



## **CONTACT INFORMATION**

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10/10/85

ARIZONA DEPARTMENT OF MINES AND MINERAL RESOURCES FILE DATA

PRIMARY NAME: DEWEY RANCH CLAY #2

ALTERNATE NAMES:

YAVAPAI COUNTY MILS NUMBER: 1350

LOCATION: TOWNSHIP 14 N RANGE 1 E SECTION 15 QTR. N2

LATITUDE: LONGITUDE:

TOPO MAP NAME: PRESCOTT VALLEY SOUTH 7.5 MIN

CURRENT STATUS: PAST PRODUCER

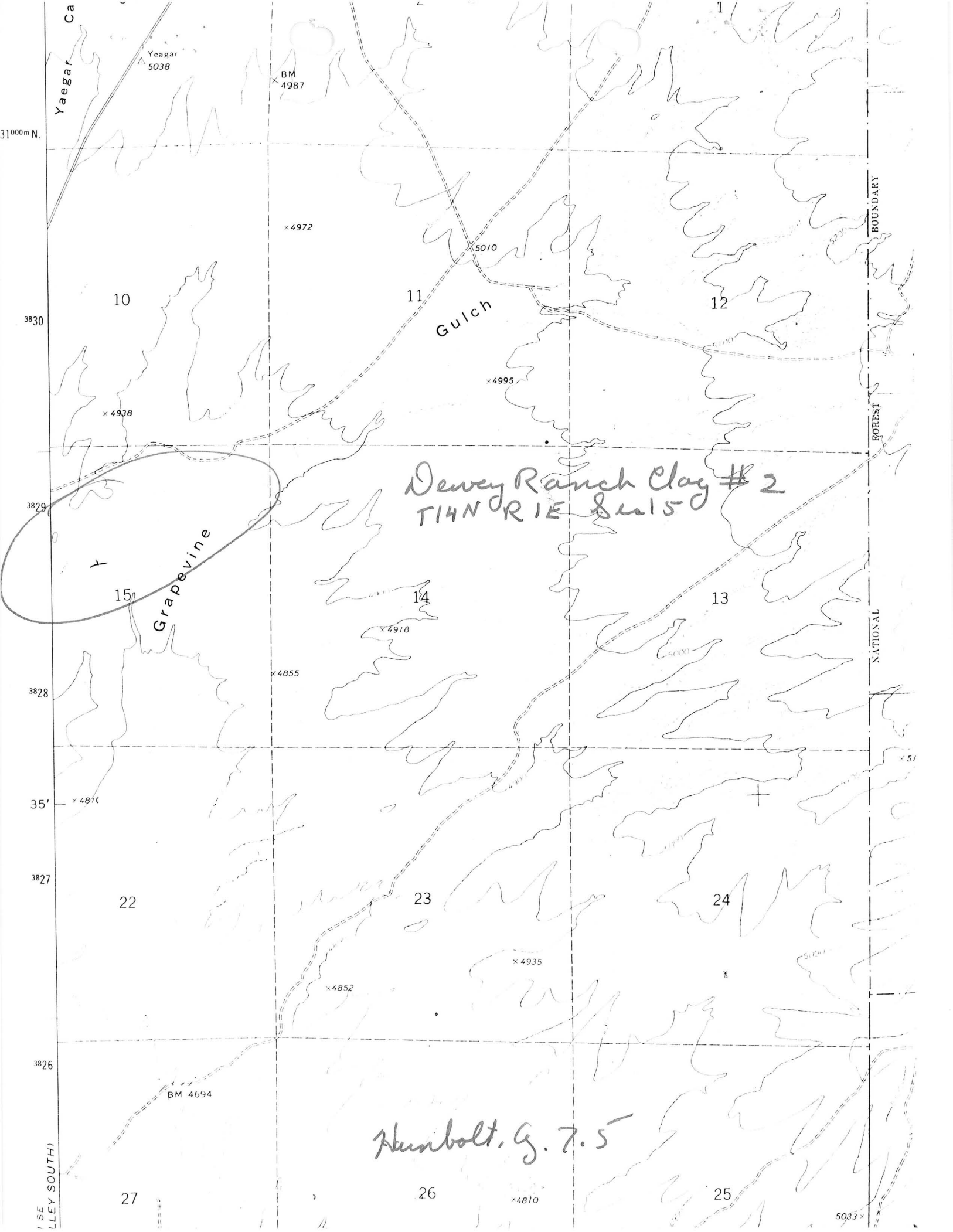
COMMODITY:

