

Sahara Coal Co. Mine # 21

Air Shaft 1760' from SL, 580' from EL, Sect. 17
Slope Portal 2270' from SL, 400' from EL, "

SAHARA COAL CO.
MINE # 21

Mine Index

Mine Index No. 911
Coal Report No. S-57

SALINE COUNTY

SPRINGFIELD



h Sec. 17
g
f T. 9 S.
e
d
c R. 5 E.
b
a Index No.



Sahara #21

(Sheets) COAL PRODUCTION (Sheet)

Period				Tons	
Mo.	Day	Year	Mo.	Day	Year
		1971			
		1972			
		1973			
		1974			
		1975			
		1976			
		1977			
		1978			
		1979			
		1980			
		1981			
		1982			
		1983			
		1984			
		1985			
		1986			
		1987			
		1988			
		1989			

SAHARA COAL CO.

MINE: NO. 21

1971	166	580
1972	551	985
1973	750	359
1974	675	256
1975	574	939
1976	596	637
1977	466	816
1978	361	909
1979	455	003
1980	458	186
1981	393	767
1982	515	408
1983	502	633
1984	615	194
1985	493	096
1986	462	447
1987	530	252
1988	616	695
1989	597	429

SUMMARIES

No. to No.

Railroad, Wagon, Strip, Idle, Abandoned

IDENTIFICATION

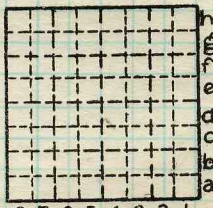
County No. _____

Coal No. 5

Coal Report No. S-57

Quad.

County



Sec. 17

T. X

S. 9

R. 5

E. X

Index No.

COAL MINE—PRODUCTION

ILLINOIS GEOLOGICAL SURVEY, URBANA

ILLINOIS GEOLOGICAL SURVEY, URBANA

Sahara Coal Co. Mine 21. Face Channel Sample #1.
SW No. 18 Room of 1st. SW entry.

NG shale roof.
Underclay bottom.
No. 5 Coal 48".

Coal - Normally bright banded. Thin (1/16") pyrite band at top, 2 at 1". Abundant CaCO₃ and pyrite on cleat. 1/8" fusain. To 7 inches.

Coal - Normally bright banded. Abundant pyrite and CaCO₃ on cleat. Thin (<1/8") fusain every few inches. Thin (<1/8") bony band at base. Down to 14".

Coal - Normally bright banded. 1/8" fusain and mineralized pyrite at base. Down to 24".

Coal - Normally bright banded. Abundant pyrite and CaCO₃ on cleat. Fusain 1/8" at 28½", 29½", 30", and 32½". Down to 32½".

Coal - Normally bright banded. Abundant CaCO₃ on cleat. Slickenside, CaCO₃ on inclined fracture. Down to 43".

Coal - Bony. Includes vitrain stringers. Heavily Fusinized. Down to 44".

Normally bright banded coal. 44"-46½"

Fusain - Mineralized. 46½"-47"

Normally bright banded coal. 47"-48"

By JH Date Sept. 22, 1972

Quadrangle _____

County _____ Sec. 18 T 9S R 5E

1600'N, 800'W, SE/cor.

+	+	+	+	+	+	h	
+	+	+	+	+	+	g	
+	+	+	+	+	+	f	
+	+	+	+	+	+	e	
+	+	+	+	+	+	d	
+	+	+	+	+	+	c	
+	+	+	+	+	+	b	
+	+	+	+	+	+	a	
8	7	6	5	4	3	2	1

ILLINOIS GEOLOGICAL SURVEY, URBANA

Sahara Coal Co. Mine 21. Face Channel Sample #2.
S. location. 1st north off 1st Main E., #4 Room.

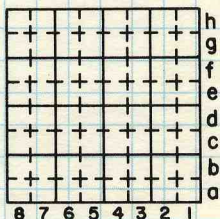
Seam Ht. 51"
Dark gray shale roof.
Normal underclay bottom.

- 0"-2 3/4" Coal - Normally bright banded.
Thin pyrite band <1/16". 1/2" from top.
- 2 3/4"-3" Pyrite and fusain.
- 3"-5 1/2" Coal - Normally bright banded.
Calcite and pyrite on cleat.
Pyrite 1/4" in line of section becomes nodule few inches laterally.
- 5 1/2"-21" Coal - Normally bright banded.
Abundant calcite and some pyrite on cleat. 3/8" fusain at unit bottom.
- 21"-32" Coal - Normally bright banded.
Calcite, pyrite, and kaolinite in cleat. Fusain <1/8" at intervals.
- 32"-51" Coal - Somewhat thinner than above. Abundant calcite and pyrite on cleat.

By PL Date Sept. 22, 1972

Quadrangle _____

County _____ Sec. 17 T. 9S R. 5E
1600'W SE/cor.



ILLINOIS GEOLOGICAL SURVEY, URBANA

Sahara Coal Co. Mine 21. Face channel Sample #3.
Room 16 off 1st west of 1st Main North

- | | |
|------------------------|--|
| 0"-18" | Coal - Normally bright banded. Minor calcite and pyrite on cleat. Very uniform and homogeneous. $\frac{1}{4}$ " bony band at base. |
| 18"-41" | Coal - Normally bright banded. Calcite and pyrite on cleat. |
| 41"-41 $\frac{3}{8}$ " | Fusain - Mineralized. |
| 41 $\frac{3}{8}$ "-47" | Coal - Normally bright banded. Calcite and pyrite on vertical fraction. $\frac{1}{4}$ " mineralized fusain at 45" and 47". |

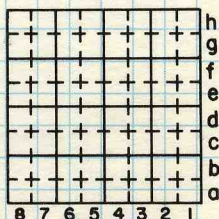
Entire seam very homogeneous, relatively little fusain.

By _____ Date Sept. 22, 1972

Quadrangle _____

County _____ Sec. 17 T 9S R 5E

2200'E, 1600'N, SW/cor.



SAHARA COAL CO. MINE NO. 21 SALINE COUNTY, ILL.

Notes by John Nelson on visit with Roger Nance and H.-F. Krausse, with Bob Gullic and John Lane of Sahara, on May 27, 1977.

Purpose of visit was to examine faulted areas and select regions for possible future detailed mapping in our study of the Cottage Grove Fault System.

This is a slope mine in the Harrisburg (No. 5) Coal. There are three conventional mining sections and two with continuous miners. Coal haulage is by belt and men and material move by rail. Ventilation is by a pushing fan on intake, with the slope as up-cast. Like Mine No. 20 this mine has conditioning chambers; worked-out panels through which the air is routed before going to working faces. This stabilizes temperature and humidity and is said to greatly improve roof stability.

In most places the track and the conveyor belt are in the same entry, which is 26' wide. Other main entries are 20' wide, and rooms are 26'. No systematic pillar extraction is performed.

In all parts of the mine we visit, the roof is gray shale and siltstone of the Dykersburg Shale Member. The St. David Limestone and underlying black shale were not seen. There is said to have been some black shale roof in the sealed panels north of the slope bottom. From the description we cannot be sure this is a black "slaty" shale.

Throughout the mine the top is excellent with no roof falls except locally along faulted or sheared roof areas.

FOR LOCATIONS SEE MAP 10-3-8(B).

We first travel from the bottom to the face of the N.E. 57, where faults have recently been encountered. Along the way the coal is mostly level and 52-56" in height. In the N.E. 57 several shallow synclines not over 100 feet wide are present in the

coal. The roof is hard gray shale and is in excellent condition.

In the face area the coal is up to 72" thick, the thickest in the mine, and the seam is level. The roof is hard, poorly bedded, medium gray shale which is rather silty and carbonaceous. The continuous miner takes about 6" of the roof, which is finely laminated and regarded as "draw rock". The floor is very wet in places, with ponds of water. According to John Lane, the water seeps upward from the floor. The floor is hard, dark gray silty shale or claystone.

Walking north we encounter a zone of high-angle to vertical fractures in the roof. These trend about 170 and have little or no displacement. Some affect the roof only, and others also cut the coal. One is found to have $\frac{1}{2}$ " displacement at both top and bottom of coal seam, and the fault plane does not curve. The fractures cause slight roof trouble, and the place has been cribbed. No large falls are present.

Face # 7 Entry (Left Hand Entry) There is a 5-foot roof fall about 20' outby the face. The gray shale roof is broken by numerous medium-angle faults or slips trending in many directions and commonly intersecting. Some of these cut the coal and others do not, and there are numerous bedding-plane shears. The largest fault has about a foot displacement on the NW rib and dies out to the SE.

Outby the fall are a few high-angle to vertical fractures and small faults, trending north-south like the ones described above. Some N-S high-angle faults are also present within the roof fall.

At the face of the entry is a large fault, barely mined into. The coal appears to be up to the northeast by nearly a full seam's thickness. This may be only the first "slice" of a set of multiple faults.

The big fault at the face and the small high-angle N-S fractures probably are part of the Cottage Grove Fault System. The medium-angle, non-oriented faults in the roof fall possibly are related to the Cottage

Grove Fault but they look more like slips caused by differential compaction of sediments.

Face of 6th Entry Normal fault trending 160-165/65 SW at face, with 10-11' displacement. Continuation of fault at face of 7th Entry. Coal on the upthrown side dips 20-30 toward the fault and is sheared by anti-thetic fractures. Gouge zone along fault plane up to a foot wide containing sheared roof and floor rock. Numerous parallel faults and fractures of small displacement outby the main fault. Top is good except at the main fault, where roof is badly sheared.

