

Michigan Planning Venture in Oil Shale

CROSWELL, Mich. — (AP) — Sometime next spring or summer, shafts will be built beneath the flat farmland of Sanilac County, marking the start of a scientific gamble that could fill the nation's energy needs for years.

Leaders of the technological venture to prove oil can be extracted from shale say it has one chance in five of success.

The U.S. Energy Resources and Development Administration provided \$13.6 million last month to finance four years of testing.

"I'M OPTIMISTIC," said John Mogk of the Michigan Energy and Resources Research Association, a nonprofit consortium of industry, university and state government groups.

"Sure, it's a reasonably high-risk project. But with the team that has been assembled, I'm confident we'll have good results," Mogk added.

Beneath Michigan's entire Lower Peninsula lies enough of the Antrim shale formation to produce an estimated 2.5 trillion barrels of oil. That would meet the nation's current consumption of 19 million barrels daily for the next 358 years.

ONLY 10 TO 20 per cent of the oil is likely to be extracted at best. And the process of extracting oil from shale thus far has worked only in laboratories.

"The yield could be higher," said John P. Humphrey, a Dow Chemical Co. engineer who devised the extraction method. "I'm still as enthusiastic about it as I've ever been."

If the project succeeds, it would tap part of a shale formation that stretches from New York as far west as Iowa and northern Texas.

Dow put \$1 million of its own money into the project, but work had been halted almost 1½ years while waiting for a decision about federal financing.

DP 56 EE NW 25

UTAH PROPOSAL

Denver Post Dec. 15, '76
p 29

Diversion of Water For Energy Studied

By STEVE WYNKOOP
Denver Post Staff Writer

LAS VEGAS, Nev. — Utah Gov. Calvin Rampton said Tuesday that his state will consider revising water projects planned to promote agriculture so Utah can use more of its Colorado River water apportionment to develop energy resources.

Rampton's remarks clashed with a position taken here a day earlier by Colorado Gov. Dick Lamm, who said water development in western Colorado will be aimed at strengthening agriculture.

Both men addressed the Colorado River Water Users Association meeting here. More than 400 persons attended the two-day conference which ended Tuesday.

RAMPTON SINGLED OUT the \$1 billion Central Utah Project as one which the state will seek to transform from an agricultural project into one which will provide more water for energy development.

The four counties to be served by the project are among the most energy-rich in the state, containing oil, oil shale, tar sands and coal, Rampton said.

"Even though I believe the Central Utah Project is still a vital tool in the development of our state," he said, "I think some of the units which are not scheduled for construction until several years in the future need to be re-examined in light of the new demands on water that will be made by the enormous energy resources in the Uintah Basin."

WATER PROJECTS, such as the Central Utah Project, are usually developed in stages — or units — each with dams

and water-distribution systems in different geographic areas.

Lamm's approach is far different.

Seven water-storage projects with a total cost of \$680 million are coming up for final approval for construction in Colorado by the federal Bureau of Reclamation.

"The state of Colorado is committed to seeing these projects remain dedicated to agricultural use," Lamm told the association at a luncheon meeting.

IN ONE CASE, involving the Dallas Creek project in Ouray County, Lamm pointed out, the state rebuffed a move by a coal company to acquire water rights from the project.

"As one state government, we will continue to monitor these projects and take whatever steps necessary so that those originally designed to enhance Colorado's agricultural economy will in fact, if built, do just that," Lamm said.

"I certainly doubt the wisdom of drying up surface supplies of water for valuable cropland in order to devote that water exclusively to energy production," the governor added.

TWO ENERGY SOURCES were singled out for attention at the meeting—oil shale and synthetic gas from coal.

John D. Baker, manager of information services at Denver-based Cameron Engineers, Inc., said it could be 10 to 50 years before oil shale becomes economically competitive with crude oil.

A coal-gasification expert said such projects are ready to proceed now, but federal loan guarantees are needed to assure financing.

'Dead' Oil-Shale Project Revived

Denver Post Dec 1 '76/p.1

By STEVE WYNKOOP
Denver Post Staff Writer

Oil shale —western Colorado's sleeping energy giant — is beginning to stir again.

