

KANSAS DEPARTMENT OF TRANSPORTATION



RTE./CO. 63-75	SOUNDING NO. CD*1	SHEET 1 OF 2
BRIDGE STA. 638+60.50	PROJ. NO. 63-75 K-7438-01	BRIDGE NO. 63-75-11.98(059)
SITE NAME K-63 over Little Noxie Creek		HOLE STA. 637+71.23.9' Lt of K-63
GEOLOGIST Neil Croxton	SCALE 1:120 (1"=10')	DATE December 6 2004
DRILLER Bob Bergman	RIG TYPE CME-75	TOP HOLE ELEV. 1096.45
GW ELEV. +	TOTAL DEPTH 75.5'	M/B ELEV. 1094.95

BIT TYPE	GEOLOGIC NAME	STRATIGRAPHIC COLUMN	DEPTH	ELEVATION	CLASSIFICATION OF MATERIALS DESCRIPTION AND REMARKS	UNCONFINED COMPRESSION TSF	STANDARD PENETRATION TEST (SPT)	
							N COUNT	ELEVATION
8" Hollow Stem Auger	Long Creek L.S. Mbr	Hughes Creek Shale Member	0.0		THE +1096.45			
			1.5	1094.95	Soil Mantle, silty clay			
			3.0	1093.45	Limestone, green/gray, shaly, weathered			
			5.4	1091.05	Limestone, gray/brown, fine-grained stained orange at top			
				1090	Limy shale with thin limestone stringers			
			11.9	1084.55	Shale, dark gray to black	6.5		1083.95
			13.8	1082.65	Limestone hard dk gray wavy bedded			
			14.7	1081.75	Shale gray limy			
			19.3	1077.15	Limestone & shale, gray			
			20.7		Limy shales with thin, sporadic limestone stringers,			
				1070		3.54		1070.65
						32.45		1066.05
						2.92		1064.25
Diamond	Americus Limestone Member	Americus Limestone Member	37.3	1060 1059.15	Limestone, shaly, weathered, somewhat boxworked & porous			
						1.87		1061.35
						5.5		1060.15
						23.65		1056.85
			44.8	1051.65	SILTSTONE, with occasional gypsum veins & nodules to shaly limestone	183.5		1052.65
				1050		259.5		1049.35
						153.5		1046.65
						6.45		1044.55
						51		1043.45
						172.5		1042.65
						3.985		1041.05
								1040



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RTE./CO. 63-75	SOUNDING NO. CD*1	SHEET 2 OF 2
BRIDGE STA. 638+60.50	PROJ. NO. 63-75 K-7438-01	BRIDGE NO. 63-75-11.98(059)
SITE NAME K-63 over Little Noxie Creek		HOLE STA. 637+71.239' Lt K-63

BIT TYPE	GEOLOGIC NAME	STRATIGRAPHIC COLUMN	DEPTH	ELEVATION	CLASSIFICATION OF MATERIALS DESCRIPTION AND REMARKS	UNCONFINED COMPRESSION TSF	STANDARD PENETRATION TEST (SPT)	
							N COUNT	ELEVATION
Hamlin Shale Mbr			57.6	1038.85	Shale, dark gray, ilmy	271.5		1037.85
			58.8	1037.65	Limestone, dark gray, slightly shaly, coarse-grained			1035.05
Five Point Limestone Member			63.0	1033.45	Shale, dark gray, ilmy	33		1035.05
					Limestone, shaly, gray, fossiliferous.	133		1032.75
				1030		61		1030.65
			68.9	1027.55		371.5		1027.55
West Branch Shale Member					Shale, dark gray, ilmy, gypsiferous	74.5		1026.65
			73.1	1023.35		55		1024.45
			74.8	1021.65	Limestone, shades of gray, shaly, fossiliferous	242		1022.35
			75.5	1020.95	Shale, dark gray			
				1020				

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RTE./CO. 63-75	SOUNDING NO. CD*1	SHEET 1 OF 2
BRIDGE STA. 638-60.50	PROJ. NO. 63-75 K-7438-01	BRIDGE NO. 63-75-11.98(059)
SITE NAME K-63 over Little Noxie Creek		HOLE STA. 637-71.23.9' LI K-63
GEOLOGIST Neil Croxton	SCALE 1:120 (1"=10')	DATE December 6 2004
DRILLER Bob Bergman	RIG TYPE CME-75	TOP HOLE ELEV. 1096.45
GW ELEV. 7-7	TOTAL DEPTH 75.5'	M/B ELEV. 1094.95