CLAY-FIRE CLAY

BIBLIOGRAPHY:

ADMMR DEWEY RANCH CLAY #2 FILE

"21ST FORUM ON THE GEOLOGY OF INDUSTRIAL  
MINERALS" AZMB



Dewey Ranch Clay #2  
T14N R1E S15

Humboldt, G. 7.5

Grapevine

Gulch

NATIONAL FOREST BOUNDARY

Yaeger Ca

31000m N

1 SE (LEY SOUTH)

DEWEY RANCH # 2

YAVAPAI COUNTY

KAP WR 10/25/85: The Dewey Ranch #2 (file) clay mine in Yavapai County, an open pit clay mine operated by Building Products, was added to the 1985 Directory of Active Mines for the first time.

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KAP WR 10/23/87: In the process of gathering data for the new Directory of Active Mines in Arizona talked with Don Morris. He reported that Building Products continues to produce vitrified clay sewer pipe from clays mined in Arizona. He is the only employee involved in mining for the company and operates all three clay mines on a rotating basis. The company has begun to produce clay roofing tile. Their quarries are the Rim Quarry (Saul Quarry - file) Navajo County, the New River Slate Quarry (Table Mesa Slate Quarry -file) and the Dewey Ranch #2 (file) Yavapai County.

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KAP WR 10/23/87: In the process of gathering data for the new Directory of Active Mines in Arizona talked with Don Morris who reported he is continuing to mine glass clay at the Dewey Ranch #2 (file) Yavapai County for shipment to Building Products in Phoenix. The Dewey Ranch #1 pit is no longer used and site has been reclaimed.

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Arizona Department of Mines and Mineral Resources

MINE AND PROSPECT FIELD VISIT DATA SUMMARY

COMMODITIES: Clay

MILS ID No.: Yavapai 1350

DATE: December 13, 1989

ENGINEER: Ken Phillips

INFORMATION FROM: Visit with Sharon Boling of Florida Title Co.

ADMMR File: Dewey Ranch Clay #2

PROPERTY SUMMARY

I. MINE NAME: Dewey Ranch Clay #2

II. LOCATION: T 14N R R1E SEC(S): N $\frac{1}{2}$ , Sec15 MINE DISTRICT

III. COUNTY Yavapai TOPO QUAD Humbolt 7.5

IV. PAST PRODUCTION-NOTED, KNOWN, PROBABLE, UNKNOWN, NONE: Past and current production for Building Products Company sewer pipe factory.

V. CURRENT STATUS: Active pits

VI. WORKINGS: Shallow pits and benches

VII. GEOLOGY AND MINERALOGY: DEPOSIT TYPE: Sedimentary clay

LENGTH: WIDTH: STRIKE: DIP:

HOST ROCK:

ECONOMIC MINERALS: Common clays, probably a mixture of kaolins  
illites.

VIII. EQUIPMENT ON SIGHT: None

IX. SAMPLING: The purpose of the property visit was to obtain samples for evaluation by Florida Title Company. Approximately 50 lbs were obtained

Note: Arrival at the property was at dusk. We had sufficient time only to collect the necessary samples

ABSTRACTED FROM ADMMR ACTIVE MINES DIRECTORY, 1992

*Juapai*

**BUILDING PRODUCTS COMPANY**

**Phoenix Plant**

4850 W. Buckeye Road, Phoenix, AZ 85043 - Phone 272-5576 - Clay mining by contractor - Plant consumes clay to produce extruded sewer pipe and roofing tile.