Two oil companies are expected to reach agreement next week on plans that could lead to commercial oil-shale production in 1982 from a 5,094-acre tract leased in 1974 from the federal government.

THE TRACT, known only as C-b, is 20 miles southwest of Meeker, Colo., in Rio Blanco County. It initially was leased by four companies, which bid \$117.17 million for rights to develop it.

Since then, three of the companies have pulled out. But there have been reports that Ashland Oil, Inc., the only remaining leaseholder, and Occidental Petroleum Corp. planned to form a partnership to develop the tract.

Tuesday, an Ashland project official, Jay J. Hill, confirmed that the companies are close to an agreement and are looking at a specific development timetable.

Work on the tract has been suspended since Interior Secretary Thomas Kleppe agreed Aug. 20 to a year-long suspension of lease payments while Ashland sought to resolve technical, environmental and economic difficulties with the site.

"**WE THINK** we've got the answers, but we need to do more engineering work," Hill said, explaining that the development timetable is tied to the successful completion of several steps.

The first step, he said, would be to sink shafts into the oil-shale-bearing formations. That could begin next year.

That would be followed in mid-year 1979 with development of a single-module underground oil-shale retorting chamber.

The underground operation, using a process developed by Occidental over the past few years at a test site near DeBeque, Colo., is the key to the new plan to develop the tract.

The process, called the modified in-situ process, involves creating large cubicles of fractured oil-shale rock underground. A fire is forced through the rocks, cooking the oil out with 900-degree heat. The oil then is collected at the bottom of the chamber and pumped to the surface.

Hill said the two factors that will determine whether the process will be an economic success are how close the fractured-rock chambers can be placed together underground and if 75 per cent of the oil in place can be recovered.

If the process works as planned, Hill predicted, the companies could produce

oil for "several dollars less than the going price of Arabian light crude oil, say \$11 or \$12 a barrel."

The price oil companies would get for shale oil has been the strongest single drawback to speedier oil-shale development.

Most oil-shale development plans have called for construction of above-ground

retorts, which would cost an estimated \$1.2 billion for units producing 50,000 barrels of oil a day. The per-barrel oil price would range from \$16 to \$25, far more than imported oil.

Hill said the capital cost of the project that Ashland and Occidental are planning would be one-third to one-half the cost of the above-ground retorting option.

The Occidental concept was given a boost Tuesday by the Energy Research and Development Administration (ERDA) in an official's testimony before a Senate subcommittee in Washington.

Dr. Philip C. White, ERDA's fossil fuels director, said, "In situ production methods are attracting industry and government interest."

Colorado River Basin Cooperation Urged

By STEVE WYNKOOP
Denver Post Staff Writer

LAS VEGAS, Nev. — A forecast of rising hydroelectric power production capacity in the Colorado River Basin and a call for interstate cooperation in solving the basin's problems marked the opening Monday of the Colorado River Water Users Conference.

Colorado Gov. Dick Lamm highlighted the need for cooperation among the sometimes contentious seven river-basin states by pointing out they had lost a total of 83 years Congressional seniority in the last election.

Reclamation Commissioner Gilbert Stamm told the gathering the Bureau of Reclamation will release a study next month which will point out opportunities for increasing hydro power capabilities in the basin.

SAYING HE WILL uphold Colorado's right to obtain its share of Colorado River water, Lamm urged interstate cooperation in meeting common problems in the river basin.

The Colorado governor told the more than 400 conference participants that in

Congress "all the Rocky Mountain states put together don't have the voting power of Detroit, Mich.

"We have to learn when to fight and when to work together to meet our common objectives," Lamm said.

Controversies over water allocation in the Colorado River Basin, Lamm said, stem from the fact that water compacts allocate 16.5 million acre feet of water among the states and Mexico, but the river only produces about 13 million acre feet annually.

The seven states which share the water are Colorado, Wyoming, Utah, New Mexico, Arizona, Nevada, and California.

Stamm, whose agency constructs most water projects on the Colorado River, told the conference participants of the potential to quadruple hydropower production.

