

SUMMARY OF STRATIGRAPHIC DATA FOR OIL AND GAS TEST WELLS IN IDWA

This listing provides geologic data about wells listed in "SUMMARY OF OIL AND GAS TEST WELLS IN IDWA". The well data includes:

Location	Formation tops
Elevation	Elevations
Total Depth	Thicknesses
GSB W-Number	Lithologies

This information has been retrieved from the cooperative IGS-USGS geologic file. Not all wells on the "SUMMARY listing" have been sample logged and coded into this "GEOLOGIC listing".

SYSTEM	GEOLOGICAL UNIT				DEPTH		ELEV. OF TOP	THICK-NESS	CONTACT SOURCE	ACCURACY		PRIMARY	LITHOLOGY		
	SERIES	GROUP	FORMATN	MEMBER	TOP	BDT				TOP	BDT		SECONDARY	MINOR	

COUNTY: ADAIR SEQUENCE 1
 LOCATION: NW NE NE SE 26 T077N R33W LAT. & LONG.: 41 26 20N 94 36 27W W-NUMBER: 03417 DEPTH: 1370 ELEVATION: 1367 (Alt.)

Quatern	Pleistoc	Wisconsin	Loess		0	30	1367	30	Samples	good	good	Loess				
			Pre-Illn		30	200	1337	170	Samples	good	good	Till	Silt	Coal		
					200	293	1167	93	Samples	good	good	Till				
Penn	Des Moines	Marmaton			293	355	1074	62	Samples	good	good	Shale	Sandstone	Limestone		
			Cherokee		355	820	1012	465	Samples	good	good	Shale	Sandstone	Siltstone		
Miss	Meramec	-----	Ste Gene		820	840	547	20	Samples	good	good	Shale	Dolomite	Limestone		
			St Louis		840	925	527	85	Samples	good	good	Ls & Dol	Sandstone	Gypsum		
Osage	-----	Warsaw			925	975	442	50	Samples	good	good	Shale	Dolomite	Chert		
			Keokuk		975	1060	392	85	Samples	good	good	Dolomite	Limestone	Chert		
			Burlingt		1060	1150	307	90	Samples	good	good	Limestone	Dolomite	Chert		
			Kinderhk	-----	Gilmore		1150	1200	217	50	Samples	good	good	Limestone		
					Hampton		1200	1275	167	75	Samples	good	good	Ls & Dol	Chert	Shale
					North Hl		1275	1285	92	10	Samples	good	good	Limestone		
Devonian	Upper	Yellow S	Maple Mi		1290	1345	77	55	Samples	good	good	Shale				
			-----	Lime Crk		1345	1370*	22	25*	Samples	good		Limestone			

COUNTY: ADAIR SEQUENCE 2
 LOCATION: NE NE SE 23 T077N R33W LAT. & LONG.: 41 27 12N 94 36 26W W-NUMBER: 03000 DEPTH: 1537 ELEVATION: 1404 (Alt.)

Quatern	Pleistoc	Pre-Illn			0	155	1404	155	Samples	good	good	Till	Sd & Grav		
					155	260	1249	105	Samples	good	good	Till	Sd & Grav		
Penn	Des Moines	Marmaton			260	415	1144	155	Samples	good	good	Shale	Sandstone	Dolomite	
			Cherokee		415	800	989	385	Samples	good	good	Sandstone	Shale	Coal	
Miss	Meramec	-----	Ste Gene		800	870	604	70	Samples	good	good	Limestone	Dolomite	Chert	
			St Louis		870	930	534	60	Samples	good	good	Dolomite	Shale	Limestone	
Osage	-----	Warsaw			930	960	474	30	Samples	good	good	Shale	Dolomite	Chert	
			Keokuk		960	1045	444	85	Samples	good	good	Dolomite	Chert	Shale	
			Burlingt		1045	1130	359	85	Samples	good	good	Limestone	Chert	Dolomite	
			Kinderhk	-----	Gilmore		1130	1175	274	45	Samples	good	good	Limestone	Chert
Devonian	Upper	Yellow S	Maple Mi		1303	1345	101	42	Samples	good	good	Shale			
			-----	Lime Crk		1345	1415	59	70	Samples	good	good	Limestone	Dolomite	
			Middle	-----	Cedar Va	1415	1537*	-11	122*	Samples	good		Ls & Dol	Shale	Gypsum

COUNTY: ADAIR SEQUENCE 3
 LOCATION: SE SE SE 34 T077N R33W LAT. & LONG.: 41 25 08N 94 37 35W W-NUMBER: 02656 DEPTH: 2119 ELEVATION: 1395 (Alt.)

Quatern	Pleistoc	Holocene	Recent		0	2	1395	2	Samples	good	good	Soil-fill		
		Wisconsin	Loess		2	16	1393	14	Samples	good	good	Loess		
		Pre-Illn			16	145	1379	129	Samples	good	good	Till	Sd & Grav	Coal
					145	267	1250	122	Samples	good	good	Till	Sd & Grav	

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* ASTERISK SIGNIFIES PARTIAL PENETRATION

COUNTY: 1 ADAIR

SYSTEM	GEOLOGICAL UNIT			DEPTH		ELEV. OF TOP	THICK-NESS	CONTACT SOURCE	ACCURACY		PRIMARY	LITHOLOGY		
	SERIES	GROUP	FORMATN MEMBER	TOP	BOT				TOP	BOT		SECONDARY	MINOR	
Devonian Upper	North Hl			265	264	483	19	Samples	good	good	Limestone	Dolomite	Chert	
			Prospect	284	292	464	8	Samples	good	good	Shale			
			McCraney	292	300	456	8	Samples	good	good	Limestone			
		Yellow S	English	300	317	448	17	Samples	good	good	Siltstone	Shale		
			Maple Mi	317	410	431	93	Samples	good	good	Shale			
	Middle		Sheffield	410	530	338	120	Samples	good	good	Shale			
			----- Lime Crk	530	660	218	130	Samples	good	good	Shale	Limestone		
			----- Cedar Va	660	685	88	25	Samples	good	good	Limestone	Chert		
				Solon	685	755	63	70	Samples	good	good	Limestone	Chert	Dolomite
				Wapsipin Davenprt	755	822	-7	67	Samples	good	good	Gypsum	Limestone	Dolomite
Ordovician	Cincinnati			822	852	-74	30	Samples	good	good	Dolomite	Gypsum		
				Kenwood	852	900	-104	48	Samples	good	good	Shale	Dolomite	Chert
	Champlai			900	1000	-152	100	Samples	good	good	Shale	Dolomite		
				Dunleith	1000	1075	-252	75	Samples	good	good	Limestone	Dolomite	Chert
	Ancestral			1075	1205	-327	130	Samples	good	good	Dolomite	Chert		
				Decorah	1205	1215	-457	10	Samples	good	good	Limestone		
				Guttenbg	1215	1228	-467	13	Samples	good	good	Limestone		
				Spechts	1228	1233	-480	5	Samples	good	good	Shale		
				----- Plattevl	1233	1265	-485	32	Samples	good	good	Limestone		
				Pecatoni	1265	1277	-517	12	Samples	good	good	Dolomite	Sandstone	
		Harmony	1277	1290	-529	13	Samples	good	good	Shale	Dolomite	Sandstone		
		St Peter	1290	1296*	-542	6*	Samples	good		Sandstone				

COUNTY: KEOKUK SEQUENCE 40
 LOCATION: NW NW SW 12 T076N R12W LAT. & LONG.: 41 24 05N 92 11 52W W-NUMBER: 22536 DEPTH: 1400 ELEVATION: 830(Level)

Quatern	Pleistoc	Wisconsin	Loess	0	10	830	10	Samples	good	good	Loess			
			undiff	10	94	820	84	Samples	good	good	Till	Sd & Grav	Subsoil	
Miss	Meramec	-----	St Louis	94	155	736	61	Samples	good	good	Dolomite	Limestone	Shale	
			Deage	155	169	675	14	Samples	good	good	Dolomite	Chert	Shale	
	Kendall	-----	Keokuk	169	205	661	36	Samples	good	fair	Limestone	Chert	Dolomite	
			Burlingt	205	226	625	21	Samples	poor	poor	Limestone	Dolomite	Chert	
			Haight C	226	260	604	34	Samples	poor	poor	Dolomite	Chert	Limestone	
	Kendall	-----	Dolbee C	260	270	570	10	Samples	fair	good	Limestone	Dolomite		
Hampton			270	310	560	40	Samples	good	good	Dolomite	Chert	Limestone		
Devonian Upper	North Hl			310	323	520	13	Samples	good	good	Limestone			
			Prospect	323	355	507	32	Samples	good	good	Siltstone	Shale		
			McCraney	355	368	475	13	Samples	good	good	Limestone			
		Yellow S	English	368	370	462	2	Samples	good	good	Siltstone			
			Maple Mi	370	471	460	101	Samples	good	good	Shale			
	Middle		Sheffield	471	569	359	98	Samples	good	good	Shale			
			----- Lime Crk	569	694	261	125	Samples	good	poor	Shale	Dolomite		
			----- Cedar Va	694	750	136	56	Samples	poor	poor	Limestone	Dolomite		
				Wapsipin Davenprt	750	861	-20	11	Samples	good	fair	Dolomite		
				Kenwood	861	866	-31	5	Samples	good	good	Dolomite	Shale	
Silurian	-----		866	887	-36	21	Samples	good	good	Dolomite	Chert			
Ordovician	Cincinnati	-----	Maquoket	887	1036	-57	149	Samples	good	poor	Shale	Dolomite		

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THIS DATA RETRIEVED FROM THE GSB AND USGS COOPERATIVE GEOLOGIC FILE (PHONE 319-335-1575).

SYSTEM	GEOLOGICAL UNIT				DEPTH		ELEV. OF TOP	THICK-NESS	CONTACT SOURCE	ACCURACY		PRIMARY	LITHOLOGY		
	SERIES	GROUP	FORMATN	MEMBER	TOP	BOT				TOP	BOT		SECONDARY	MINOR	
Penn	Des Moine	Marmaton			267	390	1128	123	Samples	good	good	Shale	Sandstone	Dolomite	
		Cherokee			390	908	1005	518	Samples	good	good	Shale	Sandstone	Coal	
Miss	Meramec	-----	St Louis		908	940	487	32	Samples	good	good	Dolomite	Sandstone		
			Spergen		940	960	455	20	Samples	good	good	Dolomite	Sandstone	Limestone	
	Osage	-----	Warsaw		960	998	435	38	Samples	good	good	Shale	Dolomite	Chert	
			Keokuk		998	1080	397	82	Samples	good	good	Ls & Dol	Chert	Shale	
			Burlingt		1080	1173	315	93	Samples	good	good	Ls & Dol	Chert	Shale	
		Kinderhk	-----	Gilmore		1173	1210	222	37	Samples	good	good	Limestone	Shale	
				Hampton		1210	1303	185	93	Samples	good	good	Ls & Dol	Chert	Shale
Devonian	Upper	Yellow S	North Hl Prospect		1303	1311	92	8	Samples	good	good	Siltstone			
			Maple Mi		1311	1359	84	48	Samples	good	good	Shale			
	Middle	-----	Lime Crk		1359	1425	36	66	Samples	good	good	Limestone	Dolomite	Shale	
			Cedar Va		1425	1500	-30	75	Samples	good	good	Dolomite	Limestone	Shale	
			Rapid		1500	1820	-105	320	Samples	good	good	Dolomite	Gypsum	Shale	
			Solon		1820	1860	-425	40	Samples	good	good	Dolomite	Shale	Gypsum	
			Wapsipin		1860	2004	-465	144	Samples	good	good	Dolomite	Shale	Chert	
Ordovician	Cincinnati	-----	Maquoket		2004	2119*	-609	115*	Samples	good		Chert	Dolomite	Shale	

COUNTY: APPANOOSE

SEQUENCE 4

LOCATION: NW SW NW 22 T070N R16W LAT. & LONG.: 40 51 04N 92 41 44W W-NUMBER: 22594 DEPTH: 1462 ELEVATION: 845 (Alt.)

Quatern	Pleistoc	Wisconsin Loess			0	10	845	10	No Smpl	poor	poor	Loess		
		undiff			10	120	835	110	No Smpl	poor	poor	Till	Sd & Grav	
Penn	Des Moine	Cherokee			120	280	725	160	Samples	good	good	Shale	Sandstone	
Miss	Meramec	-----	St Louis		280	330	565	50	Samples	good	good	Dolomite	Sandstone	Limestone
			Spergen		330	379	515	49	Samples	good	good	Dolomite	Gypsum	Limestone
	Osage	-----	Warsaw		379	426	466	47	Samples	good	good	Shale	Dolomite	Chalcedony
			Keokuk		426	520	419	94	Samples	good	good	Limestone	Shale	Dolomite
			Burlingt		520	542	325	22	Samples	good	good	Limestone	Chert	Shale
			Haight C		542	600	303	58	Samples	good	good	Dolomite	Limestone	Chert
			Doibee C		600	614	245	14	Samples	good	good	Limestone	Dolomite	Chert
	Kinderhk	-----	Hampton		614	640	231	26	Samples	good	good	Limestone	Dolomite	
			Maynes C		640	689	205	49	Samples	good	good	Limestone	Dolomite	Chert
Devonian	Upper	North Hl			689	739	156	50	Samples	good	good	Limestone		
			Yellow S	Maple Mi		739	768	106	29	Samples	good	good	Shale	Limestone
	Middle	-----	Aplingt		768	789	77	21	Samples	good	good	Dolomite	Limestone	
			Sheffiel		789	839	56	50	Samples	good	good	Shale	Dolomite	
			Lime Crk		839	1075	6	236	Samples	good	fair	Limestone	Dolomite	Shale
			Cedar Va		1075	1205	-230	130	Samples	poor	poor	Dolomite		
			Wapsipin		1205	1295	-360	90	Samples	poor	poor	Sandstone	Dolomite	Chert
Ordovician	Champlai	Galena	Dub./Wis		1295	1375*	-450	80*	Samples	fair		Dolomite	Chert	
			Dunleith		1375	1460*	-530	85*	Samples	fair		Dolomite	Chert	
			sample gap		1460	1462	-615	2						

SYSTEM	GEOLOGICAL UNIT			MEMBER	DEPTH		ELEV. OF TOP	THICK-NESS	CONTACT SOURCE	ACCURACY		LITHOLOGY									
	SERIES	GROUP	FORMATN		TOP	BOT				TOP	BOT	PRIMARY	SECONDARY	MINOR							
COUNTY: BREMER													SEQUENCE 5								
LOCATION: NE NE NE SE 7 T093N R12W													LAT. & LONG.: 42 53 03N 92 17 54W		W-NUMBER:		DEPTH: 1025		ELEVATION: 1051 (Alt.)		
Quatern	Pleistoc				0	38	1051	38	Drl Log	fair	fair	Till									
Devonian	Middle	-----	Wapsipin		38	72	1013	34	Drl Log	fair	fair	Shale									
Silurian					72	103	979	31	Drl Log	fair	fair	Limestone									
Ordovician	Cincinnati	-----	Maquoket	Brainard	103	235	948	132	Drl Log	fair	fair	Shale									
				Ft Atkin	235	300	816	65	Drl Log	fair	fair	Limestone									
				Clermont	300	316	751	16	Drl Log	fair	fair	Shale									
				Elgin	316	367	735	51	Drl Log	fair	fair	Limestone									
Champlai	Galena			Dub./Wis	367	450	684	83	Drl Log	fair	fair	Limestone									
				Dunleith	450	577	601	127	No Smpl	poor	poor	Limestone									
				Dec/Plat	577	665	474	88	Drl Log	fair	fair	Shale	Limestone								
	Ancell		St Peter	665	717	386	52	Drl Log	fair	fair	Sandstone										
Canadian	Prairie			Shakopee	Willow R	717	838	334	121	Drl Log	fair	fair	Limestone								
					New Rich	838	883	213	45	Drl Log	fair	fair	Sandstone								
					Oneota	883	1025*	168	142*	Drl Log	fair	Limestone									

COUNTY: BUTLER													SEQUENCE 6								
LOCATION: SW NE NE 15 T090N R15W													LAT. & LONG.: 42 36 42N 92 35 39W		W-NUMBER: 1442B		DEPTH: 3595		ELEVATION: 896 (Alt.)		
Quatern	Pleistoc				0	1	896	1	Samples	good	good	Soil-fill									
					undiff	1	122	895	121	Samples	good	good	Sd & Grav	Silt	Clay						
Devonian	Middle	-----	Cedar Va	Coralvil	122	155	774	33	Samples	good	good	Limestone	Dolomite								
				Rapid	155	210	741	55	Samples	good	good	Dolomite	Limestone	Chert							
				Solon	210	283	686	73	Samples	good	good	Limestone	Dolomite								
				Wapsipin	Davenprt	283	293	613	10	Samples	good	good	Limestone								
					Spring 6	293	307	603	14	Samples	good	good	Limestone	Dolomite							
					Kenwood	307	316	589	9	Samples	good	good	Limestone	Chert	Sandstone						
Silurian					316	353	580	37	Samples	good	good	Limestone	Dolomite								
Ordovician	Cincinnati				353	519	543	166	Samples	good	good	Shale	Dolomite	Limestone							
				-----	Maquoket	Clermont	519	546	377	27	Samples	good	good	Limestone	Shale						
						Elgin	546	641	350	95	Samples	good	good	Chert	Limestone	Dolomite					
				Champlai					641	731	255	90	Samples	good	good	Limestone					
								Galena	Dunleith	731	855	165	124	Samples	good	good	Limestone	Dolomite	Chert		
									Decorah	Ion	855	872	41	17	Samples	good	good	Limestone			
								Guttenbg	872	887	24	15	Samples	good	good	Limestone					
								Spechts	887	893	9	6	Samples	good	good	Shale	Limestone				
	-----	Plattevl	McGregor	893	927	3	34	Samples	good	good	Limestone										
	Ancell		Glenwood	Harmony	927	934	-31	7	Samples	good	good	Shale									
Canadian	Prairie			St Peter	934	987	-38	53	Samples	good	good	Sandstone									
				Shakopee	Willow R	987	1139	-91	152	Samples	good	fair	Sandstone	Dolomite	Chert						
						New Rich	1139	1225	-243	86	Samples	poor	poor	Sandstone	Dolomite	Chert					
			Oneota	1225	1410	-329	185	Samples	fair	good	Limestone	Sandstone	Chert								
Cambrian	St Croix	Trempeal		Jordan	1410	1502	-514	92	Samples	good	good	Sandstone									
					St Lawre	1502	1615	-606	113	Samples	good	fair	Dolomite	Sandstone							

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SYSTEM	GEOLOGICAL UNIT				DEPTH		ELEV. OF TOP	THICK-NESS	CONTACT SOURCE	ACCURACY		PRIMARY	LITHOLOGY	
	SERIES	GROUP	FORMATN	MEMBER	TOP	BOT				TOP	BOT		SECONDARY	MINOR
		Tunnel C	LoneRock		1615	1810	-719	195	Samples	poor	poor	Shale	Dolomite	Siltstone
		ElkMound	Gales./E		1810	2321	-914	511	Samples	poor	poor	Sandstone	Dolomite	Shale
			EauClair		1810	2125	-914	315	Samples	poor	poor	Shale	Sandstone	Siltstone
			Mt Simon		2125	2321	-1229	196	Samples	poor	poor	Sandstone		
Precambr	Red Clas				2321	3595*	-1425	1274*	Samples	good		Sandstone		

COUNTY: CHICKASAW SEQUENCE 7
 LOCATION: NE NE NE 29 T096N R14W LAT. & LONG.: 43 06 42N 92 30 58W W-NUMBER: 12682 DEPTH: 600 ELEVATION: 1157 (Topo)

Quatern	Pleistoc	Wisconsin	Loess		0	3	1157	3	Samples	good	good	Loess		
			undiff		3	70	1154	67	Samples	good	good	Till	Sd & Grav	
Devonian	Middle	-----	Cedar Va	Rapid	70	220	1087	150	Samples	good	fair	Dolomite	Limestone	Shale
				Solon	220	285	937	65	Samples	fair	good	Dolomite	Sandstone	Chert
Ordovician	Cincinnati	-----	Maquoket	Brainard	285	297	872	12	Samples	good	good	Shale		
				Ft Atkin	297	405	860	108	Samples	good	good	Limestone	Dolomite	Chert
	Champlai	Galena	Dub./Wis		405	500*	752	95*	Samples	good		Limestone	Dolomite	Chert
			Dunleith		500	600*	657	100*	Samples	good		Limestone	Dolomite	Chert

COUNTY: DALLAS SEQUENCE 8
 LOCATION: NE NW SW SE 26 T079N R29W LAT. & LONG.: 41 37 05N 94 11 30W W-NUMBER: 01757 DEPTH: 1980 ELEVATION: 1070 (Alt.)

Quatern	Pleistoc	Holocene	Recent		0	5	1070	5	Samples	good	good	Soil-fill		
			undiff		5	35	1065	30	Samples	good	good	Till		
Penn	Des Moines	Cherokee			35	355	1035	320	Samples	good	good	Shale	Sandstone	Siltstone
Miss	Meramec	-----	St Louis		355	395	715	40	Samples	good	good	Limestone	Sandstone	Chert
	Osage	-----	Warsaw		395	490	675	95	Samples	good	good	Dolomite	Limestone	Chert
			Keokuk		490	585	580	95	Samples	good	good	Dolomite	Chert	Shale
			Burlingt		585	655	485	70	Samples	good	good	Chert	Dolomite	Limestone
	Kinderhook	-----	Bilmore		655	695	415	40	Samples	good	good	Limestone	Dolomite	Chert
			Hampton		695	715	375	20	Samples	good	good	Dolomite	Limestone	Chert
			Maynes C		715	765	355	50	Samples	good	good	Dolomite	Chert	
			North HI		765	783	305	18	Samples	good	good	Limestone	Dolomite	Chert
Devonian	Upper	Yellow S	Maple Mi		783	822	287	39	Samples	good	good	Shale		
			Aplington		822	846	248	24	Samples	good	good	Dolomite	Chert	Shale
			-----	Lime Crk	846	934	224	88	Samples	good	good	Limestone	Dolomite	Chert
	Middle	-----	Cedar Va	Coralvil	934	987	136	53	Samples	good	good	Dolomite	Sandstone	
				Rapid	987	1300	83	313	Samples	good	good	Dolomite	Gypsum	
				Solon	1300	1340	-230	40	Samples	good	good	Dolomite	Gypsum	Shale
				Wapsipin	1340	1405	-270	65	Samples	good	good	Dolomite	Chert	Sandstone
Silurian	-----				1405	1450	-335	45	Samples	good	good	Dolomite	Sandstone	Chert
Ordovician	Cincinnati	-----	Maquoket	Neda	1450	1460	-380	10	Samples	good	good	Shale		
				Brainard	1460	1478	-390	18	Samples	good	good	Shale		
				Ft Atkin	1478	1625	-408	147	Samples	good	good	Chert	Dolomite	Shale
				Clermont	1625	1649	-555	24	Samples	good	good	Limestone	Dolomite	Chert
				Elgin	1649	1730	-579	81	Samples	good	good	Chert	Dolomite	Shale
	Champlai	Galena	Dub./Wis		1730	1780	-660	50	Samples	good	good	Dolomite	Chert	

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SYSTEM	GEOLOGICAL UNIT			DEPTH		ELEV. OF TOP	THICK-NESS	CONTACT SOURCE	ACCURACY		PRIMARY	LITHOLOGY		
	SERIES	GROUP	FORMATN MEMBER	TOP	BOT				TOP	BOT		SECONDARY	MINOR	
			Dunleith		1780	1894	-710	114	Samples	good	good	Dolomite	Chert	
			Decorah	Ion	1894	1902	-824	8	Samples	good	good	Dolomite	Shale	
				Guttenbg	1902	1909	-832	7	Samples	good	good	Limestone	Sandstone	
				Spechts	1909	1916	-839	7	Samples	good	good	Shale	Sandstone	
		-----	Plattevl	McGregor	1916	1933	-846	17	Samples	good	good	Shale	Dolomite	Sandstone
				Pecatoni	1933	1940	-863	7	Samples	good	good	Limestone	Shale	
	Ancell		Glenwood	Harmony	1940	1953	-870	13	Samples	good	good	Shale	Sandstone	
				St Peter	1953	1980*	-883	27*	Samples	good		Sandstone		

COUNTY: DALLAS SEQUENCE 9
 LOCATION: SW NW SW 2 T07BN R29W LAT. & LONG.: 41 35 03N 94 09 54W W-NUMBER: 02026 DEPTH: 305 ELEVATION: 918 (Alt.)

Quatern	Pleistoc				0	10	918	10	Samples	good	good	Silt		
Penn	Des Main	Cherokee			10	275	908	265	Samples	good	fair	Sandstone	Shale	
Miss	Meramec	-----	St Louis		275	304	643	29	Samples	fair	good	Limestone	Dolomite	Chert
	Osage	-----	Warsaw		304	305*	614	1*	Samples	good		Limestone		

COUNTY: DALLAS SEQUENCE 10
 LOCATION: NW NE NE 17 T07BN R28W LAT. & LONG.: 41 33 34N 94 05 40W W-NUMBER: 02327 DEPTH: 1933 ELEVATION: 1008 (Alt.)

