CONTACT INFORMATION
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Arizona Geological Survey
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Nuclear Dynamics, Inc.
Post Office Box 20766
Phoenix, Arizona 85036

Nuclear Dynamics, Inc. Annual Report 1979

Contents

Management

Officers-Directors

Herb J. Miller
Chairman of the Board

Joe F. Walton
Vice Chairman and
General Legal Counsel

Kelsey L. Boltz
President and
Chief Executive Officer

Daniel M. Sadowsky
Executive Vice President-
Finance and Planning

W. C. McComack
Secretary-Treasurer
Controller

Directors

Robert H. Donaldson
President
Mercury Printing Ink Corp.

Fremont Felix
Energy Consultant

Henry G. Grundstedt
Vice President
Senior Metals Analyst
Capital Research

Jean-Noel Mathieu
Senior Vice President
Banque de Paris et des
Pays-Bas

Don C. Phelps, President
McAlester Fuel Company

Associate Director
(Advisory-non-voting)

Adolph H. Graetz
Financial Consultant
The Value Line Development
Capital Corporation

Officers

Eugene C. Pendery
Executive Vice President-
Western Operations

Herb W. Reynolds
Executive Vice President-
Eastern Operations
President-Kentucky Coal Co.

Albert F. Stoick
Vice President-Exploration
Manager-Nubeth Joint Venture

Corporate Information

Availability of Form 10-K

Nuclear Dynamics, Inc. has filed its annual report on Form 10-K with the Securities and Exchange Commission in Washington, D.C. A copy of the Form 10-K is available free of charge to shareholders upon written request to W. C. McComack, Treasurer.

Executive Offices

Nuclear Dynamics, Inc.
2871 Sky Harbor Boulevard
Post Office Box 20766
Phoenix, Arizona 85036

Field Offices

Denver, Colorado
Naturita, Colorado
Prestonsburg, Kentucky
Casper, Wyoming
Moorcroft, Wyoming

Registrar, Transfer and Dividend Disbursing Agent

The Valley National Bank
of Arizona
Corporate Trust Division
Post Office Box 71
Phoenix, Arizona 85001

Independent Accountants

Price Waterhouse & Co.
1800 Valley Center
Phoenix, Arizona 85073

Investor Information

Financial Highlights

Financial highlights are contained in Management's Summary of Operations and Discussion and Analysis.

Annual Meeting

The annual meeting of shareholders will be held at 2871 Sky Harbor Boulevard, Phoenix, Arizona at 11:00 a.m., on November 15, 1979.

Company Stock

The Company's Common Stock is traded in the National Over-The-Counter market under the NASDAQ Symbol of NUDY.

Dividends Paid

Nuclear Dynamics, Inc. has paid consecutive quarterly dividends on its 8½% Cumulative Convertible Preferred issue of April 1, 1974, since July 1, 1974. The most recent quarterly dividend of $0.21 per Preferred Share was paid on July 1, 1979. The Company has paid no dividends on its Common Stock to date.

Common Stock Price Range

The table below sets forth the high and low, bid and ask prices quoted during each quarter of the past two years:

	Fiscal 1979				Fiscal 1978			
	Bid		Ask		Bid		Ask	
	High	Low	High	Low	High	Low	High	Low
First Quarter	8⅛	5⅜	8⅝	5⅞	10	6¾	10½	7¼
Second Quarter	7¾	3¼	4⅞	4½	7¼	5⅝	7⅝	6⅜
Third Quarter	5⅜	4	5⅞	4½	7	5¾	7½	6¼
Fourth Quarter	5¼	3⅞	5¼	4½	8	5⅝	8½	6⅛

Nuclear Dynamics Today

Nuclear Dynamics, Inc. is a domestic natural resources company. Its basic objectives are: the discovery, participating ownership of and the production of uranium; the expansion and stabilization of coal-mining operations through its wholly owned subsidiary, Kentucky Coal Co. The Company was founded in 1967 and became publicly held in 1971.

To Our Shareholders

During our fiscal year ended June 30, 1979, certain events, both internal and external, have occurred which have had a significant effect on the progress of our Company. *Internally,* we have achieved substantial increases in the Company's coal shipments, completed Phase I of the pilot solution mining test for our Sundance Project and have encountered economically recoverable uranium reserves in our Uravan project. *Externally,* there has been the effect of the Three Mile Island Nuclear Plant accident and of another world oil crisis.

Increased Coal Shipments

Prior to this fiscal year, all of our coal production had been conducted by strip-mining methods. During August of 1978, we terminated stripping operations and accelerated the development of underground mines. Since February of this year, the addition of three new loading facilities has tripled our shipping capacity. This conversion and capacity increase has, of course, required substantial expenditures. The results, however, are now beginning to show. During fiscal 1979, coal shipments were approximately 106,000 tons. Shipments during August of this year (not shown in fiscal 1979 results) were 29,000 tons reflecting the dramatic increase in these new producing and shipping facilities. The Company's annual production rate is now at approximately 300,000 tons per year and is expected to reach 400,000 tons by mid-1980. This increase in the Company's production now gives the Company the base from which to pursue favorable market contracts. Although the coal market remains only slightly stronger than earlier this year, our underground operations and new facilities have significantly reduced our "per ton" costs, thereby providing the basis for a positive cash flow outlook.

Sundance Uranium Project

Phase I of the pilot liquid extraction mining test at Nubeth Joint Venture's Sundance Project has been completed. The testing program has determined that the uranium is recoverable and that the chemical and mechanical responses of the formation are favorable. Plans are being made for Phase II, which is designed to determine the feasibility of commercial-scale uranium production. The Company, with the approval of its Nubeth Joint Venture partners, initiated negotiations during the last quarter of the fiscal year with selected energy-producing companies to participate in the joint venture. Such additional participant would undertake the funding of Phase II and feasibility studies and its share of the costs of constructing commercial production facilities if such construction is justified by the Phase II results. Management anticipates that both the negotiations and Phase II feasibility studies will have favorable results.

Uravan Uranium Venture

The Uravan properties, located in southwest Colorado and southeast Utah, have identified two substantial ore trends. The indicated and inferred reserves in these two areas are approximately 72,500 tons of uranium ore containing 250,000 pounds U_3O_8, uranium, and 1.8 million pounds V_2O_5, vanadium. The ore reserves in the immediate vicinity of the developed reserves are 'open,' and the extent of additional ore reserves will be determined by further development drilling. The joint venture is now considering the alternatives of (i) proceeding with commercial development of the ore bodies delineated along the ore trends, or (ii) continuing negotiations in progress with major companies in

Management's Discussion and Analysis of the Summary of Operations

Historically — From incorporation in June of 1967 through December of 1971, Nuclear Dynamics was engaged almost entirely in mineral exploration and accordingly had no operations. From January 1, 1972, the major portion of the Company's revenues has been derived from the sale of coal produced by its wholly owned subsidiary, Kentucky Coal Co. A substantial portion of management's time and the Company's principal technical activities continue to relate to exploration for uranium and development drilling to delineate uranium deposits and, at Sundance Project, pilot plant testing and early feasibility studies. As in prior years, more than 80% of the Company's revenues have been derived from coal operations.

1979 vs. 1978 — Revenues decreased $222,549 in 1979 due primarily to decreases in average sales prices received for coal sold. Other operating revenues (including interest income) decreased $24,259.

Total costs and expenses decreased $469,643 reflecting substantially lower costs and expenses relative to reserves for property acquisitions and exploration costs.

1978 vs. 1977 — Revenues increased $1,126,288 in 1978 due primarily to an increase in coal sales of $1,077,355 resulting from 89,576 tons sold during this year as compared to 71,329 tons sold during the previous year. Other operating revenues increased $105,615.

Total expenses increased $1,929,354. Cost of coal operations increased $704,986 reflecting the additional costs consistent with increased production and underground production expansion plans. Property acquisition and exploration costs contributed expenses of $470,000 over 1977 as a reserve was established for possible impairment of certain properties cost. Because of the fiscal 1978 loss, a credit for income taxes of $30,794 versus tax credits of $786,000 in 1977, was computed for 1978 utilizing all remaining net operating loss carrybacks for tax purposes.

Nuclear Dynamics, Inc.

Management's Summary of Operations

	Year ended June 30				
	1979	1978	1977	1976	1975
SALES AND OTHER REVENUES	$2,701,115	$2,923,664	$1,797,376	$1,467,575	$10,198,362
COSTS AND EXPENSES:					
Cost of coal produced	2,938,752	3,054,828	2,419,054	1,913,233	5,177,485
Selling, general and administrative expenses	1,049,140	1,116,319	895,509	934,720	963,188
Interest expense	242,792	184,782	149,922	84,141	84,265
Losses on abandoned mining property			162,285	247,585	159,820
Reserve for property acquisition and exploration costs	43,420	470,000			
Equity in net loss (income) of investee			25,011	112,169	(6,943)
Equity in net loss (income) of partnership	51,388				
Provision (credit) for income taxes		(30,794)	(786,000)	(910,000)	1,511,000
	4,325,492	4,795,135	2,865,781	2,381,848	7,888,815
NET INCOME (LOSS)	($1,624,377)	($1,871,471)	($1,068,405)	($ 914,273)	$ 2,309,547
EARNINGS (LOSS) PER SHARE:					
Primary —	($.40)	($.46)	($.31)	($.29)	$.66
Fully Diluted —	($.40)	($.46)	($.31)	($.29)	$.58
SHARES AND DIVIDENDS USED IN EARNINGS PER SHARE COMPUTATIONS:					
Primary	4,192,747	4,134,711	3,697,236	3,465,202	3,266,819
Fully diluted	4,192,747	4,134,711	3,697,236	3,465,202	4,012,953
Preferred dividends	$ 42,621	$ 45,820	$ 66,785	$ 94,442	$ 142,167

NOTE: Earnings per share have been restated to give effect to the 3-for-2 stock split distributed November 25, 1975.

order to accelerate commercial development of the ore bodies and provide for further exploration of the project area.

Three Mile Island

The events at Three Mile Island (TMI) brought the whole question of nuclear power to a head. The short-range impact on the nuclear industry appears to be a limited moratorium on the construction of new nuclear power plants. After the initial emotional response, most industry observers believe that the long-range shortage of uranium fuel requirements, and therefore demand for uranium, has not changed as a result of Three Mile Island.

Before TMI there were 72 nuclear-powered reactors operating in the United States and 92 under construction. At the same time there were 151 nuclear-powered reactors operating in the rest of the world and 155 under construction. The total world capability for uranium fuel source production was not sufficient to supply the demands of reactors in operation and under construction. After TMI this shortage still prevails.

The TMI event has served to emphasize our national dependence on nuclear-powered generation of electricity. Nuclear-powered plants supply more than 25% of the electricity in 12 states from 11% in Massachusetts to 79% in Vermont. As the emotional dust settles, it becomes obvious that:

- The moratorium on the construction of certain nuclear plants will be short term.
- Operator training, warning systems and safety modifications will be undertaken.
- Uranium to meet nuclear fuel requirements remains in short supply and productive capacity for uranium will necessarily have to increase.
- It is management's opinion that uranium exploration will increase and uranium prices will remain firm and will increase through the 1980's.

Second Oil Crisis

The current oil and gasoline shortages have once again shocked the nation into the realization that our foreign oil supply is extremely precarious. It has again emphasized the need for increased domestic supplies of energy. Although synthetic fuels may ultimately supply a major portion of our energy needs, the next decade will see a continued reliance on nuclear power and the increased use of coal. These developments indicate a continued expanding market for your Company's uranium and coal resources.

Financial

Fiscal 1979 was a year of transition from coal strip mining to the expansion of underground coal mining utilizing mining contractors. Revenues during fiscal 1979 were $2,701,115, as compared to $2,923,664 in the prior fiscal year. The fiscal 1979 loss of $1,624,377, or $.40 per share, was a reduction of $247,094 from the loss of $1,871,471, or $.46 per share, of the previous fiscal year. The 1979 loss reflects decreases in the sales price of coal sold and the cost of the Company's underground development program.

Summary

Fiscal 1979 was affected by internal as well as external events. Relative to the Company's operations, such events have favorable implications on both a short-term and long-term basis. During the year, losses were reduced. With continued expansion of coal shipments and with the improving outlook for the domestic energy market, we look forward to a significant turnaround.

Sincerely,
Nuclear Dynamics, Inc.

Kelsey L. Boltz
President

October 1979

Subsequent Events

Credit Line

On October 5, 1979, the Company entered into a credit agreement with the Texas Commerce Bank of Houston, Texas, expiring September 30, 1980, providing for a working capital credit line of $1,000,000 collateralized by certain coal-mining assets, accounts receivable and inventory. The working capital credit line then converts to a term loan payable in eight equal quarterly installments commencing October 1, 1980. The Company's credit line with Chicago First National Bank has been paid off and terminated.

Debentures

In September of 1979, the Company authorized the issue and sale of $2,800,000 of 12% Convertible Subordinated Debentures due in 1989 and convertible to Common Stock at $5-5/8 per share with the proceeds to be used in part to retire short-term debt. The 12% Debentures have been first offered to holders of the Company's 10% Debentures issued in 1977. Holders of 1977 Debentures are entitled to exchange in equal amounts of the same for the new Debentures upon the purchase of a like face amount, or more, of the new Debentures. As of October 12, 1979, $250,000 of the 12% Debentures were issued for cash, $250,000 were issued in exchange, at par, for the 10% Debentures, and $50,000 of the 12% Debentures were irrevocably subscribed for cash.

The Company

Nuclear Dynamics is primarily an energy fuel and minerals exploration, development and producing company, headquartered in Phoenix, Arizona, from its inception in 1967. The Company's goals are to locate, acquire, develop and produce energy fuels and mineral reserves. The Company's strategy is to utilize its expertise to locate properties thought to have a potential for energy fuel or mineral reserves. After a geologic investigation and limited land acquisition, the properties become the basis for a joint venture with a major company partner. Nuclear contributes its geologic information and property position and the partner contributes the funds required for exploration and pre-development work, including a management fee to Nuclear. Nuclear's contribution of funds is required where a determination has been made to develop the properties for production. Such contribution would be in accordance with the Company's participation in the venture which may range from twenty to fifty percent. Proven reserves in the ground create an asset value and a borrowing base for development and production. The Company's capital funds are not dissipated in high-risk exploration costs, and the Company and its shareholders achieve a substantial benefit in the leverage obtained by the transition of prospect properties to fuel source, or mineral reserve properties.

NOTE 9 — Contingencies:

The lessor of a portion of the Company's mining property has initiated litigation alleging destruction of mineable reserves and asking for forfeiture of the mining lease and damages of $19,000,000. It is the opinion of management and counsel that the claims are without merit and that the possibility of an adverse judgment is remote.

A Kentucky resident has claimed damages of $600,000 alleging pollution of the plaintiff's lake by the Company during its strip mining operations. It is the opinion of management and counsel that the claims are without merit; however, the outcome is impossible to predict.

Report of Independent Accountants

Price Waterhouse & Co.

To the Board of Directors and Stockholders of Nuclear Dynamics, Inc.

We have examined the consolidated balance sheet of Nuclear Dynamics, Inc. and its subsidiaries as of June 30, 1979 and 1978, and the related consolidated statements of operations, of changes in stockholders' equity and of changes in financial position for the years then ended. Our examinations were made in accordance with generally accepted auditing standards and accordingly included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.

As described in Note 1, a substantial portion of the Company's assets consists of unrecovered property acquisition and exploration costs. Recovery of these costs is dependent upon the Company's success in proving economically mineable quantities of ore reserves.

In our opinion, subject to the effects, if any, on the consolidated financial statements of the ultimate resolution of the matter referred to above, the consolidated financial statements examined by us present fairly the financial position of Nuclear Dynamics, Inc. and its subsidiaries at June 30, 1979 and 1978, and the results of their operations and the changes in their financial position for the years then ended, in conformity with generally accepted accounting principles consistently applied.

Price Waterhouse & Co.

Phoenix, Arizona
August 30, 1979
except as to Note 3
which is as of
October 12, 1979

June 30, 1978	Mineral exploration	Coal	Consolidated
Revenues from unaffiliated customers	$160,738	$2,691,091	$2,851,829
Other income, including interest			71,835
			$2,923,664
Operating gain (loss)	($349,276)	($ 864,335)	($1,213,611)
General corporate income and expense			(503,872)
Interest expense			(184,782)
Net loss			($1,902,265)
Identifiable assets	$842,891	$6,932,620	$7,775,511
Corporate assets			667,237
Total assets			$8,442,748
Depreciation	$ 8,630	$ 458,897	
Capital expenditures	$ 12,578	$ 372,770	

The Company's mineral exploration activities include exploring, acquiring and developing mineral lands and rights through use of its own funds and through joint ventures utilizing the funds of others. As exploration manager for the joint ventures, the Company receives management fees. The Company's coal activities consist of the mining and marketing of coal.

The operating gain for mineral exploration in 1979 is primarily management fees less the reserve for property acquisition and exploration costs and depreciation. The operating loss for coal is operating revenue less operating expenses. In computing operating loss, general corporate income and expense and interest expense have not been added or deducted. Identifiable assets by industry segment are those assets used in the Company's activities in each segment. Corporate assets are principally receivables, buildings and equipment, and deferred financing costs.

Thirty-four percent and ten percent of the Company's revenues from unaffiliated customers in the coal segment was derived from sales to two customers. Management believes that loss of these customers would not have an adverse impact on the Company's operations, as there are sufficient other customers in the marketplace to offset the loss of revenues from these two customers.

NOTE 8 — Fourth quarter results:

(not covered by report of independent accountants)

The following summarizes adjustments which occurred during the fourth quarter of 1979:

Net loss for the nine months ended March 31, 1979	$1,082,271
Fourth quarter loss before adjustment	378,134
Fourth quarter adjustments	163,972
Net loss	$1,624,377

The fourth quarter adjustments resulted from recognition of the Company's share in the loss of the Nukitt partnership for the four months ended March 31, 1979, accrual of minimum royalties payable for the first six months of fiscal year 1979, and adjustment of the parts and supplies inventories.

Coal

Company-Owned Operations

Nuclear's wholly owned subsidiaries own or control coal reserves in eastern Kentucky. Nuclear's properties are located on the Chesapeake and Ohio Railroad facilitating coal sales in the export market and providing ready access to the Eastern U.S. industrial and utility market.

Due to the passage of the Federal Strip-Mining Act, which became effective May 5, 1978, the Company initiated the phase-out of strip mining and, in this past fiscal year, has terminated surface-mining operations, has completed its restoration and reclamation work relative to previous strip-mining operations and has opened, and is producing coal from, six underground mines.

The Company, as a result of its expansion program, has reached an annual production and shipment rate of 300,000 tons. It now has four operating tipples (coal-loading facilities) with a total annual capacity in excess of 900,000 tons. The Company expects to utilize the differential between its annual rate of production and its coal tipple capacity by expanding its own production in calendar year 1980 and by purchasing coal produced by others who do not have loading facilities. If such coal is available, and the Company expects it should be, the Company will be in a position to take advantage of market conditions to purchase and re-sell coal on favorable terms.

Recoverable coal reserves presently owned and under lease, primarily from the Elkhorn #1 through #4 (Fireclay) seams, are estimated at 16,000,000 tons. The principal portion of the reserves held by the Company exhibit a range of in-place specifications as follows:

BTU	12,000 to 13,200
Sulfur	less than 1% up to 2%
Ash	less than 10%
FSI	3 to 5
Vol	37% to 38%

Nukitt Partnership

The Company, through Nukitt Partnership, is a 50% joint owner and operates the Nukitt tipple on Johns Creek. The Company leases coal seams adjacent to the tipple. Under the Partnership, the Company has the right to utilize up to one-half of the annual tipple-loading and processing capacity of 500,000 tons. Company production from one adjacent and two underground mines under construction ('face-up') will probably not exceed its share of the tipple capacity. Under the Nukitt Agreement, our subsidiary's partner, Vericoals, Inc., markets all of the coal loaded through the partnership tipple.

Marketing Arrangements

The Company is now pursuing through sales agents mid-term contracts for the sale of approximately one-third of its production, short-term contracts for approximately one-third of its production and will make spot-market arrangements for the sale of the remainder of its coal production. The negotiation of coal sales contracts has been intentionally delayed to determine the impact of federal strip-mining legislation and subsequently because of the Company's transition from surface-mining to deep-mining operations. The Company feels that more favorable coal sales contracts may be obtained as its coal production is increased and stabilized and on a rising coal market which it projects for the calendar year 1980. Such contracts may generally be negotiated more favorably to the producer on a rising market.

Uranium

The Market for Uranium

Price History — Historically, the uranium concentrate market has been characterized by artificially high demand and high pricing per pound of uranium during the period in which the Atomic Energy Commission (AEC) was actively purchasing uranium concentrate ($8 to $12 — 1952 through 1970), by inadequate demand and lower prices in the period immediately after the AEC ceased making such purchases ($6 to $7 — 1971 through 1973), rapidly accelerating prices (from $7 to $40 — 1974 into 1976) and generally stabilized prices from 1976 to the present ($40 to $42).

Energy Production — According to the Energy Research and Development Administration (ERDA, the successor to the AEC), as of January 1, 1979, the 72 operating reactors in the U.S. were producing 52,396 megawatts. Fifty-two thousand, three hundred ninety-six megawatts of electricity is closely equivalent to the *total electrical energy* presently consumed in the states of *New York* and *California, COMBINED!* Current reactor production represents approximately 12% of the electricity produced in the U.S. today. The 92 reactors under construction and the 34 reactors planned are scheduled to produce an additional 140,432 megawatts. The additional reactors should bring the share of nuclear-powered generating plants to more than 30% of the electrical energy produced in the U.S., giving effect to increases in both demand and production. Management feels that alternative methods for producing electrical energy will not grow as rapidly as overall demand so that notwithstanding the growth in production by alternate methods, their share of production will diminish in relationship to the entire energy output.

