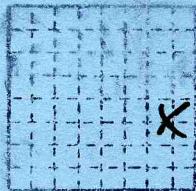


Black Beauty Coal Co.
Wildcat Hills Mine

Gallatin County

Mine Index # 1022



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10
8 00

Black Beauty Coal Co., Wildcat Hills Mine
Coal Production

Year	Tons	Cumulative
1998	910,506	910,506

:



FORM 180 W

Black Beauty Coal Co., Wildcat Hills Mine, MI # 1022
 Herrin Coal, Code # 2660

Visited by Heinz Damberger and Dan North on 6/17/99

Purpose: to take channel samples of mined coal and to observe local geology. The samples will be analyzed by ISGS for prox, ult, Btu, FSI, S forms, Cl, R, macerals, etc.; a sub-sample will be submitted to USGS for TE analysis, as part of the National Coal Quality Inventory (NaCQI) program.

We arrived at about 8 a.m. We were met by Max Haney who is in charge of safety at the mine. Max was transferred from an Indiana mine about 3 months ago and had only limited knowledge about coal properties etc. The mine was started about 2 years ago (first production in 1/98); they are now producing at an annual rate of 1 - 1.2 mill. tons from the Herrin Coal; very locally the Danville Coal is preserved and they mine it if feasible; it is only a couple of feet thick and in most places is either eroded, or too weathered, or difficult to recover. The raw coal is taken by truck to the cleaning plant at the nearby Sugar Camp underground mine.

Max took us around the mine to show us where the coal is exposed and where we might wish to take samples. Currently they have 2 separate pits, a Pit 1 (East) and Pit 2 (West); eventually they may join the 2 pits.

Channel Sample #1 - Lab # 36491

Location: Eastern Pit, Pit 2, in southern portion of pit; Equality 7.5 min. quad;

State Plane East Zone coordinates: N 367,907 E 497,145;

Twp 10S Rng 8E, Section 5, ~1300 ft from S line, ~2000 ft from E line;

approx. surface elevation (taken from quad map): 409 ft; approx. depth to top of coal: ~75 ft

Description of coal seam, by GLN, recorded by HHD:

<u>From</u>	<u>To</u>	<u>Thickness</u>	<u>Description</u>
			TOP OF COAL
0.00	0.27	0.27	<u>Coal</u> , bright banded
0.27	1.05	0.78	<u>Coal</u> , as above



FORM 180 W

1.05	1.09	0.04	<u>Fusain</u> , soft, in pt. pyritized
1.09	1.69	0.60	<u>Coal</u> , bright banded, occasional soft fusain lenses up to 0.02' thick
1.69	2.09	0.40	<u>Coal</u> , vitrain, clarain, with significant portion of fusain (up to 50%); fusain is mostly soft, but in pt. heavily pyritized (up to 0.1' thick)
2.09	2.62	0.53	<u>Coal</u> , dull, with some vitrain bands and thin (0.01-0.02') fusain lenses; some pyrite, mostly on bedding surfaces (associated with fusain)
2.62	2.85	0.23	<u>Shale</u> , gray, fairly hard, thin, wavy bedding = BLUE BAND <u>Excluded from sample</u>
2.85	2.88	0.03	Fusain, soft
2.88	3.67	0.79	<u>Coal</u> , bright banded, several thick (0.01 - 0.05') fusain lenses, mostly pyritized in nodular fashion BOTTOM OF COAL

Floor: Claystone, dark gray with brown tint; many rootlets, typical underclay

See also note on intense fracturing/shearing of coal at end of these mine notes.

Roof sequence above coal, described by DLN, recorded by HHD, along northern edge of pit:

(in feet)

<u>From</u>	<u>To</u>	<u>Thickness</u>	<u>Description</u>
			BOTTOM
0.0	0.4	0.4	Shale, black, irregularly fractured
0.4	0.5	0.1	Limestone, shaley, gray ("clod")
0.5	5.5	5.0	Limestone, gray, fine grained, massive = BRERETON LS
5.5	19.5	14.0	Shale, gray to dark gray, intensely fractured, well bedded, with thin sideritic layers

