WESTERN NUCLEAR, INC.

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March 13, 1973

Mr. Roy Hurlbut
Utility Engineer
Public Utility Commissioner
215 Public Service Building
Salem, Oregon 97310

RE: Uranium Resources
Lakeview, Oregon

Dear Mr. Hurlbut:

Pursuant to our telephone conversation today, I hope the following information is what you are trying to secure:

INTRODUCTION

This report is a compilation of intercompany memorandums, company project progress reports, field recommendations, A.E.C. and early operator reports, published periodicals, and information obtained through verbal communications with people directly or indirectly associated with the area if not the property itself.

MINERAL RESOURCE POTENTIAL WHITE KING AREA

In September, 1957, E. J. Longyear Company, on the basis of 241 drill holes, estimated reserves on a wet tonnage basis of 559,000 tons of 0.38% U_3O_8.

In January, 1959, Lakeview Mining Company estimated indicated reserves of 504,999 wet tons of 0.34% U_3O_8 and inferred reserves of 153,261 wet tons of 0.32% U_3O_8.

In April, 1959, Mr. Roland Schwartz, geologist for the Atomic Energy Commission, used over 500 drill holes to estimate the indicated reserves at 771,000 wet tons of 0.35% U_3O_8 and inferred reserves of 135,000 tons of 0.29% U_3O_8.

During the period from 1962 to 1964, additional reserves were added with mine development work. The maps and records of this work are not sufficiently verified to permit an accurate estimate of the reserves. Apparently not less than 150,000 tons of reserves were added with this work, but no grade value can now be established for this tonnage. This could amount to approximately 700,000 pounds U_3O_8 that is not included in the reserve figures listed below.

Correcting the wet tons to a dry basis by using a factor of 22% and deducting 125,000 tons of ore that has been shipped to the mills, the following is a review of two reports completed in 1959.

LAKEVIEW MINING COMPANY

Wet Tons @ 0.34%	504,999	
Mine Production	-125,000	
Total After Production	379,999	
22% Water Factor	-83,599	
Dry Tons @ .34%	296,400	
Pounds U_3O_8 @ .34% (Indicated)		1,304,160
Wet Tons @ .32%	153,261	
22% Water Factor	-33,717	
Dry Tons @ .32%	119,544	
Pounds U_3O_8 @ .32% (Inferred)		765,081
	Total Lbs. U_3O_8	2,069,241

ATOMIC ENERGY COMMISSION

Wet Tons @ .35%	771,000	
Mine Production	-125,000	
Total After Production	646,000	
22% Water Factor	-142,120	
Dry Tons @ .35%	503,880	
Pounds U_3O_8 @ .35% (Indicated)		3,527,160
Wet Tons @ .29%	135,000	
22% Water Factor	-29,700	
Dry Tons @ .29%	105,300	
Pounds U_3O_8 @ .29% (Inferred)		610,740
	Total Lbs. U_3O_8	4,137,900

In October, 1972, Western Nuclear re-evaluated the ore resource status involving rotary and core holes information generated by Western Nuclear, Inc. between the period 1966 and 1972. The following is a summary of a computer calculation study using only holes drilled by Western Nuclear, Inc. during the above mentioned period.

The White King Mine area, minimum zone = 6 ft. averaging = 0.15% U_3O_8. An .08 cutoff, and a 2 feet minimum waste factor were used in the study.

Area of Deposit	=	124,175 sq. ft.
Tonnage Factor	=	15.0 cubic ft. per ton
Number of holes	=	27
Average area per hole	=	4,599 sq. ft.
Number of ore holes	=	18
Estimated ore area	=	82,783 sq. ft.
Average ore grade	=	0.24% U_3O_8
Standard error	=	0.018
90% Conf. Limits	=	0.208 to 0.272
Avg. thickness of Mineralization	=	33.6 ft.
Standard error	=	6.996
90% Conf. limits	=	21.4 to 45.7
Average GT	=	8.065
Tons of ore	=	185,200
Pounds of U_3O_8	=	890,000
Average depth to ore	=	371.7

(See Map #37-01 for area used in the above calculation.)

Records of the actual production removed from the White King Mine are extremely poor and often conflicting. However, using the reported reserve figures and our recent calculation, the possible mineral resources remaining in the immediate vicinity of the White King Mine is estimated to range between 3,954,241 and 5,627,900 pounds.

To substantiate many of the above figures or to generate additional information in order to recompute a new total resource picture, the White King pit would have to be dewatered and old holes re-opened and reprobed.

The sanitation laws of the State of Oregon require that both the pH factor and the arsenic content of the water be corrected before it could be released into the natural drainage.

