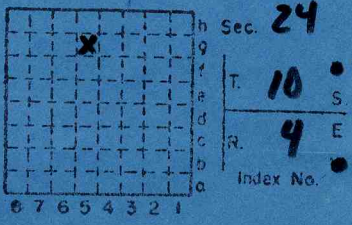
Stonefort Corporation Will Scarlet Mine

Stonefort Coal Mining Co., Inc. Will Scarlet Mine

Peabody Coal Co. Will Scarlet Mine

PEABODY COAL CO.
WILL SCARLET MINE (Strip)

Mine Index No. 697
County No. 1772
Coal Report No. S-100



WILLIAMSON COUNTY

Mine Name or No.,
mile from
Operator, 19

Operator, 19

Entrance. Elev.. ft. above,
Depth

SIUC WINS WETLANDS AWARD

Wetlands created on an old strip mine site with techniques developed at Southern Illinois University-Carbondale have been lauded as a national model by the U.S. Department of the Interior. Peabody Coal Company's Will Scarlet mine, an 8,000-acre area once described as America's worst example of the effects of unregulated mining, won the department's first National Wetland Reclamation Award.

With its ponds, swamps and lowland forests, the Will Scarlet mine near Carrier Mills in southeastern Williamson County is now praised as one of the most diverse upland and wetland reclamation areas ever developed on surface-mined lands. Wildlife has returned to the once-desolate mine. Nearly 200 giant Canadian geese have taken up housekeeping, and the area provides winter refuge for as many as 11,000 migrating geese.

Illinois Energy Newsletter June 1990

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E. Notes on surrounding area,

Railroad, Wagon, Idle, Abandoned

IDENTIFICATION

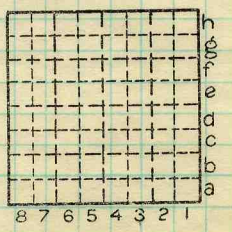
County No. Coal No.

Part

Quad.

County

L.—SURFACE SHEET (Geol.)



Sec.

T. N. S.

R. E. W.

Index No.

Company No.

Coal Mining JAN 1988

Peabody to close Will Scarlet Mine

Peabody Coal Co.'s Illinois Division, headquartered in Fairview Heights, IL, announced that it is ceasing production at its Will Scarlet Mine near Stonefort, IL. Company officials attributed the mine closing to adverse mining conditions and the inability to compete in today's market for these types of coal.

The Will Scarlet work force of 144 employees was reduced by approximately 72 employees. The remaining 72 employees were retained to complete reclamation activities and close the mine.

Peabody followed procedures specified in the National Bituminous Coal Wage Agreement of 1984 in laying off workers represented by the United Mine Workers of America (UMWA). UMWA employees are placed on a panel and receive medical benefits for a period of up to one year. Employees are also compensated for accrued, unused vacation and sick leave.

Will Scarlet began operating in 1953 and has produced more than 25 million tons of coal. The mine has produced about 630,000 tons of coal in 1987.

Peabody officials said they regretted the decision to cease production at Will Scarlet because it has been a good mine for many years, but due to market conditions, the decision to cease operations was unavoidable.

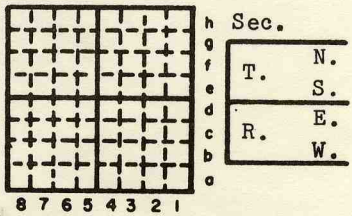
v.	Thk.	Remarks

Location

Correlations by Date

Basis

County Co. no.



Data sheet by Date

MOORE'S MODERN METHODS

Mine originally operated by: (1) Stonefort Corporation
Stonefort, Ill.

Date 1953

Original name or number: Will Scarlet

Illinois Coal Report 1953 p.

LATER OPERATORS

	Date	Operator	Name or No.
2	1960	Stonefort Coal Mng Co., Inc.	
3		"Will Scarlett Mine"	~~Will Scarlett~~ Mine
4			
5		PEABODY C.C.	"Will Scarlet"
6			
7			
8			
9			
10			
11			
12			
13			
14			

*Also owners #See ownership sheet

Railroad, Wagon, Strip, Idle, Abandoned

IDENTIFICATION

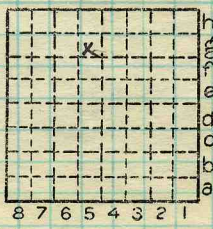
County No. 172

Coal Report No. S-100

Coal No. DV DK

Quad.

County Williamson



Sec. 24

T. 10 N. S.

R. 4 E. W.

Index No.

COAL MINE OPERATOR

(68020—1500—11-38) 2

(Sheets) COAL PRODUCTION (Sheet)

Period Mo.	Day	Year	Mo.	Day	Year	Tons		
		1953					71	900
		1954					440	913
		1955					787	677
		1956					783	057
		1957					737	939
		1958					736	904
		1959					684	568
		1960					656	566
		1961					534	245
		1962					668	612
		1963					788	672
		1964					797	511
		1965					852	670
		1966				1	734	205
		1967				1	379	435
		1968				1	225	815
		1969				1	014	535
		1970				1	036	773
		1971					670	829
		1972					877	265
		1973					859	380
		1974					574	671
		1975					717	683

SUMMARIES

No. [redacted] to [redacted] No.

1953 thru 1975 — 18 031 829

Railroad, Wagon, Strip, Idle, Abandoned

IDENTIFICATION

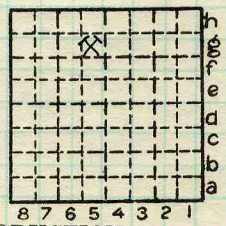
County No. 1772

Coal Report No. S-100

Quad.

County Williamson

Coal No. ☒ DV ☐ DK



Sec. 24

T. 10 S.

R. 4 E.

Index No.

COAL MINE—PRODUCTION

ILLINOIS GEOLOGICAL SURVEY, URBANA

(2732—2M—7-41)

MOORE'S MODERN METHODS

WILL SCARLET

(Sheets) COAL PRODUCTION (Sheet)

Period Mo.	Day	Year	Mo.	Day	Year	Tons
		1976				512,839
		1977				530,759
		1978				776,602
		1979				819,579
		1980				761,838
		1981				693,120
		1982				585,145
		1983				565,525
PEABODY COAL CO.		1984				663,435
	(Saline)	1985				727,191
WILL SCARLET	(Saline)	1986				766,078
	(Saline)	1987				627,081
closed		1988				0

DMM list prod. from Saline Co. after

SUMMARIES

No. to No.

Railroad, Wagon, Strip, Idle, Abandoned

Sec. 24

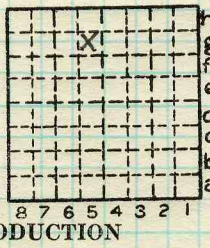
IDENTIFICATION

County No._____ Coal No. D1D

Coal Report No. S-100

Quad.

County WILLIAMSON AND SALINE



T. 10 S.

R. 4 E.

Index No.

COAL MINE—PRODUCTION

ILLINOIS GEOLOGICAL SURVEY, URBANA

(2732—2M—7-41)

6"± Sandstone, soft, weathered, yellow, thin bedded, micaceous, fine grained

41 1/2" Coal (DeKoven)

Coal, fairly soft, weathered, FeO on joint plains, well jointed at small intervals

DETAILED DESCRIPTION OF COAL

0-34 1/2" Coal, banded

34 1/2-34 5/8 Fusain

34 5/8-41 Coal, normally banded and bright

41-41 1/2 Coal, FeO

Underclay, light-medium gray, micaceous, stigmarian some yellow staining, fairly soft

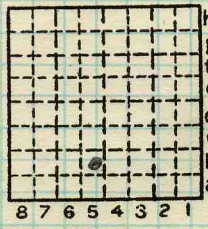
Stonefort Corp. Will Scarlet Mine
Sample at E end S Highwall

C 8733

By HBS Date 6/17/54

Quad. 273 Part

County Saline



Sec. 18
T. 10 N. S.
R. 5 E. W.
Index No.

(87469—10M—10-49) ILLINOIS GEOLOGICAL SURVEY, URBANA

~~#2~~ Stonefort Corp. Will Scarlet Mine

6" ± SS, sft, wea, yl, thn-bdd, mic, fn-gnd.

41½" Coal (DeKoven)

coal, frly soft, wea, FeO on jt. plns., mill-jtd at 6in. intervals,

0-34½" coal, bndd,

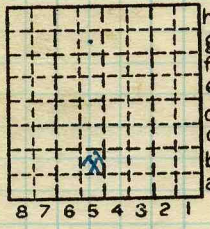
34½"-34⅝" fusain

34⅝"-41⅛" coal, nbb.

41"-41½" Coal, FeO

Und, lt-med gy, mic, stg., some yl. stng., frly sft.

Sample at E end S. Highwall.



Sec. 18

T. 10 ~~N.~~ S.

R. 5 ~~W.~~ E.

Index No.

