County ..... SHELBY
T ..... 14 N .... R ..... 7 E .....
Sec ..... NW NW SW 26 .....
Other Survey .....

Quarry or Pit ..... Core .... X ... Dim ..... Other .....
Name ..... Survey Drill Hole #216 .....
Former Names .....
. .....
Operator .....
Former Operators .....

COAL AND INDUSTRIAL MINERALS SECTION
INDIANA GEOLOGICAL SURVEY
DEPARTMENT OF NATURAL RESOURCES
611 NORTH WALNUT GROVE
BLOOMINGTON, INDIANA 47401

MEMORANDUM REPORTS BY:

	Name	Date
1	Curtis H. Ault	Oct., 1971
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9		
10		

REMARKS

Core description, drillers log

Section D. Log of part of core from Indiana Geological Survey drill hole 216, Shelby County, Ind. (NW¼NW¼SW¼ sec. 26, T. 14 N., R. 7 E.). Altitude, 798 ft. (C.H.A., October 1971).

Bull. 58, C. Rexroad, 1980

Silurian System:	Depth (ft)
Waldron Shale, 7.3 ft:	
1. Dolomite, calcareous, buff, micritic to very fine grained; gray and green argillaceous bands and zones; unit becomes shalier near base with sharp contact with unit below. Top is gradational. Some pyrite	124.7-132.0
Salamonie Dolomite, 43.3 ft:	
2. Dolomite, calcareous, to dolomitic limestone, light-buff, micritic to very fine grained, sparsely fossiliferous; trace of pyrite	132.0-141.8
3. Dolomite, calcareous, light-buff, very fine grained. Unit is 10 to 15 percent chert, mostly tripolitic occurring in nodules and bands up to 1.5 in. thick; trace of pyrite .	141.8-144.0
4. Limestone, dolomitic, and calcareous dolomite, blue-gray to buff, mottled, finely to coarsely crystalline with varicolored crystals, fossil fragments, and stylolites	144.0-159.0
5. Limestone, dolomitic, micritic to fine-grained, slightly mottled; minor amounts of disseminated argillaceous material; stylolites. Units 5 and 6 are equivalent to the Osgood Member	159.0-165.2

(next sheet)

Silurian System—Continued	Depth (ft)
Salamonie Dolomite—Continued	
6. Limestone, dolomitic, tannish, gray to gray lightly mottled, fine- to medium-grained, fossiliferous; shell fragments, Foraminifera, some subhedral medium-grained crystals, and vague pelletal textures; includes fine-grained greenish argillaceous intervals; bottom 0.8 ft is fine grained, tan, and argillaceous with many dark laminae; conodonts include *Kockelella ranuliformis* and *Dapsilodus obliquicostatus*	165.2-175.3
Sexton Creek Limestone, 32.2 ft:	
7. Limestone, dolomitic, green-gray, micritic to very fine grained, argillaceous; shale blebs in carbonate; very argillaceous bands; two tripolitic chert nodules	175.3-179.2
8. Limestone, dolomitic with zones of fine-grained calcitic dolomite; limestone is buff, fine to medium grained, skeletal in part, and crystalline; trace of glauconite. Dolomite is finer grained and more sucrosic in texture; argillaceous laminations and thin bands; tripolitic chert is about 5 percent of unit; conodonts include *Distomodus kentuckyensis*	179.2-191.9
9. Limestone, dolomitic, buff to gray, fine- to medium-grained; crystals, pellets, fossil fragments and a few possible oolites, and some glauconite and pyrite. One coral 4 cm long; thin concave and convex carbonaceous laminae; conodonts include *Distomodus kentuckyensis* and *D. stenolophatus*	191.9-195.1
10. Limestone, similar to above, but lighter in color and finer grained toward base; abundant glauconite in bands; minor pyrite; some argillaceous laminae toward base	195.1-198.3

(over)

	Depth (ft)
Silurian System—Continued	
Sexton Creek Limestone—Continued	
11. Limestone, dolomitic, gray to brown, fine-grained, argillaceous in part; thin argillaceous laminae; glauconite and minor pyrite; conodonts include *Ozarkodina oldhamensis* and *Icriodella* sp	198.3-200.0
12. Shale-mudstone, gray, slightly laminated, slightly calcareous	200.0-207.5
Ordovician System:	
Maquoketa Group, 12.5 ft cored:	
13. Shale and limestone bands, intercalated; shale is gray green and is 70 percent of interval but contains much carbonate material in shells and very small carbonate lenses; limestone is buff to blue gray, with shale included within limestone bands. Limestone is skeletal, mostly shells and small corals. Most limestone bands less than 2 in. thick	207.5-220.0

DRILLER'S RECORD
(Indiana Geological Survey)

SDH NUMBER: 216 FARM: Ray Purcell COMMENCED: 10/8/71 COMPLETED: 10/15/71

LOCATION: County Shelby Twp. 14N Rge. 7E Sec. 26 NW, SW ELEVATION: 798'

CORE				LOG			CORE LIBRARY NOTATIONS	
RUN NO.	FROM	TO	RECOVERY	FROM	TO	DESCRIPTION (REMARKS)		
0	0	3				Spil		
	3	6				Sandy soil, very fine sand		
	6	26				Sand and gravel - water gravel		
	26	30				Limestone		
1	30	40	1			Limestone		
2	40	60	2-3			Limestone and dolomite		
3	60	80	4-5			Dolomite with pyrite of iron, hard		
4	80	100	6-7			Dolomite		
5	100	110	8			Dolomite		
6	110	120	9			Dolomite		
6	120	140	10-11			Dolomite		
7	140	160	12-13			Dolomite		
8	160	180	14-15			Dolomite		
9	180	200	16-17			Dolomite		
10	200	207	18-19			Dolomite		
	207	220				Cincinnati		

Survey Drill Hole #216
280' FNL x 440' FWL NW¼NW¼SW¼ Section 26, T. 14 N., R. 7 E.
Shelby County, Indiana
Elevation 798 feet
Started drilling October 8, 1971, completed October 15, 1971
Core Description by Curtis 11. Ault

Drillers log	Depth
Soil	0-3
Sandy soil, very fine sand	3-6
Sand and gravel - water gravel	6-26
Limestone (probably Geneva Dolomite)	26-30

Unit	Description	Depth		Thick-ness	Sample No.
	DEVONIAN (33.8 feet including that drilled above)				
	Geneva Dolomite (33.8 feet including that drilled above)				
1	Dolomite, very calcareous, brown, fine grained-sucrosic, matrix mostly dolomite rhombs, calcite coatings and fillings probably secondary weathering near bedrock surface. Yellowish tinge also probably result of weathering.	30.0		3.3	CA71-0239 includes both units 1 and 2)
2	Dolomite, brown, fine grained-sucrosic, matrix dolomitized, dolomite rhombs, fossiliferous with many small vugs up to about 8 mm in diameter, dolomitized fossil casts and molds-includes corals and mullusca shells. Sparry calcite filling in vugs.	33.3		7.9	CA71-0239 (includes both units 1 and 2)
3	Dolomite, brown, similar to above, but less vugular and fossiliferous.	41.2	50.4	3.6	CA71-0240 (includes part of unit 4)
4	Dolomite, brown, similar to above, vugular, fossiliferous, some zones very fossiliferous, but poorly defined fossil tests because of dolomitization, three thin bands very friable, but dolomite generally well indurated; calcite filling in vugs. Basal 1½-2' grades from above into a blue-gray to brown, weakly mottled dolomite with rounded quartz sand grains and some pyrite.	50.4	59.8	15.0	CA71-0241
	SILURIAN (140.2 feet)				
	Wabash Formation (38.4 feet)				
	Mississinewa Shale Member (38.4 feet)				
5	Dolomite, very calcareous, gray-slightly mottled, very argillaceous, silty, some fine pyrite.	59.8		3.2	CA71-0242
6	Dolomite, green-gray, micritic to very fine grained, argillaceous, minor pyrite.	63.0	68.0	15.2	CA71-0243
6	Dolomite, green-gray, micritic to very fine grained, argillaceous, minor pyrite.	68.0	73.0		CA71-0244