Uranium Supplies — The current annual world uranium production capacity is approximately 38,000 tons (76 million pounds). World requirements range from 41,000 tons in 1980 to 102,000 tons in 1990 and to 178,000 tons by the year 2000. Management believes that the anticipated annual uranium delivery requirements will continue to exceed the productive capacity of the uranium industry and that uranium prices will at least maintain their present relationship to the value of the dollar and increasing production costs.

partnership are equal. The following is a condensed summary of financial information of the partnership:

	June 30, 1979
FINANCIAL CONDITION	
Assets:	
Current assets	$ 395,519
Property and other assets	1,600,529
	$1,996,048
Liabilities:	
Current liabilities	$ 101,602
Notes payable to Vericoals	1,000,000
Partners' equity	894,446
	$1,996,048
	For the seven months ended June 30, 1979
RESULTS OF OPERATIONS	
Revenues	$ 306,563
Expenses	512,117
Net loss	$ 205,554

The Company contributed a leasehold with a cost of $26,212 to the partnership and received a 50% interest in the partnership, which represented equity of $500,000.

The excess of the Company's equity in the net assets of the partnership over book value is being amortized over forty years.

At June 30, 1979, the Company's wholly-owned subsidiary, Kentucky Coal Co., had a receivable from Nukitt of $33,045. Sales to Nukitt during the year ended June 30, 1979 were $213,220.

The Company's investment in the partnership at June 30, 1979 is comprised of the following:

Contributions:	
Leasehold	$26,212
Cash	50,000
	76,212
Amortization of excess of equity in partnership over book value	6,909
Equity in net loss of partnership	(51,388)
	$31,733

NOTE 7 — Information about the Company's industry segments:

The following summarizes information concerning the Company's industry segments at June 30, 1979 and 1978 and for the years then ended:

June 30, 1979	Mineral exploration	Coal	Consolidated
Revenues from unaffiliated customers	$252,298	$2,415,520	$2,667,818
Other income, including interest			33,297
			$2,701,115
Operating gain (loss)	$180,100	($ 972,987)	($ 792,887)
General corporate income and expense			(537,310)
Interest expense			(242,792)
Equity in net loss of partnership			(51,388)
Net loss			($1,624,377)
Identifiable assets	$856,520	$5,785,872	$6,642,392
Investment in partnership			31,733
Corporate assets			580,993
Total assets			$7,255,118
Depreciation	$ 9,261	$ 331,566	
Capital expenditures	$ 575	$ 515,356	

NOTE 5 — Stockholders' equity:

The Company's preferred stock is convertible to common stock at a ratio of 4.28571 shares of common for each share of preferred. The preferred stock may be redeemed by the Company, on 60 days notice, at par plus accrued dividends if the bid price of the Company's common stock upon the notice date of redemption is $4 or more. Dividends are payable quarterly and the liquidation value is at par value plus accrued dividends.

The Company has reserved 300,000 shares of its common stock at June 30, 1979 for issuance to key employees under its stock ownership plan. Subject to the terms and conditions of the plan, stock is awarded to certain employees by a committee appointed by the Board of Directors. At the time of issuance of stock under the plan, the committee imposes certain restrictions as to resale or transfer of the stock and as to its disposition upon termination of employment by the recipient. During 1979, 10,000 shares were issued to employees under this plan.

The Company, under its qualified stock option plan, has reserved 180,000 shares of its common stock at June 30, 1979 and 1978 for issuance to key employees. Under the plan, options are issued with terms not to exceed five years and at option prices at least equal to the fair market value of common stock at the date of the grant. The first 20% of options are exercisable 18 months from the date of the grant, with an additional 20% at the end of the second year from the date of the grant, and cumulatively 20% in each subsequent year. As of June 30, 1979 and 1978, the Company may grant options for 36,375 and 16,375 additional shares, respectively, and options for 35,200 shares are exercisable at June 30, 1979. Transactions are summarized as follows:

	Number of shares subject to option	Option price		Quoted market price	
		Per share range	Total	Per share range	Total
Outstanding at June 30,					
1979	62,725	$5.249-6.750	$359,211	$5.249-6.750	$359,211
1978	100,775	2.000-6.750	510,311	2.000-6.750	510,311
Shares as to which options became exercisable during the year ended June 30,					
1979	12,575	5.249-6.750	72,000	4.750-5.375	64,606
1978	28,925	2.000-5.750	114,953	6.125-9.250	214,422
Shares as to which options were exercised in the year ended June 30,					
1979	18,050	2.000	36,100	6.875-7.125	124,719
1978	9,225	2.000-5.249	21,649	6.500-8.625	62,471

Quoted market price is based on closing prices on dates shares subject to option were granted, exercisable or were exercised. Proceeds from the exercise of options are credited to common stock and paid-in capital at date of exercise.

NOTE 6 — Investment in partnership:

The Company's wholly-owned subsidiary, Kentucky Coal Co., has entered into a partnership with Vericoals, Inc. a firm currently engaged in the marketing of coal. The partnership owns coal-loading and processing facilities and a sidetrack, and is marketing coal. Under terms of the agreement, Vericoals has contributed $1.5 million in capital contributions and nonrecourse loans to the partnership. Profits, losses and cash flow from the operations will initially be divided 75% to Vericoals and 25% to the Company. At such time as Vericoals has recovered its original investment, profits, losses and cash flow shall be divided equally. The partners' initial equity interests in the

Uranium Exploration

Since its organization, externally funded exploration for uranium has constituted the major portion of the Company's exploration activities. From January 1, 1970 through September of 1975, substantially all of the Company's uranium exploration was undertaken through Nubeth Joint Venture. Since October 1, 1975, the Company has also undertaken uranium exploration with other major company joint venture partners.

Nubeth Joint Venture — The Company formed Nubeth Joint Venture (Nubeth) with Bethlehem Steel Corporation (Bethlehem) on January 1, 1970 and since that date has managed its exploration for uranium in the Western United States. As of April 1, 1977, Northern Energy Resources Company (NERCO) became a participant in Nubeth with an option to purchase Bethlehem's 75% interest. NERCO undertook to fund the cost of a pilot solution mining test program, to be conducted in two phases on the Nubeth Sundance Project in northeastern Wyoming. NERCO's $2.5 million obligation proved to be sufficient only to complete Phase I of the program due to delays caused by federal and state licensing requirements and the worst winter weather in Wyoming's recorded history. NERCO and Nubeth, with Bethlehem's approval, are seeking an additional joint venture partner which will be required to fund Phase II of the program and to undertake its share of the cost of production facilities. Negotiations are in process with selected major companies which have expressed a serious interest in participating in the joint venture.

Sundance — The Sundance Project presently consists of approximately 113,488 net mineral acres which are contiguous or closely associated. More than 2.88 million linear feet of exploration drilling in more than 4,500 holes spaced from 25 feet (development drilling) to 2,000 feet and ranging in depth from "near surface" to 1,400 feet have been drilled. Approximately 50% of the holes drilled have encountered uranium mineralization. Development drilling, spaced from 25 feet to 200 feet, has placed 6.0 million pounds of U_3O_8 in the inferred and indicated categories, and an additional 34.0 million pounds have been identified as potential uranium resources.

Phase I of the solution mining test program was designed to determine the recoverability of uranium and the chemical and mechanical responses of the formations to solution-mining methods. Phase I testing and the restoration of the well field have been completed. Phase I has demonstrated that the uranium is recoverable by solution-mining methods within a favorable range of results. This conclusion is confirmed by Hunkin Engineers, Inc. of Littleton, Colorado, in their independent consultants' report dated May 1979. This report concludes that based upon the results of Phase I and the anticipated results of Phase II, initial commercial facilities to produce 300,000 pounds of U_3O_8 per year could be constructed for approximately $3 million and that operating costs, exclusive of depreciation, would be approximately $18.65 per pound.

Phase II is designed to determine the feasibility of commercial-scale uranium production through a much larger test than Phase I. Whereas Phase I consisted of nine injection, extraction and buffer wells, Phase II may consist of up to 28 wells. Environmental and other studies are underway to obtain the federal and state permits required for the operation of Phase II. It is believed that it will take approximately nine months to obtain environmental permits and approximately three months of operation to obtain definitive results.

Steamboat Hill Joint Venture — On July 15, 1976, the Company entered into a joint venture with Embarcadero Corporation for the purpose of acquiring uranium prospect properties in the Uravan Mineral Belt situated in western Colorado and eastern Utah. The Uravan Mineral Belt was first developed in the late 1800's in search of rich surface outcroppings containing radium, which was mined and processed for Madam Curie's famous X-ray research. The Uravan District has given up more than one billion dollars in uranium and vanadium since mining operations began. The joint venture has completed 242,929 linear feet of exploration drilling in 378 holes ranging in depth from "near surface" to 900 feet. Of the holes drilled, 43% have encountered uranium mineralization. The excellent results to date have been detailed in the President's Report to Shareholders (see Uravan Uranium Venture).

Sage Plain Joint Venture — In 1978, the Company, Frontier Resources, Inc. and Plateau Resources, Ltd., subsidiaries of Marathon Oil Company and Consumers Power Company of Michigan, respectively, entered into this uranium exploration joint venture. The properties consist of over 36,000 net mineral acres located in San Juan County, Utah. Plateau Resources is the Manager of the Sage Plain venture and is obligated to fund the first-year exploration program in an amount exceeding $600,000. The Company has a right to retain 25% interest in the project. After the first phase, the Company may elect to contribute its proportionate share of the exploration expenditures in order to maintain that interest or may elect not to contribute and thereby proportionately reduce its interest in the project.

Central Colorado Uranium Exploration Project — On the 15th of August, 1979, the Company entered into an exploration agreement with Hunt Oil Company to conduct exploration for uranium in a south central Colorado area in which the Company held 8,585 net mineral acres through eight mineral leases. The Company has contributed the acreage for exploration which it will manage. Hunt Oil Company may provide up to $1 million to cover the exploration costs, depending upon the results of each successive stage of exploration. The companies have entered into an operating agreement which will come into effect subsequent to the initial exploration program depending upon the results of the program. The Company may retain up to a 50% interest in the project, but Northern Energy Resources Company (NERCO) has an option to acquire one-half of the Company's interest should NERCO exercise its option on Bethlehem Steel's interest in the Nubeth Joint Venture.

Other Uranium Properties — In addition to the project properties above noted, the Company holds for further exploration approximately 3,900 mineral acres in Fremont County, Wyoming, and approximately 6,590 acres in Niobrara County, Wyoming.

Copper Properties

The Company is the owner of fourteen patented lode-mining claims situated in Yavapai County, Arizona. When mining claims are patented, a direct title is granted to the holder from the United States Government and constitutes complete fee ownership of the surface and the earth and minerals beneath the surface. The Company has reached an agreement with The Superior Oil Company (Superior) which gives Superior the right to explore the property for copper and other minerals and to purchase it for $800,000 over a ten-year period. Superior is required to provide the Company with its explora-

The Company was party to a credit agreement with The First National Bank of Chicago which expired September 30, 1979. During the year ended June 30, 1979, the weighted average outstanding balance and interest rate were $266,000 and 12% respectively.

In October, 1979 the Company entered into a credit agreement with the Texas Commerce Bank, expiring September 30, 1980, providing for a working capital credit line of $1,000,000 collateralized by certain coal mining assets, accounts receivable and inventory. On October 1, 1980 the working capital credit line converts to a term loan payable in eight equal quarterly instalments commencing October 1, 1980. The outstanding principal amounts may not exceed a stated percentage of the underlying collateral. Interest is payable at the bank's prime rate plus 2%. There is a commitment fee of one-half of one percent on the unused portion of the credit line and an informal twenty percent compensating balance requirement on any amounts outstanding under the agreement.

In connection with an acquisition, the Company assumed a $250,000, 9% note payable to a former owner of the acquired company. The former owner is a defendent in a lawsuit by a third party. The Company's note is payable on settlement of the suit at $25,000 per month or in full at the Company's election.

The debentures and the credit agreement provide for certain restrictions as to indebtedness, declaration or payment of dividends and disposition of the Company's interest in the Nubeth Joint Venture. The Company is in compliance with these restrictions.

NOTE 4 — Income taxes:

Income tax credits differ from the amount computed by applying the federal income tax rate as follows:

	Year ended June 30			
	1979		1978	
	Amount	% of pretax income	Amount	% of pretax income
Computed "expected" tax credit	($763,457)	(47.0%)	($913,087)	(48.0%)
Reductions (increase) in credit resulting from:				
Net operating loss tax benefit carried forward	753,489	46.4	680,918	35.8
Investment tax credit			96,196	5.1
Minimum tax			69,972	3.6
Other	9,968	.6	35,207	1.9
	$ —	— %	($30,794)	(1.6%)

The Company has net operating loss carry-forwards for financial accounting and federal tax purposes which have not yet been recognized due to losses through June 30, 1979. The loss carry-forwards of $3,020,450 for financial accounting purposes and $3,354,295 for federal tax purposes expire under current law in varying amounts in 1984 through 1986. The Company also has unused investment tax credits of $131,735 for both financial accounting and federal tax purposes which expire under current law in varying amounts through 1986.

NOTE 3 — Long-term debt and notes payable:

Long-term debt consists of:

	June 30 1979	June 30 1978
10% convertible subordinated debentures, annual $100,000 sinking fund payments due commencing in 1980 with balance due April 1987.	$1,400,000	$1,400,000
8½% note to Machinery Acceptance Corporation payable in monthly instalments of $5,090, including interest, through March 1981. Note is secured by the equipment.	92,966	
7% note payable in monthly instalments of $1,161, including interest, through May 1984. Note is secured by certain mining property.	58,848	68,300
6½% note to Westinghouse Credit Corp., payable in monthly instalments of $4,183, including interest, through August 1980. Note is secured by certain mining equipment.	42,671	73,769
9½% note to the First National Bank of Prestonsburg, payable in monthly instalments of $699, including interest, through November 1987. Note is secured by real estate.	48,462	52,055
6½% note to Valley National Bank, payable in monthly instalments of $734, including interest, through August 1980. Note is secured by an office building.	9,757	17,656
	1,652,704	1,611,780
Less current portion	206,654	52,043
	$1,446,050	$1,559,737

The annual aggregate principal payments for fiscal years 1981 through 1984 are $127,384, $115,173, $117,247, and $114,668, respectively.

In May, 1977 the Company sold $1,400,000 of 10% convertible subordinated debentures. The debentures are subject to redemption, at a premium, through May 1, 1984 and thereafter at par. Interest is payable semiannually at May 1 and November 1. Subject to certain anti-dilution provisions, the debentures are convertible at their principal amount into common stock at any time prior to April 30, 1987 at $10 per share.

In September, 1979 the Company authorized the issuance and sale of $2,800,000 of 12% convertible subordinated debentures due in 1989. The debentures are subject to redemption, at a premium, from October 1, 1981 through October 1, 1987 and thereafter at par. Interest is payable semiannually on April 1 and October 1. The debentures are convertible at their principal amount into common stock at any time prior to October 1, 1989 at $5-5/8 per share, subject to certain anti-dilution provisions. Proceeds of the offering will be used in part to retire short-term debt.

The 12% debentures have initially been offered to holders of the Company's 10% convertible subordinated debentures. For amounts purchased for cash, holders of the 10% debentures will be entitled to exchange an equal amount of 10% debentures for the new 12% debentures. The Company will offer any remaining debentures to other investors. As of October 12, 1979, $250,000 of the 12% debentures were issued for cash, $250,000 were issued in exchange, at par, for the 10% debentures and $50,000 of the 12% debentures were irrevocably subscribed for cash.

Notes payable consist of:

	June 30 1979	June 30 1978
The First National Bank of Chicago	$350,000	$ 20,000
Note payable in connection with acquisition	250,000	250,000
Notes payable to banks	19,023	21,585
	$619,023	$291,585

tion findings and any feasibility study which it may make for the development and production of minerals, and the Company may then elect to remit up to 20% of the purchase price to Superior and thereby retain up to a 20% interest in the development operation and production of the property.

The Company holds nine patented lode-mining claims under a contract to purchase. These claims are located in the Sunlight Basin of northwestern Wyoming and are apparently strategically near the center of large low-grade copper deposits held through mining claims by a major copper producer.

The Company also holds 20 unpatented lode-mining claims and a patented mill site near Wickenburg, Arizona which is thought to have value as a relatively small copper deposit.

Summary

The Company's management believes that Nuclear Dynamics will become a uranium producer under favorable demand and market conditions. It has developed mining and loading facilities for coal production and shipment which has put it in a position to conduct profitable coal-producing operations on the current coal market with every indication that there will be a substantial improvement in the coal market which may generate significant revenues. Nuclear deeply appreciates the loyalty of its shareholders and employees.

Consolidated Balance Sheet

Assets	June 30 1979	June 30 1978
CURRENT ASSETS:		
Cash	$ 184,480	$ 321,852
Receivables (net of reserve for doubtful accounts of $52,500 in 1979 and $38,500 in 1978)	466,405	494,787
Note receivable—current portion	2,470	46,356
Income tax receivable		49,206
Coal inventory	31,415	
Prepaid expenses and supplies	161,829	268,760
Total current assets	846,599	1,180,961
PROPERTY, PLANT AND EQUIPMENT (Notes 1 and 2)	5,493,365	6,153,359
INVESTMENT IN PARTNERSHIP (Note 6)	31,733	
OTHER ASSETS:		
Unrecovered property acquisition and exploration costs (Note 1)	833,035	810,720
Note receivable		45,543
Other	50,386	252,165
	883,421	1,108,428
	$7,255,118	$8,442,748

Liabilities and Stockholders' Equity	1979	1978
CURRENT LIABILITIES:		
Notes payable (Note 3)	$ 619,023	$ 291,585
Current portion of long-term debt (Note 3)	206,654	52,043
Accounts payable	188,152	308,322
Royalties payable	209,297	71,438
Other current liabilities	159,659	149,942
Total current liabilities	1,382,785	873,330
LONG-TERM DEBT, net of current portion (Note 3)	1,446,050	1,559,737
STOCKHOLDERS' EQUITY (Note 5):		
8½% cumulative convertible preferred stock, $10 par value, 4,500,000 shares authorized; shares issued and outstanding, 49,708—1979, 50,223—1978	497,080	502,230
Common stock, 10¢ par value, 50,000,000 shares authorized; shares issued and outstanding, 4,202,817—1979, 4,172,560—1978	420,282	417,256
Paid-in capital	5,369,454	5,326,351
Accumulated deficit	(1,860,533)	(236,156)
	4,426,283	6,009,681
CONTINGENCIES (Note 9)		
	$7,255,118	$8,442,748

See the accompanying notes to the consolidated financial statements.

continue as a partner in the Uravan Joint Venture. At June 30, 1979, the Company held a 50% interest in the Venture with Embarcadero Corporation, and is responsible for funding its share of the Venture costs.

The Company has entered into other similar agreements and does so from time to time.

Principles of Consolidation —

The consolidated financial statements include the accounts of Nuclear Dynamics, Inc. and its wholly-owned subsidiaries. All significant intercompany balances and transactions have been eliminated. Investments in unconsolidated investees are carried on the equity basis.

Property, Plant and Equipment —

Property, plant and equipment are recorded at cost and depreciation is provided on the straight-line method over the estimated useful lives of the assets (25 years for buildings, 2-5 years for coal mining equipment, 3-8 years for aircraft and vehicles, 8-10 years for laboratory and exploration equipment, and 10 years for office furniture and equipment). Maintenance and repairs are charged to income as incurred and renewals and betterments are capitalized.

When assets are sold or retired, the cost of the asset and related accumulated depreciation are removed from the accounts and any resulting gains or losses are credited or charged to income.

Depletion is computed using a unit rate, based upon the estimated tons of coal reserves, applied to actual tons of production. The Company makes no representation that the charge represents depletion actually sustained or the decline, if any, in mine value attributable to the period's operations, or that it represents anything other than a general provision for the amortization of the remaining book value of the mine.

Unrecovered Property Acquisition and Exploration Costs —

Property acquisition and exploration costs (for other than coal properties) are deferred by project area. The ultimate realization of these costs is dependent on the discovery of commercially exploitable ore bodies or producing petroleum wells, at which time such costs will be charged against income using an appropriate method and rate to be determined. When evaluation of a project area discloses possible impairment, an appropriate reserve is established. Unsuccessful projects are written off when abandoned.

Coal Inventory —

Coal inventory is stated at the lower of average cost or market.

Earnings Per Share —

Primary earnings per share data are based on the weighted average of common shares outstanding during each period and consider securities meeting the tests of "common stock equivalents" as having been converted into common stock. As the Company has incurred a net loss for the years ended June 30, 1978 and 1979, primary and fully diluted earnings per share are the same.

Income Taxes —

The Company accounts for certain property acquisition and exploration costs and depreciation differently for financial reporting than for income tax purposes. Consequently, net operating losses for financial reporting purposes differ from those reported for income tax purposes. Investment tax credits are accounted for using the flow-through method.

NOTE 2 — Property, plant and equipment:

Property, plant and equipment are summarized by major classifications as follows:

	June 30 1979	June 30 1978
Coal mines and mining claims	$1,357,793	$1,308,883
Coal mining property not currently being mined	1,816,758	1,816,758
Coal mining equipment	3,372,392	4,969,698
Land	750,000	750,000
Buildings	266,163	263,581
Aircraft and vehicles	127,640	131,601
Laboratory and exploration equipment	89,759	89,184
Office furniture and equipment	123,278	116,882
	7,903,783	9,446,587
Less: Accumulated depreciation and depletion	2,410,418	3,293,228
	$5,493,365	$6,153,359

Notes to Consolidated Financial Statements

June 30, 1979 and 1978

Nuclear Dynamics, Inc.