As the pit now stands, it contains 98,303,877+ gallons of water. To raise the pH to an acceptable 7.5, it would require 42,000 pounds of sodium hydroxide @ $35.20 per 400 pound barrel, F.O.B. Salt Lake City, or $3,696.00. The U. S. Bureau of Mines Research

Department in Salt Lake City, would be contacted to run tests to determine if the arsenic can be precipitated from this water with iron ferrate, chromates or sulfates, directly in the pit.

After constructing and studying cross sections, it is evident that the ore has lateral continuity. These cross sections are on file in our District office.

LOCATION

The White King Mine area is situated about 12 miles northwest of Lakeview, Lake County, Oregon, in a rugged, forested area of the Fremont Mountains. Elevations range from about 5,000 feet in the Goose Lake area to about 7,200 feet near the headwaters of Thomas Creek. A few mountains, such as Cougar Peak are over 7,900 feet above sea level. Most of the hills around the White King are subdued and covered by soil and evergreen trees.

Access to the area is very good on gravel roads which are maintained by the U. S. Forest Service and logging companies. In the area of proposed exploration, graveled and graded roads make it possible to drive within a few hundred yards of nearly all sites in good weather.

Snowfall is four to eight feet over most of the area, making winter access very expensive and time-consuming. Springtime in the high country is generally muddy. Summers are dry and hot, but most desirable for field operations.

EARLY HISTORY

Uranium mineralization was discovered by Don Tracy at the present site of the White King Mine in the spring of 1955. This set off a staking rush in which most of the available land in the area was staked. Several small uranium occurrences were found but the Lucky Lass Mine, one mile west of the White King, was the only other discovery from which any ore was reportedly produced.

The White King was drilled and developed by Lakeview Mining Co., a combine of the Thornburgs of Grand Junction, Colorado, and the Murchison family, wealthy industrialists from Texas. Our present lease dates back to 1966 after the promoters of Continental Mining and Milling Co. dropped the mine and lost the mill at Lakeview. The Mill was purchased on July 17, 1968 by Atlantic-Richfield.

ORE DEPOSITS

According to information obtained during mining operations at the White King Mine, the deposits consisted of fracture filling and brecciated zones containing uraninite and sulfides in "shoots" which dip northeastward and plunge southeastward. Individual lenses are known to be up to 60 feet in length and 90 feet thick. The length of the known zone of uranium mineralization is in excess of 1,000 feet.

The host rock is altered basalt flows, unindurated tuff, a rhyolite plug, fault gouge, and breccia. The rhyolite plug situated within the White King pit area is probably genetically related to uranium emplacement.

Minerals in the deposit are sooty pitchblende (uraninite), coffinite, galena, pyrite, jordisite (molybdenum sulfide), ilsemanite (an oxidation product of jordisite), orpiment, realgar, cinnabar, stibnite, and opal. These minerals indicate a low temperature and pressure environment. Clay alteration and opalization are widespread.

At the Lucky Lass Mine, mineralization occurs along a fault intersection as a small pipe plunging steeply southwest. The ore contains sooty pitchblende and pyrite. No intrusive rhyolite is known here.

It is believed that the ore zones are highly variable in grade, continuity and stratigraphic position. When drilling on 50 foot centers, there has been as much as 280 feet difference in elevation between mineralized tops. This variation in depth to mineralization is probably due to the extremely faulted nature of the area. The main control of ore deposition was nearly vertical faults which provided channels for uranium-bearing solutions. These solutions deposited uranium minerals and sulfides in the fault zones and also in permeable tuff beds cut by the faults.

In an overall picture, the deposit plunges to the east and south but there are many local variations in this.

Due to the great irregularity of the deposit, it is impossible to accurately predict the depth at which any one hole is likely to penetrate mineralization.

To gain an idea of the size of ore bodies to be expected at the White King, maps of the old workings were inspected. The largest

stope was about 80' long, 30'-70' wide and 40' high. Several stopes were 8' to 30' wide, 60'-120' long and up to 80' high. There were also several smaller stopes 10'-20' square. Based on this information and on Western Nuclear's drill hole data, it may be expected that mineralized zones will lie from 200' to 705' below the surface and can vary greatly in size.

The Lakeview mill, which served the White King, was rated at 215 tons per day capacity. The mill could treat ore at a faster rate than it could be produced from the underground workings of the White King. A majority of the equipment has been reportedly removed from the mill. However, it is rumored that Atlantic-Richfield has continued work periodically on the mill since they purchased it in the summer of 1968; however, its present condition is unknown.