Quatern	Pleistoc				0	145	1008	145	Samples	good	poor	Till	Sand	
Penn	Des Main	Marmaton			145	190	863	45	Samples	poor	good	Shale	Sandstone	Limestone
		Cherokee			190	675	818	485	Samples	good	good	Shale	Sandstone	Siltstone
Miss	Meramec	-----	St Louis		675	688	333	13	Samples	good	good	Limestone	Sandstone	Shale
			Spergen		688	715	320	27	Samples	good	fair	Dolomite		
	Osage	-----	Warsaw		715	785	293	70	Samples	fair	good	Dolomite	Chert	
			Keokuk		785	875	223	90	Samples	good	good	Dolomite	Chert	Shale
			Burlingt	Cedar Fk	875	902	133	27	Samples	good	good	Limestone	Chert	
				Haight C	902	962	106	60	Samples	good	good	Dolomite	Chert	Shale
	Kinderhk	-----	Bilmore		962	976	46	14	Samples	good	good	Dolomite	Chert	
			Hampton		976	1075	32	99	Samples	good	good	Dolomite	Limestone	Chert
			North Hl		1075	1090	-67	15	Samples	good	good	Limestone	Dolomite	Chert
			Prospect		1090	1115	-82	25	Samples	good	good	Shale	Siltstone	
Devonian	Upper	Yellow S	Maple Mi		1115	1143	-107	28	Samples	good	good	Shale		
		-----	Lime Crk		1143	1263	-135	120	Samples	good	good	Limestone	Chert	
	Middle	-----	Cedar Va	Coralvil	1263	1333	-255	70	Samples	good	good	Dolomite	Shale	Sandstone
				Rapid	1333	1635	-325	302	Samples	good	good	Dolomite	Gypsum	Shale
				Solon	1635	1690	-627	55	Samples	good	good	Dolomite	Shale	Gypsum
			Wapsipin	Kenwood	1690	1757	-682	67	Samples	good	good	Dolomite	Shale	Chert
Silurian	-----	-----	LaPorte		1757	1813	-749	56	Samples	good	good	Silt	Dolomite	Shale
			undiff		1813	1840	-805	27	Samples	good	good	Dolomite	Shale	Chert
Ordovician	Cincinnati	-----	Maquoket	Neda	1840	1865	-832	25	Samples	good	good	Shale		
				Brainard	1865	1887	-857	22	Samples	good	good	Shale	Dolomite	
				Ft Atkin	1887	1933*	-879	46*	Samples	good		Dolomite	Shale	Chert

* ASTERISK SIGNIFIES PARTIAL PENETRATION

SYSTEM	GEOLOGICAL UNIT				DEPTH		ELEV. OF TOP	THICK-NESS	CONTACT SOURCE	ACCURACY		PRIMARY	LITHOLOGY	
	SERIES	GROUP	FORMATN	MEMBER	TOP	BOT				TOP	BOT		SECONDARY	MINOR
COUNTY: DAVIS SEQUENCE 11														
LOCATION: SE SW SW 31 T070N R13W LAT. & LONG.: 40 48 50N 92 24 19W W-NUMBER: 16895 DEPTH: 327 ELEVATION: 855 (Alt.)														
Quatern	Pleistoc	Wisconsin	Loess		0	20	855	20	Samples	good	good	Loess		
			undiff		20	205	835	185	Samples	good	good	Till		
Penn	Des Moines	Cherokee			205	280	650	75	Samples	good	good	Shale	Sandstone	
Miss	Meramec	-----	St Louis		280	327*	575	47*	Samples	good		Ls & Dol	Sandstone	Chert

COUNTY: DAVIS SEQUENCE 12														
LOCATION: NW NE NW 13 T067N R14W LAT. & LONG.: 40 36 32N 92 25 17W W-NUMBER: 18123 DEPTH: 1435 ELEVATION: 824 (Level)														
Quatern	Pleistoc				0	122	824	122	Dril Log	fair	fair	Till		
Penn					122	350	702	228	Samples	poor	good	Shale	Sandstone	Limestone
Miss	Meramec	-----	St Louis		350	418	474	68	Samples	good	good	Limestone	Dolomite	Chert
			Spergen		418	425	406	7	Samples	good	good	Sandstone		
	Osage	-----	Warsaw		425	485	399	60	Samples	good	good	Shale	Dolomite	Chert
			Keokuk		485	560	339	75	Samples	good	good	Limestone	Dolomite	Chert
			Burlingt		560	675	264	115	Samples	good	good	Limestone	Dolomite	Chert
	Kinderhook	-----	Hampton	Maynes C	675	730	149	55	Samples	good	fair	Limestone	Dolomite	Chert
			North Hl		730	785	94	55	Samples	fair	good	Limestone		
			Prospect		785	815	39	30	Samples	good	good	Shale	Limestone	
			McCraney		815	821	9	6	Samples	good	good	Limestone		
Devonian	Upper	Yellow S	English		821	829	3	8	Samples	good	good	Siltstone	Shale	
			Maple Mt		829	893	-5	64	Samples	good	good	Shale	Limestone	
			-----	Lime Crk	893	940	-69	47	Samples	good	good	Limestone	Shale	
	Middle	-----	Cedar Va	Coralvil	940	1010	-116	70	Samples	good	good	Limestone		
				Rapid	1010	1050	-186	40	Samples	good	good	Limestone	Dolomite	
				Solon	1050	1112	-226	62	Samples	good	fair	Limestone	Dolomite	
				Wapsipin	1112	1130	-288	18	Samples	poor	poor	Limestone		
				Spring B	1130	1145	-306	15	Samples	poor	poor	Limestone	Chert	
				Kenwood	1145	1152	-321	7	Samples	fair	good	Sandstone	Limestone	
Ordovician	Champlai	Galena	Dub./Wis		1152	1300	-328	148	Samples	good	good	Dolomite	Chert	
			Dec/Plat		1300	1328	-476	28	Samples	good	good	Dolomite	Shale	Sandstone
			Ancell	Glenwood	1328	1337	-504	9	Samples	fair	good	Sandstone	Shale	
				Harmony	1337	1355	-513	18	Samples	good	good	Shale		
				St Peter	1355	1385	-531	30	Samples	good	good	Sandstone		
	Canadian	Prairie	Shakopee	Willow R	1385	1435*	-561	50*	Samples	good		Dolomite	Chert	

COUNTY: DECATUR SEQUENCE 13														
LOCATION: SW NW 8 T066N R26W LAT. & LONG.: 40 42 11N 93 52 45W W-NUMBER: 06339 DEPTH: 2335 ELEVATION: 978 (Alt.)														
Quatern	Pleistoc				0	160	978	160						
Penn	Des Moines	Marston			160	220	818	60	Samples	poor	good	Shale	Limestone	
		Cherokee			220	895	758	675	Samples	good	good	Shale	Sandstone	Dolomite
Miss	Meramec	-----	St Louis		895	950	83	55	Samples	good	good	Limestone	Sandstone	

(Record continues on next page)

* ASTERISK SIGNIFIES PARTIAL PENETRATION

COUNTY: 27 DECATUR

SYSTEM	GEOLOGICAL UNIT				DEPTH		ELEV. OF TOP	THICK-NESS	CONTACT SOURCE	ACCURACY		PRIMARY	LITHOLOGY			
	SERIES	GROUP	FORMATN	MEMBER	TOP	BOT				TOP	BOT		SECONDARY	MINOR		
Devonian	Upper	Osage	-----	Warsaw		950	1010	28	60	Samples	good	good	Dolomite	Shale	Chalcedony	
				Keokuk		1010	1100	-32	90	Samples	good	good	Limestone	Dolomite	Chert	
				Burlingt	Cedar Fk	1100	1150	-122	50	Samples	good	good	Limestone	Chert		
	Kinderhk	-----	Hampton			1210	1235	-232	25	Samples	good	good	Limestone	Chert	Dolomite	
					Maynes C	1235	1280	-257	45	Samples	good	good	Dolomite	Chert	Limestone	
					North Hl	1280	1300	-302	20	Samples	good	good	Limestone	Dolomite	Chert	
	Middle	-----	Yellow S	Sheffiel		1300	1330	-322	30	Samples	good	good	Shale			
					Lime Crk	1330	1400	-352	70	Samples	good	good	Limestone			
	Ordovician	Cincinnati	-----	Maquoket	Clermont		1870	1930	-892	60	Samples	good	good	Dolomite		
						Elgin	1930	2020	-952	90	Samples	good	good	Dolomite	Chert	
Champlai		Galena	Dub./Wis			2020	2140	-1042	120	Samples	good	good	Dolomite	Chert		
					Dec/Plat	2140	2216	-1162	76	Samples	good	good	Dolomite	Shale	Sandstone	
Canadian		Prairie	-----	Shakopee	Willow R		2240	2335*	-1262	95*	Samples	good		Dolomite	Chert	Sandstone

COUNTY: DES MOINES

SEQUENCE 14

LOCATION: NW NW SW 14 T072N R03W LAT. & LONG.: 41 02 05N 91 10 40W W-NUMBER: 15579 DEPTH: 1075 ELEVATION: B01 (Alt.)

				sample gap	0	10	801	10									
Quatern	Pleistoc				10	67	791	57	Samples	poor	poor	Till	Gumbotil	Sand			
Miss	Osage	-----	Burlingt		67	108	734	41	Samples	fair	good	Dolomite	Limestone	Chert			
			Kinderhk	-----	Hampton	Wassonvl	108	122	693	14	Samples	good	good	Dolomite			
Devonian	Upper	-----	North Hl			122	123	679	1	Samples	good	good	Limestone				
					Prospect	123	125	678	2	Samples	good	good	Siltstone				
					McCraney	125	131	676	6	Samples	good	good	Dolomite				
	Middle	-----	Yellow S	English		131	151	670	20	Samples	good	good	Siltstone	Shale			
					Maple Mi	151	270	650	119	Samples	good	good	Shale				
					Sheffiel	270	437	531	167	Samples	good	good					
Ordovician	Cincinnati	-----	Maquoket			437	445	364	8	Samples	good	good	Dolomite				
					Cedar Va	445	553	356	108	Samples	good	good	Limestone	Dolomite			
					Wapsipin	Davenprt	553	576	248	23	Samples	good	good	Limestone			
						Spring S	576	592	225	16	Samples	good	fair	Dolomite			
						Kenwood	592	601	209	9	Samples	poor	poor	Dolomite			
Silurian					601	613	200	12	Samples	fair	good	Dolomite					
Devonian	Champlai	Galena	Dub./Wis			613	716	188	103	Samples	good	good	Shale	Dolomite			
					Elgin	716	776	85	60	Samples	fair	good	Shale	Dolomite			
	Canadian	Prairie	-----	Glenwood	Dunleith		776	870	25	94	Samples	good	fair	Dolomite	Chert		
						Decorah	Ion	870	977	-69	107	Samples	poor	poor			
							Buttenbg	977	991	-176	14	Samples	fair	good	Dolomite	Chert	
							Spechts	991	1010	-190	19	Samples	good	good	Dolomite	Chert	Limestone
							Plattevl	1010	1018	-209	8	Samples	good	fair	Shale	Limestone	
							McGregor	1018	1042	-217	24	Samples	good	fair	Limestone	Dolomite	
							Pecatoni	1042	1064	-241	22	Samples	fair	good	Dolomite		
							Starved	1064	1075*	-263	11*	Samples	good		Sandstone		

SYSTEM	GEOLOGICAL UNIT				DEPTH		ELEV. OF TOP	THICK-NESS	CONTACT SOURCE	ACCURACY		PRIMARY	LITHOLOGY		
	SERIES	GROUP	FORMATN	MEMBER	TOP	BOT				TOP	BOT		SECONDARY	MINOR	

COUNTY: FREMONT		SEQUENCE 15			LAT. & LONG.: 40 39 30N 95 38 30W				W-NUMBER:		DEPTH: 1090		ELEVATION: 952 (Top)		
LOCATION:		NE NE 3 T067N R42W													
Quatern	Pleistoc				0	90	952	90	Drl Log	fair	fair	Loess	Till		
Penn	Virgil	Shawnee			90	505	862	415	Drl Log	poor	poor	Shale	Limestone		
		Missouri	Lansing		505	595	447	90	Drl Log	poor	poor	Shale			
			Kansas C		595	890	357	295	Drl Log	poor	poor	Limestone	Shale		
		Des Moin	Marmaton		890	1090*	62	200*	Drl Log	poor		Shale	Limestone		

COUNTY: FREMONT		SEQUENCE 16			LAT. & LONG.: 40 41 13N 95 28 48W				W-NUMBER: 01841		DEPTH: 1796		ELEVATION: 1007 (Alt.)		
LOCATION:		SE SW SE SW 19 T068N R40W													
sample gap					0	265	1007	265							
Penn	Virgil	Wabaunse			265	308	742	43	Samples	poor	poor	Shale	Limestone	Dolomite	
		Shawnee			308	525	699	217	Samples	fair	good	Limestone	Shale	Chert	
		Douglas			525	620	482	95	Samples	good	good	Shale	Limestone	Siltstone	
	Missouri	Lansing			620	690	387	70	Samples	good	good	Limestone	Shale	Chert	
		Kansas C			690	885	317	195	Samples	good	good	Limestone	Shale	Chert	
		Pleasant			885	925	122	40	Samples	good	good	Shale	Limestone	Sandstone	
	Des Moin	Marmaton			925	1100	82	175	Samples	good	good	Shale	Limestone	Sandstone	
		Cherokee			1100	1670	-93	570	Samples	good	good	Shale	Sandstone	Limestone	
Miss	Meramec	-----	St Louis		1670	1725	-663	55	Samples	good	good	Limestone	Sandstone	Shale	
	Osage	-----	Warsaw		1725	1770	-718	45	Samples	good	good	Limestone	Dolomite	Shale	
			Keokuk		1770	1796*	-763	26*	Samples	good		Dolomite	Limestone	Chert	

COUNTY: FREMONT		SEQUENCE 17			LAT. & LONG.: 40 41 59N 95 30 45W				W-NUMBER: 01386		DEPTH: 3375		ELEVATION: 937 (Alt.)		
LOCATION:		NE SW NW NE 23 T068N R41W													
sample gap					0	20	937	20							
Quatern	Pleistoc				20	200	917	180	Samples	poor	good	Sd. & Grav			
Penn	Virgil	Shawnee			200	415	737	215	Samples	good	good	Ls & Dol	Shale	Sandstone	
		Douglas			415	500	522	85	Samples	good	good	Shale	Limestone	Siltstone	
	Missouri	Lansing			500	550	437	50	Samples	good	good	Limestone	Shale	Chert	
		Kansas C			550	720	387	170	Samples	good	good	Ls & Dol	Shale	Chert	
		Pleasant			720	750	217	30	Samples	good	good	Limestone	Shale	Chert	
	Des Moin	Marmaton			750	905	187	155	Samples	good	good	Shale	Limestone	Siltstone	
		Cherokee			905	1385	32	480	Samples	good	good	Shale	Sandstone	Ls & Dol	
Miss	Meramec	-----	St Louis		1385	1420	-448	35	Samples	good	fair	Limestone	Dolomite		
	Osage	-----	Warsaw		1420	1445	-483	25	Samples	poor	poor	Limestone	Dolomite	Chert	
			Keokuk		1445	1510	-508	65	Samples	poor	poor	Dolomite	Limestone	Chert	
			Burlingt		1510	1565	-573	55	Samples	fair	good	Dolomite	Limestone	Chert	
	Kinderhk	-----	Bilmore		1565	1605	-628	40	Samples	good	fair	Limestone	Chert		
			Hampton	Waynes C	1605	1640	-668	35	Samples	poor	poor	Dolomite	Limestone		
			undiff		1605	1640	-668	35	Samples	poor	poor	Limestone	Dolomite	Shale	
			North HI		1640	1650	-703	10	Samples	poor	poor	Limestone			

(Record continues on next page)

* ASTERISK SIGNIFIES PARTIAL PENETRATION

COUNTY: 36 FREMONT

SYSTEM	GEOLOGICAL UNIT				DEPTH		ELEV. OF TOP	THICK-NESS	CONTACT SOURCE	ACCURACY		LITHOLOGY			
	SERIES	GROUP	FORMATN	MEMBER	TOP	BOT				TOP	BOT	PRIMARY	SECONDARY	MINOR	
Devonian	Upper	Yellow S	Maple Mi		1650	1725	-713	75	Samples	good	fair	Shale			
			Sheffiel		1725	1819	-788	94	Samples	fair	good	Shale			
	Middle	-----	Lime Crk		1819	1856	-882	37	Samples	good	good	Shale	Limestone		
			Cedar Va	Coralvil	1797	1865	-860	68	Samples	poor	good	Limestone	Chert	Dolomite	
			Rapid		1865	2140	-928	275	Samples	good	good	Dolomite	Chert		
		Wapsipin	Kenwood	2140	2220	-1203	80	Samples	good	good	Dolomite	Chert	Gypsum		
Silurian				2220	2445	-1283	225	Samples	good	good	Dolomite	Chert			
Ordovician	Cincinnati	-----	Maquoket	Ft Atkin	2445	2670	-1508	225	Samples	good	good	Dolomite	Chert		
				Elgin	2670	2755	-1733	85	Samples	good	good	Dolomite	Chert		
	Champlai	Galena	Dub./Wis		2755	2825	-1818	70	Samples	good	good	Dolomite	Chert		
					Decorah	2825	2870	-1888	45	Samples	good	good	Dolomite	Chert	
			-----	Plattevil	Pecaton	2870	2921	-1933	51	Samples	good	poor	Ls & Dol	Sandstone	
			-----	Ansell	St Peter	2921	2955	-1984	34	Samples	poor	good	Sandstone	Dolomite	
	Canadian	Prairie		Shakopee	Willow R	2955	3065	-2018	110	Samples	good	good	Dolomite	Chert	Sandstone
					Oneota	3065	3160	-2128	95	Samples	good	good	Dolomite	Sandstone	
Precambrian	Red	Clas		3160	3375*	-2223	215*	Samples	good		Sandstone				

COUNTY: FREMONT SEQUENCE 18
 LOCATION: SW NE SE 2B T070N R43W LAT. & LONG.: 40 50 04N 95 47 13W W-NUMBER: 01325 DEPTH: 2215 ELEVATION: 940(Level)

			sample gap		0	100	940	100							
Quatern	Pleistoc				100	200	840	100	Samples	poor	poor	Sd & Grav	Limestone		
Penn	Virgil	Shawnee			200	240	740	40	Samples	poor	poor	Limestone	Shale		
				Douglas	240	275	700	35	Samples	poor	poor	Shale			
	Missouri				275	560	665	285	Samples	poor	poor	Limestone	Shale	Chert	
	Des Moine	Marmaton			560	710	380	150	Samples	poor	poor	Limestone	Shale	Sandstone	
			Cherokee	710	860	230	150	Samples	fair	good	Shale	Limestone	Sandstone		
Miss	Osage	-----			860	955	80	95	Samples	good	good	Dolomite	Chert		
			Kinderhook	Hampton	Eagle Ci	955	960	-15	5	Samples	good	fair	Limestone		
					undiff	960	1050	-20	90	Samples	good	good	Dolomite	Limestone	Chert
		North Hi			1050	1070	-110	20	Samples	fair	good	Limestone			
		undiff			1070	1240	-130	170	Samples	good	good	Shale	Dolomite	Siltstone	
Devonian	Middle	-----	Cedar Va	Coralvil	1240	1305	-300	65	Samples	good	good	Limestone	Dolomite		
				Rapid	1305	1505	-365	200	Samples	good	good	Dolomite	Shale	Sandstone	
				Solon	1505	1555	-565	50	Samples	good	good	Dolomite	Shale	Limestone	
				Wapsipin	Kenwood	1555	1715	-615	160	Samples	good	good	Dolomite	Shale	Chert
Silurian				1715	2005	-775	290	Samples	good	good	Chert	Ls & Dol	Shale		
Ordovician	Cincinnati	-----	Maquoket	Neda	2005	2020	-1065	15	Samples	good	fair	Shale			
				Ft Atkin	2020	2215*	-1080	195*	Samples	fair		Dolomite	Shale	Chert	

COUNTY: FREMONT SEQUENCE 19
 LOCATION: SW NE SE 2B T070N R43W LAT. & LONG.: 40 50 04N 95 47 13W W-NUMBER: 01325 DEPTH: 2215 ELEVATION: 940(Level)

			sample gap		0	100	940	100						
Quatern	Pleistoc				100	200	840	100	Samples	poor	poor	Sd & Grav	Limestone	
Penn	Virgil	Shawnee			200	240	740	40	Samples	poor	poor	Limestone	Shale	

(Record continues on next page)

* ASTERISK SIGNIFIES PARTIAL PENETRATION

SYSTEM	GEOLOGICAL UNIT				DEPTH		ELEV. OF TOP	THICK-NESS	CONTACT SOURCE	ACCURACY		PRIMARY	LITHOLOGY	
	SERIES	GROUP	FORMATN	MEMBER	TOP	BOT				TOP	BOT		SECONDARY	MINOR
Miss		Douglas			240	275	700	35	Samples	poor	poor	Shale		
	Missouri				275	560	665	285	Samples	poor	poor	Limestone	Shale	Chert
	Des Moin	Marmaton			560	710	380	150	Samples	poor	poor	Limestone	Shale	Sandstone
		Cherokee			710	860	230	150	Samples	fair	good	Shale	Limestone	Sandstone
	Osage				860	955	80	95	Samples	good	good	Dolomite	Chert	
	Kinderhk	-----	Hampton	Eagle Ci	955	960	-15	5	Samples	good	fair	Limestone		
			undiff	960	1050	-20	90	Samples	good	good	Dolomite	Limestone	Chert	
			North Hl	1050	1070	-110	20	Samples	fair	good	Limestone			
			undiff	1070	1240	-130	170	Samples	good	good	Shale	Dolomite	Siltstone	
Devonian	Middle	-----	Cedar Va	Coralvil	1240	1305	-300	65	Samples	good	good	Limestone	Dolomite	
				Rapid	1305	1505	-365	200	Samples	good	good	Dolomite	Shale	Sandstone
				Solon	1505	1555	-565	50	Samples	good	good	Dolomite	Shale	Limestone
				Mapsipin	1555	1715	-615	160	Samples	good	good	Dolomite	Shale	Chert
Silurian					1715	2005	-775	290	Samples	good	good	Chert	Ls & Dol	Shale
Ordovician	Cincinnati	-----	Maquoket	Neda	2005	2020	-1065	15	Samples	good	fair	Shale		
				Ft Atkin	2020	2215*	-1080	195*	Samples	fair		Dolomite	Shale	Chert

COUNTY: FREMONT SEQUENCE 20
 LOCATION: SE SE NW SE 28 T070N R43W LAT. & LONG.: 40 50 02N 95 47 19W W-NUMBER: 01958 DEPTH: 1266 ELEVATION: 940 (Alt.)

				sample gap	0	100	940	100						
Penn					100	320	840	220	Samples	poor	good	Dolomite	Shale	Limestone
	Missouri	Kansas C			320	510	620	190	Samples	good	good	Dolomite	Shale	Chert
	Des Moin	Marmaton			510	665	430	155	Samples	good	good	Shale	Limestone	
		Cherokee			665	815	275	150	Samples	good	good	Shale	Limestone	Sandstone
Miss	Osage	-----	Keokuk		815	880	125	65	Samples	good	good	Chert	Dolomite	Shale
			Burlingt		880	930	60	50	Samples	good	good	Dolomite	Chert	Shale
	Kinderhk	-----	Hampton		930	1007	10	77	Samples	good	good	Dolomite	Limestone	Chert
			North Hl		1007	1028	-67	21	Samples	good	good	Limestone	Dolomite	Sandstone
			undiff		1028	1255	-88	227	Samples	good	poor	Shale	Ls & Dol	Chert
Devonian	Middle	-----	Cedar Va		1255	1266*	-315	11*	Samples	poor		Ls & Dol	Shale	Sandstone

COUNTY: FREMONT SEQUENCE 21
 LOCATION: NE SW NW SW 7 T067N R41W LAT. & LONG.: 40 38 03N 95 35 56W W-NUMBER: 17505 DEPTH: 3448 ELEVATION: 1033 (Alt.)

				sample gap	0	203	1033	203						
Penn	Virgil	Wabaunse			203	473	830	270	Samples	poor	good	Shale	Ls & Dol	Sandstone
		Shawnee			473	547	560	74	Samples	good	good	Limestone	Shale	Chert
		Douglas			547	650	486	103	Samples	good	good	Shale	Siltstone	
	Missouri	Lansing			650	687	383	37	Samples	good	good	Limestone	Shale	
		Kansas C			687	898	346	211	Samples	good	good	Limestone	Shale	Chert
		Pleasant			898	924	135	26	Samples	good	good	Shale	Limestone	
	Des Moin	Marmaton			924	1047	109	123	Samples	good	good	Shale	Limestone	Sandstone
		Cherokee			1047	1644	-14	597	Samples	good	good	Sandstone	Shale	Limestone
Miss	Meramec	-----	St Louis		1644	1702	-611	58	Samples	good	good	Limestone	Dolomite	
	Osage	-----	Keokuk		1702	1755	-669	53	Samples	good	fair	Dolomite	Chert	Limestone

(Record continues on next page)