Most of the increase in power production would be in the upper basin states of Colorado, Wyoming, Utah and New Mexico.

THOSE STATES would be the sites of projects to increase the hydro-power capability of the Bureau from 1 million kilo-

watts today to 6 million kilowatts in the future. Over all, Stamm said, capabilities would be increased from 2 million kilowatts to 8 million kilowatts.

Most of the additional power-generation capability would be produced by expanding three existing hydro-power projects. They are the Blue Mesa Project in Colorado, the Glen Canyon Project in Arizona and Flaming Gorge Reservoir in Utah.

Stamm's forecast was based on a new report, due for publication next month, called the Western Energy Expansion Study. It will recommend further study for 33 hydro power proposals, Stamm said.

"Certainly, hydro power cannot begin to supply the enormous demand for electricity facing the United States in the years ahead," Stamm said, but it shouldn't be overlooked or dismissed as inconsequential.

Rollie Fischer, secretary engineer of the Colorado River Water Conservation District in Glenwood Springs, Colo., is president of the organization.

DP26 Dec 14

U.S. Oil-Shale Program Gets Big Setback; Operations Suspended at 2 Tracts in Utah

Nov 2, 1976, page 2

By a WALL STREET JOURNAL Staff Reporter
WASHINGTON—Planned oil-shale development got another major setback as the government suspended operations on two federal shale tracts in Utah.

The Interior Department said it granted a one-year suspension at the request of the companies involved, which cited environmental problems.

The action means that oil-shale development has come to a halt on federal leases. In August, the department suspended two Colorado oil-shale leases for a year.

The only remaining portion of the department's prototype oil-shale leasing program is a plan to offer for lease tracts in Colorado and Utah for development by the in situ method. In this method, the oil would be extracted from shale that is still in the ground. It's unclear whether the department still plans to proceed with the lease sale, which

at Ford's sprawling Dearborn, Mich., assembly and manufacturing complex. In one case, 60 more pro-ratification votes were reported from one of the local units than were counted by one of the plaintiffs who monitored that voting, the suit said.

UAW Vice President Bannon defended the voting procedures at that local, saying they were conducted by a certified public accountant.

Beyond seeking to halt implementation of the new contract, the suit asks that the UAW be ordered to give plaintiffs details on the vote in each union unit as well as copies of UAW ratification procedures. The suit also asks for unspecified monetary damages tied to the UAW's "breach of fiduciary relationship" with the plaintiffs.

Finally, as an alternative, the suit asks the court to order that the ratification question be heard by the UAW Public Review Board for an initial decision. The board is an independent group of community leaders whose decisions are generally considered binding by the union.

had been tentatively set for sometime next year.

The latest suspension involves one tract leased by Phillips Petroleum Co. and Sun Co. and another leased by White River Shale Corp. White River is a venture of Phillips, Sun and Standard Oil Co. (Ohio).

The suspension means the companies won't have to pay the remaining installments on their leases for at least a year. Phillips-Sun had paid \$45 million of \$75.6 million they bid for one Utah tract. White River paid \$27 million of \$45.1 million it bid for the other tract. Both tracts are east of Vernal, Utah.

According to the Interior Department, the companies asked for the suspension because they encountered environmental problems in planning for the development. The department said studies by the companies showed that for intermittent periods, natural pollution in the lease areas already exceeds existing federal clean-air standards. The natural pollution consists of dust and other particulates. Oil-shale development would add to the pollution level and wouldn't be allowed unless federal rules were relaxed.

The companies didn't say so but economics has been another factor in souring the industry on oil shale. The Ford administration and the oil industry proposed, but Congress killed, legislation providing loan guarantees and price supports for shale development. The industry claims development isn't feasible without such federal subsidies because of the high cost of extracting oil from shale.

