Vernal Express
Vol. 90 No. 1 Vernal, Utah 84078 Thursday, January 7, 1982 (USPS 658-080)

$30 million sought from oil shale fund

The Uintah County Community Impact Council, comprising of eight local entities, has made a request for over $30 million from the state's oil shale bonus money. The request has been submitted to Governor Scott M. Matheson for a portion of the $45 to $65 million the state will receive from the federal oil shale tracts U-a and U-b bonus money paid by White River Shale Project and tied up by court order since 1977.

Now that it is apparent that the court will release the escrow fund of nearly $127 million the Uintah Impact Council says the state should share the bonus money with the area receiving the impact.

According to officials, the competitive bidding for federal oil shale tracts was designed to provide impact communities with the necessary up front money for capital costs caused by population growth. The oil shale bonus monies offer a one time source of funds for public projects in the local area. Other oil shale projects in the county are located on state land and do not provide any bonus funds.

According to state laws the oil shale bonus money will go to the Natural Resource Development Revolving Fund. A bill is being introduced in the budget session of the Utah Legislature this month to change the funds use so they can be used as front end money for impacted areas caused by resource development. Representative Gayle McKeachnie stated he was seeking $20 million of the bonus bid money to be used in the local area.

In the request to the governor the Impact Council breakdown of the $30,011,804 in bonus money funds is as follows: Uintah County, $6,000,000; Uintah School District, $16,300,000; Vernal City, $1,486,200; Ashley Valley Water and Sewer Improvement District, $2,349,000; Maeser Water Improvement District, $679,000; Jensen Water Improvement District, $1,172,260; Tridell-Lapoint Water Improvement District, $354,100; and Ballard City, $1,671,504. These requests were prepared by the eight entities comprising the impact mitigation task force who have been represented by over 21 persons meeting during the past months. Each entity specified projects where it would spend its impact funds.

In a state assessment of five year capital facilities needed in Uintah County, a preliminary report by A/P Associates lists the total needs of the county at $120,753,000. This budget need has been distributed as follows: Uintah County, $56,443,000; Uintah School District, $25,863,000; Uintah County municipalities, $18,375,000; and Uintah County water and sewer districts, $20,072,000.

Energy developments will be providing royalty and tax revenues to the state and revenues and fees to the local governments once they come on line, but the initial construction and start up phases require large expenditures for capital facilities, pointed out the Impact Council, in its request to Governor Matheson.

According to the Federal Land Policy and Management Act of 1976, oil shale royalty funds such as U-a and U-b, "shall be used by such states and subdivisions as the legislature of each state may direct giving priority to those subdivisions socially or economically impacted by the development of minerals leased under this Act for 1. planning, 2. construction and maintenance of public facilities, and 3. provision of public services."

Colorado has followed the intent of the Act by distributing nearly all of its bonus money from C-a and C-b tracts to oil shale impacted communities. Utah's law passes its funds to a natural resources development revolving account where the bonus money is to be deposited.

The Utah resource account provides that the legislature may use the resource money for loans or, "it may be used for counties, cities, towns, or other political subdivisions of this state socially or economically impacted by the development of these minerals."

With this interpretation the Uintah County Community Impact Council has requested that $30 million of the bonus monies be used in Uintah County, where the impact from oil shale development is being felt and where the oil shale bonus monies originated.

Rep. McKeachnie stated he thinks the Legislature, that will convene in its 20 day budget session starting Jan. 11, will pass a bill to give $20 million of the bonus money to Uintah County. He stated he doubted that the entire $30 million request would pass because of all the other pressing budget needs in the state. He also stated that funds should come from other companies other than the White River oil shale project royalty money as front-end money.

VERNAL ... JAN. 14, 1982

UTAH SENATOR Glade Sowards presents a ceramic dinosaur to Virginia U. S. Senator John Warner, during his visit to Uintah County last week.

#9

Sen. Warner gathers input on oil shale impacts

Senator John Warner, (R-Va) chairman of the U. S. Senate subcommittee on energy and mineral resources came to Vernal last Thursday to gather input for his oil shale leasing bill. Warner had previously visited oil shale tracts in Colorado before coming to Utah.