By DBS. Date 6/17/54

Quad. 273 Part

County Saline

(87469—10M—10-49) ILLINOIS GEOLOGICAL SURVEY, URBANA

Peabody Coal Company, Stonefort, Will Scarlet Mine, 1400' SL, 800' WL, Sec. 4, T. 10 S., R. 5 E., Saline County, MEH and HHD, July 11, 1968, Coal No. 4, Face channel sample, #1

Total thickness - 2'2" total coal

0-11" - Coal, normally bright banded, calcite on vertical fractures
11-1'7" - Coal, normally bright banded, calcite and some pyrite on vertical fractures
1'7"-1'8¼" - Fusain, slightly mineralized, by calcite
1'8¼"-2'2" - Coal, normally bright banded, few thin pyrite lenses, some pyrite on vertical fractures

Floor is underclay - dark brownish gray, hard, carbonaceous rootlets, becomes lighter downward, 3" observed

Roof - "Black Slate" becomes calcareous in part and contains large oval dark gray concretions up to 1'2" thick

Peabody Coal Company (Stonefort), Will Scarlet Mine, cleats in Coal No. 4, 1400' SL, 700' WL, Sec. 4, R. 10 S., R. 5 E., Saline County, July 11, 1968, HHD

Cleats in coal - face channel sample #2 place

All directions given are Azimuths

I. 32, 29, 4, 13, 38, 43, 12, 35, 38, 42, 5, 15, 37, 38, 32, 4, 22, 33, 38, 8, 10, 34, 41, 5, 29, 38, 19, 20, 15

II. 95, 108, 102, 118, 107, 105, 89, 72, 102, 104, 80, 95

Direction of face in caprock

I. 43, 55, 54, 52, 58, 50, 60, 44, 57

II. 135, 138, 158, 150, 157

I. More prominant both in Coal and dark gray shale, with thin cleat filling, calcite, carbonaceous(?)

II. Less well developed, less cleat filling, sometimes without filling, planes less regular

mn-49-004.tif

cleats in block of coal, with calcite

HHD

see also reverse

MN-49-006.tif

MN-49-005.tif

Peabody Coal Company, Stonefort, Will Scarlet Mine, 1400' SL, 400' WL, Sec. 4, T. 10 S., R. 5 E., Saline County, MEH and HHD, July 11, 1968

Coal No. 4 - Face channel sample 3

Total thickness 2'1"
Roof - black shale about 6' thick

0-5" - Coal, normally bright banded, calcite prominant on vertical fractures
5-9" - Coal, normally bright banded, much calcite and pyrite on vertical fractures, occasional thin pyrite lenses
9-10" - Coal, normally bright banded, much pyrite on vertical fractures
10-1'1" - Coal, normally bright banded, calcite on vertical fractures
1'1"-1'2" - Fusain lenses, mineralized from pyrite (excluded from sample)
1'2"-2'1" - Coal, normally bright banded, calcite and some pyrite on vertical fractures

Floor underclay, light gray, carbonaceous rootlets, 6' seam, below becomes greenish in lower part (quartz silt present)

Peabody Coal Company, (Stonefort), Will Scarlet Mine, 1400' SL, 700' WL, Sec. 4, T. 10 S., R. 5 E., Saline County, Coal No. 4, Face channel Sample #2, HHD and GR, July 11, 1968

Description -

0-8 3/4" - Coal, normally bright banded with many joints 1" to 3" apart, with calcite joint filling and some pyrite

8 3/4-8 13/16" - Fusain band, pyritized

8 13/16-11½" - Coal as above

11½-11 7/8" - Fusain, soft, partly pyritized, fairly prominant parting in coal seam

11 7/8-2'2½" - Coal as above

Nothing excluded from face channel sample

Description of roof (caprock) - (described from base up)

0-¼" - pyritized band of black shale with varying amount of shell fragments, not prominant

¼-4' - dark gray to black shale, "slaty" with prominant set of cleavages, with thin calcareous film

4-4'4" - Shale, black with many thick sideritic concretions up to 10", lens-like, bands of phosphatic material

4'4"-5'2" - Shale, gray

5'2"-5'11" - limestone, shaly, nodular and poorer at the top, prominant parting

5'11"-6'5" - Shale, gray, calcareous, many shell fragments

above- shale, 10 ft., gray with many sideritic nodules, finely bedded

Peabody Coal Company (Stonefort), Will Scarlet Mine, lower DeKoven, Face channel sample 1A, 1000' EL, 1400' NL, SW¼, Sec. 10, T. 10 S., R. 4 E., Williamson County, HHD and MEH, July 11, 1968, 1'4" thick

0-1'4" - Coal, normally bright banded, calcite on cleat surfaces, some pyrite on irregular vertical fractures

Floor is underclay, light gray, much carbonized plant material (rootlets)

Roof is "Black Slate"

Peabody Coal Company (Stonefort), Will Scarlet Mine, Face Channel Sample 2A, lower DeKoven, 15' N of Sample 1A, 1000' EL, 1385± ' NL, SW¼, Sec. 10, T. 10 S., R. 4 E., Williamson County, HHD and MEH, July 11, 1968, 1'4" total thickness

0-1'4" - Coal, normally bright banded, calcite prominant on vertical cleats, some pyrite on vertical fractures in a 3" zone near middle

Underclay and roof - as in Sample 1A

Peabody Coal Company, (Stonefort), Will Scarlet Mine, upper bench of DeKoven Coal, 1400' NL, 1300' EL, SW¼, Sec. 10, T. 10 S., R. 4 E., Williamson County, Sample 1B, total thickness 2'0"

0-1½" - Coal, normally bright banded
1½-1 5/8" - Fusain, soft, poorly pyritized
1 5/8-3½" - Coal, as above
3½-3 3/4" - Fusain, soft, prominant parting
3 3/4-10½" - Coal, normally bright banded, several pyrite lenses in upper part ranging up to 1" in thickness (excluded from sample)
10½-24" - Coal, normally bright banded

Peabody Coal Company, Stonefort, Illinois, Will Scarlet Coal Mine, 1600' NL, 1250' EL, SW¼, Sec. 10, T. 10 S., R. 4 E., Williamson County, MEH, HHD, Giorgio Ranelli, and Hutchins, July 11, 1968, Davis Coal Seam

1 face channel sample - fairly representative sample

Coal Log Described from base up

0-2'6" - Coal, normally bright banded, very hard, almost no cleat fillings
6½' - Gray shale, upper 1' medium to light gray, soft
1'5" - Coal (lower bench of DeKoven Coal)
3'4" - Gray shale
Coal (upper bench of DeKoven Coal)

Peabody Coal Company (Stonefort), Will Scarlet Mine, upper bench of DeKoven Coal (in pit just east of "cross over") (2 barrels collected here), 1500' NL, 500' EL, SW¼, Sec. 10, T. 10 S., R. 4 E., Williamson County; Sample 2B, total thickness 1'2", part of top coal may be missing

0-1'2" - Coal, normally bright banded, with few thin fusain partings, occasional thin pyritic bands. No mineralization on cleat faces

Floor is dark gray shale

Stigmaria noted, plant fragments scattered throughout, few slip fractures, lower foot is black "slate", well laminated, hard, about 2' lower down than bench

May 1, 1969
Gluskoter and Peppers

	Thickness	Top Above Coal
Peabody, Will Scarlet Mine near east end of pit. Section I, NE, SE, SW, see 9, T10s. R 4E. Interval above Dekoven Coal. Described from base up. Contact with coal sharp.		
Sandstone - medium gray, slightly micaceous, friable, cemented with white, non calcareous mineral (clay?) becomes more micaceous upward and slightly lighter colored, contains lenses and pods of partly coalified, pyritized plant material, sandstone doesn't seem to be pyritic, One pyritized stem 13'11" above coal, and a parting at 23" of coaly plant debris and mica and reddish mineral, up to 1 inch thick but pinches out about 1 foot away.		
Sample #1 - sandstone 10" above coal Sample #2 -- pyritized stem Sample #3 - parting at 23"	24"	
Sandstone - similar to underlying unit, light to medium gray, micaceous, friable, occasional coaly streaks along bedding.	4'6"	6'6"
Sample #4 - 4' above base		
At top of zone of weakness - soft, partly unconsolidated sandstone.		

