

# State Department of Geology and Mineral Industries

702 Woodlark Building  
Portland, Oregon

## MacFARLANE BRICK PLANT

## ILLINOIS RIVER AREA

The first batch of brick and tile has been fired, and it is a mess. The pressed and green brick cracked, and warped during drying, and even fell apart to a certain extent. The kiln was constructed of the brick and tile to be burned, - a mass about 12 feet high, 15 feet wide, and 20 feet long. Three small fire boxes were provided, running the length of the "kiln". No effort was made to control temperatures, nor was any control possible.

The brick and tile, green, were piled on each other, no saggars, or other weight distributing aids. As the mass fired, and by the way no method of distributing the heat thru the mass was provided, the brick nearest the fire shrank and fired. That slightly farther, shrank at one end, - the other end remained unfired and unshrunk.

The result was that the mass collapsed. About 1% of the brick was fired, and it shrank alarmingly. The rest is junk.

Apparently, MacFarlane does not know anything about brick manufacture. In the first place his "clay" is decomposed Galice formation shale, and it contains fragments of Galice formation not decomposed. This mess is crushed and put through a brick molder, using oil as a lubricant. The green brick and tile will not stand up even during drying.

It is my opinion that MacFarlane should have his clay tested; he should have someone straighten him out with the brick making machine; he should have a decent kiln for firing his green brick; and last but not least he should learn something about making brick.

He is a good friend of Ralph Smith, the brick manufacturer from Klamath Falls. I know that Smith has attempted to help him. The report I get is that MacFarlane is very, very anxious to learn about the business but he resents anyone trying to explain or correct his mistakes.

I'm afraid that it is "just one of them things" and that an infant industry is on the rocks.

Ray C. Treasher,  
Field Geologist,  
February 18, 1941.

FEB 19 1941

STATE DEPARTMENT OF GEOLOGY  
& MINERAL IND.

MAEFARIANS BRICK PLANT

ILLINOIS RIVER DISTRICT

CONFIDENTIAL

Mr. F. E. Maefarians, 519 Rogue River Ave., Grants Pass, Oregon, is a brick mason, and cheerfully admits that he knows little about the manufacture of brick or tile. However, he is familiar with brick plant operation, and I believe that he knows more about this business than he admits.

His idea is to supply brick for local consumption -- he contracts brick-laying jobs and will be in a position to supply his own brick. He stated that he believes that he can produce common brick for \$15/1,000 to meet the sales price of Williamtn and Klammth Falls brick plants. Transportation and handling cost about \$15, making the laid-down cost in Grants Pass about \$30. He believes that he can shave at least \$7 off this delivered price which is a 25 percent reduction.

He had little to say about his proposed tile manufacture, but it is presumed that he figures about the same percent saving over delivered price on "foreign" tile.

Mr. Maefarians figures that he has an investment of about \$2,000 in his plant when it is ready to run. He keeps a young man about the place as a watchman and general handy man, and works on the plant himself when not employed as a brick mason. This arrangement tends to keep ~~his~~ his "out-of-pocket" cost down.

I believe that it is a ceramic plant that is worthy of consideration, and that if unforeseen difficulties do not arise, it should be a producer in the near future.

Ray C. Treasurer,  
July 20, 1940.

UNITED STATES DEPARTMENT OF AGRICULTURE

FOREST SERVICE

2810 - MINING CLAIMS

Siskiyou N.F.

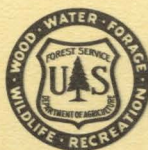
GUSTLIN, Paul R.

Patent Application Ore-016229

Job No. 198



FEB 1 1966

REPORT OF MINERAL EXAMINATION



The work on the claims is due almost entirely to Macfarlane. The Macfarlane pit shown in Picture 1 had a properly built loading ramp west of his brick plant (to the left of the scene in Picture 8). If the brick plant is an acceptable expense, there has been much more than the necessary \$500 per claim of patent expenditure. Pit work on the Hytemperature No. 1, which was done entirely by Macfarlane, probably is sufficient for minimum requirements if the value is prorated. Most of the dozer work on the claims consists of cat scrapings on the surface, probably for prospecting rather than transportation purposes.

