The Linka-Conquest Tungsten Deposits, Southeast Lander County, Nevada.

Introduction

The Linka-Conquest tungsten deposits are located approximately 17 line-miles southeast of Austin, in southeastern Lander County, Nevada, and about 8 miles southeast of the junction of U. S. Highway 50 and Nevada State Highway 8-A. Locally, these low hills are known as the Spencer Hot Springs area.

Property Description

The Linka-Conquest property, consisting of nine lode claims, is situated in Sec. 17, T. 17 N., R. 46 E. (unsurveyed). The surface workings consist of two open cuts, two inclined shafts and a vertical shaft (fig. 2). The Linka open-cut is about 100 feet long, 50 feet wide and 20 to 25 feet deep. The Conquest pit consists of two lobe-like areas, each roughly 50 feet in diameter and connected by a 15-foot wide haulage road; both pits are about 25 feet deep with raises extending from underground workings into their respective floors.

The Conquest shaft is a steeply inclined two-compartment shaft about 130 feet deep with development workings on the 50 - and 100-foot levels. The Peer shaft is a steep incline extending 65 feet downwards along the granite-tactite contact.

The Linka shaft is a 210-foot vertical shaft from which approximately 1000 feet of drifts and crosscuts have been driven on the 150-foot level. Shrinkage stopes extend upwards from this level.

History and Production

The Garnetite group of five lode claims was located in February 1941, but actual mining did not begin until 1943. In 1943 - 1944 over 2800 tons were produced; the average WO_3 content was 0. 72 percent. During this period 390 tons assaying 2. 71 percent WO_3 were shipped from the Conquest and 2420 tons averaging 0. 69 percent were shipped from the Linka pit.

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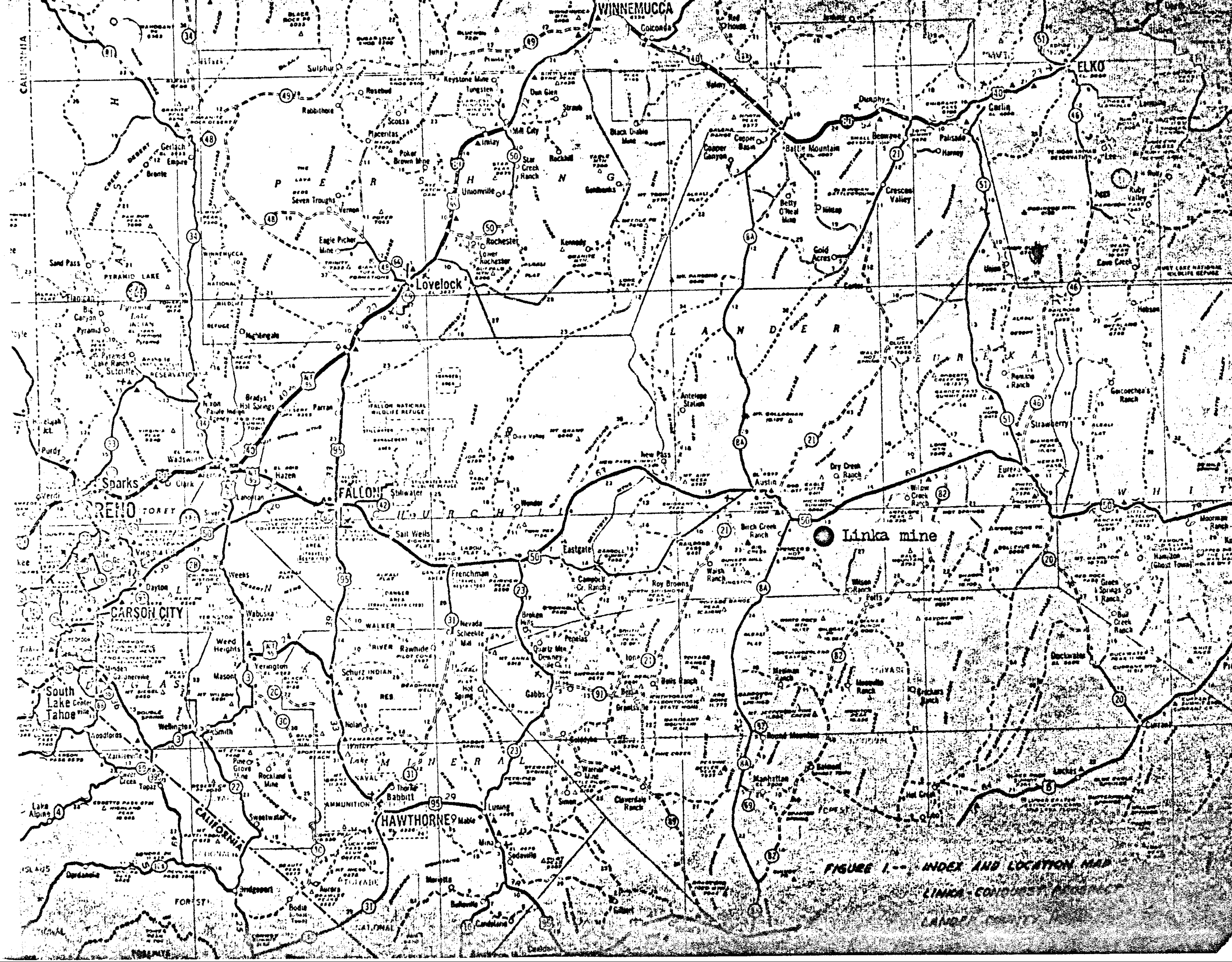