Will Scarlet Section I

	Thickness	Top Above Coal
Sandstone - as below, continues to have occasional coaly lenses and stringers, noncalcareous	2'	8'6"
Sample #5 - 15" above base		
Sandstone - light gray, lighter than below, contains more white clay, slightly smaller grained than below, micaceous, dark minerals rare	1'2"	9'8"
Sandstone - light gray, dense, massive, some calcareous cement		
Sample #6 - 18" above base	2'10"	12'6"
Sandstone - light to medium gray, noncalcareous, thinly bedded, with thin dark laminae, very micaceous on some of the bedding	4"	12'10"
Sandstone - light to medium gray, noncalcareous, micaceous, thin micaceous beds every few inches, not thin bedded as below, fairly hard, clay cement	2'2"	15'0"
Sample #7 - 20" above base		
Interbedded sandstone, siltstone, shale as up to 4" thick beds, light gray siltstone interbedded with medium to light gray shale, siltstone and shale very micaceous, no visible pyrite	2'0"	17'0"
Sample #8 - representative of entire unit		

Will Scarlet Section I May 1

	Thickness	Top Above Coal
Sandstone - similar to beneath silty shale zone.	10"	17'10"
Siltstone and Shale - very micaceous, non calcareous.	5"	18'3"
Sandstone - rather massive, light gray, micaceous, non calcareous, medium grained top of high wall and at base of till.	1'0"	19'3"
Sample #9		
Sample #10 - about 150' east of Section I		
2' thick sandstone, siltstone, shale has become more shaley, extremely micaceous, doesn't seem to be pyritic, sample 10 is the shaley portion move shale in top 4' in this part of pit		
at same locality conglomerate directly overlying coal, mist pebbles, siderite? and some pyrite, a few coaly stringers		
groundmass well-cemented, calcareous sandstone similar to above		
Sample #11		
Yokum says Section I more typical		

Will Scarlet Mine Section 2	Thickness	Top Above Coal
Described from Dekoven Coal up SE, NW, NE, Sec 17, T10S, r 4E		
Shale - dark gray, plastic where wet immediately over coal, pyritic, fine micaceous surfaces, nodular, sideritic? becomes somewhat lighter in color upward, nodules more common in top 1'	4'0"	
Sample 1A - 1' above coal		
Shale - medium dark gray with abundant nodules siderite? up to 2" by 1" thick, some nodules pyritic fissile, fine grained, no silt.		
Sample 2A - 6" from base in nodular zone check nodules for phosphate in part of unit nodules into beds	4'6"	8'6"
Shale - medium gray, contains abundant nodules and flattened lenses of siderite? very micaceous splintery fracture	4'0"	12'6"
Sample 3A - 2' above base		
Sandstone - fine grained, dark gray beds interbedded with light gray coarser sandstone shale grades into sandstone within 1 foot thick zone lower 4' of sandstone similar in color to shale below sandstone much darker than at other end of pit. shaly lenses scattered throughout		

	Thickness	Top Above Coal
Sample 4A - 5' above base no visible pyrite, non calcareous	7'6"	20'0"
Sandstone - dark gray, fine to medium grained, massive, rather micaceous, non calcareous	2'0"	22'0"
Sample 5A - 2' above base		
Shaley Sandstone - dark gray with few light gray laminae, well bedded ½" thick, iron stain shale bed at top	5"	22'5"
Sample 6A - is iron stain shale		
Siltstone - medium gray, very micaceous, relatively massive compared to silty shale unit, non calcareous, no pyrite apparent	1'2"	23'7"
Shaley Siltstone interbedded with silty shale - medium dark gray, very micaceous, somewhat weathered, iron stain along weatherad vertical fractures	4'	27'7"
Sample 7A - brown iron stained area		
Sample 8A - gray silty shale portion		

Peabody C. C., Will Scarlet Mine Williamson C.
(former Stonefort Coal Mining Co.)
S. 24-10S-4E, Davis and DeKoven Coals
Location in mine S. 17-10S-4E
Heinz H. Damberger and Hermann W. Pfefferkorn
September 30, 1969

1) New Mine Superintendent Duris Lovin (&) did not allow us to take coal samples, also asked for authorization by St. Louis headquarters of Peabody C. C.

2) 3 coal seams are mined (see section), fairly close together, lowest is thickest, has typical underclay, middle seam also with underclay, in which bedding is fairly well developed but not prominent, top of it is breaking irregularly, with some roofs, some of the plant fragments are pyritized; uppermost coal has only very thin layer of dark brownish-black shale as "seat rock," rooflets and roof fragments are found on bedding plane very much unlike a typical seatearth, also bedding well developed in it (allochthonous coal seam ?)

3) Channel sandstone at base of next cyclothem lies irregularly on sequence below, in some places cutting down into it. Channel sandstone with 5 cm large plant fragments (stems) near base, not determinable.

4) Black roof shales on all 3 coals without plant fragments, no hope for future either. Undeterminable plant fragments in gray shale above the 3 coals, in size mostly around 1-2 cm.

5) No signs of slips, "horsebacks," "white top", or any other earthquake indications.

Section, top to bottom
Western most high wall

Wall Scarlet Mine
near Stone Fort, Williamson Co.
Sept. 30, 1969 by HHD

Thickness	From To	
2.4'	0 - 2.4'	Sandstone, light gray to light yellowish, fine grained, well sorted, mica on bedding planes coarse plant debries (stems) near bottom (undeterminable)
2.0'	2.4 - 4.4'	Siltstone, fairly well bedded, medium dark gray (contact (contact sandstone-siltstone in part. unconformity.)
6.0'	4.4 - 10.4'	Siltstone, in part fine grained sandstone, fairly compact but bedding visible & partly well developed, small light mica on bedding plane.
3.0	10.4 - 13.4'	Sandstone & Siltstone, inter-bedded, bedding well developed but separation sand-silt not too good, mica med. gray, sandy layers nearly white, ea. Rhythm about 1 cm thick, plant debries (small, undeterminable) on bedding planes.
1.7	13.4 - 15.1'	Siltstone, somewhat salty, but fairly irregular, hard, in part shaley, medium gray.
5.0	15.1 - 20.1'	Claystone, fairly well bedded in part somewhat silty medium dark gray small (1-3 cm) iron-stone concretions.
.7	20.1 - 20.8'	Shale, gray, pyritized borrows, fairly soft.

Thickness	From To	
.6	20.8 - 21.4'	Shale, black, fairly soft very rich in pyritized small shell fragments (bracks & lams)
2.1	21.4 - 23.5'	Coal - Dekoven well laminated
.4	23.5 - 23.9'	Shale, carbonaceous, well bedded, dark brown with plant fragments ± in bedding.
.9	23.9 - 24.8'	Claystone, dark gray, bedding not well developed, many slips, carbonaceous.
1.0	24.8 - 25.8'	Shale, dark brownish-gray, well bedded.
.2	25.8 - 26.0'	Shale, highly carbonaceous, soft.
1.3	26.0 - 27.3'	Coal, hard, well laminated.
.4	27.3 - 27.7	Claystone, "seatearth" with stigmaria, bedding developed but not prominent, Stigmarian appendices not to abundant.
3.2	27.7 - 30.9'	Claystone, greenish gray, large stigmaria, bedding fairly well developed, in lower few inches pyritized, with very sharp contact to pyritized plant fragments.
2.9	30.9 - 33.8'	Shale, black, hard, fissile, hardly any fossils, except lighter colored traces or borrows.
.4	33.8 - 34.2'	Shale, dark brown soft pyritized fossils (bracks etc.)

Section, top to bottom
Western most high wall
S.17-10S-4E

Will Scalet Mine, near Stonefort, Williamson C.
Sept. 30, 1969 by HHD

Thickness	From To	
2.4'	0 - 2.4'	Sandstone, light gray to light yellowish, fine grained, well sorted, mica on bedding planes coarse plant debries (stems) near bottom (undeterminable)
2.0'	2.4 - 4.4'	Siltstone, fairly well bedded, medium dark gray (contact (contact sandstone-siltstone in part. unconformity.)
6.0'	4.4 - 10.4'	Siltstone, in part fine grained sandstone, fairly compact but bedding visible & partly well developed, small light mica on bedding plane.
3.0	10.4 - 13.4'	Sandstone & Siltstone, interbedded, bedding well developed but separation sand-silt not too good, mica med. gray, sandy layers nearly white, ea. Rhythm about 1 cm thick, plant debries (small, undeterminable) on bedding planes.
1.7	13.4 - 15.1'	Siltstone, somewhat salty, but fairly irregular, hard, in part shaley, medium gray.
5.0	15.1 - 20.1'	Claystone, fairly well bedded in part somewhat silty medium dark gray small (1-3 cm) ironstone concretions.
.7	20.1 - 20.8'	Shale, gray, pyritized borrows, fairly soft.

Thickness	From To	
.6	20.8 - 21.4'	Shale, black, fairly soft very rich in pyritized small shell fragments (bracks & lams)
2.1	21.4 - 23.5'	Coal - Dekoven well laminated
.4	23.5 - 23.9'	Shale, carbonaceous, well bedded, dark brown with plant fragments ± in bedding.
.9	23.9 - 24.8'	Claystone, dark gray, bedding not well developed, many slips, carbonaceous.
1.0	24.8 - 25.8'	Shale, dark brownish-gray, well bedded.
.2	25.8 - 26.0'	Shale, highly carbonaceous, soft.
1.3	26.0 - 27.3'	Coal, hard, well laminated.
.4	27.3 - 27.7	Claystone, "seatearth" with stigmaria, bedding developed but not prominent, Stigmarian appendices not to abundant.
3.2	27.7 - 30.9'	Claystone, greenish gray, large stigmaria, bedding fairly well developed, in lower few inches pyritized, with very sharp contact to pyritized plant fragments.
2.9	30.9 - 33.8'	Shale, black, hard, fissile, hardly any fossils, except lighter colored traces or borrows.
.4	33.8 - 34.2'	Shale, dark brown soft pyritized fossils (bracks etc.)