6	Dolomite, green-gray, micritic to very fine grained, argillaceous, minor pyrite.	73.0	78.2		CA71-0245
7	Dolomite, green-gray, similar to above with zones of dolomitic limestone increasing in thickness and frequency toward base of unit. Calcitic zones up to one foot thick and more are fossiliferous in part, usually with micritic matrix but with some pelletal textures, trace glauconite; pyrite in some zones.	78.2	83.2	20.0	CA71-0246
7	Dolomite, green-gray, similar to above with zones of dolomitic limestone increasing in thickness and frequency toward base of unit. Calcitic zones up to one foot thick and more are fossiliferous in part, usually with micritic matrix but with some pelletal textures, trace glauconite; pyrite in some zones.	83.2	88.2		CA71-0247
7	Dolomite, green-gray, similar to above with zones of dolomitic limestone increasing in thickness and frequency toward base of unit. Calcitic zones up to one foot thick and more are fossiliferous in part, usually with micritic matrix but with some pelletal textures, trace glauconite; pyrite in some zones.	88.2	93.2		CA71-0248
7	Dolomite, green-gray, similar to above with zones of dolomitic limestone increasing in thickness and frequency toward base of unit. Calcitic zones up to one foot thick and more are fossiliferous in part, usually with micritic matrix but with some pelletal textures, trace glauconite; pyrite in some zones.	93.2	98.2		CA71-0249
	Louisville Limestone (26.5 feet)				
8	Limestone, dolomitic blue-gray to buff, mostly strongly mottled, micritic matrix to coarse grained elements-fossil fragments, subhedral crystals, pelletoidal structures; fossiliferous with mostly shell fragments, some crinoid columnals.	98.2	103.2	10.3	CA71-0250
8	Limestone, dolomitic blue-gray to buff, mostly strongly mottled, micritic matrix to coarse grained elements-fossil fragments, subhedral crystals, pelletoidal structures; fossiliferous with mostly shell fragments, some crinoid columnals.	103.2	108.5		CA71-251
9	Limestone, dolomitic buff, less blue-gray mottling than above, pyritic argillaceous laminations and coatings; fossiliferous with shell fragments, crinoid fragments, bryozoan and possible corals; a few argillaceous laminations.	108.5		2.5	CA71-0252
10	Limestone, dolomitic, gray, micritic, little to no mottling. Three-quarter inch very argillaceous band at 113.5 feet.	111.0			
11	Limestone, dolomitic in part, blue-gray and buff, mottled, micritic to fine grained, slightly fossiliferous, mullusca, gastropod.	117.5			
12	Limestone, buff, (non mottled) micritic to fine grained, calcite-healed vertical fractures, sparsely fossiliferous, trace pyrite, trace glauconite.	119.5			
	Waldron Shale (7.3 feet)				
13	Dolomite, calcareous, buff, micritic to very fine grained, gray and green argillaceous bands and zones; unit becomes more shaly near base with sharp contact with below unit. Top is gradational. Some pyrite.	124.7			

	Salamonie Formation (59.9 feet)				
	Laurel Member (43.3 feet)				
14	Dolomite, calcareous to limestone, dolomitic, light buff, micritic to very fine grained, sparsely fossiliferous, trace pyrite.	132.0	137.0	9.8	CA71-0257
14	Dolomite, calcareous to limestone, dolomitic, light buff, micritic to very fine grained, sparsely fossiliferous, trace pyrite.	137.0	141.8		CA71-0258
15	Dolomite, calcareous, light buff, very fine grained. Unit 10-15% chert, mostly tripolitic occurring in nodules and bands up to 1½ inches thick; trace pyrite.	141.8		2.2	CA71-0259
16	Limestone, dolomitic and calcareous dolomite, blue-gray to buff, mottled, fine to coarse crystalline with varicolored crystals, fossil fragments, stylolites.	144.0	150.0	15.0	CA71-0260
16	Limestone, dolomitic and calcareous dolomite, blue-gray to buff, mottled, fine to coarse crystalline with varicolored crystals, fossil fragments, stylolites.	150.0	154.0		CA71-0261
16	Limestone, dolomitic and calcareous dolomite, blue-gray to buff, mottled, fine to coarse crystalline with varicolored crystals, fossil fragments, stylolites.	154.0	159.0		CA71-0262
17	Limestone, dolomitic, micritic to fine grained, slightly mottled, minor amount disseminated argillaceous material (stone still appears suitable for class A aggregate), stylolites.	159.0		6.2	Ca7-0263
18	Limestone, dolomitic, blue-gray to gray lightly mottled, fine to medium grained, fossiliferous, shell fragments, foraminifera, some subhedral medium grained crystals and vague pelletal textures; becomes slightly argillaceous near base.	165.2	168.0	10.1	CA71-0264
18	Limestone, dolomitic, blue-gray to gray lightly mottled, fine to medium grained, fossiliferous, shell fragments, foraminifera, some subhedral medium grained crystals and vague pelletal textures; becomes slightly argillaceous near base.	168.0	170.2		CA71-0265
18	Limestone, dolomitic, blue-gray to gray lightly mottled, fine to medium grained, fossiliferous, shell fragments, foraminifera, some subhedral medium grained crystals and vague pelletal textures; becomes slightly argillaceous near base.	170.2	173.6		CA71-0266
18	Limestone, dolomitic, blue-gray to gray lightly mottled, fine to medium grained, fossiliferous, shell fragments, foraminifera, some subhedral medium grained crystals and vague pelletal textures; becomes slightly argillaceous near base.	173.6	175.3		CA71-0267
	Osgood Member (16.6 feet)				
19	Limestone, dolomitic, green-gray, micritic to very fine grained, argillaceous; shale blebs in carbonate, very argillaceous bands; two tripolitic chert nodules.	175.3	178.0	3.9	CA71-0268
19	Limestone, dolomitic, green-gray, micritic to very fine grained, argillaceous; shale blebs in carbonate, very argillaceous bands; two tripolitic chert nodules.	178.0	179.2		CA71-0269
	Sexton Creek of Subsurface?				