Chrysler Australia Slates Expansion Costing \$1.5 Billion

From Business Week
Shale oil venture
Ashland Oil Inc. and Occidental Petroleum Corp. are close to signing an agreement that could lead to commercial production of shale oil by mid-1982. Ashland will exchange a 50% interest in a leased tract in Colorado for the right to use Oxy's innovative *in situ* extraction process (BW—Mar. 29). The tract was leased from the government in 1974 for \$117.8 million by Ashland and three partners, who have since dropped out of the deal or soon will. Oxy says shale oil from the Ashland tract will be priced competitively with Mideast oil.
week ending Dec 27, 1976/52

From Business Week for week
ending December 27, 1976, page 32

Draft Environmental Statement for the Proposed Prototype
Oil Shale Leasing Program, Volume III of III; Description
of Selected Tracts and Potential Environmental Impacts
U.S. Dept. of the Interior Sep. 1972. ~~SA~~ ^{see}

II p 9 Description of Utah Tracts ^A T10S/R24E, SKM 19, 20, 21, 22, 27, 28,
Topographic Map and Aerial Photos 29, 30, 33, 34

B and T10S/R24E SKM ^{see}
12, 13, 14, 23, 24, 25, 26 plus
T10S/R25E SKM ^{see} 18, 19
5120 approx acres each

II 55 Tracts immediately south of White River

58-59 Drainage northward from Roan Plateau

Enversion problems

59 Strata dip at 200' per mile north westward

A oil shale thickness unknown - no core drilling
estimate of 30 gal per ton rock is about 45' thick
overburden 550 to 1,225' averaging 850
Nahecolite probably present in thin lenses. no gas

see Vol II page 20
see II

~~60~~ Vinta Formation produces gas

Southman Canyon field has produced gas

59 No gilsonite veins, ^{lenses or pods} no reports of bituminous sandstone
surface or subsurface

60 B dip north westward 200 - 400 feet per mile
30 gal sale is 50 feet thick, overburden 300-1250 feet.
average 700, Nahecolite in thin lenses and small pods
very thin, very small gilsonite vein outcrops

63 Development would require storage of flood waters on White R.

or diversion from Flaming George by diversion
on Green 30 miles west } Relation to UO SCo

some ground water bed small - at depth is high in
dissolved solids 1,000 - 3,000 mg/l

ground water moves north westerly and tributary to White R.

III 50 Topo maps of both sites

IV 11 Ua-Ub have high overburden to one ratio 5.6/1 to 14/1 on Ua
upto 7.0/1 on Ub so open pit is not practical

IV 12-13 production summary.

Dept Oil Shale Planning

Vol III

IV -13

precipitation 10-11 inches at 4,600-5,800 in Utah require irrigation for longer time than Colo

IV-48

area could be winter sheep range for grazing

IV-53

area characterized by desert shrub and piñon-juniper communities, terrain sharply cut by deep canyons with buttes and spires, remote basically primitive area recreation use light est of 50 visitor days per Utah

IV 59

Utah at 50,000 barrels per day in Uintah County generate population increase of about 6,200. plant site accessible from Vernal and Rangely.

2/3 of pop to be living in Vernal and 1/3 in Rangely

→

Vernal Planning Commission has a planning and zoning program for whole county.

IV 60

Vernal 60 miles northwest - go east on U.S. 40 for 20 miles south on State 45 for 20, and south on dirt road for 10

Rangely 60 miles - go west on Col State 64 for 30, 6 miles on U.S. 40, south on Utah 45 for 20, and dirt 10

local tax 1962 \$112 per person. shale plant add \$1000. local revenue per new resident

61

Indian reservation lands west and north

Oil shale operating regulations, exploration, development
CRS Title 30, part 231 and June 1, 1972 FIR

IX-4

23 sites were nominated by 15 oil companies

IX-2

large scale map of Utah oil shale nominations

IX-88

Utah alternatives

/power sources

IX 97

access to energy

Part 118 or

Sec
all

1/2
E/2

Dealing with land value only - no indication of
improvements beyond roads and they are forced to take

167 value of exploration rights - for other things, oil/gas, coal, etc

Need agreement re land

activity, mineral, beyond mineral exploration
rights, on road to reservation
country has prepared
power to road.

May 14 1976

27
540
7280

Dear Bruce,

Thank you for your letter with the particulars of Mrs. Raymond's land.