Illinois State Geological Survey

Upper portion of highwall exposed in the Will Scarlet Mine (Peabody)

1 div. = 1 foot

Sh. (Mecca Quarry) - black, "slaty"

Coal (No. 2) 1/2" to 3/4" thick

Claystone - silty, well rooted

Sh. - silty to sandy

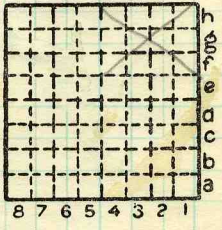
Ss. - med. gy., fine, contains very thin coaly laminae (4")

Sh.

Coal - 3" thick, weathered

Claystone - well rooted

interval to DeKoven Coal is approx. 10 feet below lower coal



By M.E.H., R.B.N. Date 4/29/71

Quadrangle Carrier Mills

County Williamson Sec. 17 T 10S. R 4E.

Peabody Coal Company, Will Scarlet Mine, Channel sample #3, Davis Coal Member, near bottom of incline #2, sample taken 10° yards east of sample #1, May 30, 1974 Harold Gluskoter

coal 32" thick- pyritized gray shale roof

coal normally bright banded, abundant calcite and pyrite on cleat, ¼" bony coal at 3"
from 15" to bottom coal is traceable and badly broken- regular blocky structure in top 15"
pyrite petrofracture to right of channel at 25"- about ½" thick

Peabody Coal Company, Will Scarlet Mine, Channel Sample #2, lower bench of DeKoven Coal taken 75" west of Channel Sample #1, lower bench is 34" below upper bench

there is a small fault (2' offset) 25' further west

20" of coal in lower bench, nothing excluded, general description of lower bench

coal normally bright banded, calcite (more than in upper bench) and pyrite on cleat, small pyrite nodules and stringers, nothing over ¼" thick

Peabody Coal Company, Will Scarlet Mine, May 30, 1974
SW, NW, Sec. 10, T. 10 S, R. 4 E

Sample #1- face channel sample, from upper bench of Dekoven Coal taken at bottom of #2 incline

29" of coal, nothing omitted from sample

general description: coal normally bright banded, calcite and pyrite on cleat, more pyrite on lower 10", fusain stringers every 4"-5", some with pyrite included, no pyrite nodule over 1/8" thick

Peabody Coal Company, Will Scarlet Mine (Strip), Saline County, Illinois. Roger Nance, John Nelson, and Jim Palmer. Jim Griffin from company. July 20, 1976.

Notes by John Nelson. (See also notes by Jim Palmer for this visit.)

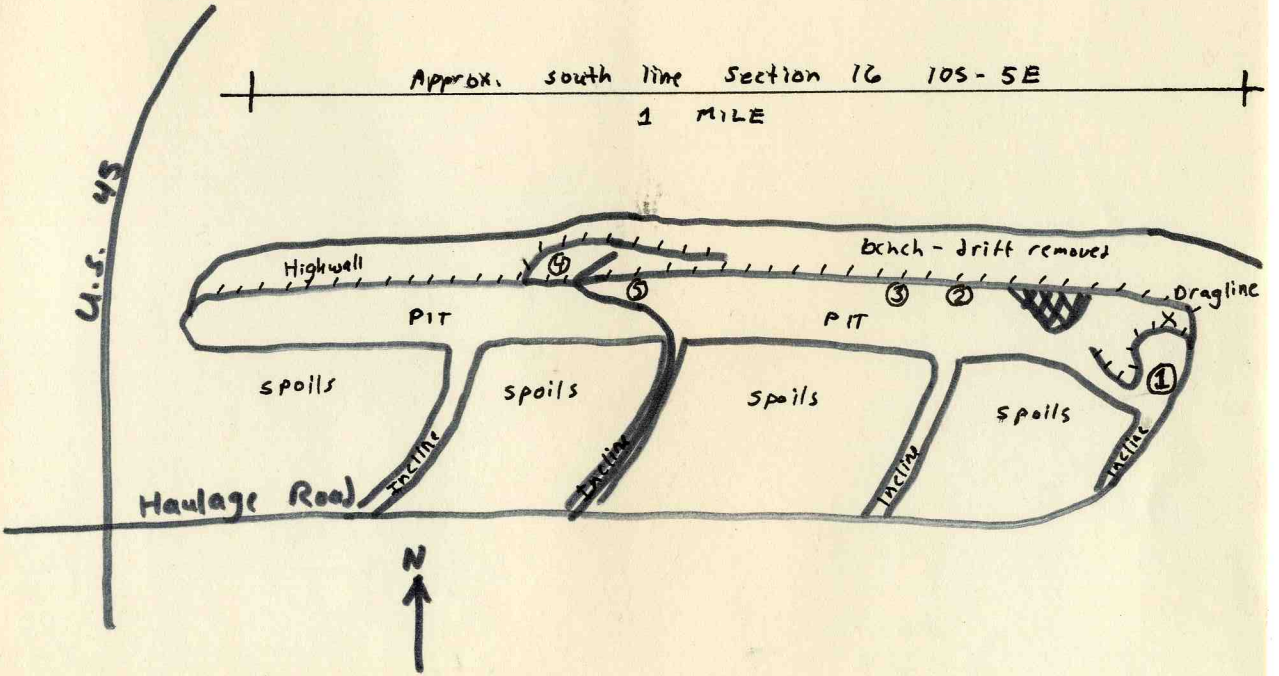
The active pit is east of U.S. 45 and is about a mile long from east to west. See sketch map (over). Exact locations not available. The Davis and De Koven Coals are being mined.

1.) At the east end of the pit the Bucyrus-Erie dragline is removing overburden. The Davis Coal is exposed in the bottom of the pit and the DeKoven Coal is in the highwall. Another thin coal seam (Colchester, No.2) is visible at the top of the highwall. This highwall is poorly disposed to measure a section Considerable water is seeping into the pit, and the highwall is very loose and "working".

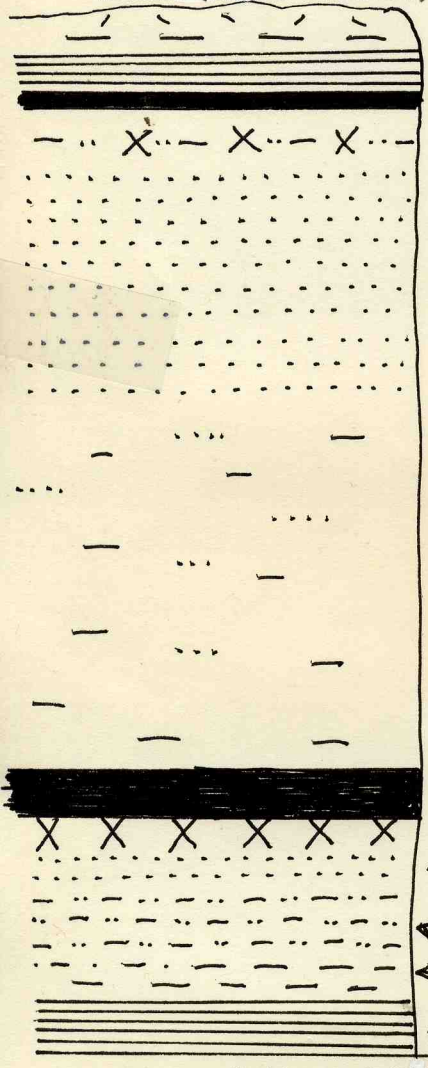
Only the top of the Davis Coal is exposed. Estimated section of highwall (see Page 3.)

(2)

Sketch Map of Pit and Vicinity with Stop Locations Indicated.

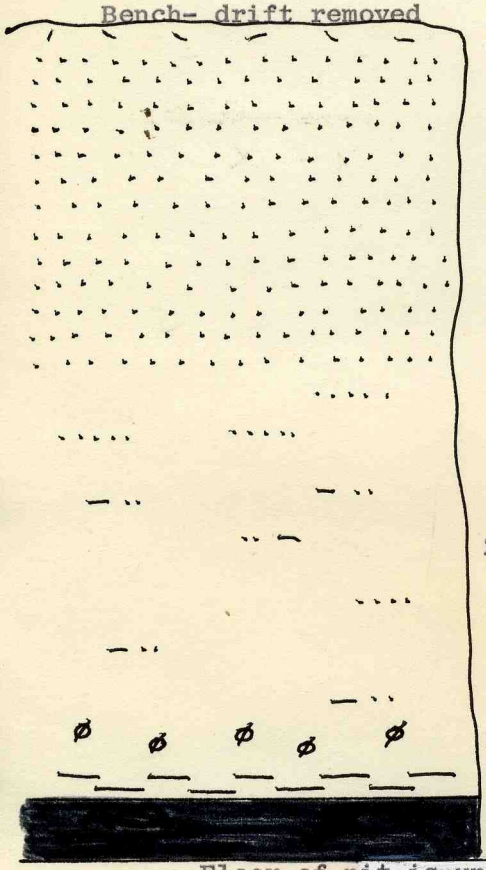


Estimated Highwall Section at Location 1.



Bottom of Pit- top of Davis Coal

2.) Pit at bottom of second incline from east. The DeKoven Coal has been mined and the bottom of the pit is its underclay. The highwall is very steep and dangerous, with loose fractured rock, especially sandstone in the upper half. Estimated section:



Bench- drift removed

Total Highwall 40-50 ft.

