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PRINTED: 06/24/2002

ARIZONA DEPARTMENT OF MINES AND MINERAL RESOURCES AZMILS DATA

PRIMARY NAME: ST JOHNS LIMESTONE

ALTERNATE NAMES:
CALCIUM CLAIMS

APACHE COUNTY MILS NUMBER: 237

LOCATION: TOWNSHIP 12 N RANGE 29 E SECTION 4 QUARTER SW
LATITUDE: N 34DEG 27MIN 39SEC LONGITUDE: W 109DEG 16MIN 40SEC
TOPO MAP NAME: ST JOHNS SOUTH - 7.5 MIN

CURRENT STATUS: PRODUCER

COMMODITY:
CALCIUM LIMESTONE
STONE TRAVERTINE

BIBLIOGRAPHY:
ADMMR ST JOHNS LIMESTONE FILE

02/11/88

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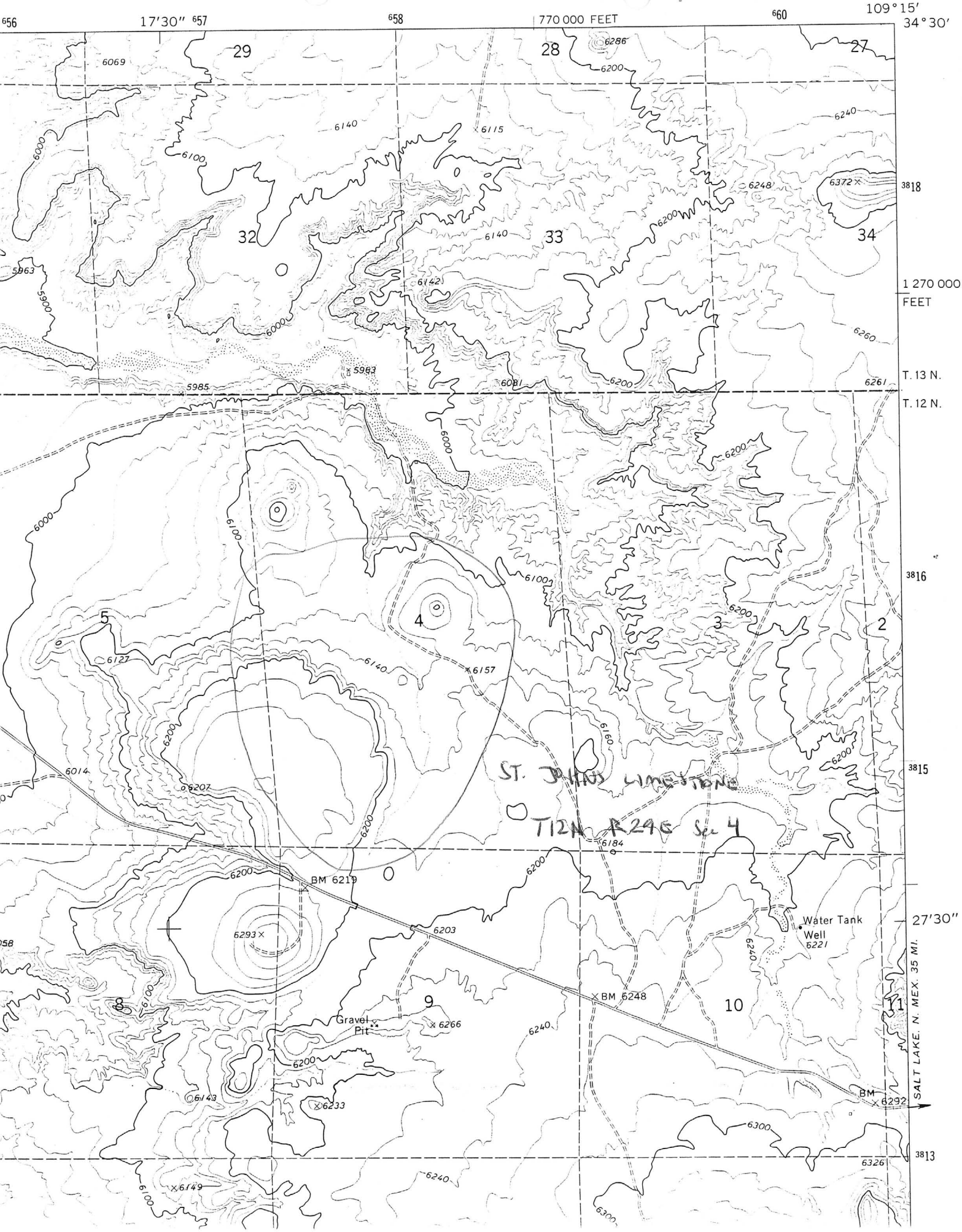
CALCIUM