20	Limestone, dolomitic with zones of fine grained calcitic dolomite; limestone is buff, fine to medium grained, skeletal in part, crystalline, trace glaucomite. Dolomite is finer grained, more sucrosic in texture; argillaceous laminations and thin bands, occasional tripolitic chert about 5% of unit.	179.2	180.8	4.9	CA71-0270
20	Limestone, dolomitic with zones of fine grained calcitic dolomite; limestone is buff, fine to medium grained, skeletal in part, crystalline, trace glaucomite. Dolomite is finer grained, more sucrosic in texture; argillaceous laminations and thin bands, occasional tripolitic chert about 5% of unit.	180.8	182.4		CA71-0271
20	Limestone, dolomitic with zones of fine grained calcitic dolomite; limestone is buff, fine to medium grained, skeletal in part, crystalline, trace glaucomite. Dolomite is finer grained, more sucrosic in texture; argillaceous laminations and thin bands, occasional tripolitic chert about 5% of unit.	182.4	184.1		CA71-0272
21	As above, but no chert, slightly more argillaceous. Pyrite.	184.1	186.0	7.8	CA71-0273
21	As above, but no chert, slightly more argillaceous. Pyrite.	186.0	188.1		CA71-0274
21	As above, but no chert, slightly more argillaceous. Pyrite.	188.1	190.0		CA71-0275
21	As above, but no chert, slightly more argillaceous. Pyrite.	190.0	191.9		CA71-0276
	Brassfield Limestone (?) (8.1 feet)				
22	Limestone, dolomitic buff to gray, fine to medium grained, crystals, pellets, fossil fragments and a few possible oolites, some glauconite and pyrite. One coral 4 cm long; thin concave and convex carbonaceous laminae, minor pyrite.	191.9	193.6	3.2	CA71-0277
22	Limestone, dolomitic buff to gray, fine to medium grained, crystals, pellets, fossil fragments and a few possible oolites, some glauconite and pyrite. One coral 4 cm long; thin concave and convex carbonaceous laminae, minor pyrite.	193.6	195.1		CA71-0278
23	Limestone, similar to above, but lighter in color and finer grained toward base, abundant glauconite in bands; minor pyrite; some argillaceous laminae toward base.	195.1		3.2	CA71-0279
24	Limestone, dolomitic, gray to brown, fine grained, argillaceous in part, thin argillaceous laminae; glauconite, minor pyrite.	198.3		1.7	CA71-0280
	Ordovician (20.0 feet cored)				
	Cincinnatian rocks (20.0 feet cored)				
25	Shale-mudstone, gray, slightly laminated, slightly calcareous.	200.0	204.0	7.5	CA71-0281
25	Shale-mudstone, gray, slightly laminated, slightly calcareous.	204.0	207.5		CA71-0282
26	Shale and limestone bands, intercalated; shale, gray-green, comprises 70% of interval, but contains much carbonate material in shells and very small carbonate lenses, limestone is buff to blue-gray, with shale included within limestone bands. Limestone is skeletal) mostly shells and small corals. Limestone bands seldom over 2" thick.	207.5	212.0	12.5	CA71-0283

26	Shale and limestone bands, intercalated; shale, gray-green, comprises 70% of interval, but contains much carbonate material in shells and very small carbonate lenses, limestone is buff to blue-gray, with shale included within limestone bands. Limestone is skeletal) mostly shells and small corals. Limestone bands seldom over 2" thick.	212.0	216.0		CA71-0284
26	Shale and limestone bands, intercalated; shale, gray-green, comprises 70% of interval, but contains much carbonate material in shells and very small carbonate lenses, limestone is buff to blue-gray, with shale included within limestone bands. Limestone is skeletal) mostly shells and small corals. Limestone bands seldom over 2" thick.	216.0	220.0		CA71-0285
	Total Depth	220.0			

INDIANA GEOLOGICAL SURVEY
SPECTROCHEMICAL ANALYSES
(IN PERCENT)
SURVEY DRILL HOLE 216
NW NW SW SEC. 26, T. 14 N., R. 7 E.
SHELBY COUNTY

RU/SAMPLE NO	THICK	CACO3	MGCO3	SIO2	AL2O3	FE2O3	TIO2	MNO	CALC CO2	CHEM CO2	LOI	S	P2O5
SOIL													
	3.0												
POST PALEOZOIC, SAND													
	3.0												
POST PALEOZOIC, GRAVEL													
	20.0												
GENEVA DOLOMITE													
	4.0												
CA71-239	11.2	55.7	42.7	.89	.11	.30			46.8	46.3		.040	
CA71-240	3.6	57.8	40.6	.89	.093	.41			46.6	46.0		.19	
CA71-241	15.0	56.1	37.6	5.42	.12	.48			44.3	43.2		.23	
MISSISSINEWA, REEF													
CA71-242	3.2	50.	31.	13.	3.	2.	.2			36.0		.32	
CA71-243	5.0	41.	29.	22.	4.	2.	.4			30.7		.29	
CA71-244	5.0	29.	22.	35.	7.	3.	.6			21.8		.59	
CA71-245	5.2	41.	24.	25.	5.	2.	.4			28.1		.60	
CA71-246	5.0	62.	20.	13.	2.	1.	.2			36.6		.39	
CA71-247	5.0	58.	19.	17.	3.	1.	.2			33.8		.30	
CA71-248	5.0	78.4	9.64	8.68	1.70	.57	.12		39.5	37.6		.26	
CA71-249	5.0	80.3	8.32	8.45	1.52	.53	.10		39.7	39.1		.15	
LOUISVILLE													
CA71-250	5.0	94.1	2.13	2.69	.40	.29	.038		42.5	40.4		.10	
CA71-251	5.3	92.6	3.58	2.45	.46	.46	.034		42.6	42.2		.27	
CA71-252	2.5	83.8	6.16	6.44	1.95	.61	.048		40.1	39.7		.28	
CA71-253	6.5	69.9	22.1	5.75	1.01	.56	.059		42.3	41.4		.10	
CA71-254	2.0	88.6	6.28	3.74	.47	.46	.042		42.3	41.1		.15	