Sandstone, light gray, porous, micaceous, massive to thick-bedded, shaly partings in pla-
15-25' ces. Blocky fracture (shooting ?). Thickness varies.

Shale, medium gray, contains sandstone in-
20-30' terlaminations, fines downward.

Shale, medium gray,
2.0' silty, siderite nodules
1.3' Sh, dk gy, pr bdd, carb, pyr. brachs.
3.0' DeKoven Coal, N.B.B.

Floor of pit is underclay of DeKoven Coal.

DeKoven Coal is being loaded in this pit with a front-end loader. Between here and the east pit a shovel is loading Davis Coal.

3.) Located in same pit about 1000 ft. to west. The strata between Davis and DeKoven Coals are exposed.

Section Measured by Roger Nance

5'+ Sandstone, medium-light gray, fine-grained, poorly laminated, contains 15-20% thin medium gray shale interlaminations. Basal 1 foot contains abundant small sideritic nodules.

0-0.5' Shale, medium gray, fairly fine, poorly bedded. Not present everywhere.

3.0' Coal (DeKoven)- N.B.B., prominent cleats trend N 50° W and N 55° E (130° and 055°)

0.4' Claystone (seatrock)- medium to medium-dark gray, silty to sandy, abundant carbonaceous plant debris. A few small slip fractures.

2.0' Sandstone, medium-light gray, essentially non-bedded, fine-grained, dense, carbonaceous plant fragments present. Grades into:

1.4' Sandstone, medium-light gray with a reddish-brown cast, fine-grained, very dense, appears massive. Sharp contact:

10.0' Shale, medium gray, weathers reddish-brown, silty, micaceous, fines downward, becomes medium-dark gray in lower part. Fairly dense, poorly to moderately well-laminated.

Talus and Water Level. Davis Coal not exposed. Probably black shale roof. See notes of Jim Palmer for a section measured just east of here.

4.) East of 3rd incline a road goes to top of highwall where the Colchester (No. 2) Coal and some 20 feet of its roof are exposed. The coal appears to have been mined in places, but is very high in sulfur.

At top of road climbing highwall No. 2 Coal has been benched, that is the coal and overlying strata have been removed.

Measured Section

15-20' Shale, medium gray, fine, weathers buff or rusty, fine sideritic banding. Moderately well laminated with thin fissility. Basal 10 ft. contains prominent sideritic bands that appear continuous for up to 100 ft (though lenticular). Most of these are about 0.1 ft. thick.

0.2-0.5' Limestone (Oak Grove)- Medium gray, dense, appears almost concretionary, contains fairly abundant pyritic fine shell debris. Contains light brown leached sideritic nodules near center. Limestone is lenticular, grades laterally to medium gray calcareous "clod" (calcareous flaky shale). Sharp contact:

3.7' Shale (Mecca Quarry)- Very dark gray to black, firm, fissile, finely micaceous to smooth. Slip-fractures near base. Phosphatic lenses and laminae. Contains fossil clam shell fragments and Listhacanthus spines.

1.0' Coal (Colchester No. 2)- N.B.B., pyritic, white oxidation products on surface.

Floor of Bench Claystone, medium-dark gray, carbonaceous fragments present.

5.) Point where road climbs highwall. Davis Coal at base of highwall, DeKoven Coal about 1/3 of the way up, and No. 2 Coal at top of highwall. (See photos. See also additional notes by Jim Palmer.)

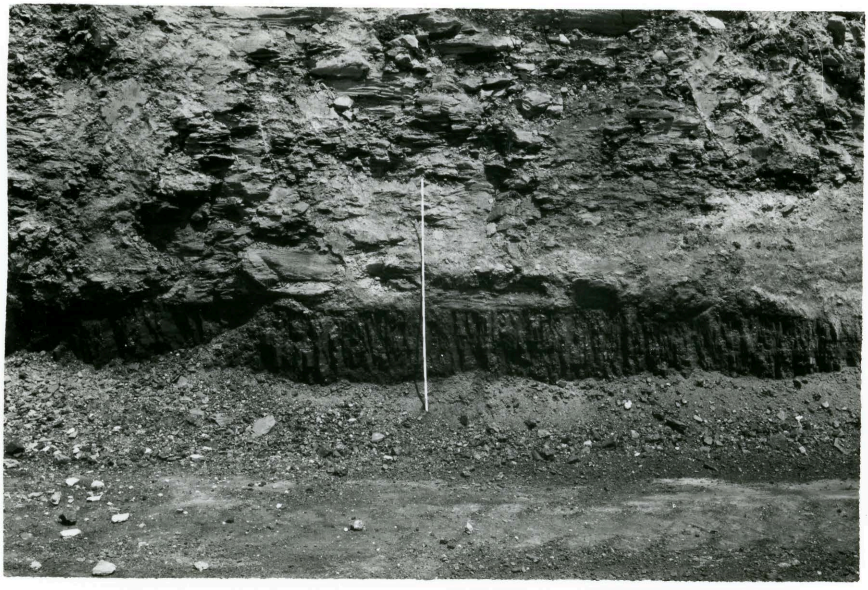
Dragline removing overburden at east end of pit (Stop 1). Steep loose highwall to left and partially covered highwall to right (east).

MN-49-007.tif

This and the following photos by John Nelson, 7/20/76

Another view of dragline.

MN-49-008.tif



DeKoven Coal as exposed at Stop 2. Coal is about 3.0 ft. thick.

mn_49_009.tif

DeKoven Coal and highwall at Stop 2. Jim Palmer taking notes, left of center of photo. Note light-colored, broken sandstone in upper part of highwall.

mn-49-010.tif

Jim Palmer (left) and Roger Nance at Stop 4. Colchester (No. 2) Coal is visible just to right of Roger's feet.

MD-49-011.tif

Stop 5. Davis Coal is at base of highwall, to right of Roger's feet. DeKoven Coal, overlain by light-colored lenticular sandstone, is about 12 feet above Davis Coal.

mn-49-012.tif

More distant view of the same, with Colchester (No. 2) Coal just below skyline at top of highwall.

MN-49-013.tif

2

Same scene from a different angle.

MN-49-014.tif

John C. Moore Corporation, Rochester, N.Y. 14604
MOORE'S MODERN METHODS
FORM 180 W

PEABODY COAL COMPANY WILL SCARLET MINE (Strip)

Notes by John Nelson on visit with John Popp (I.S.G.S.) and George Fraunfelter (S.I.U. at Carbondale) 9/14/77. Accompanied by Larry Green, safety dept.

Heavy rains the night before has made the pit very muddy. Rain was continuing at the time of our visit and so no detailed notes were taken.

We visited the active pit at the base of Incline 3. Here the Davis and DeKoven Coals are being mined. Near the top of the highwall is another thin coal bed, probably the Colchester (No. 2). This is overlain by thin bedrock and about 6 feet of unconsolidated material. The No. 2 (?) Coal is said to be high B.T.U. and also high ash and sulfur. It is not mined commercially but some Peabody employees dig it for their own use.

According to Larry Green Peabody is stripping as much as 140' of overburden. This we do not see here; roughly 60-70' of overburden in this pit. Interval from Davis to DeKoven Coal is 18-20'.

Both coals are about 3 feet thick with well developed cleat. A thin parting is seen in the DeKoven Coal. The Davis Coal (lower) is overlain by black fissile shale and there is a persistant very hard pyrite band at coal/roof contact. The remainder of the highwall consists of gray shale, siltstone, and sandstone. Larry Green points to what he says is a limestone, but I believe it is a hard sandstone bed.

Peabody will be opening a new pit in the No. 4 Coal within a month or so.

Note confusion on coal nomenclature. The State Dept. of Mines and Minerals apparently calls the Davis and DeKoven the No. 2 and No. 3 Coals, respectively. Peabody and other mining companies in this area have used this terminology. Apparently the D. of M. & M. does not recognize the Colchester (No. 2) Coal. Their No. 4 Coal probably is the same as our Summum (No. 4) Coal.

Peabody Coal Company -- Will Scarlet Mine
Williamson County
September 14, 1977 -- J. Nelson, J. Popp, G. Fraunfelter, L. Green; notes by Popp.

We met with George Fraunfelter of the Department of Geology, SIU, in the afternoon and drove to Peabody's Will Scarlet Mine. Coal at the Will Scarlet Mine was first mined in 1952 by the Stonefort Mining Corporation which was owned by a fellow named Sherwood. Sherwood also owned property in Eagle Valley and Northern Illinois. These properties were sold to Peabody in total even though Peabody was primarily interested in the Eagle Valley Property. However, in the long run, the Will Scarlet property has been very profitable mining.

We met and toured the pit with Larry Green, safety director. The mine had received 5" of rain the day before, and it was raining when we went into the pit. Out tour was short and muddy.

Peabody is mining the Davis and DeKoven Coals which both average about 36" thick. A bastard or rider coal is present above the DeKoven and is discontinuous. It may be the No. 2 or the Seeleyville Coal. L. Green says overburden is up to 140' thick. Because of the rain we did not spend much time in the pit, nor did we sample the coals.