Warner stated that the Senate bill 1484 will soon start debate in the Senate and he needed input from the areas involved in oil shale exploration. The bill should go to the floor of the Senate in February and be presented to the President for signature in April or May.

The 1484 bill will allow Utah to lease federal oil shale lands to a limit of 15,360 acres instead of the present 5,120 acre limit. It would also allow unlimited offsite acreage for states with the exception of Colorado. The bill allows prepayment of rentals to help communities. The bill contains a diligent development rule requiring companies to act on their lease and show good faith. Three years is allowed to present a mining plan and within six years it must be approved. A 20 year limit is made on a lease unless it is producing oil from shale.

One lease per state and three nationwide is provided by the bill. After 30 percent of the oil shale resource has been recovered and the company is doing a good job it becomes eligible to apply for a second lease.

Rental rates have been changed to read that leases will not go for less than 50 cents per acre and the Secretary of Interior can charge the fair market value for the leased land.

In a question and answer period Philip Ellis, Uintah School District superintendent suggested that school districts be mentioned specifically in the bill to receive impact funds.

Bill Collier, U&O Reservation representative, asked that Indian communities and lands be given consideration when it comes to area impact due to energy developments.

Neal Domgaard, Uintah County Commissioner, presented a report praising Sen. Warner and the S-1484 bill. He said he was concerned over the distribution of the bonus moneys and the mineral leasing act funds paid to the state. "Should the state budget, as presently suggested, not be amended and give priority and part of the oil shale bonus to the area impacted by oil shale and other federal mineral leasing activities, then our pro-development stance could reverse."

Sen. Warner said he thought that if the state did not use the federal money as suggested in the mineral leasing act the state may lose the entire funds.

Industry representatives from White River Oil Shale Company, Geokinetics and Magic Circle expressed support for the oil shale bill.

State Senator Glade M. Sowards stated he wanted to be sure the communities impacted by the oil shale industry got the impact funds. Sowards said he didn't think the impact money should be used in other parts of the state.

Sowards also presented Sen. Warner with a Dina-Mite cap making him an honorary member and also a ceramic dinosaur as a momento from the area.

Interior to unveil oil shale amendments, by July 31

(Special to the Vernal Express)
By Helene C. Monberg

Washington—The Interior Department hopes to unveil its new oil shale legislation at a meeting of the House Mining Subcommittee on July 31, Deputy Assistant Secretary James Curlin said here this past week.

"At that time the Subcommittee plans to take up the bill by (Rep. David) Marriot (R-Utah) authroizing oil shale leaseholders to obtain additional lands for processing and for spent shale disposal," Curlin told this correspondent on July 17.

"We hope to have our legislative proposals on oil shale ready for the Subcommittee at the same time," Curlin said. Interior's legal eagles are working feverishly to make that schedule, he added, and there is some question whether Interior's proposals will be ready by July 31. They are now being cleared by the Office of Management and Budget (OMB).

Interior announced on May 27 it would seek legislation in this Congress to remove the current limitation on oil shale tract sizes of 5,120 acres. "This constraint inhibits economical mining and may prevent proper location of processing facilities and spend shale disposal sites: Also a limit of one tract per company per state may discourage firms from entering into shale development," Interior said. The bottom line on Interior's legislative proposals is to give the Department authority to designate tracts of sufficient size to sustain long-term commercial operations, it said.

Curlin also said Interior is considering the possibility of asking for industry nominations of federal oil shale tracts to lease. You didn't do so in your new federal coal leasing program," the press pointed out to Curlin. "I know we didn't. We are learning from our mistakes in that program," he replied.

Continuing in a candid set of comments, Curlin said the Management Committee on oil shale which he heads is going to take up next week or so the question of whether it can meet the four-month timetable on resuming oil shale leasing which the Department announced on June 19. "It is going to be tough to do so," Curlin stated.

