

# State Department of Geology and Mineral Industries

702 Woodlark Building  
Portland 5, Oregon

## COVE SULPHUR PROSPECT

## Umpqua Area

**Owners:** Ray C. Spencer, Days Creek, Oregon (holds power of attorney); Lottie Spencer, Days Creek, Oregon; Earl Wood, Days Creek, Oregon; Blanche Zimmerlee, Trail, Oregon; Elsie Poole, Glendale, Oregon; Ira Poole, Canyonville, Oregon; Leslie Poole, Grants Pass, Oregon; Alva Renfro (unknown address).

**Location:** Secs. 2, 3, 10, 11, T. 29 S., R. 3 E., northeast of Weaver Mt. at headwaters of Foster Creek near Hole-In-The-Ground. Elevation 5600 feet. (From Grants Pass 75 miles to Union Creek, 2 miles east on Diamond Lake Highway, turn left on Forest Service road to Hershberger Lookout 10 miles, leave car at switchback and hike 4 miles on trail to Hole-In-The-Ground.)

**Area:** Eight placer claims.

**History:** Reported in Bull. 14-C, volume 1, pp. 131-132, State Department of Geology and Mineral Industries, 1940, as Last Chance sulphur mine, which is quoted:

## LAST CHANCE SULPHUR MINE

## Umpqua Area

**Owners:** There are 18 claims according to Mr. W. L. Huckabay. The owners are as follows:

Last Chance No.	1	- Frank Snyder, Hood River, Oregon
"	"	" 2 - W. L. Huckabay, Hood River, Oregon
"	"	" 3 - Mrs. M. L. Snyder, Hood River, Oregon
"	"	" 4 - Carlton Brown, Fortuna, California
"	"	" 5 - Albert Huckabay, Assessor's Office, Portland, Oregon.
"	"	" 6 - Tom Campbell, Hood River, Oregon
"	"	" 7 - Mary Campbell, Hood River, Oregon
"	"	" 8 - Robert Lenard, Hood River, Oregon
"	"	" 9 - Mrs. M. M. Evans, Trail, Oregon
"	"	" 10 - Owner unknown
"	"	" 11 - Bill Zimmerley, Trail, Oregon
"	"	" 12 - Mrs. Denny Zimmerley, remarried, address unknown
"	"	" 13 - Owner unknown
"	"	" 14 - Owner unknown
"	"	" 15 - H. C. Clark, Weaverville, Oregon
"	"	" 16 - D. L. Zimmerley, Trail, Oregon
"	"	" 17 - M. M. Evans, Trail, Oregon
"	"	" 18 - Merle Evans, Trail, Oregon

"Location: One mile northeast of Weaver Mt. on the headwaters of Castle Rock Creek at an elevation of 5,000 feet in secs. 2, 3, 10, and 11, T. 29 S., R. 3 W. Most of the work has been done on the Last Chance No. 1 and 2 claims which are located in sec. 3 about 600 feet north of the common corner of the sections named above. These claims are about 4 miles by trail from the Diamond Lake Highway via Foster Creek."

"Area: Eighteen full quartz claims held by location. None of these claims has been surveyed, and there is no accurate map."

"History: Last Chance Nos. 1 and 2 were located in 1904, and relocated in 1932 by the present owners. The other claims have been located since 1932."

"Geology: The country rock is rhyolite. Elemental sulphur occurs as small lenses and masses in a well-defined fault zone filled with clay gouge and fault breccia. The zone, having a maximum width of 12 feet, strikes northerly and southerly and dips 45° west. It can be traced on the surface for a distance of over half a mile. Sulphur is exposed both in two shallow open cuts about 100 feet apart in the fault zone, and also on the outcrop at more widely separated points, giving an indicated length to the deposit of about 200 feet. Deposition appears to have been along a fairly well defined plane in the clay about 3 feet from the hanging wall, forming narrow lens-shaped masses varying in width from a fraction of an inch to 10 inches. A maximum width of 18 inches was reported."

"A sample from each open cut, covering a width of 10 inches at each place, was taken. From the north open cut, the sample yielded 94.9% sulphur, and from the south open cut 94.9% sulphur."

"Other similar deposits are reported to occur in the vicinity; one is said to be one-half mile to the west, and another about one-quarter mile south of the exposures described above."