As soon as a permit is approved Peabody will also begin mining the No. 4 Coal just north of Will Scarlet. They estimate about 350,000 tons reserve.

We need to return here to sample the bastard coal an and to sample the No. 4 Coal when the pit opens. The mine would make a good stop for the IX-ICC Fieldtrip.

The mine supertintendent expressed some confusion over use of the names Davis and DeKoven. Evidently he had commonly heard the names "No. 2" and "No. 3" instead. Evidently however, the coal Peabody will mine, called the "No. 4" is the same as the Survey' No. 4 Coal.

After leaving Will Scarlet we met with Jim Gilchrist at Peabody's Southern Regional Office in Carrier Mills to discuss visiting the Eagle strip mine.

John C. Moore Corporation, Rochester, N.Y. 14604
FORM 180 W

PEABODY COAL COMPANY WILL SCARLET MINE
October 30, 1979
Notes by John Nelson on visit with John Popp and Bob Griffin.

See John Popp's notes for description of coal seam and strata in highwall.

Faulted Flexure

A faulted flexure affects the DeKoven Coal and overlying strata near the east end of the pit; approx. 150' S, 150' W of the NE corner SE¼ Section 16, T. 10S-R. 5E, Saline County. (The structure is seen in an area where the DeKoven Coal is the lowest unit exposed) The fold strikes about 140, and the southwest side is downthrown about 10 feet. Away from the fold the layers are nearly horizontal.

The DeKoven Coal is intensely fractured across the flexure, and small displacements have occured. The layers of coal are tilted. In places the coal is crushed and slickensided. The striations are inconsistent in orientation. One surface, trending 137/90 has questionable striations plunging 15 SE, which would indicate a component of left-lateral slip. Most other striations, however, are dip-slip or nearly so. The following planes were measured:

150/80 SW	0.6' normal fault
154/65 NE	with dip-slip striae
130/53 NE	normal fault, dip-slip striae
165/50 NE	

On the upper limb of the fold the coal is closely jointed with the sets trending 135-145 and 045-050.

Above the coal, the shale and sandstone show similar deformational features. The layers are tilted and fractured, with minor displacements. There is one very large slickensided surface on the highwall; most striae on it are dip-slip or nearly so, but no significant offset has occured. There is no main fault

that I can see. The sandstone and shale are brecciated along some of the more prominent fractures. Nowhere is any ductile deformation apparent.

Larry Green from Peabody says that about three cuts ago they encountered a sharp depression, circular like a bowl, in the coal. The DeKoven Coal was about 15 feet lower in the bowl; the bowl was 450 feet wide. The "rider" seam (Colchester No. 2 ?) was also folded down, but the Davis Coal seems to have been unaffected in the folding.

Larry also said that in other pits, true faults with offset of the coal had been encountered.

Conclusions The brittle deformation on the flexure; fracturing, cleavage and brecciation of all lithologies, clearly indicates that the rocks were well lithified at the time of folding. Therefore it is not a sedimentary feature or the result of slumping or other soft-sediment deformation. Apparently it is a tectonic structure.

The orientation of the flexure suggests an affinity to the Cottage Grove Fault System, the subsidiary faults of which trend dominantly NW-SE. However, the Will Scarlet Mine is several miles south of the known extent of Cottage Grove faults. Other mines to the north and northwest, including Sahara No. 6, have encountered no large faults associated with the Cottage Grove system.

Faults have been reported in several strip mines south and southeast of Will Scarlet. These faults strike NE-SW and appear to be linked with the faulting of the fluorspar-mining district.

I have no theories about the origin of the bowl-shaped depression described by Larry Green.

View of highwall and face of DeKoven Coal in eastern part of pit. Note shot holes, loaded and ready for firing, on the bench in the foreground.
All photos by John T. Popp.

mn-49-015.tif

Stripping shovel at Will Scarlet Mine.

mn-49-016.tif

Bob Griffin taking a sample of gob in the active pit.

mn-49-017.tif

John C. Moore Corporation, Rochester, N.Y. 14604
MOORE'S MODERN METHODS
FORM 180 W

Geologists at work & play: Griffin digging out a sample from a slurry pond, while Nelson is tossing rocks into the air to watch them splash.

M1-49-018.tif

Hole dug into slurry, showing coarsely stratified nature of deposit.

mn_49_019.tif

Peabody Coal Company - Will Scarlet Mine
Wednesday, November 7, 1984
Notes by John Nelson with Mary Seimsglusz (Peabody)

Peabody has opened a new box cut just north of the outcrop of the DeKoven Coal in the NW¼ NW¼, Section 13, and the N½ NE¼, Section 14, T. 10 S., R. 5 E., Saline County. Excellent exposures available in the pit, which is about 1/2 mile long and trends generally WNW.

Section taken in middle part of pit, on section line:

Surficial materials, not examined.

10' Palzo Sandstone, light gray, weathers brown, fine to medium-grained, feldspathic, very micaceous, clay matrix, poorly sorted appears thickly bedded.
2' Shale, dark gray; only locally present
3' DeKoven Coal
2' Claystone, light gray, silty, with Stigmaria
20' Mudstone, medium-dark gray, carbonaceous, poorly laminated, upper portion very silty, could be called siltstone, progressively finer downward; sideritic bands in lower 5 ft.
2½' Shale, black, hard, fissile. Pyritized shell fragments at contact with coal.
4½' Davis Coal
Covered.

An Igneous intrusion crosses the pit right at the section line, about 500 ft. south of the north line of Sections 13 and 14. It strikes N. 30° W. and is essentially vertical (a dike) it can be seen on

Nelson 11/7/84

both walls of the box cut. Peabody has delineated from drilling an elongate zone of coked coal, trending NNW in line with this dike for 1/4 mile north of the outcrops.

The main dike is approximately 15 feet wide. It is deeply weathered, to a loose greenish-brown sandy material, almost to the floor of the pit (30 to 35 feet from bedrock surface). Fresh rock is present on floor of pit and was sampled. It is a porphyritic rock consisting of phenocrysts of very dark green to black olivene (?) up to 5 mm. in diameter and occasionally larger, in a matrix of aphanitic greenish-gray material. Small grains of a dark red mineral, possibly garnet, are seen. No flow structures visible, but the border of the dike has a chilled zone a few inches wide and more deeply weathered than the rest of the intrusion. A few inclusions of coked coal within the dike. Many calcite veinlets; also a little pyrite and other metallic sulphide.

The Davis Coal is seen to be coked to a distance of roughly 5 feet from the edge of the dike. Right at the dike the coal is very hard, perhaps due to mineralization; farther out it is less dense than normal coal; dull and friable but not porous like artificial coke; heavily slickensided; the banding of the coal still visible although disrupted. Sample = WSDIKS-1

About 10 feet southwest of the main dike a second small dike, slightly less than a foot wide, cuts the Davis Coal. The coal is coked and mineralized for only a few inches to either side of this.

The shale and mudstone above the Davis Coal is intensively fractured along the margins of the main dike, the fractures nearly vertical and dominantly parallel with the dike. Within about 2 feet of the intrusion the wall rock is lighter color than elsewhere but shows no other obvious effect of metamorphism.

Nelson 11/7/84

DeKoven

On the northeast side of the dike a sill of igneous rock has intruded the coal about 5 feet laterally, replacing the full thickness of the coal and part of the thin overlying shale. The DeKoven Coal appears coked for a greater distance away from the dike than the Davis Coal; but the DeKoven is not directly accessible.

The coal beds are 3 to 5 feet lower northeast of the dike than southwest of it, so a small amount of faulting accompanied intrusion, cannot tell if movement took place before, during or after intrusion.

500 to 600 feet southwest of the large dike is another dike, striking N. 20° W; it is vertical and 2 to 3 feet wide. The Davis coal is lightly coked about 2 feet eitherside of the dike and is intensely fractured, fractures perpendicular to the intrusion. The igneous rock is highly altered to orange-brown down almost to the Davis Coal. In the Davis Coal it is dark green and moderately consolidated, no fresh rock available. The strata are not offset vertically on this dike. East of the dike the DeKoven coal is arched upward, with a lens of light gray material (inaccessible) between the coal and underclay. Possibly a sill? The DeKoven Coal is eroded beneath Quaternary deposits on the arch, which is about 50 feet wide.

Another 500 to 600 feet west is yet another dike, slightly less than a foot wide. It is vertical but the walls are slightly sinuous. The Davis Coal is only slightly coked and heavily mineralized beside the dike. The igneous rock is totally altered.

The Palzo Sandstone is in channel phase, and in several places the DeKoven Coal is partially eroded, to as thin as one foot or so, beneath it. Elsewhere a little shale between coal and sandstone.