NOTE 1 — Organization, operations and summary of accounting policies:

Nuclear Dynamics, Inc. was organized on June 30, 1967 for the purpose of exploring, acquiring, and developing mineral lands and rights.

As the managing and participating partner, the Company is involved in two major uranium exploration/development ventures: the Nubeth Joint Venture with Bethlehem Steel Corp. and NERCO, Inc. (a wholly-owned subsidiary of Pacific Power and Light Co.), and the Uravan Joint Venture with Embarcadero Corporation.

In the Nubeth Joint Venture, Bethlehem had paid for all costs of the Venture including the Company's management fee of 7½% of the drilling program and research costs. From inception (January 1, 1970) through March 31, 1977 Bethlehem had paid in excess of $8,250,000 to the Venture relating to such costs. Bethlehem's and Nuclear's initial interests in the Venture were 75% and 25%, respectively. Effective April 1, 1977 NERCO became a participant in the Venture and acquired a 12% interest in the Venture and an option to acquire Bethlehem's remaining interest. Bethlehem's and Nuclear's interests were reduced to 66% and 22%, respectively. In order to retain its option, NERCO was required to spend $2.5 million on the project through calendar year 1979. As of June 30, 1979 NERCO had complied with the funding requirements. To exercise its option, NERCO must pay $9.0 million to Bethlehem and grant to Bethlehem an overriding royalty. Upon expiration of the option, the Company's interest reverts to 25%, and may increase from 25% to 50%, contingent on NERCO's exercise of its option and its recovery, from NERCO's share of the Venture, of the $9.0 million purchase payment, one-third of its investment attributable to depreciable assets and interest. Should the Venture undertake a commercial project, the Company is responsible for 25% of the cost of the project. Under the agreement, NERCO is committed to loan the Company up to $3.0 million for the Company's share of the costs. The Venturers are currently negotiating with other companies who are seriously interested in joining the Joint Venture.

In the Uravan Joint Venture, the Company has agreed to act as exploration manager. Under the terms of the agreement, Public Service Company of Oklahoma (PSO) provided $1.5 million to the Joint Venture through December 31, 1978. In April, 1979, PSO elected not to

Nuclear Dynamics, Inc.

Consolidated Statement of Operations

	Year Ended June 30 1979	1978
SALES AND OTHER REVENUES:		
Net coal sales	$2,276,019	$2,474,309
Other operating revenues	419,406	408,911
Interest income	5,690	40,444
	2,701,115	2,923,664
COSTS AND EXPENSES:		
Cost of coal sold, exclusive of depreciation, depletion, amortization and royalties	2,210,427	2,058,988
Selling, general and administrative expenses, including depreciation of $36,385 and $32,041	1,049,140	1,116,319
Depreciation and depletion (Note 1)	340,827	467,527
Royalties	387,498	528,313
Interest	242,792	184,782
Reserve for property acquisition and exploration costs (Note 1)	43,420	470,000
Equity in net loss of partnership (Note 6)	51,388	
Credit for income taxes (Note 4)		(30,794)
	4,325,492	4,795,135
NET LOSS	($1,624,377)	($1,871,471)
LOSS PER SHARE (Notes 1 and 5):	($.40)	($.46)

See the accompanying notes to the consolidated financial statements.

Consolidated Statement of Changes in Financial Position

	Year ended June 30 1979	1978
FINANCIAL RESOURCES WERE PROVIDED BY:		
Sale of property, plant and equipment	$ 871,501	$ 42,575
Officers' life insurance loans	138,290	
Long-term borrowing	104,326	149,089
Decrease in long-term receivables	45,543	
Exercise of employee stock options	36,100	21,649
	1,195,760	213,313
FINANCIAL RESOURCES WERE USED FOR:		
Net loss	1,624,377	1,871,471
(Charges) credits to income not affecting working capital —		
Depreciation, depletion, and amortization	(370,303)	(499,568)
Deferred income taxes, noncurrent		30,794
Gain on sale of fixed assets	54,213	
Reserve for property acquisition and exploration costs	(43,420)	(470,000)
Equity in net loss of partnership	(51,388)	
Issuance of common stock under stock ownership plan	(47,500)	
Working capital used for operations	1,165,979	932,697
Purchase of property, plant and equipment	534,506	446,290
Repayment of long-term debt	218,013	74,123
Acquisition and exploration costs	65,735	69,863
Dividends on preferred stock	42,621	45,820
Investment in partnership	50,000	
Other noncurrent items	(37,277)	(3,596)
	2,039,577	1,565,197
DECREASE IN WORKING CAPITAL	($ 843,817)	($1,351,884)
THE COMPONENTS COMPRISING THE DECREASE IN WORKING CAPITAL ARE AS FOLLOWS:		
Cash	($ 137,372)	($ 245,075)
Temporary investments in marketable securities		(1,250,000)
Receivables	(28,382)	152,374
Note receivable—current portion	(43,886)	(4,499)
Income tax receivable	(49,206)	(209)
Coal inventory	31,415	
Prepaid expenses and supplies	(106,931)	(71,285)
Notes payable	(327,438)	74,324
Current portion of long-term debt	(154,611)	(7,797)
Accounts payable	120,170	(93,377)
Dividends payable on preferred stock		12,844
Royalties payable	(137,859)	4,397
Other current liabilities	(9,717)	76,419
	($ 843,817)	($1,351,884)

See the accompanying notes to the consolidated financial statements.

Consolidated Statement of Changes in Stockholders' Equity

	Preferred stock	Common stock	Paid-in capital	Retained earnings (accumulated deficit)
Balance at June 30, 1977	$660,830	$409,536	$5,153,822	$1,681,135
Net loss				(1,871,471)
Exercise of employee stock options		922	20,727	
Conversion of preferred stock to common stock	(158,600)	6,798	151,802	
Dividends on preferred stock				(45,820)
Balance at June 30, 1978	502,230	417,256	5,326,351	(236,156)
Net loss				(1,624,377)
Exercise of employee stock options		1,805	34,295	
Conversion of preferred stock to common stock	(5,150)	221	4,929	
Issuance of common stock under stock ownership plan		1,000	46,500	
Dividends on preferred stock			(42,621)	
Balance at June 30,1979	$497,080	$420,282	$5,369,454	($1,860,533)

See the accompanying notes to the consolidated financial statements.

IMMEDIATE RELEASE

November 5, 1979

CONTACT:

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NUCLEAR DYNAMICS REPORTS ACQUISITION

Phoenix...Kelsey L. Boltz, President, Nuclear Dynamics, Inc., announced today that Nuclear Dynamics has entered into a Letter of Intent to acquire Diamond Back Drilling & Supply, Inc., a privately held oil production and drilling company operating in Colorado. Nuclear Dynamics, Inc. is primarily engaged in exploration and development of uranium in the western United States and in the production of coal in eastern Kentucky.

The principal assets of Diamond Back include 7,000 acres of oil and gas rights, proven oil reserves of 130,000 barrels and two drill rigs capable of drilling to depths of 4,500 and 7,500 feet. The acquisition, which is subject to documentation and approval by the respective Boards of Directors, is agreed to be completed by January 4, 1980, for combined consideration of 2.2 million dollars in cash and common stock of Nuclear Dynamics, Inc.

"If consummated, Nuclear Dynamics' acquisition of Diamond Back should be a solid step into the oil industry and should contribute significant cash flow to Nuclear Dynamics," Boltz said.

Diamond Back will be maintained as a wholly owned subsidiary of Nuclear Dynamics. The operating staff of Diamond Back will be retained to direct the activities of the subsidiary.

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RESEARCH

July 3, 1975 | NUCLEAR DYNAMICS, INC. (NASDAQ - NUDY) | Research Report No. 103

Recent Price: 16
1974-1975 Bid Range: 6 1/4 - 17
Estimated Float: 438,325

Fiscal Year Ends: June 30
1975 E.P.S.: $1.00 Est.
PE Ratio: 16x

(000)

	Nine Months Ended 3/31 1975 (Unaudited)	Nine Months Ended 3/31 1974	Fiscal Years Ended June 30 1974	Fiscal Years Ended June 30 1973	Dec. 31, 1971 to June 30 1972
Revenues	$ 10,125	$ 4,744	$ 8,181	$ 3,020	$ 1,939
After-Tax Income	2,309	940	2,114	(476)	32
Fully Diluted EPS	.87	.44	.92	(.22)	.01

SUMMARY AND RECOMMENDATION

Nuclear Dynamics, Inc. (NDI) is an emerging energy company with profitable coal operations and potential for uranium discovery in its joint venture exploration program with Bethlehem Steel Corporation.

Dramatic earnings progress in its coal operation and an infusion of capital from a recent convertible preferred private placement has enabled the company to expand its Base and Precious Metals Division. In this regard, the company has recently entered into agreements with three separate companies: Selection Trust Ltd., an international mineral producer, on a copper, lead, zinc property; McAlester Fuel on a gold prospect; and with a major company on a disseminated porphyry type copper-molybdenum prospect.

NDI has also recently obtained oil and gas leases and Federal prospecting permits on geothermal, phosphate and potash prospects. Active negotiations with several companies are now in process and new joint venture exploration programs are a distinct possibility.

The company's unique approach to the high-risk exploration business minimizes risk to its investors but offers the potential for highly leveraged long term earnings potential.

Selling at 16 times our earnings estimate of $1 per share, the stock is recommended for purchase for selective accounts.

Morgan, Olmstead, Kennedy & Gardner, Incorporated makes a market in the common stock of Nuclear Dynamics, Inc.

ANDRE W. ISELI   RONALD G. MILLER   JAMES P. CONGLETON

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THE COMPANY - 1967 TO DATE

Objectives

Nuclear Dynamics, Inc. (NDI) was formed in 1967 to perform forward exploration for uranium and for metals and minerals in anticipation of present energy fuel crisis conditions and prospective long term shortages in metals and minerals. From its inception, NDI's operational objective has been to acquire multi-billion dollar reserves and to become an important factor in U.S. fuels and minerals -- an ambitious program for a small company. The foresight of NDI's founders must be emphasized considering that its plans and purposes were formulated in 1967. These founders continue to serve as its officers and Executive Committee, actively supported by a highly competent Board of Directors.

Operational Approach

Utilizing funds contributed by the founders, an initially small but highly experienced and innovative team of geologists was assembled to research and evaluate areas which indicated a potential for major economic deposits of uranium. Management's approach to exploration, in competing with industrial giants, was unique. As a small company with a high degree of technological expertise and immediate decision-making capability, NDI was able to quickly and quietly acquire key land positions in areas of interest indicated through its in-house geological studies. Once acquired, these properties were then presented to major oil and mining companies for joint venture exploration. NDI reasoned that the reputation of its geological team plus the quality of its acquired geological prospects, would be attractive to major companies with the substantial capital required to finance extensive exploration and development programs. By this approach, NDI has minimized its exposure to the extreme high-risk cost of uranium exploration, but preserved the opportunity for substantial rewards for its investors by retaining a participating interest in these projects. This unique approach has been successful.

Early Ventures

From 1967 to 1970, Phillips Petroleum, Cleveland-Cliffs Iron Company, Standard Oil of Ohio and Continental Oil, spent approximately a combined total of $4.0 million in individual uranium exploration ventures with NDI. Each of these companies speaks highly of NDI's expertise, with Phillips, Cleveland-Cliffs and Continental Oil all entering into subsequent joint explorations with NDI. Upon the termination of Cleveland-Cliffs first venture with NDI, Dan Sadowsky, then Director of Acquisitions of Cleveland-Cliffs and now its Director of Finance and Planning, joined NDI's Board of Directors, a position in which he actively continues to serve.

Bethlehem Steel - A Continuing Uranium Exploration Venture

In 1970 Nuclear Dynamics entered into a mutually exclusive agreement with Bethlehem Steel Corporation to manage all of Bethlehem's uranium exploration activities in the U.S. The Nubeth Joint Venture, as it is called, is wholly funded by Bethlehem Steel Corporation under a budget which to date has exceeded $1.0 million annually. NDI receives a 7-1/2% annual management fee and is a 25% joint owner of all Nubeth projects. The original three-year joint venture has been extended through December 31, 1976. The objective of the Nubeth venture is to locate and control major new uranium districts with a potential for multi-billion dollar uranium reserves. To date NDI, as the Manager of 'Nubeth', has expended more that $6.0 million of Bethlehem's funds in uranium exploration.

The $10.0 million in total exploratory drilling costs spent to date by NDI and its venture partners are substantial expenditures yet they can easily go unnoticed because they do not appear on its balance sheet or income statement. It is important to note that funding exploration programs by this approach represents no risk or dilution to NDI's stockholders and offers highly leveraged substantial long term earnings potential. The failure rate associated with exploration projects is quite high, therefore, NDI recognized the need to be exposed to a large number and variety of such ventures in order to assure itself of success. This meant capital outlays to acquire an inventory of exploration properties and to maintain an active acquisition program.

Initial Financing

To raise this capital, NDI completed a private placement of $750,000 of its common stock through William D. Witter & Co. in January of 1969. The Company raised $300,000 of additional capital by a Reg. "A" offering of its common stock in February of 1971. The Company believed that in addition to the capital raised, its publicly traded shares would enable it to acquire mineral producing properties capable of generating cash flow.

Coal Production

On December 31, 1971, NDI acquired the properties, equipment and leases of Potter & Walters Coal Co. in Floyd County, Kentucky, utilizing 250,000 shares of its common stock and $2.2 million in cash -- borrowing $2.8 million from James Talcott, Inc. to pay for this acquisition and the balance to be used for working capital. NDI was optimistic about long term coal prices, believing from its inception that uranium and coal would displace oil and gas as the two leading energy fuels. On this premise, the Company reasoned that its acquisition of producing coal properties would be a source of sizeable cash flow, which could be used to (1) offset general overhead expenses, (2) maintain its acquisition program for base and precious metal properties and (3) expand its activities to include oil, gas and geothermal prospects.

However, initial coal operations met with a series of disasters, first in the form of severe floods which lead to decreased production and equipment losses. Next came labor disputes and litigation on Company leases, the termination of a favorable coal sales contract and finally a general weakening in coal prices, causing the Company to sell its coal at severely depressed spot prices. Nevertheless NDI did manage to break even for the fiscal year ended June 30, 1972, but its cash flow was severely hampered. After paying interest of $193,000 and principal of $800,000 on the Talcott loan and spending $400,000 for additional mining equipment, NDI's working capital was depleted by more that $500,000.

In November 1972 after selling 415,000 tons of steam coal, NDI suspended production in Floyd County, transferring its operations to Pike County where it leased 1,900 acres. Potentially lower operating costs as well as higher grade of coal (high BTU, low sulphur and ash -- more marketable coal) were considerations for the move. Nevertheless the costs associated with the transfer of operations as well as continued depressed coal prices led to a substantial operating loss for the year ended June 30, 1973 -- approximately $476,024 (22¢ per share). Even worse was a further reduction in working capital of $556,000, requiring a moratorium, granted by Talcott, in the principal and interest payments on its loan.

Then came the long awaited increase in coal prices from $9.50 per ton in June 1973 to $16.44 per ton by December 1974. However, NDI again required capital to enlarge its loading facilities in Pike County and to acquire additional mining equipment in order to expand production there. It also wanted to eliminate the heavy burden of its Talcott loan.

New Financing

To accomplish its goal, NDI enlisted the support of Wheat, First Securities to privately place a $10.00, 8-1/2% Cumulative Convertible Preferred Stock Issue. Then NDI completed the sale of 188,250 shares of this issue in April 1974 as its coal prices reached $36.00 per ton. As coal prices rose and current operations improved, the Company curtailed the issuance of additional stock. Several important facts emerged. First, the Company itself sold most of the issue to original founding stockholders. Second, and an even greater testimony to the Company, was the purchase of 50,000 shares by James Talcott, Inc. for $500,000, and 20,000 shares by McAlester Fuel Company whose President is represented on Nuclear Dynamics' Board of Directors.

Operational and Financial Turnaround

The combination of profitable coal operations and the proceeds from the private offering of preferred shares has enabled NDI to (1) acquire more than $1.0 million in additional coal mining equipment, thereby materially increasing its coal production/profit capability, (2) increase its working capital from a minus $700,000 as of June 30, 1973 to a plus figure of $1,593,092 as of June 30, 1974 and (3) to post substantial earnings of 92¢ per share for the fiscal year ended June 30, 1974 versus a $.22 loss in fiscal 1973.

Despite the moratorium granted by James Talcott, Inc., the Talcott loan was paid in full on December 10, 1974 21 days prior to its original maturity date. As of December 31, 1974, NDI's working capital was $3.0 million.

THE COMPANY - 1975 AND BEYOND

After several very difficult years, NDI appears to be on the threshold of significant growth. Stockholder equity, now in excess of $3.44 per share, is five times greater than in 1973. The Company is practically free of long term debt, and its cash flow, which is significant, should continue to be so, based upon profitable coal operations. Earnings from its Kentucky Coal subsidiary have enabled NDI to acquire promising properties for joint venture exploration and development. In that regard, the Company has obtained oil and gas leases in the Niobara formation, in the Powder River Basin in Wyoming.

The Company has either directly or through joint venture agreements, applied for prospecting permits on selected potash and phosphate prospect properties and for geothermal leases. These applications will allow the Company to explore these properties, looking to the execution of leases with the Federal government and with State governments when the Federal leasing program is established. Acreage associated with this program is in demand, and it is important to note that NDI will participate to the maximum extent permitted by law. Potash and phosphate prices have experienced a five-fold increase in price over the past few years, and demand should continue at record high levels well into the future.

The Company now has four separate joint ventures, two of which could have major earnings potential:

Nubeth Joint Venture

This venture with Bethlehem Steel Corporation is now entering its sixth year, and the outlook is excellent. Although the results of this exploration is impossible to predict, if successful, NDI would own 25% of a multi-billion dollar uranium district.

Joint Venture Copper Agreement

This agreement with a major company has recently been signed. Contract commitments will probably require expenditures of $200,000 to $700,000 in the initial exploratory drilling program. If the results of such drilling are favorable, the major company will fund an extensive exploratory and developmental drilling program toward the eventual production of a large porphyry copper deposit. The minimum target size is approximately 200,000,000 tons of copper-molybdenum ore. At current prices, this translates into a multi-billion dollar prospect.

McAlester Fuel/Joint Venture

This venture with McAlester Fuel Company, an Oklahoma-based oil and gas producer, was signed in April, 1975. It calls for a one-year, two-phase exploration and evaluation program of a placer gold deposit. If successful, the venture would require that both companies fund a combined capital investment of between $4 million and $7 million. Based upon the potential target size, estimated at 40 million cubic yards, the prospect translates into a possible $12 million to $16 million profit.

American Selco Agreement

This agreement with American Selco Corp., a wholly-owned subsidiary of Selection Trust Ltd. of London (net worth, $300 million plus), an international mineral producer, was signed in March, 1975. American Selco will expend an undisclosed amount on the exploration of NDI's properties for copper, lead, zinc and silver. Upon a determination to develop the properties, NDI has the option to sell its interest or to in part sell its interest and retain a working participation.

NDI is actively negotiating to acquire additional properties and formulate new joint ventures and/or exploration agreements.

MORE ON COAL

Since coal represented 93.3% of 1974 earnings and could continue to be the source of the Company's earnings in the foreseeable future, more needs to be said about these operations and the viability of these earnings over the near term.

The Floyd County property, on which the Company ceased operations in November 1972, is being mined intermittantly by coal mining contractors employed by the Company at a variable rate-per-ton produced. This type of operation was initiated in April, 1974, and has produced gross income in excess of $500,000 to the Company since that date. It is possible that Floyd County operations may be suspended at any time or be undertaken directly by the Company.

In the future, the Company expects that coal revenues will be derived from the production of its leased properties in Pike County and from purchases from independent operators shipping through Company owned or controlled tipple facilities.

Under the conditions of the lease at Pike County, the properties are available to NDI for so long as it pays royalties on the production of 75,000 tons of coal in each consecutive six-month period. Royalties are fixed at $1.25 per ton produced and sold plus 15% of any sales price in excess of $12 per ton. In its first year of operations in Pike County (calendar year 1974), NDI produced gross revenues to NDI of $15,506,766. Gross revenue to NDI from all sources during this calendar year period was the sum of $16,407,661.

According to an independent geological report, total reserves of 4.3 million tons are recoverable by strip and auger methods, and 17.3 million tons by deep mining methods. The high price received for this coal is determined by its high quality - less the 1% sulphur, less than 6% ash, and a minimum heat yield of 26 million BTU's per ton.

The Company employs 58 persons on a full-time basis in Pike County, represented by the Southern Labor Union. Its contract with the union expires in April, 1976. The Company has enjoyed good relations with the union and experienced no problems during the recent UMW strike.

The Company's coal production commands premium prices because of its high quality and, at the present time, is sold on the spot market. During periods of high demand, a substantial amount of the coal has been sold to industrial users for metallurgical use, and because of its quality, is readily marketable to utilities for steam-electric generating purposes.

The Company holds, or has operating interests in, three tipples, (coal loading facilities). When fully utilized, these facilities will allow the production of approximately 750,000 tons of coal per year. Because of a moratorium on the construction of side tracks serving the C & O Railroad, it appears that the Company will enjoy an advantageous position through its control of three tipples with attendant side track and loading facilities.

