



# USGS Hanna Draw - Core

Measured by: *Mariche*  
Date: *5/31/2024*

Leg/ Recovery	Biot?	Soil	Cobble	Granule	Very coarse	Coarse	Medium	Fine	Very fine	Silt	Shale	MD (ft)	Notes
<i>Munsell color</i>													
												0	
												43	<i>Qal</i> <i>silt, loess,</i> <i>pebble conglomerate</i> <i>not logged in detail.</i>
<i>BOX A)</i>												44	<i>cm-scale m. grey clay layer</i> <i>mm-scale with abundant pyrite</i> <i>isolated ripples</i> <i>and finely laminated coal</i> <i>grey clay layer</i> <i>mm-scale laminated coal</i> <i>w. abundant vitic layers</i> <i>up to 1 cm horizontal</i> <i>fracturing</i>
<i>67BY 28/24</i>													
<i>72GY 47/11</i>													
<i>41GY 8.1/2.1</i>													
<i>58GY 15/1.5</i>													
<i>overall</i>													
<i>0.1GY 1.8/2.6</i>													
												45	
												46	
												47	
												48	<i>vitic layers</i> <i>mm-scale bedding parallel burrows</i> <i>cm-scale concretions</i> <i>with brown outline,</i> <i>Some pyrite?</i>
<i>53GY 4.0/1.1</i>													
<i>10GY 3.4/1.7</i>													
<i>1.9GY 6.1/1.2</i>													
												49	<i>d. brown-layered coal w</i> <i>1-3mm vitic layers</i>
<i>5.6GY 6.5/1.2</i>													
												50	<i>d. brown-grey, mm-scale laminated</i> <i>coal with some vitic layers</i> <i>mm-scale laminae of organic material</i> <i>no burrows, scattered vitic fragments</i> <i>0.5cm concretion</i> <i>soft sediment deformation ripple</i>
<i>84Y 6.5/2.2</i>													
												51	<i>Bone coal with vertical fractures</i> <i>with concoidal fracturing</i> <i>0.5-1.5 cm beds</i> <i>1-1.5 cm high silt ripples</i> <i>1 cm vitic</i> <i>crumbled with slickensides</i> <i>mm-scale laminated, vitic</i>
<i>83GY 5.6/1.2</i>													
<i>85GY 3.3/1.1</i>													
<i>5.2B 2.4/1.7</i>													
<i>7.2B 3.6/2.3</i>													
<i>47GY 4.6/0.7</i>													
<i>28GY 3.7/1.1</i>													
<i>9.3B 4.2/0.9</i>													
<i>2.9GY 4.3/1.1</i>													
<i>6.9GY 4.1/1.2</i>													
<i>3.4GY 5.5/1.3</i>													
												52	<i>mm-scale laminated detrituous</i> <i>coal, some vertical fractures</i> <i>mm-scale pencil burrows</i> <i>vitic vitic coal partings mm-scale</i>



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Measured by: *Marieke*  
Date: 5/31/2024

Leg/ Recovery	Bot?	Soil	Cobble	Granule	Very coarse	Coarse	Medium	Fine	Very fine	Silt	Shale	MD (ft)	Notes
18GY 53/15												52	charcoal chips
4.3GY 3.3/0.9													Bituminous coal
9.14 3.4/1.1													d brown - black w some
1.94 3.7/1.3													
9.3Y 4.2/1.7		clay										53	crumbly pieces w slickensides
8.5GY 1.2/0.7													Bone coal, anthracitic
2.8GY 2.4/1.3													with abundant vertical
3.4GY 5.5/1.1													vitric layers + concordal fracturing.
0.8GY 4.2/0.8													Bone coal
2.2GY 1.3/1.4													vitric
4.2GY 2.9/1												54	abundant vertical fractures
2.9GY 3.6/0.9													isolated silty ripples
1.9Y 3.9/1.2													carb. cemented fault planes
8.6Y 3.0/1.3													bituminous coal, fractured
5.2GY 3.9/0.6												55	horizontally w. carbonate cemented fracture planes
7.9Y 2.2/1													
1.2GY 3.5/0.7													more blocky
												56	
												57	
7.5Y 6.0/2.0												58	Rubby, with stick fragment
1.5GB 4.7/0.6													silty
4.8GB 3.3/0.7													abundant charcoal/vitrinite
5.7GB 4.3/1													slickensides, rootlets?
7.9B 4.7/1.9												59	Highly laminated to rippled, silty
3.1GY 4.2/0.2													vitric layers
4.9 3.5/0.6													organic flakes, vitric flakes
8.3G 6.7/0.9													slightly fine, concretions
4.7B 4.2/1.3												60	plant fragment / root on boundary
													clayey, rippled
													abundant vitrinite
													Bituminous - sub B coal
													vitric coal
													ribbly, immature soil?
													plant fragment / root on boundary
													clayey, rippled
													abundant vitrinite
													Bone coal, fractured
												61	
													Carbonate
													carbonate
													sand injection / SSP & grey l/SS
													with vitric - carbon pieces / charcoal
													wavy laminated to rippled ss
													bone coal.
												62	