BIT TYPE	GEOLOGIC NAME	STRATIGRAPHIC COLUMN	DEPTH	ELEVATION	CLASSIFICATION OF MATERIALS DESCRIPTION AND REMARKS	UNCONFINED COMPRESSION TSF	STANDARD PENETRATION TEST (SPT)	
							N COUNT	ELEVATION
Hollow Auger			0.0		THE-1096.45			
			1.5	1094.95	Soil Mantle, silty clay			
Diamond	Long Creek LS Mbr Hughes Creek Shale Member	1 2 3 4 5 6 7 8 9 10 11 12	3.0	1093.45	Limestone, green/gray, shaly, weathered			
			5.4	1091.05	Limestone, gray/brown, fine-grained stained orange at top			
				1090	Limy shale with thin limestone stringers			
			11.9	1084.55	Shale, dark gray to black	6.5	1083.95	
			13.8	1082.65	Limestone hard dk gray wavy bedded			
			14.7	1081.75	Shale gray limy			
				1080				
			19.3	1077.15	Limestone & shale, gray			
			20.7		Limy shales with thin, sporadic limestone stringers.			
				1070		3.54	1070.65	
						32.45	1066.05	
						2.92	1064.25	
			1.87	1061.35				
			5.5	1060.15				
			37.3	1060 1059.15				
	Americus Limestone Member				Limestone, shaly, weathered, somewhat boxworked & porous	23.65	1056.85	
			44.8	1051.65		183.5	1052.65	
				1050	SILTSTONE, with occasional gypsum veins & nodules to shaly limestone	259.5	1049.35	
					153.5	1046.65		
	Hamlin Shale Member		52.8	1043.65	SHALE blue-green to gray, limy	6.45	1044.55	
						51	1043.45	
						172.5	1042.65	
				1040		3.985	1041.05	

Sample #3 25.3-25.8	1071.5	1070.65	Shale, limy, gray w/green Qu=7080
Core #7	1070.45	26.0-28.7	Shale gray w/green tint, slightly limy
26.0-31.0	1067.75	28.7-31.0	Shale gray w/green tint
Cut 5.0, rec. 4.7			
RQD=100%			
Sample #4 29.9-30.4	1066.55	1066.05	Shale, gray w/green tint Qu=64900
Core #8	1065.45	31.0-32.9	Shale, green/gray w/maroon bands, some silty zones
31.0-35.5	1063.55	32.9-35.1	Shale slightly limy & silty, lt gray trace gray/brown
Cut 4.5, rec. 4.5	1061.35	35.1-35.5	Shale, silty, slightly limy, gray to dark gray
RQD=84%			
Sample #5 31.7-32.2	1064.75	1064.25	Shale, green, gray, maroon Qu=5840
Sample #6 34.6-35.1	1061.85	1061.35	Shale, gray, slightly limy Qu=3740
Core #9	1060.95	35.5-35.8	Shale, dark gray, silty
35.5-40.0	1060.65	35.8-36.5	Shale, green-gray
Cut 4.5, rec. 3.8	1059.95	36.5-37.1	Shale, gray, slightly limy
RQD=73%	1059.35	37.1-37.3	Shale, limy, gray & green-gray, mottled
	1059.15	37.3-38.9	Limestone, boxworked, withd, some dk gray shale remaining at top, completely washed 38.3-38.8 AMERICUS LIMESTONE MEMBER
	1057.55	38.9-40.0	Limestone, porous, gray brown & dk gray, with'd
Sample #7 35.7-36.3	1060.75	1060.15	Shale, green-gray & dk gray Qu=11000
Sample #8 39.1-39.6	1057.35	1056.85	Limestone, porous, dk gray Qu=47300
Core #10	1056.45	40.0-42.6	Limestone, porous, withd, vuggy, gray, damaged
40.0-44.4	1053.85	42.6-42.7	Clay, tan
Cut 4.4, rec. 3.4	1053.75	42.7-42.8	Limestone, shaly, dk grayw/dk gray shale at base
RQD=11%	1053.65	42.8-44.1	Limestone, gray & lt gray, vuggy above, porous below
	1052.35	44.1-44.4	Limestone, gray, vuggy and porous
Sample #9 43.3-43.8	1053.15	1052.65	Limestone, vuggy, gray Qu=367000
Core #11	1052.05	44.4-44.8	Limestone, gray to dark gray, fine-grained, hard
44.4-47.6	1051.65	44.8-45.6	Washed away, possibly gypsum?
Cut 3.2, rec. 2.5	1050.85	45.6-46.9	Siltstone, gray, homogenous, hard
RQD=69%	1049.55	46.9-47.6	Siltstone, shaly, dk gray, gypsum nodules weathered from lower part
Sample #10 46.6-47.1	1049.85	1049.35	Siltstone, gray Qu=519000
Core #12	1048.85	47.6-48.9	Siltstone, shaly, gray w/blue gray tint, broken and weathered due to amber gypsum nodules
47.6-52.5			
Cut 4.9, rec. 4.6	1047.55	48.9-50.2	Siltstone, shaly, hard, gray w/grn-gry tint, shell fossils
RQD=73%	1046.25	50.2-50.6	Shale, very silty, hard, dark gray
	1045.85	50.6-52.5	Shale, dark gray, fairly soft, thin clear gypsum layer at 52.1 (1044.35), fractured below
Sample #11 49.3-49.8	1047.15	1046.65	Siltstone, shaly, gray Qu=307000
Sample #12 51.4-51.9	1045.05	1044.55	Shale, dark gray Qu=12900