The Company's Big Shoal operations in Pike County accounted for approximately 25,000 tons per month, or more than 95% of the Company's total production in 1974. By acquiring additional tipples, the Company feels that it can acquire coal produced by independent operators who would otherwise have no outlet for delivering coal produced from their properties. Such independent production can be acquired at essentially the same, or at a slightly higher, cost than would be incurred by the Company through its own mining operations. By handling the independently produced coal, the Company will be in a position to use a part of its equipment in other areas.

It is important to point out that coal prices will experience dramatic short term price fluctuations, especially in the current energy environment. As an example, over the last several months, NDI's coal prices have fallen from a peak of $56 per ton to a current price of $24 per ton due to a combination of seasonal, cyclical and other short term supply/demand factors.

NUDY

In any event, the long term outlook still appears bright in the wake of higher oil prices and anticipated seasonal demand. Despite its short term fluctuations, it is interesting to note that coal at $52.50 per ton produces the equivalent electricity to oil at $11 per barrel. Thus, even at its historically high prices, coal remains competitive and there are many experts who now project that coal will displace oil and gas as the leading energy fuel. The long term demand for coal is bright indeed.

OUR EARNINGS ESTIMATE/EARNINGS POTENTIAL FROM COAL

Our 1975 earnings estimate is based entirely on NDI's coal production. Throughout the third quarter ended March 31, 1975, coal prices fluctuated between $22 and $25 per ton. Under the market and weather conditions, the Company elected to ship less that 20,000 tons for the quarter and has performed advance stripping for future sales during this period. The result was a $13,000 loss for the third quarter, or approximately $.01 per share. Although the long term demand is bright, we see no evidence of a significant change in the foreseeable future. Therefore, our 1975 estimate is based upon only slightly increased production in the fourth quarter and prices of approximately $24 per ton.

The Company is actively negotiating financing for the construction of a washing plant in Floyd County, which will effectively increase the profit on coal produced. The cost of such plant is estimated at $2.5 million. It is expected that the cost will be subsidized by a joint venture partner. It is doubtful that a coal washing plant would be in operation before 1977. The earnings potential from the Kentucky Coal operation is substantial and should be materially enhanced by the construction of a washing plant. Based upon our analysis of published information relating to the Company's earnings in the past and the relative market price for steam coal (unwashed) and metallurgical coal (washed), we have constructed the following chart reflecting our estimate of the Company's earnings potential in its existing operations. Earnings per share are shown on a pre-tax basis because of the difficulty in forecasting the Company's tax rate.

EARNINGS POTENTIAL - EXISTING COAL OPERATIONS
AT
VARYING PRODUCTION AND COAL PRICES

Average Monthly Production

	Tons 30,000				Tons 45,000			
	Washing Plant				Washing Plant			
	Without		With		Without		With	
Price Per Ton	Pre-Tax Income	Pre-Tax EPS	Pre-Tax Income	Pre-Tax EPS	Pre-Tax Income	Pre-Tax EPS	Pre-Tax Income	Pre-Tax EPS
$25	$1,440,000	$ .54	$3,600,000	$1.34	$2,160,000	$ .80	$5,400,000	$2.04
$30	2,880,000	1.08	5,040,000	1.90	4,320,000	1.62	7,560,000	2.84
$35	4,320,000	1.62	6,490,000	2.44	6,480,000	2.42	9,720,000	3.64
$40	5,760,000	2.16	7,920,000	2.98	8,640,000	3.34	11,880,000	4.46

As a mineral exploration company, NDI is in an enviable position to regulate its tax liability through tax credits and deductions associated with exploratory and developmental drilling programs. We fully expect the Company to take advantage of these opportunities.

The Company has acquired a fourth tipple site, but due to the car shortage, there is a moratorium on the construction of railroad sidings necessary to service new tipple operations. This site is a potential 100-car siding, but in all probability, will not be operational, if at all, before early 1978.

MORE ON URANIUM

Uranium -- A Significant Earnings Source

A great deal of progress has been made in the Nubeth Joint Venture and activity is now centered in the Sundance Project. According to the Company's most recent Form 10 Filing, this area encompasses 115,108 acres in Campbell and Crook Counties, Wyoming. The report further indicates that 1,093,661 feet of exploratory drilling have been completed in 1,154 holes ranging in depth from near surface to 1,400 feet.

The objective of the Nubeth Joint Venture gives some indication of Nuclear Dynamics' potential. The Nubeth program has been designed with a minimum 50,000,000 lb U_3O_8 reserve position in mind. In view of the fact that recent sales of uranium have been made at \$30 per lb., if exploration proves successful in locating such reserves would ascribe a value in excess of \$1 billion. In other words, Bethlehem Steel is interested in entering the uranium industry on a large scale through exploration discovery and development of major new uranium districts. Its original exclusive agreement with NDI and two renewals of the agreement would indicate that Bethlehem has elected to carry out its programs through NDI. The significance of this undertaking is amply demonstrated by the fact that no new uranium districts have been discovered in the past 15 years. Obviously, the depressed prices of recent years and lack of near term demand for the product have been a deterrent to exploration activity; however, uranium is probably the most difficult metal to find. It is almost axiomatic that large ore concentrations are in lower grades, and these have been uneconomical at past prices.

The most profitable uranium ore bodies, those yielding approximately 4 lbs. of U_3O_8 per ton, have been known to encompass an area no more than 75 feet wide by 25 feet in depth and perhaps up to 700 feet long - incredible when one considers that the Nubeth Joint Venture covers a 240 square mile area (30 miles by 8 miles).

Since NDI has never said it has an ore body and in view of the difficulty involved, why are we so optimistic about the success of the Venture?

First, let's examine the status of the venture to date and evaluate what the Company has said.

Date	Number of Acres	Number of Feet Drilled	Company Comments
February 1972	75,000	150,000	"Confirmed the existence of geological conditions necessary for the accumulation of economic concentrations of uranium."
September 1974	115,000	1,000,000	"Encountered significant mineralization -- indicates the potential for economically recoverable ore -- potential for a major new uranium district -- drilling to be stepped up."

These statistics and comments alone are quite revealing. For example, as a general rule, it can be said that 99% of the land acquired for exploration contains nothing, and subsequent drilling will normally result in the disposition of much of this land, yet after 1 million feet of drilling, NDI has not reduced its position in the Sundance area, but in fact, has expanded it by more than 50%.

Of 1,154 holes drilled to date, more than 400 have encountered high grade uranium intercepts. However, Nubeth's objective is to control a major new district, not simply to locate a few orebodies. To accomplish this objective, it is imperative that "the entire area be known and its land position secured accordingly." Thus, the Company has attempted to define the total boundaries of possible ore trends throughout the district, to either eliminate land holdings or acquire new leases as drilling results indicate a prolongation of the ore trend. The Company now believes it has accomplished this objective.

The Company now intends to expand its drilling program in those areas where drilling has produced mineralized intercepts of "ore grade" (ore grade is a function of uranium prices; i.e., can the number of contained lbs. of uranium per ton of ore be mined and sold at a price which will recover the total investment and operating cost and produce a profit?). By the Company's statements there are a number of such areas.

A very important point to be considered is that Nubeth's exploratory program at Sundance is in the Lance Formation, a geological formation heretofore generally unexplored for uranium deposits. Thus, NDI has not had the benefit of past geological discovery experience from which to draw. As a result, its geological team has moved slowly and has been guarded with its comments; yet despite this fact, NDI geologists now state emphatically that, based upon drilling results to date, it is highly improbable for the area delineated not to contain substantial economic uranium ore deposits.

Two new rigs have been added and its drilling program is being accelerated but it could be another several years before the full extent, if any, of Nubeth's Sundance discovery is known. Announcements may come much sooner, but the timing is impossible to predict.

Why then do we recommend the purchase of NDI now? First, earnings from the coal operations as well as progress on new ventures would appear to more than support the present price of the stock, so the downside risk appears limited. The announcement of success at Nubeth would be so significant to NDI that the impact on the price of its stock should be immediate, especially in the current energy crisis environment. After all, a 25% interest in a multi-billion dollar uranium district is quite significant to a company with a fully-diluted capitalization of 2.6 million shares.

The Potential Long Term Demand for Uranium

According to U.S. News & World Report dated September 30, 1974 there are 19 nations with 149 plants producing nuclear power and another 23 countries have nuclear power plants on the drawing boards. According to the report, "Sales of atomic plants are booming around the world. France has made a commitment to convert almost all its baseline generating facilities to nuclear. Spain, West Germany and Japan are moving in the same direction." On March 5, 1974, the Director of Atomic Energy Commission's Division of Production and Materials Management said, "demand for uranium for U.S. reactors will exceed production capability from known resources within 8 years." This is the result of plants being built and on order that will come into operation in 1979-1980. As of March 31, 1974, according to AEC reports, 54 were being built and 109 were on order, that is double the figure in 1971. There are approximately 50 plants in operation today versus 23 in 1971. Thus, the long term demand for uranium is assured and prices should continue to rise as utility companies seek scarce uranium supplies to fuel the plants they will have in operation in the late 1970's. It is a recognition of the shortage of uranium reserves that has caused the significant price rise of the last year.

Is Uranium Competitive at Higher Prices?

According to Fremont Felix, an internationally recognized energy expert, and a new member of NDI's Board of Directors, nuclear power will top the list of future energy sources representing 38.8% of energy use by the year 2000 versus less than 1% in 1970. Mr. Felix makes the following observations:

"$12 per lb. uranium represents only 9% of the cost of electricity in a nuclear plant.

"$4.50 per bbl. oil represents 47% of the cost of generating electricity in an oil fired plant.

"A 250% increase to $30 per lb. uranium would represent only a 13.5% increase in generating costs and would produce the equivalent to oil at $4.50 per bbl."

The economy of nuclear power is obvious in view of current oil prices of $11 per bbl.

THE MANAGEMENT

and

THE BOARD OF DIRECTORS

THE MANAGEMENT

Herb J. Miller, Chairman of the Board, Company Founder and Director. Well known in the mining industry, Mr. Miller has over twenty years of experience in promoting and financing mining ventures. As past president and principal organizer of Western Analine and Chemical, Copper Leach and Dynamics Research, Inc., his experience has included the mining and processing of manganese, copper recovery through heap leaching and the design and manufacture of mining equipment.

Joe F. Walton, President, Company Founder and Director. Mr. Walton holds a Juris Doctor degree from the University of Arizona, School of Law. He has served as Assistant Attorney General for the State of Arizona and served for two terms as Democratic State Chairman of the State of Arizona. Mr. Walton has been general counsel and corporate director of several companies engaged in mining exploration and mining operations.

Kelsey L. Boltz, Executive Vice President, Company Founder and Director. A graduate of the Colorado School of Mines, Mr. Boltz holds the professional degree of Geological Engineer. His experience includes the organization and direction of successful gold placer operations in Mexico and the exploration and production of uranium in Grants, New Mexico. As a consulting geologist to several major companies, his work has included the evaluation of mineral potential in Matto Grosso, Brazil, exploration programs in the uranium provinces in the western United States and in the porphyry copper belt of the southwestern U.S. and northern Mexico.

W. C. McComack, Secretary-Treasurer, Controller and Director. Mr. McComack holds a Bachelor of Business Administration degree in Business Management from Hardin-Simmons University and has served in various financial and accounting capacities with Sunset International Petroleum, Sunray DX Oil and NCR Corp. His last position was that of Executive Vice President of McComack Drilling Company.

Albert F. Stoick, Director of Nubeth Joint Venture. An honors graduate of the South Dakota School of Mines, he holds a BS in Mining and Engineering and a Master of Science degree in Mining Engineering from Stanford University and a Ph.D. in Geology and Nuclear Chemistry from the University of California at Berkeley. He has had extensive experience in uranium exploration as well as underground mining and open pit explorations.

Francis X. Cannaday, Director of Base and Precious Metals Division. A graduate of the Colorado School of Mines, he holds the professional degree of Mining Engineer and a Master of Science degree in Geology. Mr. Cannaday is also a geophysicist and geochemist. He has initiated and managed minerals research projects for the U.S. Bureau of Mines, Colorado Fuel and Iron and Inspiration Consolidated Copper Company.

Max E. Kofford, Director of Kentucky Coal Co. Operations. He holds a Bachelor of Science degree in Geological Engineering from the University of Utah. Mr. Kofford has been a chief geologist for Western Equities Corporation and has been a consultant to Investment Company of America and International Resources Corporation. He has various experience in coal production.

THE BOARD OF DIRECTORS

Nuclear Dynamics, Inc. relies heavily upon its Board of Directors, who have been influential in directing its activities and instrumental in its acquisitions, financing and joint venture agreements. A review of their backgrounds indicates that the Company has chosen wisely:

Fremont Felix. An internationally recognized energy consultant to various business entities including the U.S. Atomic Energy Commission and the Republic of Algeria.

John E. D. Greenwood. Senior Vice President, Corporate Underwriting, of Blyth Eastman Dillon & Company, a major investment banking organization predominantly in the public utilities field.

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Jean-Noel Mathieu. Senior Vice President of Banque de Paris et des Pays-Bas. Mr. Mathieu has responsibility for the Bank's industrial transactions in nuclear and fossil fuels, metals and minerals.

Don C. Phelps. President of McAlester Fuel Company, a privately held company specializing in coal mining and oil and gas production since 1901.

Daniel M. Sadowsky. Director of Finance and Planning, The Cleveland-Cliffs Iron Company, and formerly the Director of Acquisitions for that company.

Adolph H. Graetz. An Associate Director, is Financial Consultant to Arnold Bernhard & Company and The Value Line Development Capital Corporation. Mr. Graetz has extensive experience in analysis research, administration and management.

Loren B. Meaders. An Associate Director, is Retired Chairman of the Board and Chief Executive Officer of Halliburton Company, a major oil well services corporation.

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	Nine Months Ended 3/31 1975 (Unaudited)	Nine Months Ended 3/31 1974 (Unaudited)	Fiscal Years Ended June 30 1974	1973	Dec. 31, 1971 to June 30 1972
Revenues	$ 10,125	$ 4,744	$ 8,181	$ 3,020	$ 1,939
Pre-Tax Income	3,836	940	2,689	(476)	42
After-Tax Income	2,309	940	2,114	(476)	32
Shares Issued & Outstanding	2,177	2,106	2,106	2,106	2,106
Fully Diluted Shares *	2,666	2,670	2,305	2,120	2,165
Fully Diluted EPS **	.87	.44	.92	(.22)	.01
Stockholder Equity (est)	7,500	7,500	5,331	1,417	1,893
Long Term Debt (est.)*	50	50	952	1,990	1,856

* (a) As of March 31, 1975, 2,177,761 shares of Common Stock and 163,250 shares of Convertible Preferred Stock were outstanding. The Preferred is convertible into 466,428 shares of Common Stock. The company has the right to repurchase 35,000 shares of Preferred which could reduce the fully diluted Common by 100,000 shares. As of this date, options for 56,500 shares at prices ranging from $2.50 to $4.75 per share have been granted.

(b) Prior to December 31, 1971, the Company was classified as an exploration company, and for periods prior to that date, income statements presented on an accrual basis are not available.

* (c) Due on equipment and mortgage on company offices.

** (d) Fully diluted per share earnings are adjusted to reflect convertible preferred dividend and adjusted to $ .87.

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NUCLEAR DYNAMICS INC.
CONSOLIDATED BALANCE SHEETS
(Audited)

ASSETS

	June 30 1974	June 30 1973
CURRENT ASSETS:		
Cash	$1,562,585	$ 133,211
Receivables	1,492,692	419,744
Prepaid expenses and supplies	209,875	105,765
Total current assets	3,265,152	658,720
PROPERTY, PLANT AND EQUIPMENT, at cost, less accumulated depreciation and depletion, substantially all pledged (notes 1,2 and 3)	3,972,150	3,429,003
OTHER ASSETS:		
Unrecovered property acquisition and exploration costs (Note 1)	664,228	634,621
Oil and geothermal investments, at cost	201,907	
Other	56,221	85,963
	922,356	720,584
	$8,159,658	$4,808,307

LIABILITIES AND STOCKHOLDERS' EQUITY

	1974	1973
CURRENT LIABILITIES:		
Notes payable	$ 56,060	$ 303,272
Current portion of long-term debt (Note 3)	557,046	694,447
Accounts payable	577,497	271,860
Income taxes payable (Note 4)	371,000	
Dividends payable on preferred stock (Note 5)	39,428	
Other current liabilities	71,039	131,822
Total current liabilities	1,672,070	1,401,401
ACCUMULATED INCOME TAX REDUCTIONS (Note 4)	204,000	
LONG-TERM DEBT, net of current portion (Note 3)	952,202	1,990,081
STOCKHOLDERS' EQUITY, per accompanying statements (Note 5)		
8 1/2% cumulative convertible preferred stock, $10 par value, 450,000 shares authorized, 188,250 shares issued and outstanding	1,882,500	
Common stock, 10¢ par value, 5,000,000 shares authorized, 2,106,333 shares issued and outstanding	210,633	210,633
Paid-in capital	1,580,593	1,623,400
Retained earnings (deficit) (Note 3)	1,657,660	(417,208)
	5,331,386	1,416,825
COMMITMENTS (Note 7)		
	$8,159,658	$4,808,307

See Annual Report for Fiscal Year ending June 30, 1974
for Notes to the Financials

NUCLEAR DYNAMICS, INC.
CONSOLIDATED STATEMENTS OF INCOME (LOSS)
(Audited)

	Year ended June 30 1974	1973
SALES AND OTHER REVENUES:		
Net coal sales	$7,628,943	$2,695,984
Sale of uranium royalty right		147,062
Other operating revenues	439,722	177,358
Net gain on sale of property	112,074	
	8,180,739	3,020,404
COSTS AND EXPENSES:		
Cost of coal produced, exclusive of depreciation, depletion and amortization	3,991,164	1,900,369
Amortization of coal sales contract		235,400
Selling, general and administrative expenses, including depreciation of $24,272 and $24,287	577,955	614,616
Depreciation of coal mining equipment (Note 1)	422,176	327,837
Depletion of coal property (Note 1)	2,434	14,096
Interest expense	405,524	404,110
Losses on abandoned mining property	92,190	
Provision for income taxes	767,000	
	6,258,443	3,496,428
INCOME (LOSS) BEFORE EXTRAORDINARY CREDIT	1,922,296	(476,024)
Income tax reduction arising from operating loss carry forward	192,000	
NET INCOME (LOSS)	$2,114,296	($ 476,024)
EARNINGS PER SHARE (Note 1):		
Primary -		
Income before extraordinary credit	$.87	($.22)
Extraordinary credit	.09	
Net income (loss)	$.96	($.22)
Fully diluted -		
Income before extraordinary credit	$.84	($.22)
Extraordinary credit	.08	
Net income (loss)	$.92	($.22)

See Annual Report for Fiscal Year ending June 30, 1974 for Notes to the Financials

Date: August 20, 1979

FOR RELEASE AUGUST 20, 1979

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Denver, Colorado...Nuclear Dynamics, Inc., Eugene C. Pendery, Executive Vice President for Uranium Operations, announced today that Nuclear Dynamics has entered into agreements with Hunt Oil Company for exploration and development and for operation of uranium prospect properties held by Nuclear Dynamics in southeastern Colorado. Hunt Oil Company may contribute up to $1.0 million over 1 1/2 to 2 years, depending upon interim results, to earn a majority interest in the project. Nuclear Dynamics will operate the project. Nuclear Dynamics produces coal in eastern Kentucky and conducts exploration and development of uranium properties in the western United States.

IMMEDIATE RELEASE

November 15, 1979

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NUCLEAR DYNAMICS COMPLETES URANIUM EXPLORATION AGREEMENT

Denver, Colorado...Eugene C. Pendery, Executive Vice President--Western Operations, Nuclear Dynamics, Inc., announced today that Nuclear Dynamics has entered into a Joint Venture with Ferret Exploration Company, Inc. and Embarcadero Corporation regarding exploration and development of uranium properties located in Western Colorado.

Nuclear Dynamics and Embarcadero will contribute mineral rights and proven ore reserves on approximately 21,000 acres located in Montrose and San Miguel Counties, Colorado. Ferret will fund up to $2.0 million of exploration and development work over the next two years and may earn up to a 45% interest in the properties. Nuclear Dynamics will manage and operate the program which will begin immediately. Embarcadero is a privately owned Nevada Corporation and Ferret Exploration is a privately owned Delaware corporation.

Nuclear Dynamics, Inc. is an energy resource company engaged in domestic exploration, development and production of coal, uranium, oil and gas.