RU/SAMPLE NO	THICK	CACO3	MGCO3	SIO2	AL2O3	FE2O3	TIO2	MNO	CALC CO2	CHEM CO2	LOI	S	P2O5
LOUISVILLE													
CA71-255	5.2	76.8	15.4	5.38	1.08	.70	.053		41.8	42.6		.19	
WALDRON													
CA71-256	7.3	63.0	5.01	19.6	7.37	1.50	.28		30.3	27.7		.41	
LAUREL													
CA71-257	5.0	67.4	19.5	9.79	1.49	.87	.088		39.7	38.6		.21	
CA71-258	4.8	77.1	16.7	4.50	.75	.41	.049		42.6	39.6		.070	
CA71-259	2.2	61.5	26.3	10.1	.93	.58	.064		40.8	39.4		.14	
CA71-260	6.0	83.6	11.5	3.46	.57	.36	.046		42.8	43.3		.12	
CA71-261	4.0	71.7	21.8	4.39	.64	.94	.054		42.9	40.8		.41	
CA71-262	5.0	76.2	17.3	4.71	.91	.34			42.5	42.1		.070	
CA71-263	6.2	72.9	21.1	3.71	.58	1.28	.042		43.1	40.8		.82	
CA71-264	2.8	87.4	8.83	2.45	.52	.33	.039		43.1	43.3		.12	
CA71-265	2.2	86.9	8.26	2.94	.77	.59	.040		42.5	41.5		.25	
CA71-266	3.4	76.0	12.7	7.48	1.98	.75	.074		40.1	40.4		.29	
CA71-267	1.7	74.4	20.1	3.44	.64	.91	.039		43.2	42.8		.38	
OSGOOD													
CA71-268	2.7	64.	14.	15.	3.8	1.1	.2			33.5		.29	
SEXTON CREEK													
CA71-269	1.2	80.	5.1	11.	2.5	.8	.1			35.3		.24	
CA71-270	1.6	74.4	5.27	15.4	2.75	.77	.16		35.5	35.6		.16	
CA71-271	1.6	80.2	9.91	7.19	1.29	.60	.076		40.5	39.5		.11	
CA71-272	1.7	72.0	8.90	16.0	1.70	.70	.10		36.2	34.4		.12	
CA71-273	1.9	81.2	4.31	10.2	2.33	.63	.14		38.0	37.0		.13	
CA71-274	2.1	81.9	6.20	8.39	1.84	.61	.095		39.3	38.5		.14	
CA71-275	1.9	78.	5.9	12.	2.1	.7	.1			34.9		.18	
CA71-276	1.9	82.0	3.27	9.89	2.64	.80	.13		37.8	37.2		.32	
BRASSFIELD													
CA71-277	1.7	89.2	2.89	5.64	.99	.60	.053		40.8	40.2		.23	
CA71-278	1.5	96.7	.82	1.31	.28	.53	.034		43.0	41.8		.36	
CA71-279	3.2	85.2	3.60	2.62	5.37	.73	.029		39.4	40.4		.25	
CA71-280	1.7	78.9	8.83	7.63	1.71	1.91	.099		39.3	38.1		1.31	

RU/SAMPLE NO	THICK	CACO3	MGCO3	SIO2	AL2O3	FE2O3	TIO2	MNO	CALC CO2	CHEM CO2	LOI	S	P2O5
BELFAST													
CA71-281	4.0	41.	25.	21.	6.	3.1	.4			37.3		1.32	
CA71-282	3.5	40.7	19.4	26.2	7.03	3.03	.52		28.1	28.1			
MAQUOKETA													
CA71-283	4.5	62.	4.4	20.	7.8	1.7	.4			27.1		.35	
CA71-284	4.0	64.	6.5	18.	6.6	2.4	.4			28.7		.94	
CA71-285	4.0	70.	6.4	14.	5.	1.7	.3			31.7		.66	

Survey Drill Hole #216
Shelby County, Indiana Loc. #848

Sample	Depth to top (feet)	Thickness (feet)	$CaCO_3$	$MgCO_3$	SiO_2	Al_2O_3	Fe_2O_3	TiO_2	MnO	Calc CO_2	Chem CO_2	S	P_2O_5		Comb Ca+Mg CO_3
Geneva CA 71 – 239	30.0	~~3.5~~	55.7	42.7	0.89	0.11	0.30	n.d.	trace	46.8	46.3	~~0.037~~ 0.04		dol.	98.4
~~239~~	(11.2) 41.2	~~7.7~~													
240	50.4	~~3.6~~ 3.2	57.8	40.6	0.89	0.093	0.41	n.d.	trace	46.6	46.0	~~.194~~ .19		dol.	98.4
241	59.8	~~10.0~~ 9.4	56.1	37.6	5.42	0.12	0.48	n.d.	trace	44.3	43.2	~~.226~~ .23	calc.	dol.	93.7
Mississinewa 242	63.0	3.2	50.	31.	13	3.	2.	0.2	trace	38.3	36.0	~~.318~~ .32	calc	dol.	81
243	68.0	5.0	41.	27	22	4.	2.	0.4	trace	33.1	30.7	~~.294~~ .29		dol	70
244	73.0	5.0	27.	22	35	7	3	0.6	trace	24.3	21.8	~~.594~~ .57		dol.	51
245	78.2	5.2	41.	24	25	5.	2	0.4	trace	30.7	28.1	~~.662~~ .60	calc	dol.	65
246	83.2	5.0	62.	20.	13.	2.	1	0.2	trace	37.8	36.6	~~.556~~ .39	calc	dol.	82
247	88.2	5.0	58.	19.	17.	3.	1.	0.2	trace	35.2	33.8	~~.303~~ .30	calc	dol.	77
248	93.2	5.0	78.4	9.64	8.68	1.70	0.57	0.12	trace	37.5	37.6	~~.256~~ .26	dol	ls	88.0
249	98.2	5.0	80.3	8.32	8.45	1.52	0.53	0.10	trace	39.7	39.1	~~.152~~ .15	dol	ls	88.6
Louisville Ls 250	103.2	5.0	94.1	2.13	2.69	0.40	0.27	0.038	trace	42.5	40.4	~~.096~~ .10		ls	96.2
251	108.5	5.3	92.6	3.58	2.45	0.46	0.46	0.034	trace	42.6	42.2	~~.273~~ .27		ls	96.2
252	111.0	2.5	83.8	6.16	6.44	1.95	0.61	0.048	trace	40.1	39.7	~~.282~~ .28	dol	ls	90.0
253	117.5	6.5	69.9	22.1	5.75	1.01	0.56	0.059	trace	42.3	41.4	~~.101~~ .10	calc	dol.	92.0
254	119.5	2.0	88.6	6.28	3.74	0.47	0.46	0.042	trace	42.3	41.1	~~.153~~ .15	dol	ls	94.9
255	124.7	5.2	76.8	15.4	5.38	1.08	0.70	0.053	trace	41.8	42.6	~~.193~~ .19	dol	ls	92.2
Waldron Sh. 256	132.0	7.3	63.0	5.01	19.6	7.37	1.50	0.28	trace	30.3	27.7	~~.472~~ .47	dol	ls	68.0
Laurel Mbr 257	137.0	5.0	67.4	19.5	9.79	1.49	0.87	0.088	trace	39.7	38.6	~~.211~~ .21	dol	ls	86.9
258	141.8	4.8	77.1	16.7	4.50	0.45	0.41	0.049	trace	42.6	39.6	~~.068~~ .07	dol	ls	93.8
259	144.0	2.2	61.5	26.3	10.1	0.93	0.58	0.064	trace	40.8	39.4	~~.143~~ .14	calc	dol	87.8