Just west of the incline (about 400 ft. from N.L., 1100' from E.L., Section 14) another species of intrusion is seen. It is nearly vertical, but strikes N. 80-85° W, and the filling is much different from that of the others. The central portion is light gray, weathering cream, and very fine-grained; it resembles a limestone and reacts mildly to acid. No crystals or flow structure seen. This zone is sharply bordered by dull, black hard aphanitic material, probably mineralized coal. One dike is 1 to 4 inches wide and extends the full height of the wall, but in the Davis Coal is a second dike up to 8 inches wide and not extending more than a few inches above the coal. Both dikes have been offset horizontally along bedding planes in coal and shale. Offsets are a few inches, with the upper beds shifted eastward.

Farther west, about 1000 feet from west end of box cut, the DeKoven Coal is eroded in a Quaternary channel, which is 300 to 400 feet wide. The following material was present:

5' Clay, and sedimentary rock fragments, probably buldozed.

16' Clay, olive-gray at top, grading down to blue-gray; stiff, silty; orange traces like rootlets in upper 5 ft. or so; sandy near base with orange mottling. Lacustrine deposits? Grades into

1' Sand, orange-brown, with interstitial clay. Sharp contact:

3' Clay, medium brown, soft, sticky, with thin parallel laminations of sand. Sharp contact:
10' Silt, brown, firm, stiff, structureless. Resembles loess.
Bedrock.

Location: about 200 ft. from south line, 1500 ft. from east line, Section 11.

Away from this washout, the bedrock is overlain by 3 or 4 feet of a pinkish-orange material, perhaps an Illinoisian loess; above which is 4 or 5 feet of gray-brown material, probably Peoria loess. This is not accessible to study.

The pit west of the washout is filled with water. The bedrock strata dip westward; the DeKoven Coal drops almost to waterline at the west end, a drop of about 20 feet in 700-800 horizontal feet. The Palzo Sandstone and younger strata are exposed westward.

Section of strata, west end of pit, about 700 ft. north of S¼ corner, Section 11:

10' Surficial materials, slumped and disturbed by mining.
10' Shale, medium gray at top, becoming darker downward, smooth, poorly laminated. Sideritic lenses in lower part. Grades into:
0.5' Mudstone, dark gray, calcareous, no fossils noted.
8' Shale, black, hard, smooth, fissile, not calcareous; occasional large septarian limestone concretions.
1.2' Coal (Colchester (No. 2)) bright banded.
2.0' Coal, black, very shaly, thinly laminated; and shale, black, leafy, with compressed bark and stems, etc.

1' Claystone, dark gray, silty, carbonaceous, rooted.
15' Sandstone (Palzo), light gray, fine-grained feldspathic, highly micaceous; irregularly bedded, abundant coaly partings.
0-2' Shale, dark gray, smooth, brittle, hard, thinly laminated, sideritic.
3.5' DeKoven Coal, bright banded, occasional pyritic lenses, as shale partings. Very prominent regular cleat; N. 45-55^{o} E and N. 40-47^{o} W; also large planar fractures N. 82^{o} E.

Peabody Coal Company Will Scarlet Mine
Thur., Dec. 20, 1984
Notes by D.K. Lumm
Field partner: W.J. Nelson
Special guests: Jim Kirkpatrick, Professor, University of Illinois and John Fox, University of Illinois graduate student and research assistant at ISGS

Purpose of visit is to carefully examine, describe and sample an igneous dike reported by W.J. Nelson on a visit to the mine on Nov. 7, 1984. Box cut is developed in the Davis and Dekoven Coal Members of the Spoon Formation, NW 1/4 NW 1/4 Section 13 and the N 1/2 NE 1/4 Section 14, T.10 S., R.5 E., Saline County, IL.

The direction of strip mining is to the north. The highwall is about 50' tall and faces south. From top to base the exposed strata are:

6'-10'	Quaternary deposits (not studied)
8'-10'	Sandstone (Palzo), light grey, weathers brown to dark golden brown, fine to medium-grained, moderate to poorly sorted, very micaceous, medium to thick bedded.
3.5'	Coal (DeKoven), normally bright banded, no partings.
1.5'-1.7'	underclay, soft, grey.
15'-18'	shale, medium to dark grey, carbonaceous; becomes finer-grained toward base, non bedded or poorly laminated.
2'	shale, black, hard, fissile toward base.

Lemieux + Nelson 12/20/89

4' Coal (Davis), normally bright banded, no partings.

All thicknesses are approximated.

The dike measures 23' across the highwall but this measurement is not perpendicular to strike. John Fox approximated the strike of the dike to be N 29 W.

The great majority of the dike is composed of mica peridotite and occurs in regoliths 2'-4' in diameter. These rounded masses are separated by extremely weathered, almost unconsolidated in part, material of the same composition.

The rounded masses are colored grey to greenish grey, are well to very well indurated and prominently display spheroidal weathering. The weaker zones are generally colored olive grey and can sometimes be broken apart by hand. The latter tend to have phlogopite mica zones or veinlets and possible carbonatite occuring in irregular veinlets and pods. These were discovered near the west contact of the vein and the dark grey shale. The veinlets are about 1"-1 1/3" thick and are subhorizontal to bedding.

Kirkpatrick, Fox and I carefully examined the contacts of the dike with the dark grey shale. On the E side of the dike the contact is thus described:

Sharp contact between baked dark grey shale and dike. Vertical carbonate (probably calcite) veinlets occur within the mica peridotite groundmass and measure from less than 1/16" to about 1 1/4" thick. Thinner and less prominent are carbonate veinlets which are perpendicluar to the dike contact and are horizontal to and extend along the bedding planes of the dark grey shale for a few inches. The latter carbonate veinlets appear to be younger than the former veinlets as they are found to cross cut them. All carbonate veinlets are colored creamy white and are very finely crystalline. The mica peridotite is very finely crystalline

Lumm + Nelson 12/2/84

with longer serpentinized olivine crystals. Within the contact zone the peridotite is ground up or has been pulverized to a claystone texture.

On the W side of the dike the contact is sharp. The dark grey shale is well jointed, abundantly weathered with iron stained surfaces. The mica peridotite is very soft and baked. It does not contain calcite veinlets but instead contains carbonatite in irregular veinlets and pods and phlogopite in irregular veinlets. These occur within 2'-3' of the contact.

I later noticed that near the W contact there were some slickensided surfaces developed along listric like or curving surfaces of the mica peridotite regoliths. The slickensides were approximately vertical to the curving surfaces. Dips on these curving surfaces measured from 80° to about 55° near their bases. The strike of the surfaces are N 26-40 W. Perhaps there was some internal migration of fluids that was concentrated along zones of weakness to cause internal settling or normal movement of the regoliths during the final episodes of dike emplacement. The manner of settling may have caused the slickensides. No faults or small offsets can be seen.

Kirkpatrick and Fox sampled parts of the dike and made some of their own descriptions. We had to work quickly because of the advancing electric shovel which was excavating the coal. When the advance was made to the dike the foreman brought in a "Caterpillar D-9" with a ripper to break up the dike. This operation was a slow laborious task which we did not see to completion.

We also noted a "carbonatite" dike about 500' W of the peridotite dike. We are not sure of its actual composition or mode of emplacement so we are tenatively calling this dike a carbonatite. The dike is about 1 1/2' wide but abruptly pinches out upward within the dark grey shale. Our view is about 8'

above the position of the top of the Davis Coal.

The matrix of the carbonatite is medium grey, non crystalline, calcareous, and mottled with light grey to light yellow-grey circular or elliptical argillaceous inclusions which vary in size from a small spec to slightly smaller than a U.S. dime. These inclusions may be considered part of the framework constituents. Other framework inclusions are black shale and coal; these are angular to subrounded and have sizes less than 2 cm in diameter.

We sampled this exposure and plan to make thin sections of it. No faults or slickensides were seen along the face of the highwall, save for a very small reverse fault between this location and the mica peridotite dike.

We observed several very small veinlets between this location and the 23' mica peridotite dike. John Nelson made notes on these and other features in the pit which I did see. See his notes.

End of visit.

John C. Moore Corporation, Rochester, N.Y. 14604
MOORE'S MODERN METHODS
FORM 180 W

Peabody Coal Co. - Will Scarlet Mine
December 20, 1984. Notes by John Nelson

Visit with D. K. Lumm and John Fox of I.S.G.S., and James Kirkpatrick of U. of Ill. Geology Dept., to examine and sample igneous intrusions.

Highwall has advanced since my last visit. The main dike is exposed in a fresh cut, but the Davis Coal has not yet been mined. Therefore, we cannot sample the coked coal adjacent to the dike. The DeKoven Coal is inaccessible on the highwall.

Features of the main dike are similar to those seen on previous visit. Fresh rock is found to about 10 ft. above the Davis Coal; the rest deeply weathered, as before.

See Lumm's detailed notes.

About 600 ft. of highwall is exposed east of the main dike. No additional intrusions are present on this wall. Numerous vertical to steeply dipping fractures cut the shale and siltstone between the coal beds. Near the main dike the fractures strike N. 30-35° W.; eastward the trend changes to about N. 20° W. Fracturing is more intense close to the dike, and some fractures may have small offsets. Farther east the fracture spacing is more irregular and wider, and most of the fractures dip steeply SW. A second set of joints or vertical fractures striking N. 65-75° E. is seen in the black shale above the Davis Coal.