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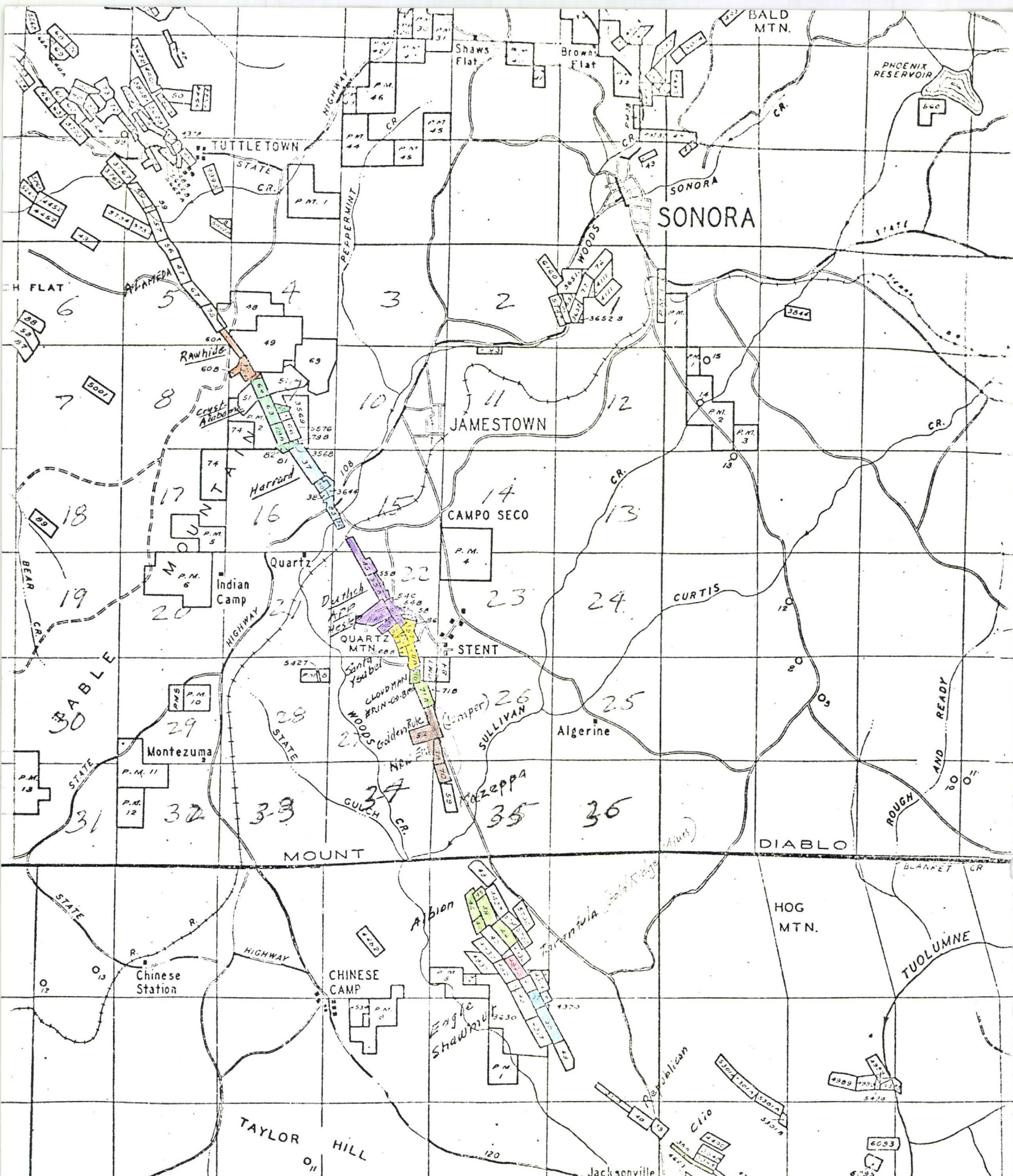

BALD MTN.
Shaws Flat
Browns Flat
PHOENIX RESERVOIR
TUTTLETOWN
STATE CR.
HIGHWAY
PEPPERMINT
SONORA
SONORA
WOODS
H FLAT
ALAMEDA
Rawhide
Crystal Alabama
JAMESTOWN
Harvard
CAMPO SECO
MOUNTAIN
Quartz
Indian Camp
Dutch App Heslep
QUARTZ MTN.
STENT
Santa Ysabel
CLOUDMAN
ERIN-GO-BRAGH
Golden Rule
(Jumper)
SULLIVAN
Algerine
CURTIS
CR.
TABLE
BEAR CR.
Montezuma
STATE
WOODS
STATE
GULCH CR.
Mazeppa
ROUGH AND READY
MOUNT DIABLO
BLANKET CR
Albion
Tarantula
HOG MTN.
TUOLUMNE
STATE R.
HIGHWAY
Chinese Station
CHINESE CAMP
Eagle Shawmut
Republican
Clio
TAYLOR HILL
Jacksonville

LIST OF MINES TO ACCOMPANY TUOLUMNE COUNTY MAP

(Abbreviations: N.P. = not patented; loc. = location)

T. 1 S., R. 12 E., M.D.

		Acres
38	Cook Gravel No. 1 placer mine	146.79
PM–1	King placer mine	26.90
PM–2	Buena Vista placer mine (in Stanislaus County)	39.99
PM–3	Lucky Hunch placer mine	16.57
PM–4	Cook Gravel No. 2 placer mine	96.60

T. 2 N., R. 13 E., M.D.

51	Bown quartz mine and mill site, N.P.	
53	Gillis & Carrington quartz mine, N.P.	
54	Gillis & Carrington mill site, N.P.	
86	Turner quartz mine	18.16
3971	F. F. McArdle et al. quartz mine	18.19

T. 1 N., R. 13 E., M.D.

PM–1	Ruby placer mine	40.00
PM–2	Oliver gravel mine	160.00
PM–3	Stanislaus gravel mine No. 3	160.00
PM–4	Stanislaus gravel mine No. 1	160.00
PM–5	Stanislaus gravel mine No. 2	160.00
PM–6	Grecian Bend gravel mine	120.24
PM–7	Derrick placer mine	40.00
PM–8	Bryns placer mine	40.00
PM–9	Bowery Bar magnesite mine	120.00
PM–10	Monday placer mine	160.00
PM–11	Bumble Bee placer mine	60.00
PM–12	Oscar placer mine	120.00
PM–13	Wilkinson placer mine	50.00
PM–14	Central placer mine	160.00
PM–15	Currie cement mine	30.00

T. 1 S., R. 13 E., M.D.

PM–1	Grecian Bend gravel mine	130.24
PM–2	Scorpion gravel mine	71.37
3	McCormick chrome mine	

T. 3 N., R. 14 E., M.D.

PM–1	Duck Bar placer mine	120.00
PM–2	Consolidated River placer mine	90.39
PM–3	Good Return placer mine	140.00
PM–4	Gold Springs placer mine	140.00
PM–5	Bell placer mine	150.00
PM–6	Weiderkind placer mine and Pine Log quartz mine	20.00
2424	True Business quartz mine	20.66
3694	Magnolia claim, Old Tuolumne Cons. quartz mine	89.13
5677	Ella D. & Morning Star quartz mine	35.446

T. 2 N., R. 14 E., M.D.

37	Arbona gold quartz mine	11.34
38	Richards placer mine	140.00
39	Finn placer mine	30.00
40	Waters (Atlas) quartz mine	26.98
41	Patterson quartz mine & mill site	44.05
42	Valparaiso quartz mine & mill site	10.83
43	Fairview quartz mine	5.99
44	Lennan gold quartz mine	4.91
45	Gillis & Carrington quartz mine	16.37
46	Gillis & Carrington mill site	
47	Tarantula quartz mine	18.56
48A&B	Gagnere quartz mine & mill site	12.44
49	Prospect quartz mine	20.65
50	Grand Turk quartz mine	20.00
51	Rising Sun quartz mine	20.65
52	Our Flag quartz mine	20.32
5574	Mexican & Spring Hill gold quartz mine	21.24
57	OK quartz mine	20.41
59	Combination quartz mine	1.99
60	North Extension of OK quartz mine	19.78
	Montreal Cons. gold quartz mine	39.885
61	Free Coinage loc. 8.901	
62	John Denkey loc. 16.555	
63	Omega loc. 10.51	
64	Gold Bound loc. 3.919	
65	Gopher quartz mine	7.65

		Acres
66	Soldier Gulch quartz mine	15.31
67	North Extension of Marryatt quartz mine	8.54
	Norwegian Cons. quartz mine	39.3464
68	Norwegian loc. 16.8434	
68A	Norwegian mill site 1.015	
69	Golden Rule loc. 12.2189	
69A	Golden Rule mill site 1.0969	
70	Spot Cash loc. 8.1722	
71	Magruder quartz mine	20.65
72	Chilano quartz mine	15.99
73	Wilson & Means quartz mine	13.37
PM–1	Boston placer mine	120.00
PM–2	Marble placer mine	40.00
PM–3	Experimental placer mine	30.00
PM–4	Reservoir placer mine	55.00
PM–5	Ball placer mine	150.00
PM–6	Elton placer mine	10.00
PM–7	Marble placer mine	120.00
PM–8	Tuolumne placer mine	130.00
PM–9	Black Hawk plumbago mine	60.00
PM–10	White Lead placer mine	10.00
PM–11	Ingolotti & Co. placer mine	10.00
PM–12	Three Pine Gulch placer mine	30.00
PM–13	Yankee Hill placer mine	10.00
PM–14	Yours Truly placer mine	20.00
PM–15	Nelson placer mine	20.00
PM–16	Wolf & Co. placer mine	20.00
PM–17	Santiago placer mine	30.00
PM–18	Alves placer mine	30.00
PM–19	Williamson placer mine	20.00
PM–20	Douglassville placer mine	100.00
PM–21	Blue Rock placer mine	60.00
PM–22	Davis placer mine	40.00
PM–23	Clark placer mine	20.00
PM–24	Davis placer mine	20.00
PM–25	Springfield placer mine	100.00
PM–26	Doyle placer mine	160.00
PM–27	Royal placer mine	70.00
PM–28	Jefferson placer mine	20.00
PM–29	Slip Up placer mine	20.00
PM–30	Crystal Spring gravel mine	50.00
PM–31	Shaws Flat gravel gold placer mine	50.00
PM–32	Raging Canal placer mine	30.00
PM–33	Browns Flat placer mine	130.00
PM–34	Eureka placer mine	100.00
PM–35	Squabble Town placer mine	10.00
PM–36	Trolese placer mine	20.00
PM–37	Smith hydraulic mine	20.00
PM–38	Hathaway placer mine	10.00
PM–39	Spring Hill placer mine	20.00
PM–40	Shaws Flat placer mine	40.00
PM–41	Harrington placer mine	20.00
PM–42	Haslam placer mine	30.00
PM–43	Brooks placer mine	20.00
PM–44	Buckeye placer mine	120.00
PM–45	Peppermint Falls placer mine	80.00
PM–46	Empire gravel mine	100.00
PM–47	Bed Rock Blue Gravel placer mine	40.00
3619A, B, C, D, E, F	Densmore Cons. quartz mine	59.43
3628	Thompson Hill gold quartz mine	19.118
3629	Shaw & Scholiar (Street) quartz mine	20.13
3734	Mountain View quartz mine	35.40
3767	Lead & Tam O'Shanter quartz mine & mill site	36.14
3779	Ball quartz mine	20.66
3805	Gross Cons. quartz mine	19.63
3854	Santissima quartz mine	10.97
3858A	Gillis quartz mine	20.26
3987	Eustis placer, and Diamond, Ruby, Sapphire quartz mines	89.68
4012	Red Mill quartz mine	18.81
4224A&B	Good Luck quartz mine & mill site	2.59

		Acres
4378	Marryatt quartz mine	5.22
4399A&B	Duchess Cons. quartz mine & mill site	89.97
4452	Toledo Cons. quartz mine	41.32
4460	Alta quartz mine	19.66
4494	Kohanoff, Good Hope quartz mine	13.99
4503	Austrian quartz mine	2.48
4993	Anti Chinese quartz mine	15.864
5002A&B	Wickham quartz mine & mill site	16.762
5015	Relief & Surplus quartz mine	16.616
5068	Justice Lode quartz mine	11.870
5028	Feretti quartz mine	
5261	Buena Vista quartz mine	22.01
5277	Protector quartz mine	19.434
5544	Jackson Flat & Parallel quartz mine	27.323
5550A&B	Good Luck quartz mine & mill site	17.728
99	Mullins quartz mine	
5612	Little Leo quartz mine	13.765
5662A&B	Nut Pine quartz mine & mill site	9.721
5923	Lisonjera quartz mine	8.367
6132	National quartz mine	19.118

T. 1 N., R. 14 E., M.D.

37	Trio (Harvard) quartz mine	32.62
38	McCann quartz mine	3.28
39	Hitchcock gold quartz mine	9.38
40	Grey Eagle gold quartz mine	8.46
44	App quartz mine & mill site	25.43
45	Sweeney quartz mine & mill site	19.28
46A&B	Raw Hide No. 2 quartz mine & mill site	12.49
47	Alameda quartz mine	20.62
48	Paducah placer mine	107.55
49	Raw Hide placer mine	152.40
50	Mooney quartz mine & mill site	7.60
51	Omega Table Mountain gravel mine	160.00
52	Golden Rule quartz mine & mill site	38.40
53	Pino Blanco quartz mine	19.39
54A,B,C	Heslep quartz mine & mill site	18.33
55A&B	Dutch quartz mine & mill site	14.92
56	Tarantula quartz mine	18.56
57	Knox & Boyle quartz mine	24.76
58	Knox & Boyle quartz mine	
59	Mazeppa quartz mine	22.65
60A&B	Raw Hide quartz mine & mill site	15.81
62	Prospect quartz mine	20.65
63	Alabama Cons. quartz mine, Alabama loc.	20.65
64	Alabama Cons. quartz mine, Hooker loc.	15.17
65	Alabama Cons. quartz mine & mill site	4.92
66	Shore quartz mine	14.82
67	Isabella & Gem Cons. quartz mine	20.04
68A&B	Miller & Holmes quartz mine	24.76
69	Table Mountain Alpha gravel mine	91.68
70	Juniper quartz mine	12.465
71A&B	Erin-Go-Bragh quartz mine	21.19
72	Pacific Gold quartz mine	3.71
74	Tiger placer mine	120.00
75	Rappahannock quartz mine	14.82
76	Golden Gate quartz mine	20.47
77	Golden Sulphuret quartz mine	16.23
78	New Era quartz mine	13.27
79A&B	Crystalline quartz mine & mill site	14.51
80	Cloudman quartz mine	10.02
81	Crystalline quartz mine No. 2, Harris & Olive loc.	9.248
82	Crystalline quartz mine, Ophir loc.	
83	Vulture quartz mine	11.11
84	No. One lode	10.04
85	Nyman Cons. quartz mine, loc. 1	7.26
86	Nyman Cons. quartz mine, loc. 2	
87	Sarah Francis quartz mine	19.97
88	Lucky Star gold & silver mine	15.93
89	Badger quartz mine	20.66
PM–1	Darkie placer mine	20.00
PM–2	Blue Jacket placer mine	69.40
PM–3	Valponi placer mine	10.00

		Acres
PM–4	Smith placer mine	160.00
PM–5	McKinley placer mine	120.00
PM–6	Punch Bowl placer mine	160.00
PM–7	Julian placer mine	20.00
PM–8	Montezuma placer mine	19.225
PM–9	Oak Shade placer mine	20.00
PM–10	Red Hill placer mine	40.00
PM–11	Hosig placer mine	120.00
PM–12	Hosig placer mine	60.00
PM–13	Rough & Ready placer mine	209.60
3568	Junietta placer mine	4.37
3569	Mexican Flat placer mine	48.65
3644	Sobrante quartz mine	5.039
3651	Behlow, Fischer, & Behlow Ext. placer mine	42.197
3652A&B	Southern Ext. Golden Sulphuret quartz mine	14.44
4111	Gerrymander Cons. quartz mine	30.18
5001	Chantereau quartz mine	11.167
5747	Manzanita quartz mine	17.476
5876	Little Alabama quartz mine	4.93
6160	Rainbow quartz mine	20.234
5427	Mackey quartz mine (see PM–8)	

T. 1 S., R. 14 E., M.D.

37A	Shawmut quartz mine	17.54
37B	Mamouth placer mine	15.14
38	Eagle quartz mine	23.75
39	Republican quartz mine	9.77
40	Orcutt quartz mine	17.61
41	Bella Union quartz mine	9.63
42	Lone Star quartz mine	19.97
43	Brown Bird quartz mine	20.775
44	Albion Cons. quartz mine, Great Eastern loc.	16.29
45	Albion Cons. quartz mine, Farrington loc.	5.11
46	Albion Cons. quartz mine, Defender loc.	18.17
47	Albion Cons. quartz mine, Bob loc.	8.40
48	Albion Cons. quartz mine, Hard Tack loc.	18.96
49	Homestake quartz mine	18.816
PM–1	Wovels Creek placer mine	66.89
PM–2	Gold Dredge placer mine	62.77
PM–3	D. E. Stratton placer mine	21.265
PM–4	D. E. Stratton placer mine	
PM–5	Tuttle placer mine	64.31
PM–6	D. E. Stratton placer mine	160.00
PM–7	Bird placer mine	10.72
PM–8	Moffitt Canyon placer mine	154.10
PM–9	Humfield & Mayers placer mine	80.00
3630	Shawmut placer mine	117.88
4317	Rosenfeld Cons. quartz mine	44.86
4319	Hector quartz and placer mine	18.25
4320	Raymon quartz mine	1.37
4437	Nugget quartz mine	18.80
4482	Mountain View quartz mine	20.66
4534	Humfield & Mayers placer mine	24.61
4936	Tarantula Hawk quartz mine	7.683
4937	Golden Horseshoe & Boulder Deep quartz mine	40.161
5756	Lula, Jones, & Poor Sinner quartz mine	23.095
4821	Omega & Western Ext. quartz mine	
4822	Tarantula quartz mine	
11	Gray Eagle magnesite deposit	
12	White Rock magnesite deposit	
13	Peter Maki magnesite deposit	
14	Lucky Strike placer mine, N.P.	20.00

T. 3 N., R. 15 E., M.D.

37	Keltz (sec. 25) quartz mine & mill site	20.65
37	Hazel (sec. 36) quartz mine	10.32
38	Philadelphia placer mine	156.17
39	Contention quartz mine	18.07
40	Snell quartz mine	20.66
41	True Business quartz mine	20.66
42	Argentum Cons. quartz mine No. 1	28.79
43	Argentum Cons. quartz mine No. 2	
44	North Ext. Keltz quartz mine	20.49
45A	Kelvin gold quartz mine	19.92
45B	Kelvin gold mill site	
46	Star quartz mine	19.35
PM–1	Bailey Ranch placer mine	40.00
PM–2	American Camp placer mine	50.00
3833	Gray Eagle & Rival quartz mine	36.72

		Acres
4463	Riverside Cons. quartz mine	17.56
4544	Amazon quartz mine	15.17
4657	Bourbon Cons. quartz mine	128.46
4658	Roosevelt quartz mine	18.17
5693A&B	Arthur D., J. T. Evans, Easterbrook, Jubilee, Purdie quartz mines, Easterbrook mill site (part of Hazel Dell mines)	68.775
13	Mountain Lily or Five Mile quartz mine	
14	Sonnet quartz mine	
15	Grant group quartz mine	
16	Gross quartz mine	12.5

T. 2 N., R. 15 E., M.D.

37	Hilton & McPherson placer mine	30.00
38	Shanghai quartz mine	10.34
39	Wheal Rough quartz mine	9.30
40	Whitto quartz mine	19.81
41	Old Smooth Bore quartz mine	20.69
42	Rifle quartz mine	20.69
43	Aetna quartz mine	5.47
44A	Waif quartz mine	18.676
44B	Waif mill site	
45A	Ham & Birney quartz mine	25.62
45B	Ham & Birney mill site	
46A	Hart & Jacobs quartz mine	25.65
46B	Hart & Jacobs mill site	
47	Scorpion quartz mine, N.P.	20.65
3567A&B	Black Oak group quartz mine	38.36
82	Hunter Fluming placer mine	105.75
187	Mohawk placer mine	30.00
195	Phoenix placer mine	20.00
196	Phoenix placer mine	20.00
201	Maitryeau placer mine	20.00
211	Powhattan placer mine	40.00
215	Brown Geovanatte placer mine	60.00
254	Denton placer mine	40.00
560	Sullivan gravel mine	30.00
654	Old Home placer mine	40.00
691	Wooten placer mine	40.00
04279	Specimen Gulch placer mine	40.00
09693	Hard Gravel placer mine	20.00
09878	Gold Nugget placer mine	20.00
2577	Red Gravel placer mine	30.00
3694	Old Tuolumne Cons. quartz mine	89.13
4439	Sievert Cons. quartz mine	41.32
5014	Sugarman & Nigger quartz mine	27.059
5277	Protector placer mine	19.434
5485	Sell Ext. placer mine	19.285
5574	Mexican & Spring Hill placer mine	21.224
6090	Harvey Lode quartz mine	9.30
6200	Wind Wheel Lode quartz mine	20.435
5133	Bella Italia & Indiana Lode quartz mine, N.P.	18.176
5279	Bessie Lode quartz mine, N.P.	20.661
93	Altadena or Kearsarge quartz mine & mill site	80.00
92	Phoenix Lake granite quarry	
91	Belleview or Hyde quartz mine	

T. 1 N., R. 15 E., M.D.

37	Pine Nut quartz mine	20.66
3567	Live Oak quartz mine	9.81
3567A	Corra quartz mine	2.47
3567B	Live Oak mill site	4.58
3706	Cornucopia quartz mine	16.10
3844	Julian quartz mine	18.32
4113	New Edna quartz mine	15.96
4435	Edna No. 2 quartz mine	8.90
4436	Cornucopia No. 2 quartz mine	8.19
PM–1	Arroyo gravel mine	92.55
PM–2	Kincaid Flat placer mine	160.00
PM–3	Independent placer mine	40.00
7	Golden Gate Mines, Inc.	
8	Childress limestone	
9	Murphy Bros. limestone	
10	Musante limestone	
11	Mayhall limestone	
12	Dunning limestone	
13	McPherson limestone	
14	McCormick limestone	
15	U. S. Lime Products limestone	
16	Fitzgerald quartz mine	

T. 1 S., R. 15 E., M.D.

		Acres
37	Kelley gold quartz mine	26.81
38A	Clio gold quartz mine	10.70
38B	Clio mill site	2.80
39	Willietta gold quartz mine	20.25
40	Republican	9.97
41	Black Warrior quartz mine, North Star loc. 20.66	55.92
42	Black Warrior quartz mine, Black Warrior loc. 11.45	
43	Black Warrior quartz mine, Yellow Jacket loc. 18.81	
44	Black Warrior mill site 5.00	
45A	Little Comstock quartz mine	20.657
45B	Little Comstock mill site, N.P.	4.997
3773	Paupers Dream quartz mine	19.25
3898	Side Hill quartz mine	13.76
3997A	Black Hawk quartz mine	25.66
3997B	Black Hawk mill site	
3998	Chance quartz mine	17.117
4043	Hughes quartz mine	37.31
4044	Dyneta quartz mine	20.56
4112A&B	Rough & Ready quartz mine & mill site	25.60
4255A	Union quartz mine	10.88
4255B	Union mill site	
4528	Free Lance quartz mine	18.31
4529	Free Lance Ext. No. 4 quartz mine	17.51
4663	Side Hill mill site	4.66
4727	Mother Lode quartz mine	2.24
4989	Last Chance, Free Gold, Charley Haley, & Wilbur quartz mine	58.538
5131	Criss Cross & Relief quartz mine	30.962
5301A&B	Big Chunk quartz mine	24.898
5416	Tiger & Buffalo quartz mine	33.686
5430	Traction quartz mine	2.086
5500	Sonora, M. B., & Hayes quartz mine	54.069
5543	Roosevelt & Buttercup Cons. placer mine	38.445
5635A&B	Buona Speranza & Josephine quartz mine & mill site	45.26
5734	Pet Cossey quartz mine	14.34
5810	Silken quartz mine	18.02
6093	Buck Horn & Back Bone quartz mine	18.41
6095	Mayflower quartz mine	9.67
PM–1	Bonanza placer mine	14.37
PM–2	Moffit Canyon placer mine	154.10
PM–3	K.S.S. placer mine	39.79
5558a	Sentinel quartz mine	128.702
5558b	Riverside quartz mine	
5558c	Santa Rosa quartz mine	
5558d	Blue Lead quartz mine	
5558e	Ofer quartz mine	
5558f	Fourth of July quartz mine	
5558g	Moccasin quartz mine	
3948	Blackfoot quartz mine	
4490	Gladstone quartz mine	18.38
46	Eureka quartz mine (unsurveyed), N. P.	
47	D'Albergaria quartz mine (unsurveyed), N.P.	