Meanwhile, Jeff Zabler, who is head of two oil shale task forces on the environment and socio-economic effects, said several decisions had been made relative to the meeting on the environmental task force in Denver on July 10-11. "It was suggested that we put out a newsletter, develop lists of contacts interested in oil shale, and have major public meetings before we take any action, probably in Denver and Salt Lake City. We are going to do those things," Zabler told this correspondent on July 18.

At a meeting of the socio-eocnomic task force in Grand Junction on July 15-16, Zabler said over 200 topics were included on such items as "housing, sewage, solid waste, community planning, how to handle the problems of people on fixed incomes living in boom towns, and additions to schools." All will be considered in any environmental assessment or environmental impact statement written by the department relative to oil shale leasing, Zabler stated. One suggestion put forth was to require a lessee to handle many of these problems "as a stipulation in the lease," Zabler stated.

Curlin said Craig Hall of the Bureau of Land Management would chair hearings in the West during the next week on land use planning and environmental assessment. The meetings are scheduled to be held in Denver in mid-week, he said. Hall was so busy preparing for the upcoming meetings that he was unavailable for comment.

Interior is studying the possibility of resuming both prototype leasing on federal lands and permanent oil shale leasing.

L IDENTICAL TO ONE WHICH SCORED

Y PAPER IN THE UINTAH BASIN.

ty to the Service of the People, shall lack a Champion and not thrive unopposed."

ESTABLISHED IN 1902

al Express

NTY, UTAH, FRIDAY, OCTOBER 12, 1923. NO. 41.

EXPRESS USED IN COURSE ON JOURNALISM

Miss Lucile Kapp, 1737 N. Washtenaw Avenue, Chicago, Ill., in ordering a subscription to the Express, stated she would use it in connection with a course on the Community Newspaper, given at the Medill School of Journalism. The Vernal Express was listed among 75 others which is regarded as the best of their type.

Miss Kapp was in Vernal and the Ashley valley two years ago and became especially interested in seeing the Express.

Engineers Kept Busy Keeping Ahead Contractors

W. H. Varley, resident engineer on the Vernal-Duchesne road for Project 10-B and his crew of men are being kept very busy keeping ahead of the construction of the grading of the road by A. G. Young and company.

The contractors were on the ground from Richfield almost ahead of the resident engineer and have kept him moving ever since. Engineer Varley, who is well known in the Ashley valley, is from Salt Lake city and is assisted by Leon P. Christensen, county engineer, as inspector; R. C. Stout, Salt Lake city, transit man; Travis Moore, rodman and Orin Fisher, chainman.

There is a large force of men and teams grading the road preparatory to the hard surfacing.

Vernal Sends Delegate To Legion Convention

Dr. H. E. Rich, one of Utah's delegates chosen to attend the National convention of the American Legion [illegible] will represent the

BIG FUTURE FOR OIL SHALE BUSINESS IN UTAH IS SEEN

ENGINEER DECLARES IMPORTANT INDUSTRY FOR UTAH SOON TO BE DEVELOPED.

SALT LAKE CITY, Oct. 9.—The oil shale industry offers the widest and most permanent field of any coming industry to the engineer in Utah, according to J. B. Jenson, mining engineer, speaking before the All-Engineers' luncheon at the Chamber of Commerce yesterday.

"To many engineers the industry seems dead, but it is nearer than any of us know," he said. "It has been developing in a systematic manner." The speaker referred to the economic relation to development of the shale and the paint industries together.

The industry should not be developed in competition to, but rather in co-operation with, the petroleum industry, the speaker pointed out. He urged cooperative production so that the petroleum wells might last 150 years.

The speaker distributed samples of shalene, motor fuel and some oils derived from Utah oil shale. Shalene he said, will give 26 per cent more mileage than the best gasoline that one may buy. Mr. Jenson gave some of the technical advantages of oil produced from oil shale as a lubricant. The Utah-Colorado shale, he said, is the greatest deposit in the world. He estimated that 24,000,000,000 barrels may be produced from Utah fields.

The speaker gave some figures on increased consumption of petroleum products in the United States. He said that it is evident that the nation is drawing too heavily on our reserves. Shale must produce the future oil supply, he said.

