# LIMESTONE INVESTIGATION
# IN THE
# BATESVILLE AREA

JAN. 30, 1946 - FEB. 1, 1946

Drew F. Holbrook & Allen Short

# LIMESTONE INVESTIGATION
# IN THE
# BATESVILLE AREA

JAN. 30, 1946 - FEB. 1, 1946

Drew F. Holbrook & Allen Short

# Limestone Investigation in the Batesville Area

## Introduction

The purpose of this investigation was to locate a quarry or possible quarry site suitable for producing a large quantity of chemical grade limestone, particularly one with a low silica content. Abandoned quarries were examined first since they would offer an early, low cost producing operation if the rock were chemically suitable. Limestone outcrops were also examined and sampled where the material was considered suitable. Examinations were limited in most cases to the immediate vicinity of the railroad, as most of the Batesville area is hilly country and excessive haulage would make production costs prohibitive. The field work was done in cooperation with Mr. Allen Short, Mineral Technologist of the Missouri Pacific Railroad.

## Pfeiffer Quarry

The Pfeiffer quarry, now abandoned, at one time produced building stone. It is located on a spur of the Missouri Pacific Railroad in the N½ of the SW¼ of Section 25, Township 14N, Range 6W. This quarry is roughly rectangular in plan and is cut into a hillside. The quarry face exposes twenty-eight feet of massive limestone and a cover of fractured, weathered boulders and clay from three to fifteen feet in thickness. The quarry floor has not penetrated the base of this massive stone. The strata dip about 5° to the southwest toward the quarry face. This limestone is a portion of the Boone formation and is dense, fine-grained, and buff to gray in color. A sample (#626) was taken to include the 28 feet of massive limestone in the quarry face.

## Wilford Building Stone Quarry

This quarry has been operating on a small scale for a short while producing dimension stone and is located in the S½ of SW¼, Section 34, Township 14N, Range 6W, about two miles north of Batesville. The quarry is rectangular in plan and exposes a massive limestone face about twenty feet thick. The bottom of the limestone formation has apparently not been penetrated by the workings. The stone is probably the Fernvale limestone, very coarsely crystalline, fossiliferous and brownish pink in color. As the workings were accessible only by a secondary road, the sample (#627) taken was a grab sample to indicate generally the quality of the limestone in this formation as the stone weathers easily and fresh material is difficult to obtain.

## Scheid Stone Quarry

This quarry is operating intermittently at the present time producing dimension stone. In addition to the quarry equipment, there are four planing mills on the property. The quarry face is about eighteen feet high and exposes a massive limestone. The limestone is buff to gray in color and fine-grained resembling closely that of the Pfeiffer quarry. Both occur in the Boone formation. A sample (#628) was taken from the eighteen-foot quarry face. This quarry is adjacent to a spur of the Missouri Pacific Railroad.

Abandoned Quarry of the Batesville White Lime Company

This quarry is located on a narrow gauge spur near the common section corner of sections 3, 4, 6, and 10, Township 13N, Range 7W, about three-fourths of a mile from the present operating quarry of the Batesville White Lime Company. The quarry face exposes about twenty-five feet of massive, gray, fine-grained limestone of the Boone formation. A grab sample (#629) was taken from the broken rock near the face.

Railroad Cuts North of O'Neal

Exposures in railway cuts along the Missouri Pacific Railroad were examined from the town of O'Neal north a distance of about two miles. The Boone formation was exposed here as fossiliferous, gray limestone and chert. The limestone was frequently interbedded with or contained lenses and nodules of chert to an extent that rendered it unsuitable for chemical stone.

Railroad Cuts South and North of Walls Ferry

The beds exposed along the Missouri Pacific Railroad south of Walls Ferry were predominantly cherty. There was, however, an outcrop of Fernvale limestone about two miles south, but the steepness of the bluff and the overlying chert beds were unfavorable to a quarry site. No sample was taken.

North of Walls Ferry to a point about a mile south of Penters Station the exposed outcrops were essentially chert with occasional interbedded limestone. The Fernvale and St. Clair limestones were exposed a distance of one mile south of Penters Station northward to the station, but the heavy chert overburden except at Penters Station made them worthless.

Railroad Cuts at Penters Station

Right at Penters Station and extending northward into Penters Bluff in the SE¼ SE¼ Sec. 9, Twp. 14N, Range 8W, the railway cut exposed about twenty-five feet of Plattin limestone. The beds dip to the west about 6° and are composed of massive limestone layers two to four feet thick separated by shaly seams one to four inches in thickness. Neither the bottom nor the top of the limestone formation is exposed in the cut. The limestone itself is a hard, dark gray cherty looking stone. A sample (#630) was taken of this twenty-five foot face.

Just south of Penters Station about twenty-five yards is an extensive outcrop of Fernvale and St. Clair limestone on the nose of a hill which extends from the track level a vertical distance of eighty feet. Just at the nose of the hill the overlying Penters and Boone chert has been eroded but farther south down the track it is in place above the limestone. The Fernvale limestone here is similar to that previously described at the Wilford quarry coarsely crystalline and buff-pink in color.

Railroad Cuts at Penters Station (Cont.)