* ASTERISK SIGNIFIES PARTIAL PENETRATION

SYSTEM	GEOLOGICAL UNIT				DEPTH		ELEV. OF TOP	THICK-NESS	CONTACT SOURCE	ACCURACY		PRIMARY	LITHOLOGY	
	SERIES	GROUP	FORMATN	MEMBER	TOP	BOT				TOP	BOT		TOP	BOT
Devonian	Upper	Kinderhk	Burlingt		1755	1820	-722	65	Samples	fair	good	Dolomite	Limestone	Chert
			Hampton		1820	1870	-787	50	Samples	good	good	Dolomite	Limestone	Chert
			Maynes C		1870	1886	-837	16	Samples	good	good	Dolomite	Chert	
	Middle	Yellow S	North Hl		1886	1899	-853	13	Samples	good	good	Limestone		
			Maple Mi		1899	1970	-866	71	Samples	good	fair	Shale		
			Sheffiel		1970	2112	-937	142	Samples	fair	good	Shale		
			Lime Crk		2112	2170	-1079	58	Samples	good	good	Limestone		
			Cedar Va	Coralvil	2170	2240	-1137	70	Samples	good	good	Dolomite	Limestone	
			Rapid		2240	2418	-1207	178	Samples	good	poor	Dolomite		
			Wapsipin		2418	2565	-1385	147	Samples	poor	poor			
Silurian				2565	2847	-1532	282	Samples	fair	good	Dolomite	Chert		
Ordovician	Cincinnati	Maquoket	Ft Atkin		2847	3005	-1814	158	Samples	good	fair	Dolomite	Chert	Shale
			Elgin		3005	3095	-1972	90	Samples	fair	good	Dolomite	Chert	
	Champlai	Galena	Dunleith		3095	3190	-2062	95	Samples	good	good	Dolomite	Chert	Shale
			Dec/Plat		3190	3244	-2157	54	Samples	good	good	Limestone	Dolomite	Shale
	Canadian	Prairie	Ancell	St Peter	3244	3278	-2211	34	Samples	good	good	Sandstone		
					3278	3434	-2245	156	Samples	good	good	Dolomite	Sandstone	Chert
	Precambrian	Red Clas			3434	3448*	-2401	14*	Samples	good		Sandstone		

COUNTY: FREMONT

SEQUENCE 22

LOCATION: NW SE SE NE 2 T069N R43W LAT. & LONG.: 40 48 35N 95 44 53W W-NUMBER: 17957 DEPTH: 2948 ELEVATION: 956(Level)

Quaternary	Pleistocene	Holocene	Recent		0	1	956	1	Samples	good	good	Soil-fill		
			undiff		1	230	955	229	Samples	good	fair	Sand	Sd & Grav	
Pennsylvanian	Virgil	Wabaunse			230	298	726	68	Samples	fair	good	Shale	Limestone	
			Shawnee		298	412	658	114	Samples	good	good	Shale	Limestone	Chert
			Douglas		412	500	544	88	Samples	good	good	Shale		
	Missouri	Lansing			500	535	456	35	Samples	good	good	Limestone	Shale	
			Kansas C		535	743	421	208	Samples	good	good	Limestone	Shale	
	Des Moines	Marmaton			743	870	213	127	Samples	good	good	Shale	Limestone	Sandstone
Cherokee				870	1080	86	210	Samples	good	fair	Shale	Sandstone		
Mississippian	Osage	Burlingt			1080	1160	-124	80	Samples	poor	poor	Dolomite	Chert	Limestone
			Kinderhk		1160	1205	-204	45	Samples	poor	poor	Limestone	Dolomite	Chert
			North Hl		1205	1244	-249	39	Samples	poor	poor	Limestone		
Devonian	Upper	Yellow S	Maple Mi		1244	1320	-288	76	Samples	good	fair	Shale		
			Sheffiel		1320	1488	-364	168	Samples	fair	good	Shale		
			Lime Crk		1488	1531	-532	43	Samples	good	good	Dolomite	Shale	Limestone
Silurian				1531	2220	-575	689	Samples	good	fair	Dolomite	Chert		
Ordovician	Cincinnati	Maquoket	Ft Atkin		2220	2460	-1264	240	Samples	fair	good	Dolomite	Chert	
			Elgin		2460	2532	-1504	72	Samples	good	good	Dolomite	Chert	
	Champlai	Galena	Dub./Wis		2532	2647	-1576	115	Samples	good	good	Dolomite	Limestone	Chert
			Dec/Plat		2647	2702	-1691	55	Samples	good	good	Limestone	Dolomite	Shale
	Canadian	Prairie	Ancell	St Peter	2702	2732	-1746	30	Samples	good	good	Sandstone		
					2732	2880	-1776	148	Samples	good	fair	Dolomite	Chert	
Cambrian	St Croix			2880	2940*	-1924	60*	Samples	good		Sandstone			

SYSTEM	GEOLOGICAL UNIT				DEPTH		ELEV. OF TOP	THICK-NESS	CONTACT SOURCE	ACCURACY		PRIMARY	LITHOLOGY	
	SERIES	GROUP	FORMATN	MEMBER	TOP	BOT				TOP	BOT		SECONDARY	MINOR
COUNTY: GREENE		SEQUENCE 23												
LOCATION:		SW SE 20 T083N R30W		LAT. & LONG.: 41 58 50N 94 21 50W				W-NUMBER: 0169		DEPTH: 1745		ELEVATION: 1002 (Topo)		
Quatern	Pleistoc				0	55	1002	55	Samples	good	good	Sand		
Penn	Des Moine	Cherokee			55	275	947	220	Dri Log	fair	fair	Sandstone	Shale	
Miss	Meramec	-----	St Louis		275	405	727	130	Samples	poor	good	Limestone	Chert	
		-----	Keokuk		405	455	597	50	Samples	good	good	Limestone	Chert	Dolomite
Devonian	Upper	-----	Kinderhk	Gilmore	455	510	547	55	Samples	good	good	Limestone		
				Hampton	510	545	492	35	Samples	good	good	Dolomite	Limestone	Chert
				Maynes C	545	600	457	55	Samples	good	good	Dolomite	Limestone	Chert
				North Hl	600	612	402	12	Samples	good	good	Dolomite	Limestone	
				Yellow S	612	615	390	3	Samples	good	good	Siltstone		
Devonian	Middle	-----	Cedar Va	English	612	615	390	3	Samples	good	good	Siltstone		
				Sheffield	615	665	387	50	Samples	good	poor	Dolomite	Limestone	
				Lime Crk	665	695	337	30	Samples	poor	good	Shale	Dolomite	
				Shell Rk	695	725	307	30	Samples	good	good	Dolomite	Limestone	Chert
				Coralvil	725	875	277	150	Samples	good	good	Dolomite	Limestone	Sandstone
				Rapid	875	1085	127	210	Samples	good	good	Dolomite	Limestone	Shale
				Solon	1085	1120	-83	35	Samples	good	good	Limestone	Dolomite	Shale
				Wapsipin	1120	1230	-118	110	Samples	good	good	Dolomite	Chert	Sandstone
				Kenwood	1230	1275	-228	45	Samples	good	good	Dolomite	Chert	Sandstone
				Silurian				1275	1310	-273	35	Samples	good	good
Ordovician	Cincinnati	-----	Maquoket	Ft Atkin	1310	1320	-308	10	Samples	good	good	Dolomite		
				Elgin	1320	1365	-318	45	Samples	good	good	Dolomite	Limestone	
				Dub./Wis	1365	1445	-363	80	Samples	good	good	Dolomite	Chert	
				Dunleith	1445	1518	-443	73	Samples	good	good	Dolomite	Chert	Limestone
				Decorah	1518	1547	-516	29	Samples	good	good	Dolomite	Limestone	Shale
				Ion	1547	1560	-545	13	Samples	good	good	Dolomite	Shale	
				Guttenbg	1560	1573	-558	13	Samples	good	good	Limestone		
				Spechts	1573	1579	-571	6	Samples	good	good	Shale	Limestone	Dolomite
				Plattevl	1579	1605	-577	26	Samples	good	good	Shale	Limestone	Dolomite
				Ancell	1605	1610	-603	5	Samples	good	good	Shale	Sandstone	Limestone
				St Peter	1610	1675	-608	65	Samples	good	good	Sandstone	Dolomite	Shale
				Canadian	Prairie	Shakopee	Willow R	1675	1745*	-673	70*	Samples	good	

COUNTY: BRUNDY		SEQUENCE 24												
LOCATION:		SW SW 36 T087N R16W		LAT. & LONG.: 42 18 00N 92 40 10W				W-NUMBER: 17954		DEPTH: 549		ELEVATION: 948 (Alt.)		
Quatern	Pleistoc	Sangamon			0	85	948	85	Samples	good	good	Till	Sd & Grav	
Devonian	Upper	-----	Lime Crk	Owen	85	120	863	35	Samples	good	fair	Limestone	Shale	
				Cerro Go	120	180	828	60	Samples	fair	good	Limestone	Shale	
				Juniper	180	245	768	65	Samples	good	good	Shale		
Devonian	Middle	-----	Cedar Va	Coralvil	245	458	703	213	Samples	good	fair	Limestone	Dolomite	Gypsum
				Solon	458	549*	490	91*	Samples	fair		Limestone	Dolomite	

* ASTERISK SIGNIFIES PARTIAL PENETRATION

COUNTY: 38 BRUNDY

GEOLOGICAL UNIT				DEPTH		ELEV.	THICK-	CONTACT	ACCURACY		LITHOLOGY				
SYSTEM	SERIES	GROUP	FORMATN	MEMBER	TOP	BOT	OF TOP	NESS	SOURCE	TOP	BOT	PRIMARY	SECONDARY	MINOR	
COUNTY: GUTHRIE				SEQUENCE	25										
LOCATION: SE NW SE SE 11 T078N R30W				LAT. & LONG.:	41 33 47N 94 15 50W W-NUMBER: 01025 DEPTH: 2029 ELEVATION: 950 (Alt.)										
Quatern	Pleistoc				0	26		950	26	Samples	good	good	Sand	Silt	
Penn	Des Moine	Cherokee			26	385		924	359	Samples	good	good	Shale	Sandstone	Limestone
Miss	Meramec				385	424		565	39	Samples	good	poor	Limestone	Shale	Sandstone
	Osage		Warsaw		424	500		526	76	Samples	poor	good	Ls & Dol	Chert	Sandstone
			Keokuk		500	593		450	93	Samples	good	fair	Dolomite	Chert	Limestone
			Burlingt		593	671		357	78	Samples	fair	good	Ls & Dol	Chert	Shale
	Kinderhk		Gilmore		671	720		279	49	Samples	good	fair	Limestone		
			Hampton		720	817		230	97	Samples	fair	good	Dolomite	Limestone	Chert
Devonian	Upper	Yellow S	Maple Mi		817	851		133	34	Samples	good	good	Shale		
			Aplingt		851	867		99	16	Samples	good	good	Limestone		
			Lime Crk		867	955		83	88	Samples	good	good	Limestone		
	Middle		Cedar Va	Coralvil	955	1005		-5	50	Samples	good	fair	Dolomite		
				Rapid	1005	1337		-55	332	Samples	fair	good	Dolomite	Gypsum	Sandstone
				Solon	1337	1360		-387	23	Samples	good	good	Dolomite	Limestone	Shale
			Wapsipin	Kenwood	1360	1430		-410	70	Samples	good	good	Dolomite	Shale	Chert
Silurian					1430	1493		-480	63	Samples	good	good	Dolomite	Chert	Sandstone
Ordovicn	Cincinnati		Maquoket	Brainard	1493	1522		-543	29	Samples	good	good	Shale		
				Ft Atkin	1522	1710		-572	188	Samples	good	good	Dolomite	Chert	Shale
				Elgin	1710	1780		-760	70	Samples	good	good	Chert	Dolomite	
	Champlai	Galena	Dub./Wis		1780	1852		-830	72	Samples	good	good	Dolomite	Chert	Sandstone
			Dunleith		1852	1935		-902	83	Samples	fair	good	Dolomite	Chert	Sandstone
			Plattevl		1935	1982		-985	47	Samples	good	good	Shale	Limestone	Dolomite
			Ancell	Glenwood	1982	2000		-1032	18	Samples	fair	good	Shale	Limestone	Dolomite
				St Peter	2000	2026		-1050	26	Samples	good	good	Sandstone		
	Canadian	Prairie	Shakopee	Willow R	2026	2029*		-1076	3*	Samples	good		Sandstone	Dolomite	

COUNTY: GUTHRIE SEQUENCE 26
 LOCATION: NW NW NW NW 11 T081N R32W LAT. & LONG.: 41 50 54N 94 33 01W W-NUMBER: 00007 DEPTH: 1494 ELEVATION: 1091 (Alt.)

			sample gap		0	300		1091	300						
Penn					300	330		791	30	Samples	poor	good	Sandstone	Shale	
Miss	Meramec		St Louis		330	400		761	70	Samples	good	good	Dolomite	Limestone	Sandstone
	Osage		Warsaw		400	530		691	130	Samples	good	good	Chert	Dolomite	
			undiff		530	630		561	100	Samples	good	good	Limestone	Chert	Dolomite
	Kinderhk		Gilmore		630	670		461	40	Samples	good	good	Limestone		
			Hampton		670	733		421	63	Samples	good	good	Dolomite	Limestone	Chert
			North Hi		733	742		358	9	Samples	good	good	Limestone		
			Prospect		742	745		349	3	Samples	good	good	Siltstone		
Devonian	Upper	Yellow S	Maple Mi		745	800		346	55	Samples	good	good	Shale		
			Aplingt		800	825		291	25	Samples	good	good	Dolomite		
			Sheffiel		825	835		266	10	Samples	good	good	Shale		
			Lime Crk		835	880		256	45	Samples	good	good	Limestone	Dolomite	
	Middle		Cedar Va	Coralvil	880	1000		211	120	Samples	good	good	Dolomite	Limestone	Chert

(Record continues on next page)

SYSTEM	GEOLOGICAL UNIT				DEPTH		ELEV. OF TOP	THICK-NESS	CONTACT SOURCE	ACCURACY		PRIMARY	LITHOLOGY				
	SERIES	GROUP	FORMATN	MEMBER	TOP	BOT				TDP	BDT		SECONDARY	MINDR			
Ordovician	Cincinnati	-----	Rapid		1000	1180	91	180	Samples	good	good	Dolomite	Limestone	Sandstone			
			Solon		1180	1200	-89	20	Samples	good	good	Dolomite	Shale	Chert			
			Wapsipin	Kenwood	1200	1270	-109	70	Samples	good	good	Dolomite					
			Maquoket	Ft Atkin	1270	1400	-179	130	Samples	good	good	Dolomite	Chert	Sandstone			
				Elgin	1400	1472	-309	72	Samples	good	poor	Chert	Dolomite				
			Champlai	Galena	Dub./Wis		1472	1494*	-381	22*	Samples	poor		Dolomite	Chert		
COUNTY: HANCOCK				SEQUENCE	27												
LOCATION: NE SE SE 16 T096N R24W				LAT. & LONG.: 43 07 40N 93 40 38W		W-NUMBER: 11634		DEPTH: 507		ELEVATION: 1260 (Alt.)							
Quatern	Pleistoc				0	132	1260	132	Samples	good	good	Till	Sd & Grav				
Devonian	Upper	-----	Lime Crk		132	175	1128	43	Samples	good	fair	Dolomite					
	Middle	-----	Cedar Va		175	260*	1085	85*	Samples	good		Dolomite	Limestone	Shale			
			sample gap		260	507	1000	247									
COUNTY: CASS				SEQUENCE	28												
LOCATION: SW SW SE 10 T075N R37W				LAT. & LONG.: 41 18 17N 95 05 13W		W-NUMBER: D0040		DEPTH: 64		ELEVATION: 1125 (Alt.)							
Quatern	Pleistoc				0	20	1125	20	Drl Log	fair	fair						
Penn	Virgil	Shawnee			20	48	1105	28	Samples	good	good	Shale	Limestone				
			Douglas		48	64*	1077	16*	Samples	good		Shale	Limestone				
COUNTY: HARRISON				SEQUENCE	29												
LOCATION: NW SW NW 17 T081N R44W				LAT. & LONG.: 41 49 48N 96 00 04W		W-NUMBER: 4929		DEPTH: 2058		ELEVATION: 1066 (Alt.)							
			sample gap		0	125	1066	125									
Penn					125	460	941	335	Samples	poor	good	Shale	Limestone	Sandstone			
Miss	Osage	-----	Keokuk		460	535	606	75	Samples	good	good	Dolomite	Chert				
			Burlingt		535	595	531	60	Samples	good	good	Limestone	Dolomite	Chert			
			Kinderhk	-----	Gilmore		595	695	471	100	Samples	good	good	Limestone			
					Hampton		695	710	371	15	Samples	good	good	Dolomite	Chert		
					Maynes C		710	820	356	110	Samples	good	good	Dolomite	Chert		
Devonian	Upper	Yellow S	Maple Mi		820	872	246	52	Samples	good	good	Shale					
	Middle	-----	Cedar Va		872	1129	194	257	Samples	good	good	Dolomite	Chert				
			Wapsipin		1129	1225	-63	96	Samples	good	good	Dolomite	Shale				
Silurian					1225	1300	-159	75	Samples	good	good	Dolomite	Chert	Sandstone			
Ordovician	Cincinnati	-----	Maquoket	Ft Atkin	1300	1370	-234	70	Samples	good	good	Dolomite	Chert				
				Elgin		1370	1455	-304	85	Samples	good	good	Dolomite	Chert			
			Champlai	Galena	Dub./Wis		1455	1525	-389	70	Samples	good	good	Dolomite	Chert	Shale	
					Dunleith		1525	1575	-459	50	Samples	good	good	Dolomite	Chert	Shale	
					Dec/Plat		1575	1657	-509	82	Samples	good	good	Dolomite	Shale	Chert	
					Ansell	St Peter		1657	1715	-591	58	Samples	good	good	Sandstone		
					Canadian	Prairie		1715	1876	-649	161	Samples	good	good	Dolomite		
			Cambrian	St Croix	Trempeal	Jordan		1876	1902	-810	26	Samples	good	good	Sandstone		
						St Lawre		1902	1955	-836	53	Samples	good	good	Dolomite		

(Record continues on next page)

* ASTERISK SIGNIFIES PARTIAL PENETRATION

COUNTY: 43 HARRISON

SYSTEM	GEOLOGICAL UNIT				DEPTH		ELEV.	THICK-	CONTACT	ACCURACY		PRIMARY	LITHOLGY		
	SERIES	GROUP	FORMATN	MEMBER	TOP	BOT	OF TOP	NESS	SOURCE	TOP	BOT		SECONDARY	MINOR	
			Tunnel C	LoneRock	1955	2058*	-889	103*	Samples	good		Sandstone	Dolomite		
COUNTY: HENRY					SEQUENCE 30										
LOCATION: NE NE SW 15 T072N R06W					LAT. & LONG.: 41 02 07N 91 32 12W			W-NUMBER: 14541		DEPTH: 1096		ELEVATION: 711(Level)			
				sample gap	0	50	711	50							
Quatern	Pleistoc				50	67	661	17	Samples	poor	good	Till			
Miss	Osage	-----	Keokuk		67	100	644	33	Samples	good	good	Dolomite	Limestone	Chert	
			Burlingt	Cedar Fk	100	115	611	15	Samples	good	good	Limestone	Chert		
				Haight C	115	155	596	40	Samples	good	good	Dolomite	Chert		
				Dolbee C	155	160	556	5	Samples	good	good	Limestone	Dolomite		
	Kinderhk	-----	Hampton	Wassonvl	160	170	551	10	Samples	good	fair	Dolomite			
			North Hl		170	178	541	8	Samples	fair	good	Limestone	Dolomite		
				Prospect	178	184	533	6	Samples	good	poor	Siltstone	Shale		
Devonian	Upper	Yellow S	English		184	202	527	18	Samples	poor	good	Siltstone			
			Maple Mi		202	330	509	128	Samples	good	good	Shale			
			Sheffiel		330	470	381	140	Samples	good	poor	Shale			
		-----	Lime Crk		470	500	241	30	No Smpl	poor	poor				
	Middle	-----	Cedar Va	Rapid	500	547	211	47	Samples	poor	good	Limestone	Dolomite		
				Solon	547	623	164	76	Samples	good	good	Limestone			
			Wapsipin	Davenprt	623	673	88	50	Samples	good	good	Gypsum	Limestone		
				Spring B	673	721	38	48	Samples	good	good	Dolomite	Gypsum	Limestone	
				Kenwood	721	759	-10	38	Samples	good	good	Shale	Gypsum	Dolomite	
Ordovician	Cincinnati	-----	Maquoket		759	790	-48	31	Samples	good	good	Shale	Dolomite		
				Elgin	790	816	-79	26	Samples	good	good	Dolomite			
	Champlai	Galena	Dub./Wis		816	906	-105	90	Samples	good	fair	Dolomite	Chert		
			Dunleith		906	1022	-195	116	Samples	good	fair	Dolomite	Chert		
			Decorah	Ion	1022	1035	-311	13	Samples	fair	good	Limestone	Dolomite		
				Buttenbg	1035	1049	-324	14	Samples	good	good	Limestone			
				Spechts	1049	1050	-338	1	Samples	good	good	Shale			
		-----	Plattevl	McGregor	1050	1075	-339	25	Samples	good	good	Limestone			
				Pecatoni	1075	1085	-364	10	Samples	good	good	Dolomite	Sandstone		
			Ancell	Glenwood	1085	1096*	-374	11*	Samples	good		Sandstone			

COUNTY: HENRY					SEQUENCE 31										
LOCATION: SW SW SE 8 T072N R05W					LAT. & LONG.: 41 02 57N 91 27 21W			W-NUMBER: 15020		DEPTH: 1142		ELEVATION: 736(Level)			
Quatern	Pleistoc	Wisconsin	Loess		0	20	736	20	Samples	good	good	Loess			
			undiff		20	253	716	233	Samples	good	good	Till	Sd & Grav		
Devonian	Upper	Yellow S	Maple Mi		253	340	483	87	Samples	good	good	Shale			
			Sheffiel		340	525	396	185	Samples	good	good	Shale			
		-----	Lime Crk		525	552	211	27	Samples	good	good	Shale	Limestone		
	Middle	-----	Cedar Va		552	652	184	100	Samples	good	good	Limestone	Dolomite	Chert	
			Wapsipin	Davenprt	652	660	84	8	Samples	good	good	Dolomite			
				Spring B	660	702	76	42	Samples	good	good	Dolomite	Gypsum		
				Kenwood	702	735	34	33	Samples	good	good	Dolomite	Shale	Chert	

(Record continues on next page)

SYSTEM	GEOLOGICAL UNIT				DEPTH		ELEV.	THICK-	CONTACT	ACCURACY		LITHOLOGY				
	SERIES	GROUP	FORMATN	MEMBER	TOP	BOT	OF TOP	NESS	SOURCE	TOP	BOT	PRIMARY	SECONDARY	MINOR		
Ordovician	Cincinnati	-----	Maquoket		735	837		1	102	Samples	good	good	Shale	Dolomite		
	Champlai	Galena	Dub./Wis		837	1060		-101	223	Samples	good	good	Dolomite	Chert	Sandstone	
			Decorah	Guttenbg	1060	1078		-324	18	Samples	good	good	Dolomite	Shale		
				Spechts	1078	1079		-342	1	Samples	good	good	Shale			
			-----	Plattevi	McGregor	1079	1103		-343	24	Samples	good	good	Limestone	Dolomite	
				Pecatoni	1103	1114		-367	11	Samples	good	good	Dolomite	Sandstone		
		Ancell	Glenwood	Starved	1114	1142*		-378	28*	Samples	good		Sandstone			

COUNTY: HENRY SEQUENCE 32
 LOCATION: NE NW NE 16 T070N R07W LAT. & LONG.: 40 52 07N 91 39 45W W-NUMBER: 1601B DEPTH: 1110 ELEVATION: 710 (Level)

			sample gap		0	60		710	60							
Quatern	Pleistoc				60	70		650	10	Samples	good	good	Till			
Miss	Meramec	-----	St Louis		70	130		640	60	Samples	good	good	Limestone	Chert	Dolomite	
			Osage	-----	Warsaw		130	140	580	10	Samples	good	good	Shale	Limestone	
			Keokuk		140	235		570	95	Samples	good	good	Limestone	Chert	Dolomite	
			Burlingt	Cedar Fk	235	250		475	15	Samples	good	good	Limestone			
				Haight C	250	292		460	42	Samples	good	good	Limestone	Chert	Dolomite	
				Dolbee C	292	305		418	13	Samples	good	good	Limestone			
	Kinderhk	-----	Hampton	Wassonvl	305	312		405	7	Samples	good	good	Dolomite	Limestone		
			North Hl		312	317		398	5	Samples	good	good	Limestone			
				Prospect	317	365		393	48	Samples	good	good	Shale	Siltstone		
Devonian	Upper	Yellow S	Maple Mi		365	470		345	105	Samples	good	good	Shale			
			Sheffiel		470	606		240	136	Samples	good	good	Shale			
			-----	Lime Crk		606	650	104	44	Samples	good	good	Shale	Limestone		
	Middle	-----	Cedar Va	Rapid	650	690		60	40	Samples	good	good	Limestone			
				Solon		690	760		20	70	Samples	good	good	Limestone		
				Wapsipin	Davenprt	760	795		-50	35	Samples	good	good	Limestone		Gypsum
					Spring S	795	810		-85	15	Samples	good	good	Limestone		Gypsum
				Kenwood	810	870		-100	60	Samples	good	good	Gypsum	Shale	Chert	
Ordovician	Champlai	Galena	Dub./Wis		870	920		-160	50	Samples	good	good	Dolomite	Chert		
			Dunleith		920	1060		-210	140	Samples	good	good	Dolomite	Chert		
			Decorah	Guttenbg	1060	1072		-350	12	Samples	good	good	Dolomite	Chert	Shale	
			-----	Plattevi	McGregor	1072	1105		-362	33	Samples	good	good	Dolomite		
					Pecatoni	1105	1107		-395	2	Samples	good	good	Dolomite	Sandstone	
	Ancell	Glenwood	Starved	1107	1110*		-397	3*	Samples	good		Sandstone				

COUNTY: HENRY SEQUENCE 33
 LOCATION: NW NE SE 28 T073N R07W LAT. & LONG.: 41 05 45N 91 39 52W W-NUMBER: 16173 DEPTH: 1168 ELEVATION: 694 (Alt.)