As to your question on the "Mill Levy" printed on the xerox copy of the Tax Notice 1975 — The "mill levy" is the tax rate applied to the assessed valuation of the property. The mill being \$.001, one thousandth part of a dollar. The 61.62 is the total of the various tax rates collected by Uintah County. Any special taxes are added to this to give a total mill levy. The total mill levy is multiplied times the assessed valuation, 6162 \$4,557.00, and this total general tax figure owed for the year of \$280.80.

The Tax Notice indicates that there are no improvements on the land such as a building or fencing which are known to the county government. ^{IT} would not be unusual for improvements to be on the land and ^{these} not be known by the county government. The detailed ~~Geological Survey~~ topographical dated 1966 however did not indicate any improvements.

The assessed valuation of the land is not a useful indicator of its market value. I am not familiar with the Utah formula for establishing assessed valuation for taxing purposes but the general concept is as follows. A value is derived from consideration of the location, desirability, market value, and other factors. This in Colorado 30% of this is the assessed valuation. However, in Colorado, land used for agriculture-grazing, receives a preferential treatment in determining its value, valuations ^{can be} made maybe ten or more years apart, and in most areas is the legal figure is 30% the actual percentage is about 10%. All this understates the value of the land to the advantage of the tax payer and of course there is no consideration of the value for potential future use.

thousandth thousandth

I have tried to anticipate questions and provide ^{possible} answers based on the limited information available. When I return I will attempt to locate additional information such as the location of ~~other~~ oil the Federal oil shale leases with respect to this property, what is happening in Utah concerning oil shale developments.

As I have mentioned it is possible it would be advisable to wait and see what created Mr. Senior's evident interest in acquiring Mr. Raymond's shares ^{beyond} beside simply obtaining a majority of the stock.

The 1929 land appraisal was done conducted at a time of the height of a speculative land market. Usually at that time for the purpose of ^{and some times} at that time and also to day, the value of the land for tax purposes can be understated and the value of the land carried on the ~~asset~~ ^{as an} company book is overstated ~~for several reasons.~~

I hope that during the summer or fall we may be able to drive over to Vernal and investigate further.


OKM in So.

U.S. Govt
P 548 supervised paper. 548

Geology and fuel reserves of Green river
formation south east. U.S. Govt

\$2.05 Salt Lake.

I have used the legal description of the land provided in the letter to approximately locate it on the enclosed map and to more definitely locate on the equivalent of an ordinance survey map. This later map I located in the Map Library of the British Museum. The map is called a United States Geological Survey Topographical Quadrangle Map - Utah, Agency Draw N. E. 1966. There were no facilities for photocopying this map, so I took the liberty of roughly indicating major details on the grid square plat with the land indicated in red. When I return to the States I will attempt to obtain a map or a copy with the property outlined for Mrs. Rayment.

The nearest town is Ouray which would have a population of under 500. The land does not contact Willow Creek which is indicated as a stream flowing year around, though the quantity of water would be very small by standards here. Three dirt roads appear to enter the property in 1966 and they would be very rough. They terminate just past the property boundary or in the case of one within the property. The land is typical of the area being very dry with little vegetation. A small patch of trees of approximately 20 acres, the shaded area, is partly on the property. ~~As~~ The land is a high ranging from 5600 feet to 6172 feet in elevation. The property is dissected by the generally dry water course running north-south indicated by a dashed line. The sides are steep and rise 100 to 200 feet to fairly level land. Smaller dry water courses cut the high flat land and join the major one. The  indicate steep slopes

about 1 mile west the Agency Oil Field is indicated and a gas well is indicated as being fairly close to the property.