A sample (#631) was taken the full eighty feet which probably included both the Fernvale and St. Clair limestones. This locality was considered to be a favorable quarry site should the limestone meet chemical requirements.

New Quarry of the Batesville White Lime Company at Limedale Junction

Operations have just begun in this quarry with only a minor amount of stripping and blasting to date. The upper six to eight feet of the quarry is fine-grained limestone with interbedded chert lenses and is underlain by a massive bed of coarse-grained, gray, fossiliferous limestone. The limestone here is probably a portion of the Boone formation. As so little work had been done on the quarry, only a hand specimen was taken.

Investigation Along Highway 69

Outcrops adjacent to Highway #69 were examined from Batesville to Cushman. With the exception of a small outcrop of St. Clair limestone, these exposures were either massive chert or cherty limestone of the Boone formation. The outcrop of St. Clair limestone was exposed near the town of James with a vertical thickness of about twenty-five feet. This thin exposure plus the fact that it occurred in a steep bluff with a heavy overburden of chert makes it unsuitable for quarrying. No sample was taken.

Investigations Along the Cushman Branch of the Missouri Pacific Railroad

Outcrops were examined along the railroad from the railroad overpass on Highway 106 near the center of Sec. 13, Twp. 13N, Range 7W to Limedale. Nothing but cherty layers of the Boone formation was exposed with occasional lenses of fine-grained limestone interbedded. No samples were taken.

Investigation of Hill Outcrops East of Polk Bayou

Outcrops were examined and sampled on a hill in N½ of NW¼ Sec. 4, Twp. 13N, Range 6W, where the Boone, Fernvale, Kimmswick and Plattin were exposed. Sample #632 represents the Plattin formation in the creek bed and the bottom thirty feet of the hill. Sample #633 represents seventy feet of Kimmswick and Fernvale overlying the Plattin. This site is not particularly suited for quarry operations due to steepness of the hill, the distance from a railroad (1 mile), rough country, and a heavy chert overburden. Samples were taken to get an indication of the chemical nature of the formations in the area.

Conclusions

(1) Further prospecting in the Boone formation in this area for a quarry site capable of producing a large quantity of chemical grade limestone does not seem advisable due to the abundance of chert above and below the layer of chemical limestone and the lack of continuity of this layer or lense of chemical stone.

(2) Analyses of samples taken indicate that further prospecting in the Fernvale would be justified.

(3) The most favorable quarry site indicated by analyses of samples and field relationships is the hill just south of the creek at Penters Station (sample #631).

Office Copy
Do not loan !!

Core Logging and Sampling Procedures

The following geologic column briefly describes the several formations encountered in diamond-drilling operations at the property of the White River Limestone Products Company near Penters Bluff, Izard County, Arkansas:

| Formation | Thickness in Feet | Description |
|---|---|---|
| St. Clair limestone | 15 (±) | Gray, fine-grained limestone with disseminated, red calcite crystals |
| Cason shale | 2 | Dark red-brown, calcareous, sandy shale |
| Fernvale limestone | 120 | Medium to coarse-grained, brownish-pink massive limestone |
| Kimmswick limestone | 30 | Medium to fine-grained light gray, massive limestone |
| Plattin limestone | 220 (±) | Very fine-grained, dark gray, massive limestone with calcite veinlets |

Of the five formations described, only three were completely penetrated during the drilling, i.e. the Cason shale, the Fernvale limestone, and the Kimmswick limestone. The maximum amount of the St. Clair limestone that was drilled was the lower ten feet of the formation in Hole #10. The maximum Plattin limestone that was drilled was the upper 50 feet of the formation in Hole #2. The differing thicknesses of the various formations shown on the strip logs are accounted for by the fact that the collar elevations of the various drill holes differed. All the cores were logged by D. F. Holbrook, Associate Geologist, Division of Geology, Arkansas Resources and Development Commission.

The following discussion on sampling of the cores refers to the samples listed below:

| | |
|---|---|
| II-FK and II-P | I-A,B,C,D, and E |
| III-FK | |
| IV-FK | II |
| V-FK | |
| VI-FK | |
| VII-FK | |
| IX-FK | |
| XI-FK | |

Samples I-A, B, C, D, and E and Sample II on the Van Trump analysis sheet dated July 23, 1948, were the first samples from the drill cores to be analyzed, hence, the intervals were selected for the purpose of locating the lowest point in the geologic section at which chemical limestone could be quarried.

On the results obtained from these first analyses, it was decided that the Fernvale and Kimmswick limestone formations were of chemical grade and that the Fernvale and Kimmswick portions of future cores should be analyzed as a unit, obtaining only one analysis of the underlying Plattin. Thus, for all succeeding drill holes (II through XI) the roman numeral of the sample number refers to the drill hole number and the capital letters FK and P indicate the limestone formations represented in the analysis (FK = Fernvale and Kimmswick, P= Plattin). It will be noted that where there is more than 100 feet of Fernvale limestone present in a particular drill hole, the upper few feet of the Fernvale were not included in the sample that was analyzed (see samples II-FK, V-FK, etc.). This is due to the fact that the top 15 feet of the Fernvale limestone is very impure containing abundant iron oxide and pyrite (see sample #I-A).