BIBLIOGRAPHY:
ADMMR ST JOHNS LIMESTONE FILE

ST. JOHNS SOUTH QUADRANGLE
ARIZONA—APACHE CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)



ABSTRACTED FROM ADMMR ACTIVE MINES DIRECTORY, 1992 Apache County

SUPERIOR COMPANIES

100 W. Coolidge, Phoenix, AZ 85006 - Phone 230-9300 - Employees: 70.
President Archer V. Shelton
Vice President, Administration Mary Kessler
Vice President, Finance Don Fischer
St. Johns Limestone T12N R29E Sec. 4
P.O. Box 2777, St. Johns, AZ 85936 - Phone 337-4529 - Limestone quarry 5 miles southeast of St. Johns - Provides limestone for coal plant gas scrubbing.
Superintendent Efram Chavez

ABSTRACTED FROM ADMMR ACTIVE MINES DIRECTORY, 1991

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ABSTRACTED FROM ADMMR ACTIVE MINES DIRECTORY, 1989

SUPERIOR COMPANIES

100 W. Collidge, Phoenix 85006 - Phone 230-9300 - Employees 70.

President ..... Archer V. Shelton
Vice President, Operations ..... Lester Hall
Vice President, Administration ..... Mary Kessler
Vice President, Finance ..... Don Fischer

St. Johns Limestone T12N R29E Sec. 4
P.O. Box 2777, St. Johns 85936 - Phone 337-4529 - Limestone quarry 5 miles southeast of St. Johns - Provides limestone for coal plant gas scrubbing.

Superintendent ..... Ed Bishop

ABSTRACTED FROM ADMMR ACTIVE MINES DIRECTORY, 1988

SUPERIOR COMPANIES

1700 N. 7th Street #5, Phoenix 85006 - Phone 253-2116 - Employees 70.

President ..... Archer V. Shelton
Vice President, Operations ..... Lester Hall
Vice President, Administration ..... Mary Kessler
Controller ..... Don Fischer

St. Johns Limestone T12N R29E Sec. 4
P.O. Box 2777, St. Johns 85936 - Phone 367-8573 - Limestone quarry 5 miles southeast of St. Johns - Provides limestone for coal plant gas scrubbing.

Superintendent ..... Ed Bishop

Date Printed: 12/03/97

ARIZONA DEPARTMENT OF MINES AND MINERAL RESOURCES

INFORMATION SUMMARY

Information from: **Russ Mosier**

Company: Rotomil

Address:
City, State ZIP:
Phone:

MINE: **St. Johns Limestone**

ADMMR Mine File: St Johns Limestone
County: **Apache**
AzMILS Number: **237**

SUMMARY

The three page report that follows describes a test application of a rotory excavator at three mines in Arizona.

The mines are the Winkleman Gypsum Mine in Pinal County, the St. Johns Limestone Mine in Apache County, and the Camp Verde Gypsum Mine in Yavapai County. All were owned and operated by Superior Companies at the time of the tests.

Copies of the report are included in the appropriate mine files because it includes some operating and deposit information regarding each operation.