"Development: A small amount of work consisting of two short tunnels, both caved, and two open cuts, has been done. Untimbered openings in such material soon cave."

"Miscellaneous Information: There is no equipment on the property. Timber and water are available. It is estimated that a road to give an outlet to the Diamond Lake Highway would cost about \$2,500. Such a road would not be open during winter months because of snow, which reaches a maximum of 15 feet. Nearest railroad connections would be (1) Yamaay Siding, 38 miles northeast, on the Cascade Line of the S.P.R.R., and (2) Madford, a distance of 65 miles."

"Informant: Morrison 38."

Development: Same as stated in the 1938 report. The tunnels are still caved. The open cuts cave each year and it is difficult to form any estimates of probable quantity or quality.

The other occurrences mentioned by Morrison were not visited as there was no additional information to be obtained.

Geology: Country rock is Cascade volcanics, probably andesite or basalt, and in parts is highly vesicular. Hydrothermal alteration has affected the rocks over a large area, bleaching them, and in many instances, softening them to clayoid masses (Mayger type of weathering). Native sulphur is exposed in two open cuts. The sulphur vein strikes S. 60° E., and dips 58° S.W. in the upper cut, and strikes S. 30° E., and dips 60° S.W. in the lower cut.

Native sulphur occurs in a vein within a fault zone that is filled with blue clay gouge. The sulphur occurs in lenticular masses varying from 1 inch to 10 inches in width, and each lentil is not over 3 feet long separated by 1 foot of thin vein. Two such lentils can be seen in the upper cut. Sulphur that definitely was "in place" was not seen in the lower cut.

There is a suggestion of banding in the sulphur at one point. Occasionally, discrete sulphur masses are found within the gouge with no apparent connection with the vein.

It seems evident that fracturing produced the fault zone into which sulphur gases were injected. Deposition of sulphur occurred within the gouge. It is interesting to note the presence of abundant sulfides in the gouge, and to a certain extent, in the wall rock.

Origin of the Sulphur: Volcanism has been active in the region as evidenced by Crater Lake to the east and the Rabbit Mars plug to the southwest; and the bleached and altered volcanics.

Native sulphur is found in a clay zone that is several feet wide. It is unusual to find a clay gouge of this width so it is probable that while some of the clay is gouge, most of it was formed by hydrothermal alteration along a fault zone. Solfataric gases, heavily charged with sulphur, worked their way through the fault zone and the sulphur was reduced by action with the blue clay. Pyrite formed in the blue clay. Along the central channel reduction was more intense and native sulphur was deposited in a narrow vein. Deposition began at the walls and was completed toward the middle as evidenced by the banded nature of the sulphur.

Occasional discrete masses of native sulphur in the blue clay may represent portions of the vein that were detached and later rolled into the clay. Or there may have been minor channels which dead-ended in the clay.

Miscellaneous: No equipment except small tools. There is a well equipped cabin. Timber is white fir and is plentiful. Water runs the year around in the creek. There are two probable road outlets; one over the present trail to Hershberger Lookout a distance of 4 miles; the other is 6 miles down Foster Creek. The latter route is preferred as it would mean 6 miles to the Diamond Lake Highway, and the former would mean 14 miles. Cost of construction might vary between \$750 and \$1,500 per mile.

Snowfall reaches a maximum of 15 feet. The "closed season" ordinarily is from November 1 to June 1. It is 65 miles to the R.R. at Gold Hill.

Beneficiation of the sulphur is probable. The blue clay sticks to the sulphur so tightly that scrubbing will be essential.

Informant: Ray C. Spencer and Ray C. Treasher, October 23, 1941

Report by: Ray C. Treasher, October 27, 1941.

Oregon Department of Geology & Mineral Industries  
5375 Monument Drive  
Grants Pass, OR 97526

Frank R. Hladky  
Resident Geologist

Dear Frank:

I am faxing with this letter results of testing of what is now called OR-GRO samples. Tests by EM, Portland, OR., also a test report by Hayes Mineral Service, Denver, CO submitted by who I believe was the original locator of the Foster Creek claims.

This last core sample was taken just at Foster Creek just to the South East where we had our original pit that has since been reclaimed. Hibbard was looking for precious metals and had no idea of the nutrient qualities of the minerals.