Plant Manager Vern Hamner

Mine Consultant Don Morris

**Rim Quarry** T11N R19E Sec. 30

Clay mine located 10 miles southwest of Clay Springs.

**New River Slate Quarry** T7N R3E Sec. 5

Slate quarry located approximately 6 miles northeast of New River.

**Dewey Ranch #2** T14N R1E Sec. 15

Clay mine located approximately 6 miles north of Dewey.

ABSTRACTED FROM ADMMR ACTIVE MINES DIRECTORY, 1991

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ABSTRACTED FROM ADMMR ACTIVE MINES DIRECTORY, 1990

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Clay mine located 10 miles southwest of Clay Springs.

**New River Slate Quarry**

T7N R3E Secs. 5 & 6

Slate quarry located approximately 6 miles northeast of New River.

**Dewey Ranch #2**

T14N R1E Sec. 15

Clay mine located approximately 6 miles north of Dewey.

ABSTRACTED FROM ADMMR ACTIVE MINES DIRECTORY, 1988

**BUILDING PRODUCTS COMPANY**

**Phoenix Plant**

4850 W. Buckeye Road, Phoenix 85043 - Phone 272-5576 - Employees 1 (mining)  
- Plant consumes clay to produce extruded sewer pipe and roofing tile.

Plant Manager ..... Vern Hamner  
Mine Manager ..... Don Morris

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T11N R19E Sec. 30

Clay mine located 10 miles southwest of Clay Springs.

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T14N R1E Sec. 15

Clay mine located approximately 6 miles north of Dewey.

DATE MAY 16, 197Dewey R. <sup>h</sup>Clay  
L.D. NO. C 285LOCATION BUILDING PRODUCTS COMPANY

-A DIVISION OF M.C.P. INDUSTRIES, INC.

4850 W. BUCKEYE RD. P.O. BOX 18110, PHOENIX, AZ 85005

DESCRIPTION CLAY SAMPLE TAKEN FROM ABOVE PLANT  
NOT IDENTIFIED.

REMARKS

OWNER \_\_\_\_\_ SAMPLED BY TOM HUMPHREYSI.A.N. DATA BY RAY SPERRY

CLAY CONSULTANT

CHARACTERISTICS OF PLASTIC MIX VERY PLASTIC EXCELLENT EXTRUSIONDRYING CHARACTERISTICS POOR PCE N.D.% WATER OF PLASTICITY 26.3+ % 200 MESH WASH 8.0 (MICA PRESENT AFTER WASH) 0.70 SAG TEST IN INCHES = 0.70LBS.  $\text{BaCO}_3$  REQUIRED PER TON N.D. MESH 10  
5% HCl - showed evidence of fizz, INDICATION OF CARBONATES PRESENT  
POSSIBLY LIME

|           | %<br>SHRINK | P.S.I<br>M.O.R | %<br>WATER<br>AGE | TEMP OF<br>CONE            | %<br>LOSS ON<br>FIRE | COLOR                     | REMARKS<br>DEFECTS                   |
|-----------|-------------|----------------|-------------------|----------------------------|----------------------|---------------------------|--------------------------------------|
| DRY       | 6.7         | 619            |                   |                            |                      | MED.<br>TAN               | LAMINATED                            |
| TK NO. 1  |             |                |                   |                            |                      |                           |                                      |
| TK NO. 2  | 9.8         | * 2401         | 12.3              | 16 CAR<br>PUSH @<br>1925°F | 7.5                  | LIGHT<br>REDDISH<br>BROWN | LAMINATED<br>NO SCUM-GOOD<br>TEXTURE |
| LAB. KILN |             |                |                   |                            |                      |                           |                                      |
|           |             |                |                   |                            |                      |                           |                                      |
|           |             |                |                   |                            |                      |                           |                                      |
|           |             |                |                   |                            |                      |                           |                                      |

\* DUE TO THE HEAVY LAMINATION P.S.I MOR WAS  
CONSIDERABLY LOW.