Quatern	Pleistoc				0	66		694	66	Samples	poor	good	Till	Sd & Grav	
Miss	Osage	-----	Warsaw		66	85		628	19	Samples	good	fair	Shale	Limestone	
			Keokuk		85	140		609	55	Samples	fair	good	Limestone	Dolomite	Chert
			Burlingt	Cedar Fk	140	170		554	30	Samples	good	good	Limestone	Chert	Dolomite
				Haight C	170	200		524	30	Samples	good	good	Dolomite	Limestone	Chert
				Dolbee C	200	210		494	10	Samples	good	good	Limestone	Dolomite	Chert

(Record continues on next page)

* ASTERISK SIGNIFIES PARTIAL PENETRATION

SYSTEM	GEOLOGICAL UNIT			DEPTH		ELEV. OF TOP	THICK-NESS	CONTACT SOURCE	ACCURACY		LITHOLOGY				
	SERIES	GROUP	FORMATN MEMBER	TOP	BOT				TOP	BOT	PRIMARY	SECONDARY	MINOR		
Devonian Upper	Kinderhk	-----	Hampton	Wassonvl	210	230	464	20	Samples	good	good	Dolomite			
			North Hl		230	232	464	2	Samples	good	good	Limestone			
			Prospect		232	270	462	38	Samples	good	good	Siltstone	Shale		
	Yellow S	-----	Maple Mi		270	370	424	100	Samples	good	good	Shale			
			Sheffiel		370	515	324	145	Samples	good	good	Shale			
	Middle	-----	Lime Crk		515	579	179	64	Samples	good	good	Shale	Limestone		
			Cedar Va	Rapid	579	620	115	41	Samples	good	good	Limestone			
			Solon		620	695	74	75	Samples	good	good	Limestone	Chert	Gypsum	
			Mapsipin	Davenprt	695	740	-1	45	Samples	good	fair	Gypsum	Ls & Dol	Shale	
			Spring G		740	785	-46	45	Samples	fair	good	Dolomite	Gypsum	Chert	
Ordovician	Cincinnati	-----	Maquoket		840	860	-146	20	Samples	fair	good	Shale	Dolomite		
			Elgin		860	895	-166	35	Samples	good	good	Shale	Dolomite		
	Champlai	Galena	-----	Dub./Wis		895	980	-201	85	Samples	good	fair	Dolomite	Chert	Limestone
				Dunleith		980	1095	-286	115	Samples	good	fair	Dolomite	Chert	
				Decorah	Ion	1095	1108	-401	13	Samples	fair	good	Dolomite	Chert	
	-----	-----	Guttenbg		1108	1120	-414	12	Samples	good	good	Limestone	Shale		
			Spechts		1120	1125	-426	5	Samples	good	good	Limestone			
			Plattevl	McGregor	1125	1160	-431	35	Samples	good	fair	Dolomite	Limestone		
			Pecatoni		1160	1166	-466	6	Samples	fair	good	Dolomite	Sandstone		
			Anceill	Glenwood	Starved	1166	1168*	-472	2*	Samples	good		Sandstone		

COUNTY: HOWARD SEQUENCE 34
 LOCATION: NW SE SW 15 T098N R11W LAT. & LONG.: 43 18 06N 92 07 48W W-NUMBER: 12099 DEPTH: 1065 ELEVATION: 1275 (Alt.)

Quatern Pleistoc				0	75	1275	75	Samples	good	good	Till	Sand	Sd & Grav	
Devonian Middle	-----	Cedar Va	Rapid	75	150	1200	75	Samples	good	good	Dolomite	Limestone	Shale	
			Solon	150	235	1125	85	Samples	good	good	Dolomite	Siltstone	Shale	
Ordovician	Cincinnati	-----	Maquoket	Brainard	235	250	1040	15	Samples	good	good	Shale	Chert	Dolomite
			Ft Atkin		250	270	1025	20	Samples	good	fair	Dolomite	Limestone	Chert
			Elgin		270	355	1005	85	Samples	fair	good	Limestone	Dolomite	Chert
Champlai	Galena	-----	Wise Lak		355	450	920	95	Samples	good	good	Limestone	Dolomite	
			Dunleith		450	580	825	130	Samples	good	good	Limestone	Chert	Dolomite
			Dec/Plat		580	655	695	75	Samples	good	good	Limestone	Shale	
Anceill	Glenwood	-----	Harmony		655	662	620	7	Samples	good	good	Shale		
			St Peter		662	733	613	71	Samples	good	good	Sandstone		
Canadian	Prairie	-----	Shakopee	Willow R	733	840	542	107	Samples	good	fair	Sandstone	Dolomite	
			New Rich		840	900	435	60	Samples	fair	good	Sandstone	Dolomite	
			Dneota		900	1060	375	160	Samples	good	good	Dolomite	Sandstone	Chert
Cambrian	St Croix	Trempeal	Jordan	1060	1065*	215	5*	Samples	good		Sandstone			

COUNTY: HOWARD SEQUENCE 35
 LOCATION: NE SE NE SW 32 T099N R12W LAT. & LONG.: 43 20 45N 92 17 17W W-NUMBER: 11969 DEPTH: 465 ELEVATION: 1273 (Alt.)

Quatern Pleistoc				0	65	1273	65	Samples	good	good	Till		
Devonian Middle	-----	Cedar Va	Rapid	65	170	1208	105	Samples	fair	good	Dolomite	Shale	Limestone

(Record continues on next page)

SYSTEM	GEOLOGICAL UNIT			MEMBER	DEPTH		ELEV. OF TOP	THICK-NESS	CONTACT SOURCE	ACCURACY		LITHOLOGY				
	SERIES	GROUP	FORMATN		TOP	BOT				TOP	BOT	PRIMARY	SECONDARY	MINOR		
Ordovician	Cincinnati	-----	Maquoket	Solon	170	250	1103	80	Samples	good	good	Dolomite	Sandstone			
					250	330	1023	80	Samples	good	good	Dolomite	Limestone	Chert		
				Champlai	Galena	Dubuque	330	345	943	15	Samples	good	good	Limestone		
						Wise Lak	345	417	928	72	Samples	good	good	Dolomite	Limestone	
			Dunleith	417	465*	856	48*	Samples	good		Dolomite	Chert	Limestone			

COUNTY: JACKSON SEQUENCE 36
 LOCATION: SE SE NW NW 11 T084N R03E LAT. & LONG.: 42 06 02N 90 35 02W W-NUMBER: 00044 DEPTH: 1716 ELEVATION: 760 (Top)

Quaternary	Pleistocene	Holocene	Recent		0	1	760	1	Samples	good	good	Soil-fill					
				undiff		1	6	759	5	Samples	good	good	Clay				
Silurian	-----				6	215	754	209	Samples	good	good	Dolomite	Chert				
Ordovician	Cincinnati	-----	Maquoket		215	440	545	225	Samples	good	good	Shale	Limestone				
				Champlai	Galena	Dub./Wis	440	560	320	120	Samples	good	good	Dolomite	Chert		
						Dunleith	560	695	200	135	Samples	good	good	Dolomite	Chert		
						Decorah	695	710	65	15	Samples	good	good	Shale			
						-----	Platteville	710	755	50	45	Samples	good	good	Limestone	Shale	
						Ancestral	St Peter	755	815	5	60	Samples	good	good	Sandstone		
		Canadian	Prairie		815	1055	-55	240	Samples	good	good	Sandstone	Dolomite				
			Dneota		1055	1110	-295	55	Samples	good	good	Dolomite	Sandstone				
Cambrian	St Croix	Trempealeau	Jordan		1110	1190	-350	80	Samples	good	good	Sandstone	Dolomite	Chert			
					St Lawrence		1190	1388	-430	198	Samples	good	good	Dolomite			
					Elk Mound	Gales./E		1388	1716*	-628	328*	Samples	good	Sandstone	Shale		

COUNTY: JEFFERSON SEQUENCE 37
 LOCATION: NE NE SE 23 T071N R09W LAT. & LONG.: 40 56 07N 91 51 15W W-NUMBER: 01630 DEPTH: 965 ELEVATION: 756 (Alt.)

Quaternary	Pleistocene				0	10	756	10	No Smp	poor	poor						
					10	115	746	105	Samples	poor	good	Till					
Mississippian	Meramec	-----	St Gene		115	140	641	25	Samples	good	good	Limestone					
					St Louis		140	175	616	35	Samples	good	good	Dolomite	Limestone	Sandstone	
Osage	-----		Warsaw		175	190	581	15	Samples	good	good	Dolomite	Shale	Chert			
					Keokuk		190	255	566	65	Samples	good	good	ls & Dol	Chert	Shale	
					Burlington	Cedar Fk		255	280	501	25	Samples	good	good	Limestone	Chert	
						Haight C		280	335	476	55	Samples	good	good	Chert	Dolomite	
Kinderhook	North Hill				335	365	421	30	Samples	good	good	Limestone	Dolomite	Chert			
					Prospect		365	405	391	40	Samples	good	good	Shale			
					McCraney		405	410	351	5	Samples	good	good	Siltstone	Dolomite		
Devonian	Upper	Yellow Springs	Maple Mt		410	485	346	75	Samples	good	good	Shale					
					Sheffield		485	615	271	130	Samples	good	good	Shale			
					-----	Lime Crk		615	730	141	115	Samples	good	good	Shale	Dolomite	Siltstone
Middle	-----		Cedar Va	Solon		730	775	26	45	Samples	good	good	Limestone	Dolomite	Chert		
					Wapsipinicon	Davenport		775	845	-19	70	Samples	good	good	Gypsum	Limestone	Shale
						Spring B		845	880	-89	35	Samples	good	good	Limestone	Gypsum	Dolomite
						Kenwood		880	954	-124	74	Samples	good	good	Gypsum	Dolomite	Shale
Ordovician	Champlai	Galena	Dub./Wis		954	965*	-198	11*	Samples	good		Dolomite					

* ASTERISK SIGNIFIES PARTIAL PENETRATION

SYSTEM	GEOLOGICAL UNIT			MEMBER	DEPTH		ELEV. OF TOP	THICK-NESS	CONTACT SOURCE	ACCURACY		PRIMARY	LITHOLOGY		
	SERIES	GROUP	FORMATN		TOP	BOT				TOP	BOT		SECONDARY	MINOR	
COUNTY: KEOKUK		SEQUENCE 38			LAT. & LONG.: 41 13 37N 92 05 00W		W-NUMBER: 15588		DEPTH: 1187		ELEVATION: 701 (Alt.)				
				sample gap	0	17	701	17							
Quatern	Pleistoc				17	22	684	5	Samples	poor	good	Sd & Grav	Geest		
Miss	Osage	-----	Keokuk		22	58	679	36	Samples	good	good	Dolomite	Limestone	Chert	
			Burlingt	Cedar Fk	58	70	643	12	Samples	good	fair	Limestone	Dolomite	Chert	
				Haight C	70	115	631	45	Samples	poor	poor	Dolomite	Chert	Limestone	
				Dolbee C	115	135	586	20	Samples	fair	good	Limestone	Dolomite		
	Kinderhk	-----	Hampton	Wassonvl	135	180	566	45	Samples	good	fair	Limestone	Dolomite	Chert	
			North Hl		180	190	521	10	Samples	fair	good	Limestone			
				Prospect	190	205	511	15	Samples	good	good	Shale	Siltstone		
				McCraney	205	232	496	27	Samples	good	good	Limestone	Dolomite		
Devonian	Upper	Yellow S	English		232	235	469	3	Samples	good	good	Shale	Siltstone		
			Maple Mi		235	315	466	80	Samples	good	good	Shale			
			Sheffield		315	420	386	105	Samples	good	good	Shale			
		-----	Lime Crk		420	565	281	145	Samples	good	good	Shale	Limestone		
	Middle	-----	Cedar Va	Rapid	565	590	136	25	Samples	good	good	Dolomite	Chert		
				Solon	590	660	111	70	Samples	good	good	Limestone	Dolomite		
				Wapsipin	660	715	41	55	Samples	good	fair	Gypsum	Dolomite		
				Spring G	715	770	-14	55	Samples	poor	poor	Dolomite	Gypsum	Limestone	
				Kenwood	770	820	-69	50	Samples	poor	poor	Shale	Gypsum	Dolomite	
Ordovician	Cincinnati	-----	Maquoket		820	860	-119	40	Samples	fair	good	Shale	Dolomite		
				Elgin	860	895	-159	35	Samples	fair	good	Shale	Dolomite		
	Champlai	Galena	Dub./Wis		895	968	-194	73	Samples	good	good	Limestone	Dolomite	Chert	
			Dunleith		968	1095	-267	127	Samples	good	good	Dolomite	Limestone	Chert	
			Decorah	Ion	1095	1115	-394	20	Samples	good	good	Limestone			
				Guttenbg	1115	1116	-414	1	Samples	good	good	Limestone			
				Spechts	1116	1117	-415	1	Samples	good	good	Shale			
		-----	Plattevl	McGregor	1117	1141	-416	24	Samples	good	good	Limestone			
				Pecatoni	1141	1148	-440	7	Samples	good	good	Dolomite			
	Ancell	Glenwood	Starved		1148	1165	-447	17	Samples	good	good	Sandstone			
			Harmony		1165	1182	-464	17	Samples	good	good	Shale			
			St Peter		1182	1187*	-481	5*	Samples	good		Sandstone			

COUNTY: KEOKUK SEQUENCE 39
 LOCATION: SE NE SW 23 T075N R10W LAT. & LONG.: 41 17 04N 91 58 30W W-NUMBER: 15331 DEPTH: 1296 ELEVATION: 748 (Alt.)

				sample gap	0	45	748	45							
Quatern	Pleistoc				45	55	703	10	Samples	poor	good	Sd & Grav	Till		
Penn	Des Moin				55	77	693	22	Samples	good	good	Sandstone	Shale		
Miss	Meramec	-----	St Louis		77	95	671	18	Samples	good	fair	Ls & Dol	Sandstone	Chert	
	Osage	-----	Warsaw		95	100	653	5	Samples	poor	poor	Shale	Dolomite	Chert	
			Keokuk		100	155	648	55	Samples	fair	good	Ls & Dol	Chert	Shale	
			Burlingt		155	234	593	79	Samples	good	good	Limestone	Dolomite	Chert	
	Kinderhk	-----	Hampton	Wassonvl	234	265	514	31	Samples	good	good	Dolomite	Limestone	Chert	

(Record continues on next page)

* ASTERISK SIGNIFIES PARTIAL PENETRATION

COUNTY: 54 KEOKUK

SYSTEM	GEOLOGICAL UNIT				DEPTH		ELEV.	THICK-	CONTACT	ACCURACY		LITHOLOGY		
	SERIES	GROUP	FORMATN	MEMBER	TOP	BOT	OF TOP	NESS	SOURCE	TOP	BOT	PRIMARY	SECONDARY	MINOR
				Elgin	1036	1116	-206	80	Samples	poor	good	Shale	Dolomite	
	Champlai	Galena	Dub./Wis		1116	1196	-286	80	Samples	good	good	Limestone	Dolomite	Chert
			Dunleith		1196	1305	-366	109	Samples	good	good	Limestone	Dolomite	Chert
			Decorah	Ion	1305	1323	-475	18	Samples	good	good	Limestone		
				Guttenbg	1323	1331	-493	8	Samples	good	good	Limestone		
				Spechts	1331	1338	-501	7	Samples	good	good	Shale		
			-----	Plattevl	McGregor	1338	1368	-508	30	Samples	good	poor	Limestone	
				Pecatoni	1368	1377	-538	9	Samples	poor	good	Dolomite		
	Ancell		Glenwood	Starved	1377	1383	-547	6	Samples	good	good	Sandstone		
				Harmony	1383	1392	-553	9	Samples	good	good	Shale		
				St Peter	1392	1400*	-562	8*	Samples	good		Sandstone		

COUNTY: KEOKUK

SEQUENCE 41

LOCATION: NE SE NE 6 T076N R12W LAT. & LONG.: 41 25 07N 92 16 40W W-NUMBER: 22532 DEPTH: 1430 ELEVATION: 843(Level)

Quatern	Pleistoc	Wisconsin	Loess		0	10	843	10	Samples	good	good	Loess		
			undiff		10	162	833	152	Samples	good	good	Till	Sd & Grav	Gumbotil
Miss	Meramec	-----	St Louis		162	200	681	38	Samples	good	good	Sandstone	Dolomite	Shale
	Osage	-----	Warsaw		200	220	643	20	Samples	good	fair	Dolomite	Chert	Shale
			Keokuk		220	250	623	30	Samples	poor	poor	Limestone	Chert	Dolomite
			Burlingt	Cedar Fk	250	225	593	-25	Samples	fair	good	Limestone	Dolomite	Chert
				Haight C	225	312	618	87	Samples	good	good	Dolomite	Chert	
				Dolbee C	312	313	531	1	Samples	good	good	Limestone		
	Kinderhk	-----	Hampton	Wassonvl	313	350	530	37	Samples	good	good	Dolomite	Chert	Limestone
			North Hl		350	362	493	12	Samples	good	good	Limestone		
				Prospect	362	403	481	41	Samples	good	good	Siltstone		
				McCraney	403	414	440	11	Samples	good	good	Limestone		
Devonian	Upper	Yellow S	English		414	420	429	6	Samples	good	good	Siltstone		
			Maple Mi		420	500	423	80	Samples	good	fair	Shale		
			Sheffiel		500	585	343	85	Samples	fair	good	Shale		
			-----	Lime Crk	585	720	258	135	Samples	good	good	Shale	Dolomite	Limestone
	Middle	-----	Cedar Va	Coralvil	720	778	123	58	Samples	good	fair	Limestone	Dolomite	
			Wapsipin	Davenprt	873	905	-30	32	Samples	good	fair	Dolomite		
Silurian	-----				905	919	-62	14	Samples	poor	poor	Dolomite		
Devonian	Cincinnati	-----	Maquoket		919	1085	-76	166	Samples	good	fair	Shale	Dolomite	Limestone
				Elgin	1085	1156	-242	71	Samples	good	good	Dolomite	Shale	Limestone
	Champlai	Galena	Dub./Wis		1156	1228	-313	72	Samples	good	good	Limestone	Dolomite	Chert
			Dunleith		1228	1354	-385	126	Samples	good	good	Limestone	Dolomite	Chert
			Decorah	Ion	1354	1364	-511	10	Samples	good	good	Limestone	Dolomite	
				Guttenbg	1364	1369	-521	5	Samples	good	good	Limestone	Shale	
				Spechts	1369	1374	-526	5	Samples	good	good	Shale		
			-----	Plattevl	McGregor	1374	1408	-531	34	Samples	good	good	Limestone	
				Pecatoni	1408	1416	-565	8	Samples	good	good	Dolomite		
	Ancell		St Peter		1425	1430*	-582	5*	Samples	good		Sandstone		

SYSTEM	GEOLOGICAL UNIT				DEPTH		ELEV. OF TOP	THICK-NESS	CONTACT SOURCE	ACCURACY		LITHOLOGY		
	SERIES	GROUP	FORMATN	MEMBER	TOP	BOT				TOP	BOT	PRIMARY	SECONDARY	MINOR
COUNTY: LEE				SEQUENCE	42									
LOCATION: NW SW NE 10 T065N R05W				LAT. & LONG.: 40 26 47N 91 25 28W		W-NUMBER: 03431		DEPTH: 1585		ELEVATION: 586 (Alt.)				
Quatern	Pleistoc	Wisconsin	Loess		0	5	586	5	Samples	good	good	Loess		
			undiff		5	10	581	5	Samples	good	good	Till	Sd & Grav	
Miss	Osage	-----	Warsaw		10	70	576	60	Samples	good	good	Shale		
			Keokuk		70	130	516	60	Samples	good	good	Ls & Dol	Chert	Shale
			Burlingt	Cedar Fk	130	160	456	30	Samples	good	good	Limestone	Chert	
				Haight C	160	195	426	35	Samples	good	good	Chert	Dolomite	
				Dolbee C	195	210	391	15	Samples	good	good	Limestone	Chert	
	Kinderhk	-----	Hampton	Wassonvl	210	220	376	10	Samples	good	good	Limestone	Chert	
			North Hl	Prospect	220	260	366	40	Samples	good	good	Shale	Siltstone	
				McCraney	260	325	326	65	Samples	good	good	Limestone	Dolomite	Chert
Devonian	Upper	Yellow S	English		325	335	261	10	Samples	good	good	Siltstone	Shale	
			Maple Mi		335	415	251	80	Samples	good	good	Shale		
			Sheffiel		415	530	171	115	Samples	good	good	Shale		
			-----	Lime Crk	530	545	56	15	Samples	good	good	Shale		
	Middle	-----	Cedar Va		545	635	41	90	Samples	good	good	Limestone	Chert	Siltstone
			Wapsipin		635	655	-49	20	Samples	good	good	Limestone		
Ordovician	Champlai	Galena	Dub./Wis		655	810	-69	155	Samples	good	fair	Dolomite	Chert	Shale
			Decorah	Ion	810	825	-224	15	Samples	fair	good	Dolomite	Chert	
				Guttenbg	825	835	-239	10	Samples	good	good	Dolomite		
				Spechts	835	840	-249	5	Samples	good	good	Dolomite	Shale	
			-----	Plattevl	840	875	-254	35	Samples	good	good	Dolomite	Sandstone	
			Ancell	Blenwood	875	940	-289	65	Samples	good	good	Sandstone	Shale	
				Harmony	940	950	-354	10	Samples	good	good			
				St Peter	950	990	-364	40	Samples	good	good	Sandstone		
	Canadian	Prairie	Shakopee	Willow R	990	1220	-404	230	Samples	good	fair	Dolomite	Chert	Sandstone
				New Rich	1220	1395	-634	175	No Smpl	poor	poor	Dolomite	Limestone	Sandstone
			Oneota		1395	1585*	-809	190*	Samples	fair		Dolomite	Chert	Sandstone

COUNTY: LEE				SEQUENCE	43									
LOCATION: NW SW NE 10 T065N R05W				LAT. & LONG.: 40 26 47N 91 25 28W		W-NUMBER: 04776		DEPTH: 1700		ELEVATION: 589 (Alt.)				
			sample gap		0	30	589	30						
Miss	Osage	-----	Warsaw		30	60	559	30	Samples	poor	good	Shale	Dolomite	Chert
			Keokuk		60	140	529	80	Samples	good	good	Limestone	Chert	Shale
			Burlingt	Cedar Fk	140	160	449	20	Samples	good	good	Limestone		
				Haight C	160	200	429	40	Samples	good	good	Chert	Dolomite	Limestone
				Dolbee C	200	210	389	10	Samples	good	good	Limestone		
	Kinderhk	-----	Hampton	Wassonvl	210	220	379	10	Samples	good	good	Limestone	Dolomite	
			North Hl	Prospect	220	260	369	40	Samples	good	good	Shale	Siltstone	
				McCraney	260	330	329	70	Samples	good	good	Limestone	Dolomite	Chert
Devonian	Upper	Yellow S	English		330	340	259	10	Samples	good	good	Siltstone		
			Maple Mi		340	550	249	210	Samples	good	poor	Shale		
	Middle	-----	Cedar Va		550	640	39	90	No Smpl	poor	poor			

(Record continues on next page)

SYSTEM	GEOLOGICAL UNIT				DEPTH		ELEV.	THICK-	CONTACT	ACCURACY		PRIMARY	LITHOLOGY		
	SERIES	GROUP	FORMATN	MEMBER	TOP	BOT	OF TOP	NESS	SOURCE	TOP	BOT		SECONDARY	MINOR	
Ordovician	Champlai	Galena	Wapsipin		640	660	-51	20	No Smpl	poor	poor				
			Dub./Wis		660	815	-71	155	No Smpl	poor	poor				
			Decorah		815	840	-226	25	No Smpl	poor	poor				
			-----	Plattevl		840	945	-251	105	No Smpl	poor	poor			
			Ancell	St Peter		945	990	-356	45	No Smpl	poor	poor			
			Canadian	Prairie	Shakopee	Willow R	990	1320	-401	330	Samples	poor	good	Dolomite	Chert
			New Rich	1320	1410	-731	90	Samples	good	good	Dolomite	Chert	Sandstone		
			Onecta	1410	1630	-821	220	Samples	good	good	Dolomite	Chert	Sandstone		
Cambrian	St Croix	Trempeal	Jordan		1630	1675	-1041	45	Samples	good	good	Sandstone	Dolomite	Shale	
			St Lawre		1675	1700*	-1086	25*	Samples	good		Sandstone	Dolomite		

COUNTY: LEE SEQUENCE 44
 LOCATION: SE SW SW 2; T069N R06W LAT. & LONG.: 40 45 15N 91 33 27W W-NUMBER: 16081 DEPTH: 926 ELEVATION: 704 (Alt.)