T. 2 S., R. 15 E., M.D.

37	Kelly placer mine	5.15
38A	Salambo copper mine (Washington), N.P.	
38B	Salambo mill site, N.P.	
39A	Little Comstock quartz mine	20.657
39B	Little Comstock mill site, N.P.	
4133	Golden Key Cons. quartz mine	94.68

T. 3 N., R. 16 E., M.D.

PM–1	Wild Rose placer mine	155.95
PM–2	Diamond placer mine	120.00
PM–3	Mountain placer mine	110.00
PM–4	Sugar Pine placer mine	50.00
PM–5	Last Chance placer mine	30.00
6	North Extension of Green quartz mine, N.P.	
7	Temescal quartz mine, N.P.	

T. 2 N., R. 16 E., M.D.

37	Confidence quartz mine	30.42
38	North Confidence quartz mine, N.P.	
39A	Uncle Sam quartz mine	7.07
39B	Uncle Sam mill site	

		Acres
40	Soulsby quartz mine & mill site	28.41
41	Empire gold quartz mine, N.P.	
42	Platt gold quartz mine	17.21
43	Mt. Vernon quartz mine	20.69
44	Johnson & Bradbury quartz mine	8.69
45	Wheat Perran quartz mine	14.90
46	Excelsior quartz mine	15.70
47	Churchill quartz mine	14.41
48	Jessie quartz mine	20.69
49	Edith quartz mine	
50	Independence quartz mine	20.32
51	Prudhomme quartz mine	20.65
52	Cordova quartz mine	17.69
53	O.P. quartz mine	20.65
54	Lamphire quartz mine	20.54
55	Independence quartz mine	15.83
56	Sunny South quartz mine, N.P.	20.65
57	Mammon quartz mine, N.P.	19.39
58A	Gilson quartz mine	22.91
58B	Gilson mill site	
59	Carlotta Cons. quartz mine, Carlotta loc.	30.30
60	Carlotta Cons. quartz mine, Pennsylvania loc.	
PM–1	Andrew Scanavino placer mine	10.00
PM–2	Barrett placer mine	20.00
PM–3	Kibbe & Rowell placer mine	60.00
PM–4	Cherokee Gravel & Gold Mining Co. placer mine	212.21
PM–5	Laura placer mine	40.00
PM–6	J. F. Anderson placer mine	80.00
PM–7	Washington placer mine	50.00
PM–8	Hidden Treasure placer mine	125.68
3659A	Green Cons. quartz mine, Green loc.	32.71
3659B	Green Cons. quartz mine, Mt. Moriah loc.	
3701	Laura & North Star quartz mine	37.09
3740	Reward, April, & Madison quartz mine	35.41
3771	Wall Street & Sugar Pine quartz mine	36.29
4414	Izurnia Irene quartz mine, N.P.	
4440A	Parole quartz mine	18.84
4440B	Parole quartz mine	
4457	Joe Hooker & Wild Cat quartz mine	27.85
4583	Parallel & Mt. Bell quartz mine	31.96
5112	Central quartz mine	10.95
5533	Mountain, Mary, Little Gem, Mt. Provo quartz mine	54.896
5565	Electric & Thunderbolt quartz mine	31.50
5605	Hoot Mon, May, & Hawk quartz mine (formerly Phoenix Lake Gold Mining Co.)	53.908
5993	Fair Maiden quartz mine	12.123
61	Casa Madera quartz mine, N.P.	
62	Columbus quartz mine	
6165	Ryan Lode quartz mine	20.343
63	East Belt and Trilby quartz mines, N.P.	

T. 1 N., R. 16 E., M.D.

37	Pine Nut quartz mine	20.66
38	New Albany quartz mine	18.59
30	Eureka gold quartz mine	16.445
40	Cave Diggings placer mine	155.35
41A&B	Spring Gulch quartz mine & mill site	39.38
42A&B	Consuelo gold quartz mine & mill site (part of Providence)	14.39
43A&B	Buchanan quartz mine & mill site	24.69
44	Chaparral quartz mine	20.60
45	Bonita quartz mine	11.05
46	Summers quartz mine	23.20
47	Starr King quartz mine	24.40
47A	Starr King mill site No. 1	
47B	Starr King mill site No. 2	
48	Sherman quartz mine	25.62
48A	Sherman mill site	
49	Garfield quartz mine, N.P.	
50	Buchanan Ext. quartz mine	19.97
51A	Mary Ellen quartz mine	20.65
51B	Mary Ellen mill site	
52	Seminole quartz mine	20.65
53A	Grizzly quartz mine	14.81
53B	Grizzly mill site	
54	Worcester quartz mine	20.65
55	Somerset quartz mine	14.12

		Acres
56	Gilson quartz mine & mill site	22.91
57	New Albany North Ext. quartz mine	16.52
58	New Albany South Ext. quartz mine	14.796
59	Porto Fino quartz mine	5.05
60	Carlotta gold quartz mine, Carlotta loc.	30.30
61	Carlotta gold quartz mine, Pennsylania loc.	
62	Josiah quartz mine	19.43
PM–1	Hidden Treasure placer mine	125.68
PM–2	Star placer mine	120.00
PM–3	Cuno placer mine	10.00
PM–4	Dexter Fluming placer mine	30.00
3725	Goldwin Cons. quartz mines (Philadelphia, Boston, Rhode Island)	52.92
3743	Park & Mason quartz mine	15.352
3781	Fair Play Cons. (part of Providence) quartz mine	24.049
3791A&B	Blue Jay Cons. quartz mine	28.43
4029	Lillian Cons. (Mohican) quartz mine	57.76
4185	Dead Horse Cons. quartz mine	12.06
4711	Golden West Cons. quartz mine	27.42
4714	Lady Washington quartz mine	9.84
4746	Seminole mill site	4.52
4902	North Star Cons. quartz mine	41.281
4903	La Preciosa quartz mine	19.397
4953	Triumph quartz mine	17.650
4954	Elk & Wedge quartz mine	25.945
5684	Rattlesnake quartz mine	12.671
5750	New Year quartz mine	19.229
4385	Consolidated Garfield-Virginia quartz mine	51.59

T. 1 S., R. 16 E., M.D.

37	Mack (Big Casino) quartz mine	8.86
38	Nonpareil quartz mine, N.P.	
39	Noname quartz mine, N.P.	
40	Sargent placer mine	32.84
42	Consolidated Diamond & De Ferrari quartz mine, De Ferrari loc.	28.07
43	Consolidated Diamond & De Ferrari quartz mine, Diamond loc.	
44	Two Brothers Cons. quartz mine, Two Brothers loc.	24.85
45	Two Brothers Cons. quartz mine, Little Sister loc.	
PM–1	Muller placer mine	77.22
PM–2	Cons. Belt placer mine	120.00
3714	Four Oaks quartz mine	17.69
3768	Bourne quartz mine	14.71
3773	Paupers Dream quartz mine	19.25
4430	Contact quartz mine	18.46
4561	Guiseppe Raggio quartz mine	4.08
4562	Bicknell quartz mine	19.74
4605	Longfellow Cons. quartz mine	11.27
4737	Duleek Cons. quartz mine	61.56
4842	Gold Ship (inc. Mayflower) placer mine	594.213
5106	Big Oak Flat No. 1 quartz mine	15.492
5374	Robinson Lode quartz mine	12.734
5403	Phil O'Neil Lode quartz mine	18.159
5415	Cline & Jackson Lodes quartz mine	40.954
5549	Champion Lode quartz mine	20.036
5564	Mohrman Lode quartz mine	14.192
5620A&B	Cosmopolite & Violet quartz mine	39.296
5758	Rhode Island Lode quartz mine	11.002
4619	Mount Jefferson quartz mine, N.P.	18.92
46	Sampson Lode	
47	Gold Run Lode	
48	Red Jacket claim	
49	Quinn claim	
50	Good Luck claim	
51	Miracle claim	
52	Pipe Dream claim	

T. 2 S., R. 16 E., M.D.

43A	McAlpine quartz mine	18.72
43B	McAlpine mill site	
3602	Bower quartz mine	15.80
4133	Golden Key Cons. quartz mine	94.63
4430	Contact quartz mine	18.46
6031A	Fleming quartz mine	32.551
6031B	Intervenor quartz mine	

LIST OF SELECTED PROPERTIES

Name	County	State
Crystalline & Alabama	Tuolomne	California
Harvard	Tuolumne	California
Dutch-App	Tuolumne	California
Santa Ysabel (Nyman Consolidated)	Tuolumne	California
Cloudman, Erin-Go-Bragh	Tuolumne	California
Jumper	Tuolumne	California
Mazeppa	Tuolumne	California
Centennial	Calaveras	California
Quail Hill	Calaveras	California
Pine Tree - Josephine	Mariposa	California
Red Bank	Mariposa	California
Mount Ophir	Mariposa	California
Louisiana — Bonturant	Mariposa	California
Santa Fe Mines	San Bernardino	California
Sarita	Mono	California
French Corral	Nevada	California
Arabian Open Cut	Mohave	Arizona
Portland	Mohave	Arizona
Green's Gulch and Green's Gulch Extension	Mariposa	California

Jenny Lind A. J. Ind.

CALIFORNIA: Gold - Low grade

Name: PINE TREE - JOSEPHINE

Location: Sec. 8, 9, 16, 17, T4S, R17E MDM; Mother Lode: Mariposa Co.; 2 mi. north of Bear Valley; Topog. elev. - 1000' to 2500'; Approx. 9,000 to 10,000 ft along strike. of Mother Lode; Bear Valley 7½' Quad.

Owners: 1957, Pacific Mining Co., Crocker Bldg. San Francisco; Fee Land

Type: Gold, Medium grade ore shoots 0.194 oz/t. recovered, 8' to 20' wide; in low grade multiple vein system 0.08 oz/t. grade (not including medium grade ore shoots). Total width of vein system 125' to 180'; steep dip. "Bull quartz" vein (barren) is in the order of 12' wide.

Tonnage: Has produced (comparatively low) tonnage from the higher grade ore shoots only. Five X cuts avgd. 0.08 oz/t for width of 100', over length of 800 ft near surface represents 1,200,000 tons to approx. 190 ft. depth. Possible open pit (U.S. BU. Mines). Potential tonnage 3 to 4 times.

Mining Methods: (Was) underground adits & shafts & winzes centered around known ore shoots. Deepest shaft 1,000'. Much virgin ground. 5000' of strike have no work at all.

Age: Old mine first operated by Fremont. Total estimated prod $4,000,000. Last operations 1944. Product. from 1939-44 was 250,000 tons yielded Au 0.142 oz/t. little Ag

Ore: Native Au, pyrite, arsenopyrite; plus minor chalcop. sphal. gal. niccolite; also cobalt; I estimate ore may avg. 0.02-0.05% Ni;

Milling: Flotation.

Ref.: U.S.B.M. Bull 424 p. 107; Calif. Vol 53, 1-2, p. 151....

CALIFORNIA: Gold - Low grade

Name: CRYSTALLINE & ALABAMA

Location: Sec. 9, T1N, R14E MDM; Mother Lode; Tuolomne Co.; 1½ m. west of Jamestown; Topog elev. 1500'; Sonora 7½' & 15' Quads; Approx. 3200 ft along strike of Mother Lode; N.W. of, adjacent to Harvard.

Owners: 1949, 5 ptd. claims assessed to Charles E. Shafer, Jamestown.

Type: Gold, Medium grade ore shoots; Au 0.18-0.27 oz/t grade from 20' to 12' widths; in low grade multiple vein system 0.06 oz/t 150' to 250' wide; "mineralized" zone is 900 ft wide; "Bull qtz." vein is barren

Tonnage: Little production $250,000; 3 early day glory holes; no production below 300'. Surface sampling (500 smples) within 1200' of strike over widths of 150' to 250': 425,000 tons @ 0.089 oz/t. 150' depth from surf. or 1,200,000 tons @ 0.058 oz/t 150' depth (U.S.B.M.) general figures only. Works out to 1200' long x 85' wide x 150' deep = 1,220,000 tons. Surface area sampled is about 1/3 of strike length. Possible open pit: Sampled tonnage 1,200,000 tons Potential tonnage 3,600,000 tons +.

Mining Methods: Open pit and underground shaft. Deepest shaft 650 ft. No work below 300 ft. (Ore shoots on similar mines on strike to NW (Rawhide) and SE Harvard) mined continuously to 1000' + depths) practically virgin property.

Age: Old mine, last production?; last development drift (no x cuts) in 1922. Little underground stoping.

Ore: Stringer leads of qtz in schist heavily impregnated with low grade auriferous pyrite and small quantities of free gold. About 65% of gold recovered was free.

Milling: No mill; same type ore as Harvard & Rawhide. Cyanidation and flotation.

Ref: U.S.B.M. Bull 424 p. 28; Cal. Vol 45, #1, p. 56

CALIFORNIA: Gold - Low grade

Name: HARVARD

Location: Sec. 16, 15, T1N, R14E MDM; Mother Lode; Tuolumne Co; 1¼ m. sw of Jamestown; Topog elev. 1500'; Sonora 7½' & 15' Quads. Approx. 4800 ft. along strike of Mother Lode; SE of, adjacent to Cryst. Ala.

Owners: 1949, Harvard Gold Mining Co. 926 Crocker Bldg San Francisco; 6 patd. lode claims & millsite; Alaska Juneau principal stockholder.

Type: Gold, Med-Lo grade ore shoots: "Hanging Wall" vn. 20' @ 0.12 oz/ton "Footwall" vn. 15'-20' (stoped out to 1850' level) @ 0.13-0.14 oz/ton; in 300' wide sheared zone with values of 0.057 to 0.086 oz/t. over widths up to 250' at surface. "Bull qtz." vein is barren.

Tonnage: & Age of Mine: Production up to 1916, $1,883,674 mostly from Footwall vein; some glory hole; "Central" vein and Hanging Wall vein make a low grade ore body from surface; x-cuts & diamond drilled; Alaska Jueau from 1938 to '40 did 31,000' D. drilling, 16,000 assays, & large tonnage indicated, planned 500 to 1000 ton/day. 1700' of strik explored. Possible open pit: Length of known ore zone 700' long x 125' wide x 150' deep ÷ 12.5 = 1,050,000 tons potential tonnage 2 to 4 million?.

Mining Methods: Underground shaft. Some glory holing.

Ore: Amphibolite schist mainly, altered, fractured, pyrite impregnated, quartz-seamed; strongest mineralization makes ore; no defined walls. Ore stands well, uncaved, because of network of ankerite.

Milling: No mill; Tests indicate 200 mesh grind & cyanidation + Flotation = 95% recov.; Flotation + cyanidation of concentrate = 85%

Ref.: U.S.B.M. Bull 424 p. 30-36; Cal Vol 45, #1, p. 68

722-6078

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CALIFORNIA - GOLD - Medium grade

Name: MOUNT OPHIR

Location: Sec. 12, T5S, R18E MDM; Mother Lode; Mariposa Co.; 1 mi. NW of Mt. Bullion; topog. elev. 2000'; Bear Valley 7½' Quad; 3,000' of strike on Mother L.

Owners: 1957, Mariposa Commercial & Mining Co; c/o Eileen Milburn; own large tract, part of old Mariposas Grant which includes the Mt. Ophir, Louis, Mtn. View & Greens Gulch

Type: Gold, medium grade shoots grading to low grade; in qtz stringers in ftwall & hanging wall of vein in contact zone between serpentine (ftwall) and schists (hangingwall). Central heavy milky qtz barren; little mariposite-ankerite; Str. N47W; Dip 55NE; qtz width 3' to 30'; only high grade, avg. recovery 0.87 oz/ton, 4' to 5' width, was mined leaving the rest.

Tonnage: Small prod. total estimated $250,000 to $300,000 (USBM Bull 424, 1940); Recorded tonnage 4,221 tons @ 0.865 oz/t. through adits lowest is 250' below top of Mt. Ophir; only 80' of X cuts; all development on ftwall side; some 4000 tons ore left 4'-5' wide @ .2 to .3 oz/ton; no winzes below lower tunnel. Comparatively undeveloped and unexplored; Apparently produced in the order of 12,500 oz over a vert. distance of 250' or 50 oz/ft in one large stope (highgraded) which could mean 2 to 3 times as much for a lower grade or +100 oz/vert. foot or $30,000/vert. ft. @ $300/oz Au. The shoot has not been followed down below the lower tunnel. (no known winzes).

Ore & Milling: Not described - probably auriferous qtz since early high grade (1.16 oz/t.) was treated in arrastres & later ore in stamps; probably has some sulfide at depth.

Age: Old 1849; last work in 1914. Inactive much of its life.

Ref: USBM Bull 424, 1940 p. 111; Cal Vol 53 N. 1-2, '57 p. 139

Name: GREEN'S GULCH & GREEN'S GULCH EXTENSION

Location: S12, 13 T5S R17E M.D.M.; Mother Lode; Mariposa Co: 3/4 mi. west of Mt Bullion; topog. elev. 2000'; Bear Valley 7½' Quad; May be on strike SE of Mt. Ophir; may be extension NW of Princeton mine.

Owners: 1957, same as Mt. Ophir

Type: Gold, high grade shoots mined (0.56 oz/t recovered from 10,625 tons) in probably low grade material in a "broad" vein stk N50-55W Dip Steep NE; much of ore at intersection with a NE "cutter" vein; milky qtz. with free gold and auriferous pyrite; locally qtz-mariposite-ankerite;

Tonnage & Mining: Unknown early production; $120,000 between 1900 & 1915; shafts, tunnels & stopes no data.

Ore & Milling: Free Au; auriferouspyrite in milky qtz; probably stamp milled;

Age: Old; last work 1941; Inactive much of its life.

Ref: Cal. Vol. 53 N 1-2, '57 p. 105

CALIFORNIA: Gold-Low grade

Name: SARITA

Location: Secs. 16, 20, 21, T6N, R26E M.D.M.; Masonic district, Mono Co; 10 mi NE of Bridgeport; Topog. elev. 7,500' to 8,700'; cold, dry, windy; Bridgeport 15' Quad.

Owners: 1973, Santa Sarita Mining Co. Ltd. Vancouver, B.C. has 65/35 joint venture with National Treasure Mines Co. (525 Atlas Bldg, Salt Lake C.) et al with option to purch. (Lammle '73, p 5); Anaconda, Lakeview, Lakeview #2 pat. claims and 14 lode claims and mill site.

Type: Low and medium grade Au & some Ag; Values in silicified, drusy, vuggy chalcedony, broken, otherwise altered rhyolite earlier known as "andesite porphyry"; mineralization is inconspicuous, very fine grained; no apparent walls; epithermal type;

Tonnage: 1974, See rpt. by Lammle; and others - much info; summary: A mineralized zone with an open pit roughly 200' x 200' by 50' approx, on mountain slope; Indicated remaining 223,600 tons @ 0.142 oz/t, Au & 0.5 (est.) oz/t. Ag. (at $300 for Au and $13 for Ag) is $11,000,000 from surface to 200' level; plus Inferred 526,400 tons @ "better" than 0.065 oz/t, Au and 0.226 oz/t. Ag is "better" than $11,800,000 for a total of $23,000,000 to the 200' level; possibility below 250' not good, extensions elsewhere good.

Mining Methods: Open pit

Age: In 1915-17 mined 30,000 tons, milled 18,000 tons (cyanide) recovered 25,000 oz Au from 218' shaft and adits.

Ore: Fine native Au in small fragments of fine grained cherty qtz, coated with red mud in the altered "andesite" (rhyolite); sporadic finely disseminated gray pyrite & copper mineral trace.

Milling: Cyanidation; USBM tests 93.6% recov. @ 100 mesh; 74% @ ½".