N.D. = NO DATA

ABSTRACTED FROM ADMMR 1986  
DIRECTORY OF ACTIVE MINES  
April 24, 1987

BUILDING PRODUCTS COMPANY

Phoenix Plant

4850 W. Buckeye Road, Phoenix 85043 - Phone 272-5576 - Employees 1-3 Approx.  
- Plant consumes clay to produce extruded sewer pipe.

Plant Manager ..... Vern Hamner  
Mine Manager ..... Don Morris

Dewey Ranch #2

Clay mine located approximately 6 miles north of Dewey.

*Manicopa/Yavapai*

SUBJECT: Field Visit, Building Products Company

DATE: January 10, 1986

ENGINEERS: Ken Phillips, Nyal Niemuth and Dick Beard

In the company of Dick Beard and Nyal Niemuth a visit was made to the Building Products Company (file) clay pipe plant in Phoenix, Maricopa County. There they manufacture vitreous clay sewer pipe in sizes ranging from 4" diameter to 48" diameter. The plant consumes approximately 50,000 tons of clay annually. Four different clays are used, all of which are mined in Arizona. The clays are referred to as the Rim clays which are divided into the "Upper Pink" and the "Lower Blue" are both mined at the Saul Quarry (file) in Navajo County. The Rim Clays are considered refractory and are the most important. The Ranch Clay is mined at the Dewey Ranch #2 Mine (file) Yavapai County. The Ranch Clay is the glass clay which fuses at the lowest temperature. The Table Mesa Slate is mined at the Table Mesa Slate Quarry (file) Maricopa County. The slate does not enter into the fusion at all, but acts as a binding agent due to its platy nature when coarsely ground. All clays are mined by the company and hauled to and stockpiled at the plant. There they are blended along with added grog (broken and/or rejected fired pipe), crushed and ground to minus 20 mesh. The ground clay, with an added small amount of rejected green ware, is mixed with water in a pug mill. The mixed clay is forced through a vacuum chamber and through extrusion dies to produce green pipe. The pipe is then dried for 1-4 months before firing in a shuttle kiln or a beehive kiln. Building Products Company is owned by Mission Clay Pipe Inc. in California where they also have a clay pipe plant. The California plant has a higher capacity to produce small diameter (under 12") pipe while the Building Products plant can produce more large diameter pipe than local demand requires. As a result there is movement of pipe between the two plants as demand requires with small pipe coming to Arizona and large pipe moving to California.

Arizona Department of Mines and Mineral Resources

VERBAL INFORMATION SUMMARY

May be Reproduced

1. Information from: Don Morris -- Building Products Co.  
Address: 4850 W. Buckeye Rd., Phoenix, AZ 85043 phone 272-5576
2. Mine: Various clay & slate quarries 3. ADMMR Mine File Buildings Products Co. Pla
4. County: described below in summary 5. District \_\_\_\_\_
6. Township 1N Range 1E Sec(s) 9 SW $\frac{1}{4}$
7. Location: \_\_\_\_\_
8. No. of Claims - Patented \_\_\_\_\_ Unpatented \_\_\_\_\_
9. Owner (if different from above) \_\_\_\_\_
10. Address: \_\_\_\_\_
11. Operating Company: \_\_\_\_\_
12. Pertinent People and/or Firm: \_\_\_\_\_
13. Commodities: clay, shale, slate
14. Operational Status: Active
15. Summary of information received, comments, etc.: Don Morris of Building Products

Co., 4850 W. Buckeye Rd., Phoenix, AZ 85043 phone 272-5576 gave a talk at the  
"21st forum on the geology of industrial minerals" held in Tucson titled  
"Raw Materials and the Manufacture of Vitrified Clay Pipe in Arizona". The  
talk discussed the company's Phoenix plant operation and more important to us the  
three quarries they currently operate in Arizona. These include:

The Table Mesa Slate (new file) quarry, Maricopa Co. located at T7N R3E  
Sec. 6 SE $\frac{1}{4}$ . This deposit of precambrian purple slate is held by state leases  
under the name B.P.C. Excavators Inc. and additionally covers parts of the following  
 $\frac{1}{4}$  sections, NE $\frac{1}{4}$ 7, NW $\frac{1}{4}$ 8, SW $\frac{1}{4}$ 5, SE $\frac{1}{4}$ 6.