Quatern	Pleistoc	Holocene	Recent		0	1	704	1	Samples	good	good	Soil-fill			
			Wisconsin	Loess		1	5	703	4	Samples	good	good			
			undiff			5	40	699	35	Samples	good	good	Gumbatil	Till	Clay
Miss	Meramec	-----	St Louis		40	78	664	38	Samples	good	good	Limestone	Dolomite	Chert	
		Osage	-----	Warsaw		78	134	626	56	Samples	good	good	Shale	Dolomite	Chert
				Keokuk		134	203	570	69	Samples	good	good	Limestone	Dolomite	Chert
				Burlingt	Cedar Fk	203	223	501	20	Samples	good	good	Limestone	Dolomite	Chert
				Haight C		223	260	481	37	Samples	good	good	Chert	Dolomite	Limestone
				Dolbee C		260	270	444	10	Samples	good	good	Limestone		
		Kinderhk	-----	Hampton	Wassonvl	270	275	434	5	Samples	good	good	Dolomite		
			North Hl		275	289	429	14	Samples	good	good	Limestone			
			Prospect		289	330	415	41	Samples	good	good	Siltstone	Shale		
				McCraney		330	350	374	20	Samples	good	good	Limestone	Shale	Dolomite
Devonian	Upper	Yellow S	English		350	353	354	3	Samples	good	good	Siltstone			
			Maple Mi		353	440	351	87	Samples	good	good	Shale			
			Sheffiel		440	535	264	95	Samples	good	good	Shale			
			-----	Lime Crk		535	632	169	97	Samples	good	good	Shale	Limestone	
	Middle	-----	Cedar Va		632	727	72	95	Samples	good	good	Limestone			
			Wapsipin	Davenprt		727	780	-23	53	Samples	good	good	Limestone	Gypsum	
				Spring S		780	805	-76	25	Samples	good	good	Limestone	Gypsum	
			Kenwood		805	838	-101	33	Samples	good	good	Dolomite	Gypsum	Shale	
Ordovician	Champlai	Galena	Dub./Wis		838	885*	-134	47*	Samples	good		Dolomite	Chert		
			Dunleith		885	926*	-181	41*	Samples	fair		Dolomite	Chert		

COUNTY: LOUISA SEQUENCE 45
 LOCATION: NW SW SW NW 6 T075N R03W LAT. & LONG.: 41 19 51N 91 15 04W W-NUMBER: 00092 DEPTH: 1135 ELEVATION: 678 (Level)

Quatern	Pleistoc				0	280	678	280	Samples	good	good	Till	Sd & Grav	
Devonian	Upper	-----	Lime Crk		280	300	398	20	Samples	good	good	Shale	Limestone	
		Middle	-----	Cedar Va	Rapid	300	330	378	30	Samples	good	good	Dolomite	
					330	440	348	110	Samples	good	good	Limestone		
			Wapsipin	Davenprt	440	447	238	7	Samples	good	good	Dolomite		

(Record continues on next page)

THIS DATA RETRIEVED FROM THE GSB AND USGS COOPERATIVE GEOLOGIC FILE (PHONE 319-335-1575).

SYSTEM	GEOLOGICAL UNIT				DEPTH		ELEV. OF TOP	THICK-NESS	CONTACT SOURCE	ACCURACY		LITHOLOGY		
	SERIES	GROUP	FORMATN	MEMBER	TOP	BOT				TOP	BOT	PRIMARY	SECONDARY	MINOR
				Spring 6	447	470	231	23	Samples	good	good	Dolomite	Sandstone	
Silurian	-----	-----	Hopkintn		470	545	208	75	Samples	good	good	Dolomite		
	-----	-----	Blanding		545	578	133	33	Samples	good	good	Dolomite	Chert	
Ordovician	Cincinnati	-----	Maquoket	Brainard	578	650	100	72	Samples	good	good	Shale		
				Ft Atkin	650	780	28	130	Samples	good	good	Shale	Dolomite	
	Champlai	Balena	Dub./Wis	Elgin	780	810	-102	30	Samples	good	good	Shale	Dolomite	
					810	900	-132	90	Samples	good	good	Limestone	Dolomite	Chert
				Dunleith	900	1025	-222	125	Samples	good	good	Limestone	Dolomite	Chert
				Decorah	1025	1048	-347	23	Samples	good	good	Limestone	Shale	
				Spechts	1048	1055	-370	7	Samples	good	good	Shale		
	-----	-----	Flattevl	McBregor	1055	1093	-377	38	Samples	good	fair	Limestone		
				Pecatoni	1093	1096	-415	3	Samples	fair	good	Limestone		
	Ancell	Glenwood	Starved		1096	1105	-418	9	Samples	good	good	Sandstone		
				Harmony	1105	1125	-427	20	Samples	good	good	Shale		
				St Peter	1125	1135*	-447	10*	Samples	good		Sandstone		

COUNTY: LYON SEQUENCE 46
 LOCATION: SW SW NW 16 T100N R45W LAT. & LONG.: 43 29 02N 96 10 32W W-NUMBER: 05703 DEPTH: 443 ELEVATION: 1367 (Alt.)

Quatern	Pleistoc	Holocene	Recent		0	10	1367	10	Drl Log	poor	poor	Soil-fill		
			undiff		10	226	1357	216	Drl Log	poor	poor	Till	Sand	Sd & Grav
Cretac	-----	-----	Dakota		226	300	1141	74	Samples	good	good	Shale		
					300	393	1067	93	Samples	good	good	Shale	Sandstone	
				Sandston	300	310	1067	10	Samples	good	good	Sandstone		
				Shale	310	370	1057	60	Samples	good	good	Shale		
				Sandston	370	393	997	23	Samples	good	good	Sandstone		
Precambr	-----	-----	Sioux		393	443*	974	50*	Samples	good		Quartzite		

COUNTY: MAHASKA SEQUENCE 47
 LOCATION: SW SW SW SW 13 T074N R15W LAT. & LONG.: 41 12 21N 92 32 36W W-NUMBER: 17952 DEPTH: 1565 ELEVATION: 781 (Alt.)

Quatern	Pleistoc				0	120	781	120	Samples	good	good	Sand		
Miss	Meramec	-----	Ste Gene		120	153	661	33	Samples	good	fair	Limestone	Sandstone	
			St Louis		153	190	628	37	Samples	poor	poor	Limestone	Sandstone	
			Spergen		190	250	591	60	Samples	fair	good	Dolomite	Sandstone	Chert
Osage	-----	-----	Warsaw		250	260	531	10	Samples	good	fair	Dolomite	Shale	Chert
			Keokuk		260	328	521	68	Samples	fair	good	Dolomite	Chert	Limestone
			Burlingt		328	405	453	77	Samples	good	good	Dolomite	Limestone	Chert
Kinderhk	-----	-----	Bilmore		405	416	376	11	Samples	good	fair	Limestone		
			Hampton		416	472	365	56	Samples	fair	good	Dolomite	Limestone	Chert
			North Hl		472	485	309	13	Samples	fair	good	Limestone		
			Prospect		485	510	296	25	Samples	good	good	Siltstone		
			McCraney		510	522	271	12	Samples	good	good	Dolomite		
Devonian Upper	Yellow S	English			522	530	259	8	Samples	good	good	Siltstone		
			Aplingt		530	534	251	4	Samples	good	good	Dolomite	Limestone	
			Sheffiel		534	620	247	86	Samples	good	good	Shale		

(Record continues on next page)

* ASTERISK SIGNIFIES PARTIAL PENETRATION

COUNTY: 62 MAHASKA

THIS DATA RETRIEVED FROM THE GSB AND USGS COOPERATIVE GEOLOGIC FILE (PHONE 319-335-1575).

SYSTEM	GEOLOGICAL UNIT				DEPTH		ELEV. OF TOP	THICK-NESS	CONTACT SOURCE	ACCURACY		LITHOLOGY		
	SERIES	GROUP	FORMATN	MEMBER	TOP	BOT				TDP	BOT	PRIMARY	SECONDARY	MINOR
Ordovician	Middle	Cincinnati	-----	Lime Crk	620	726	161	106	Samples	good	good	Shale	Dolomite	
			-----	Cedar Va	726	940	55	214	Samples	good	fair	Dolomite	Gypsum	Limestone
			-----	Wapsipin	940	1055	-159	115	Samples	fair	good	Dolomite	Gypsum	
	Champlai	Galena	-----	Maquoket	1055	1090	-274	35	Samples	good	good	Shale	Dolomite	
				Ft Atkin	1090	1150	-309	60	Samples	good	good	Shale	Dolomite	
	Champlai	Galena		Elgin	1150	1221	-369	71	Samples	good	good	Shale	Dolomite	
				Dunleith	1221	1287	-440	66	Samples	good	good	Dolomite	Limestone	Chert
				Dunleith	1287	1402	-506	115	Samples	good	good	Dolomite	Limestone	Chert
				Decorah	1402	1410	-621	8	Samples	good	good	Dolomite		
				Guttenbg	1410	1417	-629	7	Samples	good	good	Dolomite	Shale	
				Spechts	1417	1422	-636	5	Samples	good	good	Shale		
				Plattevl	1422	1450	-641	28	Samples	good	good	Dolomite	Limestone	
	Canadian	Prairie		Pecatoni	1450	1463	-669	13	Samples	good	good	Dolomite		
				Ancell	1463	1467	-682	4	Samples	good	good	Shale		
				St Peter	1467	1498	-686	31	Samples	good	good	Sandstone		
				1498	1565*	-717	67*	Samples	good	good	Dolomite	Sandstone	Chert	

COUNTY: MILLS SEQUENCE 48
 LOCATION: SE SW SW 15 T073N R40W LAT. & LONG.: 41 07 10N 95 26 10W W-NUMBER: 01631 DEPTH: 2836 ELEVATION: 1032 (Alt.)

Quatern	Pleistoc	Holocene	Recent	0	18	1032	18	Samples	good	good	Soil-fill					
			undiff	18	110	1014	92	Samples	good	good	Till					
Penn	Virgil	Shawnee		110	165	922	55	Samples	good	good	Limestone	Shale				
				Douglas	165	240	867	75	Samples	good	fair	Shale	Limestone			
				Missouri	240	275	792	35	Samples	fair	good	Limestone	Shale			
Des	Moin	Marmaton		275	520	757	245	Samples	good	good	Limestone	Shale	Sandstone			
				Pleasant	520	570	512	50	Samples	good	fair	Shale	Siltstone	Limestone		
				Cherokee	570	690	462	120	Samples	good	poor	Limestone	Shale	Coal		
				Cherokee	690	1320	342	630	Samples	poor	good	Shale	Sandstone	Limestone		
Miss	Osage	-----	Keokuk	1320	1475	-288	155	Samples	good	good	Ls & Dol	Sandstone	Shale			
			Burlingt	1475	1525	-443	50	Samples	good	good	Dolomite	Chert	Limestone			
			Kinderhk	1525	1590	-493	65	Samples	good	good	Limestone	Chert	Dolomite			
				Hampton	1590	1615	-558	25	Samples	good	good	Limestone	Dolomite			
				Maynes C	1615	1675	-583	60	Samples	good	good	Dolomite	Chert			
Devonian	Upper	Yellow S	North Hl	1675	1720	-643	45	Samples	good	good	Limestone					
			Maple Mi	1720	1827	-688	107	Samples	good	good	Shale	Dolomite				
			Aplingtn	1827	1848	-795	21	Samples	good	good	Dolomite	Chert				
			Sheffiel	1848	1855	-816	7	Samples	good	good	Shale					
			-----	Lime Crk	1855	1980	-823	125	Samples	good	good	Dolomite	Limestone	Shale		
			Middle	-----	Cedar Va	Coralvil	1980	2025	-948	45	Samples	good	good	Dolomite	Limestone	
						Rapid	2025	2325	-993	300	Samples	good	good	Dolomite	Chert	Shale
Solon	2325	2370				-1293	45	Samples	good	good	Dolomite	Shale				
	Wapsipin	2370	2460	-1338	90	Samples	good	good	Dolomite	Chert	Sandstone					
Silurian				2460	2554	-1428	94	Samples	good	good	Dolomite	Chert	Sandstone			
Ordovician	Cincinnati	-----	Maquoket	2554	2830	-1522	276	Samples	good	good	Dolomite	Chert	Shale			
			Ft Atkin	2830	2836*	-1798	6*	Samples	good	good	Dolomite	Chert				

THIS DATA RETRIEVED FROM THE BSB AND USGS COOPERATIVE GEOLOGIC FILE (PHONE 319-335-1575).

SYSTEM	GEOLOGICAL UNIT				DEPTH		ELEV. DF TOP	THICK- NESS	CONTACT SOURCE	ACCURACY		LITHOLOGY			
	SERIES	GROUP	FORMATN	MEMBER	TOP	BOT				TOP	BOT	PRIMARY	SECONDARY	MINOR	
COUNTY: MILLS		SEQUENCE		49											
LOCATION:		NW SE SE 6 T073N R43W	LAT. & LONG.: 41 08 55N 95 49 35W		W-NUMBER: 04470		DEPTH: 2505		ELEVATION: 972 (Alt.)						
Quatern	Pleistoc				0	95	972	95	Samples	good	good	Sand	Sd & Grav	Till	
Penn	Missouri	Lansing			95	122	877	27	Samples	good	good	Limestone	Chert		
		Kansas C			122	315	850	193	Samples	good	good	Limestone	Shale	Dolomite	
	undiff				315	880	657	565	Samples	good	good	Shale	Sandstone	Limestone	
Miss	Meramec	-----	St Louis		880	933	92	53	Samples	good	good	Sandstone	Limestone	Dolomite	
		-----	Warsaw		933	963	39	30	Samples	good	good	Dolomite	Chert		
	Osage	-----	Keokuk		963	987	9	24	Samples	good	good	Dolomite	Limestone	Chert	
		-----	Burlingt		987	1067	-15	80	Samples	good	good	Limestone	Chert	Dolomite	
	Kinderhk	-----	Gilmore		1067	1115	-95	48	Samples	good	good	Limestone			
		-----	Hampton		1115	1175	-143	60	Samples	good	good	Limestone	Dolomite	Chert	
	North H1				1175	1228	-203	53	Samples	good	good	Limestone			
Devonian	Upper	Yellow S	Maple Mi		1228	1313	-256	85	Samples	good	good	Shale			
			Aplingt		1313	1344	-341	31	Samples	good	good	Dolomite			
			Sheffiel		1344	1345	-372	1	Samples	good	good	Shale			
			-----	Lime Crk		1345	1445	-373	100	Samples	good	good	Dolomite	Shale	Limestone
	Middle	-----	Cedar Va	Coralvil		1313	1380	-341	67	Samples	good	good	Dolomite	Limestone	Shale
				Rapid		1380	1600	-408	220	Samples	good	good	Dolomite	Shale	Limestone
				Solon		1600	1685	-628	85	Samples	good	good	Shale	Dolomite	
				Wapsipin	Kenwood	1685	1790	-713	105	Samples	good	good	Dolomite	Sandstone	Chert
Silurian					1790	1880	-818	90	Samples	good	good	Dolomite	Chert		
Ordovician	Cincinnati	-----	Maquoket	Ft Atkin		1880	2100	-908	220	Samples	good	good	Dolomite	Chert	Shale
				Elgin		2100	2190	-1128	90	Samples	good	good	Dolomite	Chert	
	Champlai	Galena	Dub./Wis	Dunleith		2190	2230	-1218	40	Samples	good	good	Dolomite	Shale	Chert
				Dec/Plat		2230	2270	-1258	40	Samples	good	good	Dolomite	Shale	Chert
				Dec/Plat		2270	2355	-1298	85	Samples	good	good	Shale	Dolomite	
				-----	St Peter	2355	2393	-1383	38	Samples	good	good	Sandstone	Dolomite	
	Canadian	Prairie			2393	2505*	-1421	112*	Samples	good		Dolomite	Sandstone	Chert	

COUNTY: MILLS SEQUENCE 50
 LOCATION: SE SE SE 7 T071N R41W LAT. & LONG.: 40 57 38N 95 35 41W W-NUMBER: 10972 DEPTH: 2236 ELEVATION: 1072 (Alt.)

				sample gap	0	10	1072	10						
Quatern	Pleistoc	Wisconsin	Loess		10	110	1062	100	Samples	poor	good	Loess		
			undiff		110	144	962	34	Samples	good	poor	Till		
Penn	Missouri	Des Moin	Marmaton		144	400	928	256	Samples	poor	good	Limestone	Shale	
			Cherokee		400	525	672	125	Samples	good	good	Shale	Limestone	Sandstone
					525	680	547	155	Samples	good	fair	Shale	Limestone	Sandstone
Miss	Osage	-----	Burlingt		680	730	392	50	Samples	good	good	Dolomite	Chert	
			Kinderhk		730	750	342	20	Samples	good	good	Limestone		
					750	790	322	40	Samples	good	good	Limestone	Dolomite	Chert
			North H1		790	860	282	70	Samples	good	good	Limestone		
Devonian	Upper	Yellow S	Maple Mi		860	950	212	90	Samples	good	good	Shale		
			Aplingt		950	975	122	25	Samples	good	good	Dolomite		

(Record continues on next page)

* ASTERISK SIGNIFIES PARTIAL PENETRATION

COUNTY: 65 MILLS

SYSTEM	GEOLOGICAL UNIT				DEPTH		ELEV. OF TOP	THICK-NESS	CONTACT SOURCE	ACCURACY		PRIMARY	LITHOLOGY	
	SERIES	GROUP	FORMATN	MEMBER	TOP	BOT				TOP	BOT		SECONDARY	MINOR
			Sheffiel		975	1082	97	107	Samples	good	good	Shale		
	Middle	-----	Cedar Va		1082	1440	-10	358	Samples	good	fair	Dolomite	Chert	
			Wapsipin		1440	1485	-368	45	Samples	poor	poor	Dolomite	Chert	Sandstone
Silurian					1485	1520	-413	35	Samples	poor	poor	Dolomite	Chert	Sandstone
Ordovician	Cincinnati	-----	Maquoket		1520	1580	-448	60	Samples	fair	good	Dolomite	Chert	
				Ft Atkin	1580	1770	-508	190	Samples	fair	good	Dolomite	Chert	
				Elgin	1770	1870	-698	100	Samples	good	good	Dolomite	Chert	
	Champlai	Galena	Dub./Wis		1870	1970	-798	100	Samples	good	fair	Dolomite	Chert	Shale
			Dec/Plat		1970	2027	-898	57	Samples	fair	good	Dolomite	Chert	Shale
			Ancell	St Peter	2027	2056	-955	29	Samples	good	good	Sandstone		
	Canadian	Prairie			2056	2236*	-984	180*	Samples	good		Dolomite	Sandstone	Chert

COUNTY: MILLS SEQUENCE 51
 LOCATION: NW SW SE NW 7 T071N R41W LAT. & LONG.: 40 58 07N 95 36 31W W-NUMBER: 12929 DEPTH: 800 ELEVATION: 1047 (Alt.)

Quatern	Pleistoc	Wisconsin	Loess		0	60	1047	60	Samples	good	good	Loess		
			undiff		60	130	987	70	Samples	good	good	Sd & Grav		
Penn	Missouri	Kansas	C		130	370	917	240	Samples	good	fair	Limestone	Shale	
	Des Moines	Marmaton			370	505	677	135	Samples	poor	poor	Shale	Limestone	Sandstone
		Cherokee			505	655	542	150	Samples	poor	poor	Shale	Limestone	Sandstone
Miss	Osage	-----	Keokuk		655	725	392	70	Samples	poor	poor	Dolomite	Chert	
			Burlingt		725	770	322	45	Samples	fair	good	Dolomite	Limestone	Chert
	Kinderhk	-----	Gilmore		770	800*	277	30*	Samples	good		Limestone		

COUNTY: MILLS SEQUENCE 52
 LOCATION: NE NE NE 29 T071N R41W LAT. & LONG.: 40 55 48N 95 34 35W W-NUMBER: 12064 DEPTH: 1320 ELEVATION: 968 (Alt.)

Quatern	Pleistoc	Holocene	Recent		0	5	968	5	Samples	good	good	Soil-fill		
			undiff		5	223	963	218	Samples	good	good	Sd & Grav		
Penn	Missouri	Kansas	C		223	270	745	47	Samples	good	good	Limestone	Shale	
	Des Moines	Marmaton			270	412	698	142	Samples	good	good	Shale	Limestone	Sandstone
		Cherokee			412	604	556	192	Samples	good	good	Shale	Sandstone	Limestone
Miss	Osage	-----	Keokuk		604	670	364	66	Samples	good	fair	Dolomite	Chert	
			Burlingt		670	730	298	60	Samples	fair	good	Dolomite	Chert	
	Kinderhk	-----	Gilmore		730	756	238	26	Samples	good	good	Limestone	Chert	
			Hampton	Maynes C	756	805	212	49	Samples	good	good	Dolomite	Chert	
			North HI		805	848	163	43	Samples	good	good	Limestone	Dolomite	
			Prospect		848	857	120	9	Samples	good	good	Sandstone		
Devonian	Upper	Yellow S	Maple Mi		857	930	111	73	Samples	good	good	Shale	Dolomite	
			Aplingt		930	960	38	30	Samples	good	good	Dolomite		
			Sheffiel		960	1070	8	110	Samples	good	good	Shale	Limestone	
			-----	Lime Crk	1070	1198	-102	128	Samples	good	good	Limestone	Shale	Dolomite
	Middle	-----	Cedar Va		1198	1320*	-230	122*	Samples	good		Dolomite		

SYSTEM	GEOLOGICAL UNIT				DEPTH		ELEV. OF TOP	THICK-NESS	CONTACT SOURCE	ACCURACY		PRIMARY	LITHOLOGY		
	SERIES	GROUP	FORMATN	MEMBER	TOP	BOT				TOP	BOT		SECONDARY	MINOR	
COUNTY: MILLS		SEQUENCE 53		LOCATION: SW NE NW NE 29 T071N R41W		LAT. & LONG.: 40 55 46N 95 34 54W		W-NUMBER: 12065		DEPTH: 770		ELEVATION: 973 (Aft.)			
Quatern	Pleistoc	Holocene	Recent		0	5	973	5	Samples	good	good	Soil-fill			
		Wisconsin	Loess		5	20	968	15	Samples	good	good	Loess			
			undiff		20	238	953	218	Samples	good	good	Till	Sd & Grav		
Penn	Missouri	Kansas C			238	300	735	62	Samples	good	good	Limestone	Shale		
		Des Moine			300	665	673	365	Samples	good	good	Shale	Limestone	Sandstone	
Miss	Osage	-----	Keokuk		665	730	308	65	Samples	good	fair	Dolomite	Chert		
			Burlingt		730	770*	243	40*	Samples	fair		Dolomite	Chert		
COUNTY: MITCHELL		SEQUENCE 54		LOCATION: NE NW SW NW 30 T098N R15W		LAT. & LONG.: 43 16 46N 92 40 17W		W-NUMBER: 14697		DEPTH: 1170		ELEVATION: 1192 (Topo)			
			sample gap		0	140	1192	140							
Devonian	Middle	-----	Cedar Va		140	291	1052	151	Samples	poor	good	Dolomite	Limestone	Chert	
			Solon		291	365	901	74	Samples	poor	poor	Dolomite	Chert		
Ordovician	Cincinnati	-----	Maquoket	Clermont	365	390	827	25	Samples	fair	good	Dolomite	Chert		
				Elgin	390	450	802	60	Samples	fair	good	Dolomite	Chert	Limestone	
	Champlai	Galena	Dub./Wis		450	535	742	85	Samples	good	fair	Limestone	Dolomite	Chert	
			Dunleith		535	665	657	130	Samples	good	fair	Limestone	Dolomite	Chert	
			Dec/Plat		665	725	527	60	Samples	fair	good	Shale	Limestone		
			Ancell	Glenwood	725	730	467	5	Samples	good	good	Shale			
				St Peter	730	810	462	80	Samples	good	good	Sandstone	Shale		
	Canadian	Prairie	Shakopee	Willow R	810	965	382	155	Samples	good	good	Dolomite	Sandstone	Chert	
				New Rich	965	1060	227	95	Samples	good	fair	Dolomite	Sandstone	Chert	
			Onyota		1060	1170*	132	110*	Samples	fair		Dolomite	Sandstone		
COUNTY: MONROE		SEQUENCE 55		LOCATION: NE SW SW 35 T071N R16W		LAT. & LONG.: 40 53 54N 92 40 30W		W-NUMBER: 22952		DEPTH: 1567		ELEVATION: 795 (Topo)			
Quatern	Pleistoc				0	60	795	60	No Smpl	poor	poor				
Penn	Des Moine				60	200	735	140	Samples	poor	good	Shale	Limestone	Sandstone	
Miss	Meramec	-----	Ste Gene		200	250	595	50	Samples	good	good	Limestone	Shale	Siltstone	
			St Louis		250	370	545	120	Samples	good	good	Limestone	Dolomite	Gypsum	
	Osage	-----	Warsaw		370	400	425	30	Samples	good	good	Dolomite	Shale	Chert	
			Keokuk		400	500	395	100	Samples	good	fair	Limestone	Shale	Chert	
			Burlingt		500	592	295	92	Samples	fair	good	Limestone	Chert	Dolomite	
	Kinderhook	-----	Hampton	Eagle Di	592	600	203	8	Samples	good	good	Limestone	Chert		
				Maynes C	600	669	195	69	Samples	good	good	Dolomite	Limestone	Chert	
			North HI		669	733	126	64	Samples	good	poor	Limestone			
			Prospect		733	740	62	7	Samples	poor	poor				
Devonian	Upper	Yellow S	Maple Mi		740	851	55	111	Samples	poor	good	ls & Dol	Shale		
		-----	Lime Crk		851	890	-56	39	Samples	good	good	Limestone	Shale		
	Middle	-----	Cedar Va		890	1142	-95	252	Samples	good	good	Limestone	Dolomite	Shale	