No medium-angle non-oriented faults, as in roof fall on 7th.

See sketch (over) and see also notes and sketches by H.-F.K.

Face of 5th Entry About 50' outby the face a pair of high-angle faults form a "coffin cover" in the roof, with badly sheared rock between. See sketches (over).

Big fault at face consists of two main fault planes 2-3' apart with a total displacement of about 10 feet. Numerous parallel small faults and fractures. Also numerous high-angle to vertical fractures trending 046-050, practically at right angles to the main direction of faulting. These lie southwest of the main fault and nearly all of them end abruptly against a N-S fault about 15' from the main fault. See also notes and sketch by H.F.K.

Face of 4th Entry Main fault is smaller; appears to be dying out to the south. Trend 160-165/70 SW. On the SE rib the fault has exactly a seam's thickness (5.3') displacement and there is about 0.3' of horizontal offset along the coal/roof and coal/floor boundary; the upper block moved to the northeast. The coal on the upthrown side of the fault lies nearly level except within a foot or so of the fault plane, where slight drag is apparent. There are numerous NE-trend-

SW

View of NW Rib
6th Entry

NE

Sheared Roof Rock

COAL

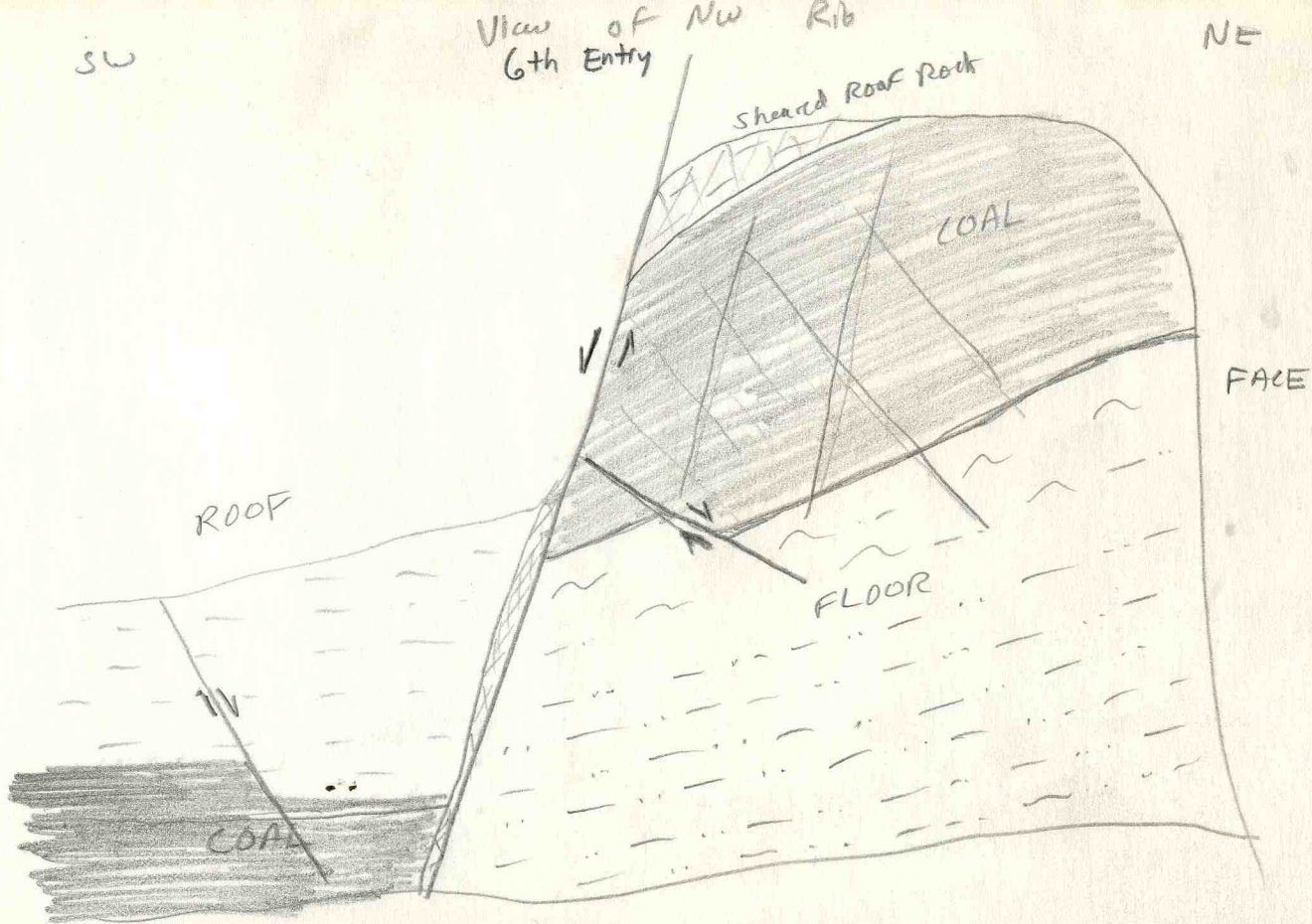
FACE

(4)

ROOF

FLOOR

COAL

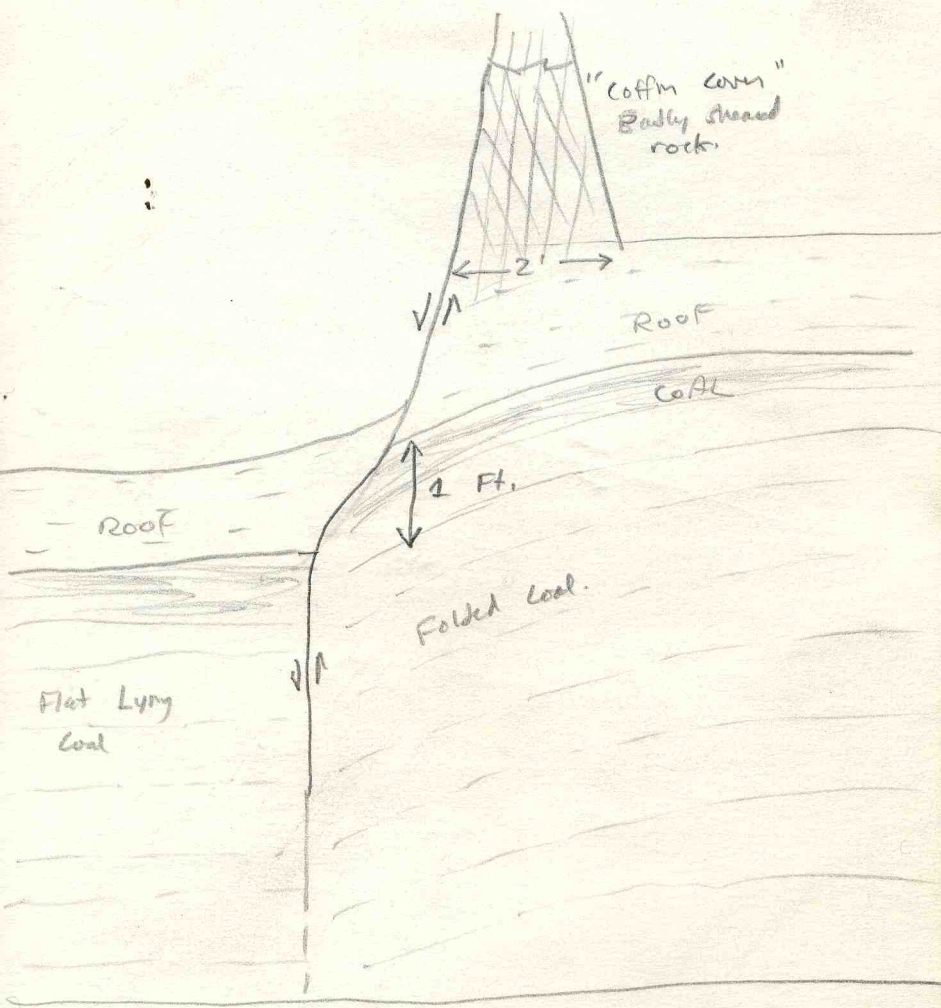


"Coffin Cover"