Ref. Private reports: C.A. Lammle 1973 is latest of many.

CALIFORNIA: Gold placer - Tertiary gravel

Name: FRENCH CORRAL Placer Gold Property

Location: Sec. 23, 24, 25, 26, 36, T17N, R7E M.D. B&M; N. of S. Yuba river; Nevada Co; 8 mi. NW of Nevada City; Topog elev. 1700'; French Corral 7½' Quad.

Owners: 1976 B. Burnap & M. Altshuler, owners; Gold Reserve Mines, joint venture operators (looking for a loan); approach from Petroleum Financial Corp at suggestion of Ray Larson; Patented lots approx. 400 acres.

Type: Gold placer channel of tertiary Yuba river; sampling of 1775 tons recovered @ 0.0132 oz/ton = $3.96/ton or $5.94/cu.yd. @ $300 Au; adjacent properties mined recovered avg. 0.0133 oz/ton.

Cubic Yards: Little production because of early litigation; upper low grade gravels (white) absent by erosion; 4500' length of channel gravels exposed of which 1500' require stripping a mound (50' max) of lower grade? gravel; 4,250,000 to 4,750,000 cu yds. @ 0.020 oz/cu. yd. recoverable ($6.00/cu.yd. @ $300 Au) estimate by C. W. Armstrong is reasonable, but perhaps the yardage is high for the grade given. A better estimate is 3,000,000 cu. yds.

Mining Methods: Ground ripped, dozed, load & haul to plant stockpiles; pit drained by pumping.

Ore: Lower gravel only; consists of red gravel (oxidized) on top of blue gravel on bottom against bed rock; contain boulders & cobbles 13%, pebbles 56%, sands 28%, silt & clay 3% (Yeend 1974 private rpt.) general figures only; best values generally lower down, into bedrock channel; Au particles 1 to 2 mm by .1 to .2 mm thick & smaller; lowest gravels more or less cemented.

Milling: Cleaning, breaking, sizing, classifying, gravity concentration amalgamation, retorting (Proposed).

Ref: Mine Development Corp. Private Rpt; also general ref. USBM TPR 3, RI 7935

CALIFORNIA - Gold - Medium grade to low?

Name: RED BANK (Stevenson Group)

Location: Sec. 36, T3S, R16E, MDM; Mother Lode; Mariposa Co; 1½-2 Mi down Merced Riv. from Bagby on N. Bank; Topog - Elev. 750'-1500'; Coulterville 15' Quad.

Owners: 1957, Perry L. Pettigrew, Box 639, Palo Alto & Horace Meyer, Cathay, Cal.; Daisy, Jubilee & Syndicate lode cl. & 3 placers tot. 165 ac. mostly patd.

Type: Gold, medium grade shoots in lower grade? vein material$; 0.24 oz/t.; two "veins" width mined avg 7'; Hanging wall side vein 30' ft wall side not as thick; in milky qtz, qtz-mariposite-ankerite & silica carbonate vein zone; St. N40-45W Dip 50-60 NE;

Tonnage & Mining Methods: Tot. product. small, over $100,000, from higher grade only; No data on length of shoots etc.; but X cut adits have explored 2400' of strike and inclined depth of 1000' plus. No data on low grade; could have very large tonnage of low grade? available through adits above river level. (If: 30' x 600' x 1000' ÷ 12.5 = 1,440,000 t. @ .15 oz/t @ $300 = $64,800,000)

Age: Old; early work was placering, hydraulic - not much; underground mining scattered; most consistent production in 1939 & 1940 - probably last. Many changes of ownership etc. prior to 1921.

Ore: Native gold, pyrite, argentiferous galena, minor tetrahedrite, chalcopyrite & sphal.

Milling: No data on type of mill used - probably requires flotation.

Ref: Cal. Vol 53, No. 1 & 2 p. 162.

CALIFORNIA - Low grade

Name: JUMPER (Golden Rule, New Era, Juniper)

Location: Sec 26, 27, 35, T1N, R14E, M.D.M.; Mother Lode; Tuolumne County; 3 mi. S. of Jamestown; topog. elev. 1350'; Sonora 7½' & 15' Quads; approx. 4000' of strike on Mother Lode; S. of Erin-go-bragh;

Owner: 1940 J.W. Schiffman, Jamestown; 3 ? pat. claims + Mark Bogan ranch agric. pat.

Type: Gold, medium grade ore shoots; Avg. grade recovered 0.24 oz/ton from 5' to 50' in East vein; in multiple vein system 200' to 400' wide; East, Middle & West vein recognized; "rich" pockets in East vein with low grade mineralized schist with qtz. interlacing.

Tonnage: Total product. estim. $5,000,000; underground, some small? open cuts, practically all production from East vein; Middle vein 700 tons @ 0.079 oz/ton recovered; sulphides not saved at mill; "west vein contained low grade material in large amounts" (Cal Bull 108, '34 p. 168); No data given on West vein or low grade zone;

Mining Methods: Underground; shafts, workings mostly in East vein; max. depth winze to 1800' level; most production above 800' level; plans were to open cut in 1939;

Age: Old; last main activity 1919; short periods several times after '34; in '40 2585 tons yielded 0.15 oz/t.; '46 built 100 ton mill, little work.

Ore: Schist impregnated with qtz veinlets with free gold; some pyrite

Milling: 40 stamp mill; no sulphides recovered; all gold recovered was free type only

Ref: Cal Bull 108, '34; USBM Bull 424, '40 p. 41; Cal Vol 45 No. 1 '49, p. 69

Name: MAZEPPA

General: Immediately S. of Jumper (Juniper claim of Jumper group) Considered continuation of Jumper on East vein; apparently only lower grade was found without rich pockets as in Jumper; No production, no information, although an "interesting surface prospect has been found showing gold in decomposed ankerite" (Cal. Bull 108, '34, p. 168)

CALIFORNIA: Low Grade

Name: CLOUDMAN, ERIN-GO-BRAGH

Location: NE¼ Sec 27, T1N, R14E M.D.M.; Mother Lode; Tuolumne Co.; 2½ Mi. S. of Jamestown; topog elev. 1350'; Sonora 7½' & 15' Quads.; approx. 2,000' of strike on Mother L.; S. of Santa Ysabel group;

Owner: 1949, Estate of R.C. Bach; M. R. Bach Adm. 28 W. Vine St. Stockton; 2 pat. claims 31.21 ac.

Type: Gold, Low grade; medium low grade shoots in probably the same multiple vein system in St. Ysabel to the N. and Jumper to the S.

Tonnage: & Age: Little Production; Prod. started Mar. 1936 through Jul. 1st, 1937; 35,183 tons @ 0.18 oz/ton recovered; underground shaft 435' some open cut glory hole, 20' wide; some surface open cut prod. in 1939, is last work; ore left underg.; no data on low grade? zones; no attention was given to low grade.

Ore: Mostly with pyrite

Milling: Flotation mill claimed 90% recovery.

Ref: Cal. Vol 45, Jan '49, p. 64.

CALIFORNIA: Gold - low grade

Name: SANTA YSABEL Group; NYMAN CONSOLIDATED (Nyman, Knox & Boyle and Miller & Holmes, Gray Eagle)

Location: Sec. 22, 27, T1N, R14E MDM; Mother Lode; Tuolumne Co; 2 mi. S. of Jamestown; topog. elev. 1400'; Sonora 7½' & 15' Quads; approx. 3,200' of strike on Mother L.; S. of Dutch App on Qtz. Mt;

Owners: 1934, Nyman Cons. Mines Co., 855 Howard St., S. Fran; 5 pat claims.

Type: Gold, low grade: medium low grade shoots in a multiple vein system, almost identical with Dutch-App.; zone of alteration with low-grade in ankerite-mariposite is 170' wide in Miller & H.;

Tonnage: & Age: Produced $1,500,000? underground; deepest shaft 800'; last signif. prod. 1918; last work 1926; avg. 0.2 oz/ton to 0.3 oz/ton all from selected shoots; old No data on low grade zones

Ore: Same as Dutch-App, Harvard, etc.

Milling: ?; requires milling similar to Harvard etc;

Ref: USBM 424, 1940 p 41; Cal. Bull 108, p 169, 1934

CALIFORNIA: Gold - Low grade

Name: DUTCH-APP Group

Location: Sec 15, 22, 23, T1N, R14E, MDM; Mother Lode; Tuolumne Co.; 1½-2 Miles S. of Jamestown; topog elev. 1450'; Sonora 7½' & 15' Quads.; Approx. 5,000 ft. of strike on Mother Lode; S. of Harvard and Sierra RR track on Quartz Mt; There is a gap of ¼ mi or more of unexplored Mother Lode between Harvard and Dutch-App propty.

Owners: 1939, Sonora Abstract & Title Co. of Sonora; 102 acres patd.

Type: Gold, low grade; medium low grade shoots in a multiple vein system, qtz & mineralized schist, bull qtz. vein, schists with qtz veinlets, qtz. stringer lead; total width 110' to 300' wide. Medium grade shoots mined underground, probably avgd 0.17 + oz/ton.

Tonnage: Produced over $9,000,000 mostly underground; bottom level 2,300'; 1938 yield was 0.14 oz/t (shallow); 1940 yield was 0.11 oz/t last product.; some open-cut prod. in '35; reported to contain mineralized belt with gold with assays up to .14; no data on averages etc.; Possibility for more open pit tonnage similar to Harvard, Crystalline, Alabama, etc.

Age: Old mine; last (small) production 1940; much underground work on medium grade portions of system; deepest shaft 2,300'

Ore: Similar to Harvard etc.; schist, ankerite, mariposite, etc. traversed by irregular network of white qtz. seams, with Au; Approx. 2/3 or more? of Au recovered was free

Milling: '35 Gravity-flotation; 80% recov in concentrate?

Ref: USBS Bull 424; Cal. Vol. 45 Jan. '49; USBM TPR-5, '68; Cal. Bull 108, p. 156, 161, 166, 1934.

CALIFORNIA - GOLD - High and medium grade

Name: LOUISIANA

Location: S. 25, 26, T2S, R17E M.D.M.; East Belt; Mariposa Co.; 8 mi. E. of Coulterville; Topog. Elev. 3000'; Buckhorn Pk 7½' Quad; NW of Bondurant Mine.

Owners: 1957, Sarah Treat, c/o Mrs. Robert Sherman, 975 Roble Ridge Rd. Palo Alto, Cal.; 1 pat. claim 3500 ft of vein, 30 acr. in Stanislaus Nat. Forest.

Type: Gold, high grade shoots 3' to 6' wide in lower grade vein 2' to 15' wide; lessee's 700 tons @ 0.74 oz/ton recov; samplings on 1200' of vein assayed 0.176 to 0.43 oz/t.; vein stk. N70W Dip 55E; hanging wall side of vein is massive milky qtz low grade; ftwall side of vein is thin layers of fine grain qtz of high grade; Both walls contain many qtz stringers; at SE end of propty vein becomes stringer lode 50' to 100' wide, with more old workings.

Tonnage: Several thousand tons? Not much production; most work probably within 200' of surface in oxidized zone; vein contains gold 0.17 to 0.43 oz/t for 1,200' along strike (sampling); vein prospected for 1500' NW (from #1 shaft) contains gold wherever exposed at surface - not prospected further; Assume 1200 x 6/12.5 = 576 t/ft. vert. @ 0.30 oz/t. @ $300/oz is $52,000/ft of depth of shoots order of magnitude to expect from known strike length.

Mining Methods: Shafts & tunnels; deepest 250'; Old, intermittent operation; last work
& 1898 by lessees.
Ore: Native gold; pyrite with some sphal. & galena; total sulphides about 2½%
& Milling (unox. ore USBM Bull 424, p. 137); 4-stamp mill plus odd equipment;

Ref: USBM Bull 424, 1940, p. 136; Cal Vol 53, No. 1-2, p 120.

CALIFORNIA - GOLD - Medium grade

Name: MOUNT OPHIR

Location: Sec. 12, T5S, R18E MDM; Mother Lode; Mariposa Co.; 1 mi. NW of Mt. Bullion; topog. elev. 2000'; Bear Valley 7½' Quad; 3,000' of strike on Mother L.

Owners: 1957, Mariposa Commercial & Mining Co; c/o Eileen Milburn; own large tract, part of old Mariposas Grant which includes the Mt. Ophir, Louis, Mtn. View & Greens Gulch

Type: Gold, medium grade shoots grading to low grade; in qtz stringers in ftwall & hanging wall of vein in contact zone between serpentine (ftwall) and schists (hangingwall). Central heavy milky qtz barren; little mariposite-ankerite; Str. N47W; Dip 55NE; qtz width 3' to 30'; only high grade, avg. recovery 0.87 oz/ton, 4' to 5' width, was mined leaving the rest.

Tonnage: Small prod. total estimated $250,000 to $300,000 (USBM Bull 424, 1940); Recorded tonnage 4,221 tons @ 0.865 oz/t. through adits lowest is 250' below top of Mt. Ophir; only 80' of X cuts; all development on ftwall side; some 4000 tons ore left 4'-5' wide @ .2 to .3 oz/ton; no winzes below lower tunnel. Comparatively undeveloped and unexplored; Apparently produced in the order of 12,500 oz over a vert. distance of 250' or 50 oz/ft in one large stope (highgraded) which could mean 2 to 3 times as much for a lower grade or +100 oz/vert. foot or $30,000/vert. ft. @ $300/oz Au. The shoot has not been followed down below the lower tunnel. (no known winzes).

Ore & Milling: Not described - probably auriferous qtz since early high grade (1.16 oz/t.) was treated in arrastres & later ore in stamps; probably has some sulfide at depth.

Age: Old 1849; last work in 1914. Inactive much of its life.

Ref: USBM Bull 424, 1940 p. 111; Cal Vol 53 N. 1-2, '57 p. 139

Name: GREEN'S GULCH & GREEN'S GULCH EXTENSION

Location: S12, 13 T5S R17E M.D.M.; Mother Lode; Mariposa Co: 3/4 mi. west of Mt Bullion; topog. elev. 2000'; Bear Valley 7½' Quad; May be on strike SE of Mt. Ophir; may be extension NW of Princeton mine.

Owners: 1957, same as Mt. Ophir

Type: Gold, high grade shoots mined (0.56 oz/t recovered from 10,625 tons) in probably low grade material in a "broad" vein stk N50-55W Dip Steep NE; much of ore at intersection with a NE "cutter" vein; milky qtz. with free gold and auriferous pyrite; locally qtz-mariposite-ankerite;

Tonnage & Mining: Unknown early production; $120,000 between 1900 & 1915; shafts, tunnels & stopes no data.

Ore & Milling: Free Au; auriferouspyrite in milky qtz; probably stamp milled;

Age: Old; last work 1941; Inactive much of its life.

Ref: Cal. Vol. 53 N 1-2, '57 p. 105

CALIFORNIA - GOLD - High and medium grade

Name: LOUISIANA

Location: S. 25, 26, T2S, R17E M.D.M.; East Belt; Mariposa Co.; 8 mi. E. of Coulterville; Topog. Elev. 3000'; Buckhorn Pk 7½' Quad; NW of Bondurant Mine.

Owners: 1957, Sarah Treat, c/o Mrs. Robert Sherman, 975 Roble Ridge Rd. Palo Alto, Cal.; 1 pat. claim 3500 ft of vein, 30 acr. in Stanislaus Nat. Forest.

Type: Gold, high grade shoots 3' to 6' wide in lower grade vein 2' to 15' wide; lessee's 700 tons @ 0.74 oz/ton recov; samplings on 1200' of vein assayed 0.176 to 0.43 oz/t.; vein stk. N70W Dip 55E; hanging wall side of vein is massive milky qtz low grade; ftwall side of vein is thin layers of fine grain qtz of high grade; Both walls contain many qtz stringers; at SE end of propty vein becomes stringer lode 50' to 100' wide, with more old workings.

Tonnage: Several thousand tons? Not much production; most work probably within 200' of surface in oxidized zone; vein contains gold 0.17 to 0.43 oz/t for 1,200' along strike (sampling); vein prospected for 1500' NW (from #1 shaft) contains gold wherever exposed at surface - not prospected further; Assume 1200 x 6/12.5 = 576 t/ft. vert. @ 0.30 oz/t. @ $300/oz is $52,000/ft of depth of shoots order of magnitude to expect from known strike length.

Mining Methods & Ore: Shafts & tunnels; deepest 250'; Old, intermittent operation; last work 1898 by lessees.
Ore & Milling: Native gold; pyrite with some sphal. & galena; total sulphides about 2½% (unox. ore USBM Bull 424, p. 137); 4-stamp mill plus odd equipment;

Ref: USBM Bull 424, 1940, p. 136; Cal Vol 53, No. 1-2, p 120.

CALIFORNIA: Gold - Low grade

Name: SANTA FE MINES (Black Hawk, Cliff, etc.)

Location: Sec. 5, 8, 9, 16, 17, T3N, R2E SBM; San Bernardino Mts.; S. Bernard. County. 5 m. N. of Baldwin Lake; Topog elev. 4200' to 5000', Blackhawk Canyon; Lucerne Valley 15' Quad.

Owners: 1953 James Hay estate, Los Ang., 175 claims

Type: Gold, low grade some medium. Thrust fault stk W, dip S. limestone upon granite; hematitic crushed zone 100' thick; ls. breccia 75' thick.

Tonnage: Prod. 1921 to 1940 $300,000; "known reserves...in millions of tons" @ 0.034 oz/t. to 0.31 oz/t." (Tucker & Sampson Cal. Rpt 26, p. 224 '30)

Mining Method: Tunnels & raises; explored by open cuts several hundred ft long; 9 tunnels +

Ore: streaks of hematitic gouge in crushed zones

Milling: 25 ton ball mill & cyanide. 600 tons cyanide leach plant dismantled in 1940.

Ref: Cal. Vol 49, 1 & 2, '53 p. 80.

CALIFORNIA: Gold - high grade

Name: CENTENNIAL (New Champion)

Location: NW¼ Sec 4, T6N, R13E M.D.M.; East Gold Belt; Calaveras Co.; 1½ mi. N.W. of West Point; topog. elev. 2600'; West Point 7½' Quad.

Owners: 1962, New Champion Mining Co. c/o H.G. O'Hanlon, West Point, Calif. claims ?

Type: Gold, high grade shoots avg heads 0.94 oz/ton ('47 to '50) in 6' avg. thick qtz vein in granodiorite; str. N 15^{o} W Dip 50^{o} SW;

Tonnage: Product. 1937 to '40 and '46 to '50; idle after '50; total prod. probably a max 30,000 tons; most production from 200' and above; greatest depth 300'; order of magnitude of ore shoots mined is 19,200 tons per 100' vert. @ $300/oz Au is 300 x 0.94 = $282 per ton is $5,400,000

Mining Methods: Underground; shaft, drifts, winzes;

Age: Apparently opened up in 1936.

Ore: Qtz. with free Au, pyrite, lesser chalco, galena, sphal.

Milling: 40 ton flotation mill at property in '62; Recovery % not given; the concentrate would run at $5,500/ton @ $300/oz Au

Ref: Calif. County Rpt 2, 1962.

CALIFORNIA: Zinc-gold-silver-copper; High grade

Name: QUAIL HILL (Eagle claim)

Location: Sec 3. T1N, R11E, MDM; Foothill copper belt; Calaveras Co; 5 mi. west of Copperopolis; Topog. elev 800'; Copperopolis 7½' Quad; 30 mi from Port of Stockton (ocean going vessels).

Owners: 1974; James H. Wren, Reno, Nev. owner had it leased opt. to purch. to a Canadian party; 1 pat. claim 25.45 ac.

Type: Massive sulphide very high grade primary ore Zn, Au, Ag also Cu Some low grade pyritic around high grade; small irregular shape replacement high grade ore shoots viz 15' wide x 100' long x 130' vert.

Tonnage: Production prior to 1917 not known; Recorded production 12,687 tons mostly in '17, '18, '43, '44 which converted to Au $300/oz; Ag $13/oz; Zn $.35/lb; Cu $.85/lb represents $307.61 per ton or $3,902,648; deepest work 270'; short drill holes indicate continued mineralized zone but no ore is in sight; Potential is good for finding at the avg. rate of 70 tons per ft. of shaft depth & similar grade (@ $300/ton is $21,000 per ft of shaft depth); ore shoots run @ 150 tons/vertical ft. of ore shoot.

Mining Methods: Underground shaft.

Age: Old mine, first location in the Foothills belt, 1860.

Ore: Pod shaped lenticular masses of an intimate mixture of sphalerite, chalco. and pyrite with some Au, Ag and little galena, within zones of pyritization, in felsite and tuffs, in faults & shears next to intrusive contact of felsite; Avg assay (recovery) '43 & '44: Au 0.325 oz/t.; Ag 5.25 oz/t.; Zn 12.98%; Cu 3%; Pb 0.93%

Milling: Prod. said to have been milled; ore requires flotation.

Ref: Private Rept, Wren, 1974.

KLB

Report on Courthouse Search of Property Ownerships in
Mariposa and Tuolumne Counties, California
by F. X. Cannaday

The following notes were taken during a trip through Mariposa and Tuolumne Counties along and near the Mother Lode in California from December 15 through December 19, 1979. During this trip the names and addresses of owners of a number of mining properties were obtained at the Assessor's offices in the courthouses of Tuolumne and Mariposa Counties, located in the towns of Sonora and Mariposa respectively.

These names and addresses and other pertinent information are included in this report.