(Record continues on next page)

* ASTERISK SIGNIFIES PARTIAL PENETRATION

SYSTEM	GEOLOGICAL UNIT			DEPTH		ELEV. OF TOP	THICK-NESS	CONTACT SOURCE	ACCURACY		PRIMARY	LITHOLOGY		
	SERIES	GRDUP	FORMATN	MEMBER	TOP				BDT	TOP		BDT	SECONDARY	MINOR
Ordovician	Champlai	Galena	Wapsipin		1142	1266	-347	144	Samples	good	good	Gypsum	Ls & Dol	Sandstone
			Dub./Wis		1286	1355	-491	69	Samples	good	fair	Dolomite		
			Dunleith		1355	1475	-560	120	Samples	good	fair	Dolomite		
			Dec/Plat		1475	1525	-680	50	Samples	poor	poor	Dolomite	Shale	
			Ancell	St Peter		1525	1567*	-730	42*	Samples	good		Sandstone	

COUNTY: MONTGOMERY SEQUENCE 56
 LOCATION: NW SE SE SE 5 T072N R38W LAT. & LONG.: 41 03 41N 95 14 03W W-NUMBER: 01498 DEPTH: 2758 ELEVATION: 1061 (Alt.)

			sample gap		0	60	1061	60						
Penn	Missouri	Lansing		60	105	1001	45	Samples	poor	good	Limestone	Shale	Chert	
		Des Moines	Marmaton	105	305	956	200	Samples	good	good	Limestone	Shale	Chert	
				305	485	756	180	Samples	good	good	Shale	Limestone	Siltstone	
Miss	Cherokee			485	1150	576	665	Samples	good	good	Shale	Ls & Dol	Sandstone	
		Meramec	Ste Gene	1150	1175	-89	25	Samples	good	good	Limestone			
	Osage		St Louis	1175	1250	-114	75	Samples	good	fair	Ls & Dol	Shale	Sandstone	
			Warsaw	1250	1275	-189	25	Samples	fair	good	Ls & Dol	Shale	Chert	
	Kinderhook		Keokuk		1275	1370	-214	95	Samples	good	fair	Dolomite	Chert	Limestone
			Burlingt		1370	1445	-309	75	Samples	fair	good	Dolomite	Chert	Limestone
			Gilmore		1445	1480	-384	35	Samples	good	good	Limestone	Chert	
			Hampton		1480	1520	-419	40	Samples	good	good	Dolomite	Limestone	Chert
			North HI		1520	1550	-459	30	Samples	good	good	Limestone		
	Devonian	Upper	Yellow S	Maple Mi	1565	1640	-504	75	Samples	good	good	Shale		
Aplingt				1640	1644	-579	4	Samples	good	good	Limestone			
Middle			Sheffiel	1644	1705	-583	61	Samples	good	good	Shale	Dolomite		
			Lime Crk	1705	1720	-644	15	Samples	good	good	Limestone	Dolomite		
			Cedar Va	Rapid	1720	1955	-659	235	Samples	good	good	Dolomite	Limestone	Shale
Silurian	undiff		Solon	1955	2010	-894	55	Samples	good	good	Dolomite	Shale		
			Wapsipin	Kenwood	2010	2088	-949	78	Samples	good	good	Dolomite		
		LaPorte		2088	2141	-1027	53	Samples	good	good	Limestone	Chert		
				2141	2225	-1080	84	Samples	good	poor	Dolomite	Chert		
		Cincinnati	Maquoket	Ft Atkin	2225	2425	-1164	200	Samples	poor	good	Dolomite	Chert	
Ordovician	Champlai	Galena	Dub./Wis	2490	2580	-1429	90	Samples	good	fair	Dolomite	Chert		
			Dec/Plat	2580	2655	-1519	75	Samples	fair	good	Dolomite	Shale		
		Ancell	St Peter		2655	2680	-1594	25	Samples	good	good	Sandstone		
		Canadian	Prairie		2680	2758*	-1619	78*	Samples	good		Dolomite	Chert	

COUNTY: MONTGOMERY SEQUENCE 57
 LOCATION: SW SW SW SW 15 T072N R38W LAT. & LONG.: 41 01 54N 95 12 44W W-NUMBER: 02084 DEPTH: 1652 ELEVATION: 1138 (Alt.)

			sample gap		0	125	1138	125						
Penn	Virgil	Wabaunse		125	200	1013	75	Samples	poor	good	Shale	Ls & Dol	Coal	
		Shawnee		200	380	938	180	Samples	good	good	Limestone	Shale	Siltstone	
		Douglas		380	425	758	45	Samples	good	good	Sandstone	Shale	Siltstone	

(Record continues on next page)

* ASTERISK SIGNIFIES PARTIAL PENETRATION

THIS DATA RETRIEVED FROM THE GSB AND USGS COOPERATIVE GEOLOGIC FILE (PHONE 319-335-1575).

SYSTEM	GEOLOGICAL UNIT				DEPTH		ELEV. OF TOP	THICK-NESS	CONTACT SOURCE	ACCURACY		LITHOLOGY		
	SERIES	GROUP	FORMATN	MEMBER	TOP	BOT				TOP	BOT	PRIMARY	SECONDARY	MINOR
	Missouri	Lansing			425	510	713	85	Samples	good	good	Limestone	Shale	
		Kansas C			510	730	628	220	Samples	good	good	Limestone	Shale	Chert
		Pleasant			730	760	408	30	Samples	good	good	Limestone	Shale	Chert
	Des Moines	Marmaton			760	900	378	140	Samples	good	good	Shale	Limestone	Sandstone
		Cherokee			900	1510	238	610	Samples	good	good	Shale	Siltstone	Sandstone
Miss	Meramec	-----	St Louis		1510	1605	-372	95	Samples	good	good	Ls & Dol	Sandstone	Shale
	Osage	-----	Warsaw		1605	1652*	-467	47*	Samples	good		Dolomite	Chert	

COUNTY: MONTGOMERY SEQUENCE 58
 LOCATION: NW NW 2 T073N R36W LAT. & LONG.: 41 09 20N 94 57 50W W-NUMBER: 03722 DEPTH: 1328 ELEVATION: 1118 (Alt.)

Quatern	Pleistoc	Wisconsin	Loess		0	20	1118	20	Samples	good	good	Loess		
			undiff		20	30	1098	10	Samples	good	good	Till	Bumbotil	
Penn	Virgil	Douglas			30	53	1088	23	Samples	good	good	Shale		
	Missouri	Lansing			53	128	1065	75	Samples	good	good	Shale	Limestone	Coal
		Kansas C			128	360	990	232	Samples	good	good	Limestone	Shale	Chert
	Des Moines	Marmaton			360	535	758	175	Samples	good	good	Shale	Ls & Dol	Siltstone
		Cherokee			535	1136	583	601	Samples	good	good	Shale	Sandstone	Limestone
Miss	Meramec	-----	Ste Gene		1136	1177	-18	41	Samples	good	good	Limestone	Chert	
			St Louis		1177	1213	-59	36	Samples	good	good	Ls & Dol	Sandstone	Chert
	Osage	-----	Warsaw		1213	1240	-95	27	Samples	good	good	Dolomite	Limestone	Chert
			Keokuk		1240	1303	-122	63	Samples	good	good	Dolomite	Chert	Shale
			Burlingt		1303	1328*	-185	25*	Samples	good		Dolomite	Chert	

COUNTY: MONTGOMERY SEQUENCE 59
 LOCATION: NW NW NE 11 T073N R36W LAT. & LONG.: 41 08 39N 94 57 17W W-NUMBER: 23319 DEPTH: 3056 ELEVATION: 1271 (Alt.)

			sample gap		0	20	1271	20						
Quatern	Pleistoc				20	180	1251	160	Samples	poor	good	Sand	Till	
Penn					180	1305	1091	1125	Samples	good	good	Shale	Limestone	Sandstone
Miss	Meramec	-----	Ste Gene		1305	1350	-34	45	Samples	good	good	Shale	Limestone	
			St Louis		1350	1420	-79	70	Samples	good	good	Limestone	Sandstone	
			Spergen		1420	1500	-149	80	Samples	good	good	Dolomite	Limestone	
	Osage	-----	Keokuk		1500	1585	-229	85	Samples	good	good	Dolomite	Chert	Shale
			Burlingt		1585	1668	-314	83	Samples	good	good	Dolomite	Chert	Shale
	Kinderhk	-----	Gilmore		1668	1690	-397	22	Samples	good	good	Limestone		
			Hampton		1690	1755	-419	65	Samples	good	good	Dolomite	Limestone	Chert
			North Hl		1755	1780	-484	25	Samples	good	good	Limestone		
Devonian	Upper	Yellow S	English		1780	1792	-509	12	Samples	good	good	Siltstone		
			Aplingt		1792	1810	-521	18	Samples	good	good	Dolomite	Siltstone	
			Sheffiel		1810	1855	-539	45	Samples	good	good	Shale	Dolomite	
			-----	Lime Crk	1855	1917	-584	62	Samples	good	fair	Dolomite	Limestone	Shale
	Middle	-----	Cedar Va		1917	2265	-646	348	Samples	poor	poor	Dolomite	Limestone	Shale
			Wapsipin		2265	2387	-994	122	Samples	poor	poor	Dolomite	Chert	Limestone
Silurian					2387	2578	-1116	191	Samples	fair	good	Chert	Dolomite	Limestone
Ordovician	Cincinnati	-----	Maquoket		2578	2737	-1307	159	Samples	good	good	Dolomite	Chert	Shale

(Record continues on next page)

* ASTERISK SIGNIFIES PARTIAL PENETRATION

COUNTY: 69 MONTGOMERY

SYSTEM	GEOLOGICAL UNIT				DEPTH		ELEV.	THICK-	CONTACT	ACCURACY		LITHOLOGY		
	SERIES	GROUP	FORMATN	MEMBER	TOP	BOT	OF TOP	NESS	SOURCE	TOP	BOT	PRIMARY	SECONDARY	MINOR
				Clermont	2737	2845	-1466	108	Samples	good	good	Dolomite	Chert	
				Elgin	2845	2915	-1574	70	Samples	good	good	Chert	Dolomite	
	Champlai	Galena	Dub./Wis		2915	3056*	-1644	141*	Samples	good		Dolomite	Chert	Shale

COUNTY: MUSCATINE SEQUENCE 60
 LOCATION: NW SW NW SW 29 T076N R04W LAT. & LONG.: 41 21 23N 91 20 52W W-NUMBER: 01000 DEPTH: 1265 ELEVATION: 606 (Alt.)

Quatern	Pleistoc				0	250	606	250	Samples	good	good	Till	Sd & Grav	
Devonian	Upper	Yellow S	Sheffiel		250	270	356	20	Samples	good	good	Shale		
		-----	Lime Crk		270	292	336	22	Samples	good	good	Dolomite	Shale	
	Middle	-----	Cedar Va	Rapid	292	312	314	20	Samples	good	good	Dolomite	Limestone	
			Solon		312	392	294	80	Samples	good	good	Limestone		
			Wapsipin	Davenprt	392	411	214	19	Samples	good	good	Limestone	Dolomite	
			Spring G		411	430	195	19	Samples	good	good	Dolomite		
Silurian	-----	-----	Blanding		430	495	176	65	Samples	good	good	Dolomite	Chert	
			Mosalem/		495	512	111	17	Samples	good	good	Dolomite		
Ordovician	Cincinnati	-----	Maquoket	Brainard	512	600	94	88	Samples	good	good	Shale	Dolomite	
				Ft Atkin	600	705	6	105	Samples	good	poor	Shale	Dolomite	Chert
				Elgin	705	748	-99	43	Samples	poor	good	Dolomite	Shale	
	Champlai				748	843	-142	95	Samples	good	good	Dolomite	Limestone	
		Galena	Dunleith		843	952	-237	109	Samples	good	good	Limestone	Dolomite	Chert
			Decorah	Ion	952	972	-346	20	Samples	good	good	Dolomite	Limestone	
				Guttenbg	972	984	-366	12	Samples	good	good	Limestone	Shale	Chert
		-----	Plattevl	McGregor	984	1007	-378	23	Samples	poor	good	Limestone	Shale	
				Pecatoni	1007	1035	-401	28	Samples	poor	poor	Limestone	Dolomite	
		Ancell	Glenwood	Starved	1035	1046	-429	11	Samples	good	good	Sandstone	Shale	
				Harmony	1046	1063	-440	17	Samples	good	good	Shale		
				St Peter	1063	1098	-457	35	Samples	good	good	Sandstone	Dolomite	
	Canadian	Prairie	Shakopee	Willow R	1098	1228	-492	130	Samples	good	good	Dolomite	Shale	Chert
				New Rich	1228	1265*	-622	37*	Samples	good		Dolomite	Sandstone	Chert

COUNTY: PAGE SEQUENCE 61
 LOCATION: NE NE NE NE 25 T068N R37W LAT. & LONG.: 40 40 44N 95 01 52W W-NUMBER: 00017 DEPTH: 5305 ELEVATION: 967 (Alt.)

Quatern	Pleistoc				0	25	967	25	Samples	good	poor	Silt		
Penn	Virgil	Shawnee			25	250	942	225	Samples	poor	poor	Shale	Limestone	
		Douglas			250	348	717	98	Samples	poor	good	Shale	Limestone	
	Missouri	Lansing			348	412	619	64	Samples	good	poor	Shale	Limestone	
		Kansas C			412	635	555	223	Samples	poor	good	Limestone	Shale	
		Pleasant			635	660	332	25	Samples	good	good	Limestone	Shale	
	Des Moines	Marmaton			660	827	307	167	Samples	good	good	Shale	Limestone	Sandstone
		Cherokee			827	1580	140	753	Samples	good	good	Shale	Sandstone	Limestone
Miss	Meramec	-----	St Louis		1580	1658	-613	78	Samples	good	good	Limestone		
	Osage	-----	Warsaw		1658	1668	-691	10	Samples	good	fair	Dolomite	Shale	Chert
			Keokuk		1668	1765	-701	97	Samples	poor	poor	Dolomite	Chert	Shale
			Burlingt		1765	1828	-798	63	Samples	poor	poor	Limestone	Chert	Dolomite

(Record continues on next page)

SYSTEM	GEOLOGICAL UNIT				DEPTH		ELEV.	THICK-	CONTACT	ACCURACY		LITHOLOGY		
	SERIES	GROUP	FORMTN	MEMBER	TOP	BOT	OF TOP	NESS	SOURCE	TOP	BOT	PRIMARY	SECONDARY	MINOR
Devonian	Upper	Yellow S	Maple Mi	Hampton	1828	1883	-861	55	Samples	good	good	Dolomite	Shale	Chert
				Wassonvl	1883	1934	-916	51	Samples	good	good	Limestone	Dolomite	Shale
				Aplingt	1934	1977	-967	43	Samples	good	good	Shale		
	Middle	Lime Crk	Cedar Va	Sheffield	1977	1988	-1010	11	Samples	good	good	Dolomite	Chert	
				Coralvil	1988	2020	-1021	32	Samples	good	good	Shale		
				Rapid	2020	2100	-1053	80	Samples	good	good	Limestone	Chert	
Silurian	Cincinnati	Dub./Wis	Elgin	2100	2102	-1133	2	Samples	good	good	Limestone	Chert	Dolomite	
			Wapsipin	2102	2340	-1135	238	Samples	good	good	Dolomite	Shale		
			Solon	2340	2355	-1373	15	Samples	good	good	Limestone	Dolomite		
	Champlai	Balena	Decorah	Wapsipin	2355	2455	-1388	100	Samples	good	fair	Ls & Dol	Chert	Sandstone
				Buttenbg	2455	2555	-1488	100	Samples	fair	good	Ls & Dol	Chert	Sandstone
				Flattevi	2555	2573	-1588	18	Samples	good	good	Shale		
Cambrian	St Croix	Trempeal	Brainard	2573	2751	-1606	178	Samples	good	good	Chert	Dolomite		
			Elgin	2751	2822	-1784	71	Samples	good	good	Chert	Dolomite		
			Jordan	2822	2900	-1855	78	Samples	good	fair	Dolomite	Chert		
	Precambrian	Undiff.	Igneous	Decorah	2900	2945	-1933	45	Samples	fair	good	Dolomite	Chert	
				Buttenbg	2945	2959	-1978	14	Samples	good	good	Dolomite	Shale	
				Flattevi	2959	2999	-1992	40	Samples	good	good	Dolomite	Shale	Sandstone
Precambrian	Canadian	Prairie	St Peter	2999	3026	-2032	27	Samples	good	good	Sandstone			
			Willow R	3026	3110	-2059	84	Samples	good	good	Dolomite	Chert		
			New Rich	3110	3142	-2143	32	Samples	good	good	Dolomite	Sandstone	Chert	
	St Croix	Trempeal	Jordan	Oneota	3142	3313	-2175	171	Samples	good	good	Dolomite	Chert	
				St Lawre	3313	3340	-2346	27	Samples	good	good	Dolomite	Sandstone	Chert
				ElkMound	3340	3440	-2373	100	Samples	good	good	Dolomite	Sandstone	
Precambrian	Undiff.	Igneous	Gales./E	3440	3570	-2473	130	Samples	good	good	Dolomite	Sandstone		
			Mt Simon	3555	3570	-2588	15	Samples	good	good	Sandstone			
			3570	5205	-2603	1635	Samples	good	good	Sandstone	Siltstone	Shale		

COUNTY: POLK SEQUENCE 62
 LOCATION: SE NW SE NE 3 T079N R25W LAT. & LONG.: 41 35 43N 93 42 58W W-NUMBER: 12688 DEPTH: 439 ELEVATION: 828 (Alt.)

Quatern	Pleistoc	Holocene	Recent	0	3	828	3	Samples	good	good	Soil-fill		
		undiff		3	39	825	36	Samples	good	good	Sd & Grav		
Penn	Des Moin			39	255	789	216	Samples	good	good	Shale	Sandstone	Coal
Miss	Meramec	St Louis		255	290	573	35	Samples	good	good	Limestone		
			Spergen	290	330	538	40	Samples	good	good	Dolomite	Chert	
Osage	Warsaw	Keokuk		330	350	498	20	Samples	good	good	Dolomite	Chert	
				350	439*	478	89*	Samples	good		Dolomite	Chert	

COUNTY: RINGGOLD SEQUENCE 63
 LOCATION: SE SW SW 8 T067N R29W LAT. & LONG.: 40 36 37N 94 13 13W W-NUMBER: 01890 DEPTH: 2505 ELEVATION: 1033 (Alt.)

Quatern	Pleistoc			0	35	1033	35	Samples	good	good	Till	Sand	
Penn	Missouri	Kansas C		35	225	998	190	Samples	good	good	Shale	Limestone	Chert
			Pleasant	225	300	808	75	Samples	good	good	Shale	Limestone	

(Record continues on next page)

* ASTERISK SIGNIFIES PARTIAL PENETRATION

SYSTEM	GEOLOGICAL UNIT				DEPTH		ELEV. OF TOP	THICK-NESS	CONTACT SOURCE	ACCURACY		LITHOLOGY		
	SERIES	GROUP	FORMATN	MEMBER	TOP	BOT				TOP	BOT	PRIMARY	SECONDARY	MINOR
Miss	Des Moines	Marmaton			300	405	733	105	Samples	good	good	Shale	Limestone	Sandstone
		Cherokee			105	938	928	833	Samples	good	good	Shale	Sandstone	Limestone
	Meramec	-----	St Louis		938	987	95	49	Samples	good	good	Limestone	Dolomite	Chert
	Osage	-----	Warsaw		987	1030	46	43	Samples	good	good	Shale	Ls & Dol	Chert
			Keokuk		1030	1090	3	60	Samples	good	good	Limestone	Chert	Shale
Devonian			Burlingt		1090	1215	-57	125	Samples	good	good	Limestone	Dolomite	Chert
	Kinderhk	-----	Hampton		1215	1255	-182	40	Samples	good	good	Dolomite	Limestone	Chert
			North HI		1255	1270	-222	15	Samples	good	good	Limestone		
	Upper	Yellow S	Sheffiel		1270	1293	-237	23	Samples	good	good	Shale	Limestone	
		-----	Line Crk		1293	1355	-260	62	Samples	good	good	Limestone	Chert	
OrdoVICn	Middle	-----	Cedar Va	Coralvil	1355	1505	-322	150	Samples	good	good	Limestone	Chert	Shale
				Rapid	1505	1735	-472	230	Samples	good	good	Ls & Dol	Shale	Gypsum
				Solon	1735	1765	-702	30	Samples	good	good	Ls & Dol	Chert	
			Wapsipin	Kenwood	1765	1910	-732	145	Samples	good	good	Dolomite	Gypsum	Limestone
	Cincinnati	-----	Maquoket	Brainard	1910	2005	-877	95	Samples	good	good	Dolomite	Chert	
Champlai				Ft Atkin	2005	2095	-972	90	Samples	good	good	Dolomite	Chert	
				Elgin	2095	2225	-1062	130	Samples	good	poor	Dolomite	Chert	
	Galena	Dub./Wis			2225	2300	-1192	75	Samples	poor	good	Dolomite		
		Dec/Plat			2300	2375	-1267	75	Samples	good	good	Dolomite	Sandstone	Shale
		Ancell	St Peter		2375	2397	-1342	22	Samples	good	good	Sandstone		
Canadian	Prairie	Shakopee	Willow R	2397	2505*	-1364	108*	Samples	good		Dolomite	Chert		

COUNTY: CEDAR SEQUENCE 64
 LOCATION: NE SE SE NW 5 T079N R02W LAT. & LONG.: 41 40 41N 91 06 12W W-NUMBER: C0016 DEPTH: 23 ELEVATION: 760 (Alt.)

Devonian	Middle	-----	Wapsipin	sample gap	0	5	760	5						
				Davenprt	5	17	755	12	Samples	poor	good	Limestone	Clay	
				Spring G	17	23*	743	6*	Samples	good		Dolomite		

COUNTY: SAC SEQUENCE 65
 LOCATION: SE SW NW 18 T086N R36W LAT. & LONG.: 42 15 40N 95 05 13W W-NUMBER: 12502 DEPTH: 1050 ELEVATION: 1218 (Alt.)