GEOLOGY

The predominant stratigraphic series in the White King Mine area is thought to correlate with the Warner Basalt and the Cedarville series of Pliocene and Miocene age, respectively. The oldest rocks are welded crystal tuffs. Above these are a series of unindurated tuffs overlain by thick olivine basalt flows. The youngest rocks in the area are rhyolite plugs and extrusive domes.

The welded crystal tuff is acid to intermediate in composition and contains fragments of glass, basalt and andesite. Some plant remains have been found at the base of this unit. The thickness is about 2,000 feet. Most of the rock west of Thomas Creek is of this unit.

The unindurated tuff ranges in composition from clay or fine ash to detrital pumice, glass and basalt up to 4" diameter. The total thickness of this unit is approximately 1,000'. Locally it contains carbonized wood, leaves and lignite including the area of the White King and Lucky Lass. Much of this unit was deposited in water. Above the tuff series is a series of black, dark gray or red basalt flows. The basalt is over 800 feet thick near the White King Mine, whereit has been brecciated and altered hydrothermally near fault zones.

The most recent volcanic activity in the area is represented by intrusive rhyolite plugs and dikes and extrusive flow banded rhyolite and glass. Sulfide and uranium mineralization probably took place in the last stages of this activity.

The entire region extending from just east of Goose Lake northwestward to Summer Lake has been domed into an anticline. A major set of faults, trending about N. 45° W., has broken the dome into a series of horsts and grabens. Most of the uranium occurrences are in this area. Two other fault sets also cut the dome, one trends about N. 45° E., another trends north. Most faults are nearly vertical. There is no apparent time sequence among the faults, as no one set is cut off or displaced significantly by another set.

RECOMMENDED EXPLORATION ACTIVITIES

Drilling

Additional rotary and core holes are anticipated to be initiated within close proximity of the White King Mine by the offset drilling of known ore and highly mineralized holes.

Rotary bore holes will average approximately 600 feet in depth. These drilling depth estimates have been based on data generated by past drill hole programs conducted by Western Nuclear, Inc. and the defunct Lakeview Mining Company.

The core holes will be drilled as offsets to plug holes which penetrate mineralization.

The recovered core is necessary for a correct analytical evaluation of the mineralization penetrated.

Geophysics and Geochemistry

It is possible that induced polarization surveys would prove useful in helping to detect sulfides locations and hopefully the location of the uranium minerals associated with them would follow. At the White King and Lucky Lass Mines (and presumably in undiscovered uranium deposits in the area) disseminated pyrite is associated with uranium mineralization. This pyrite should cause an I.P. anomaly. It would be worthwhile to run an I.P. survey over known mineralization at the White King to determine the value of such surveys in the area.

Soil radon surveys might prove helpful in locating uranium mineralization.

In view of the large number of streams and springs in the area, a water sampling program would be undertaken as an aid to prospecting. The ideal period for water sampling is believed to be in the middle or late summer. During this time, the waters are low and thus, minerals in solution are more concentrated, thus giving a higher value reading per sample collected.

At the present time, there are two major possibilities that enhance the Lakeview prospect. First, the good possibility to enlarge the existing mineral resources around the White King and Lucky Lass immediate area. Second, would be the possibility to discover and develop a new economic mining area on the surrounding property.

REASONS FOR OUR EXPLORATION SLOW DOWN

Economic Factors

The most important form of primary uranium that moves in commercial channels is uranium oxide (U_3O_8) known as "yellowcake". Prices of uranium oxide presently being offered by private firms are often considerably lower than producers can explore, develop, mine and mill their commodity. Numerous leaders of the uranium industry are confident that prices will increase during the seventies; then advance a little faster in the eighties; followed by a sharp and steady rise during the remainder of the century.

Environmental Consideration

Probably the one aspect of the nuclear fuel cycle of greatest concern to the public is in the generation of electricity. In this application, the public is vitally concerned with radiation effects, thermal effects, and reactor safety. For these reasons, the location, design, and operations of many of the planned nuclear power plants have slowed, if not stopped. Thus, another reason for utility companies to be somewhat reluctant to commit large sums of money for reserves they don't need at this particular time.

Another reason for our slow down in exploration activities in the State of Oregon has been the lack of cooperation from various public service divisions, such as the public health, forestry, and the B.L.M. sections. They have stopped the dewatering of our White King Mine because of the fear of contaminating a local stream. We have agreed to neutralize any pollutants as the water

entered the creek, but we have had no official regulation to follow. We are prepared to comply with any and all State and Federal regulations if we are only informed of the requirements. Until we can legally dispose of the 98,000,000 gallons of water, we cannot calculate the full potential of the White King property.

Very truly yours,

I. W. Mathisen

I. W. Mathisen
Chief Geologist-Domestic Exploration

IWM/rm