19.5	33.5	14.0	Sandstone, gray to light gray, medium grained, in part cross bedded, in part shaley
33.5	35.2	1.7	Shale, sandy, gray, abrupt contact at base
35.2	35.4	0.2	Claystone, dark gray, holds through entire pit
35.4	40.8	5.4	Limestone, light gray, fine grained, massive
40.8	42.7	1.9	Claystone, medium gray, darker towards top, transitional contacts
42.7	43.2	0.5	Claystone, with some rootlets, dark gray, typical underclay
43.2	43.62	0.42	Coal, bright banded, thin fusain layers, in pt. pyritized
43.62	43.66	0.06	Shale, black
43.66	47.61	3.95	Shale, medium gray, laminated, with thin siltstone bands
47.6	50.1	2.5	Siltstone, medium gray
50.1	55.1	5.0	Sandstone, gray, fine grained, massive
		? 20	Till, mostly removed
			TOP

Channel Sample #2 - Lab # C36492

Location: Near N end of (eastern) Pit 2; Equality 7.5 min. quad;

State Plane East Zone coordinates: N 369,209 E 497,678

Twp 10S Rng 8E, Section 5, ~2600 ft from N line, ~1500 ft from E line;

approx. surface elevation (from quad map): 452 ft approx. depth to top of coal: ~110 ft

Description of coal seam, by HHD, recorded by DLN:

<u>From</u>	<u>To</u>	<u>Thickness</u>	<u>Description</u>
			TOP OF COAL
0.00	0.20	0.20	<u>Coal</u> , bright banded, friable
0.20	0.25	0.05	<u>Coal</u> , fairly dull, finely laminated, clarain rich
0.25	0.43	0.18	<u>Coal</u> , bright banded, finely laminated, vitrain rich

0.43	0.46	0.03	<u>Shale</u> , dark gray, brittle, variable in thickness up to 0.06' outside channel
0.46	1.86	1.40	<u>Coal</u> , bright banded, finely laminated, vitrain rich, except lower 1/3 which has several fusain bands
1.86	2.29	0.43	<u>Coal</u> , fairly dull, many fusain lenses and bands, relatively "dirty" (high in ash)
2.29	2.33	0.04	<u>Pyrite</u> lense up to 0.06', only 0.01' within sample, not excluded
2.33	3.03	0.70	<u>Coal</u> , bright banded, in part dull (fusain rich)
3.03	3.11	0.08	<u>Shale</u> , dark gray, varies in thickness up to 0.12', "BLUE BAND". EXCLUDED FROM SAMPLE
3.11	3.53	0.42	<u>Coal</u> , bright banded, finely laminated
3.53	3.81	0.28	<u>Coal</u> , fairly dull, clarain with fusain lenses, fairly hard; probably elevated ash content
			BOTTOM OF COAL

Floor: Claystone, medium to dark gray, with rootlets, typical underclay

See also note on intense fracturing/shearing of coal at end of these mine notes

Rock sequence in highwall, above coal, (in feet) (estimated from bottom):

<u>From</u>	<u>To</u>	<u>Thickness</u>	<u>Description</u>
BOTTOM			
0	0.3	0.3	Shale, black, fractured
0.3	3.7	3.4	Limestone, fine grained, dark gray, massive bedded
3.7	7.6	3.9	Shale, dark gray, laminated
7.6	20.6	12 - 14	Shale, silty, gray
20.6	90	60 - 80	Sandstone, sharp contact at base; laterally replaces shale (channel cut out); further N cuts down to top of coal (see composite

photo); sandstone in part interbedded with shaley units

? 20

Till

TOP

Channel Sample #3 - Lab #C36493

Location: Near E end of Pit 1 (western pit); Equality 7.5 min. quad;
 State Plane East Zone coordinates: N 368,177 E 492,768
 Twp 10S Rng 8E, Section 6, ~1700 ft from S line, ~1000 ft from E line;
 approx. surface elevation (from quad map): 437 ft approx. depth to top of coal: ~85 ft

Note: At the time of our visit this was the only active pit; they were loading coal while we took our sample; they created a trench through the freshly exposed coal so we could sample without interfering with their operation.