Quatern	Pleistoc	Holocene	Recent		0	12	1218	12	Samples	good	good	Soil-fill			
				undiff	12	185	1206	173	Samples	good	poor	Till	Sd & Grav		
Miss	Osage	-----	Kinderhk	sample gap	185	350	1033	165							
					350	470	868	120	Samples	poor	good	Shale			
					470	565	748	95	Samples	good	good	Dolomite	Limestone	Chert	
					565	640	653	75	Samples	good	good	Limestone	Dolomite	Chert	
					Hampton	Iowa Fal	640	700	578	60	Samples	good	fair	Dolomite	Chert
						Eagle Ci	700	730	518	30	Samples	poor	poor	Dolomite	
						Maynes C	730	800	488	70	Samples	fair	good	Dolomite	Chert
						North HI	800	825	418	25	Samples	good	good	Dolomite	Limestone
				Upper	Yellow S	Maple Mi	825	838	393	13	Samples	good	good	Shale	
						Aplingt	838	845	380	7	Samples	good	good	Dolomite	
Devonian	Middle	-----	Cedar Va		845	853	373	8	Samples	good	good	Shale			
					853	1050*	365	197*	Samples	good		Dolomite	Chert	Shale	

* ASTERISK SIGNIFIES PARTIAL PENETRATION

GEOLOGICAL UNIT					DEPTH		ELEV.	THICK-	CONTACT	ACCURACY		LITHOLOGY			
SYSTEM	SERIES	GROUP	FORMATN	MEMBER	TOP	BOT	OF TOP	NESS	SOURCE	TOP	BOT	PRIMARY	SECONDARY	MINOR	
COUNTY: SCOTT					SEQUENCE 66		LOCATION: NE SW SW 5 T077N R03E LAT. & LONG.: 41 29 49N 90 38 51W W-NUMBER: 12235 DEPTH: 1130 ELEVATION: 660 (Alt.)								
Quatern	Pleistoc				0	35		660	35	Samples	good	good	Till		
Fenn					35	185		625	150	Samples	good	good	Shale		
Silurian	-----				185	385		475	200	Samples	good	poor	Dolomite		
	-----		Blanding		385	470		275	85	Samples	poor	good	Dolomite	Chert	
Ordovician	Cincinnati	-----	Maquoket	Brainard	470	560		190	90	Samples	good	good	Shale	Dolomite	
				Ft Atkin	560	635		100	75	Samples	good	poor	Dolomite	Shale	
				Elgin	635	680		25	45	Samples	poor	good	Dolomite	Shale	
	Champlai	Galena	Dub./Wis		680	785		-20	105	Samples	good	poor	Dolomite	Chert	
			Dunleith		785	920		-125	135	Samples	good	poor	Dolomite	Chert	
			Decorah	Buttenbg	920	943		-260	23	Samples	poor	good	Limestone	Shale Dolomite	
				Spechts	943	945		-283	2	Samples	good	good	Shale	Limestone Dolomite	
			-----	Plattevl	McGregor	945	1008	-285	63	Samples	good	good	Limestone	Dolomite Sandstone	
				undiff	1008	1019		-348	11	Samples	good	good	Limestone	Shale Sandstone	
			Ancell	Glenwood	1019	1035		-359	16	Samples	good	good	Shale		
				St Peter	1035	1090		-375	55	Drl Log	fair	fair	Sandstone		
	Canadian	Prairie	Shakopee	Willow R	1090	1130*		-430	40*	Samples	good		Dolomite	Chert	

COUNTY: SCOTT					SEQUENCE 67		LOCATION: NW NE 22 T078N R04E LAT. & LONG.: 41 33 10N 90 29 00W W-NUMBER: 12539 DEPTH: 500 ELEVATION: 660								
Quatern	Pleistoc	Wisconsin	Loess		0	20		660	20	Samples	good	good	Loess		
			undiff		20	116		640	96	Samples	good	good	Till		
Devonian	Middle	-----	Wapsipin	Spring B	116	124		544	8	Samples	good	good	Limestone	Dolomite	
				Kenwood	124	140		536	16	Samples	good	fair	Limestone	Sandstone Shale	
				Otis	140	147		520	7	Samples	poor	poor	Limestone	Sandstone Shale	
Silurian	-----				147	410		513	263	Samples	poor	good	Dolomite	Shale	
	-----		Blanding		410	482		250	72	Samples	good	good	Dolomite	Chert	
			Mosalem/		482	492		178	10	Samples	good	good	Dolomite	Siltstone	
Ordovician	Cincinnati	-----	Maquoket		492	500*		168	8*	Samples	good		Shale	Dolomite	

COUNTY: TAMA					SEQUENCE 68		LOCATION: SW SW NW 16 T08AN R16W LAT. & LONG.: 42 15 40N 92 43 49W W-NUMBER: 17953 DEPTH: 515 ELEVATION: 1054 (Alt.)								
Quatern	Pleistoc	Holocene	Recent		0	5		1054	5	Samples	good	good	Soil-fill		
			undiff		5	90		1049	85	Samples	good	good	Till	Sd & Grav	
Miss	Kinderhk	-----	Hampton	Waynes C	90	125		964	35	Samples	good	good	Dolomite		
			North HI	Prospect	125	130		929	5	Samples	good	good	Siltstone		
Devonian	Upper	Yellow S	Maple Mi		130	135		924	5	Samples	good	good	Shale		
			Aplington		135	180		919	45	Samples	good	good	Dolomite	Chert Shale	
			Sheffield		180	230		874	50	Samples	good	good	Shale		
			-----	Lime Crk	Owen	230	285	824	35	Samples	good	fair	Limestone	Shale	
				Cerro Go	285	305		789	40	Samples	fair	good	Limestone	Shale	

(Record continues on next page)

* ASTERISK SIGNIFIES PARTIAL PENETRATION

SYSTEM	GEOLOGICAL UNIT				DEPTH		ELEV. OF TOP	THICK-NESS	CONTACT SOURCE	ACCURACY		PRIMARY	LITHOLOGY	
	SERIES	GROUP	FORMATN	MEMBER	TOP	BDT				TOP	BDT		SECONDARY	MINOR
				Juniper	305	398	749	93	Samples	good	good	Shale		
	Middle	-----	Cedar Va	Coralvil	398	515*	656	117*	Samples	good		Limestone		

COUNTY: TAYLOR SEQUENCE 69
 LOCATION: SE NE NE SW 32 T068N R33W LAT. & LONG.: 40 38 44N 94 40 15W W-NUMBER: 01367 DEPTH: 2896 ELEVATION: 1126 (Level)

				sample gap	0	40	1126	40						
Quatern	Pleistoc				40	83	1086	43	Samples	poor	good	Till	Sd & Grav	
Fenn	Virgil	Shawnee			83	180	1043	97	Samples	good	good	Shale	Limestone	Chert
		Douglas			180	295	946	115	Samples	good	good	Shale	Sandstone	Siltstone
	Missouri	Lansing			295	365	831	70	Samples	good	good	Limestone	Shale	Chert
		Kansas C			365	592	761	227	Samples	good	good	Shale	Limestone	Siltstone
		Pleasant			592	634	534	42	Samples	good	good	Limestone	Shale	Siltstone
	Des Moine	Marmaton			634	762	492	128	Samples	good	good	Shale	Sandstone	Limestone
		Cherokee			762	1350	364	588	Samples	good	good	Shale	Sandstone	Siltstone
Miss	Meramec	-----	Ste Gene		1350	1382	-224	32	Samples	good	fair	Limestone	Chert	
			St Louis		1382	1414	-256	32	Samples	fair	good	Dolomite	Limestone	Chert
	Osage	-----	Warsaw		1414	1444	-288	30	Samples	good	fair	Dolomite	Shale	Chert
			Keokuk		1444	1545	-318	101	Samples	poor	poor	Limestone	Chert	Dolomite
			Burlingt		1545	1618	-419	73	Samples	poor	poor	Limestone	Chert	Dolomite
	Kinderhk	-----	Hampton	Wassonvl	1618	1650	-492	32	Samples	good	good	Limestone	Dolomite	Chert
			North Hl		1650	1663	-524	13	Samples	good	good	Limestone		
			Prospect		1663	1665	-537	2	Samples	good	good	Siltstone		
Devonian	Upper	Yellow S	Maple Mi		1665	1670	-539	5	Samples	good	good	Shale		
			Aplingt		1670	1681	-544	11	Samples	good	good	Limestone		
			Sheffiel		1681	1709	-555	28	Samples	good	good	Shale		
		-----	Lime Crk		1709	1792	-583	83	Samples	good	good	Limestone		
	Middle	-----	Cedar Va	Coralvil	1792	1913	-666	121	Samples	good	good	Limestone	Dolomite	Shale
			Rapid		1913	2092	-787	179	Samples	good	good	Dolomite	Limestone	Gypsum
			Solon		2092	2154	-966	62	Samples	good	good	Dolomite	Limestone	Shale
			Wapsipin		2154	2393	-1028	239	Samples	good	good	Dolomite	Gypsum	Limestone
Ordovicn	Cincinnati	-----	Maquoket	Neda	2393	2410	-1267	17	Samples	good	good	Congl-brec	Shale	Dolomite
			Brainard		2410	2431	-1284	21	Samples	good	good	Shale	Dolomite	
			Ft Atkin		2431	2592	-1305	161	Samples	good	good	Dolomite	Chert	
			Elgin		2592	2702	-1466	110	Samples	good	good	Chert	Dolomite	Shale
	Champlai	Balena	Dunleith		2702	2786	-1576	84	Samples	good	good	Dolomite	Chert	
			Decorah	Ion	2786	2799	-1660	13	Samples	good	good	Dolomite	Shale	
			Guttenbg		2799	2814	-1673	15	Samples	good	good	Dolomite	Shale	Sandstone
		-----	Plattevl		2814	2859	-1688	45	Samples	good	good	Dolomite	Sandstone	Chert
		Ancell	Glenwood	Harmony	2859	2861	-1733	2	Samples	good	good	Shale		
			St Peter		2861	2878	-1735	17	Samples	good	good	Sandstone		
	Canadian	Prairie	Shakopee	Willow R	2878	2896*	-1752	18*	Samples	good		Dolomite	Chert	Sandstone

COUNTY: TAYLOR SEQUENCE 70
 LOCATION: NW NW NW 20 T068N R34W LAT. & LONG.: 40 41 23N 94 46 54W W-NUMBER: 15566 DEPTH: 3847 ELEVATION: 1097 (Alt.)

(Record continues on next page)

SYSTEM	GEOLOGICAL UNIT				DEPTH		ELEV.	THICK-	CONTACT	ACCURACY		LITHOLOGY		
	SERIES	GROUP	FORMATN	MEMBER	TOP	BDT	OF TOP	NESS	SOURCE	TOP	BDT	PRIMARY	SECONDARY	MINDR
				sample gap	0	110	1097	110						
Penn	Virgil	Shawnee			110	300	987	190	Samples	poor	good	Limestone	Shale	Chert
		Douglas			300	424	797	124	Samples	good	good	Shale	Sandstone	Siltstone
	Missouri	Lansing			424	473	673	49	Samples	good	fair	Limestone	Shale	
		Kansas C			473	700	624	227	Samples	poor	poor	Limestone	Shale	Chert
		Pleasant			700	730	397	30	Samples	poor	poor	Limestone	Shale	Siltstone
	Des Moines	Marmaton			730	906	367	176	Samples	poor	poor	Shale	Limestone	Siltstone
		Cherokee			906	1540	191	634	Samples	fair	good	Shale	Sandstone	Ls & Dol
Miss	Meramec	-----	St Louis		1540	1597	-443	57	Samples	good	good	Dolomite	Limestone	Sandstone
	Osage	-----	Warsaw		1597	1617	-500	20	Samples	good	good	Dolomite	Chert	
			Keokuk		1617	1707	-520	90	Samples	good	good	Limestone	Dolomite	Chert
			Burlingt Cedar Fk		1707	1727	-610	20	Samples	good	good	Limestone	Chert	
			Haight C		1727	1775	-630	48	Samples	good	good	Dolomite	Chert	Limestone
			Dolbee C		1775	1780	-678	5	Samples	good	good	Limestone	Chert	
	Kinderhk	-----	Hampton	Eagle Ci	1780	1800	-683	20	Samples	good	good	Limestone	Dolomite	
			Maynes C		1800	1822	-703	22	Samples	good	good	Dolomite	Limestone	Chert
			North Hl		1822	1835	-725	13	Samples	good	good	Limestone		
Devonian	Upper	Yellow S	Maple Mi		1835	1875	-738	40	Samples	good	good	Shale		
		-----	Lime Crk		1875	1965	-778	90	Samples	good	fair	Limestone	Dolomite	Shale
	Middle	-----	Cedar Va		1965	2046	-868	81	Samples	fair	good	Dolomite	Limestone	Shale
			Rapid		2046	2500	-949	454	Samples	good	good	Dolomite	Chert	
Silurian					2500	2555	-1403	55	Samples	good	good	Dolomite		
Ordovician	Cincinnati	-----	Maquoket	Brainard	2555	2560	-1458	5	Samples	good	good	Shale		
				Ft Atkin	2560	2750	-1463	190	Samples	good	good	Dolomite	Chert	
				Elgin	2750	2823	-1653	73	Samples	good	good	Dolomite	Chert	
	Champlai	Galena	Dub./Wis		2823	2895	-1726	72	Samples	good	good	Dolomite	Chert	
			Dec/Plat		2895	2966	-1798	71	Samples	good	good	Dolomite	Shale	
			Ancell	St Peter	2966	2982	-1869	16	Samples	good	good	Sandstone		
	Canadian	Prairie	Shakopee	Willow R	2982	3085	-1885	103	Samples	good	fair	Dolomite	Chert	Sandstone
				New Rich	3085	3180	-1988	95	Samples	poor	poor	Dolomite	Sandstone	Chert
			Oncota		3180	3329	-2083	149	Samples	fair	good	Dolomite	Chert	
Cambrian	St Croix	Trempeal	Jordan		3329	3370	-2232	41	Samples	good	good	Dolomite	Sandstone	
			St Lawre		3370	3465	-2273	95	Samples	good	fair	Dolomite		
			Tunnel C	LoneRock	3465	3590	-2368	125	Samples	poor	poor	Dolomite	Siltstone	Shale
			ElkMound	Gales./E	3590	3753	-2493	163	Samples	fair	good	Sandstone	Dolomite	Shale
			EauClair		3590	3695	-2493	105	Samples	poor	poor	Sandstone	Dolomite	Shale
			Mt Simon		3695	3753	-2598	58	Samples	fair	good	Sandstone	Shale	
Precamb	-----	-----	Igneous		3753	3847*	-2656	94*	Samples	good				

COUNTY: TAYLOR SEQUENCE 71
 LOCATION: NE NW 18 T069N R35W LAT. & LONG.: 40 46 50N 94 55 10W W-NUMBER: 01273 DEPTH: 1010 ELEVATION: 1036(Level)

				sample gap	0	62	1036	62						
Penn	Virgil	Shawnee			62	300	974	238	Samples	poor	good	Limestone	Shale	Dolomite
		Douglas			300	417	736	117	Samples	good	good	Shale	Sandstone	Ls & Dol
	Missouri	Lansing			417	466	619	49	Samples	good	good	Limestone	Shale	Dolomite
		Kansas C			466	668	570	202	Samples	good	good	Limestone	Shale	Dolomite

(Record continues on next page)

SYSTEM	GEOLOGICAL UNIT				DEPTH		ELEV. OF TOP	THICK-NESS	CONTACT SOURCE	ACCURACY		PRIMARY	LITHOLOGY		
	SERIES	GROUP	FORMATN	MEMBER	TOP	BOT				TOP	BOT		SECONDARY	MINOR	
		Pleasant			668	693	368	25	Samples	good	good	Limestone	Shale	Coal	
	Des Moine	Marmaton			693	835	343	142	Samples	good	good	Shale	Sandstone	Ls & Dol	
		Cherokee			835	1010*	201	175*	Samples	good		Shale	Ls & Dol	Sandstone	

COUNTY: TAYLOR		SEQUENCE 72													
LOCATION: NE NW 18 T069N R35W		LAT. & LONG.: 40 46 50N 94 55 10W			W-NUMBER: 01319		DEPTH: 1537		ELEVATION: 1038 (Alt.)						
		sample gap			0	20	1038	20							
Penn	Virgil	Shawnee			20	255	1018	235	Samples	poor	good	Limestone	Shale	Chert	
		Douglas			255	375	783	120	Samples	good	good	Siltstone	Shale	Ls & Dol	
	Missouri	Lansing			375	410	663	35	Samples	good	good	Limestone	Shale		
		Kansas C			410	640	628	230	Samples	good	good	Limestone	Shale	Dolomite	
		Pleasant			640	663	398	23	Samples	good	good	Limestone	Shale		
	Des Moine	Marmaton			663	806	375	143	Samples	good	fair	Limestone	Sandstone	Shale	
		Cherokee			806	1507	232	701	Samples	fair	good	Shale	Sandstone	Ls & Dol	
Miss	Meramec	-----	St Louis		1507	1537*	-469	30*	Samples	good		Dolomite	Limestone	Chert	

COUNTY: UNION		SEQUENCE 73													
LOCATION: NW SE SE NE 31 T071N R30W		LAT. & LONG.: 40 54 21N 94 20 18W			W-NUMBER: 01100		DEPTH: 2860		ELEVATION: 1211 (Alt.)						
		sample gap			0	15	1211	15							
Quatern	Pleistoc				15	212	1196	197	Samples	poor	good	Till	Sd & Grav	Sand	
Penn	Missouri	Lansing			212	260	999	48	Samples	good	good	Limestone	Shale	Sandstone	
		Kansas C			250	465	961	215	Samples	good	good	Limestone	Shale	Chert	
		Pleasant			465	507	746	42	Samples	good	good	Limestone	Shale		
	Des Moine	Marmaton			507	655	704	148	Samples	good	good	Limestone	Shale	Sandstone	
		Cherokee			655	1167	556	512	Samples	good	good	Shale	Sandstone	Limestone	
Miss	Meramec	-----	Ste Gene		1167	1225	44	58	Samples	good	good	Limestone	Sandstone	Shale	
			St Louis		1225	1250	-14	25	Samples	good	good	Dolomite	Chert	Shale	
	Osage	-----	Warsaw		1250	1295	-39	45	Samples	good	good	Dolomite	Shale	Chert	
			Keokuk		1295	1390	-84	95	Samples	good	good	Limestone	Chert		
			Burlingt		1390	1485	-179	95	Samples	good	fair	Limestone	Dolomite	Chert	
	Kinderhk	-----	Hampton		1485	1505	-274	20	Samples	fair	good	Limestone	Shale	Chert	
			Wassonvl		1505	1540	-294	35	Samples	good	good	Limestone	Chert		
Devonian	Upper	Yellow S	Maple Mi		1540	1550	-329	10	Samples	good	good	Shale			
			Aplingt		1550	1560	-339	10	Samples	good	good	Shale			
			Sheffiel		1560	1595	-349	35	Samples	good	good	Shale			
			-----	Lime Crk	1595	1660	-384	65	Samples	good	good	Limestone			
	Middle	-----	Cedar Va	Coralvil	1660	1800	-449	140	Samples	good	good	Limestone	Dolomite		
				Rapid	1800	2050	-589	250	Samples	good	good	Dolomite	Limestone	Gypsum	
				Solon	2050	2100	-839	50	Samples	good	good	Dolomite	Limestone	Gypsum	
			Wapsipin	Kenwood	2100	2253	-889	153	Samples	good	good	Dolomite	Gypsum	Chert	
Silurian	-----	-----	LaPorte		2253	2274	-1042	21	Samples	good	good	Limestone	Sandstone	Chert	
	undiff				2274	2298	-1063	24	Samples	good	good	Dolomite	Sandstone		
Ordovician	Cincinnati	-----	Maquoket	Brainard	2298	2365	-1087	67	Samples	good	good	Shale	Dolomite	Chert	
				Ft Atkin	2365	2475	-1154	110	Samples	good	good	Dolomite	Chert	Shale	

(Record continues on next page)

* ASTERISK SIGNIFIES PARTIAL PENETRATION

COUNTY: 88 UNION

SYSTEM	GEOLOGICAL UNIT				DEPTH		ELEV. OF TOP	THICK-NESS	CONTACT SOURCE	ACCURACY		LITHOLOGY		
	SERIES	GROUP	FORMATN	MEMBER	TOP	BOT				TOP	BOT	PRIMARY	SECONDARY	MINOR
				Elgin	2475	2585	-1264	110	Samples	good	good	Chert	Dolomite	
	Champlai	Galena	Dub./Wis		2585	2700	-1374	115	Samples	good	fair	Dolomite	Chert	
			Decorah		2700	2753	-1489	53	Samples	fair	good	Dolomite		
		Ancell	Glenwood	Harmony	2753	2759	-1542	6	Samples	good	good	Shale	Dolomite	
			St Peter		2759	2789	-1548	30	Samples	good	good	Sandstone		
	Canadian	Prairie	Oneota		2789	2860*	-1578	71*	Samples	good		Dolomite	Shale	Chert

COUNTY: VAN BUREN SEQUENCE 74
 LOCATION: NE 26 T069N R10W LAT. & LONG.: 40 45 00N 91 58 00W W-NUMBER: DEPTH: 1250 ELEVATION: 651 (Top)

Quatern	Pleistoc				0	45	651	45	Drl Log	fair	fair	Till		
Miss	Meramec	-----	St Louis		45	120	606	75	Drl Log	fair	fair	Limestone		
	Osage	-----	Warsaw		120	180	531	60	Drl Log	fair	fair	Shale		
			Keokuk		180	260	471	80	Drl Log	fair	fair	Limestone	Shale	Sandstone
	undiff				260	405	391	145	Drl Log	fair	fair	Limestone		
	Kinderhk	North Hl	Prospect		405	465	246	60	Drl Log	fair	fair	Shale		
			McCraney		465	480	186	15	Drl Log	fair	fair	Limestone		
Devonian	Upper	Yellow S	Maple Mi		480	685	171	205	Drl Log	fair	fair	Shale		
		-----	Lime Crk		685	710	-34	25	Drl Log	fair	fair	Shale	Limestone	
	Middle				710	940	-59	230	Drl Log	fair	fair	Ls & Dol	Shale	Sandstone
Ordovician	Champlai				940	1141	-289	201	Drl Log	fair	fair	Dolomite	Shale	
		Ancell	Glenwood	Starved	1141	1166	-490	25	Drl Log	fair	fair	Sandstone		
				Harmony	1166	1188	-515	22	Drl Log	fair	fair	Shale		
			St Peter		1188	1210	-537	22	Drl Log	fair	fair	Sandstone	Shale	
	Canadian	Prairie			1210	1250*	-559	40*	Drl Log	fair		Dolomite		

COUNTY: VAN BUREN SEQUENCE 75
 LOCATION: NE NE NE 7 T069N R08W LAT. & LONG.: 40 42 36N 91 49 00W W-NUMBER: 16079 DEPTH: 955 ELEVATION: 637 (Alt.)

				sample gap	0	20	637	20						
Quatern	Pleistoc				20	82	617	62	Samples	poor	poor	Till	Sd & Grav	
Miss	Osage	-----	Keokuk		82	110	555	28	Samples	poor	poor	Limestone	Chert	Dolomite
			Burlingt	Cedar Fk	110	122	527	12	Samples	fair	good	Limestone		
				Haight C	122	165	515	43	Samples	good	good	Dolomite	Chert	Limestone
				Dolbee C	165	176	472	11	Samples	good	good	Limestone	Chert	
	Kinderhk	-----	Hampton	Wassonvl	176	196	461	20	Samples	good	fair	Limestone	Dolomite	Chert
		North Hl			196	215	441	19	Samples	fair	good	Limestone		
			Prospect		215	300	422	85	Samples	good	good	Shale	Siltstone	
			McCraney		300	306	337	6	Samples	good	fair	Limestone		
Devonian	Upper	Yellow S	English		306	315	331	9	Samples	fair	good	Limestone	Siltstone	Shale
			Maple Mi		315	360	322	45	Samples	good	good	Shale		
			Sheffiel		360	470	277	110	Samples	good	good	Shale		
		-----	Lime Crk		470	520	167	50	Samples	good	good	Shale	Limestone	
	Middle	-----	Cedar Va	Rapid	520	555	117	35	Samples	good	fair	Limestone	Chert	
				Solon	555	636	82	81	Samples	fair	good	Limestone	Chert	Dolomite
			Wapsipin	Davenprt	636	705	1	69	Samples	good	fair	Limestone	Gypsum	Sandstone

(Record continues on next page)

SYSTEM	GEOLOGICAL UNIT				DEPTH		ELEV. OF TOP	THICK-NESS	CONTACT SOURCE	ACCURACY		LITHOLOGY			
	SERIES	GROUP	FORMATN	MEMBER	TOP	BOT				TOP	BOT	PRIMARY	SECONDARY	MINOR	
Ordovician Champlai	Galena	Dub./Wis	Spring G	705	717	-68	12	Samples	fair	good	Limestone	Gypsum			
			Kenwood	717	743	-80	26	Samples	good	good	Dolomite	Gypsum	Shale		
				743	803	-106	60	Samples	good	good	Dolomite	Chert			
			Dunleith	803	902	-166	99	Samples	good	good	Dolomite	Chert			
			Decorah	Guttenbg	907	912	-270	5	Samples	good	fair	Dolomite	Shale	Chert	
				Spechts	912	913	-275	1	Drl Log	fair	fair	Dolomite	Shale	Chert	
			-----	Plattevl	McGregor	913	947	-276	34	Samples	poor	poor	Dolomite		
				Pecatoni	947	949	-310	2	Samples	fair	good	Dolomite	Sandstone		
	Ancell	Glenwood	Starved	949	955*	-312	6*	Samples	good	Sandstone					

COUNTY: VAN BUREN SEQUENCE 76
 LOCATION: SW SW NE 10 T06BN R09W LAT. & LONG.: 40 42 20N 91 52 55W W-NUMBER: 15786 DEPTH: 1041 ELEVATION: 631 (Alt.)

Quatern	Pleistoc			0	29	631	29	Drl Log	poor	poor						
Miss	Meramec	-----	St Louis	29	52	602	23	Samples	good	good	Limestone	Chert				
	Osage	-----	Warsaw	52	100	579	48	Samples	good	good	Shale	Limestone	Chert			
			Keokuk	100	178	531	78	Samples	good	good	Limestone	Chert	Shale			
			Burlingt	Cedar Fk	178	186	453	8	Samples	good	good	Limestone	Chert			
				Haight C	186	258	445	72	Samples	good	fair	Dolomite	Limestone	Chert		
				Dolbee C	258	271	373	13	Samples	fair	good	Limestone	Chert			
			Kinderhk	-----	Hampton	Wassonvl	271	305	360	34	Samples	good	good	Limestone	Dolomite	Shale
				North Hl			305	327	326	22	Samples	good	good	Limestone	Chert	
Devonian Upper	Yellow S	-----	Prospect	327	403	304	76	Samples	good	good	Shale	Siltstone	Dolomite			
			McCraney	403	405	228	2	Samples	good	fair	Limestone					
			Maple Mi	405	440	226	35	Samples	good	good	Shale					
			Sheffiel	440	550	191	110	Samples	good	good	Shale					
			-----	Lime Crk	550	621	81	71	Samples	good	good	Shale	Limestone	Dolomite		
			Middle	-----	Cedar Va	Rapid	621	640	10	19	Samples	good	fair	Limestone	Chert	
					Solon	640	712	-9	72	Samples	fair	good	Limestone			
				Wapsipin	Davenprt	712	783	-81	71	Samples	good	fair	Limestone	Gypsum		
					Spring G	783	795	-152	12	Samples	fair	good	Limestone	Gypsum	Sandstone	
					Kenwood	795	817	-164	22	Samples	good	good	Dolomite	Gypsum	Shale	
Ordovician Champlai	Galena	Dub./Wis		817	820	-186	3	Samples	good	good	Dolomite	Chert				
			Dunleith	820	978	-189	158	Samples	fair	good						
			Decorah	Guttenbg	978	996	-347	18	Samples	good	fair	Dolomite	Shale			
				Spechts	996	998	-365	2	Samples	fair	good	Dolomite	Shale			
			-----	Plattevl	McGregor	998	1015	-367	17	Samples	good	good	Dolomite			
				Pecatoni	1015	1017	-384	2	Samples	good	good	Dolomite	Sandstone			
				Ancell	Glenwood	Starved	1017	1041*	-386	24*	Samples	good	Sandstone			

COUNTY: VAN BUREN SEQUENCE 77
 LOCATION: NE SE SW 11 T06BN R09W LAT. & LONG.: 40 41 55N 91 51 55W W-NUMBER: 16411 DEPTH: 750 ELEVATION: 697 (Alt.)