5th Entry - NW Rib
Just in by last crosscut

NE

SW



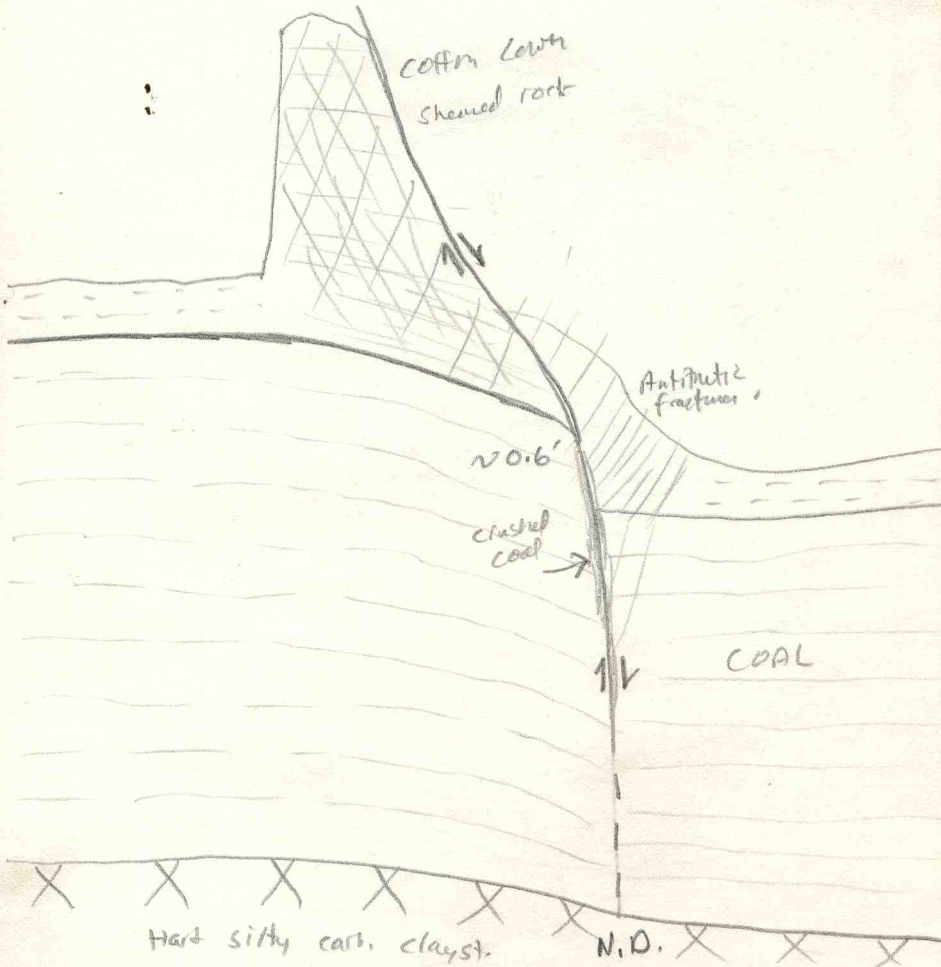
" Coffin Cover "

5th Entry - SE Rib.

NE

SW

Trunc of fault 155°



ing fractures NE of the fault and several low-angle to horizontal shears SW of the fault, with slickensides trending 085.

Face of 3rd Entry Mined about 20' in by last crosscut, hit the big fault, and stopped. Face is gouged and sheared rock and top is bad. Cannot estimate displacement. Fault may be split.

See H.-F. K. notes for discussion of shearing features out by the face of this entry.

Face of 2nd Entry Hit small fault (about 1 foot displacement) and stopped. Poor exposures. This is not the main fault; that lies about 150' ahead on this entry.

Face of ~~65th Room to Right~~ 65th Room to Right Crossed a fault trending 175/51 E with about 2.1' displacement (normal, down to east.) May be same fault as at face of 2nd Entry, increasing in displacement southward. Definitely not the big fault seen in 3rd through 7th Entries.

64th Room to Right Fall at face of crosscut turned NE from the room. High-angle fault dipping to west with almost no displacement. Trend of fault N-S/ 69 W. Top badly sheared and water dripping.

In the room itself, which is driven farther SE than Room 65, is a fault at the face. Fault trends 160-165/57 E and has about 2' displacement (normal, down to east.) Probably same fault as in 65th Room. Fault curves slightly and branches to south.

Discussion of Faulting in N.E. 57 From examination of maps in the office, it is apparent that the faults near the face of N.E. 57 are a southward-curving branch of the Cottage Grove Fault System. They probably increase in displacement northward toward their intersection with the major NW-trending faults known from drilling in the area. The faults die out southward but

probably continue for at least 1000 feet to the mined-out, sealed panels north of the slope bottom, where bad top (but no faults) were reported.

The company is currently debating whether to mine through the faults on the N.E. 57. John Lane, who apparently will play a big role in making this decision, has been discouraged by our observations. He apparently thought the small fault in the 2nd Entry was the same as the big fault in Entries 3-7, and so was dying out to the south. Though we have shown these are different faults, the evidence still indicates that the main fault is dying out to the south. It should not be hard to drive across the fault zone on the right (south) side. As a matter of fact, most of the left side entries are already across the large fault.

Probably a more important matter to consider is the likelihood of running into more large faults if the N.E. 57 is extended. Indications from drill holes and neighboring mines are that steep grades lie ahead and a probable major fault is within 1000 feet of the present face.

East off the Main South A map provided by Bob Gullie shows a fault zone trending exactly N-S cutting across these entries and extending south into abandoned Sahara No. 5. Entries driven east off the slope bottom of Mine No. 21 butted against this fault zone, which further extended northward into abandoned Mine No. 7. The fault zone is at least a mile in length and lies almost exactly on the section line between Sect. 16 and 17 and Sect. 20 and 21, 9S-5E.

Upon reaching the area we find no large faults, but rather a zone of badly disturbed top and dripping water. We are told that the bad top and not actual displacement on the faults was the reason these mains were "necked down" from 8 to 5 entries and no other entries were driven through the zone.

Exposures of the disturbed area are very poor. The track, intake, and return entries are so heavily

cribbed that almost nothing can be seen behind the timber. The belt entry is cribbed less but is very low and cramped, with much water on the floor. All ribs are heavily dusted.

See H.-F. K. notes for discussion of features seen in track entry.

In the belt entry, the main structures visible are a series of low-angle reverse faults and flexures. Roof and coal are badly crushed and disturbed. Some movement has occurred along bedding planes. See sketch (over).

This structure clearly is due to compressional forces. We have seen similar structures in Freeman Orient No. 4 and in Zeigler No. 4, but there only in association with larger faults. There are no large faults in this part of Sahara No. 21.

This feature is remarkable for its small displacement but apparent lateral continuity, as shown on the map. One wonders if similar compressional structures are found along the length of the "fault zone". It is a pity the exposures here are so poor and that no other exposures are available.

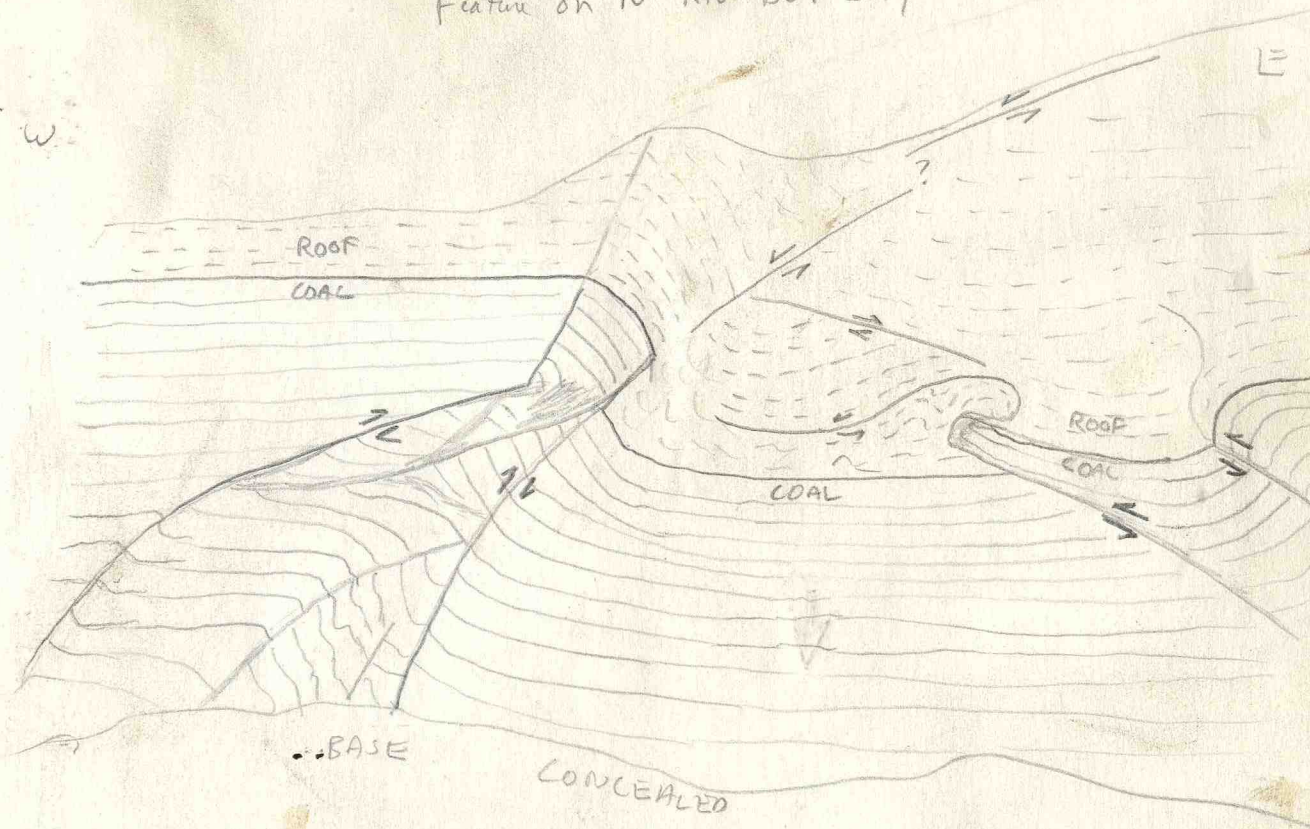
Fossil Tree Trunk East off Main South near 4th North Turnout.

A remarkably huge fossil tree trunk is preserved in the roof of the track/belt entry and the adjacent crosscut here. The flat-lying trunk is $4\frac{1}{2}$ to 5 feet wide and the exposed portion is at least 50 feet long; it disappears into the south rib of the track/belt entry. It is oriented on a heading of 155 ; we stopped to examine it thinking that it was a fault or set of fractures on the common heading for the "en echelon" segments of the Cottage Grove Fault System.