In Navajo County they mine two layers of refractory aluminous shale, the  
upper pink and the lower blue from the <sup>new</sup>Saul quarry located at T11N R19E Sec. 19  
SE $\frac{1}{4}$ . This is in the Apache Sitgreaves National Forest just off forest road 46  
about 10 miles southwest of Clay Springs.

In Yavapai near Dewey, Building Products Co. has mined cenozoic lacustrine  
clay material at 2 sites The first <sup>new</sup>Dewey Ranch Clay #1 located at T14N  
R1E Sec. 28 NE $\frac{1}{4}$  has been abandoned as it contained excessive amounts of lime.  
The clay pit they presently operate is the <sup>new</sup>Dewey Ranch Clay #2 believed to be  
located in T14N R1E Sec. 15.

All the above quarries are operated on a seasonal or periodic basis. The  
plant operates year round on stockpiled materials. Building Products Co. should be  
Date: contacted for listing in our next directory of active mines.

(Signature)

ADMMR

Date 4-12-85

Nyal J. Niemuth

*Nyal J. Niemuth*



# 21st Forum on the Geology of Industrial Minerals

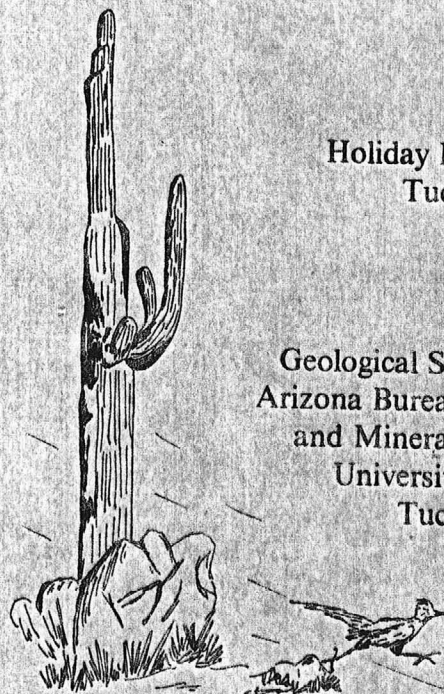
Program With Abstracts

*Aggregates to Zeolites (AZ)*

April 9-12, 1985

at the  
Holiday Inn Broadway  
Tucson, Arizona

sponsored by  
Geological Survey Branch  
Arizona Bureau of Geology  
and Mineral Technology  
University of Arizona  
Tucson, Arizona



## AGGREGATE FOR LARGE WORKS: A CASE STUDY OF THE SEARCH FOR NONREACTIVE AGGREGATE AT THE PALO VERDE NUCLEAR GENERATING STATION

R.E. MIGUES, Bechtel Civil and Minerals, Inc., 5400 Westheimer Way, Houston, TX 77056

Our object in 1975 was to identify a source of high-performance aggregate for the Palo Verde Nuclear Generating Station in central Arizona. This paper describes the anatomy of that search and some lessons for future aggregate searches for large projects.

Early work convinced us to reject reactive aggregate to avoid complications associated with moisture retention in massive concrete sections. The largest source areas of nonreactive rock, as well as potential sources of polluting reactive rock, were researched in the literature. Producing and inactive commercial pits and quarries were sampled and major igneous and volcanic bodies were examined. Potential gravel sources were considered by sampling wash confluences; care was taken to avoid known reactive source areas. Numerous smaller potential sources were examined and sampled.