Stewart Ranch is a name for nearby property along the steep valley of Willow Creek. The land west of the main dry water course is fairly level extending to the "Agency Oil Field"

confirm
water course cut deeply in to reasonably level

NEVADA-UTAH

- 0-500 Humboldt
- 500-1 000 Randolph
- 1-3 000 Truckee
- 3-10 000 MAGNA



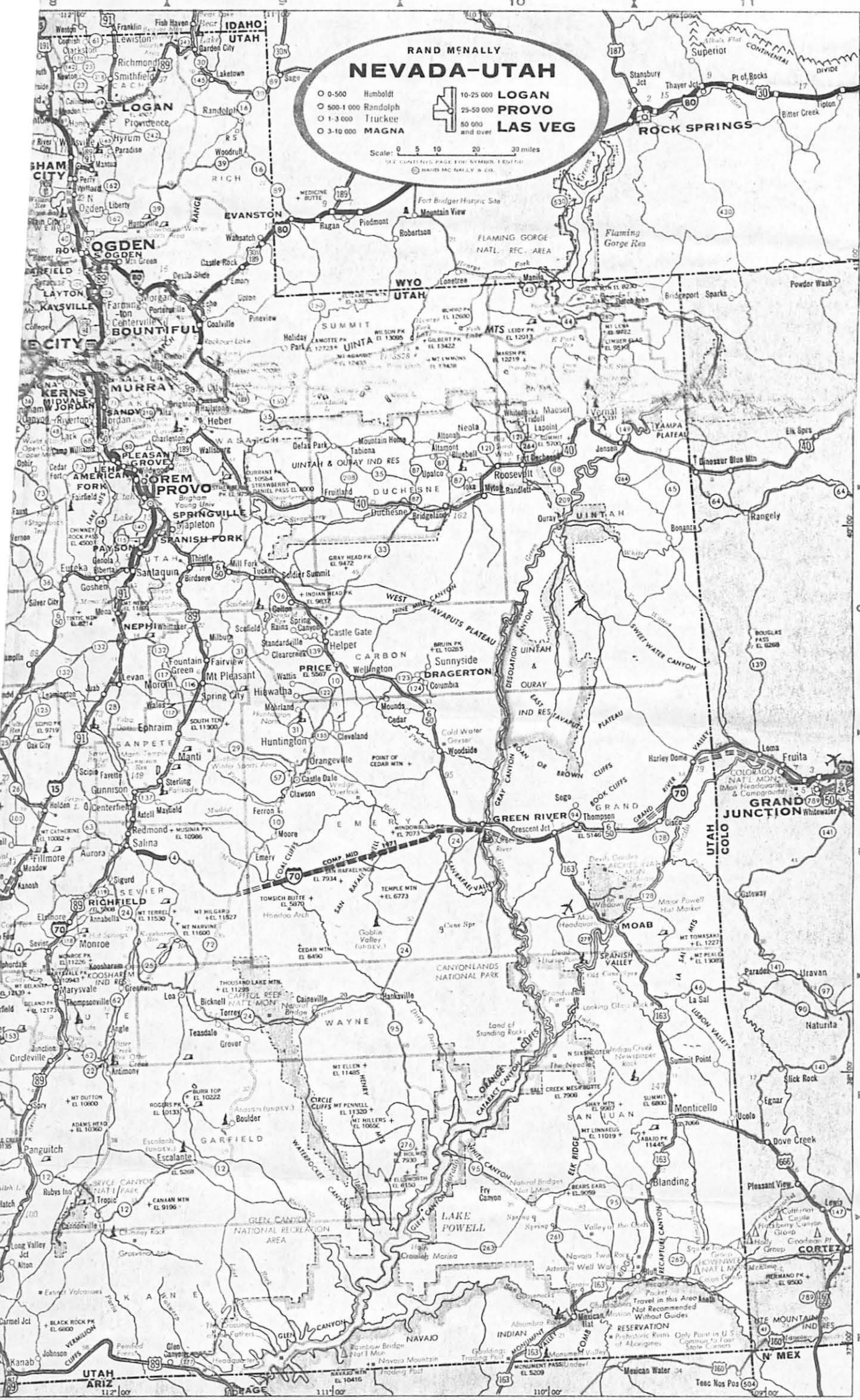
- 10-25 000 LOGAN
- 25-50 000 PROVO
- 50 000 and over LAS VEG

Scale: 0 5 10 20 30 miles

SEE COLORED PAGE FOR NUMBER 1 LOGAN

SEE COLORED PAGE FOR NUMBER 2 PROVO

SEE COLORED PAGE FOR NUMBER 3 LAS VEG



For Colorado see pages 18-19
For New Mexico see pages 8-9