SAMPLE			Thickness	$CaCO_3$	$MgCO_3$	SiO_2	Al_2O_3	Fe_2O_3	TiO_2	MnO	calc. CO_2	chem CO_2	S	~~P_2O_5~~		Comb $CaCO_3+MgCO_3$
CA 71-	260	150.0	6.0	83.6	11.5	3.46	0.57	0.36	0.046	trace	42.8	~~43.3~~	~~0.117~~ 0.12	dol	ls	95.1
	261	154.0	4.0	71.7	21.8	4.39	0.64	0.94	0.054	trace	42.9		~~.117~~ .11	calc	dol	93.5
	262	159.0	5.0	76.2	17.3	4.71	0.91	0.34	nd	trace	42.5	~~42.1~~	~~.050~~ .07	dol	ls	93.5
	263	165.2	6.2	72.9	21.1	3.71	0.58	1.28	0.042	trace	43.1	40.8	~~.821~~ .82	dol	ls	94.0
	264	168.0	2.8	87.4	8.83	2.45	0.52	0.33	0.039	trace	43.1	43.3	~~.127~~ .12	dol	ls	96.2
	265	170.2	2.2	86.9	8.26	2.94	0.77	0.59	0.040	trace	42.5	41.5	~~.249~~ .25	dol	ls	95.2
	266	173.6	3.4	76.0	12.7	7.48	1.98	0.75	0.074	trace	40.1	40.4	~~.288~~ .29	dol	ls	88.7
	267	175.3	1.7	74.4	20.1	3.44	0.64	0.91	0.039	trace	43.2	42.8	~~.384~~ .35	dol	ls	94.5
Osgood Mbr	268	178.0	2.7	64	14	15	3.8	1.1	0.2	trace	35.4	33.5	~~.274~~ .27	dol	ls	78
	269	179.2	1.2	80	5.1	11	2.5	0.8	0.1	trace	37.8	35.3	~~.239~~ .24	dol	ls	85
	270	180.8	1.6	74.4	5.27	15.4	2.75	0.77	0.16	trace	35.5	35.6	~~.162~~ .16	dol	ls	79.7
	271	192.4	1.6	80.2	9.91	7.19	1.29	0.60	0.076	trace	40.5	39.5	~~.113~~ .11	dol	ls	90.1
	272	194.1	1.7	72	8.9	16	1.7	0.7	a1	trace	36.2	34.4	~~.119~~ .12	dol	ls	81
	273	196.0	1.9	81.2	4.31	10.2	2.33	0.63	0.14	trace	38.0	37.0	~~.125~~ .13	dol	ls	85.5
	274	198.1	2.1	81.9	6.20	8.39	1.84	0.61	0.095	trace	39.3	38.5	~~.143~~ .14	dol	ls	88.1
	275	190.0	1.9	78	5.9	12	2.1	0.7	0.1	trace	37.5	34.9	~~.127~~ .18	dol	ls	84
	276	191.9	1.9	82.0	3.27	9.89	2.64	0.80	0.13	trace	37.8	37.2	~~.324~~ .32		ls	85.3
BRASSFIELD Ls	277	193.6	1.7	89.2	2.89	5.64	0.99	0.60	0.053	trace	40.8	40.2	~~.232~~ .23		ls	92.1
	278	195.1	1.5	76.7	0.82	1.31	0.28	0.53	0.034	trace	43.0	41.8	~~.358~~ .36		ls	97.5
	279	198.3	3.2	85.2	3.60	2.62	5.37	0.73	0.029	trace	39.4	40.4	~~.252~~ .25		ls	88.8
	280		1.7	78.9	8.83	7.63	1.71	1.91	0.099	trace	39.3	38.1	1.31	dol	ls	87.7
CINCINNATIAN	281	200.0	4.0	41	25	21	6.0	3.1	0.4	trace	31.4	37.3	1.32	calc	dol	66

SAMPLE		THICKNESS	$CaCO_3$	$MgCO_3$	SiO_2	Al_2O_3	Fe_2O_3	TiO_2	MnO	calc CO_2	chem CO_2	S	~~P_2O_5~~		Comb $CaCO_3 + MgCO_3$	
CA 71-282	204.0	3.5	40.7	19.4	26.2	7.03	3.03	0.52	trace	28.1	28.1		calc	dol	60.1	
283	207.5	4.5	62	4.4	20	7.8	1.7	0.4	trace	29.8	27.1	.35 ~~.346~~	dol	ls	66	
284	212.0	4.0	64	6.5	18	6.6	2.4	0.4	trace	31.4	28.7	.94 ~~.938~~	dol	ls	70	
285	216.0	4.0	70	6.4	14	5.0	1.7	0.3	trace	34.2	31.7	.66 ~~.658~~	dol	ls	76	
	Z															
				TOTAL DEPTH OF hole 220.0 feet												

Weighted Averages.

Jennie: Note I have omitted Calc CO_2 & clum CO_2 — leave columns blank.

Sample No	Depth to top	Thickness	$CaCO_3$	$MgCO_3$	SiO_2	Al_2O_3	Fe_2O_3	TiO_2	MnO	S			Comb $CaCO_3+MgCO_3$		
CA71-239 thru 240	30.0	20.4	56.7	41.8	0.89	0.10	0.35	nd	Tr	.11			98.5		99.95
CA71-250 thru 251	78.2	10.3	93.3	2.88	2.57	0.43	0.38	0.036	Tr.	.19			96.2		
CA71-260 thru 265	144.0	26.2	78.5	15.9	3.75	0.66	0.68	0.036	Tr	.33			94.4		
CA71-239 thru 241	30.0	29.6	56.5	39.1	3.2	0.11	0.44	nd	tr	.21			95.6		97.20

Chemical Analyses - Indiana Geological Survey Drill Hole 216
280' FNL x 440' FWL NW¼NW¼SW¼ sec. 26, T. 14 N., R. 7 E.
Shelby County, Indiana
Drilled October, 1971; Elev. 798 feet

Sample	Depth to top (feet)	Thk. (feet)	$CaCO_3$	$MgCO_3$	SiO_2	Al_2O_3	Fe_2O_3	TiO_2	MnO	Calc. CO_2	Chem. CO_2	S
CA 71-239	30.0	11.2	55.7	42.7	0.89	0.11	0.30	nd	trace	46.8	46.3	0.04
240	41.2	~~9.2~~ 3.6	57.8	40.6	0.89	0.093	0.41	nd	trace	46.6	46.0	.19
241	50.4	~~9.4~~ 15.0	56.1	37.6	5.42	0.12	0.48	nd	trace	44.3	43.2	.23
242	59.8	3.2	50.0	31.0	13.0	3.0	2.0	0.2	trace	38.3	36.0	.32
243	63.0	5.0	41.0	29.0	22.0	4.0	2.0	0.4	trace	33.1	30.7	.29
244	68.0	5.0	29.0	22.0	35.0	7.0	3.0	0.6	trace	24.3	21.8	.59
245	73.0	5.2	41.0	24.0	25.0	5.0	2.0	0.4	trace	30.7	28.1	.60
246	78.2	5.0	62.0	20.0	13.0	2.0	1.0	0.2	trace	37.8	36.6	.39
247	83.2	5.0	58.0	19.0	17.0	3.0	1.0	0.2	trace	35.2	33.8	.30
248	88.2	5.0	78.4	9.64	8.68	1.70	0.57	0.12	trace	39.5	37.6	.26
249	93.2	5.0	80.3	8.32	8.45	1.52	0.53	0.10	trace	39.7	39.1	.15
250	98.2	5.0	94.1	2.13	2.69	0.40	0.29	0.038	trace	42.5	40.4	.10
251	103.2	5.3	92.6	3.58	2.45	0.46	0.46	0.034	trace	42.6	42.2	.27
252	108.5	2.5	83.8	6.16	6.44	1.95	0.61	0.048	trace	40.1	39.7	.28
253	111.0	6.5	69.9	22.1	5.75	1.01	0.56	0.059	trace	42.3	41.4	.10
254	117.5	2.0	88.6	6.28	3.74	0.47	0.46	0.042	trace	42.3	41.1	.15
255	119.5	5.2	76.8	15.4	5.38	1.08	0.70	0.053	trace	41.8	42.6	.19
256	124.7	7.3	63.0	5.01	19.6	7.37	1.50	0.28	trace	30.3	27.7	.41
257	132.0	5.0	67.4	19.5	9.79	1.49	0.87	0.088	trace	39.7	38.6	.21
258	137.0	4.8	77.1	16.7	4.50	0.75	0.41	0.049	trace	42.6	39.6	.07
259	141.8	2.2	61.5	26.3	10.1	0.93	0.58	0.064	trace	40.8	39.4	.14
260	144.0	6.0	83.6	11.5	3.46	0.57	0.36	0.046	trace	42.8	43.3	0.12

Chemical Analyses - Indiana Geological Survey Drill Hole 216
280' FNL x 440' FWL NW¼NW¼SW¼ sec. 26, T. 14 N., R. 7 E.