Description of coal seam, by HHD, recorded by DLN:

<u>From</u>	<u>To</u>	<u>Thickness</u>	<u>Description</u>
			TOP OF COAL
0.00	0.40	0.40	<u>Coal</u> , bright banded, finely laminated
0.40	0.47	0.07	<u>Coal</u> , mostly fusain, lenticular, thinning laterally, 0.03' in sample
0.47	0.70	0.23	<u>Coal</u> , bright banded, finely laminated
0.70	0.87	0.17	<u>Coal</u> , clarain and fusain with pyrite impregnation, up to 0.06' thick laterally, outside sample
0.87	2.28	1.41	<u>Coal</u> , bright banded, clarain with thin vitrain lenses throughout, with fusain lenses up to 0.02' thick
2.28	2.35	0.07	<u>Coal</u> , bright, with occasional bright clarain lenses
2.35	2.37	0.02	<u>Fusain</u> , lenticular, up to 0.04' in sample
2.37	2.49	0.12	<u>Coal</u> , bright banded
2.49	2.60	0.11	<u>Shale</u> , dark gray, somewhat carbonaceous, especially in lower part; "BLUE BAND" EXCLUDED FROM SAMPLE
2.60	3.15	0.55	<u>Coal</u> , bright banded, fairly vitrain rich



FORM 180 W

3.15 3.70 0.55

Coal, fairly dull, fusain rich, both in form of lenses and dispersed throughout; probably has elevated ash content
Note: In about lower 1.5' water was seeping into trench; this may cause a somewhat elevated moisture content of the sample. This is also an indication of the good permeability of the coal, caused by the intense fracturing throughout the seam. See general remark at end of these mine notes.

BOTTOM OF COAL

Floor: Claystone, medium gray, somewhat carbonaceous, top 0.3' has many rootlets, lower portion becomes lighter gray

See also note on intense fracturing of coal at end of these mine notes

Roof sequence in highwall above coal (in feet), estimated from below:

<u>From</u>	<u>To</u>	<u>Thickness</u>	<u>Description</u>
			BOTTOM
0	0.3	0.3	Shale, black; sits directly on coal ANNA SHALE
0.3	4.0	3.7	Limestone, fine grained, massive; varies laterally in thickness
4.0	19	15	Shale, gray, well bedded, with some ironstone bands and lenses in upper 2/3
19	34	15	Sandstone, thick bedded (2-3' average thickness), less thick in upper portion (!1')
34	35	1	Claystone rich layer
35	41	6	Limestone, light gray to tan
41	45	4	Claystone, light gray
45	45.5	0.5	Coal, variable thickness in pit, pinching out locally
45.5	60	15	Sandstone

60 85 20 -30 Till, loam
TOP

Note on intense shearing/fracturing of coal

The coal in this mine is intensely fractured/sheared throughout which causes it to break up into small pieces on impact, mostly fractions of an inch in size. This makes it very easy to take samples with a hammer (no pick needed!); actually it is difficult to cut a straight channel because of the intense disturbance of the coal which causes it to brake loose easily and irregularly along the sides of the channel.

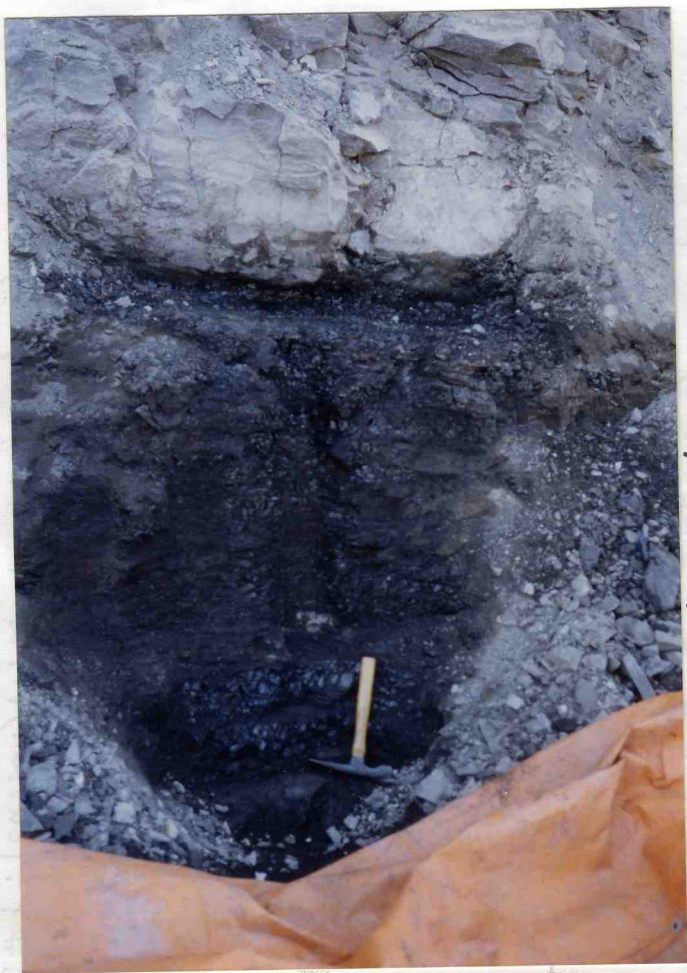
The shear surfaces commonly exhibit v-shape striations/patterns, similar to those on pressure or shatter cones observable in rock that are created by shock waves produced during the impact of a meteorite; but in coal they are much more closely spaced (fractions of an inch). We did not take time to measure the attitudes of the shear surfaces, or the direction of the cone shaped features on the surfaces. We also did not search for comparable features in the associated rocks. This will have to wait for another visit.