B. W. Mattison of the bureau of public roads in Ogden, presided.—Tribune.

Guest Numbers Accept

HOSPITAL IN IRON COUNTY COST $35,000

THEIR HOSPITAL, BEST EQUIPPED INSTITUTION OF ITS KIND IN THE STATE. INSTITUTION IS A BOON TO SOUTHERN UTAH.

One of the greatest needs at the present time of the people of Uintah county is a county hospital to be able to properly take care of her people who may become ill, and to keep her efficient doctors, in our midst, here in this isolated section so far from proficient medical help.

An agitation is taking form by the Vernal Chamber of Commerce and a number of civic bodies that Uintah county may take advantage of the law recently passed by our state legislature to give counties the right to levy taxes for hospital purposes.

Iron county being isolated as is Uintah county was one of the first to take advantage of the law and have completed and equipped one of the best hospitals in the state at Cedar City. And, as the following story taken from the Iron County Record of August, 24, plainly shows the hospital is a boon to Southern Utah, as they had practically the same condition with which to contend as has our own section.

"Cedar City is bidding not alone for people but for the high type of settler who will bring to the community something that will help to build it up. This desirable type of newcomer while investigating a new location demands certain things that will make his stay here pleasant, safe and profitable. He not only asks as to the moral atmosphere, the educational facilities the industrial opportunities, but also what we can offer in that phase of our community life that has to do with the care of the health of himself and family. To the inquirer we can say that no community can boast of more and few so much as can Cedar City.

For a number of years Cedar City has been fortunate in having some hospital facilities, but not until recently could she boast of an institution really worth the name of hospital. Now, however, she has located here one of the finest hospitals in the state, splendidly equipped, even though small, it has been since its opening some months ago a veritable boon to the people

June 5 - 1975

City Police employs new officer

Vernal City Police Chief Jack Jones announced the hiring of a new patrol officer, Ben Johnson, who will replace Ken Lowe who recently resigned.

MR. JOHNSON, a native of Vernal, is the son of Mr. and Mrs. Frank Johnson. He graduated from Uintah High School with the class of '67 and attended one year at Dixie College. He also served an LDS Mission in Montana and Wyoming.

He is married to the former Annette Merrell. They have two sons, Clint, 3 and Cody, 1. His interests are hunting, fishing and sports, and people. He said he is looking forward to the police service.

Commercial size oil shale retort complex announced

Plans were announced last week for a $76 million experimental project to construct and operate a commercial-size Paraho oil shale retort and mine, the largest complex of its type ever to be built, bringing the elusive 'dream of a large scale shale oil industry to the threshold of reality.

Plans for the project resulted from the progress of the 20-month-old Paraho Oil Shale Demonstration program at the federally-owned facilities located on the Naval Oil Shale Reserve near Rifle, Colorado, in which 17 companies are participating. The privately-financed $7.5 million project was launched on September 1, 1973 and is scheduled to be completed in February, 1976.

PURPOSE of the demonstration project is to prove out a patented process and hardware, owned by Paraho Development Corp. of Grand Junction, for recovering oil and gas from shale, according to Harry Pforzheimer, program director, and John B. Jones, president of Development Engineering, Inc., a Paraho subsidiary. DEI is the project operator.

"The full-size vertical retort will have about 20 times the throughput of Paraho's present semi-works plant, or some 11,500 tons of oil shale per day," Jones said. It will have an outside diameter of 42 feet with an overall height of 104 feet, compared to the semiworks retort's 10-½ foot diameter and 76 foot height.

PFORZHEIMER said the primary objective of the full-size retort's operation is to eliminate any concern over the ability to successfully scale up the proven Paraho technology to a commercial-size operation.

"Accomplishing this objective should accelerate the development of an oil shale industry. . .by encouraging private industry in simultaneous construction of commercial plants," he said, "and make an important contribution toward alleviating the national energy shortage in the future."

Like the Paraho demonstration program, private companies will be invited to participate in the new project, although the facilities will be on government-owned property at Anvil Points and will be government-owned facilities.