FIGURE 1.-- INDEX AND LOCATION MAP
LINKA-CONQUEST PROSPECT
LANDER COUNTY, N

In the fall of 1953, Consolidated Uranium Mines, Inc., secured the property on a bond and lease agreement. Considerable development was done during 1954 and 1955. A 400 ton capacity floatation mill was erected and milling started in August, 1955, with a mill operating rate of approximately 300 tons/day. Over 4000 tons assaying 0.98 percent WO_3 was shipped from the Linka from 1951 through 1956; the mine closed in 1957.

Approximately 60,000 tons of 0.4 percent WO_3 ore was milled at the Linka mill.

Geology

A group of low hills, with approximately 400 feet of relief above the surrounding alluvial surfaces (except to the southeast), form a conspicuous topographic anomaly in Big Smoky Valley. The most recent regional geologic mapping of the area including these hills (McKee, 1968) delineates lower Paleozoic carbonate strata overlain structurally by siliceous rocks of similar age intruded by granitic rocks of Jurassic age; Tertiary volcanic rocks and fan deposits mask the older terrane. In general, the tungsten deposits are confined to tactite zones developed in the calcareous rocks adjacent to the granitic intrusive bodies (fig. 3).

According to McKee (1968) the Antelope Valley limestone (Oa) is a medium-gray thin - to thick-bedded limestone with local chert blebs and concretations; the Vinini Formation (Ovi), which has been thrust over the Oa along the Robert Mountains thrust, comprises black thin-bedded chert and light - to dark-gray vitreous quartzite with minor limestone and pebble conglomerate beds. The granitic rocks (Jgr) are fine - to coarse-grained biotite quartz monzonite to granodiorite with a potassium-argon age of 168 m.y. The overlying Bates Mountain Tuff (Tbm) is a pink to gray rhyolitic ash-flow tuff with a 25 m.y. age date. Gravel and sand of dissected older fans (Qof) and young undissected fan deposits (Qf) flank the low hills.

Spencer Hot Springs, an active hot springs area with associated travertine and calcareous tufa deposits, is located approximately 1.25 miles west of the Linka shaft. Southeast of the shaft about 0.5 miles, additional unmapped travertine deposits crop out.