# USGS Hanna Draw - Core

Measured by: *Mareike*  
Date: *5/31/2024*

Box  
A2

Leg/Recovery	Biot?	Soil	Cobble	Granule	Very coarse	Coarse	Medium	Fine	Very fine	Silt	Shale	MD (ft)	Notes
												62	coal vertically fractured
												63	vert fract bone coal vitic
													carbonate con. (f. (low))
												64	brown - d grey, wavy, irregular lam org rich with char coal? grey lut ss, ripple on top, hor lam in gray - brown w organic fragm d grey/brown
												65	gypsum slicken sites bone coal, very fragmented
												66	coal
												67	Rubby vitic coal
												68	l
												69	d. brown silty scale laminated to approx w. 1 mm concretions
													vitic/anthracitic coal d. brown-black, org mats?
												70	black - d. brown w. vitic layers
													bone anthracitic coal fractured, fractured
												71	bone coal d. brown. half ← coal (org mat. mats) w. abundant vitic fragments
												72	

v v

v v  
v v

o  
v v

pyrite o



# USGS Hanna Draw - Core

Measured by: MD  
Date: 6/3/2024

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Leg/ Recovery	Biot?	Soil	Cobble	Granule	Very coarse	Coarse	Medium	Fine	Very fine	Silt	Shale	MD (ft)	Notes
								siderite	○			72	d. brown mats of org. mat
								v.v.					vitic coal
								p.p.	○			73	vitic fragm 1-3 m laminae
													bone coal, gypsum + some carbonaceous growth on fault planes
					carbonate							74	black vitic fragm. up to 0.5-1 mm org. mats in lvf substone
													d. brown shale finely laminated w. vitic layers
												75	d. brown, d. gray finely laminated substone
													vitic coal sand blobs w. mm scale burrows? that are deformed, ssd?, pyritised? slichensides.
												76	
												77	
												78	black - d. brown org rich wavy laminated subB. coal - carb. shale clay rich - silty w. slichensides
												79	anthracite coal w. vertical fault planes lined with CaCO <sub>3</sub>
													less fractured, more parallel lam.
												80	d. brown - black
													anthracite coal w. abundant vertical fracturing
												81	wavy - upply bedded (micropyls) bed of mats black - d. brown
													0.8cm - 1.0cm beds parted by 0.5mm anthracite coal
					carbonate							82	abundant vitic fragments org. mat. laminae/mats carb cemented!



# USGS Hanna Draw - Core

Measured by: MD  
Date: 6/13/2024

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Leg/ Recovery	Blot?	Soil	Cobble	Granule	Very coarse	Coarse	Medium	Fine	Very fine	Silt	Shale	MD (ft)	Notes
												82	
													fractured bone coal
												83	CaCO <sub>3</sub> on fault plane mic-seal
												84	brittle, lichenous - anthracite coal some pyrite & gypsum
												85	black-grey clay layer abundant shaly shales irregular, SSD with coal black
												86	pyritized d.brown-black bit. coal slightly inclined w. vitric pyritized linings layers
												87	carbonate cemented, 1cm rippled, org. draper
PI												88	way lower, org. rich irregular way to carb. cemented, loaded SSD loaded base org. rich, finely laminated slightly wavy black-d brown
												89	pyritized carbonate on fracture planes vitric coal
												90	bone coal blocky fractured bone coal vut fract.
												91	fine CaCO <sub>3</sub> cemented fractures d grey-brown
												92	fractured coal org. plates l. grey irregular beds, SSD? white coal l. grey, carb cemented SSD w. nat carbon plates