During a visit on 9/30/69 to Peabody's Eagle surface mine in the same coal seam I had observed the same intense disturbance of the coal, also interpreted as pressure cone or shatter cone structures, then interpreted as possibly related to show^{ck} waves emanated from a nearby earthquake (see CS Mine Notes, Galatia Co., Eagle Strip mine.) John Nelson (and others) during multiple visits to the Eagle strip mine in 1979 observed numerous faults, normal and reverse, some slump faults contemporaneous with sedimentation, others younger. During the 10/31/79 visit Nelson observed Herrin Coal that was "very intensively fractured and mineralized with calcite and sulfides...It is also fractured and shot full of slickensided surfaces."



Wildcat Hills Mine, Office, 6/17/99

Photo #14A



Wildcat Hills Mine, 6/17/99

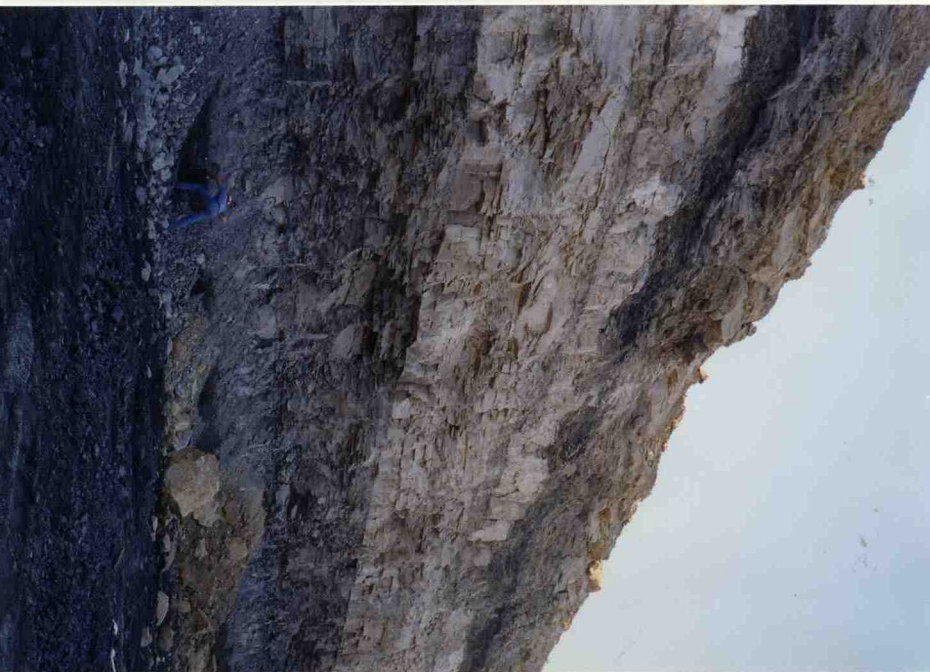
Close up of channel spl. #1 site



Site of channel spl. # 1: (eastern) Pit 2, showing roof sequence;
Dan North working at site.



Wildcat Hills Mine, (eastern) Pit 2, at time of sampling
on 6/17/99 see also 2 photos on reverse side.



Wildcat Hills mine, Pit 2 (eastern me), at sample site #1,
Dan North in picture.