I decided to send something that might be of interest to you on the area to the North and West of the claims near the hole in the rock which is now in the Wilderness area. We have been on the site and seen the outcroppings of elemental sulfur and the blue clay material referred to which smells, looks and has similar physical characteristics to the OR-GRO.

Thanks for your time today.

Lee Meyer  
Phone fax 503-899-1399

TO: Endurance Minerals Inc.  
 SUBJECT: ANALYZE "ENDURANCE MINERAL" SAMPLE  
 REF.NO.: 5110018

Table I. Results of Analyses of Endurance Mineral Sample

Analyses, Percent	Method, AOAC	Endurance Mineral
Total water	2.012, 13th Ed.	8.0
Acid insoluble ash	2.015, 11th Ed.	77.9
Total phosphorus, P <sub>2</sub> O <sub>5</sub>	2.019, 13th Ed.	0.4
Comprehensive nitrogen	2.059, 13th Ed.	<0.1
Water soluble chlorine	2.119, 13th Ed.	<0.1
Acid soluble boron	2.114, 13th Ed.	<0.01
Total sulfur	2.160, 13th Ed.	3.4
Analyses, Parts Per Million	Method, AOAC	Endurance Mineral
	2.109, 13th Ed.	
Calcium		5700
Iron		5200
Magnesium		4800
Manganese		600
Sodium		290
Potassium		120
Zinc		65
Copper		30
Arsenic		3
Cadmium		<10
Chromium		<10
Nickel		<10
Vanadium		<10
Antimony		<10
Bismuth		<10
Selenium		<10
Cobalt		<5
Molybdenum		<5
Niobium		<100

.57  
 .52  
 .48  
 .06  
 .029  
 .012  
 .0065  
 .0020  
 .0002





SAMPLE NUMBER -- M1-M4

Major Oxide Percentages

reported	normalized
SiO <sub>2</sub> % = 62.5	SiO <sub>2</sub> % = 66.07464
TiO <sub>2</sub> % = .7	TiO <sub>2</sub> % = .740036
Al <sub>2</sub> O <sub>3</sub> % = 17.24	Al <sub>2</sub> O <sub>3</sub> % = 18.22603
Fe <sub>2</sub> O <sub>3</sub> % = 4.98	Fe <sub>2</sub> O <sub>3</sub> % = 5.264828
FeO % = 0	FeO % = 0
MnO % = .13	MnO % = .1374352
MgO % = 1.78	MgO % = 1.881806
CaO % = 4.02	CaO % = 4.249921
Na <sub>2</sub> O % = 1.05	Na <sub>2</sub> O % = 1.110054
K <sub>2</sub> O % = 2.05	K <sub>2</sub> O % = 2.167248
P <sub>2</sub> O <sub>5</sub> % = .14	P <sub>2</sub> O <sub>5</sub> % = .1480072

oxide total = 94.58999

Normalized (100%) = 100

Assigned Fe<sub>2</sub>O<sub>3</sub>/(Fe<sub>2</sub>O<sub>3</sub>+FeO) = .15

Calculated FeO = 4.475104

Calculated Fe<sub>2</sub>O<sub>3</sub> = .7897239

CIPW Normative % Mineral Abundances (normalized)

quartz = 36.82164	(QAPF diagram) Q= 46.52647	41
feldspar = 42.31962	%alkali= 30.26476	16
...orthoclase = 12.80793	(QAPF diagram) A= 16.18363	
...plagioclase = 29.51169	An 68.17069 (QAPF) P= 37.28989	37
.....albite = 9.393369		
.....anorthite = 20.11832		
pyroxene = 11.28589		
...hypersthene (opx) = 11.28589		
.....enstatite (Mg-hyp) = 4.687009		
.....ferrosilite (Fe-hyp) = 6.598881		
opaques = 2.550538		
...magnetite = 1.145026		
...ilmenite = 1.405513		
corundum = 6.681343		
apatite = .3427189		
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total = 100.0017		



October 24, 1941

# State Department of Geology and Mineral Industries

702 Woodlark Building  
Portland, Oregon

## COVE SULPHUR PROPERTY

Umpqua Unclassified

This inspection was made at the request of Mr. Ben Flaxel, Attorney, North Bend. It appears that Mr. Patrick Lynch of North Bend secured a lease from the owner of the property for whom Mr. Ray C. Spencer holds a power of attorney. Mr. Flaxel contacted me by telephone the latter part of September relative to inspecting this sulphur property. He was positive it was not the same as the one Morrison reported upon; that it was necessary to make the report immediately, as they had an opportunity to sell the sulphur to the Empire Pulp Mill. I postponed the inspection until we could secure more definite data about location, etc. It finally developed that it was the same property as that inspected by Morrison.