Sample	Depth to top (feet)	Thk. (feet)	$CaCO_3$	$MgCO_3$	SiO_2	Al_2O_3	Fe_2O_3	TiO_2	MnO	Calc. CO_2	Chem. CO_2	S
CA 71-261	150.0	4.0	71.7	21.8	4.39	0.64	0.94	0.054	trace	42.9		.41
262	154.0	5.0	76.2	17.3	4.71	0.91	0.34	nd	trace	42.5	42.1	.07
263	159.0	6.2	72.9	21.1	3.71	0.58	1.28	0.042	trace	43.1	40.8	.82
264	165.2	2.8	87.4	8.83	2.45	0.52	0.33	0.039	trace	43.1	43.3	.12
265	168.0	2.2	86.9	8.26	2.94	0.77	0.59	0.040	trace	42.5	41.5	.25
266	170.2	3.4	76.0	12.7	7.48	1.98	0.75	0.074	trace	40.1	40.4	.29
267	173.6	1.7	74.4	20.1	3.44	0.64	0.91	0.039	trace	43.2	42.8	.38
268	175.3	2.7	64.0	14.0	15.0	3.8	1.1	0.21	trace	35.4	33.5	.29
269	178.0	1.2	80.0	5.1	11.0	2.5	0.8	0.1	trace	37.8	35.3	.24
270	179.2	1.6	74.4	5.27	15.4	2.75	0.77	0.16	trace	35.5	35.6	.16
271	180.8	1.6	80.2	9.91	7.19	1.29	0.60	0.076	trace	40.5	39.5	.11
272	182.4	1.7	72.0	8.9	16.0	1.7	0.7	0.1	trace	36.2	34.4	.12
273	184.1	1.9	81.2	4.31	10.2	2.33	0.63	0.14	trace	38.0	37.0	.13
274	186.0	2.1	81.9	6.20	8.39	1.84	0.61	0.095	trace	39.3	38.5	.14
275	188.1	1.9	78.0	5.9	12.0	2.1	0.7	0.1	trace	37.5	34.9	.18
276	190.0	1.9	82.0	3.27	9.89	2.64	0.80	0.13	trace	37.8	37.2	.32
277	191.9	1.7	89.2	2.89	5.64	0.99	0.60	0.053	trace	40.8	40.2	.23
278	193.6	1.5	96.7	0.82	1.31	0.28	0.53	0.034	trace	43.0	41.8	.36
279	195.1	3.2	85.2	3.60	2.62	5.37	0.73	0.029	trace	39.4	40.4	.25
280	198.3	1.7	78.9	8.83	7.63	1.71	1.91	0.099	trace	39.3	38.1	1.31
281	200.0	4.0	41.0	25.0	21.0	6.0	3.1	0.4	trace	31.4	37.3	1.32
282	204.0	3.5	40.7	19.4	26.2	7.03	3.03	0.52	trace	28.1	28.1	

Chemical Analyses - Indiana Geological Survey Drill Hole 216
280' FNL x 440' FWL NW¼NW¼SW¼ sec. 26, T. 14 N., R. 7 E.

Sample	Depth to top (feet)	Thk. (feet)	$CaCO_3$	$MgCO_3$	SiO_2	Al_2O_3	Fe_2O_3	TiO_2	MnO	Calc. CO_2	Chem. CO_2	S
CA 71-283	207.5	4.5	62.[illegible]	4.4	20.[illegible]	7.8	1.7	0.4	trace	29.8	27.1	.35
284	212.0	4.0	64.[illegible]	6.5	18.[illegible]	6.6	2.4	0.4	trace	31.4	28.7	.94
285	216.0	4.0	70.[illegible]	6.4	14.[illegible]	5.0	1.7	0.3	trace	34.2	31.7	.66

Total depth of hole 220.0 feet

Weighted Averages

Sample	Depth to top (feet)	Thk. (feet)	$CaCO_3$	$MgCO_3$	SiO_2	Al_2O_3	Fe_2O_3	TiO_2	MnO	S
CA 71-239 thru 240	30.0	20.4	56.7	41.8	0.89	0.10	0.35	nd	tr	.11
CA 71-239 thru 241	30.0	29.6	56.5	39.1	3.18	0.11	0.44	nd	tr	.21
CA 71-250 thru 251	78.2	10.3	93.3	2.88	2.57	0.43	0.38	0.036	tr	.19
CA 71-260 thru 265	144.0	26.2	78.5	15.9	3.75	0.66	0.68	0.036	tr	.33

Survey Drill Hole #216

280' FNL x 440' FWL NW¼ NW¼ SW¼ Section 26, T. 14 N., R. 7 E.

Shelby County, Indiana

BACKGROUND:

This test hole was drilled as part of a study of the mineral resources of the Big Blue River valley in Henry, Rush, Hancock, and Shelby Counties by Curtis Ault and Michael Moore. The test was cored from the bedrock surface through Silurian and Devonian rocks and into Cincinnati rocks of Ordovician age. The Silurian and Devonian carbonate rocks were cored to help evaluate their potential as sources of aggregate in an area of thin overburden and to aid in the correlation and mapping of these rocks in the study area.

RESULTS:

Bedrock was encountered at a depth of 26 feet. Thirty-four feet of Geneva Dolomite was cored from the bedrock surface. The Geneva, which appears to be a suitable source for class A aggregate, overlies 38 feet of argillaceous dolomite of the Mississinewa Shale Member which has little or no value for aggregate. Stratigraphically, the core is of interest because the lower half of the Salamonie has lithologic characteristics similar to both the outcrop Osgood shales and shaly limestones and dolomites and the cherty dolomite found in Sexton Creek lithologies of the subsurface. The Sexton Creek is believed by some to be the equivalent of outcrop Brassfield with an unconformity between it and the overlying Salamonie. A portion of the core will be examined by Carl Rexroad for conodonts that bear on this question.

