Harper Pumicite (silica) Malheur District Malheur County

Owner: G. Earl Hagey, Burns, Oregon; Mr. Stacey, Burns, Oregon

Location: 2 miles south of the Central Oregon Highway, at a point about 7 miles east of Harper, Oregon. Sections 5 or 6, T 20 S., R. 43 E.W.M.

Area: 7 claims?

History: Located in winter of 1938.

Equipment: None. Plans to build road in (easy grade to highway) and put in open pit loading machinery.

Geology: The deposit lies outcropping in the walls of a valley which has dissected to a depth of about 100 to 200 feet a fairly level depositional surface in the Payette Formation, at this point made up of yellow tuffs, a few thin lavas, the tuffs containing calcareous concretions in considerable number and size.

The deposit consists of fine to coarse grey pumicite (usually coarser material towards the bottom) averaging from 10 to 20 feet in thickness, and outcropping more or less constantly over a horizontal distance of about 4000 feet. Its extent easterly is unknown, as it dips from 6 to 8° E. into the hillside. It is overlain by from 25 to 75 feet of yellow more or less massive tuff. A large quantity can be mined, however, before the overburden becomes too great.

Analyses: The following seive analyses were made at the Baker Office:

Screen mesh	Percentages Sample Numbers (Fine) 1	(Med) 2	(Coarse) 3		Fifty grams heated on Stove top for half hour 1	2	3
over 35			5.4	Wt.wet	50.0	50.0	50.0
50			7.8	" dry	32.0	29.1	31.8
65		15.9	15.1	loss	18.0	20.9	31.8
100	1.6	18.9	24.7	% loss	36%	42%	36%
150	4.8	9.8	27.7				
200	12.5	49.4	12.4				
through	81.3	44.7	8.0				
total	100.2	98.61	101.1				

Weight of one cubic inch is about 24.7 grams; which is near to 90 pounds per cubic foot, wet. Weight per cubic foot dry is calculated to be about 57.5 pounds.

The glass makes up nearly 99% of both fines and coarser samples. There are rare bits of quartz, and very rare flakes of brown biotite and greenish brown hornblende.

The glass has a refractive index of 1.493 - .001 which, according to curves given by W.O.George, Journ. Geol., Vol. 32, 1924, pp. 353-372, would cor-

6/46

Harper Pumicite — NAME

OLD NAMES

Pumicite (silica) — PRINCIPAL ORE

MINOR MINERALS

20S — T; 43E — R; 5 & 6 — S

PUBLISHED REFERENCES

Malheur ..... COUNTY

Malheur ..... AREA

..... ELEVATION

..... ROAD OR HIGHWAY

7 miles to Harper ..... DISTANCE TO SHIPPING POINT

MISCELLANEOUS RECORDS

PRESENT LEGAL OWNER (S) E. J. Hagey ..... Address Burns, Oregon .....

Mr Stacey ..... " .....

....

....

OPERATOR .....

Name of claims	Area	Pat.	Unpat.

Name of claims	Area	Pat.	Unpat.

EQUIPMENT ON PROPERTY

MI-21

respond to a glass with about 74% silica.

There is no known natural glass to compare with this, if the following analyses, furnished by Mr. Hagey, are correct:

1. John F. Beede Lab., Portland, Oregon — FINES
2. Colorado Assaying Company, Denver, Colo. — FINES
3. " " " " " — COARSE
4. Gem State Assay Office, Boise, Idaho. — FINES
5. " " " " " " — COARSE

	1	2	3	4	5
SiO_2	92.6	92.5	97.7	94.0	98.0
Al_2O_3	5.4	5.0	1.5	—	1.5
FeO	1.8	.9	.03	.8	—
CaO	Tr	Tr	Tr	Tr	Tr
MgO	Tr	Tr	Tr	Tr	Tr
P_2O_5	—	.005	.04	.06	—

Economics: The location is such that a road may be run to the deposit for a nominal cost, and the truck haul to the siding at Harper is less than ten miles. A large amount may be mined with very little stripping of overburden, but after the first 100,000 tons has been mined stripping will be a large factor.

Calculating on a basis of 4000 ft. long by 1000 ft. wide, and 15 feet deep, with a weight of 90 pounds to the cubic foot, the tonnage would be 2,700,000.

Respectfully submitted
John Eliot Allen, Geologist
5 February 1939

STATE DEPARTMENT OF GEOLOGY AND MINERAL INDUSTRIES
ASSAY REPORT

August 16, 194

Sample description Hagey Silica (Burns, Oregon)

		Percent Silica
Sample # AP 38	Fine	69.3
Sample #AP39	Coarse	72.8

Leslie Richards, Assayer

Harper Pumicite (silica) Malheur District Malheur County

Owner: G. Earl Hagey, Burns, Oregon; Mr. Stacey, Burns, Ore.