Large gravel sources in central Arizona were found to have reactive aggregate because Cenozoic silicic volcanic rock is widely scattered and the main washes drain large areas. Smaller gravel sources were rejected to avoid difficult mixing needed to achieve uniformity in massive concrete sections. Potential new large quarry sites were typically eliminated because of relatively mediocre physical quality of the rock, complicated by the risk of a lengthy environmental-impact process. The most promising quarry sources were in Laramide and Precambrian granite, Paleozoic limestone and quartzite, and Quaternary basalt; the most promising gravel sources were in intermediate-size washes within terranes of these same rock types. Poor sources were in Precambrian schist and gneiss terranes and Cretaceous volcanics, which typically are silicic. The closest large sources filling the criteria are alluvial deposits at the base of the Gila Mountains, and these were used for construction.

Refinements to costly, time-consuming field searches would be welcome. LANDSAT imagery and computer enhancement may be such a refinement, allowing us to focus on favorable areas and avoid problem rock types.

## RAW MATERIALS AND THE MANUFACTURE OF VITRIFIED CLAY PIPE IN ARIZONA 272-5576

DON MORRIS, Building Products Company, 4850 W. Buckeye Rd., Phoenix, AZ 85043

The Building Products Company is Phoenix based and owned by Mission Clay Products of California. Building Products is the only manufacturer of vitrified clay pipe in Arizona. The marketing area includes Arizona, Nevada, Utah, New Mexico, and California.

Building Products, promoted by Arizona Public Service, was formed in 1970. Raw-materials prospecting was undertaken for 2 years, after which a \$5-million plant was built. Initially, a satisfactory vitrified product could not be made with the raw materials then in hand. Subsequent prospecting and testing led to an acceptable raw-materials mix. Testing to upgrade the final product is a continuing process.

The basic raw-materials supply must be adequate, secure, and capable of sustaining close tolerances in the final product. These needs are met by mining four geologic materials at three different localities: (1) refractory aluminous shales (two horizons - one pit) of Cretaceous age near Pinedale at the southern edge of the Colorado Plateau Province (Mogollon Rim); (2) less refractory aluminous materials from late Cenozoic lacustrine materials near Dewey in the Transition Zone (TZ); and (3) Precambrian "slate" from near New River along the southern edge of the TZ.

Other additives include grog (ground-up, broken pipe) and barium carbonate that ties up what gypsum there is. Calcium magnesium carbonates are deleterious components that are minimized by careful selection of the mined products.

The raw materials are blended and mixed, ground to 12 mesh, mixed in a pug mill, depleted of air, extruded into pipe ranging from 6 inches to 42 inches in diameter, transported to a hot-air drying room, forklifted to an appropriate kiln, and fired at a 1900-2000° F range.

The "Rim" kaolinitic shales, being the most refractory ingredient, stabilize the pipe during the firing process. They are very plastic, and therefore facilitate extrusion. The Dewey clay fuses at a low temperature and forms an impervious glasslike binder. It also is plastic. The "slate" forms platy particles that tend to orient themselves during laminar flow. This provides strength for both the green and dried product. It doesn't absorb water, which helps the drying process. Grog remains stable during firing, and therefore helps to control shrinkage.

The development of appropriate raw materials and proper mixtures has been done empirically.

## SOLAR SALT IN ARIZONA

JERRY GROTT, Southwest Salt Company, P.O. Box 1237, Litchfield Park, AZ 85340

Southwest Salt Company is solution mining the Luke Salt Body of probable late Miocene age. The discovery hole, from which the first core was recovered, was drilled in 1968. The top of the salt was encountered at a depth of 880 feet, and the bit was still in salt at the bottom-hole depth of 4,500 feet.

The solar ponds, developed on land formerly dedicated to agriculture, have an annual capacity of about 90,000 tons. Because land values are very high, mining rates and procedures are governed by the need for near-saturated brine to minimize land requirements.

Because of the frequency of dust storms, the salt operation uses a unique wet-harvesting method. Most inventory is kept in the ponds under brine and harvested only a few days before shipment. Studies of the nature of crystal growth and the distribution of wind-blown and brine impurities led to the development of procedures for processing salt of high chemical purity and low insolubles content. The chemical purity exceeds that of the major percentage of salt produced in fuel-fired evaporators.

Salt is presently shipped from Phoenix as far east as west Texas and as far west as central California. Occasional shipments are made to Hawaii and Alaska.