# USGS Hanna Draw - Core

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Leg/ Recovery	Biot?	Soil	Cobble	Granule	Very coarse	Coarse	Medium	Fine	Very fine	Silt	Shale	MD (ft)	Notes
												92	pyrite rich, SSP recumbent folds,
													white layers with wavy bedded coal
												93	
													black - d. brown
													SSD, deformation black - d. grey coal
												94	
													brown flakes of pyrite?
												95	
													fractured, blocky
													carbonate
													carbonate wavy with org. rich partings and flakes
												96	
													coal, fractured rotated, riples, SSD vinae layers at
												97	
												98	
													bone coal
												99	d. brown
													carbonate
												100	d. brown - black blocky
													coal, laminated
												101	
													d. brown, pyrite concretions burrows? brittle fractured coal
												102	

Leg/Recovery	Bit?	Soil	Cobble	Granule	Very coarse	Coarse	Medium	Fine	Very fine	Silt	Shale	MD (ft)	Notes
												102	
												103	<i>d. brown isolated ripples</i> <i>white</i> <i>d. brown wavy - isolated ripple</i>
												104	<i>little coal</i>
												105	
												106	
												107	
								<i>P</i>				108	<i>pyrite</i>
								<i>P/S</i>				109	<i>fracture</i> <i>abundant rootlets</i>
												110	<i>carb. cemented</i> <i>org rich, SSD silt to v/ ss</i> <i>wavy lam org carb. cemented</i>
								<i>P</i>				111	<i>coal laminated</i>
												112	<i>connections</i> <i>W*</i>
												113	<i>silt does not firm</i> <i>leaf mats alternated with</i> <i>nitrous oxides 3mm</i> <i>some like WS mm seal</i>



# USGS Hanna Draw - Core

Measured by: MD  
Date: 6/3/2024

Leg/ Recovery	Biot?	Soil	Cobble	Granule	Very coarse	Coarse	Medium	Fine	Very fine	Silt	Shale	MD (ft)	Notes
												112	
												113	leaf mat with possible micro burrows
												114	Had coal with pyrite
												115	
												116	
												117	
												118	fractured black coal
												119	dried out 2.5 cm bone coal mud? / black coal
												120	round pyrite nodules carb. filled vert fractures pyrite replaced upper/wavy lam
												121	coal, org. layers w. shrink wavy bedded
												122	abundant slickensides

Leg/ Recovery	Biot?	Soil	Cobble	Granule	Very coarse	Coarse	Medium	Fine	Very fine	Silt	Shale	MD (ft)	Notes
												122	lighter grey - clayey character, rootlets, immature pale soil v. white broken clay layers silty? / soft abundant organic fragments
												123	SSD clay, d. grey w. org. fragments - immature soil?
												124	m. grey shale + clay, layered w. org. fragments v. thin layers 3 mm
												125	m. grey silty? leaf mats irregular / loaded bedding l. grey, abundant organic flakes does not fit mm scale org. rip ups with ss yellow silt in d. grey mudstone
												126	l. grey siltstone w. org. mat isolated sand shivers loaded layers, parallel bedded bioturbated? pencil scale + ss
												127	1-2 cm part breaks w. s. of ss med grey.
												128	m. grey l. of ss abundant org. mat. faint laminae psol structure sides org. mat. s. l. sides flame structure
												129	wavy - ripply indistinct bedding d. grey shale 2 mm - scale scale isolated ripples med grey shale v. thin layers mm scale pink flake, d. grey shale
												130	black sand shale with v. thin layers
												131	d. brown org. mat d. grey shale w. light gray sand shivers
												132	SSP

distinct yellowish mineral silt does not fit



# USGS Hanna Draw - Core

Measured by:   
 Date: 6/14/2024

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Leg/ Recovery	Blot?	Soil	Cobble	Granule	Very coarse	Coarse	Medium	Fine	Very fine	Silt	Shale	MD (ft)	Notes
												132	lvf ss with burrows yellow sand - concretion of partings on bedding fair bedding massive otherwise
												133	floaky
												134	SSD / inject cool fragm. calc lined fracture yellowish concretions
												135	yellow concretion / non-carbonate
												136	Ben thick bed, ERL burrows mostly at base
												137	
												138	
												139	SSD - org fragments burrows
												140	heterolithic of ss. w ripples & burrows ERL fairly laminated of chips
												141	extensive SSD
												142	parallel laminated, inclined w/ burrow layer