There are low-angle slip planes along the length of the trunk. Where it intersects the pillar the flattened ring of coalified bark is apparent. The sediments below have been squeezed out during compaction and settling.

None of us can recall having seen so large a tree trunk in a coal mine.

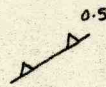

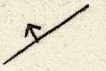
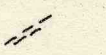
Feature on N. Rib Belt Entry

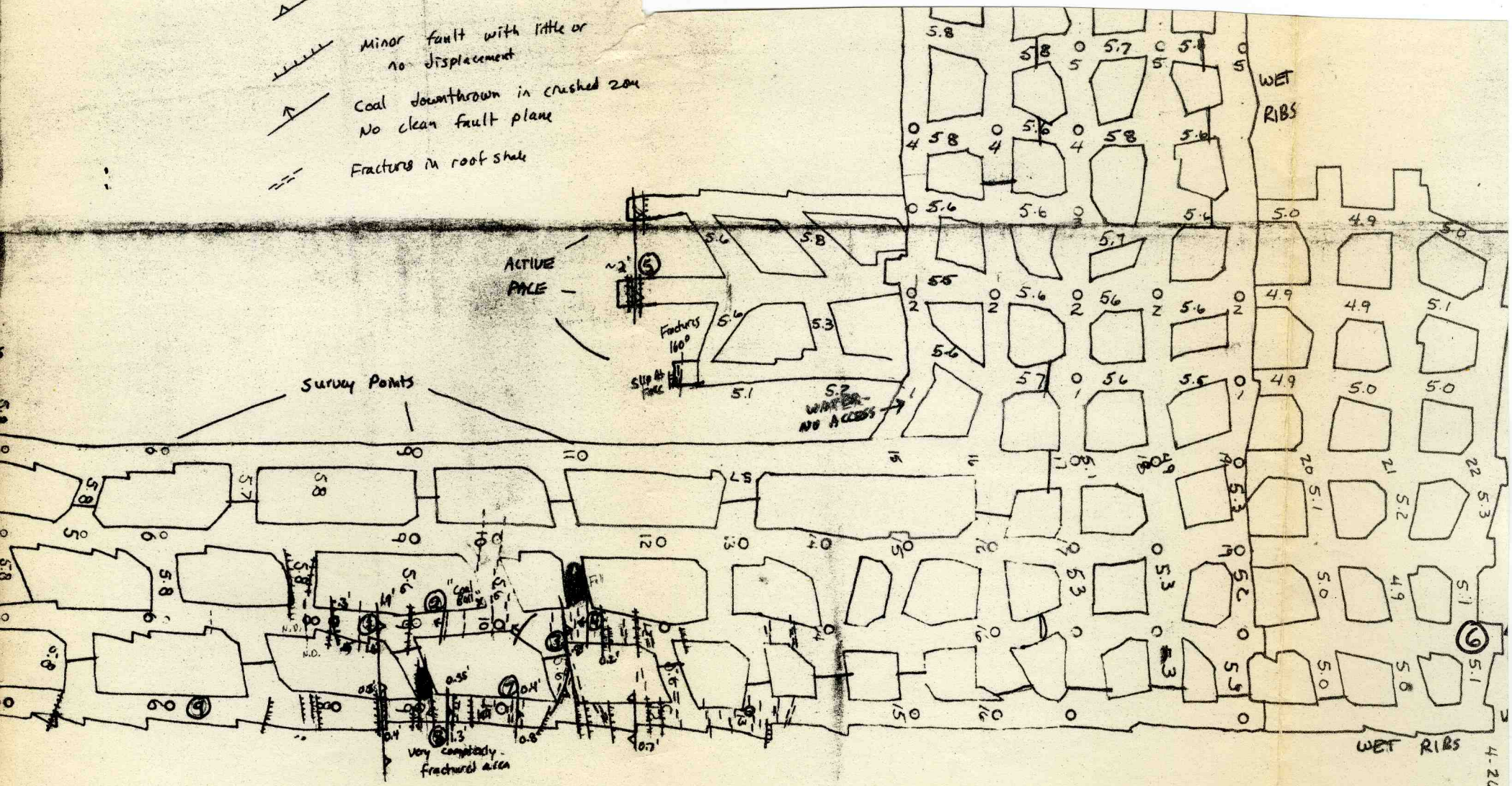


(10)

Map by John Nelson May 9, 1978

LEGEND

-  Fault - Displacement given in feet
-  Minor fault with little or no displacement
-  Coal downthrown in crushed zone
No clean fault plane
-  Fractures in roof shale



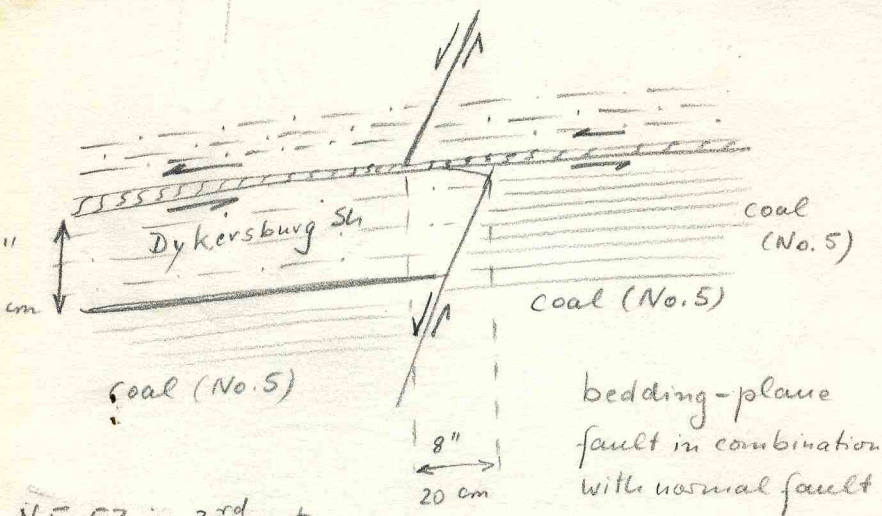
COMPLETE MAP IN FOLDER 10-3-8

4-26-78

SAHARA COAL COMPANY MINE NO. 21 SALINE COUNTY

May 27, 1977

Notes by H.-F. Krausse on visit with John Nelson.
Original notes and sketches follow.



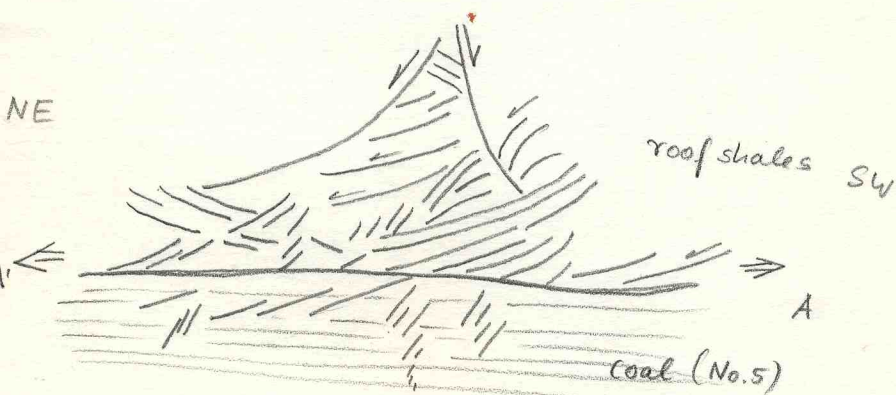
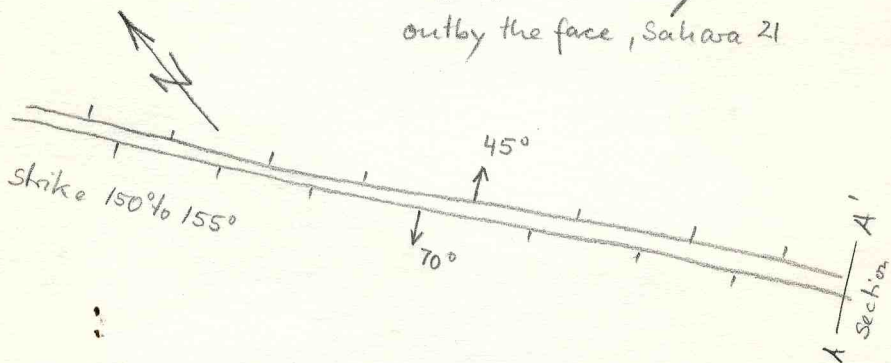
bedding-plane
 fault in combination
 with normal fault

N.E. 57 in 3rd entry
 2 crosscuts out by face
 Sahara 21

H.-F.K. 05/27/77

⑤

subsidiary faults in roof
 N.E. 57 in 5th entry 45 to 55'
 outby the face, Sahara 21