Core #13	1043.95	52.5-52.8	Siltstone, shaly @ top, limy @ base trans zone gray
52.5-57.3	1043.65	52.8-53.4	Shale, limy w/fossils, gray w/blue-green tint, fossils HAMLIN SHALE MEMBER
Cut 4.8, rec. 5.2	1043.05	53.4-53.9	Shale, limy, blue-gray to gray
RQD=85%	1042.55	53.9-54.6	Shale, limy w/fossils, dark gray, fossils, white
	1041.85	54.6-55.4	Shale, dark gray, limy w/scattered fossils at top
		55.4-57.3	Shale, very dark gray to black, pink-white gypsum nodule between 56.1-56.6 (1040.35-1039.85)
Sample #13 52.5-53.0	1043.95	1043.45	Siltstone & Shale, limy Qu=102000
Sample #14 53.3-53.8	1043.15	1042.65	Shale, limy, gray w/blue tint Qu=345000
Sample #15 54.9-55.4	1041.55	1041.05	Shale, dk gray, limy Qu=7970
Core #14	1039.15	57.3-57.4	Shale, dark gray, limy
57.3-62.0	1039.05	57.4-57.6	Shale, gray & Limestone
Cut 4.7, rec. 4.4	1038.85	57.6-58.8	Limestone, dark gray, slightly shaly, coarse-grained
RQD=87%	1037.65	58.8-60.4	Shale, limy, dark gray w/thin limy lamina
	1036.05	60.4-61.0	Shale, limy w/interbedded bands of gray limestone
	1035.45	61.0-62.0	Shale, limy dk gray w/scattered irregular LS layers
Sample #16 58.1-58.6	1038.35	1037.85	Limestone, dark gray Qu=543000
Sample #17 60.9-61.4	1035.55	1035.05	Shale, limy, dark gray Qu=66000
Core #15	1034.45	62.0-63.0	Shale, dk gray, slightly limy w/thin LS stringers in upper part, 0.03' disc of gypsum, translucent @62.6
62.0-66.5			
Cut 4.5, rec. 4.7	1033.45	63.0-65.9	Limestone, v. fossiliferous & shaly, gray to dark gray FIVE POINT LIMESTONE MEMBER
RQD=96%	1030.55	65.9-66.5	Shale, dark gray, abundant Brachiopod fossils
Sample #18 63.2-63.7	1033.25	1032.75	Limestone, shaly, fossiliferous Qu=266000
Sample #19 65.3-65.8	1032.95	1030.65	Limestone, v. shaly, dk gray Qu=122000
Core #16	1029.95	66.5-67.3	Limestone, shades of gray, shaly, very fossiliferous
66.5-71.5	1029.15	67.3-67.7	Shale, limy at top, dark gray, weathered
Cut 5.0, rec. 4.0	1028.75	67.7-68.9	Limestone, shades of gray, shaly at top & bottom, fossiliferous
RQD=95%	1027.55	68.9-71.5	Shale, dk gray, limy, 0.2 gypsum @70.4 (1026.05)becoming less limy with depth WEST BRANCH SHALE MEMBER
Sample # 20 68.3-68.9	1028.15	1027.55	Limestone, slightly shaly, gray Qu=743000
Sample #21 69.3-69.8	1027.15	1026.65	Shale, dark gray, limy Qu=149000
Core #17	1024.95	71.5-73.1	Shale, dark gray, featureless
71.5-75.5	1023.35	73.1-74.8	Limestone, shades of gray, shaly becoming more so with depth, fossiliferous, irregular within limestone
Cut 4.0, rec. 5.0			
RQD=96%	1021.65	74.8-75.5	Shale, dark gray
	1020.95	75.5	Total Depth, End of Core
Sample #22 71.5-72.0	1024.95	1024.45	Shale, dark gray Qu=110000
Sample #23 73.5-74.1	1022.95	1022.35	Limestone, shaly, gray Qu=484000