Location: 2 miles south of the Central Oregon Highway, at a point about 7 miles east of Harper, Oregon. Sections 5 or 6, T 20 S, R 43 E.W.M.

Area: 7 claims?

History: Located in winter of 1938.

Equipment: None. Plans to build road in (easy grade to highway) and put in open pit loading machinery.

Geology: The deposit lies outcropping in the walls of a valley which has dissected to a depth of about 100 to 200 feet a fairly level depositional surface in the Payette Formation, at this point made up of yellow tuffs, a few thin lavas, the tuffs containing calcareous concretions in considerable number and size.

The deposit consists of fine to coarse grey pumicite (usually coarser material towards the bottom) averaging from 10 to 20 feet in thickness, and outcropping more or less constantly over a horizontal distance of about 4000 feet. Its extent easterly is unknown, as it dips from 6 to 8°E. into the hillside. It is overlain by from 25 to 75 feet of yellow more or less massive tuff. A large quantity can be mined, however, before the overburden becomes too great.

Analyses: The following sieve analyses were made at the Baker Office:

Screen mesh	Percentages Sample Numbers 1	2	3
over 35			5.4
50			7.8
65		15.9	15.1
100	1.6	18.9	24.7
150	4.8	9.8	27.7
200	12.5	49.4	18.9
through	81.3	44.7	8.0
total	100.2	98.6	101.1

Fifty grams heated on stove top for half hour

	1	2	3
Weight wet	50.0	50.0	50.0
" dry	32.0	29.1	31.8
loss	18.0	20.9	31.8
% loss	36%	42%	36%

Weight of one cubic inch is about 24.7 grams; which is near to 90 pounds per cubic foot, wet. Weight per cubic foot dry is calculated to be about 57.5 pounds.

The glass makes up nearly 99% of both fines and coarser samples. There are rare bits of quartz, and very rare flakes of brown biotite and greenish brown hornblende.

The glass has a refractive index of 1.493 .001, which, according to curves given by W.O.George, Journ. Geol., Vol.32,

1924, pp. 353-372, would correspond to a glass with about 74% silica.

There is no known natural glass to compare with this, if the following analyses, furnished by Mr. Hagey, are correct:

1. John F. Beede Lab. Portland, Oregon. FINES.
2. Colorado Assaying Company, Denver, Colo. FINES.
3. " " " " " COARSE.
4. Gem State Assay Office, Boise, Idaho. FINES.
5. " " " " " " COARSE.

	1	2	3	4	5
SiO_2	92.6	92.5	97.7	94.0	98.0
Al_2O_3	5.4	5.0	1.5	--	1.5
FeO	1.8	.9	103	.8	---
CaO	Tr	tr	tr	tr	tr
MgO	tr	tr	tr	tr	tr
P_2O_5	--	.005	.04	.06	--

(insert)

Economics: The location is such that a road may be run to the deposit for a nominal cost, and the truck haul to the siding at Harper is less than ten miles. A large amount may be mines with very little stripping of overburden, but after the first 100,000 tons has been mined stripping will be a large factor.

Calculating on a basis of 4000 feet long by 1000 feet wide, and 15 feet deep, with a weight of 90 pounds to the cubic foot, the tonnage would be 2,700,000.

Respectfully submitted,

John Eliot Allen

John Eliot Allen
Field Geologist

5 February 1939

STATE DEPARTMENT OF GEOLOGY AND MINERAL INDUSTRIES

ASSAY REPORT

Office Number

Grants Pass, Oregon
Baker, Oregon

August 16, 1940 193

Sample submitted by State Department of Geology and Mineral Industries

Sample description Hagey Silica (Burns, Oreg.)

The assay results given below are made without charge as provided by Chapter 176, Section 10, Oregon Laws 1937, the sender having complied with the provisions thereof.

NOTICE: The assay results given below are from a sample furnished by the above named person. This department had no part in the taking of the sample and assumes no responsibility, other than the accuracy of the assay of the material as furnished it by the sender.

Sample Number	GOLD Ounces per ton	GOLD Value	SILVER Ounces per ton	SILVER Value	Silica Percent	Silica Value			Total Value
AP38	Fine				69.3				
AP39	Coarse				72.8				

Market Quotations:
Gold $ per oz.
Silver $ per oz.
$ per oz.
$ per oz.