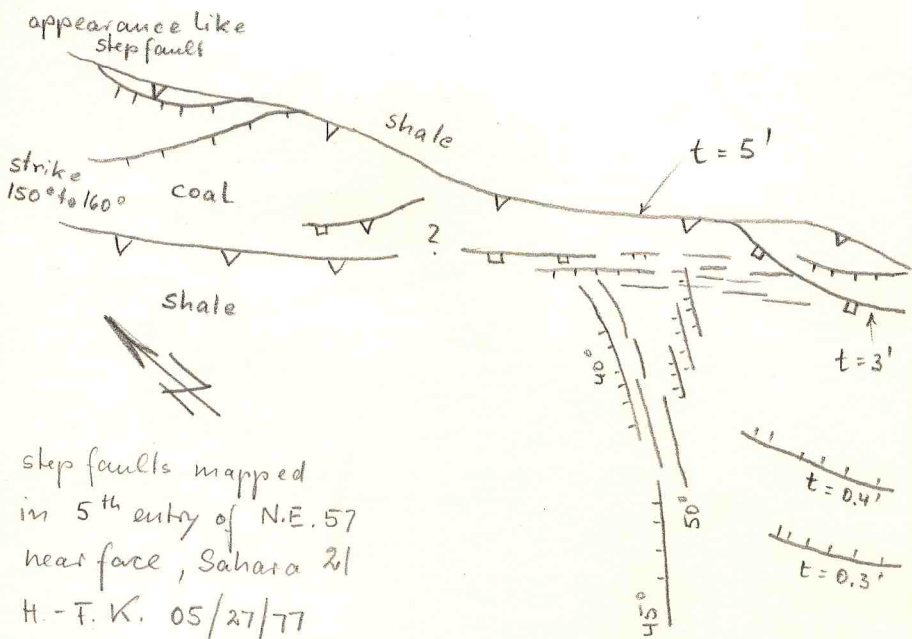


laterally sheared roof rock, coal only little affected.
 (all sw/aces are shear-sw/aces except coal-shale
 int/ace)

H.-F.K. 05/27/77

(4)

15' entry width



step faults mapped
in 5th entry of N.E. 57
near face, Sahara 21
H.-T. K. 05/27/77

3

NE

SW

Coal
(No. 5)

underclay

shale

shale

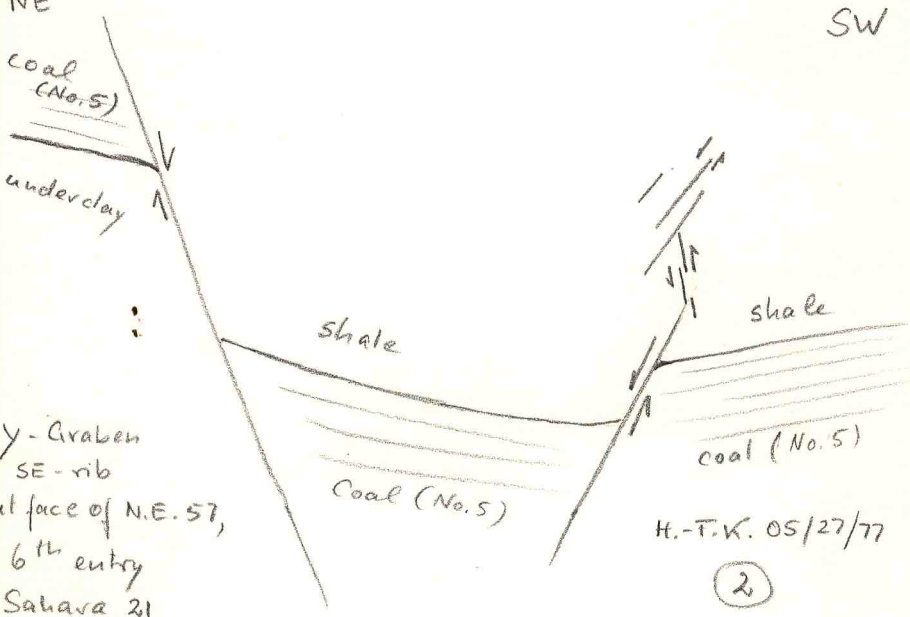
coal (No. 5)

Coal (No. 5)

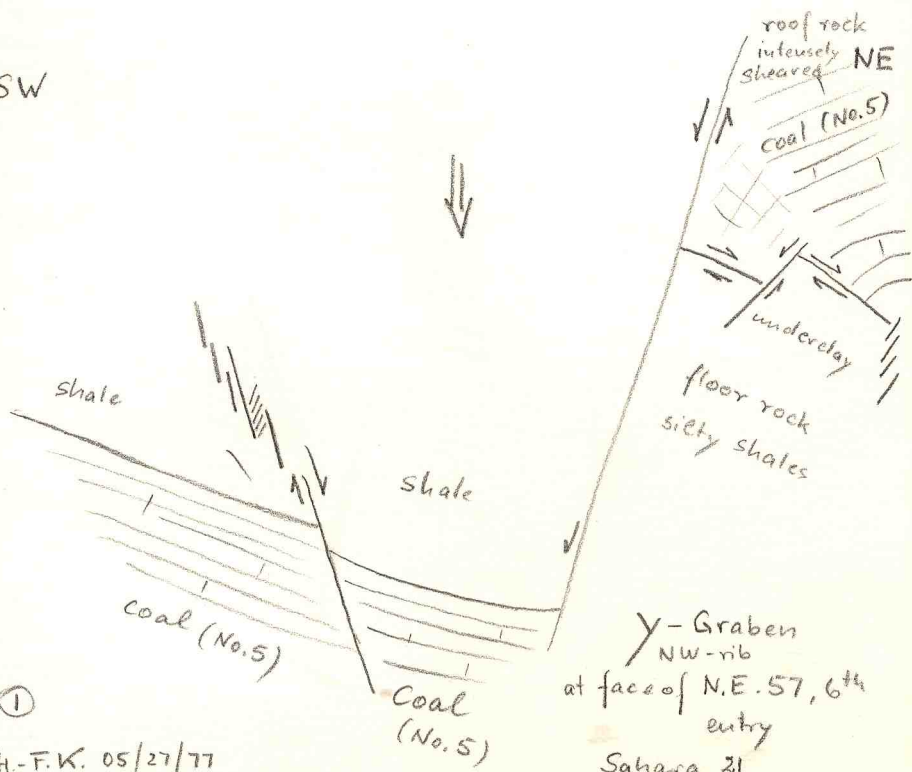
H.-T.K. 05/27/77

(2)

y-Graben
SE-rib
at face of N.E. 57,
6th entry
Sahara 21



SW



①

H.-F.W. 05/27/77

Sahara Coal Co. Mine No. 21

May 9, 1978

Notes by John Nelson on visit with H.-F. Krausse and Bob Gullic (Sahara)

Company surveyor had supplied a map showing a small fault near the mouth of the NE 57. No fault was found. The roof contains very few joints. The few fractures present trend about 100° . Minor slabbing of immediate roof (medium gray silty shale with plant/remains).

Entries off NE 57 See Map in Folder 10-3-8 (C)

Entries driven east off NE 57 to cross fault zone that we noted on May 26, 1977. The faults are smaller in displacement than those noted on the earlier visit.

1. Normal fault trending $000/42^{\circ}$ E with 1.9' displacement on north rib, 1.6-1.7' on south rib. Vertical slickensides, no drag, very little gouge. To west are minor faults and "en echelon" fractures also trending north-south. No other joints or fractures noted in roof shale

2. Fracture zone trending 017; consists of multiple closely - spaces vertical or high-angle fractures in a zone 1.7' wide. No visible displacement in coal on north rib. On south rib the coal is closely fractured and a series of very small up-and-down movements have occurred. In roof shale main slickenside direction is horizontal, but oblique and vertical straitions also are present. Evidently it is a small strike-slip fault.

Coal dips to westward in this area.

3. Normal fault trending $005/62^{\circ}$ E with about 0.8' displacement. Two sets of slickensides on fault plane; one is vertical, the other plunges 35° N.

Further east is a series of small step-like normal faults down to the east.

4. Small nearby vertical fault offset by bedding-plane movement (see sketch, over). Ribs are hard and well-dusted, *hindering* study. Bedding faults cannot be traced away from vertical fault. Note obliquely plunging slickensides on fault plane in roof fall to north.

Eastward the faulting begins to die out- no more fractures with measurable displacement.

Total width of fractured area about 500 feet. Zone of measurable faulting is about half as wide. Main failure appears to be extensional with a component of lateral shear; i.e. twisting induced by movement on master Cottage Grove Fault to north.

5. Faults at active face (working west) trend 165-170/45-50E. Striations or fault plane plunge 36° S and another set is vertical. Main movement in normal faulting down to east but a small reverse fault is also present.

6. All of east rib is seeping water with deep orange iron stain. At this face a sizable gusher of water is coming from old works (Sahara No. 16) just to east.