Skeleton log

Survey Drill Hole #216
280' FNL x 440' FWL NW¼ NW¼ SW¼ section 26, T. 14 N., R. 7 E.
Shelby County, Indiana

Rock Unit	Lithology	Thickness	Depth
DEVONIAN			
Geneva Dolomite	dolomite	33.8'	26.0'
SILURIAN			
Wabash Formation			
Mississinewa Shale Member	argillaceous dolomite	38.4'	59.8'
Louisville Limestone	dolomite limestone	26.5'	98.2'
Waldron Shale	argillaceous dolomite	7.3'	124.7'
Salamonie Dolomite			
Laurel Member	dolomite and limestone	43.3'	132.0'
Osgood Member	argillaceous limestone and dolomite	16.6'	175.3'
Brassfield Limestone	dolomitic limestone	8.1'	191.9'
ORDOVICIAN			
Cincinnatian rocks	shale and limestone	20.0' cored	200.0'

Total depth 220.0'

Survey Drill Hole #216
280' FNL x 440' FWL NW¼ NW¼ SW¼ Section 26, T. 14 N., R. 7 E.
Shelby County, Indiana

Elevation 798 feet
Started drilling October 8, 1971, completed October 15, 1971

Core Description by Curtis H. Ault

Drillers log	Depth
Soil	0-3
Sandy soil, very fine sand	3-6
Sand and gravel - water gravel	6-26
Limestone (probably Geneva Dolomite)	26-30

Core Description

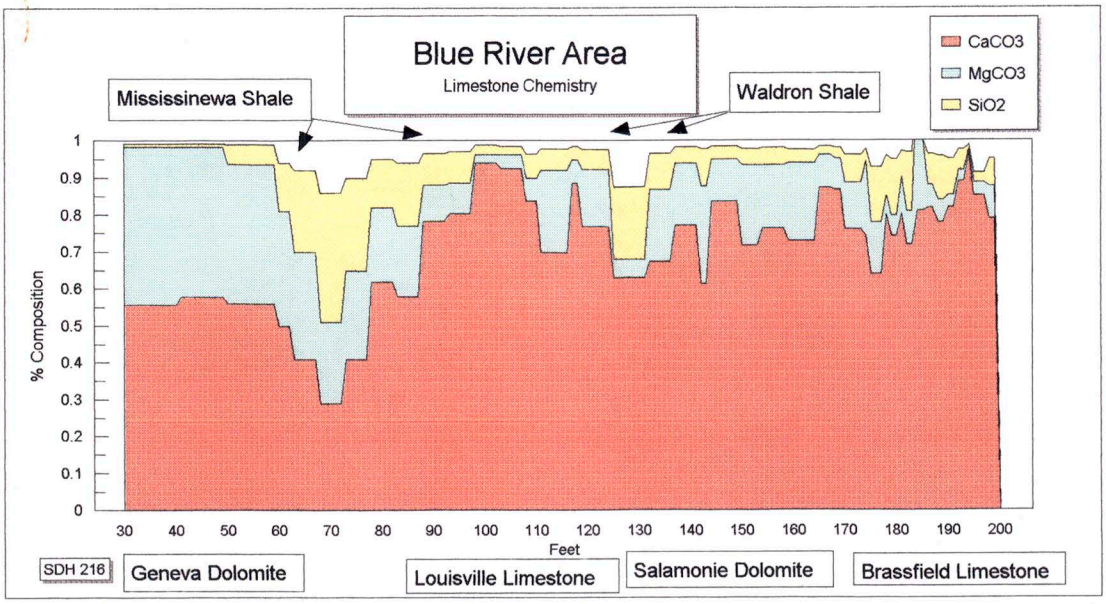
Unit	Description	Depth to top (feet)	Thickness in feet	Sample No.
	DEVONIAN (33.8 feet including that drilled above)			
	Geneva Dolomite (33.8 feet including that drilled above)			
1.	Dolomite, very calcareous, brown, fine grained-sucrosic, matrix mostly dolomite rhombs, calcite coatings and fillings probably secondary weathering near bedrock surface. Yellowish tinge also probably result of weathering.	30.0	3.3	CA71-239 (includes both units 1 and 2)
2.	Dolomite, brown, fine grained-sucrosic, matrix dolomitized, dolomite rhombs, fossiliferous with many small vugs up to about 8 mm in diameter, dolomitized fossil casts and molds-includes corals and mullusca shells. Sparry calcite filling in vugs.	33.3	7.9	CA71-~~289~~ 239 (includes both units 1 and 2)
3.	Dolomite, brown, similar to above, but less vugular and fossiliferous.	41.2	3.6	CA71-240 41.2 - 50.4 (includes part of unit 4)

Unit	Description	Depth to top (feet)	Thickness in feet	Sample No.
4.	Dolomite, brown, similar to above, vugular, fossiliferous, some zones very fossiliferous, but poorly defined fossil tests because of dolomitization, three thin bands very friable, but dolomite generally well indurated; calcite filling in vugs. Basal 1½-2' grades from above into a blue-gray to brown, weakly mottled dolomite with rounded quartz sand grains and some pyrite.	44.8	15.0	CA71-241 50.4 - 59.8
	SILURIAN (140.2 feet)			
	Wabash Formation (38.4 feet)			
	Mississinewa Shale Member (38.4 feet)			
5.	Dolomite, very calcareous, gray-slightly mottled, very argillaceous, silty, some fine pyrite.	59.8	3.2	CA71-242
6.	Dolomite, green-gray, micritic to very fine grained, argillaceous, minor pyrite.	63.0	15.2	CA71-243 63.0 - 68.0 CA71-244 68.0 - 73.0 CA71-245 73.0 - 78.2
7.	Dolomite, green-gray, similar to above with zones of dolomitic limestone increasing in thickness and frequency toward base of unit. Calcitic zones up to one foot thick and more are fossiliferous in part, usually with micritic matrix but with some pelletal textures, trace glauconite; pyrite in some zones.	78.2	20.0	CA71-246 78.2 - 83.2 CA71-247 83.2 - 88.2 CA71-248 88.2 - 93.2 CA71-249 93.2 - 98.2
	Louisville Limestone (26.5 feet)			
8.	Limestone, dolomitic blue-gray to buff, mostly strongly mottled, micritic matrix to coarse grained elements-fossil fragments, subhedral crystals, pelletoidal structures; fossiliferous with mostly shell fragments, some crinoid columnals.	98.2	10.3	CA71-250 98.2 - 103.2 CA71-251 103.2-108.5
9.	Limestone, dolomitic buff, less blue-gray mottling than above, pyritic argillaceous laminations and coatings; fossiliferous with shell fragments, crinoid fragments, bryozoan and possible corals; a few argillaceous laminations.	108.5	2.5	CA71-252

Unit	Description	Depth to top (feet)	Thickness in feet	Sample No.
10.	Limestone, dolomitic, gray, micritic, little to no mottling. Three-quarter inch very argillaceous band at 113.5 feet.	111.0	6.5	CA71-253
11.	Limestone, dolomitic in part, blue-gray and buff, mottled, micritic to fine grained, slightly fossiliferous, mullusca, gastropod.	117.5	2.0	CA71-254
12.	Limestone, buff, (non mottled) micritic to fine grained, calcite-healed vertical fractures, sparsely fossiliferous, trace pyrite, trace glauconite.	119.5	5.2	CA71-255
	Waldron Shale (7.3 feet)			
13.	Dolomite, calcareous, buff, micritic to very fine grained, gray and green argillaceous bands and zones; unit becomes more shaly near base with sharp contact with below unit. Top is gradational. Some pyrite.	124.7	7.3	CA71-256
	Salamonie Formation (59.9 feet)			
	Laurel Member (43.3 feet)			
14.	Dolomite, calcareous to limestone, dolomitic, light buff, micritic to very fine grained, sparsely fossiliferous, trace pyrite.	132.0	9.8	CA71-257 132.0-137.0 CA71-258 137.0-141.8
15.	Dolomite, calcareous, light buff, very fine grained. Unit 10-15% chert, mostly tripolitic occurring in nodules and bands up to 1½ inches thick; trace pyrite.	141.8	2.2	CA71-259
16.	Limestone, dolomitic and calcareous dolomite, blue-gray to buff, mottled, fine to coarse crystalline with varicolored crystals, fossil fragments, stylolites.	144.0	15.0	CA71-260 144.0-150.0 CA71-261 150.0-154.0 CA71-262 154.0-159.0