Sampling of the cores was done by Division of Geology personnel and was accomplished by taking a small chip sample at two-foot intervals. The chip

samples were then ground to approximately 80 mesh in the Division's laboratory. Part of the prepared samples were sent to the Van Trump Testing Laboratory in Little Rock and the remainder were analyzed by Troy W. Carney, Chemist, Division of Geology.

Drew F. Holbrook
Associate Geologist

Little Rock, Arkansas
August 25, 1948.

# Report of Chemical Analysis

ARKANSAS RESOURCES AND DEVELOPMENT COMMISSION

DIVISION OF GEOLOGY

Room 446 State Capitol Building — Little Rock, Arkansas

From: D. F. Holbrook
Geology Division

Sample No. 878

Date 8-3-48

(Samples from drill cores of White River Limestone Products Co.)

Location: Izard County, NW SW and SW SW sec. 10, T. 14N, R. 8W
The samples are from D. D. H #2

Mineral suspected: Chemical grade limestone
Kind of Material: Coarse-grained limestone
Test recommended for: $CaCO_3$, $MgCO_3$, C. C. Eq., $Fe_2O_3$, P, S, $SiO_2$, $Al_2O_3$

ANALYSIS

| SAMPLE | FORMATION | $CaCO_3$ | $MgCO_3$ | C. C. Eq. | P | S | $SiO_2$ | $Al_2O_3$ | $Fe_2O_3$ |
|---|---|---|---|---|---|---|---|---|---|
| II-FK | Fernvale & Kimmswick | 98.40 | trace | 98.40 | 0.106 | .09 | 0.62 | 0.73 | 0.33 |
| II-P | Plattin | 95.60 | trace | 95.60 | 0.022 | 0.05 | 1.12 | 0.70 | 0.18 |

Sample #II-FK represents the interval 10' - 151' in drill hole #2

Sample II-P represents the interval 151-200 in drill hole #2

By Troy W. Carney
Chief Chemist

Form RD-2—1M—3-49—102332—C.-McB.

# Report of Chemical Analysis

ARKANSAS RESOURCES AND DEVELOPMENT COMMISSION

DIVISION OF GEOLOGY

Room 446 State Capitol Building — Little Rock, Arkansas

From: D. F. Holbrook
Core Samples From
White River Limestone Products Co. File under Limestone
Location: County Izard SW SW NW SW Sec. 10 Twp. 14 Range 8W
Sample from Drill Hole #7
~~Mineral suspected by sender: Chemical Grade Limestone~~
Kind of Material: Limestone Drill Cores

Sample No. 881

Date ~~Aug. 30, 1948~~

## ANALYSIS

NOTE: The entire core from Hole #7 was split in a core splitter. Half of the split core was ground, quartered down and analyzed with the following results:

| | $CaCO_3$ | $MgCO_3$ | P. | S. | $SiO_2$ | $Al_2O_3$ | $Fe_2O_3$ | MnO |
|---|---|---|---|---|---|---|---|---|
| PerCent | 97.1 | Trace | .067 | .03 | 0.39 | 3.21 | 0.48 | 0.3 |

Date completed 9-3-48

By Troy W. Carney
Chief Chemist

Form RD-2—1M—6-45—88824—C.-McB.

# Report of Chemical Analysis

ARKANSAS RESOURCES AND DEVELOPMENT COMMISSION

DIVISION OF GEOLOGY

Room 446 State Capitol Building — Little Rock, Arkansas

From: D. F. Holbrook
Geology Division

Sample No. 879

Date 8/4/48

(Samples from cores of White River Limestone Products Co.)

Location: Izard County NW SW and SW SW sec. 10, T.14N, R.8W
The samples are from drill holes #4, #7, #11

Mineral suspected by sender: Chemical grade limestone
Kind of material: Samples of limestone from drill cores
Test recommended for: $CaCO_3$, $MgCO_3$, Calc. Carb. Eq.

ANALYSIS

| SAMPLE | FORMATION | Drill Hole No. | Interval | $CaCO_3$ | $MgCO_3$ | Calc. Carb. Eq. |
|---|---|---|---|---|---|---|
| IV - FK | Fernvale & Kimmswick | 4 | 0-104' | 96.65 | trace | 96.65 |
| VII-FK | Fernvale & Kimmswick | 7 | 0-73' | 95.65 | trace | 96.65 |
| XI-FK | Fernvale & Kimmswick | 11 | 0-40' | 97.90 | trace | 97.90 |

Troy W. Carney

By _____
Chief Chemist

Form RD-2—1M—3-49—102332—C.-McB.

# Report of Chemical Analysis

ARKANSAS RESOURCES AND DEVELOPMENT COMMISSION

DIVISION OF GEOLOGY

Room 446 State Capitol Building — Little Rock, Arkansas

Sample No. 881

From: D. F. Holbrook
Core Samples From White River Limestone Products Co.