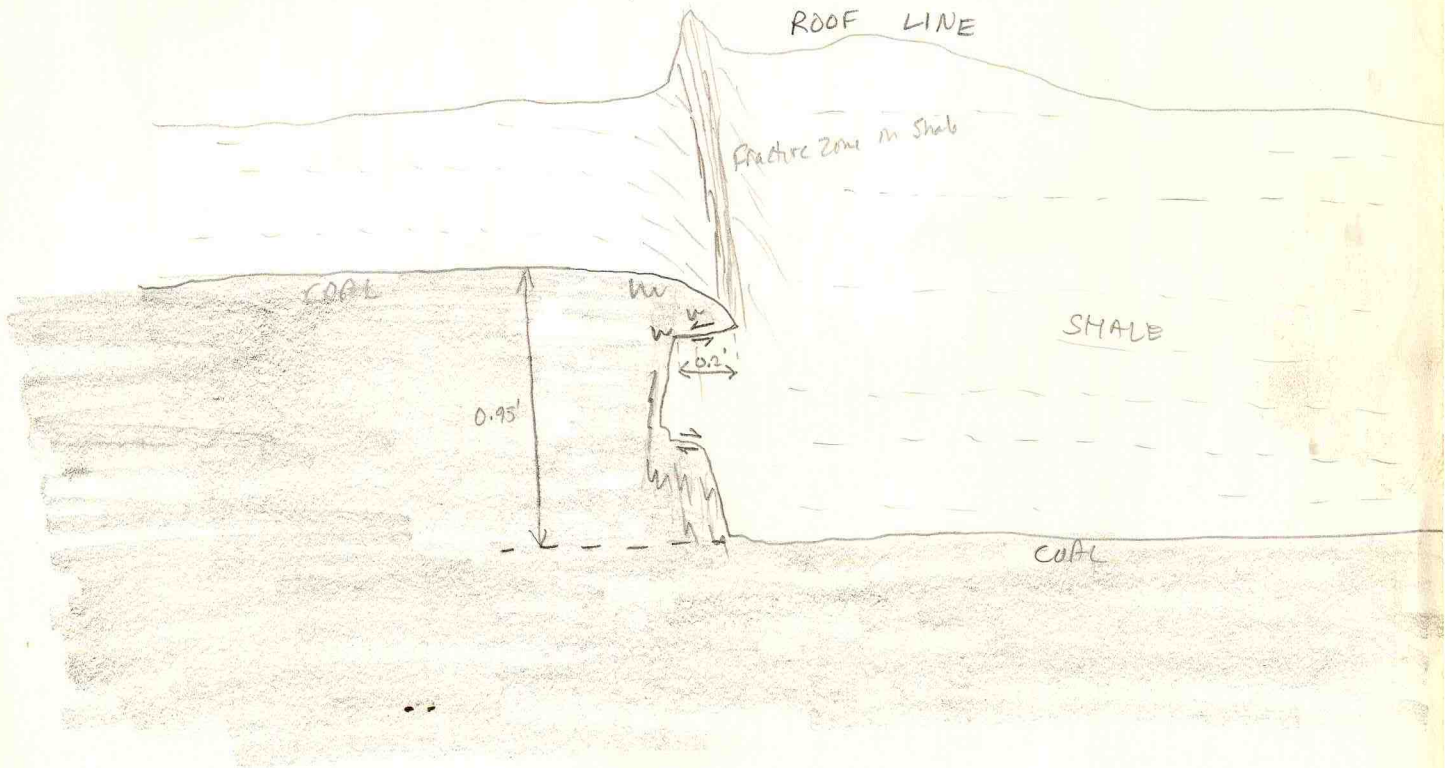
7. Normal fault trending 000°/54° E with about 0.4-0.8' vertical displacement. Striations in fault plane plunge steeply north. Accompanying the largest fault are numerous high-angle fractures in coal and roof. Many directions of slickensides are seen; in some surfaces horizontal and vertical slickensides appear to be left-lateral and down to the east, but other movements have occurred.

Note that faults and fractures mapped are quite discontinuous. These do not trace into track entry (at least they show no displacement there). Many fractures can be seen to die out or skip in "en echelon" fashion. Many high angle fractures and "goat beards" in coal.

Stop 4- View of South Rib

E

W



8. Fault on south rib (photo) does not show a single clean break, but the coal is closely fractured and dragged downward along a set of downward-fanning fractures. Displacement decreases to north and the feature becomes a clean fault. This structure not noted in track entry.

Zone of complex fracturing extends to west. A "coffin cover" roof fall along a set of high-angle fractures in the crosscut to the north.

9. Photo of slabby roof failure along bedding plane coated with abundant coarse plant debris.

Conclusions

- a) The intensity of faulting is decreasing to the south
- b) It is a zone of multiple fractures. Individual faults do not persist for any distance
- c) The forces that caused the faults appear to have been a combination of extension and left-lateral shear.

SAHARA COAL COMPANY MINE NO. 21 SALINE COUNTY

February 25, 1981

Notes by John Nelson on visit with Steve Danner,
accompanied by Tom Fox from Sahara.

Our main purpose was to collect three face-channel samples of coal. Problems with transportation limited our time, and we were able to collect only two samples.

SAMPLE 1

Unit 1; on east side of mine just east of N-S trending zone of thrust faults (see notes of visit on May 27, 1977.) 1292' from south line, 700' from west line of Section 16, T. 9S- R. 5E, Saline County. A freshly-mined face with no rock dust, mined by conventional methods (drilled, shot with Airdox and loaded by machine). No exclusions - we would have excluded any non-coal material thicker than about 0.03', if such had existed.

- Roof- Shale (Dykersburg), medium gray, moderately hard, poorly bedded, fairly smooth with some fine mica and carbonaceous debris, and occasional carbonized bark, etc. A few stringers of coal just above lower contact. Even, sharp contact with coal. Contains no fractures. Shale was sampled.
- 4.31' Coal, N.B.B., no partings of note. Vitrain approx. 20%, thinly banded, maximum thickness 0.02', average less than 0.01'; attrital coal 60-70%, thin to moderate banding; remainder is fusain in thin bands and occasional small lenses, and finely disseminated. Lower half of seam contains rather more fusain. Lustre matte to resinous. Cleat development poor to moderate. Little calcite on cleat, and a small amount of pyrite mainly on cleat and in thin discontinuous laminae - one "goat beard" approx 0.2' long with pyrite (not sampled) and one

lens of pyrite 1.2' X 0.3', about 1 foot below top of seam, to left of channel. Coal has very thin banding overall.

Floor- Claystone, moderately soft, dark gray to black very thoroughly slickensided, carbonaceous, contains stringers of coal, quite smooth, few rootlets, no fossils.

Coal near sampling locality is horizontal to gently undulating and contains no splits, partings, rolls, or other irregularities except for occasional lenses of pyrite in the upper foot or so (as noted above). Roof conditions are superb - almost as good as in limestone. They are using 30" mechanical bolts without header boards and hardly any spalling or slabbing can be seen; that which we see probably was induced by shooting blast holes against the roof. The only irregularities are occasional "kettlebottoms" or fossil tree stumps. No joints, slips or faults were noted. We had been told that the faces had been mined into the thrust faults, but examination of the faces showed that this had not occurred.

SAMPLE 2

Unit 5 - entries SW off the main NW (26th SW off 8th NW off Main West). 1900' from the north line, 348' from the east line of Section 13, T. 9S- R. 5E. Fresh face with no rock dust, cut by continuous miner.

Nothing excluded

Roof- Shale (Dykersburg), medium gray with a brownish cast, poorly bedded, moderately hard, smooth, platy, jagged or hackly fracture, no joints; plant impressions along contact with coal, competent stable roof. Sharp even contact with coal. Shale was sampled.

4.92' Coal, N.B.B., no partings, lustre resinous in upper half becoming matte downward; vitrain 20-30% of total, thinly banded, average thick-

ness less than 0.01', maximum about 0.015'; attrital coal 60-70%, generally thinly banded, fusain in laminae and small lenses; cleat moderately well-developed in two directions; little or no calcite visible, small lenses of pyrite in upper 1 foot of seam (avoided during sampling); and a little pyrite on cleat; fusain increases in lower half of seam and banding becomes thinner.

Floor- Claystone, light to medium gray, moderately hard, silty, some slickensides, much carbonaceous debris just below contact with coal. Has a greenish cast in places. No fossils recognized. Occasional rootlets and pockets of greenish clay.

Coal is level to gently undulating and roof conditions are excellent, as at first sampling locality. Roof bolts are 48" mechanical without header boards. In places quite a bit of roof and floor was mined with the coal, probably not on purpose.

Faces are heavily coated with rock dust except for the most recent cuts, so little of geologic interest can be seen clearly. Occasional thin lenses of pyrite occur near the top of the seam. No bands, partings, faults, etc. are visible.

Finely divided plant material is abundant along the lower bedding planes in the shale, but no large stems or "kettlebottoms" were observed. No joints or faults in this shale.

About 1000 feet north of the face is a fault marked on the map. This fault has been encountered on three sets of headings to date and has an overall trend of N 65 W. The known length is about 2400 feet and the fault is readily apparent on the company's 1"-200' map by the zones where longer-than-normal pillars have been left.

We examined the fault on the entry just west of

the track and saw it to be a high-angle normal fault with the south side downthrown about 2.5 feet. Several smaller parallel faults and fractures nearby were noted also. The main fault has several thin parallel planes producing a series of narrow slices or slivers in a thin zone- the coal is pulverized locally and the Dykersburg Shale is crushed. No features indicating anything other than pure dip-slip movement.

Time and logistics did not permit taking a third channel sample.

ISGS Notes - Sahara No. 21 - Saline Co.

Visit: Sept. 20, 1990, by Phil DeMaris and Wayne Frankie, Mark Phillips and Manoj Mishra of SIU-C escorted by Fred Borders, Eng.

Coverage: Introduction
Falls on NW travelways
NW part of mine
Note on plant fossils

Introduction

This is the first mine visited for the third year of IMSRP-supported work under Paul Chugh's direction; this is our first visit to a mine in Springfield Coal.

They have recently put in longwall equipment which is working fine. The area was first considered experimental, but is not now. There were originally belt capacity problems due to a 36" belt, but new areas have 42" belt to solve this. We did not visit this area. During our trip Fred Borders indicated that although sulfur level is 2-3% as mined, they are able to blend to suit customers with 1% sulfur fines from the Sahara 5 prep. plant "refuse". Reclamation (1969 Act) was deemed uneconomical.