Quatern	Pleistoc			0	85	697	85	Samples	good	good	Till		
Miss	Meramec	-----	Spergen	85	105	612	20	Samples	good	good	Dolomite	Limestone	
	Osage	-----	Warsaw	105	175	592	70	Samples	good	fair	Shale	Dolomite	Chert

(Record continues on next page)

SYSTEM	GEOLOGICAL UNIT				DEPTH		ELEV.	THICK-	CONTACT	ACCURACY		LITHOLOGY		
	SERIES	GROUP	FORMATN	MEMBER	TOP	BOT	OF TOP	NESS	SOURCE	TOP	BOT	PRIMARY	SECONDARY	MINDR
				Keokuk	175	215	522	40	Samples	fair	good	Dolomite	Chert	
				Burlingt	215	325	482	110	Samples	good	fair	Dolomite	Limestone	Chert
	Kinderhk	North Hl			325	355	372	30	Samples	poor	poor	Limestone	Dolomite	Chert
				Prospect	355	470	342	115	Samples	fair	good	Shale	Siltstone	
				McCraney	470	500	227	30	Samples	good	good	Limestone		
Devonian	Upper	Yellow S		Maple Mi	500	520	197	20	Samples	good	good	Shale		
				Sheffiel	520	610	177	90	Samples	good	good	Shale		
				----- Lime Crk	610	685	87	75	Samples	good	good	Shale	Limestone	
	Middle			----- Cedar Va	685	722	12	37	Samples	good	fair	Limestone	Chert	Dolomite
				Solon	722	750*	-25	28*	Samples	fair		Limestone		

COUNTY: WASHINGTON SEQUENCE 78
 LOCATION: NE SE NE 4 T074N R06W LAT. & LONG.: 41 14 45N 91 32 41W W-NUMBER: 17965 DEPTH: 1182 ELEVATION: 728(Level)

				sample gap	0	135	728	135						
Miss	Osage	-----		Burlingt Haight C	135	152	593	17	Samples	poor	good	Dolomite	Chert	
	Kinderhk	-----		Hampton Wassonvl	152	170	576	18	Samples	good	good	Dolomite	Chert	
				North Hl	170	172	558	2	Samples	good	good	Limestone		
				Eng Rivr	172	205	556	33	Samples	good	good	Siltstone	Shale	
Devonian	Upper	Yellow S		Maple Mi	205	320	523	115	Samples	good	good	Shale		
				Sheffiel	320	475	408	155	Samples	good	good	Shale		
				----- Lime Crk	475	504	253	29	Samples	good	good	Shale	Dolomite	
	Middle			----- Cedar Va	504	549	224	45	Samples	good	good	Dolomite	Limestone	
				Solon	549	615	179	66	Samples	good	good	Limestone	Dolomite	
				Wapsipin Davenprt	615	627	113	12	Samples	good	good	Dolomite		
Ordovician	Cincinnati	-----		Maquoket	627	782	101	155	Samples	good	good	Shale	Dolomite	
				Elgin	782	869	-54	87	Samples	fair	good	Shale	Dolomite	
	Champlai	Galena		Dub./Wis	869	971	-141	102	Samples	good	fair	Limestone	Dolomite	Chert
				Dunleith	971	1085	-243	114	Samples	good	fair	Limestone	Dolomite	Chert
				Decorah Ion	1085	1093	-357	8	Samples	fair	good	Limestone		
				Guttenbg	1093	1108	-365	15	Samples	good	good	Limestone	Shale	
				Spechts	1108	1112	-380	4	Samples	good	good	Shale	Limestone	
				----- Plattevl	1112	1152	-384	40	Samples	good	poor	Limestone	Shale	
				Pecatoni	1152	1155	-424	3	Drl Log	fair	fair	Dolomite		
	Ancell			Glenwood Starved	1155	1165	-427	10	Samples	poor	good	Sandstone		
				Harmony	1165	1175	-437	10	Samples	good	poor	Shale		
				St Peter	1175	1182*	-447	7*	Drl Log	fair		Sandstone		

COUNTY: WASHINGTON SEQUENCE 79
 LOCATION: SE SE NE 5 T076N R09W LAT. & LONG.: 41 25 00N 91 54 30W W-NUMBER: 14492 DEPTH: 1245 ELEVATION: 804 (Alt.)

				sample gap	0	240	804	240						
Miss	Kinderhk	North Hl		Prospect	240	241	564	1	Samples	poor	good	Dolomite	Limestone	
				McCraney	241	245	563	4	Samples	good	poor	Siltstone		
				sample gap	245	380	559	135						
Devonian	Upper	Yellow S		Sheffiel	380	500	424	120	Samples	poor	good	Shale		

(Record continues on next page)

SYSTEM	GEOLOGICAL UNIT				DEPTH		ELEV. OF TOP	THICK- NESS	CONTACT SOURCE	ACCURACY		LITHOLOGY		
	SERIES	GROUP	FORMATN	MEMBER	TOP	BOT				TOP	BOT	PRIMARY	SECONDARY	MINOR
		-----	Lime Crk		500	585	304	85	Samples	good	good	Limestone	Shale	Dolomite
	Middle	-----	Cedar Va	Rapid	585	600	219	15	Samples	fair	good	Limestone		
				Solon	600	675	204	75	Samples	good	good	Dolomite	Chert	
			Wapsipin	Davenprt	675	685	129	10	Samples	good	fair	Dolomite		
				Spring 6	685	700	119	15	Samples	fair	good	Dolomite		
Silurian					700	765	104	65	Samples	good	poor	Dolomite		
Ordovician	Cincinnati	-----	Maquoket		765	900	39	135	Samples	poor	good	Shale	Dolomite	
				Elgin	900	975	-96	75	Samples	fair	good	Shale	Dolomite	
	Champlai	Galena	Dub./Wis		975	1055	-171	80	Samples	good	good	Limestone	Dolomite	Chert
				Dunleith	1055	1165	-251	110	Samples	good	good	Limestone	Dolomite	Chert
			Decorah	Ion	1165	1175	-361	10	Samples	good	good	Limestone	Dolomite	
				Guttenbg	1175	1193	-371	18	Samples	good	good	Limestone	Chert	Shale
				Spechts	1193	1199	-389	6	Samples	good	good	Shale		
		-----	Plattevi	McGregor	1199	1227	-395	28	Samples	good	good	Limestone	Dolomite	
				Pecatoni	1227	1241	-423	14	Samples	good	good	Dolomite	Sandstone	
			Ancell	Glenwood	1241	1245*	-437	4*	Samples	good		Shale		

COUNTY: WASHINGTON SEQUENCE 80														
LOCATION: NE SW 31 T077N R09W LAT. & LONG.: 41 25 40N 91 56 20W W-NUMBER: 14778 DEPTH: 1267 ELEVATION: 809 (Alt.)														
Quatern	Pleistoc	Holocene	Recent		0	5	809	5	Samples	good	good	Soil-fill		
		Wisconsin	Loess		5	15	804	10	Samples	good	good	Loess		
			undiff		15	194	794	179	Samples	good	good	Trill	Gumbatit	Sand
Miss	Osage	-----	Burlingt		194	200	615	6	Samples	good	good	Dolomite	Chert	
	Kinderhk	-----	Hampton	Wassonyl	200	215	609	15	Samples	good	good	Limestone	Dolomite	Chert
			North Hl		215	225	594	10	Samples	good	good	Limestone	Dolomite	Chert
			Prospect		225	230	584	5	Samples	good	good	Shale	Siltstone	
			McCraney		230	245	579	15	Samples	good	good	Limestone		
Devonian	Upper	Yellow S	English		245	255	564	10	Samples	good	good	Siltstone	Shale	
			Maple Mi		255	380	554	125	Samples	good	good	Shale		
			Sheffiel		380	500	429	120	Samples	good	good	Shale		
		-----	Lime Crk		500	640	309	140	Samples	good	good	Shale	Limestone	Dolomite
	Middle	-----	Cedar Va		640	715	169	75	Samples	good	good	Dolomite	Shale	Chert
			Wapsipin	Davenprt	715	725	94	10	Samples	good	fair	Dolomite	Chert	
				Spring 6	725	730	84	5	Samples	poor	poor	Dolomite		
Silurian					730	745	79	15	Samples	fair	good	Dolomite	Shale	Chert
Ordovician	Cincinnati	-----	Maquoket		745	915	64	170	Samples	good	good	Shale	Dolomite	
				Elgin	915	972	-106	57	Samples	good	good	Shale	Dolomite	
	Champlai	Galena	Dub./Wis		972	1150	-163	178	Samples	good	poor	Limestone	Dolomite	Chert
				Dunleith	1150	1182	-341	32	Samples	good	poor	Limestone	Chert	Dolomite
			Decorah	Ion	1182	1195	-373	13	Samples	poor	good	Limestone		
				Guttenbg	1195	1203	-386	8	Samples	good	poor	Limestone		
				Spechts	1203	1210	-394	7	Samples	poor	good	Shale	Limestone	
		-----	Plattevi	McGregor	1210	1241	-401	31	Samples	good	good	Limestone	Dolomite	
				Pecatoni	1241	1248	-432	7	Samples	good	good	Dolomite	Sandstone	
			Ancell	Glenwood	1248	1255	-439	7	Samples	good	good	Sandstone		
				Harmony	1255	1266	-446	11	Samples	good	good	Shale		

(Record continues on next page)

SYSTEM	GEOLOGICAL UNIT				DEPTH		ELEV. OF TOP	THICK-NESS	CONTACT SOURCE	ACCURACY		LITHOLOGY					
	SERIES	GROUP	FORMATN	MEMBER	TOP	BOT				TOP	BOT	PRIMARY	SECONDARY	MINOR			
				St Peter	1266	1267*	-457	1*	Samples	good			Sandstone				
COUNTY: WASHINGTON				SEQUENCE	81		LOCATION: NE NE SW 20 T076N R09W LAT. & LONG.: 41 22 19N 91 55 04W W-NUMBER: 14375 DEPTH: 994 ELEVATION: 764 (Alt.)										
Quatern	Pleistoc				0	65	764	65	Samples	good	good		Till				
Devonian	Upper	Yellow S	Maple Mi		65	150	699	85	Samples	good	good		Shale				
				Sheffield	150	290	614	140	Samples	good	good		Shale				
Middle	-----	Lime Crk	Cedar Va	Rapid	290	400	474	110	Samples	good	good		Shale	Dolomite			
				Solon	400	410	364	10	Samples	good	good		Limestone	Dolomite			
				Wapsipin	410	510	354	100	Samples	good	good		Dolomite	Limestone	Chert		
				Davenprt	510	515	254	5	Samples	good	good		Dolomite				
				Spring 6	515	541	249	26	Samples	good	good		Dolomite	Limestone			
				Kenwood	541	560	223	19	Samples	good	good		Limestone	Dolomite	Sandstone		
Ordovician	Cincinnati	-----	Maquoket		560	723	204	163	Samples	good	good		Shale	Dolomite			
				Champlai	Galena	Dub./Wis	723	915	41	192	Samples	good	good		Limestone	Dolomite	Chert
				Decorah		Ion	915	935	-151	20	Samples	good	good		Limestone	Dolomite	
					Guttenbg	935	947	-171	12	Samples	good	good		Limestone			
					Spechts	947	955	-183	8	Samples	good	good		Shale	Limestone		
					Plattevl	McGregor	955	985	-191	30	Samples	good	good		Limestone		
						Pecatoni	985	994*	-221	9*	Samples	good		Dolomite	Sandstone		

COUNTY: WASHINGTON				SEQUENCE	82		LOCATION: NE SE NE NW 20 T076N R09W LAT. & LONG.: 41 22 40N 91 55 03W W-NUMBER: 14280 DEPTH: 1067 ELEVATION: 793 (Alt.)										
Quatern	Pleistoc	Wisconsin	Loess	undiff	0	5	793	5									
Devonian	Upper	Yellow S	Maple Mi		5	6	788	1	Samples	poor	good		Loess				
				Sheffield	6	125	787	119	Samples	good	good		Till	Gumbotil			
Middle	-----	Lime Crk	Cedar Va	Rapid	125	175	668	50	Samples	good	good		Shale	Siltstone			
				Solon	175	315	618	140	Samples	good	good		Shale				
				Wapsipin	315	420	478	105	Samples	good	good		Shale	Limestone	Dolomite		
				Davenprt	420	432	373	12	Samples	good	fair		Limestone	Dolomite			
				Spring 6	432	523	361	91	Samples	fair	good		Dolomite				
				Kenwood	523	527	270	4	Samples	good	good		Dolomite				
Ordovician	Cincinnati	-----	Maquoket	Neda	527	565	266	38	Samples	good	good		Dolomite				
				Elgin	565	583	228	18	Samples	good	good		Limestone	Gypsum	Chert		
				Champlai	Galena	Dub./Wis	583	695	210	112	Samples	good	fair		Shale		
				Dunleith		695	750	98	55	Samples	fair	good		Shale	Dolomite		
					Decorah	Ion	750	830	43	80	Samples	good	fair		Limestone	Dolomite	Chert
						Guttenbg	830	940	-37	110	Samples	poor	poor		Limestone	Dolomite	Chert
						Spechts	940	955	-147	15	Samples	fair	good		Limestone		
		Plattevl	McGregor	955	967	-162	12	Samples	good	good		Limestone					
			Pecatoni	967	975	-174	8	Samples	good	poor		Shale					
				1006	1017	-213	11	Samples	poor	good		Limestone					
				1006	1017	-213	11	Samples	good	good		Dolomite	Sandstone				
				1017	1028	-224	11	Samples	good	good		Shale					

(Record continues on next page)

SYSTEM	GEOLOGICAL UNIT			DEPTH		ELEV. OF TOP	THICK-NESS	CONTACT SOURCE	ACCURACY		PRIMARY	LITHOLOGY		
	SERIES	GROUP	FORMATN MEMBER	TOP	BOT				TDP	BOT		SECONDARY	MINOR	
			St Peter		1028	1065	-235	37	Samples	good	good	Sandstone		
	Canadian Prairie		Shakopee Willow R		1065	1067*	-272	2*	Samples	good		Dolomite	Sandstone	

COUNTY: WASHINGTON			SEQUENCE	83										
LOCATION: NE NE NW SE 20 T076N R09W			LAT. & LONG.:	41 22 21N 91 54 45W	W-NUMBER:	14412	DEPTH:	1095	ELEVATION:	772 (Alt.)				
			sample gap		0	5	772	5						
Quatern	Pleistoc				5	85	767	80	Samples	poor	good	Till	Sd & Grav	Soil-fill
Devonian	Upper	Yellow S	Maple Mi		85	185	687	100	Samples	good	good	Shale		
			Sheffiel		185	300	587	115	Samples	good	good	Shale		
		-----	Lime Crk		300	410	472	110	Samples	poor	poor	Shale	Limestone	Dolomite
	Middle	-----	Cedar Va		410	520	362	110	Samples	poor	poor	Dolomite	Limestone	Chert
			Wapsipin Davenprt		520	540	252	20	Samples	poor	poor	Dolomite	Limestone	Chert
			Spring S		540	557	232	17	Samples	fair	good	Dolomite	Limestone	
			Kenwood		557	580	215	23	Samples	good	good	Limestone	Shale	Gypsum
Ordovicn	Cincinnati	-----	Maquoket		580	663	192	83	Samples	good	good	Shale	Dolomite	
			Elgin		663	740	109	77	Samples	fair	good	Shale	Dolomite	
	Champlai	Galena	Dub./Wis		740	820	32	80	Samples	good	good	Limestone	Dolomite	Chert
			Dunleith		820	935	-48	115	Samples	fair	good	Limestone	Dolomite	Chert
			Decorsh Ion		935	953	-163	18	Samples	good	good	Limestone	Dolomite	
			Guttenbg		953	960	-181	7	Samples	good	good	Limestone	Shale	
			Spechts		960	966	-188	6	Samples	good	good	Shale	Limestone	
		-----	Plattevl McGregor		966	1001	-194	35	Samples	good	fair	Limestone		
			Pecatoni		1001	1007	-229	6	Samples	fair	good	Dolomite	Limestone	Sandstone
			Ancell Glenwood Starved		1007	1011	-235	4	Samples	good	good	Sandstone		
			Harmony		1011	1022	-239	11	Samples	good	good	Shale	Sandstone	
			St Peter		1022	1050	-250	28	Samples	good	good	Sandstone		
	Canadian Prairie		Shakopee Willow R		1050	1095*	-278	45*	Samples	good		Dolomite	Shale	Chert

COUNTY: WASHINGTON			SEQUENCE	84										
LOCATION: SE SE NE 5 T076N R09W			LAT. & LONG.:	41 25 00N 91 54 30W	W-NUMBER:	14492	DEPTH:	1245	ELEVATION:	804 (Alt.)				
			sample gap		0	240	804	240						
Miss	Kinderhk	North HI	Prospect		240	241	564	1	Samples	poor	good	Dolomite	Limestone	
			McCraney		241	245	563	4	Samples	good	poor	Siltstone		
			sample gap		245	380	559	135						
Devonian	Upper	Yellow S	Sheffiel		380	500	424	120	Samples	poor	good	Shale		
		-----	Lime Crk		500	585	304	85	Samples	good	good	Limestone	Shale	Dolomite
	Middle	-----	Cedar Va		585	600	219	15	Samples	fair	good	Limestone		
			Solon		600	675	204	75	Samples	good	good	Dolomite	Chert	
			Wapsipin Davenprt		675	685	129	10	Samples	good	fair	Dolomite		
			Spring S		685	700	119	15	Samples	fair	good	Dolomite		
Silurian					700	765	104	65	Samples	good	poor	Dolomite		
Ordovicn	Cincinnati	-----	Maquoket		765	900	39	135	Samples	poor	good	Shale	Dolomite	
			Elgin		900	975	-96	75	Samples	fair	good	Shale	Dolomite	
	Champlai	Galena	Dub./Wis		975	1055	-171	80	Samples	good	good	Limestone	Dolomite	Chert

(Record continues on next page)

* ASTERISK SIGNIFIES PARTIAL PENETRATION

SYSTEM	GEOLOGICAL UNIT				DEPTH		ELEV. OF TOP	THICK-NESS	CONTACT SOURCE	ACCURACY		LITHOLOGY			
	SERIES	GROUP	FORMATN	MEMBER	TOP	BOT				TOP	BOT	PRIMARY	SECONDARY	MINOR	
			Dunleith		1055	1165	-251	110	Samples	good	good	Limestone	Dolomite	Chert	
			Decorah	Ion	1165	1175	-361	10	Samples	good	good	Limestone	Dolomite		
				Guttenbg	1175	1193	-371	18	Samples	good	good	Limestone	Chert	Shale	
				Spechts	1193	1199	-389	6	Samples	good	good	Shale			
			-----	Plattevl	McGregor	1199	1227	-395	28	Samples	good	good	Limestone	Dolomite	
					Pecatoni	1227	1241	-423	14	Samples	good	good	Dolomite	Sandstone	
			Ancell	Glenwood	Harmony	1241	1245*	-437	4*	Samples	good	Shale			

COUNTY: WAYNE SEQUENCE B5
 LOCATION: NE SE NE 25 T068N R20W LAT. & LONG.: 40 39 40N 93 05 58W W-NUMBER: DEPTH: 1000 ELEVATION: 1028 (Alt.)

Quatern	Pleistoc	Holocene	Recent		0	2	1028	2	Samples	good	good	Soil-fill		
		undiff			2	132	1026	130	Samples	good	good	Till	Sd & Grav	
Penn	Des	Main			132	621	896	489	Samples	good	good	Shale	Limestone	Sandstone
Miss					621	1000*	407	379*	Samples	good		Limestone	Shale	Sandstone

COUNTY: WINNESHIEK SEQUENCE B6
 LOCATION: SE SW 30 T098N R07W LAT. & LONG.: 43 16 22N 91 43 06W W-NUMBER: 00181 DEPTH: 3300 ELEVATION: 1100

Quatern	Pleistoc				0	28	1100	28	Drl Log	poor	poor			
Ordovictn	Champlai	Galena	Dub./Wis		28	250	1072	222	Drl Log	poor	poor	Limestone		
			Decorah		250	288	850	38	Drl Log	poor	poor	Shale	Sandstone	
			-----	Plattevl	288	310	812	22	Drl Log	poor	poor	Limestone	Shale	
			Ancell	Glenwood	Harmony	310	315	790	5	Drl Log	poor	poor	Shale	
				St Peter	315	405	785	90	Drl Log	poor	poor	Sandstone		
	Canadian	Prairie			405	695	695	290	Drl Log	poor	poor	Limestone	Sandstone	Shale
Cambrian	St Croix	Trempeal	Jordan		695	800	405	105	Drl Log	poor	poor	Sandstone		
			St Lawre		800	1018	300	218	Drl Log	poor	poor	Shale	Limestone	Sandstone
			ElkHound	Gales./E	1018	1650	82	632	Drl Log	poor	poor	Sandstone	Shale	
				EauClair	1155	1240	-55	85	Drl Log	poor	poor	Shale		
				Mt Simon	1240	1650	-140	410	Drl Log	poor	poor	Sandstone		
Precambr	Red	Clas			1650	1720	-550	70	Drl Log	poor	poor	Shale		
			-----	Igneous	1720	3300*	-620	1580*	Drl Log	poor				

SYSTEM	SERIES	GROUP	FORMATION	MEMBER
Quatern	Pleistoc	Holocene	Recent	
		Wisconsin	Loess	
			Cary Til	
			Tazewell	
		Sangamon		
		Illinoian	Glasford	Kellervi
		Yarmouth		
		Pre-Illn	Wolf Crk	Hickory
				Dysart
				Aurora

				Franklin
				Winthrop
				Westburg
			Alburnet	Unnamed

			Elk Crk	

Cretac	-----	Colorado	Carlile	
			Greenhrn	
			Graneros	
		-----	Dakota	Sandston
				Shale

Jurassic	-----	-----	Fort Ddg	
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Penn	Virgil	Wabaunse		
		Shawnee		
		Douglas		
	Missouri	Lansing		
		Kansas C		
		Pleasant		
	Des Moines	Marmaton		
		Cherokee		
	Morrowan	-----	Caseyvil	

SYSTEM	SERIES	GROUP	FORMATION	MEMBER	
Miss	Meramec	-----	Ste Gene		
			St Louis		
			Spergen		
	Osage	-----		Warsaw	
				Keokuk	
				Burlingt	Cedar Fk
					Haight C
					Dolbee C
	Kinderhk	-----		Bilmore	
				Hampton	Iowa Fal
					Eagle Ci
					Maynes C
					Wassonvi
Devonian	Upper	Yellow S	English		
			Maple M		
			Aplington		

			Aplington	
			Sheffield	
			Lime Crk	Dwen Cerro Go Juniper
			Shell Rk	Nora Rock Gro Mason Ci
			State Qu	
Middle			Cedar Va	Coralvil Rapid Solon
			Wapsipin	Davenprt Spring G Kenwood Otis
			Bertram	

Silurian			Gower	
			LaPorte	
			Scotch G	
			Hopkintn	
			Blanding	
			Mosalem/	
			Tete Des	
			Mosalem	

SYSTEM	SERIES	GROUP	FORMATION	MEMBER	
Ordovician	Cincinnati		Maquoket	Neda	
				Brainard	
				Ft Atkin	
				Clermont	
					Elgin
	Champlai	Galena		Dub./Wis Dubuque Wise Lak Dunleith Dec/Plat	Ion
					Guttenbg
					Spechts
				Plattevi	McGregor Pecatoni
		Ancell		Glenwood	Starved Harmony
				St Peter	Tonti Readstow

	Canadian	Prairie	Shakopee	Willow R
				New Rich
			Onyota	
Cambrian	St Croix	Trempeal	Jordan	Coon Val
				Maukon
				Van Oser
				Norwalk
			St Lawre	Lodi
				Black Ea
		Tunnel C	Davis	
			LoneRock	Reno
				Tomah
				Birkmose
		ElkMound	Wonewoc	Ironton
				Galesvil
			Gales./E	
			Bonneter	
			EauClair	
			Mt Simon	
Precambr	Red Clas	Bayfield		
		Oronto		
			Sioux	
			Igneous	
			Metamorp	
			Undiff.	