STATE ASSAY LABORATORY

Leslie Richan Assayer

150	4.8	9.8	27.7	% loss	36%	42%	36%
200	12.5	49.4	18.4				
through	81.3	44.7	8.0				
total	100.2	98.6	101.1				

Weight of one cubic inch is about 24.7 grams; which is near to 90 pounds per cubic foot, wet. Weight per cubic foot dry is calculated to be about 57.5 pounds.

The glass makes up nearly 99% of both fines and coarser samples. There are rare bits of quartz, and very rare flakes of brown biotite and greenish brown hornblende.

The glass has a refractive index of 1.493 .001, which, according to curves given by W.O.George, Journ. Geol., Vol.32,

State Department of Geology and Mineral Industries

1069 State Office Building
Portland 1, Oregon

Harper Pumicite * Malheur County

* Supplement #1 to a report under the above title by John Allen, Feb. 5, 1939.

Foreword: This occurrence was visited and sampled by the undersigned examiner, September 20, 1972, at which time five samples were taken from prominent natural outcrops at sites located many hundreds of feet apart. Three of these samples were continuous channel cuts over sections ranging between 5 and 13 feet in thickness and two were composited grabs of material taken at close intervals over sections estimated at 15 and 20 feet in thickness. The channel samples originated from near-vertical cliff-like exposures and the composited grabs from intermittently located exposures on sloping hillside terrain.

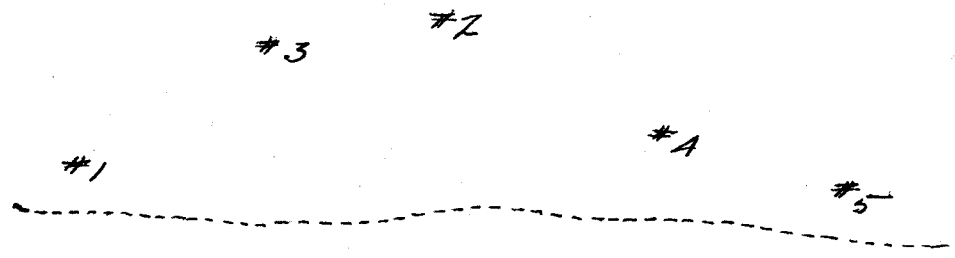
Analysis of these samples (DOGAMI Laboratory numbers P-38200 thru P-38204) yielded a silica content in amounts ranging between 69.50 and 70.84 percent. This is in line with the universally recognized silica range for lithic materials of this type. More importantly, it confirms the normalcy of the silica content of this pumicite as predicted by Allen on the basis of the refractive index determinations cited in his report. Consequently, the outlandishly high and wholly unprecedented silica content described in the owner-furnished analyses that Allen was up against at the time of his investigation can no longer be regarded as being even tentatively valid despite the prestigeous reputations of the various analytical concerns to which they are credited. Under the circumstances this occurrence continues to merit the description Allen indicated, —— a typical pumicite deposit sizable enough and clean enough to be potentially important from a minerals resource standpoint when considered in terms of the uses for which pumicite can be minded but in no sense a source of ultra high purity silica sand.

The particulars concerning the samples and analytical results on which the above conclusion is based are described fully in the following paragraphs. In this connection, however, it is to be noted that the laboratory facilities which this department now has were not developed beyond the fire assay stage during the winter of 1938-1939. This is why it is today possible to make independent compositional confirmations on samples of our own taking in the instance of materials of this type and why the refractive index indications constituted the only analytical tool at Allen's disposal at the time he had the occurrence under investigation.

State Department of Geology and Mineral Industries

1069 State Office Building
Portland 1, Oregon

Sample data: Locations: The chart below is of diagrammatical accuracy and designed only to illustrate the approximate relative locations of the sample sites listed hereafter. On this basis site No. 1 represents the first major exposure of this pumicite to be encountered adjacent to the access road when approaching the main outcrop area from highway 20, and No. 5, the last. Sites Numbers 2, 3, and 4 thus occur at greater distances from the road in conformity with the trend of the belt of bluffs and hillside outcroppings encircling this portion of the valley.



Descriptions:

No. 1	(AGB-37)	Short offset cuts and intermediate grabs from erratically exposed series of massive and less prominent outcroppings adjacent to road over a sectional thickness of about 15 feet.
No. 2	(AGB-38)	Continuous 13 foot cut down well-exposed bluff.
No. 3	(AGB-39)	Continuous 12 foot cut down well-exposed bluff.
No. 4	(AGB-40)	Composite from numerous randomly located exposures along flank of ridge but within a section of about 20 feet in thickness out of a possible 50 feet or more.
No. 5	(AGB-41)	Five foot cut down old prospect face at base of an estimated 15 foot section at foot of hill.