THE PROJECT is estimated to take about four years. Retort construction and expansion of the existing mine is expected to take about 18 months and the operational period about two-and-one-half years.

Maximum design capacity of the full-size retorting system is a feed rate of 11,300 tons per day of shale, producing a maximum yield of 7,300 barrels of shale oil and eight billion BTU's of product gas. The retort and supporting facilities will be located about three-quarters of a mile south of the existing mine, at an elevation of 7,000 feet.

The retorted shale will be deposited in a stable manner in the existing disposal area.

The shale oil produced will be piped to existing storage tanks for shipment to a refinery. The refined fuels will be supplied to the U. S. Navy under an agreement that takes into account production costs and market value of the products.

The low BTU gas will be burned to generate steam and inert gas for plant use.

June 5 - 197

Gunn McKay visits here

U. S. Representative McKay and his wife me[t] Vernal leaders Friday at [a] luncheon at the Lampl[ighter] restaurant.

The meeting was und[er the] direction of Ben Bl[...] Uintah County Demo[cratic] chairman.

MCKAY ANSW[ERED] questions concerning [...] funds and Secretary of In[terior] appointments and stat[ed he] would not decide to run fo[r] Governor until Gov[ernor] Rampton made his de[cision] known in January conce[rning] running for a fourth term.

Ashley Forest Super[visor] Robert Rowen told McK[ay of] concern on the recently v[etoed] Emergency Manpower [bill] which contained $1.4 mill[ion] funding for forest projects [...] the present funding, the [...] will have to cut [...] something will have to gi[ve ...] else campgrounds will ha[ve to] be closed, stated Rowen.

DON PENDLETON, [...] BLM director, told McK[ay] the problems environm[ental] statements were cau[sing ...] how the few mills ca[n ...] area. Ross Madsen disc[ussed] the oil shale developm[ent] stating that the two-yea[r en]vironmental study would [cost] over $6 million.

Charles R. Henderson [told] Representative McKay [...] of the optimistic develop[ments] in the oil shale and tar s[ands] fuel testing recently de[mon]strated.

Other subjects included oil shale in lieu lands, rebates, tourism and fe[deral] funding for water and s[...] projects.

Representative M[cKay] stopped in Vernal on his w[ay to] Manila, where he delivere[d the] high school commence[ment] address.

[Sh]ale fuel test [Demo]nstration [co]nducted

June 5 - 1975

[...] continued with the data from tests being conducted by the Air Force and National Aeronautics and Space Administration and Aviation Application headed by the Navy and Combat Ship and Air Craft Fuel Application. Other data has been developed by the U. S. Coast Guard by using another fuel provided in the demonstration program.

The Energy Research Development Administration and the U. S. Army are testing gasoline fractions from this process for use in land vehicles. The successful completion of this test has been significant in that the development of this type of fuel is independent of foreign imports and will make significant contributions to the nation's independence from foreign energy sources.

[...] to the U. S. [...] being con[ducted ...] with the [...] Office of [...] Development, [...] Cliffs Iron [...] the Maritime Division of [...]ing. [...] by this [...] of seven[teen ...] the Paraho [De]monstration [...] project is a [...] company [...] the Cleveland [...] Oil [...] Ohio, The [...] Company [...] are

GOOD CITIZENSHIP

News Of Efforts To Improve Our Country That Have Proved Highly Promising

If your car gets around 20 miles to the gallon, you could drive it around the [world nearly] 10,000 times on the fuel saved in one year by one concerned American company.

This company devised an energy conservation program in 1971 and adopted it in its plants and offices [...]

Statistics Indicate Cities Losing Appe[al]

The historic migration t[o] cities in the United States [was] reversed in the 1970's, acc[ord]ing to Calvin L. Beale, lead[er of] the Population Studies G[roup] for the U.S. Departmen[t of] Agriculture.

The U.S. population incr[eased] from 1970 to July 1973 [by] 3.2 per cent. The metropo[litan] increase was 2.9 per cent, non-metropolitan increase 4.2 per cent.