Notes

Mariposa: Town	Inhabitants, 3000± on Highway 140 to Yosemite. Commercialized; houses along both sides of road into town, of the inexpensive? "summer" type on irregular-shaped lots, etc.
Mt. Bullion: Town	On Highway 49, (200 to 300? inhabitants) 5 miles northwest of Mariposa; decreasing number of houses leaving Mariposa; some around Mt. Bullion, decreasing to none going NW from Mt. Bullion.
Mt. Ophir: Mine	Wooded, brushy; some open workings on top of Mt. Ophir; you have to look hard to find old dumps, etc; brass plaque commemorates earliest California mint.
Bear Valley: Town	Very small, less than 200 inhabitants; very rundown buildings--depressed; NW of town along Highway 49--nothing.
Hornitos: Town	Very small, off Highway 49, out of the beaten path; extremely rundown; depressed--shacky, etc.--adobe saloon looks like the kind Murrieta (the bandit) could be going to if he were still alive. Nothing evident left standing of the numerous mines that once operated in that valley. Paved road from Bear Valley to Hornitos very mountainous, crooked, narrow--shelf road, almost, in places; sparsely populated area. Cattle in the valley; woods in the mountains (oaks, brush, etc.).

Bear Valley to Bagby - Highway 49, no population.

Josephine & Pine Tree: Mine	Remnants of mine dump, etc. on Pine Tree, grown over--nothing left of installations; Approach to dump partially blocked. Spectacular drop into Merced River canyon from observation pullout on highway (near transformer substation)--hairpins and switchbacks; good highway--no traffic on Sunday afternoon.

Bagby: Town?	Insignificant "recreation" area on Merced River. No visible houses where Bagby used to be. Some small old houses for "marina", on S. bank of river. Sharp grades on both sides of river.
Red Bank: Mine	Turnoff to Red Bank mine has steel gate; road little used--maybe fishermen--Fences--
	Continuing on Highway 49; some trailers and shacks possibly on the Mother Lode structure occasionally; very depopulated brushy woody mountainous country. Fences.
Coulterville: Town	Inhabitants: 200+?; depressed--Mostly old small frame houses. NW of Coulterville some dilapidated small frame houses or small house trailers on either side of the road here and there, needing paint, etc. Nothing around Penon Blanco--just brushy mountainous country--Fences--
Jacksonville: Town	Very small--off the road--some habitations: Very unimpressive, rundown. Fences--some cattle country.

Approaches? to Eagle-Shawmut Mine with gates; no gates left open. Hilly (large country now--not many people. Fences.

Golden Rule (Jumper): Mine — South of mine a few very shacky, rundown structures (two hatted "mountain boys" sitting on porch railing, staring at highway). Mine open pit and old rusty equipment to west side of highway; all fenced; all roads gated or clearly posted as private. Small hills and dales with scattered live oaks; rural. Fences, some very old, some newer, generally in good repair.

Stent & Quartz: Towns	Very small, very rundown, some very old buildings--nothing new, that was visible.

Quartz Mt. and Dutch App mine area west of Quartz--scattered shacks and lowly buildings here and there; could have been mine building facilities of various mines in area at one time--Fences--All rural looking.

Harvard: Mine	Fenced off with gates--no open access; sizable shaft head frame top visible among trees; some old rural houses in vicinity.
Crystalline: Mine	Paved road from southeast ends at gated fence; no clear access from South; no clear access from North and Rawhide; seemed to be wooded country. Seems isolated.
Rawhide: Mine	Part of dump by paved road--some houses to north by Rawhide school (still in use); more inexpensive houses on both sides of road; houses look better as we go north. Still many are on the shacky side--mostly by the road--otherwise rural although on both sides of the paved road the impression is that the fenced lots of odd shapes are smaller and that a few hundred feet away from the road the tracts are much larger and used for ranching.

Jamestown: On Highway 108, 2700 inhabitants. Mostly old type western town with some life, and some new buildings and homes--doesn't look so dead or dying. The Sierra Railroad headquartered here, is a standard gage dieselized commercial freight hauler which connects Sonora and the Southern Pacific mainline at Oakdale near Modesto. In the summer it operates scheduled passenger train tours as well, headed by steam locomotives.

Sonora: County Seat of Tuolumne, 10,000 inhabitants in immediate area. Center of activity of the region--on Highways 108 and 49 and not a flat spot in town. The main street runs up the bottom of the narrow valley, the town is up and down both sides. A Chamber of Commerce publication states the unemployment rate to be 10%. Nevertheless, during daylight hours, there seemed to be much activity, with near traffic jams down the main street, most any time. Yet Highway 108 which leads east over Sonora Pass over the Sierras, is not a main access through the Sierras, and it is closed for the winter months, and was closed at the time.

<u>List of Properties with Names and Addresses of Owners</u>.

The following pages give such infomration on:

In Tuolumne County

Crystalline & Alabama
Harvard
Dutch-App
Santa Ysabel group (Nyman Consolidated)
Cloudman, Erin-go-Braugh
Golden Rule (Jumper)

In Mariposa County

Pine Tree-Josephine
Red Bank; also Crown Peak
Mt. Ophir (& Green's Gulch and Extension)
Louisiana (and others adjacent including Bondurant)

Crystalline & Alabama

Owners: Dec '79; Tuolumne County Assessor's Office;
CAMERON, Robert L. & Wanda V.
19835 Peppermint Falls Rd.
Jamestown, Calif. 95327
Address by Tel. Directory is:
CAMERON, Robert L.
Yosemite Junction, Jamestown, Tel. ~~984-5116~~ (209) 532-0237 number disconnected

Property Assessor's Office designation: 58-060-03-0
Bk. 58, page 06, Parcel 3 (approx. 68 ac.)
Lots or claims or millsites: Shore, Alabama, & millsite, Crystalline, & millsite, Crystalline #2, Harris & Olive, Ophir-Crystalline, Junieta placer.

Little Alabama, adjacent & east of Alabama, between Ala. millsite & Shore, designation 58-060-04-0 Bk 58, pg 6, parcel 4 (approx 4.9 ac.); ownership not looked up.

Hooker, (north of Alabama and south of Rawhide, generally at Table Mt.) may be part of Omega or in conflict with Omega (placer?); designation of Omega 58-050-32-0 Bk 58, pg. 5, parcel 32; ownership not looked up.

New Jersey Zinc has "option" on these claims

Harvard

Owners: Dec '79; Tuolumne County Assessor's Office:
HARVARD GOLD MINING CO.
c/o 11454 San Vicente Blvd.
Los Angeles, Calif. 90049

Note: The above street address is the same as that of the A. J. Land Company owners of Pine Tree-Josephine in Mariposa Co. A. J. Land Co. is probably a successor to Alaska-Juneau (through A. J. Industries?)

Property: Assessor's Office designation: 58-210-28
Bk 58, pg. 21, Parcel 28 (approx. 43 ac.)
Lots or claims or millsites:
Trio (Harvard), McCann, Mooney.
(Status not clear? on Sobrante; Vulture is under different parcel no. or may be gone?). Pacific Gold (3.71 ac?) and Pacific Gold extension immediately north of Sweeney of Dutch-App group are different designation 59-080-32-0 (Bk 59, pg. 8, parcel 32); owner not looked up.

Dutch-App

Owners: Dec '79; Tuolumne County Assessor's Office:
SEGERSTROM, Charles H., Jr.
Sonora, Calif. 95370 deceased Mar '78
Addresses by Tel. Directory are:
SEGERSTROM, Charles H. Jr., mining, 85 Church; Tel 532-7417 (209)
William F, brother Residence, 240 Church Lane, Tel. 532-4213
Sonora, Calif.

Property: Assessor's Office designation: 59-150-25-0
Bk 59, pg. 15, Parcel 25 (106.69 ± acres)
Lots or claims or millsites:
Sweeney, & millsite, Dutch & millsite (part of m.s. gone
Bk 59, pg. 17), Heslep & millsite (part of m.s. gone Bk 59, pg. 17)
App, & millsite (part of m.s. may be gone?), Hitchcock.

James R. Hardin, Atty is handling Segerstrom Estate
(209) 532-5571
Sonora

Segerstrom also own: Soulsby Mine

New Jersey Zinc may have option on Dutch-App

I told him that I may be in the area on Wed 20 Feb

21 Feb SON
Bill Segerstrom gave me this info:

~~Owner? of Rawhide Mine~~ = Earnest Oliveira 984-5337

~~Supp~~ Rawhide is leased by N.J.Z Jamestown

5 acres next to Rawhide Burt Forschler, Stockton 1 948-7868 off
462-3657 home

Santa Ysabel Group; Nyman Consolidated

Owners: Dec. '79; Tuolumne County Assessor's Office:
NYMAN Consolidated Mines Co.
P. O. Box 8485
Stockton, Calif. 95208 209

Property: Assessor's Office designation: 59-200-13-0
Bk. 59, pg. 20, Parcel 13 (approx. 65 ac.)
Lots or claims or millsites:
Knox & Boyle, Knox & Boyle 2, Nyman Consol. Nyman Consol. 2,
Gray Eagle Gold, Miller & Holmes.

916

445-7205 (916)

445-2900

Cloudman, Erin-go-Bragh

Owners: Dec. '79; Tuolumne County Assessor's Office:
FAITEL, Mercedes Bach et al
18686 Horace St. no telephone listed
Northridge, Calif. 91324 (213)

Et al:
Bach, James
Bach, Randolph
Bach, Rene
Bach, Mercedes

Note on QD 567/OR/317 Bach to Bach

Property: Assessor's Office designation: 59-200-07-0
Bk 59, pg. 20, Parcel 7 (approx. 35 ac.?)
Lots or claims or millsites:
Cloudman, Erin-go-Braugh

Jumper (Golden Rule)

Owners: Dec. '79; Tuolumne County Assessor's Office:
JUMPER Land Corp.
c/o FITZGERALD, R. E.
209 Post St. Rm 905
San Francisco, Calif. 94108 (415)

334-7652 ← No answer
~~731-7345~~

Property: Assessor's Office designation: 59-300-19-0
Bk. 59, pg. 30, Parcel 19 (approx 64 acres)
Lots or claims or millsites:
Golden Rule, New Era, Jumper.

Tax Rate Area # 63-015

Mazeppa (immediately south of Jumper) designation 59-300-04-0,
Bk. 59, pg 300, parcel 4; ownership not looked up.

Ralph
Harry Fitzgerald

984-5367

Jamestown, James Bakers on 5th Ave
is brother of Mrs Lewis Bach in Sonora -
may know the Fitzgeralds

Pine Tree - Josephine.

Owners: Dec. '79; Mariposa County Assessor's Office:
A. J. LAND Company
11454 San Vicente Blvd.
Los Angeles, Calif. 90049

Note: A. J. Land Co. is probably a successor to Alaska-Juneau.

Property: Assessor's Office designation: 008-01-0-004-0, 008-01-0-005-0
Bk 8, pg. 10, Parcels 4 and 5
Tracts or claims in fee land:
Pine Tree, Josephine, Queen Specimen, River Tunnel, All in fee land owned by above, (mostly in Sec. 8, T4S, R17E MDM, and some surrounding, all owned by above)

Red Bank (Stevenson Group)

Owners: Dec. '79; Mariposa County Assessor's Office:
MEYER, Horace et al
Star Route
Catheys Valley, Calif. 95306 (209) no telephone listed

Property: Assessor's Office designation: 003-35-0-005-0, 003-35-0-007-0,
Bk. 3, pg. 350, Parcel 5
Daisy, Jubilee, Steveson
Bk. 3, pg. 350, Parcel 7
Syndicate, Crown Lead

Crown Peak (adjacent to and east of above groups)

Owners: CAVAGNARO, Louis L. & Catherine M.
869 Oracle Oak Place
Sunnyvale, Calif. 94086 (408) 736-3093

Property: Assessor's Office designation: 003-35-0-008-0
Bk. 3, pg. 350, Parcel 8
Crown Peak.

Note: Land on east of above properties is BLM. Land on west is part of a river reservoir withdrawal.

15 Feb
Called Cavagnaro - not home - left word and home phone - will try to get him tomorrow

Louis " called - his claim is not leased - I will call him around Wed or Thur 20-21 Feb to see whether I can come by to meet him and look at a couple of maps he may have - he would be interested in leasing the claim

8:00A Marriott's in Santa Clara

Mt. Ophir (& Green's Gulch & Extension)

Owners: Dec. '79; Mariposa County Assessor's Office:
Area South of Highway 49 (the bulk of the known mining zones)
PUGLIZEVICH A. J. & Elinora.
226 W 17th St.
Merced, Calif. 95340 (209) 722-6078

Property: Assessor's Office designation: 011-25-0-007-0
Bk. 11, pg. 250, Parcel 7 (comprises Sec. 12 & SE¼ Sec. 11;
S½ NE¼ Sec. 11; N½ Sec 13; N½ S½ Sec. 13)
Mt. Ophir situated mostly if not wholly in Parcel 7
Green's Gulch & Extension situated mostly if not wholly in Parcel 7

Those portions of Mt. Ophir and possibly Green's Gulch which may extend on the North side of Highway 49 are owned as follows:

Owners: MEYER, Horace et al
Star Route
Catheys Valley, Calif. 95306

Property: Assessor's Office designation: 011-25-0-005-0
Bk. 11, pg. 250, Parcel 5 (comprises lands north of Highway 49)

14 Feb
9:30P Puglizevich ret my call - may be interested in leasing -

15 Feb - Called " to make date to see him in Merced on Tues 19 Feb -
will call him Monday nite 10:00P PHX time

27 Feb called Tony - asked him to make 3 copies of his data -
I will call him ± 4 or 5 Mar

Louisiana

Owners: Dec. '79; Mariposa County Assessor's Office: 66
PEARSON, Lloyd E.
20124 Chateau Drive Area Code 408-867-9280
Saratoga, Calif. 95070

Property: Assessor's Office designation: 004-22-0-008-0
Bk. 4, pg. 220, Parcel 8
Louisiana

The following tracts without name? are adjacent to the Louisiana as shown on the sketch not to scale

004-22-0-010-0; Bk. 4, pg. 220, Parcel 10
Owner: ROBINSON, Thomas
1817 Rosa Ave. Modesto, Calif. 95355

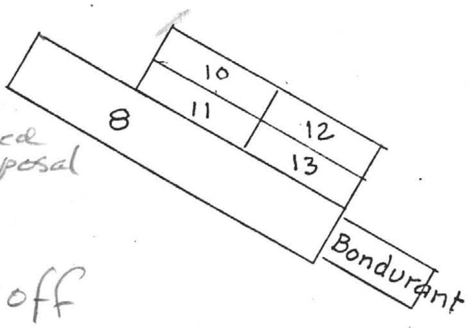
004-22-0-011-0; Bk. 4, pg. 220, Parcel 11
Owner: MOORE, R. Douglas & Karen
1914 La Villa Rose Court, Modesto, Calif. 95350

004-22-0-012-0; Bk. 4, pg. 220, Parcel 12
Owner: TOEPFER, James D. & Darcy L.
1420 Gary Lane, Modesto, Calif. 95355.

004-22-0-013-0; Bk. 4, pg. 220, Parcel 13
Owner: GRGICH, Stephen N.
P. O. Box 12374, San Francisco, Calif. 94112

Pearson: I called sev times—no answer
I Called Mon 18 Feb 10A " "
" " Fri 22 " 7:30A " "

Montague Exp
E
Ramada



I Called 22 Feb - Pearson has not leased yet but another Co. is giving him a proposal
I will Call Wednesday 27 Feb
(408) 293-4359 off

Pearson Equip & Maintenance

27 Feb:
Pearson will be out of town from noon Fri, 7 Mar, to Sun Eve 9 Mar

Bondurant (Hathaway)

Owners: Dec. '79; Mariposa County Assessor's Office:
BARRON, Robert L. (415) 589-5900 ex 24 office
2171 St. Andrews Rd
Half Moon Bay, Calif. 94019 (415) 726-2080 home

Property: Assessor's Office designation: 004-22-0-014-0
Bk. 4, pg. 220, Parcel 14
Bondurant (Hathaway): adjoining and end to end southeast of Louisiana

15 Feb
11:30A called off - not in - left word to ret call
Barron called - is interested in making a deal on his claim -

Pine Mtn Lake airstrip 25 mi from claim

I will call him Wed, 20 Feb as to whether I can meet him at the claim on Fri 22 Feb

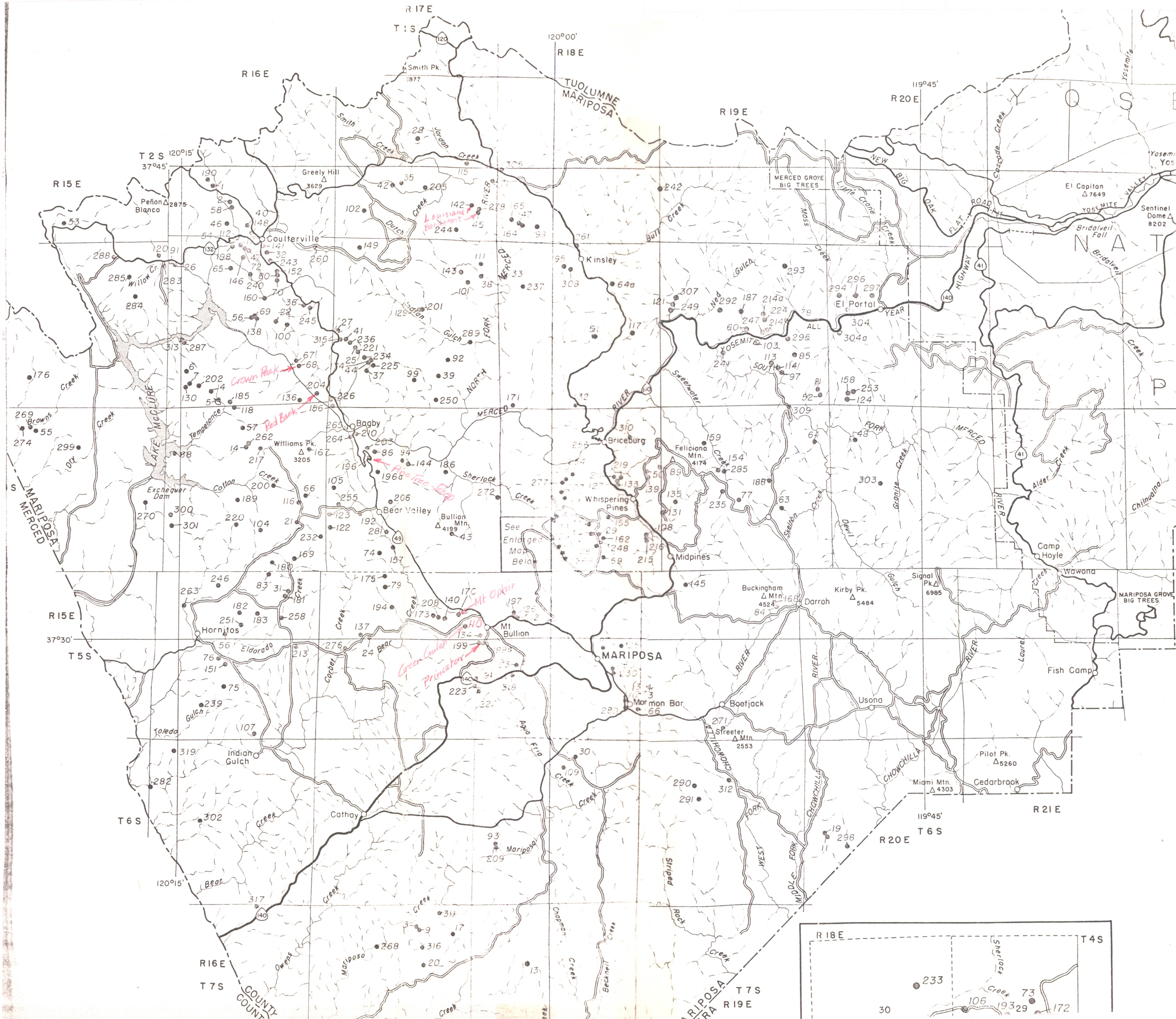
Barron's Partner: Larry Schutt (off) 209-878-3554
(home) 209-878-3602

Greeley Hill rt on Holtzell to past rngr stel to "wye"
left on dogtown - "Red Cloud Ranch 1½ mi
Continue to " " " end of Blacktop

878-3812 (209)

27 Feb:
I will meet w/ Bob Barron on Fri 7 ~~Mar~~ 9:00A

3 Mar
I will meet Barron during week of 10 Mar



R 17 E
T 1 S
120°00'
R 18 E
R 16 E
Smith Pk.
TUOLUMNE
MARIPOSA
R 19 E
119°45'
R 20 E
Y O S E
T 2 S
120°15'
37°45'
R 15 E
Greely Hill
Peñon Blanco
MERCED GROVE BIG TREES
El Capitan
Sentinel Dome
Bridalveil Fall
N A T
Coulterville
Louisiana Bar
Kinsley
El Portal
Crown Peak
Red Bank
Bagby
Williams Pk.
Pine Tree Loop
LAKE McCLURE
Exchequer Dam
Briceburg
Feliciano Mtn.
Whispering Pines
Bear Valley
Bullion Mtn.
See Enlarged Map Below
Midpines
Camp Hoyle
Wawona
MARIPOSA
MERCED
Buckingham Mtn.
Darrah
Kirby Pk.
Signal Pk.
MARIPOSA GROVE BIG TREES
Mt Ophir
R 15 E
Hornitos
Mt Bullion
37°30'
T 5 S
Green Gulch
Princeton
MARIPOSA
Fish Camp
Mormon Bar
Bootjack
Usona
Streeter Mtn.
Indian Gulch
Pilot Pk.
Miami Mtn.
Cedarbrook
R 21 E
T 6 S
Cathay
R 20 E
120°15'
R 16 E
T 7 S
MERCED COUNTY
MARIPOSA
T 7 S
R 19 E
R 18 E
T 4 S