Date Aug. 30, 1948

Location: Izard County SW SW NW SW Sec. 10, T. 14, Rge. 8W
Sample from Drill Hole #7
Mineral suspected by sender: Chemical Grade Limestone
Kind of Material: Limestone Drill Cores

ANALYSIS

NOTE: The entire core from Hole #7 was split in a core splitter. Half of the split core was ground, quartered down and analyzed with the following results:

| | $CaCO_3$ | $MgCO_3$ | P | S | $SiO_2$ | $Al_2O_3$ | $Fe_2O_3$ | MnO |
|---|---|---|---|---|---|---|---|---|
| Per Cent | 97.1 | Trace | .067 | .03 | 0.39 | 3.21 | 0.48 | 0.3 |

Date completed: 9-3-48

By Troy W. Carney
Chief Chemist

Form RD-2—1M—6-51—111472—C.-McB.

# Report of Chemical Analysis

ARKANSAS RESOURCES AND DEVELOPMENT COMMISSION

DIVISION OF GEOLOGY

Room 446 State Capitol Building — Little Rock, Arkansas

Sample No. 878

From: D. F. Holbrook
Geology Division

Date 8/3/48

(Samples from drill cores of White River Limestone Products Co.)

Location: Izard County, NW SW and SW SW sec. 10, T. 14N, R. 8W
The samples are from D.D. H. #2

Mineral suspected: Chemical grade limestone
Kind of Material: Coarse-grained limestone
Test recommended for: $CaCO_3$, $MgCO_3$, C.C. Eq., $Fe_2O_3$, P, S, $SiO_2$, $Al_2O_3$

ANALYSIS

| Sample | Formation | $CaCO_3$ | $MgCO_3$ | C.C. Eq. | P | S | $SiO_2$ | $Al_2O_3$ | $Fe_2O_3$ |
|---|---|---|---|---|---|---|---|---|---|
| II-FK | Fernvale-Kimmswick | 98.40 | trace | 98.40 | 0.106 | .09 | 0.62 | 0.73 | 0.33 |
| II-P | Plattin | 95.60 | trace | 95.60 | 0.022 | 0.05 | 1.12 | 0.70 | 0.18 |

Sample # II-FK represents the interval 10'-151' in drill hole #2

Sample II-P represents the interval 151-200 in drill hole #2

Drill

By Troy W. Carney
Chief Chemist

Form RD-2—1M—6-45—88824—C.-McB.

# Report of Chemical Analysis

ARKANSAS RESOURCES AND DEVELOPMENT COMMISSION

DIVISION OF GEOLOGY

Room 446 State Capitol Building — Little Rock, Arkansas

From: D. F. Holbrook
Geology Division

Sample No. 879

Date 8/4/48

(Samples from cores of White River Limestone Products Co.)

Location: Izard County NW SW and SW SW sec. 10, T.14N, R. 8W
The samples are from drill holes #4, #7, #11

Mineral suspected by sender: Chemical grade limestone
Kind of material: Samples of limestone from drill cores
Test recommended for: $CaCO_3$, $MgCO_3$, Calc. Carb. Eq.

ANALYSIS

| Sample No. | Drill Hole No. | Interval | $CaCO_3$ | $MgCO_3$ | Calc. Carb. Eq. |
|---|---|---|---|---|---|
| IV-FK | 4 | 0-104' | 96.65 | trace | 96.65 |
| VII-FK | 7 | 0-73' | 95.65 | trace | 96.65 |
| XI-FK | 11 | 0-40' | 97.90 | trace | 97.90 |

By Troy W. Carney
Chief Chemist

Form RD-2—1M—6-45—88824—C.-McB.

(2)

# VAN TRUMP TESTING LABORATORY

ANALYTICAL CHEMISTS AND TESTING ENGINEERS

LABORATORIES:

CHICAGO
329 SOUTH WOOD STREET
TELEPHONE CANAL 6-0606

LITTLE ROCK
219 TERMINAL WAREHOUSE BLDG.
TELEPHONE 9695

Little Rock, Arkansas
August 17, 1948

## CERTIFICATE OF ANALYSIS

To White River Limestone Products Co., Atten: Mr. Howard Millar
609 Rector Building, Little Rock, Arkansas

Test No. 10495 - 496

We give below the results of our examination of Limestone Samples Representing Drill Cores.

submitted by Mr. Drew F. Holbrook, Arkansas State Geological Department

marked:

| Laboratory No. | 10495 | 10496 |
|---|---|---|
| Hole No. | 5 * | 6 |
| Sample No. | V - FK | VI - FK * |
| Depth, in ft. | 14-137' | 0-72' |
| Calcium as Calcium Carbonate ($CaCO_3$) | 96.66% | 97.49% |
| Magnesium as Magnesium Carbonate ($MgCO_3$) | 0.38% | 0.31% |
| Silica ($SiO_2$) | 0.85% | 0.57% |
| Aluminum Oxide ($Al_2O_3$) | 1.32% | 0.77% |
| Sulphur as S | 0.05% | 0.02% |
| Phosphorus as P | 0.16% | 0.09% |
| Calcium Carbonate Equivalent ($CaCO_3$) | 97.01% | 97.86% |

* Fernvale and Kimmswick limestones

Respectfully submitted,
VAN TRUMP TESTING LABORATORY
By, Roderick Van Trump

3-White River Limestone Products Co.
1-Mr. Harold Foxhall, Ark. State Geo. Dept.

k

FORM 14. 2M 6-48 FPC

# VAN TRUMP TESTING LABORATORY

ANALYTICAL CHEMISTS AND TESTING ENGINEERS

LABORATORIES:


CHICAGO
329 SOUTH WOOD STREET
TELEPHONE CANAL 6-0606

LITTLE ROCK
219 TERMINAL WAREHOUSE BLDG.
TELEPHONE 9695


Little Rock, Arkansas
July 23, 1948

## CERTIFICATE OF ANALYSIS

To White River Limestone Products Co., Atten: Mr. Howard Miller
609 Rector Building, Little Rock, Arkansas

Test No. 10418 - 423

We give below the results of our examination of Limestone Samples
Represents Drill Cores, from top of Formation, according to Mr. Harold Foxhall

submitted by Mr. Holbrook, Arkansas State Geological Department

marked:

| Lab.No. | Identification * | Depth in Feet | Calcium as Calcium Carbonate CaCO3 | Magnesium as Magnesium Carbonate MgCO3 | Calcium Carbonate Equivalent CaCO3 |
|---|---|---|---|---|---|
| 10418 | Sample #I-A | 0 - 9' | 90.45% | 2.32% | 93.20% |
| 10419 | " I-B | 9 - 106' | 98.24% | 0.37% | 98.67% |
| 10420 | " I-C | 106 - 124' | 99.29% | 0.33% | 99.68% |
| 10421 | " I-D | 124 - 130' | 98.99% | 0.31% | 99.35% |
| 10422 | " I-E | 130 - 141' | 98.12% | 0.84% | 99.11% |
| 10423 | " II | 140 - 150' | 99.08% | 0.29% | 99.42% |

The above confirms information telephoned to Mr. Harold Foxhall, 7-22-48.

* Roman numeral indicates Hole No.
Letter indicates sample, Thus, I-A is Hole #1 sample "A" etc

Respectfully submitted,
VAN TRUMP TESTING LABORATORY
By, Roderick Van Trump

3-White River Limestone Prod. Co.
1-Mr. Harold Foxhall, Ark. State Geo. Dept.

k

# VAN TRUMP TESTING LABORATORY

ANALYTICAL CHEMISTS AND TESTING ENGINEERS

LABORATORIES:

CHICAGO
329 SOUTH WOOD STREET
TELEPHONE CANAL 6-0606

LITTLE ROCK
219 TERMINAL WAREHOUSE BLDG.
TELEPHONE 9695

Little Rock, Arkansas
August 11, 1948

## CERTIFICATE OF ANALYSIS

To White River Limestone Products Co., Atten: Mr. Howard Millar
609 Rector Building, Little Rock, Arkansas

Test No. 10492 - 494

We give below the results of our examination of Limestone Samples
Represents Drill Cores, according to Mr. Harold Foxhall
submitted by Mr. Holbrook, Arkansas State Geological Department
marked:

| Lab.No. | Identification Hole No. | Sample No. | Depth, Ft. | Calcium as Calcium Carbonate $CaCO_3$ | Magnesium as Magnesium Carbonate $MgCO_3$ | Calcium Carbonate Equivalent $CaCO_3$ |
|---|---|---|---|---|---|---|
| 10492 | 3 | III - FK | 10 - 141 | 96.97% | 0.67% | 97.77% |
| 10493 | 9 | IX - FK | 10 - 90* | 98.29% | 0.33% | 98.68% |
| 10494 | 4 | IV - FK** | 0 - 104 | 97.28% | 0.56% | 97.94% |

*(Sample #10493 marked "Depth, 10 - 90'."
Identification accompanying Sample #10493 marked "Depth, 0 - 90'."

** FK Denotes Fernvale and Kimmswick Formations

Other Samples will be reported when completed.

Respectfully submitted,

VAN TRUMP TESTING LABORATORY

By, Roderick Van Trump

3-White River Limestone Prod. Co.
1-Mr. Harold Foxhall, Ark. State Geo. Dept.

k

Sample No. 900

# RECORD OF MINERAL ANALYSIS

Date: Oct. 6, 1948

From: D. F. Holbrook

~~Drill Core from property~~ Letter Accompanying: Yes ___ No x

~~at White River Ls Prod. Co.~~ File Under: Limestone

Location: County Izard ___ Sec. ___ Twp. ___ Rge. ___

Samples of Drill Core from Hole #2

Mineral suspected by sender: Limestone

Kind of Material: Limestone

Test recommended for: $CaCO_3$ ($MgCO_3$ $Al_2O_3$ $SiO_2$ $Fe_2O_3$ P.S. Mn O )

## ANALYSIS

| | Core Interval in feet | Total | Per Cent $CaCO_3$ | $MgCO_3$ | $Fe_2O_3$ | $Al_2O_3$ | MnO | $SiO_2$ | P | S |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample A | 10-30 | 99.87 | 91.68 | 0.64 | 1.90 | 3.64 | 0.18 | 1.28 | 0.400 | 0.15 |
| ~~Sample B~~ | ~~30-[illegible]~~ | | | | | | | | | |
| Sample # B | 30-121 | 99.66 | 97.80 | Tr | 0.34 | .64 | Tr | 0.78 | 0.045 | 0.05 |