Ken A. Phillips, Chief Engineer Date: December 1, 1996

Mosier on St. Johns Limeston
Page 1 of 4

TEST & EVALUATION OF CAT MODEL PR450 PROFILER (ROTOMILL) IN LIMESTONE AND GYPSUM QUARRIES

On Tuesday, February 10, 1987, we began testing and evaluation of a CAT model PR450 Rotomill for harvesting gypsum and limestone in quarries operated by Superior Companies. This report will summarize our observations.

Our objective is to determine if a rotomill is capable of singlehandedly excavating, crushing and loading gypsum and limestone.

Winkleman – At this operation, gypsum is drilled and shot, loaded into a 35 ton off-highway truck, hauled to a stockpile for crushing and screening, and then stockpiled off of conveyors.

We established that the PR450 could get adequate production in this material without overloading the machine. Travel speeds ranged from 25 to 75 feet per minute, the depth of cut from 2 to 6 inches. We timed and weighed two loads and established the 450 was producing 203 tons per hour working on the level, and 237 tons per hour working down a 7% grade.

The material here is not very abrasive; wear life of the teeth will be measured in weeks and months, not hours or days.

The water spray system on the 450 does wonders for dust control and has no significant adverse affect on loading and handling material.

Amount of Fines – Right from the start, our main concern at this site was to harvest material with minimum fines; they prefer two inches and larger particle size. In order to increase particle size, we ran the PR450 with one half of the teeth removed, and with two thirds of the teeth removed. We found that a four inch depth of cut, 40 feet per minute travel speed, going up a 7% grade, with one-half of the teeth removed produces the least amount of fines with mostly two inch and larger particle size.

The concern about fines is specifically a concern about clay material which may be predominant in the fines; this diminishes the purity of the gypsum product. Gypsum fines are no problem, but clay fines are. Perhaps the best way to deal with this is to avoid mixing the two materials. At this operation, there are relatively thin layers of clay inbetween the thicker layers of gypsum. When you drill and shoot this formation, you can't help but mix the two. The Rotomill gives you the ability to be very selective about what you harvest. You can work a gypsum seam right down to where the clay layer starts, then either stop milling and remove the clay with a loader or a broom, or continue milling but divert the clay as it comes off of the belt to a separate windrow as waste. One thing for certain regarding sizing of material: the PR450 won't leave material that must be dealt with with an air hammer and chisel.

Stockpiles The finished product coming off of the PR450 belt can be loaded directly into trucks, or stockpiled in windrows two or three passes high on 25 foot centers. This type of stockpiling may present less segregation problems and may dry out quicker and more completely following rainfall than a tall stockpile.

Mosier or St. Johns Limestone

St. Johns, Arizona - Limestone Quarry

Here, Superior Companies is harvesting porous limestone which is used primarily at the St. John's power plant as a precipitate in their polution control system. Material is normally ripped and dozed to the crusher. The typical production rate is about 135 tons an hour.

We ran the PR450 here on February 16 and 17; we started with one half of the teeth removed, but found that this material is so tough that you need all of the teeth working at it. Surprisingly, going to the full set of teeth didn't seem to affect material size much; we consistently saw a fairly large percentage (say 10%) of slabs about six inches across and maybe one inch thick - that's just the way it broke out. We should be able to reduce the amount of this slabbing by running the machine down a seven to ten percent grade and thereby retaining the material in the cutter housing longer.

The PR450 was able to excavate and load 150 - 155 tons per hour in the red and white limestone formation picked for this test - thought to be the toughest material in this pit. Travel speed was typically about 20'/minute. On the 2nd day, average production increased to 195 tons per hour.

We expect to see more tooth wear here, but nothing excessive. We did break six teeth. The machine is shipped with asphalt teeth, and as they break, we're replacing them with a concrete tooth which is more resistant to impact like we have in this limestone. We've replaced another six or so that wore unevenly due to nonrotation. Some of those teeth showed signs of rust on retainers, and that may have been caused by weathering before the machine was shipped from the factory.

This material is tough enough that it caused some chunks of rubber to be torn loose from the track shoes.