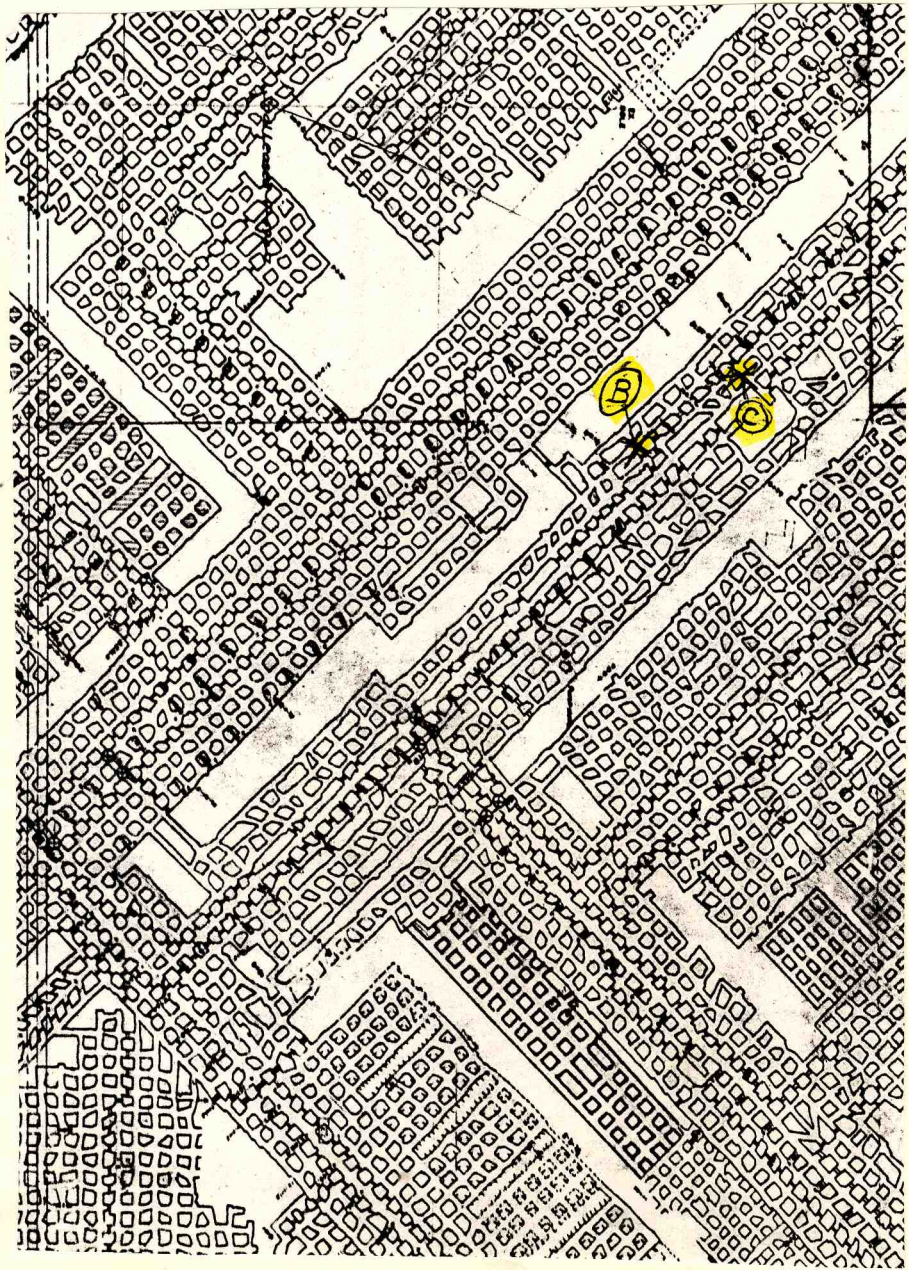
Most active faces are in N. + NW part of mine and Fred indicates 6-7 years life of mine is possible if faults can be negotiated without excessive belt travel for coal.

Falls on NW travelways

A. We rode in travelway which goes W. and then NW from slope bottom. The bottom 0.4' to 0.8' of roof is cut because it tends to fall out on bedding planes

9/20/90

Map A



before mining/bolting cycle is completed. The shale is fairly competent roof (it is a silty shale, but no samples taken) and holds together to form 4-6' long slabs only 0.4' thick in the roof, cantilevering lengths up to 4' beyond bolts. Slips are not common but when present are medium to low-angled and short. From a distance the basal portion of the roof look brownish; this is apparently due more to the dispersed siderite than organic matter.

B. Fall 1 (see map A) is about 23-4' wide and ranges 10-14' high in Dykersburg Shale. Exposure shows 2 widely spaced weak fractures trending $N40^{\circ}E$ at the top of the fall and some weak jointing(?) at $15-20^{\circ}$ off that trend (see Mark's notes). Water drips from fracture planes at 10'-14' level. Shale is fairly homogeneous and has no major plant debris zones/planes, but does have some fine siderite banding in the range 2-3' above the coal.

C. Fall 2 has recently been cleared and is also 16' high at top. The shale is noticeably damp at 10' level and above; the bottom 6' of roof is dry. Bottom 0.4' of roof has weathered yellow (sulfates). Main wet slip line is continuous with medium-angled slip at seam level in cross-cut, indicating slip is a causal factor in fall. Shale is quite silty at top of fall. The Springfield/Dykersburg contact is sharp and level here, but there is some plant debris in bottom 0.2' of Dykersburg: nature of organics not examined.

The shale is massive to faintly banded and some disseminated siderite banding is present. Bedding has little effect on how the shale breaks in falls or on ribs. Bolted surfaces, trimmed or spalled away after cutting, generally cross bedding here, in contrast to behavior at A., above.

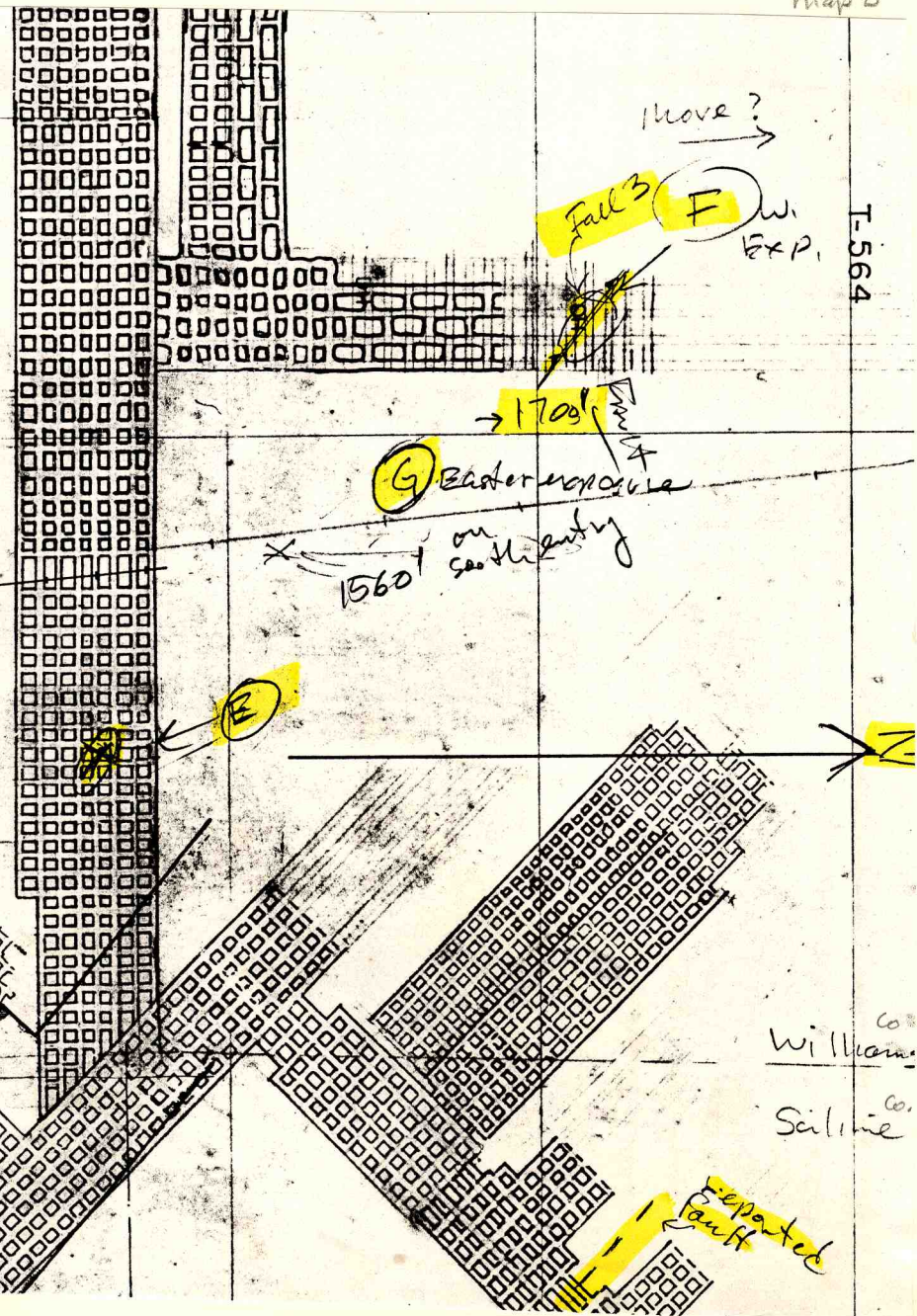
Fred says that this area held up for years, but was always wet. This area and bad roof in nearby returns were both cribbed. When originally mined 3' conventional bolts were used; rebolting was done with 7' point-anchor bolts.