Structure

In the eastern portion of the area, northerly-trending Antelope Valley limestone dips steeply to the east whereas to the southwest, the limestone section dips to the southwest, thus defining a rough antiform structure. These rocks are truncated on the southeast by a flat - to moderately-dipping thrust fault; this fault, which is thought to be the Robert Mountains thrust or an imbrication

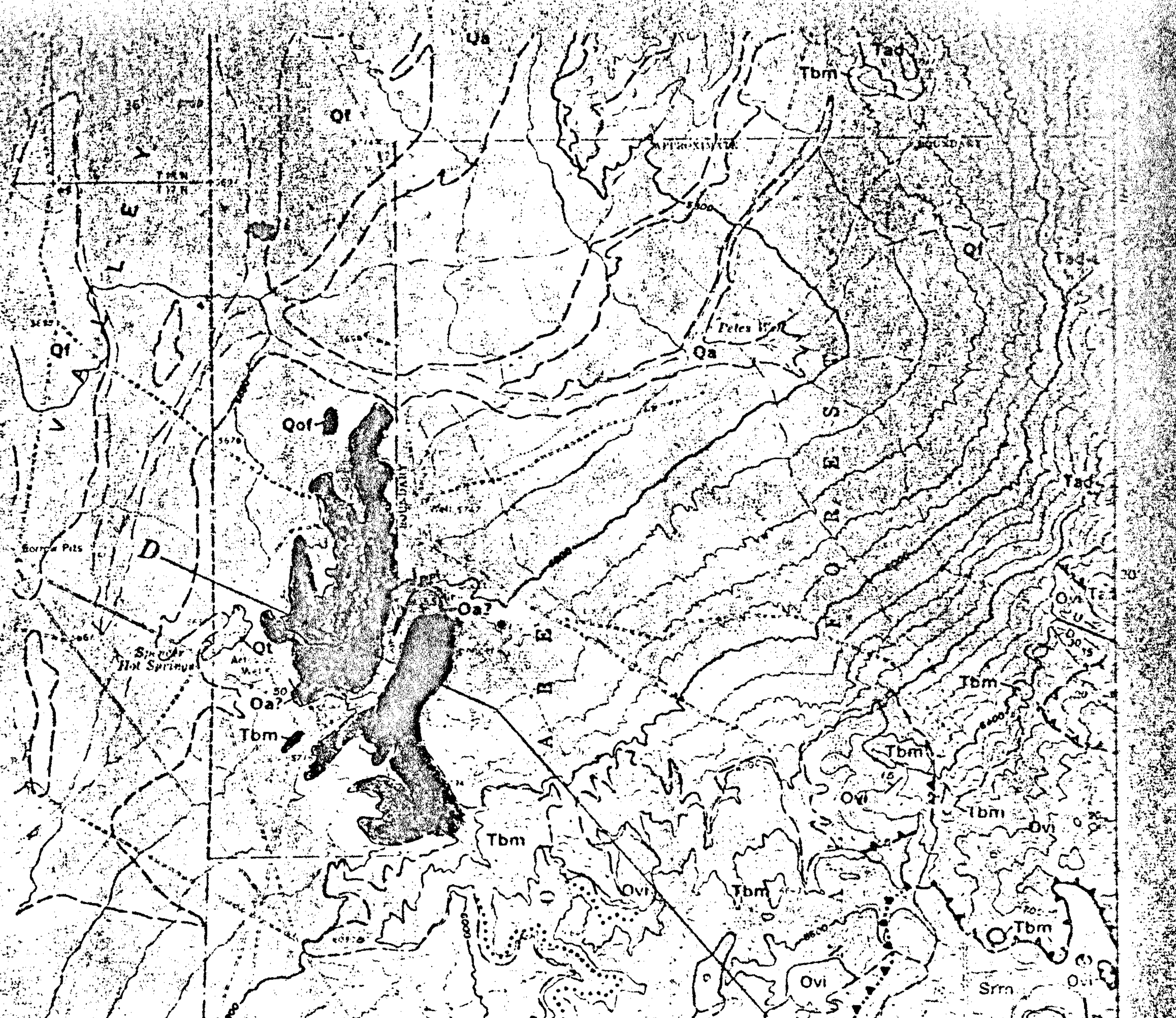

FIGURE 3.-- GEOLOGIC MAP (1:62,500 SCALE) OF LINKA-CONQUEST PROSPECT AREA (McKEE, 1968)

thereof, juxtaposes the siliceous Vinini Formation on the Antelope Valley section. Although the Jurassic intrusive mass apparently upwarped the entire area and locally distorted the country rock bedding surfaces, the internal fabric of the massive body, where exposed, appears non-directional, and displays several sets of vertical and sub-horizontal joints. The overlying Bates Mountain Tuff has been locally tilted, whereas the older and younger fan deposits are nowhere ruptured by faulting.