West of the large dike the fracture trends and spacings are more variable and not as easily studied due to slumping of the highwall. The dominant direction is about N. 30° W. A sharp flexure is seen affecting the Davis Coal and overlying shales. It trends roughly N. 60° W. and the SW side is downthrown about 2 feet. Upper and lower hinges are very sharp; layers on the hinge dip about 65°, and the coal and shale are almost crushed. The flexure appears to die out abruptly about 3 ft. above the coal and may pass into a low-angle thrust fault; but that is difficult to determine. There appears to be a similar flexure or thrust fault in the DeKoven Coal, but no details can be observed.

Just west of the flexure is a dike about 2 feet wide. Only claylike weathered rock can be seen on the highwall, but large chunks of coked coal and fresh peridotite have been dug out in the spoils.

The incline to the pit is located 1000-1200 feet west of the large dike. West of the incline the DeKoven Coal has been mined but the overburden to the Davis Coal is still in place. The DeKoven Coal is directly overlain by sandstone to about 1000 ft. west of the incline, where the Quaternary channel noted on the previous visit cuts out the coal. No igneous dikes seen west of the incline.

About 400 ft. east of the incline we found a fracture zone striking N. 45° E., containing a form of breccia. The breccia is seen to extend about 4 ft. vertically, only about 4" wide at the most, and it pinches out about 3 ft. above the black shale overlying Davis Coal. The base is covered. The breccia consists of subrounded fragments (weathered phenocrysts?). Some nearly an inch in diameter, of cream-colored clay like material; along with fragments of coal and black shale, in a matrix of gray very fine-grained dense rock, slightly calcareous. Possibly carbonatite. This probably corresponds with the carbonatite dike seen on the previous visit.

Between the carbonatite dike and the large peridotite dike we found several very narrow dikes of peridotite (only about an inch or two wide) trending N. 30-35° W. and dipping vertically or nearly so. Dike rock is dark gray to black, with gray rounded phenocrysts and also inclusions of shale and coal.

As we watched, the loading shovel mined up to the large dike. They struggled for a while trying to rip out the dike and then decided to build a ramp over it so the loading shovel could pass. A lot of coal and rock was placed along the highwall, preventing us from clearly seeing the coal-dike contact. Systematic sampling of coked coal here may be very difficult.

View of deeply weathered ultramafic dike in highwall of Will Scarlet Mine. Fresh rock at floor of pit replaces Davis Coal. Dekoven Coal about 1/4 way from top of photo.

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Closer view of same, showing sill-like projection of decomposed igneous rock into De Kroven Coal, just above staff. Shale and siltstone below coal baked and heavily fractured.

mn-49-021.tif

Margin of the dike, viewed from above. Igneous rock appears bluish-green in photo; coked Davis coal alongside dike to west (right)

mn_49_022.tif

Ultramafic dike in Davis Coal, Peabody Coal Co. Will Scarlet strip mine, Saline County, Nov. 1984.

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John C. Moore Corporation, Rochester, N.Y. 14604
MOORE'S MODERN METHODS
FORM 180 W

Peabody Coal Company - Will Scarlet Mine
July 22, 1986 Notes by John Nelson

Visit with Rich Lilienthal, Stephen Decatur, Mark Steuer, and Todd Stephenson, geologists from Amoco Oil Co., Houston.

At foot of incline in active pit, near east end of pit, the strata have been faulted and intruded by igneous rock. See sketch.

There is a graben about 100 feet wide along the highwall. The central block is composed mainly of the light gray sandstone that overlies the DeKoven Coal. It has been dropped down at least 15 feet; the base of the sandstone in the central block is covered by debris. The bounding faults dip steeply, and are normal faults; they strike NNW.

The surface of the eastern fault is lined with sheared black shale. Slickensides on this fault plunge about 70° to horizontal. The western fault is somewhat listric (its dip decreases downward). A slice of steeply tilted and sheared DeKoven Coal, underclay and silty shale is present just east of this fault.

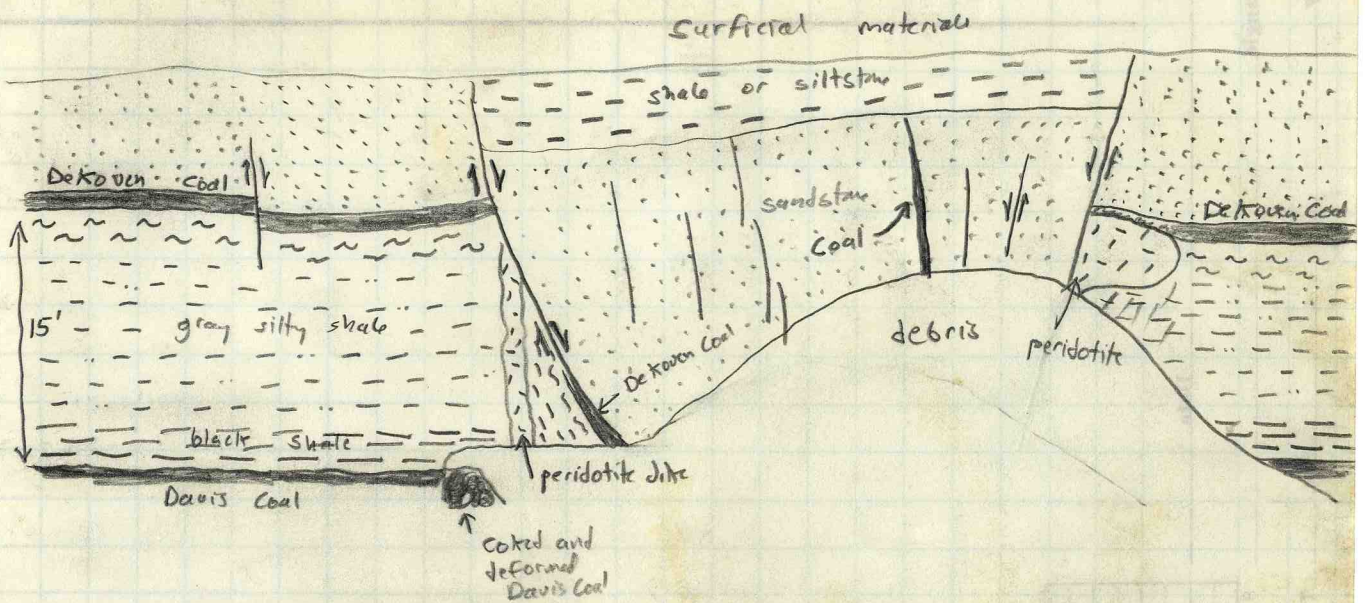
Just west of the graben a vertical dike of dark green peridotite, 2 to 3 feet wide, cuts upward from the Davis Coal to the DeKoven. The Davis Coal has been coked and sheared within several feet of this dike. Along the eastern fault, just below the DeKoven Coal, is a half-lens of peridotite, about 5 feet thick and 5 feet wide. The DeKoven Coal is partly replaced by peridotite and is highly baked and altered, as is the shale below the coal.

Within the graben numerous vertical to steeply inclined fractures and small faults are present, some lined with calcite, others with slickensided black shale. Most

Width of view ~ 300 ft.

W

E



Much vertical exaggeration.

peculiar - one fault within the sandstone contains highly sheared coal, up to several inches wide and vertical. This coal appears to have been injected into the sandstone vertically.

Several small faults, with throws up to a couple feet, are present outside of the graben. A carbonate dike, less than a foot wide, occurs about 200 feet each of the graben.

About 500 feet west of the graben, a reverse fault cuts obliquely across the highwall. It strikes roughly N.40°W. and dips 55-60°NE; the northeast side is upthrown 6 to 10 feet (throw increases upward). It cuts both Davis and DeKoven Coals and intervening strata. The coals and shales are considerably sheared and crushed along the fault. No igneous rock was observed. A sharp flexure or rollover anticline is present on the hanging wall of the fault.

Throughout this part of the pit the DeKoven Coal contains many elongate lenses and discontinuous layers of white-weathering substance. I was able to reach the DeKoven only in one place, and there found a 3-inch layer of black coaly shale and bone coal near the middle of the seam. The shale bond contains pyrite nodules that weather to a whitish color.

PEABODY CLOSES WILL SCARLET MINE; ILLINOIS CUTBACKS FOLLOW SALES SETBACKS

Peabody Coal Company's once-mighty Midwestern empire continues to shrink with the closing of its Will Scarlet surface mine near Stonefort in southern Illinois.

On November 30 the company permanently laid off half of the mine's work force—72 employees. Those remaining will complete reclamation work and close the mine, probably by next spring. Peabody's Illinois division blamed the shutdown on "adverse mining conditions" and the mine's inability to compete in today's fiercely competitive market. Gayla Hoffman, a spokesperson for Peabody holding company in St. Louis, said muddy conditions at the mine made it difficult for machinery to mine coal efficiently.

Sales from Will Scarlet, named for a character in "Robin Hood," also were hampered by its high-sulfur coal, Hoffman added.

The company plans to follow provisions of the industry's contract with the United Mine Workers. Will Scarlet miners will be placed on a Peabody panel. They also will receive medical benefits for up to one year.

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