NW part of mine

D. In transit toward NW we saw several cut exposures of Dykersburg to 2½' up. Generally shale was quite stable; only one show a slip, and this was 2'-3' above coal. No jointing was seen in bottom 1' of Dykersburg at any of these sites.

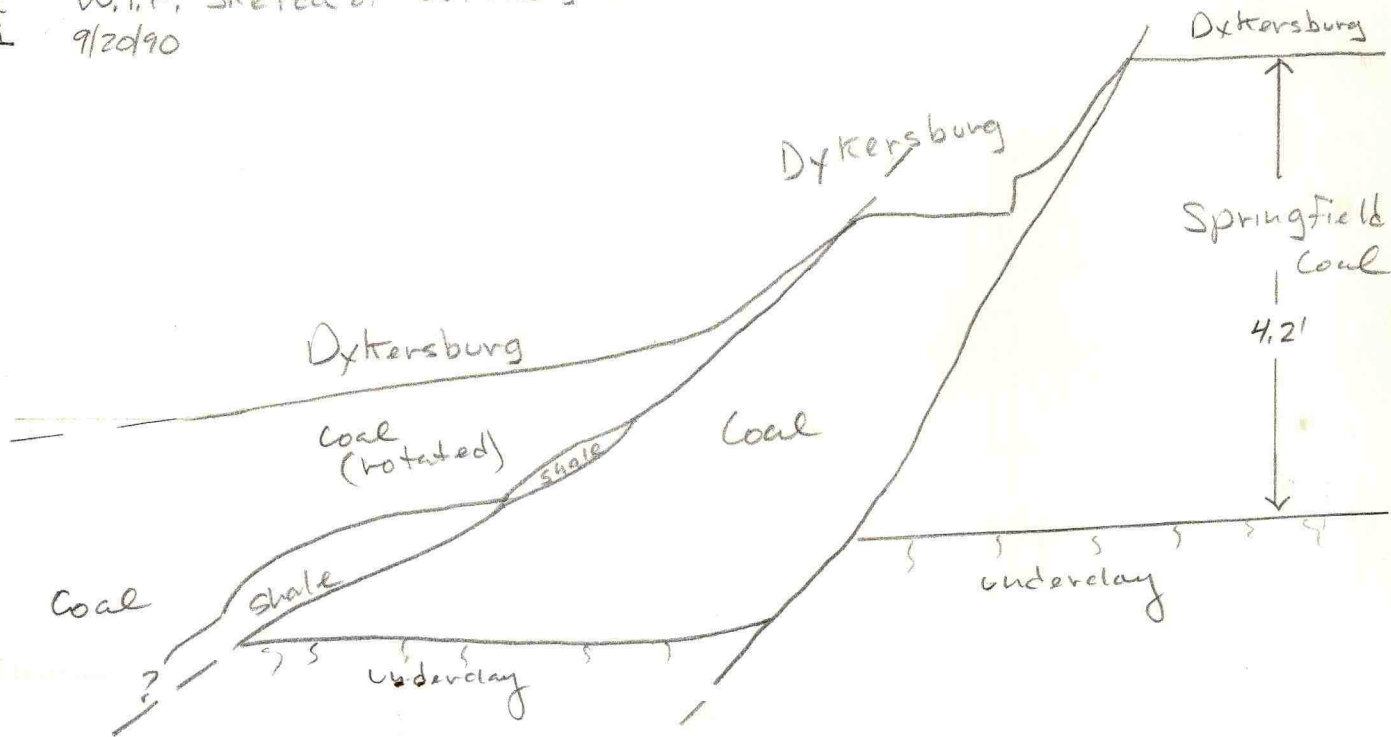
E. At derailment site, soon after 45° turn to due west, we examined roof shale and coal. Springfield was 4.23' thick and Dykersburg is a silty shale (1½' max. seen). Lone Lingula seen in bottom 1' of D. Crosscut width is 16½, belt entry width is 16' and travelway was 20½' wide.

F. We then went north into Unit 3, which is only ca. 30 c/c in, to look at small fault. Springfield is 4.24' thick on travelway at c/c 14. Area cut with entries on 80' centers + cross-cut at 150' interval (submain layout?): they hit fault 1700' N. of Main's vic 28 c/c. Here at western exposure there is about 5' net throw down to SW on 3 fault plane plus splinter-faults. We are told strike varies from N.30-45° W. across the entries. At one(?) c/c to East we examined a 6' fall at the fault (Fall 3) where entry is 18' wide. 5' and 6' bolts used in top of fall. Wayne made sketch of W. rib exposure and argued some slumping had occurred. E rib shows single fault plane with roughly 50° dip down to SW.



PH 065

W.T.F. sketch of Wirrib Site F
9/20/90



G. Not visited, but we are told N. position of fault on E.-most entry is 1560'. Fault apparently dies out to the SE because it was not encountered on the E-W main there.

Note on plant fossils

All exposures of Dykersburg were checked for macrofossils. Very little small material was seen, ^{but} and it could be incorporated ^{into} or lost to siderite development. Only one large plant macrofossil was seen. This was a lycopod-sized plant (u/i) which was a minimum of 1.2' wide and at least 6' long. No leaf cushion detail was seen, so this may have been lost during transport.

Written Jan. 9, 1991 PJD

copies to:

Phillips/Mishra
Chugh
Borders
File

MN17

Mine originally operated by: (1)

Date

Original name or number:

III

Date

2

3

4

5

6

7

8

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10

11

12

13

14

*Also

Railroad, Wagon,

IDENTITY

County No. _____

Coal Report No. _____

Quad.

County

Coal No.

COAL MINE OPERATOR

Feds say Sahara 21 had methane explosion

HARRISBURG 12-11
Mine safety officials are planning to re-enter Sahara Mine No. 21 to further determine the causes of what federal officials are calling a methane gas explosion.

The mine, located between Harrisburg and Carrier Mills, was closed for more than a week in November after an incident Nov. 15 left the mine with dangerously high levels of methane gas.

Brad Evilsizer, director of the Illinois Department of Mines and Minerals, said "We are going back for more information" on what was originally described as a rock fall by his office.

A representative of the Mine Safety and Health Administration sub-district office in Benton confirmed this morning that

evidence collected by the federal office from the area around the site indicate there was an ignition resulting in an explosion of methane gas.

Office manager Carl Adams was attending a meeting in Vincennes, Ind., this morning and could not be reached for comment on his office's investigation.

Evilsizer said preliminary reports had indicated there was a combustion of some type in the mine. A series of different roof falls could have caused the explosion, or a spontaneous fire.

Sahara miners are currently driving entries into the damaged area in order to recover equipment, plus to clear the way for further inspection.

The mine was reopened Nov. 21.

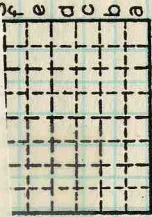
Saline 9552 Sec 17

Name or No.

Sec.

T.	N.
R.	S.
	E.
	W.

Index No.



8 7 6 5 4 3 2 1





Mine Name or No.,
 mile from
 Operator, 19

**SAHARA COAL TO CLOSE IN JUNE;
 LOW COSTS FORCE ANOTHER CLOSURE**

Entrance Sahara Coal Co., citing low coal prices that caused it to lose money
 Depth over the past three years, plans to exit the coal business by closing
 its two mines, coal preparation plant and repair shop in June.

A. To The move means Electric Energy Inc., Sahara's primary cus-
 B. St omer, is out on the market for about 800,000 tons of replacement
 coal for the balance of 1993 and for 1994.

(2) By mid-June, Sahara intends to close its No. 21 underground
 mine and No. 6 surface mine, idling more than 300 employees.
 Mine 21 produced nearly 900,000 tons last year, Mine 6 almost
 550,000 tons.

Sahara's demise actually began three years ago when Sahara
 lost money for the first time in its history, said George Kelm, the
 company's chairman. "The problem is, there's no margin in the
 business," he told *Coal Week*. "We have to sell our coal for less
 than it costs us to produce it."

C. Ou Kelm said Sahara tried unsuccessfully to arrange an employee
 (2) buyout of the company. Hourly workers at the two mines are
 (3) represented by the Progressive Mine Workers of America.

(4) With Sahara shutting down, Electric Energy's coal buyers at
 D. No Union Electric Co. in St. Louis will be looking for similarly-
 sped coal to replace it, said Bill Sheppard, general superinten-
 dent of maintenance and engineering for Electric Energy. Sahara's
 coal, sped at 2.07 percent sulfur and 12,000 Btu/lb., is burned
 in Electric Energy's 1,041-mw Joppa power plant.

E. No Sahara's shipments to Joppa represent about one-fourth of the
 plant's annual burn.

Coal Week. APRIL 5, 1993

Railroad, Wagon, Idle, Abandoned

Closed June 1993
 IDENTIFICATION

County No.

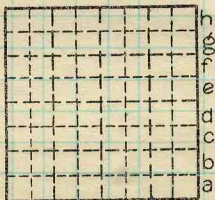
Coal No.



Part

Quad.

County



Sec.

T.

R.

N.

S.

E.

W.

Index No.