### Conclusions

The subject claims are located in a sedimentary formation, and the deposits formed are residual in hilly terrain. Dr. Waldemar Lindgren, in Mineral Deposits (New York, McGraw-Hill, 1933, 930 p.), states at page 351: "Sedimentary rocks, like limestone, by long-continued solution yield residual clay; but such material is impure and rarely used for anything but brick making." The quantity of clay mineral is so sparse in the three samples presented to the Bureau of Mines at Albany for analysis that they would not classify any of the samples as clay. The tests show that none of the material would be suitable for quarry tile, which Mr. Gustlin stated would be the principal product. This material is much lower in grade than good common clay, which is not a locatable mineral. )   


The present claimant has not sold any clay or clay products from these claims. No substantial market was created by Mr. Macfarlane in the 1940's when he manufactured brick and tile and used most of it in his own masonry jobs. For this reason the "\$16,000 of clay products marketed from the material extracted from the claims" were largely for his work. The quote is from the patent application. Current information from clay products plants is that common clay in the pit has an approximate value of 50¢ per ton. The value in the 1940's was certainly not over this amount. If the entire 500 tons of material removed from the Macfarlane pit had been utilized, this would represent a value of only \$250.

### Recommendations

I recommend that adverse proceedings be filed with a request for a hearing based upon the charges that:

1. The land is nonmineral in character.

2. No discovery of a valid mineral deposit has been made within the limits of Hytemperature Nos. 1, 2 or 3 placer mining claims.
3. The required \$500 patent expenditure has not been made on any of the claims.

Date FEB 1 1966

COLVER F. ANDERSON

COLVER F. ANDERSON, Mining Engineer

APPROVED:

Date FEB 7 1966

Jack I. Groom

Acting Assistant Regional Forester

REPORT OF MINERAL EXAMINATION

Patent Application  
No. 016229

**Claimant:** Paul R. Gustlin  
c/o Milton Wichner, Attorney-at-Law  
Suite 600, Yucca Vine Building  
6305 Yucca Street  
Los Angeles, California

**Reason for Examination:** Patent Application No. 016229 filed with the Bureau of Land Management February 25, 1965, received in good standing by the Forest Service July 20, 1965.

**Subject:** Validity of Mining Claims

**Lands Involved:** Three 20-acre clay placer claims, named Hytemperature No. 1, No. 2 and No. 3, located in the S $\frac{1}{2}$ SW $\frac{1}{4}$ SE $\frac{1}{4}$ , N $\frac{1}{2}$ SW $\frac{1}{4}$ SE $\frac{1}{4}$ , and the E $\frac{1}{2}$ SE $\frac{1}{4}$ SW $\frac{1}{4}$  of Section 24, T. 37 S., R. 8 W., W.M., Siskiyou National Forest, Josephine County, Oregon.

**Land Status:** National Forest land open to mineral entry, except for a Pacific Power & Light Company transmission line right-of-way and U.S. Highway No. 199, Redwood Highway, right-of-way across Hytemperature No. 1 and No. 2 claims.

**Location Data:**

| <u>Claim</u>        | <u>Date of Location</u> | <u>Recordation</u> |             | <u>Claimant</u>                            |
|---------------------|-------------------------|--------------------|-------------|--------------------------------------------|
|                     |                         | <u>Book</u>        | <u>Page</u> |                                            |
| Hytemperature No. 1 | 7/16/49                 | 48                 | 122         | F. E. Macfarlane                           |
| Hytemperature No. 2 | 7/16/49                 | 48                 | 121         | Millie E. Macfarlane                       |
| Hytemperature No. 3 | 7/18/49                 | 48                 | 123         | F. E. Macfarlane                           |
| Quit Claim Deed     | 8/20/63                 | Conv. 16           | 393         | Millie E. Macfarlane<br>to Paul R. Gustlin |

**Mining District:** Unorganized

**Mining Engineer:** Colver F. Anderson

**Dates of Examination:** April 21, 23, June 1, July 7, 8, 9, 1965.

**Accompanied by:** Paul R. Gustlin on June 1, 1965.

### ABSTRACT

The subject claims are traversed by the Redwood Highway where it crosses Hayes Hill 19 miles southwest of Grants Pass, Oregon. A large part of the 60-acre claim area is gently sloping timbered land which is very suitable for recreation uses.

The rock type is a sedimentary formation composed of sands and silty rocks with some volcanic flows and tuffs. The original minerals were not those which weather to good clay deposits. Erosion of the steep nearby hills seriously degrades any residual deposits on the flatter areas.

