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10/10/85

ARIZONA DEPARTMENT OF MINES AND MINERAL RESOURCES FILE DATA

PRIMARY NAME: DEWEY RANCH CLAY #1

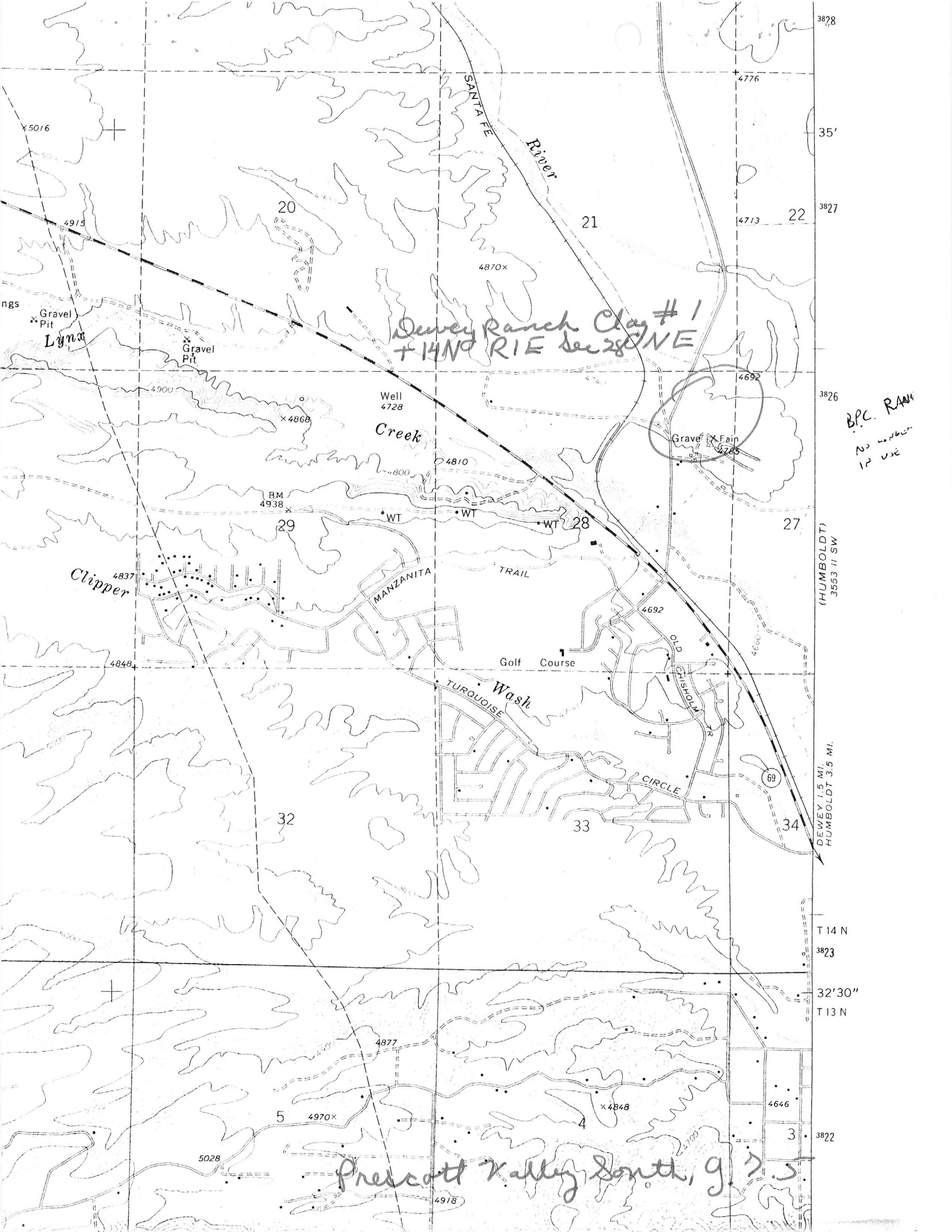
ALTERNATE NAMES:

YAVAPAI COUNTY MILS NUMBER: 1349

LOCATION: TOWNSHIP 14 N RANGE 1 E SECTION 28 QTR. NE
LATITUDE: LONGITUDE:
TOPO MAP NAME: PRESCOTT VALLEY SOUTH 7.5 MIN

CURRENT STATUS: PAST PRODUCER

COMMODITY:
CLAY FIRE CLAY
BIBLIOGRAPHY:
ADMMR DEWEY RANCH CLAY #1 FILE
"21ST FORUM ON THE GEOLOGY OF INDUSTRIAL MINERALS" AZBM



Prescott Valley South, 7.5

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 described below in summary
3. ADMMR Mine File Buildings Products Co. Pla
4. County:
5. District
6. Township 1N Range 1E Sec(s) 9 SW¼
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 SE¼. 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 ¼ sections, NE¼7, NW¼8, SW¼5, SE¼6.

In Navajo County they mine two layers of refractory aluminous shale, the upper pink and the lower blue from the Saul quarry (new) located at T11N R19E Sec. 19 SE¼. 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 Dewey Ranch Clay #1 (new) located at T14N R1E Sec. 28 NE¼ has been abandoned as it contained excessive amounts of lime. The clay pit they presently operate is the Dewey Ranch Clay#2 (new) 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 contacted for listing in our next directory of active mines.

Date: (Signature) ADMMR

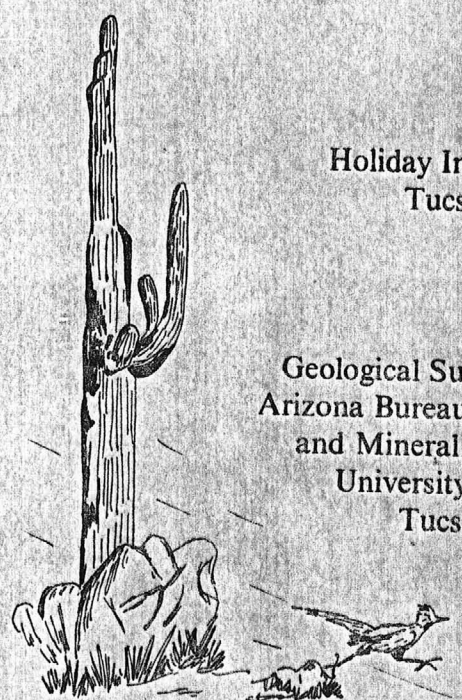
Date 4-12-85 Nyal J. Niemuth Nyal J. Niemuth

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.