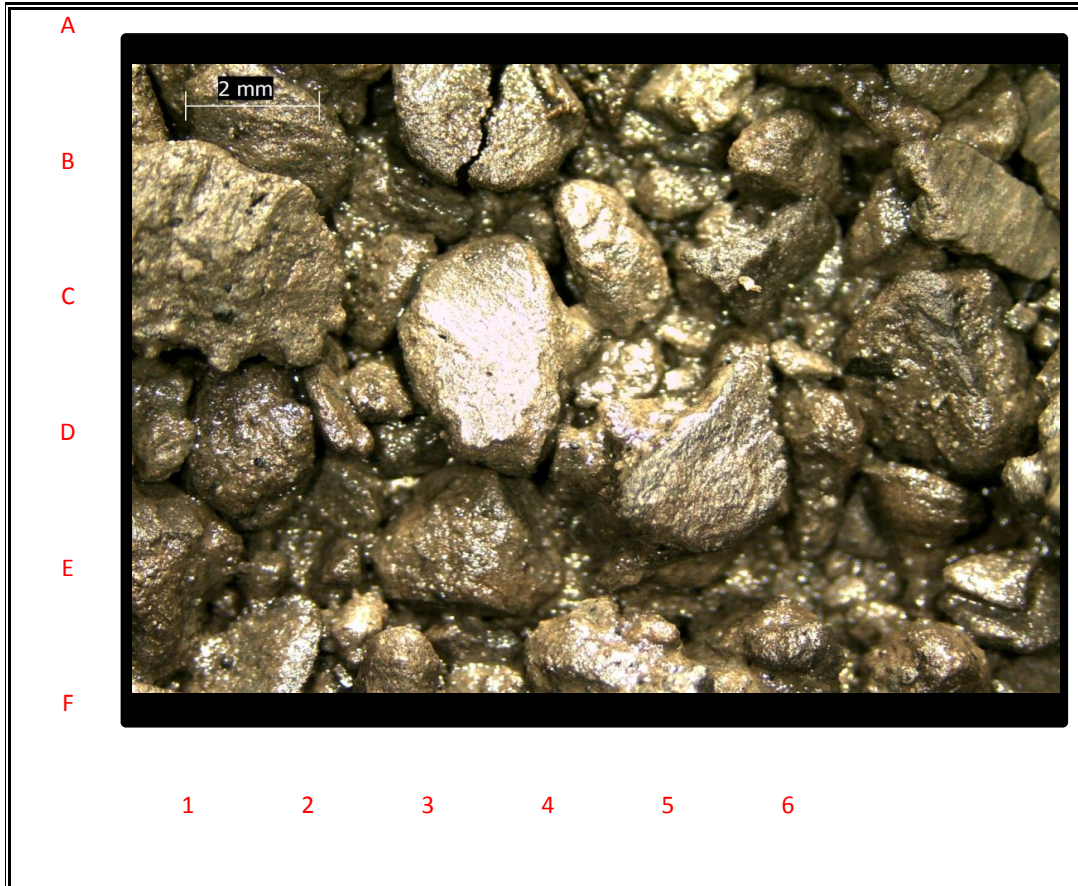




# DEPTH

**6780'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



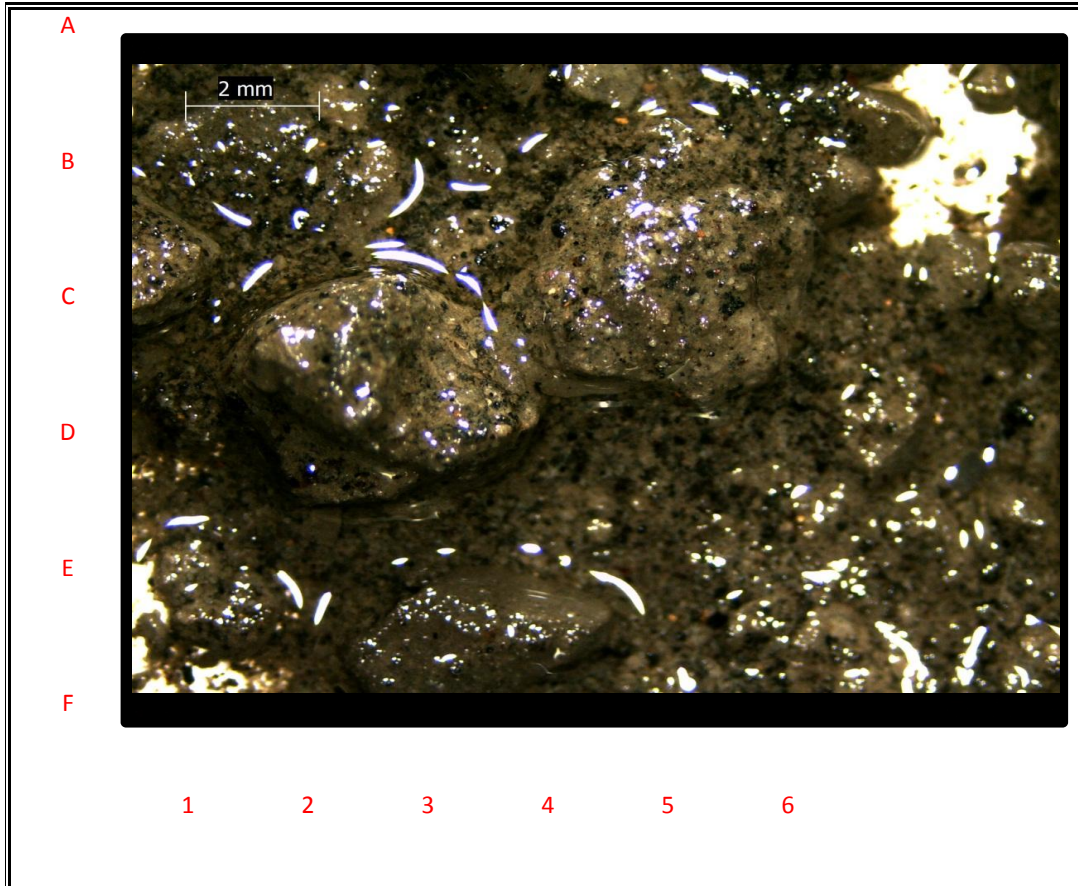
DEPTH	6780'	TIME		DATE	9/21/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
20%	SLTST	medium gray to light gray, firm to moderately hard, brittle, platy, earthy,			
20%	SST	transparent to translucent, light gray, very fine to fine grain, subangular to surrounded, well sorted, unconsolidated quartz, occasional calcareous			
60%	CLYST	light gray to medium gray, soft to firm, blocky to crumbly, earthy,			



# DEPTH

**6800'**

COMPANY:	Shell E&P	RIG NAME:	Polar Pioneer
WELL NAME:	OCS-Y-2321 #001	PROSPECT NAME:	Burger J
LOCATION:	Chukchi Sea	COUNTY / PARISH:	Offshore
STATE:	Alaska	API NUMBER:	55-352-00004-00
RSO NUMBER:		WBS / AFE NUMBER:	30230984



DEPTH	6800'	TIME		DATE	9/21/2015
LOGGING ENGINEER		Rebecca Mulkey			
PERCENT	FORMATION	DESCRIPTION			
20%	SLTST	medium gray to light gray, firm to moderately hard, brittle, platy, earthy,			
30%	SST	transparent to translucent, light gray, very fine to fine grain, subangular to surrounded, well sorted, unconsolidated quartz, occasional calcareous			
50%	CLYST	light gray to medium gray, soft to firm, blocky to crumbly, earthy,			