BEN JOHNSON . . . City Police Officer.

sons, Clint, 3 and Cody, 1. His interests are hunting, fishing and sports, and people. He said he is looking forward to the police service.

Oil shale fuel test demonstration being conducted

June 5. 1975

The first demonstration of the use of shale oil heavy fuel in the United States is currently underway on board a commercial iron ore vessel operating on the Great Lakes.

This program is a joint federal agency planned industry fuel testing project coordinated by the U. S. Navy. The shale oil heavy fuel test burn is being conducted on the Great Lakes steamship, Edward B. Greene, owned by The Cleveland-Cliffs Iron Company, during a 1,200 mile round trip voyage between Cleveland, Ohio; Marquette, Michigan; and Ashtabula, Ohio.

IN ADDITION to the U. S. Navy, this test is being conducted in cooperation with the U. S. Coast Guard Office of Research and Development, The Cleveland-Cliffs Iron Company and the Maritime Administration Division of Great Lakes Shipping.

The heavy fuel used in this test program is one of seven fuels produced from the Paraho Oil Shale Demonstration Project on the Navy oil shale reserves near Rifle, Colorado.

The Paraho Project is a privately financed 17 company venture in which the Cleveland companies, Standard Oil Company of Ohio, The Cleveland-Cliffs Iron Company and Arthur G. McKee are participants.

THIS HIGH quality crude was refined by the Gary Operating Company of Colorado in a program supported by the Energy Research Development Administration of the Department of Defense.

The determination to include industry participation in this testing project is being made in the interest of economy and expanding interest in oil shale. The S. S. Edward B. Greene test is being conducted as part of a nation-wide test of the various fuels refined from shale oil by all the armed services and industry.

The objective of this test is to develop an analytical report on the performance of the shale oil heavy fuel in a commercial application. Preliminary results on the S. S. Edward B. Greene shale oil test burn, together with a progress report on the 30-month Paraho Demonstration Project, will be made at the Anvil Point, Colorado oil shale facilities May 28.

The shale oil heavy fuel test on the S. S. Edward B. Greene is being analyzed by the Babcock and Wilcox Company, manufacturers of the Greene's boiler, combined with the data from tests being conducted by the Air Force and National Aeronautics and Space Administration and Aviation Application headed by the Navy and Combat Ship and Air Craft Fuel Application. Other data has been developed by the U. S. Coast Guard by using another fuel provided in the demonstration program.

The Energy Research Development Administration and the U. S. Army are testing gasoline fractions from this process for use in land vehicles. The successful completion of this test has been significant in that the development of this type of fuel is independent of foreign imports and will make significant contributions to the nation's independence from foreign energy sources.

Demonstration program at the federally-owned facilities located on the Naval Oil Shale Reserve near Rifle, Colorado, in which 17 companies are participating. The privately-financed $7.5 million project was launched on September 1, 1973 and is scheduled to be completed in February, 1976.

PURPOSE of the demonstration project is to prove out a patented process and hardware, owned by Paraho Development Corp. of Grand Junction, for recovering oil and gas from shale, according to Harry Pforzheimer, program director, and John B. Jones, president of Development Engineering, Inc., a Paraho subsidiary. DEI is the project operator.

"The full-size vertical retort will have about 20 times the throughput of Paraho's present semi-works plant, or some 11,500 tons of oil shale per day," Jones said. It will have an outside diameter of 42 feet with an overall height of 104 feet, compared to the semiworks retort's 10-½ foot diameter and 75 foot height.

PFORZHEIMER said the primary objective of the full-size retort's operation is to eliminate any concern over the ability to successfully scale up

Like the Paraho demonstration program, private companies will be invited to participate in the new project, although the facilities will be on government-owned property at Anvil Points and will be government-owned facilities.

THE PROJECT is estimated to take about four years. Retort construction and expansion of the existing mine is expected to take about 18 months and the operational period about two-and-one-half years.

Maximum design capacity of the full-size retorting system is a feed rate of 11,500 tons-per-day of shale, producing a maximum yield of 7,300 barrels of shale oil and eight billion BTU's of product gas. The retort and supporting facilities will be located about three-quarters of a mile south of the existing mine, at an elevation of 7,000 feet.