Regional Appraisal

Several tungsten deposits, ranging from those with recorded production to rank mineral prospects, were examined during a regional appraisal project in Nevada. The Linka-Conquest prospect was selected during the screening process as representing the most attractive tungsten environment encountered during the investigation; impressive tonnage and grade statistics, open-ended ore bodies, untested subsidiary contact zones, exploration vulnerability to detailed geologic mapping integrated with modern geophysics and geochemical techniques, and a favorable land situation are the major features contributing to our acquisition program.

Detailed Reconnaissance

After successful land acquisition negotiations, the authors examined the property during the projects detailed reconnaissance phase. In order to gain some familiarity with the rock units and structure, geologic sketch maps were constructed of both open-cuts and the general prospect terrane; a representative suite of the igneous and metamorphic rocks was collected for background geochemical data and petrographic investigations; pilot geophysical profiles were initiated; an underground examination of the Peer incline was undertaken and the lode claims were surveyed. In addition, reconnaissance foot-traverses were made across the entire district, guided by aerial photography, in an attempt to generate some district-related concepts to assist future exploration efforts.

Geologic mapping: Geologic mapping in the Linka-Conquest prospect area (1":500') added the following information to our knowledge of the area: (1) plutonic igneous rocks crop out in the Conquest open cut; (2) five major exposures of Jgr exist in the district; (3) several facies of Jgr are present; (4) several varieties of intrusive igneous rocks are exposed in the area; (5) the Oa undergoes an important facies change between the Linka and Conquest shafts or is structurally ruptured and/or displaced; (6) the Oa is possibly overturned in the exposures at the Linka cut; (7) the tungsten ore (mainly scheelite) occurs in the tactite zones derived from thinly-bedded shale-limestone sections near igneous contacts or major fracture systems; (8) some tungsten mineralization appears to be controlled along fractures normal to the Jgr-Oa contact; (9) extremely high-grade scheelite zones exist at the surface between the Linka and Conquest shafts; (10) the northerly extension of the Conquest and the westerly extension of the Linka ore bodies are untested; and (11) the control for the ore-grade material in the Peer shaft is unknown.

Rock geochemistry: Brief megascopic descriptions of the representative rock types collected from the Linka and Conquest prospects are listed in Table 1., whereas Table 2. presents chemical data derived from spectrographic analyses of these rocks. A few general comments follow: (1) seven distinctive intrusive igneous rock types have been identified from the Linka-Conquest igneous suite (the unravelling of this igneous complex should aid in understanding local tungsten ore genesis and/or ore control); (2) evidence for hypogene mineralization is obvious from sample C-W-1 (crushed and shattered zones within the generally homogenous biotite-quartz monzonite contain anomalous copper concentrations); (3) grab samples from the Conquest prospect tactite zone contain 7000 ppm tungsten (these emission spectrographic values for tungsten were checked by wet chemical quantitative analysis) with corresponding anomalous molybdenum values; (4) ore grade material at the Conquest prospect is associated with the biotite-potassium feldspar porphyry (C-P-1), whereas at the Linka prospect, ore mined from the open-cut tactite zone is spatially related to the biotite-quartz monzonite (LK-L-1); (5) disseminated molybdenite, chalcopyrite and pyrite are more common in the Linka prospect skarn zones and oxide copper is generally confined to sheared zones in the Conquest area; (6) some scheelite in the Linka zone fluoresces yellow whereas the scheelite at the Conquest is yellowish-white, indicating the possibility of a decreasing molybdenum gradient from the Linka to the Conquest zone during the tungsten deposition process (these data are corroborated by skarn analyses and molybdenite distribution patterns); (7) in the Linka area anomalous (greater than 10,000 ppm) bismuth concentrations were recorded; and (8) bismuth and/or molybdenum appear as useful elements as regards applied surface geochemistry.