Competitive grades of brick clay are in short supply in southern Oregon. Small clay deposits were worked out many years ago. None of these were in the Galice or similar formations.

The ground of the subject claims is not principally valuable for any clay deposits now known to exist. Points of discovery pointed out by the present claimant are for residual soils rather than clay deposits. No point of discovery was shown on the Hytemperature No. 2 claim and none could be found.

I recommend that adverse charges be filed with the expectation that the claims will be eliminated and the land made available for recreation uses.

### Location and Topography

The subject claims are southwesterly 19 miles from Grants Pass on U.S. Highway 199 at Hayes Hill. The highway crosses two of the claims.

The claim area has a gentle slope southerly except Hytemperature No. 3 and the east end of the other claims. These latter areas are fairly steep hills dissected by small streams which are active in the wet season.

### Surface Values

There are significant timber values on the claims, but the best use for the land is for a recreation site.

### Areal Geology

The rocks in the vicinity are metasedimentary and metavolcanics. Most of the rock is Galice formation, but similar rocks of the Applegate formation lie to the southeast. Black shales, silty sandstones, conglomerate and basaltic lavas occur in these formations. Some of the beds contain chert nodules or calcareous fractions. These mixtures do not tend to form good clay beds even if clay fractions were sorted by water transportation.

### Economic Geology

The subject claims are located on a small portion of an exposure of a Jurassic sedimentary and volcanic series of rocks. The mineral composition of these rocks is not proper for the development of good clay deposits when the rock weathers. No other clay properties have been developed in the Galice formation. Surface erosion is rapid enough to prevent the accumulation of any clean bodies of clay minerals in the vicinity of the subject claims.

### History and Production

Ten claims were located by F. E. Macfarlane in 1939. A brick plant was installed the following year using much of the old Ashland Brick and Tile equipment.

Mr. Macfarlane was a mason, and this operation was very nearly a captive source of brick and tile for his use. He used the brick and tile produced for chimneys and fireplaces in the Illinois Valley area. An estimate of the volume of material removed from the old pit is 500 tons. A large percentage of this amount remains on the ground as overburden and bricks used in kiln construction.



Pertinent Information

Mr. Gustlin believed that he had title to the land when he acquired these claims. He subsequently made the remark to the Galice District Ranger, Don Wood, that he, Mr. Gustlin, intended to use the ground for a motel and accompanying businesses.

As noted under History and Production, 10 claims were located in 1939. According to the Oregon Department of Geology and Mineral Industries, Oregon Metal Mines Handbook, Bulletin 14-C, Vol. II, section 1 (Josephine County), by Oregon Department of Geology and Mineral Industries (1952), pages 135-136, the brick plant was constructed in 1940, as were the well, clay pit, and buildings.

A check of the county records showed that 10 claims without names or numbers were located on March 29, 1939, by F. E. Macfarlane. Mineral Examiner Friedhoff examined the claims in the summer of 1940 and declared that only common brick clay could be found and that such clay is not a locatable material. Mr. Macfarlane took out a special-use permit for the 8 acres covering the main pit and brick plant area in April 7, 1941. The brick production in the succeeding years was done under a special-use permit for the land, at \$10 per year, and clay used at 3 cents per cubic yard. The records show that Macfarlane did assessment work for only one year after locating the claims, and that was for only the seven claims in Section 24.

The claims in the patent application were located in 1949 by F. E. Macfarlane or Millie Macfarlane over the original claims numbered 7, 6, and 10 (according to their order of recordation). The Hytemperature claims are new locations without any chain of title older than their location dates. Since the effective date of location is 1949, the work done in the old claim area does not apply to the three claims acquired by Mr. Gustlin. 1949

The present claimant has not made any improvement within the claims indicative of plans to establish a ceramic industry. ←

There are several important properties which need to be determined in order to evaluate a clay. One of the first is PCE or pyrometric cone equivalent. This is a measure of the unknown clay melting point referred to a standard small cone. Cones with known melting points are placed in a kiln with a cone of the unknown. Some of the cones melt before the unknown and some would melt after. The cone which melts closest to the same temperature as the unknown determines the PCE of the unknown.

