Geoffrey Garcia

12303 Gallce Rd.
Merlin, Oregon 97532
(541) 474-2717

October 6, 1998

George Calvert
425 Calvert Dr.
Grants Pass, Oregon 97526

George:

Re: Asbestos in your pit

Enclosed is the report from Western Analytical Laboratory regarding the samples of fibrous looking crystals present in your rock quarry on Jump Off Joe Creek.

It appears that many rocks and boulders of serpentine in your quarry have long radiating fiberous looking crystals. During my inspection on September 24, I collected numerous rocks with the long crystals and attempted to scratch fibers loose. When the crystals were scratched, they broke down into small flakes instead of fibers indicating that they were probably a common type of serpentine. Rocks from five different locations which appeared to have the highest amount of long radiating fibrous looking crystals were collected and sent to Western Analytical Laboratory to be tested for asbestos. Some of these samples came from the boulder pile on the west side of the pit where the fresh unweathered samples of the fibrous looking crystals could be obtained. Western Analytical Laboratory could not find any asbestos or other fibrous minerals in the samples which would be considered asbestiform by the EPA.

Yours truly,

Geoffrey Garcia
cc. Duane Schultz

OCT 19 1998
98-109

Geoffrey Garcia

12303 Gallce Rd.
Merlin, Oregon 97532
(541) 474-2717

October 16, 1998

George Calvert
425 Calvert Dr.
Grants Pass, Oregon 97526

Frank Hladky

George:

Re: Asbestos in your pit

Enclosed is the report from Coffey Laboratories regarding the samples of fibrous looking crystals present in your rock quarry on Jump Off Joe Creek.

This report essentially confirms the report of Western Analytical Laboratory that the fibrous looking minerals in your rock quarry are not asbestos.

Yours truly,

Geoffrey Garcia
cc. Duane Schultz

Western Analytical Laboratory

3017 N. San Fernando Blvd., Suite A • Burbank, CA 91504

Telephone: (818) 845-7766
Fax: (818) 845-7742

Geoffrey Garcia
12303 Galice Road
Merlin, Oregon 97532

October 2, 1998

SUBJECT: Polarized Light Microscopy Analysis for Asbestos of Composite Sample of Rocks

METHODOLOGY: "Method for the Determination of Asbestos in Bulk Building Materials" (EPA 600/R-93/116)

According to EPA regulations, classification of a fibrous material as asbestos containing requires that it consist of one or more of these six minerals -- Chrysotile, Amosite, Crocidolite, Tremolite, Actinolite, and Anthophyllite -- and also be asbestiform.

Your sample is a non-asbestiform serpentine, which actually is a general name applied to several members of a polymorphic group. These minerals have the same chemistry but different structures. They are: Antigorite, Clinochrysotile, Lizardite, Orthochrysotile, and Parachrysotile.

Based on optical and physical properties (see below) , the composite sample of rocks you submitted for analysis contains no asbestos. The fibers in the rock are Antigorite/Lizardite.

PHYSICAL PROPERTIES	OPTICAL PROPERTIES
Color: olive green **Morphology:** short prismatic fibers; many cleavage fragments **Aspect Ratio** (ratio of length to width): 5:1 to 10:1; in very few cases 20:1 (in contrast, asbestos fibers have an aspect ratio of more than 100:1) **Fiber Tensile Strength:** very low / crumble easily (in contrast, asbestos fibers have very high tensile strength as demonstrated by bending without breaking, and in large specimen samples fibers are easily parted from it)	**Birefringence:** moderate **Pleochroism:** colorless/light green **Refractive Indices:** Parallel: 1.555 - 1.570 Perpendicular: 1.545 - 1.569 **Extinction:** Parallel **Sign of Elongation:** (+)

Very Truly Yours,

WESTERN ANALYTICAL LABORATORY

Mike Maladzhikyan
Laboratory Director

Report Date: October 6, 1998
Job#: AB-980930CT-1
PO#: None Provided
Project#: None Provided
Page: 2 of 2

Geoffrey Garcia

Subject: ASBESTOS BULK SAMPLING ANALYSIS (EPA-600/4-82-020)

Analytical Method: Polarized Light Microscopy with Dispersion Staining

ASBESTOS IN TOTAL SAMPLE = 0%.

Sample ID: Rocks

ASBESTOS FINDINGS: Asbestos is not present in: 980930CT-1, (100% of Total Sample)

Lab Number	Gross Sample Appearance	Asbestos Present	Other Fibrous Materials	Non-Fibrous Materials
980930CT-1	Hard Black, Stone-Like Fragments, with Traces of Yellow Material	None	None	Non-Asbestiform Mineral Particulate 100%

Coffey Laboratories, Inc.
12423 N.E. Whitaker Way • Portland, OR • 97230 • (503) 254-1794 • FAX (503) 254-1452

Post-it® Fax Note 7671	Date 9-21-98	# of pages ▶ 1
To BILL OLSON	From FRANK HLADKY	
Co./Dept. JO CO HEALTH	Co. DOGAMI	
Phone #	Phone # 476-2496	
Fax # 476-7755	Fax # 474-3158	

Oregon

DEPARTMENT OF GEOLOGY AND MINERAL INDUSTRIES

Grants Pass Field Office

September 21, 1998

Mr. Bill Olson
Josephine County Health Department
819 NE Piedmont
Grants Pass, OR 97526

Dear Bill:

On September 17, 1998 the two of us visited the Calvert Quarry on Jumpoff Joe Creek. We were accompanied by Rick Calvert.

The quarry is in serpentine. Most of the rock is massive and fine-grained, a texture that is typical of the non-asbestiform serpentine minerals antigorite and lizardite. On a cursory examination of about a dozen randomly selected rocks, however, I discovered that it is easy to find small fans of long slender crystals. We showed some of these to Rick. The crystals we found are frequently altered becoming almost as soft as talc, particularly where weathering has penetrated the rock. These crystals might be tremolite or, less likely, actinolite, minerals regulated as asbestos. Alternatively these crystals could be pseudomorphs, in other words, copycat shapes, of tremolite that the non-asbestiform serpentine minerals can adopt.

There does not appear to be any chrysotile, an asbestos mineral, in any of the samples we inspected. Chrysotile takes on a form that looks similar to threads of glass.

After we left the Calvert's, the two of us also inspected the ODOT pit near Sportsman Park. We did this as a matter of comparison. The ODOT pit is in the same band of serpentine as the Calvert pit, and apparently, from what you have heard from ODOT who had the pit tested, does not contain any asbestos. On our inspection, we found none of the small fans of long slender crystals.

I discussed the mineralogical differences with Len Ramp, retired DOGAMI, who mapped these rocks at the base of Walker Mountain. He says that differences in hydrothermal alteration when the rock was forming can produce some of the differences in the textures we observed. Because of his past experience in serpentine rocks, he would probably be a good resource if needed. He does some consulting.

I would recommend that the rock at the Calvert pit be tested, making sure to test the long slender crystals. I would be fairly confident that the laboratory that ODOT uses would give satisfactory results. A typical procedure would be to cut a thin section of the rock and observe the minerals under a petrographic microscope. If the lab knows to look just for asbestos, the cost should not be too great. If the long slender crystals are not asbestos, then there should be no need for extensive sampling.

Sincerely,

Frank R. Hladky
Resident Geologist

5375 Monument Drive
Grants Pass, OR 97526
(503) 476-2496