Airborne geophysical survey: During the prospect evaluation period, Cachex contracted an airborne geophysical survey over the target area; these data are on file.

Ground geophysical profiles: Various pilot geophysical profiles have already eliminated certain instrumentation as related to the delineation of subsurface targets; these data are on file.

Detailed Exploration Proposal

During the initial phase of the Linka-Conquest evaluation program, Cachex has acquired and assembled certain available data, and, in addition, has implemented reconnaissance on-site investigations. Based on these preliminary findings, we have outlined the Phase II exploration program and cost estimates; this detailed exploration proposal is on file.

Conclusions

The Linka-Conquest tungsten prospect warrants further investigation; Cachex is actively seeking a qualified participant to fund the Phase II portion of the appraisal program in return for an equity position in the property. Those interested in discussing this situation should call and/ or write:

Robert L. Foster
Cache Creek Exploration Company
701 Welch Road, Suite 2209
Palo Alto, California 94304
(415) 328-3446

References

McKee, E. H., 1968, Geologic map of the Spencer Hot Springs quadrangle, Lander County, Nevada: U. S. Geol. Survey GQ-770.

Table 1. -- Brief megascopic descriptions of selected rocks collected from the Linka-Conquest prospects (L = Linka; C = Conquest; P = Peer).

C-W-1:	biotite-quartz monzonite; medium-grained, crushed; light greenish-yellow ws and fs; pervasive alteration and CuOx stain (mineral species producing yellow stain unknown); opaline silica (hyalite) stock-work veinlets and fracture coatings; strong FeOx (1) red qtz nests; disseminated bk opaque mineral unknown; isolated biotite euhedra and mattes appear bleached.
C-L-1:	biotite-quartz monzonite; medium-grained, massive; gray ws a/fs; slightly foliated.
C-T-1:	tactite; massive; greenish-brown ws a/fs; actinolite, epidote, vesuvianite, diopside (?), scheelite; euhedral brown garnet; white carbonate fracture coatings.
C-R-1:	hornblende porphyry; fine-grained matrix, massive, fresh; reddish-tan ws a/fs; greater than 40% phenocrysts as K-spar; quartz, brown hornblende, epidote.
C-A-1:	aplite; fine-grained "sugary" texture, massive; br ws a/wh tan fs; quartz, K-spar, minor plagioclase.
C-P-1:	biotite-potassium feldspar porphyry; massive; br ws a/ tan fs biotite packets and K-spar phenocrysts; fine - to medium-grained matrix of quartz, K-spar, plagioclase, biotite; pervasive FeOx(2) orange on fracture surfaces.
P-L-1:	quartz porphyry; massive, "horny fracture"; br ws a/ gy tan fs; clear quartz and biotite phenocrysts in siliceous matrix.
LK-H-1:	hornfels, banded; gy green to tan ws a/ dk gy green fs; clino-pyroxene - amphibole (?) -qtz and qtz-carbonate bands (less than 2 cm).
LK-L-1:	biotite-quartz monzonite; medium-grained, massive; gy ws a/ fs.
LK-Z-1:	hornblende porphyry; similar to C-R-1.

Table 1. (cont.)

LK-B-1:	quartz-black hornblende-biotite porphyry ("birds-eye" porphyry); gy ws a/ dk gy fs; plagioclase, qtz aggregates, biotite, hornblende phenocrysts in bk granular matrix.
LK-G-1:	leucocratic granite; medium-grained, massive, granitoid texture; gy ws a/ tan fs; local st. indigeneous and fringing FeOx(1) red blebs; minor biotite.
LK-Ox-1:	tactite; massive; dk gy ws a/ dk gy qy fs; vesuvianite, epidote, garnet, scheelite, powellite (?), hyalite; st. BiOx; ferrimolybdite (?) stain.

Table 2.