According to the definition of "refractory" on page 75 of the Bureau of Mines Information Circular 7752, a material must not fuse below 2579° F. in order to be classed as refractory. This corresponds to cone 19 of the U.S. Bureau of Standards (1926) cone series. The Bureau of Mines, Albany, reported in ASTM (American Society for Testing and Materials) cone numbers (C24-1956) which place the above refractory limit of temperature between cones 14 and 15.

The ASTM definition places the subject samples in the lowest part of "Low-duty fireclay brick" range which is from cones 14-15 to cone 27 of the 1956 ASTM standard cones. In the lowest refractory duty range, factors other than PCE have an important effect on the commercial value of a material. A general rule is that the less refractory a material is, the more shrinkage and warping it has under load while heated.

DTA, or Differential Thermal Analysis, is a physical means of determining the clay minerals. The only mineral is halloysite. The statement in the patent application that kaolin is one of the principal minerals present is apparently not based upon tests. Both this DTA and the PCE eliminate fire clay as a component. The small amount of clay present eliminates any consideration of the deposits as sources of Fuller's earth.

Water adsorption and apparent porosity of the subject samples are high enough to restrict the material to common brick uses such as back-up or interior wall masonry. Any type of floor tile use would not be practical.

If other tests are satisfactory, the most important consideration in selling a clay is whether it performs in a manner which matches the conditions already established at a processing plant. The burning color, shrinkage, heat strength, and warping must fit or the clay would be of no use.

The Bureau of Mines office in Albany, Oregon, rates the samples as soil of the area with a minor amount of halloysite clay.

#### Occupancy

There is no longer an occupancy problem. The buildings are almost totally wrecked and completely useless as habitations. Picture 8 shows the present condition of the brick plant.

#### Discovery

On June 1, 1965, I met Mr. Gustlin on the claims and asked him to show me a discovery on each claim. He took me to three places marked "Pit 1," "Pit 2," "Pit 3" on the sketch accompanying the report. These

locations are shown in Pictures 2 to 7, inclusive. Careful traverses of the common sideline between Hytemperature No. 1 and No. 2 show definitely that Pit 1 and Pit 2 are on the No. 1 claim. Pit 3 is on Hytemperature No. 3.

Each pit was sampled with a soil auger. The galvanized bucket shown in Picture 2 was filled to capacity and the material coned and quartered to obtain a sample similar to that shown in Picture 6. These samples were then taken in person to the Bureau of Mines Laboratory in Albany, Oregon, where the proper analysis was made. During the start of testing, the Bureau personnel found that there is not sufficient clay mineral present in any of the samples to make satisfactory bars on the laboratory extrusion machine.

North and east of Pit 1 there is only poor light-brown rocky hillside soil with minor amounts of clay. The auger hole was dug 31 inches to gray-green rocky residual material. Andesitic rock fragments are common in all of the material removed. The entire clayey layer is only approximately 5 feet thick. Sample A65-2 was taken from the auger hole in the bottom of this pit. Picture 2 shows the pit with the auger in the hole. The Bureau of Mines analysis of the sample shows that the standard pyrometric cone number is in the lowest refractory grade for clay and that fired shrinkage and adsorption are too high for ceramic use.

Pit 2 was sampled in the same manner as Pit 1, as shown in Picture 3. Hand examination indicates a more claylike fraction but also a more stoney fraction, as shown in Pictures 4 and 5. Picture 4 is a view of the material removed from the pit area shown in Picture 3. Picture 5 is a close-up of the bank of the pit. The rocky nature of the ground is plainly evident in all of the pictures. Sample A65-3 from Pit 2 is low-refractory-grade material even though it did begin to fuse 56° higher than A65-2 or A65-4. This sample has the weakest modulus of rupture of the three samples, but this point is only relative because the strength is over the minimum required. Water adsorption and porosity are high enough to limit the uses of the material to bricks of the lowest classification.

Pit 3 is on claim Hytemperature No. 3, as shown in the sketch. The same plan was used for collecting sample A65-4. Picture 6 shows the auger in the hole and the sacked sample beside the reject material. This hole was dug to the depth where rock fragments became too numerous. Picture 7 is a close-up of the bank showing numerous rock fragments from the surface downward. The rocks are quartz or hard andesitic pieces. The field examination shows that the fine material has soil rather than clay characteristics. The tests by the Bureau of Mines show that sample A65-4 has no better ceramic characteristics than the other two samples.



