

ENVIRONMENTAL CROSSINGS, INC.

HOLE OPENING COMPARISON

CUBIC INCH PER INCH

Pilot Hole	Hole Opening Size																				
	0.00	4.50	4.75	6.75	8.75	9.88	10.63	12.75	15.00	17.50	20.00	22.00	24.00	26.00	30.00	32.00	36.00	42.00	48.00	54.00	60.00
4.50	16	0	2	20	44	61	73	112	161	225	298	364	436	515	691	788	1002	1385	1794	2265	2812
4.75	18		0	18	42	59	71	110	159	223	296	362	435	513	689	787	1000	1368	1792	2273	2810
6.75	36			0	24	41	53	92	141	205	278	344	417	495	671	768	982	1350	1774	2254	2792
8.75	60				0	16	89	68	117	180	254	320	392	471	647	744	958	1325	1749	2230	2767
9.88	77					0	12	51	100	164	238	304	376	454	630	728	941	1309	1733	2214	2751
10.63	89						0	39	88	152	225	291	364	442	618	716	929	1297	1721	2202	2739
12.75	128							0	49	113	186	252	325	403	579	677	890	1258	1682	2163	2700
15.00	177								0	64	137	203	276	354	530	628	841	1209	1633	2114	2651
17.50	241									0	74	140	212	290	466	564	777	1145	1569	2050	2587
20.00	314										0	66	138	217	393	490	704	1071	1495	1976	2513
22.00	380											0	72	151	327	424	638	1005	1429	1910	2447
24.00	452												0	79	254	352	565	933	1357	1838	2375
26.00	531													0	176	273	487	855	1279	1759	2297
30.00	707														0	97	311	679	1103	1583	2121
32.00	804															0	214	581	1005	1486	2023
36.00	1018																0	368	792	1272	1810
42.00	1385																	0	424	905	1442
48.00	1810																		0	481	1018
54.00	2290																			0	537
60.00	2827																				0

HOLE OPENING PASSES

Selection of Reaming Stages is Dependent on:

- Rig Power
- Drill String Limitations
- Pump's Volume Output (gpm)

FORMATION HARDNESS CTAGORIES

Soft Formation - 0 psi to 5,000 psi

Medium Formation - 5,000 psi to 10,000 psi

Hard Formation - 10,000 psi and Above