SKYLINE LABS, INC.
SPECIALISTS IN GEOCHEMICAL EXPLORATION
12090 WEST 50TH PLACE • WHEAT RIDGE, COLORADO 80033 • TEL.: (303) 424-7718

REPORT OF SPECTROGRAPHIC ANALYSIS

Job No. 92039
May 13, 1971

Cache Creek Exploration Co.
701 Welch Road
Palo Alto, California 94304

Values reported in parts per million, except where noted otherwise, to the nearest number in the series 1, 1.5, 2, 3, 5, 7 etc.

	Sample Numbers:						
Element	C-W-1	C-L-1	C-T-1	C-R-1	C-A-1	C-P-1	H-L-1
Fe	15%	1%	10%	7%	1.5%	5%	2%
Ca	.5%	1%	15%	1.5%	.2%	2%	.7%
Mg	.2%	.2%	5%	2%	.05%	1.5%	.2%
Ag	<1	<1	<1	<1	<1	<1	<1
As	<500	<500	<500	<500	<500	<500	<500
B	50	<10	10	30	<10	<10	20
Ba	70	700	100	1,000	30	700	1,000
Be	10	2	5	2	7	2	3
Bi	20	<10	<10	<10	<10	<10	<10
Cd	<50	<50	<50	<50	<50	<50	<50
Co	30	<5	20	20	<5	<5	<5
Cr	<10	<10	50	150	<10	200	10
Cu	7,000	10	15	20	10	50	5
Ga	<10	15	10	20	15	20	20
Ge	<20	<20	50	<20	<20	<20	<20
La	<20	<20	<20	<20	<20	<20	<20
Mn	100	150	5,000	700	100	200	150
Mo	20	<2	500	<2	<2	20	<2
Nb	<20	<20	20	20	30	20	20
Ni	<5	<5	50	70	<5	20	<5
Pb	<10	15	<10	<10	20	<10	<10
Sb	<100	<100	<100	<100	<100	<100	<100
Sc	<10	<10	<10	20	<10	20	<10
Sn	<10	<10	20	<10	<10	<10	<10
Sr	50	500	<50	500	<50	700	500
Ti	200	1,000	1,500	7,000	500	5,000	1,500
V	300	30	200	150	10	150	30
W	<50	<50	7,000	<50	<50	<50	<50
Y	<10	10	20	20	10	15	20
Zn	200	<200	<200	<200	<200	<200	<200
Zr	<20	100	200	200	50	200	150

Table 2. (cont.)

Job No. 92039
May 13, 1971

Element	LK-H-1	LK-L-1	LK-Z-1	LK-B-1	LK-G-1	LK-Ox-1
Fe	5%	3%	5%	5%	.5%	1%
Ca	3%	1%	1%	1.5%	.2%	3%
Mg	2%	.5%	1%	2%	.05%	.2%
Ag	<1	<1	<1	<1	<1	50
As	<500	<500	<500	<500	<500	<500
B	<10	10	30	<10	10	<10
Ba	500	500	2,000	1,000	20	7
Be	3	2	3	3	7	<2
Bi	<10	<10	<10	<10	<10	>10,000
Cd	<50	<50	<50	<50	<50	<50
Co	5	5	10	10	<5	<5
Cr	100	15	20	100	<10	<10
Cu	30	20	10	3	10	300
Ga	15	15	20	20	15	<10
Ge	<20	<20	<20	<20	<20	<20
La	<20	<20	<20	<20	<20	<20
Mn	500	500	500	500	100	700
Mo	<2	<2	2	2	10	1,500
Nb	20	20	20	20	20	30
Ni	10	<5	15	20	<5	<5
Pb	20	10	10	10	30	3,000
Sb	<100	<100	<100	<100	<100	<100
Sc	20	10	20	20	<10	<10
Sn	<10	<10	<10	<10	<10	<10
Sr	500	500	700	1,000	<50	<50
Ti	5,000	3,000	7,000	7,000	300	70
V	150	50	100	100	10	700
W	<50	<50	<50	<50	<50	>10,000
Y	20	20	20	20	15	<10
Zn	<200	<200	<200	<200	<200	<200
Zr	200	200	200	200	150	<20

Charles E. Thompson
Chief Chemist