Unit	Description	Depth to top (feet)	Thickness in feet	Sample No.
17.	Limestone, dolomitic, micritic to fine grained, slightly mottled, minor amount dissenimated argillaceous material (stone still appears suitable for class A aggregate), stylolites.	159.0	6.2	CA71-263
18.	Limestone, dolomitic, blue-gray to gray lightly mottled, fine to medium grained, fossiliferous, shell fragments, foraminifera, some subhedral medium grained crystals and vague pelletal textures; becomes slightly argillaceous near base.	165.2	10.1	CA71-264 165.2-168.0 CA71-265 168.0-170.2 CA71-266 170.2-173.6 CA71-267 173.6-175.3
	Sexton Creek Ls. - C. Reynolds, B.58, 1980			
	Osgood Member (16.6 feet)			
19.	Limestone, dolomitic, green-gray, micritic to very fine grained, argillaceous; shale blebs in carbonate, very argillaceous bands; two tripolitic chert nodules.	175.3	3.9	CA71-268 175.3-178.0 CA71-269 178.0-179.2
	(Sexton Creek of Subsurface?)			
20.	Limestone, dolomitic with zones of fine grained calcitic dolomite; limestone is buff, fine to medium grained, skeletal in part, crystalline, trace glaucomite. Dolomite is finer grained, more sucronic in texture; argillaceous laminations and thin bands, occasional tripolitic chert- about 5% of unit.	179.2	4.9	CA71-270 179.2-180.8 CA71-271 180.8-182.4 CA71-272 182.4-184.1
21.	As above, but no chert, slightly more argillaceous. Pyrite.	184.1	7.8	CA71-273 184.1-186.0 CA71-274 186.0-188.1 CA71-275 188.1-190.0 CA71-276 190.0-191.9
	Brassfield Limestone (?) (8.1 feet)			
22.	Limestone, dolomitic buff to gray, fine to medium grained, crystals, pellets, fossil fragments and a few possible oolites, some glauconite and pyrite. One coral 4 cm long; thin concave and convex carboniceous laminae, minor pyrite.	191.9	3.2	CA71-277 191.9-193.6 CA71-278 193.6-195.1

Unit	Description	Depth to top (feet)	Thickness in feet	Sample No.
23.	Limestone, similar to above, but lighter in color and finer grained toward base, abundant glauconite in bands; minor pyrite; some argillaceous laminae toward base.	195.1	3.2	CA71-279
24.	Limestone, dolomitic, gray to brown, fine grained, argillaceous in part, thin argillaceous laminae; glauconite, minor pyrite.	198.3	1.7	CA71-280
	ORDOVICIAN (20.0 feet cored)			
	Cincinnatian rocks (20.0 feet cored)			
25.	Shale-mudstone, gray, slightly laminated, slightly calcareous.	200.0	7.5	CA71-281 200.0-204.0 CA71-282 204.0-207.5
26.	Shale and limestone bands, intercalated; shale, gray-green, comprises 70% of interval, but contains much carbonate material in shells and very small carbonate lenses, limestone is buff to blue-gray, with shale included within limestone bands. Limestone is skeletal, mostly shells and small corals. Limestone bands seldom over 2" thick.	207.5	12.5	CA71-283 207.5-212.0 CA71-284 212.0-216.0 CA71-285 216.0-220.0
	Total Depth	220.0		



Core#	Depth	Thickness	CaCO3	MgCO3	SiO2	W. Av. CaCO3	W. Av. MgCO3	W. Av. SiO2	Thickness
SDH 216	30.0	11.2	55.7%	42.7%	0.9%				
	41.2	9.2	57.8%	40.6%	0.9%	Geneva	Dolomite		
	50.4	9.4	56.1%	37.6%	5.4%	56.5%	40.4%	2.3%	29.8
	59.8	3.2	50.0%	31.0%	13.0%				
	63.0	5.0	41.0%	29.0%	22.0%				
	68.0	5.0	29.0%	22.0%	35.0%				
	73.0	5.2	41.0%	24.0%	25.0%				
	78.2	5.0	62.0%	20.0%	13.0%	Mississinewa	Shale		
	83.2	5.0	58.0%	19.0%	17.0%	46.6%	23.7%	21.4%	28.4
	88.2	5.0	78.4%	9.6%	8.7%				
	93.2	5.0	80.3%	8.3%	8.5%				
	98.2	5.0	94.1%	2.1%	2.7%				
	103.2	5.3	92.6%	3.6%	2.4%				
	108.5	2.5	83.8%	6.2%	6.4%				
	111.0	6.5	69.9%	22.1%	5.8%				
	117.5	2.0	88.6%	6.3%	3.7%	Louisville	Limestone		
	119.5	5.2	76.8%	15.4%	5.4%	82.1%	10.2%	5.5%	36.5
	124.7	7.3	63.0%	5.0%	19.6%				
	132.0	5.0	67.4%	19.5%	9.8%	Waldron	Shale		7.3
	137.0	4.8	77.1%	16.7%	4.5%				
	141.8	2.2	61.5%	26.3%	10.1%				
	144.0	6.0	83.6%	11.5%	3.5%				
	150.0	4.0	71.7%	21.8%	4.4%				
	154.0	5.0	76.2%	17.3%	4.7%				
	159.0	6.2	72.9%	21.1%	3.7%				
	165.2	2.8	87.4%	8.8%	2.4%				
	168.0	2.2	86.9%	8.3%	2.9%				
	170.2	3.4	76.0%	12.7%	7.5%	Laurel	Dolomite		
	173.6	1.7	74.4%	20.1%	3.4%	75.9%	16.8%	5.1%	43.3
	175.3	2.7	64.0%	14.0%	15.0%				
	178.0	1.2	80.0%	5.1%	11.0%				
	179.2	1.6	74.4%	5.3%	15.4%				
	180.8	1.6	80.2%	9.9%	7.2%				
	182.4	1.7	72.0%	8.9%	16.0%				
	184.1	1.9	81.2%	43.1%	10.2%				
	186.0	2.1	81.9%	6.2%	8.4%				
	188.1	1.9	78.0%	5.9%	12.0%	Osgood	Dolomite		
	190.0	1.9	82.0%	3.3%	9.9%	76.4%	11.8%	11.8%	16.6
	191.9	1.7	89.2%	2.9%	5.6%				
	193.6	1.5	96.7%	0.8%	1.3%				
	195.1	3.2	85.2%	3.6%	2.6%	Brassfield	Limestone		
	198.3	1.7	78.9%	8.8%	7.6%	86.8%	4.0%	4.0%	8.1
									170.0