JAN • 66

1



JAN • 66

2



JAN  
66



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5



JAN 66

7



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8

RECORD IDENTIFICATION

RECORD NO..... M013501  
RECORD TYPE..... X1N  
COUNTRY/ORGANIZATION. USGS  
FILE LINK ID..... CONSV  
MAP CODE NO. OF REC..

REPORTER

NAME..... LEE, W  
DATE..... 74 01

NAME AND LOCATION

DEPOSIT NAME..... MACFARLANE BRICK PLANT

MINING DISTRICT/AREA/SUBDIST. ILLINOIS -CHETCO

COUNTRY CODE..... US  
COUNTRY NAME: UNITED STATES

STATE CODE..... OR  
STATE NAME: OREGON

COUNTY..... JOSEPHINE

QUAD SCALE QUAD NO OR NAME  
1: SELMA

LATITUDE LONGITUDE  
42-19-55N 123-35-35W

UTM NORTHING UTM EASTING UTM ZONE NO  
4686588.9 451139.1 +10

TWP..... 37S  
RANGE..... 08W  
SECTION.. 24  
MERIDIAN. W.M.

POSITION FROM NEAREST PROMINENT LOCALITY: SW1/4

COMMODITY INFORMATION

COMMODITIES PRESENT..... CLY

EXPLORATION AND DEVELOPMENT

STATUS OF EXPLOR. OR DEV. 1



MacFARLANE BRICK PLANT (Ceramics)

ILLINOIS RIVER DISTRICT

Owner: F. E. MacFarlane, 319 Rogue River Ave., Grants Pass, Oregon.

Location: E $\frac{1}{2}$  SE $\frac{1}{4}$  SW $\frac{1}{4}$  sec. 24, T. 37 S., R. 8 W., just south of the summit of Hayes Hill.

Area: Seven placer claims, located March 29th, 1939, and recorded at Grants Pass, Oregon.

History: New location and new brick plant.

Development: Between two and three acres have been cleared of brush and timber. The brick plant has been constructed. There is a small clay pit back of the plant.

Equipment: Equipment consists almost entirely of the brick plant itself.

It is reported to have a capacity of 15,000 bricks per day.

The machinery was purchased from the old Ashland Brick & Tile Company, and is as follows: a 110 Leroy gas motor for a power plant; disintegrator to break clay for 50,000 brick per day; brick machine is a Hummer model rated at 15,000 brick per day; pug mill has a 20,000 brick capacity; tile cutter will cut up to 12 in. x 12 in. tile; wire brick cutter 20,000 capacity. Buildings consist of a 100 ft. x 20 ft. drying shed; a 26 ft. x 40 ft. power house; machinery plant is 10 ft. x 12 ft.; shop is 20 ft. x 50 ft. All building have metal roof for fire protection. A wood-fired kiln is to be constructed by October 1st, - size not yet decided.

Mining Facilities: Water is provided from a 40 ft. dug. well. This well will be deepened as brick-making operations are started. There is plenty of second-growth timber for firing the kiln.

Geology: The clay appears to be the deeply weathered slate of the Galice (?) formation. The "clay" is interbedded with a de-

Geology: (continued)

decomposed sandstone. Depth of weathered zone is from 10 ft. to 25 ft. and it appears that there is sufficient clay for many years of operation.

Informant: F. E. MacFarlane & Ray C. Treasher, July 19th, 1940.

Report by: RCT, 7/20/40

# State Department of Geology and Mineral Industries

702 Woodlark Building  
Portland, Oregon

## MACFARLANE BRICK PLANT

## ILLINOIS RIVER AREA

Supplement to report by Ray C. Treasher, 11-22-40

At this date the MacFarlane Brick Plant is still in operation but only on a very limited scale. MacFarlane has made no building tile since before the war and is, at present, making only enough bricks for his own needs as a brick mason.

He states that the reason he has not improved or expanded his plant is that the forest service declared his original claims invalid shortly after he erected his plant and since then have been leasing the land to him for \$10 per year, and charging him 3¢/yd. for the clay used.

The old trouble of uneven firing (RCT 2-12-41) still persists but MacFarlane hopes to remedy this by putting an oil burner at the far end of the kiln to supplement the present wood-firing arrangement.

It does not seem likely that this plant will ever be a producer of any importance.

Report by:

H. D. Wolfe

Date visited:

Sept. 9, 1947