Flaxel contacted Wesley Paulsen at Marshfield and Paulsen was instructed to inspect the property on October 6. Paulsen came to Grants Pass, but when he contacted Flaxel on the 5th, he was told that snow prevented the inspection.

Later Flaxel contacted me by mail stating that he was ready to have the property inspected. I sent him a R.I.P. form which he returned with a great deal of misinformation, and in the letter he indicated that a great deal of work had been done on the deposit since Morrison was there. At my suggestion he contacted the Portland office, giving all of his friends and getting them to write urging the inspection, stressing throughout that sufficient work had been done over the 1938 report to justify the trip.

I visited the property on October 23, with Ray C. Spencer, owner. It was not apparent to us that any work had been done. On one cut a narrow seam of sulphur varying from 1 inch to 10 inches was exposed in a height of 10 feet. The other cut has slumped and is filled with clay. Mr. Spencer dug for an hour and was unable to reach anything that looked like sulphur in place.

Flaxel, Lynch, and others had been to the property on Sunday, October 19, so there is no reason why they should not have known that the sulphur was not exposed. Either Flaxel is abysmally unintelligent or else he has been deliberately misleading us.

He has had several men who supposedly were working up there to open up the property; he has assured us on numerous occasions that work has been done to open up the property to justify an inspection. Still further I checked with residents at Union Creek, who are at a loss to account for snow over 2 inches deep in the high country at any time this year.

From the nature of Flaxel's correspondence, it is apparent to me that he has been trying to get us to make a professional examination and let the State bear the expense. He has also been trying to get us to make a statement that he can use to sell the sulphur. Mr. Spencer



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tells me that Lynch has a contract to work the deposit. The lease stipulates that they have one year in which to develop the property. After that time, they begin the renewal of sulphur on a 50 cents a ton royalty basis. In event of nonoperation, there is a minimum, monthly royalty charge.

In the first place, I seriously doubt if there is sufficient sulphur present to justify an operation. From four to six miles of mountain road will have to be constructed, and it is then sixty miles to railhead at Gold Hill. It is apparent from the tone of Flaxel's letter that he and his associates are unfamiliar with mining, which further complicates the situation.

Ray C. Treasher  
October 24, 1941

CONFIDENTIAL



# State Department of Geology and Mineral Industries

702 Woodlark Building  
Portland 5, Oregon

Douglas County  
Umpqua Area

Supplementary report on the Cove Sulphur prospect.

## Note:

Information regarding history and ownership, occurrences of sulphur and thickness of blue clay in the caved workings was furnished by O. E. Zimmerlee, Trail, Oregon.

## Owners:

1. Ray C. Spencer, Days Creek, Oregon. Holds power of attorney on all claims.
2. Mrs. R. C. (Lottie) Spencer, Days Creek, Oregon.
3. Mrs. Blanche Zimmerlee, Trail, Oregon.
4. Owen Emil Zimmerlee, Trail, Oregon.
5. Earl Wood, P.O. Box 78, Eagle Point, Oregon.
6. Ira Poole, Tiller Ranger Station, Tiller, Oregon.
7. Mrs. Elsie Poole, Tiller Ranger Station, Tiller, Oregon.
8. ~~W. J. Spencer, Days Creek, Oregon~~

## Location:

Same as in report of October 27, 1941.

## Area:

Eight placer claims, grouped to form an association claim.

## History:

The original discoverer was T. J. Conover, grandfather of Mr. O. E. Zimmerlee. The discovery was made while herding sheep for Robert Minter. Mr. Conover and a companion, Mr. Daly, staked out one claim each. This was in 1913. Owen Conover was next to stake a claim and he was followed by Mrs. Lottie Wood Spencer. From 1920 to 1930 considerable interest was shown by relatives and others staking claims in the vicinity.

1916



Development:

Same as stated in the 1938 and 1941 reports. The tunnels are still caved. Most of the open cuts are also caved. The steep hillsides slide each year destroying most of the assessment and other work that is done.