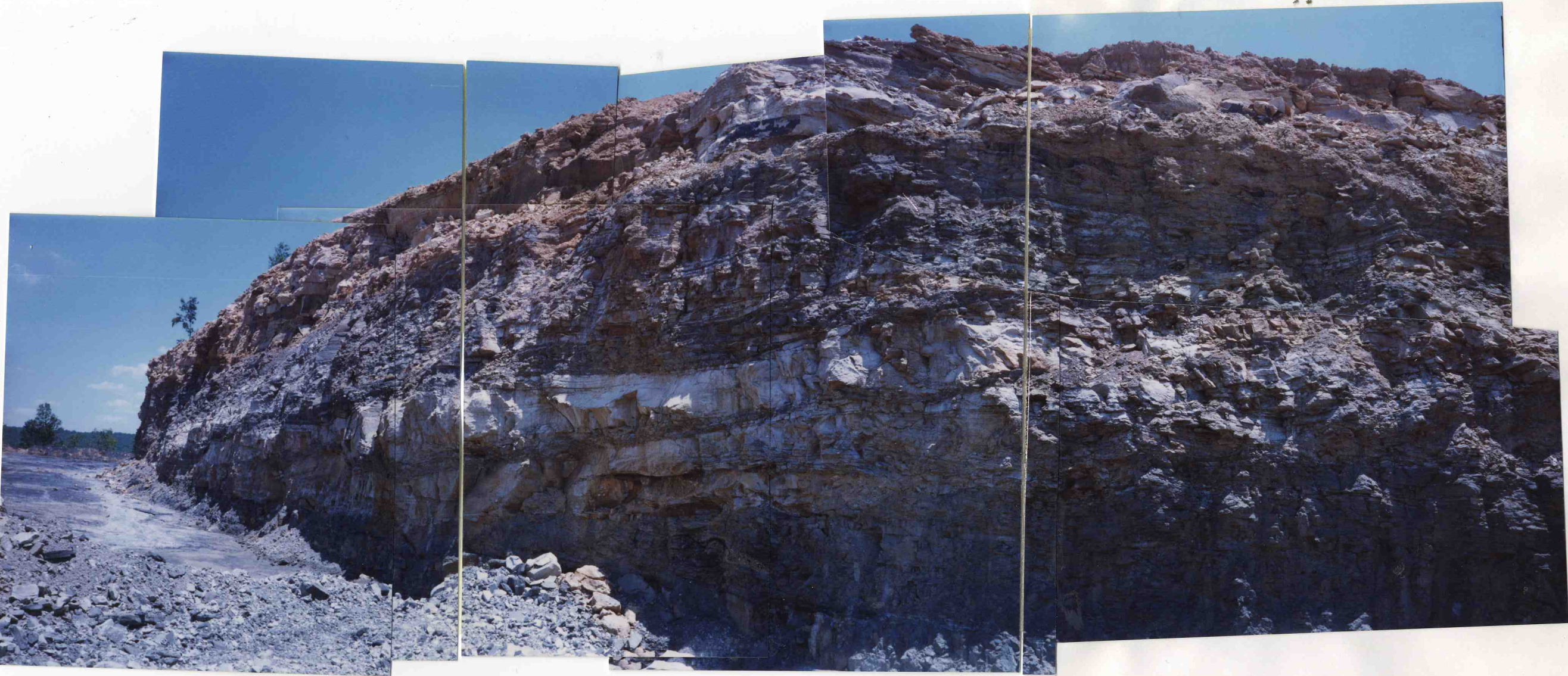
photo 2A

Wildcat Hills lime, 7+2 (eastern) 6/17/99
site for channel spl. #2

Photo 1A



Wildcat Hills Mine, Pit 2 6/17/99
Site of channel spl. #2



Wild cat Hills Mine, Pit 2 (eastern), 6/17/99
Highwall at sampling site ch. spl. #2
looking N. see notes on highwall:
Sandstone seen cutting down through sequence
so north, on coal (channel)

Photo 12A



Wildcat Hills Mine Pit 1 (western), looking E into active pit. site of channel spl. #3

Photo 13A



Wildcat Hills Mine Pit 1 (western), looking E 6/17/99
Sampling site in foreground: short trench through coal
dup by loading shovel, site of Ch. spl. # 3

Photo 11A



Wildcat Hills Mine Pit 1 (west), Dan North preparing
face for collection of channel spl. #3. Note intense
shearing/fracturing of coal; lack of blockiness due to bedding and
foliate.