Remarks: Continuation of Analysis #886

Date Completed: ___

Sample No. 886

# RECORD OF MINERAL ANALYSIS

Date: Sept 3 48

From: D. F. Holbrook

Drill Core from property of White River Limestone Prod. Co

Letter Accompanying: Yes ___ No X

File Under: Limestone

Location: County Izard ___ Sec. ___ Twp. ___ Rge. ___

Samples of Drill Core from Hole #2

Mineral suspected by sender: Limestone

Kind of Material: Limestone

Test recommended for: ___

## ANALYSIS

| Sample | Hole | Interval | Formation | $CaCO_3$ | $MgCO_3$ | $Al_2O_3$ | $SiO_2$ | $Fe_2O_3$ | P | S | MnO |
|---|---|---|---|---|---|---|---|---|---|---|---|
| II-MF | 2 | .0-10 | Top of Fernvale | 89.5 | 7.1 | Tr | 1.91 | 1.21 | .314 | .09 | 6.2 |
| II-F | 2 | 10-121.5 | Rest of Fernvale | 97.2 | Tr | 0.36 | 0.51 | 0.48 | .100 | .05 | .16 |
| II-K | 2 | 121.5-151.0 | Kimmswick | 98.2 | Tr | 0.40 | 0.32 | 0.19 | .064 | .03 | .09 |
| | | Phos Area | | | | | | | | | |

The core was chip-sampled at 2' intervals except for sample II-MF which was sampled at 1' intervals

Remarks:

Date Completed: ___

# Report of Chemical Analysis

ARKANSAS RESOURCES AND DEVELOPMENT COMMISSION

DIVISION OF GEOLOGY

Room 446 State Capitol Building — Little Rock, Arkansas

Sample No. 1061

From: Geology Division
H. B. Foxhall

Date April 12, 1950

Analysis of lime burned from Plattin limestones

Location: Izard County - samples of limestone core from Hole #2, White River Limestone Co. property

Test recommended for: complete analysis (Re-run of Sample #878 II-P)