Geology:

This investigator's interpretation of the geology is essentially the same as that recorded in the 1941 report.

The area is within the volcanics of the Western Cascades and is near the Crater Lake area of Recent vulcanism. It is possible that prominent landmarks of the area such as Rabbit Ears, Highrock Mountain, and Devils Slide may mark plugs of volcanoes of the Western Cascade series. If so, then this has been an area of intense vulcanism through much of the Cenozoic.

The blue clay which is referred to in both the 1938 and 1941 reports is thought to be due to alteration of the country rock as the result of gases and hydrothermal solutions. No evidence could be obtained to prove it as a fault gouge or the existence in this area of a major fault, although one may exist. The distribution and extent of the blue clay, which contains abundant pyrite disseminated through it, could not be determined. All the pits that were opened up and many of the old caved workings indicated its presence. This would suggest that it was fairly extensive. Mr. O. E. Zimmerlee, who is well acquainted with the area, stated that blue mud similar to that found near the sulphur claims could be found at many places.

On this investigation native sulphur was seen in the lower pits only. It appeared to occur in a vein within the blue clay. By panning small particles of sulphur were found scattered in the clay but these may have come from blasting in the cuts. The overlying rock appeared to be a highly altered lava but its relation to the blue clay was not determined. Perhaps better and more extensive exposures would help in the interpretation of this relation.

The sulphur seen in place occurred as lenses and boulders up to 11 inches wide and 24 inches long. Although the sulphur was not continuous across the face of the cuts a dark-colored streak a fraction of an inch wide connected the masses. It was reported that in an open cut made years ago, sulphur was exposed in a continuous band 50 feet long and had an average width of 8 inches. The maximum width of sulphur in this cut was reported as 11 inches.

An attitude on the sulphur - dark-colored streak gave a strike of N. 10° W. and a dip of 30° to the S.W.



Four samples of the blue clay with disseminated pyrite were taken from the cuts now open. Results of the analysis on these samples showed:

<u>Sample number</u>	<u>Analytical results</u>
LG-454 P-11742	S - 2.78%
LG-455 P-11743	S - 2.10%
LG-456 P-11744	S - 7.25%
LG-457 P-11745	S - 5.69%

Report by: Hollis M. Dole

Date of report: August 13, 1951

Informant: O. E. Zimmerlee

References: Department reports on the Cove Sulphur prospect, 1938, 1941.

Howel Williams, "Geology of Crater Lake National Park, Oregon". Carnegie Institution of Washington Publication 540, Washington, D. C., 1942.

Callaghan and Buddington, "Metalliferous Mineral Deposits of the Cascade Range in Oregon". U. S. Geological Survey Bulletin 893, 1938.



STATE DEPARTMENT OF GEOLOGY AND MINERAL INDUSTRIES

ASSAY REPORT

Grants Pass, Oregon  
~~Baker, Oregon~~

November 4, 1941

Sample submitted by Ray C. Treasurer for  
~~Ray C. Spencer~~, Days Creek, Oregon

Sample description: Zinc oxide used with sodium carbonate in fusion as  
described by law, probably does not give high enough results. Other methods  
of assay will be tried.

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.

Sample Number	GOLD		SILVER		Sulphur			Total Value
	Ounces per ton	Value	Ounces per ton	Value	Percent	Value	Percent	
					89.11			

Market Quotations:

Gold            ⌘           per oz.  
 Silver         ⌘           per oz.  
                  ⌘           per lb.  
                  ⌘           per lb.

STATE ASSAY LABORATORY

P. G. Bassett  
 Assayer



STATE DEPARTMENT OF GEOLOGY AND MINERAL INDUSTRIES

ASSAY REPORT

Office Number

1291  
1292

Grants Pass, Oregon

~~Baker, Oregon~~

November 2, 1938

Sample submitted by J. E. Morrison, Mining Geologist -- Grants Pass, Oregon

Sample description Two samples of native sulphur from the property of Mr. Frank Snyder:

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		SILVER		Sulphur				Total Value
	Ounces per ton	Value	Ounces per ton	Value	Percent	Value	Percent	Value	
1					94.9				
2					84.9				

Market Quotations:

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

State Assay Laboratory

*Albert C. Lawrence*  
Assayer