Analytical results: L. L. Hoagland, chemist, October 2, 1972

Field number	Lab. number	Silica content
No. 1 (AGB-37)	P-38220	70.50 percent
No. 2 (AGB-38)	P-38221	70.20 "
No. 3 (AGB-39)	P-38222	70.84 "
No. 4 (AGB-40)	P-38223	69.50 "
No. 5 (AGB-41)	P-38224	70.10 "

Report by: N.S. Wagner, January 23, 1973

respond to a glass with about 74% silica.

There is no known natural glass to compare with this, if the following analyses, furnished by Mr. Hagey, are correct:

1. John F. Beede Lab., Portland, Oregon — FINES
2. Colorado Assaying Company, Denver, Colo. — FINES
3. " " " " " — COARSE
4. Gem State Assay Office, Boise, Idaho. — FINES
5. " " " " " " — COARSE

SEE REPORT BY JNSM 2-1073

	1	2	3	4	5
~~SiO~~ SiO_2	92.6	92.5	97.7	94.0	98.0
Al_2O_3	5.4	5.0	1.5	--	1.5
FeO	1.8	.9	.03	.8	---
CaO	Tr	Tr	Tr	Tr	Tr
MgO	Tr	Tr	Tr	Tr	Tr
P_2O_5	--	.005	.04	.06	--

Economics: The location is such that a road may be run to the deposit for a nominal cost, and the truck haul to the siding at Harper is less than ten miles. A large amount may be mined with very little stripping of overburden, but after the first 100,000 tons has been mined stripping will be a large factor.

Calculating on a basis of 4000 ft. long by 1000 ft. wide, and 15 feet deep, with a weight of 90 pounds to the cubic foot, the tonnage would be 2,700,000.

Respectfully submitted
John Eliot Allen, Geologist
5 February 1939

STATE DEPARTMENT OF GEOLOGY AND MINERAL INDUSTRIES
ASSAY REPORT

August 16, 194

Sample description Hagey Silica (Burns, Oregon)

		Percent Silica
Sample # AP 38	Fine	69.3
Sample #AP39	Coarse	72.8

Leslie Richards, Assayer

P
Y

PACIFIC POWER & LIGHT COMPANY
Public Service Building
Portland, Oregon

September 18, 1940

Mr. Earl K. Nixon, Director
State Department of Geology and
Mineral Industries
329 S. W. Oak Street
Portland, Oregon

Dear Mr. Nixon:

I have just returned from a very interesting visit in the East and have received the following specifications for domestic pumice for soap making:

"We have bought foreign pumice almost exclusively and what little domestic pumice we have bought has been secured after the examination of a sample.

"Below will be found some specifications which may be used as a guide for evaluating this material for soap:

1. Sieve test, not less than 97% shall pass a 165 mesh bolting silk (#17 standard). The portion retained on the silk shall all pass 100 mesh sieve, Tyler Standard Scale.

2. Sulfuric acid test - the pumice treated with 66°Be' H_2SO_4 shall not show a color more than slightly darker than the same pumice moistened with water."

I believe you have done some work on the so-called silica for Mr. Hagey of Burns, Oregon, and I would like to know if in your opinion Mr. Hagey's material would meet these tests.

Yours very truly,

(Signed): H. W. DERRY

H. W. Derry
Manager, New Industries Department

HWD:ks

C O P Y

STATE DEPARTMENT OF GEOLOGY AND MINERAL INDUSTRIES

ASSAY REPORT

Grants Pass, Oregon
Baker, Oregon

September 30, 1940 19

Sample submitted by H.W.Darry, Public Service Building

Sample description: 2 samples pumicite, fine and coarser grained.

The assay results recorded below are made without charge as provided by Chapter 176, Section 10, Oregon Laws 1937, the sender having complied with the provisions thereof.

NOTICE: The assay results recorded below are from a sample furnished by the above named person. This Department had no part in the taking of the sample and assumes no responsibility, other than the accuracy of the assay of the material as furnished it by the sender.

	GOLD		SILVER						
Sample Number	Ounces per ton	Value	Ounces per ton	Value	Percent	Value	Percent	Value	Total Value
Each sample treated (one gram) with fuming ~~nitric~~ sulfuric acid (66°Be') and compared as to color with check sample treated with water. Samples treated with acid turned dark brown, samples treated with water turned light gray.									

Market Quotations:

Gold	$	per oz.
Silver	$	per oz.
	$	per lb.
	$	per lb.

STATE ASSAY LABORATORY

Assayer