CAMP VERDE

Here, gypsum is ripped, either with a dozer tractor, or with rippers installed on the rear of a Euclid TS-14 scraper, then loaded by the scraper and hauled to their screening and crushing plant. Typical production rates are approximately 115 tons per hour. The PR450 was able to excavate and load 211 tons per hour going up a 6% grade, and 301.5 tons per hour going down that same grade. Some 90-95% of the material produced was 2" minus. The depth of cut varied from 6" to 12". Since fines are desirable here, we ran with all teeth installed.

Here, the distance from the material face to the screening/crushing plant will require more than a pair of trucks to keep up with the PR450. One solution to this may be to run an adequate number of 'pups' (4 wheel trailers) that can be towed behind the PR450, loaded, and then towed by the truck/tractor to the dump location.

Job Layout and Machine Utilization

Perhaps the best way to get maximum utilization of the PR450 in Superior's operations would be as follows:

1. Work the PR450 on as long of a pass as possible, thus reducing turnaround and maneuver time. You can control slopes and grades for run off and drainage purposes, and you'll soon have a very smooth pit surface.

2. Load trucks off of the belt during cutting operation; loading the material while you've got it 'on the move' eliminates one more time that it must be handled, and gets it away from the cut area and out of the way immediately.

3. Dump the truck loads into a separation device, and let the material that is sized suitably as the finished product go directly to a stockpile, with over-sized material diverted to a separate stockpile which will require crushing.

Based on annual production requirements of approximately 40,000 tons at both Winkleman and St. John's, and approximately 30,000 tons at Camp Verde, one PR450 could harvest these annual production requirements as follows:

1. Winkleman - 2.0 months of operating time.

2. St. John's - 3.0 months operating time.

3. Camp Verde - 1.4 months operating time.

(Based on single shift, 176 hours per month, 50% machine efficiency.)

This would leave some 47% reserve time for moving the machine, for maintenance and repair, or for expansion of production.

Russ Mosier

dt

cc: Grant Baecker
Frank Vukov

Mosier on St. Johns Limestone
Page 4 of 4

ST JOHNS LIMESTONE APACHE COUNTY

NJN WR 12/4/87: Lester Hall (card) of the Superior Companies (card) reports that they have been mining since 1978 at the St. Johns Limestone, Apache County. The property consists of the Calcium Claims in T12N R29E Sec 4 and produce limestone for scrubbing use in the nearby coal power plant. Ownership of the claims is held jointly by APS and SRP. The address for the operation is P O Box 2777, St. Johns, Arizona 85936. The radio phone is 367-5126, ext 173.

St. Johns Limestone mine (file)

F A X
 # 542 -1926

To: Alberto Gutier
Department of Administration

From: Bill Tompkin
Department of Commerce

Date: April 14

Re: Arizona Rules and Regulations regarding overdimensional and overweight vehicles

Per our conversation, Monday April 14, concerning variances between Utah and Arizona Rules and Regulations regarding overdimensional and overweight vehicles, ie:

Arizona 80,000 #'s Gross Weight
Utah 120,000+ #'s Gross Weight

Arizona Does not allow Triple Trailers
Utah Does allow Triple Trailers

In a conversation, yesterday April 13, with Pete Burns, Motor Vehicle Division, we learned that these are not State legislated, but Federally governed rules. 1982 the Federal Government in allocating funds limited gross vehicle weight to 80,000#. Utah falling back on the Grandfather clause. 1990 the Federal Government in allocating funds limited trailers to two. Utah falling back on the Grandfather clause. He also stated per "Permits Excess size and Wait" section 281011; there are 10 - 20 miles of immune zone adjacent to the Utah boarder areas on alternate state routes where oversize and overweight vehicles are allowed with special permits.

There will be 210,000 tons of limestone consumed annually at the Navajo generating station in Page. The transportation rates in Arizona make our quarries non competitive with Utah quarries. A St. Johns Quarrie owned by Superior Materials has a slightly shorter but more costly haul to the generating station then it's main competitor in Utah.

If you see relief for this situation we will be most happy.

bt
cc: Don Fisher, Superior Co. FAX #230-0189

trucks