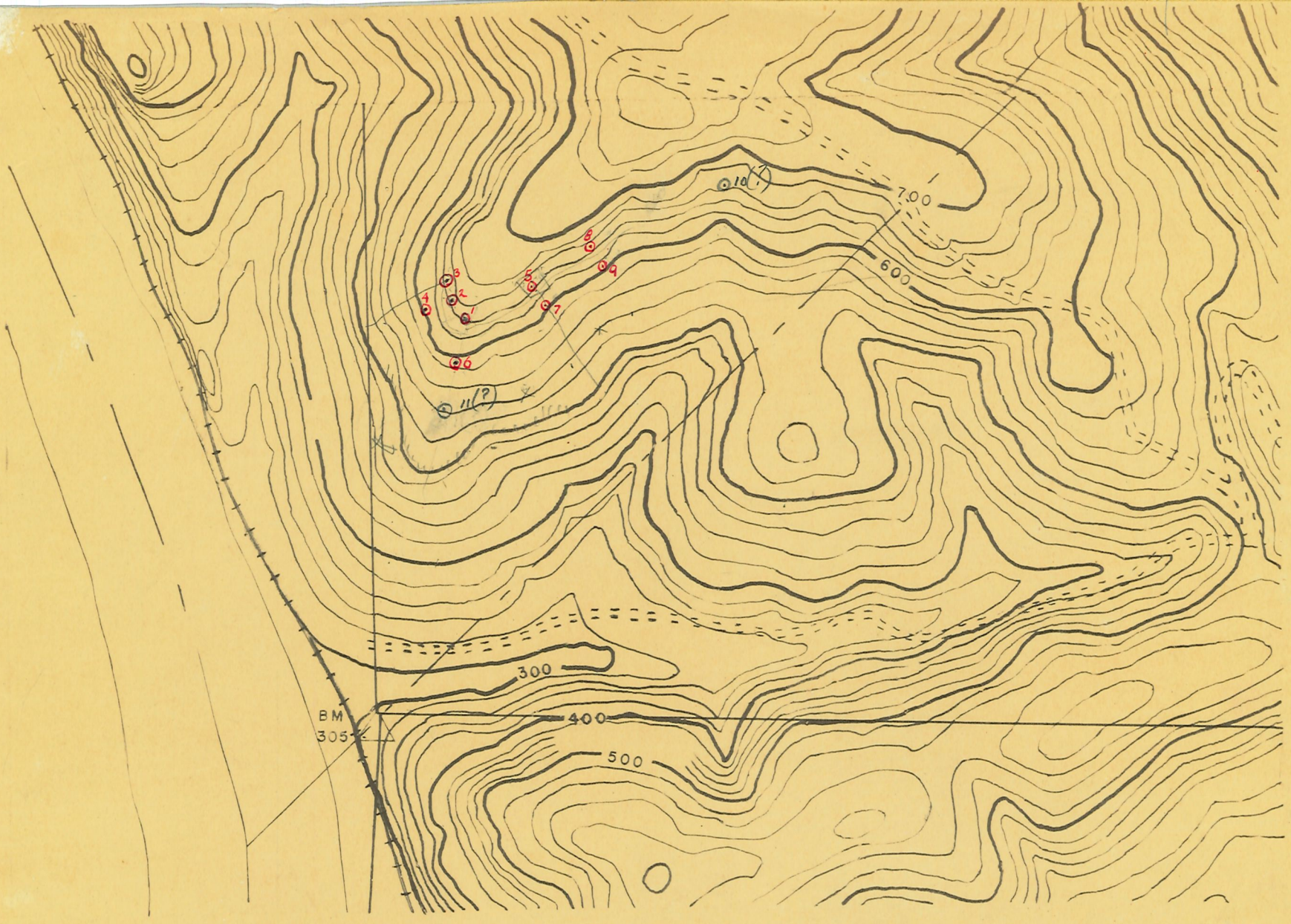
ANALYSIS

| | |
|---|---|
| CaO | 91.8% |
| MgO | Tr. |
| $SiO_2$ | 2.07 |
| $R_2O_3$ ($Fe_2O_3$ & $Al_2O_3$) | 1.42 |
| $Fe_2O_3$ | 0.37 |
| $Al_2O_3$ (Diff.) | 1.05 |
| S | 0.07 |
| P | 0.039 |
| As, approx., | 0.001 |

Date completed: 4-12-50

By Troy W. Carney
Chief Chemist

Form RD-2—1M—3-49—102332—C.-McB.




SCALE 1" = 538'

Hole locations are only approximate - D. F. H.

White River Limestone Products Co

(Do not lean.)

MINERAL SAMPLE RECEIVED

Date: Feb 5, ,1946

Sample No. 633

From: Division of Geology
Name
State Capitol
Address

Location: County Independence Sec. 4 Twp. 13N , Rge. 6W
Center of N½ NW¼

Type of Material: Limestone - upper part of outcrop sampled in sample #632

Microscopic examination by: None

Indicated:

Chemical test recommended for: Insolubles - if less than 2% run for calcium carbonate

Date analyzed

ANALYSIS

Insol. - 0.35
$Fe_2O_3$ - 0.65
$Al_2O_3$ - 0.85
$CaCO_3$ - 97.25
MgO - Tr.
99.45

Remarks - Samples were slightly weathered and included Kimswick & Fernvale Limestone Formations

MINERAL SAMPLE RECEIVED

Date: Feb 5, 1946

Sample No. 632

From: Division of Geology
Name
State Capitol
Address

Location: County Independence, Center of N½ NW¼ Sec. 4 Twp. 13N, Rge. 6W

Type of Material: Limestone - from hillside outcrop

Microscopic examination by: None

Indicated:

Chemical test recommended for: Insolubles - if less than 2% run for calcium carbonate

Date analyzed

ANALYSIS

| | | |
|---|---|---|
| Insol. | 19.5 | (All silica) |
| $Fe_2O_3 + Al_2O_3$ | 2.0 | |
| $CaCO_3$ | 78.7 | |
| MgO | Tr. | |
| | 100.2 | |

Remarks - Sample was from Plattin Ls. Formation - Silica may be from chert in the formation -

MINERAL SAMPLE RECEIVED

Date: Feb. 5, 1946

Sample No. 631

From: Division of Geology
Name
State Capitol
Address

Location: County Independence Sec. 15 Twp. 14N, Rge. 8W NW¼ NW¼

Type of Material: Limestone - from railroad cut S. of Penters Station

Microscopic examination by: None

Indicated:

Chemical test recommended for: Insolubles - if less than 2% run for calcium carbonate

Date analyzed

ANALYSIS

Insols 0.45

Insol. - 0.45
$Mn_3O_4 + Al_2O_3 + Fe_2O_3$ - 0.60
$CaCO_3$ - 98.9
MgO - Nil
99.95

Remarks - Samples included the Fernvale and St. Clair Limestones

MINERAL SAMPLE RECEIVED

Date: Feb 5, ,1946

Sample No. 630

From: Division of Geology
Name

State Capitol
Address

Location: County Independence SE¼ of SE¼ Sec. 9 Twp. 14N , Rge. 8W

Type of Material: Limestone - from a railroad cut at Penters Station

Microscopic examination by: None

Indicated:

Chemical test recommended for: Insolubles - if ~~xxx~~ less than 2% run for calcium carbonate

Date analyzed

ANALYSIS

| | |
|---|---|
| Insol. ($SiO_2$) | 2.85 |
| $Fe_2O_3 + Al_2O_3$ | 1.25 |
| $CaCO_3$ | 95.7 |
| $MgO$ | Nil |
| | 99.80 |

Remark

Sample was from Plattin limestone

MINERAL SAMPLE RECEIVED

Date: Feb. 5 ,1946

Sample No. 629

From: Division of Geology
Name
State Capitol
Address

Location: County Independence, Sec. ____ Twp. 13N , Rge. 7W
Near Sec Cor of Secs, 3, 4, 6, & 10

Type of Material: Limestone - from abandoned quarry of Batesville White Lime Co.

Microscopic examination by: None

Indicated: ____

Chemical test recommended for: Insolubles - if less than ~~2~~ 2% run for calcium carbonate

Date analyzed ____

ANALYSIS

| | |
|---|---|
| Insol. ($SiO_2$) | 6.3 |
| $Fe_2O_3 + Al_2O_3$ | 1.05 |
| $CaCO_3$ | 92.7 |
| $MgO$ | Nil |
| | 100.05 |

MINERAL SAMPLE RECEIVED

Date: Feb. 5 ,1946

Sample No. 628

From: Division of Geology
Name
State Capitol
Address

Location: County Independence, Sec. 4 Twp. 13N, Rge. 6W
Center

Type of Material: Limestone - from Scheid stone Quarry

Microscopic examination by: None

Indicated:

Chemical test recommended for: Insolubles - if less than 2%, run for Calcium carbonate

Date analyzed

ANALYSIS

| | |
|---|---|
| Insol. ($SiO_2$) | 2.05 |
| $Fe_2O_3$ + $Al_2O_3$ | 0.95 |
| $CaCO_3$ | 98.0 |
| MgO | N:1 |
| | 101.0 |

MINERAL SAMPLE RECEIVED

Date: Feb. 5,,1946

Sample No. 627

From: Division of Geology
Name
State Capitol
Address

Location: County Independence, Sec. 34 S½ SW¼ Twp. 14N, Rge. 6W

Type of Material: Limestone - from ~~xxhxxi~~ Wilford Stone Quarry

Microscopic examination by: None

Indicated:

Chemical test recommended for: Insolubles - if less than 2% run for calcium carbonate.

Date analyzed

ANALYSIS

Insol. - Trace
$Fe_2O_3 + Al_2O_3$ - 0.65
$CaCO_3$ - 99.4
$MgO$ - Nil

100.05

MINERAL SAMPLE RECEIVED

Date: Feb 5, 1946

Sample No. 626

From: Division of Geology
Name
State Capitol
Address

Location: County Independence, Sec. N½ SW¼ 25 Twp. 14N, Rge. 6W Pfeiffer Quarry

Type of Material: Limestone

Microscopic examination by: None

Indicated:

Chemical test recommended for: Insolubles - If less than 2% run Calcium carbonate

Date analyzed

ANALYSIS

| | |
|---|---|
| Insol. (Silica) | 5.2 |
| $Fe_2O_3$ | 0.14 |
| $Al_2O_3$ | 0.36 |
| $CaCO_3$ | 93.2 |
| MgO | Tr. |
| | 98.9 |

## Core Logging and Sampling Procedures

The following geologic column briefly describes the several formations encountered in diamond-drilling operations at the property of the White River Limestone Products Company near Penters Bluff, Izard County, Arkansas:

| Formation | Thickness in Feet | Description |
|---|---|---|
| St. Clair limestone | 15 (±) | Gray, fine-grained limestone with disseminated, red calcite crystals |
| Cason shale | 2 | Dark red-brown, calcareous, sandy shale |
| Fernvale limestone | 120 | Medium to coarse-grained, brownish-pink massive limestone |
| Kimmswick limestone | 30 | Medium to fine-grained light gray, massive limestone |
| Plattin limestone | 220 (±) | Very fine-grained, dark gray, massive limestone with calcite veinlets |

Of the five formations described, only three were completely penetrated during the drilling, i.e. the Cason shale, the Fernvale limestone, and the Kimmswick limestone. The maximum amount of the St. Clair limestone that was drilled was the lower ten feet of the formation in Hole #10. The maximum Plattin limestone that was drilled was the upper 50 feet of the formation in Hole #2. The differing thicknesses of the various formations shown on the strip logs are accounted for by the fact that the collar elevations of the various drill holes differed. All the cores were logged by D. F. Holbrook, Associate Geologist, Division of Geology, Arkansas Resources & Development Commission.

The following discussion on sampling of the cores refers to the samples listed below:

| | |
|---|---|
| II-FK and II-P | I-A,B,C,D, and E |
| III-FK | |
| IV-FK | II |
| V-FK | |
| VI-FK | |
| VII-FK | |
| IX-FK | |
| XI-FK | |

Samples I-A, B, C, D, and E and Sample II on the Van Trump analysis sheet dated July 23, 1948, were the first samples from the drill cores to be analyzed, hence, the intervals were selected for the purpose of locating the lowest point in the geologic section at which chemical limestone could be quarried.

On the results obtained from these first analyses, it was decided that the Fernvale and Kimmswick limestone formations were of chemical grade and that the Fernvale and Kimmswick portions of future cores should be analyzed as a unit, obtaining only one analysis of the underlying Plattin. Thus, for all succeeding drill holes (II through XI) the roman numeral of the sample number refers to the drill hole number and the capital letters FK and P indicate the limestone formations represented in the analysis (FK = Fernvale and Kimmswick, P = Plattin). It will be noted that where there is more than 100 feet of Fernvale limestone present in a particular drill hole, the upper few feet of the Fernvale were not included in the sample that was analyzed (see samples II-FK, V-FK, etc.). This is due to the fact that the top 15 feet of the Fernvale limestone is very impure containing abundant iron oxide and pyrite (see sample #I-A).

Sampling of the cores was done by Division of Geology personnel and was accomplished by taking a small chip sample at two-foot intervals. The

chip samples were then ground to approximately 80 mesh in the Division's laboratory. Part of the prepared samples were sent to the Van Trump Testing Laboratory in Little Rock and the remainder were analyzed by Troy W. Carney, Chemist, Division of Geology.

Drew F. Holbrook
Associate Geologist

Little Rock, Arkansas
August 25, 1948.