The retorted shale will be deposited in a stable manner in the existing disposal area.

The shale oil produced will be piped to existing storage tanks for shipment to a refinery. The refined fuels will be supplied to the U. S. Navy under an agreement that takes into account production costs and market value of the products.

The low BTU gas will be burned to generate steam and inert gas for plant use.

GOOD CITIZENSHIP

News Of Efforts To Improve Our Country That Have Proved Highly Promising

If your car gets around 20 miles to the gallon, you could drive it around the world nearly 10,000 times on the fuel saved in one year by one concerned American company.

This company devised an energy conservation program in 1973 and adopted it in its plants and offices around the world. In the United States alone, it saved the equivalent of 16 million gallons of fuel oil in just one year.

The program began with simple measures that could be achieved immediately—like turning down thermostats. Then it moved on to energy audits and more sophisticated kinds of energy savings. Eventually 3M Company hopes to achieve energy savings of 30% compared to what would have been consumed had there been no program.

The company's program includes measures that touch many aspects of corporate life—from the gasoline that salesmen use to the amount of glass area that architects can design for a new building.

In some buildings only two-thirds of the available lighting is used. Many buildings are designed with each office area having its own heating and lighting controls so those utilities can be turned down when offices aren't occupied.

A new program to control air supply and exhaust in office buildings during non-business hours has already contributed substantially to energy savings, and a strict program of exhaust fan control in research laboratories has conserved significant amounts of energy.

In those laboratories, the researchers for the 3M Company are developing "far out" technologies, such as solar energy, as well as products that could have immediate application in home and industry. For example, they've already devised a solar control film for windows that can resist up to 75 percent of the heat that otherwise would come in, to lessen the load on air conditioning.

At one location they are saving more fuel in their heating plant where the use of preheated air in boilers saves 350,000 gallons of oil a year.

At one plant, they have completed engineering and design on using heat exchangers in incinerators which could save an equivalent of about 2 1/2 million gallons of oil annually. And, in many of their plants they recover exhaust heat from process operations and building systems exhaust. Indicative of the energy efficiency of these recovery systems is the fact that an annual fuel saving of nearly 350,000 gallons of fual oil equivalent has been achieved at just one location.

The company's employees are helping conserve fuel, too, by participating in a Commute-A-Van project. The company provides 12-passenger vans; riders pay a monthly fee to cover costs and drivers ride free for driving and seeing to servicing the vans.

It could give you a warm feeling to know that some energy has been saved for America's citizens.

Kiwanis Club of Vernal Says —

BEE JOHNSON . . . City police chief.

sons, Clint, 3 and Cody, 1. His interests are hunting, fishing and sports, and people. He said he is looking forward to the police service.

Oil shale fuel test demonstration being conducted

June 5. 1975

The first demonstration of the [illegible] heavy fuel in the [illegible] is currently underway on board a commercial fleet vessel operating on the Great Lakes.

The program is a joint [illegible] project planned initially for testing project coordinated by the U. S. Navy. The shale oil heavy fuel test [illegible] being conducted on the Great Lakes steamship, Edward B. Greene, owned by The Cleveland-Cliffs Iron Company, during a 1,200 mile round trip voyage between Cleveland, Ohio; Marquette, Michigan; and Ashtabula, Ohio.

IN ADDITION to the U. S. Navy, this test is being conducted in cooperation with the U. S. Coast Guard Office of Research and Development, The Cleveland-Cliffs Iron Company and the Maritime Administration Division of Great Lakes Shipping.

The heavy fuel used in this [illegible] is one of seven fuels produced from the Paraho Oil Shale Demonstration [illegible] heavy oil shale [illegible]

The Paraho Project is a privately financed 17 company venture [illegible] the Cleveland [illegible] Standard Oil Company of Ohio. The Cleveland-Cliffs Iron Company and Arthur G. McKee are participants.

THIS HIGH quality crude was refined by the Gary Operating Company of Colorado in a program supported by the Energy Research Development Administration of the Department of Defense.

The determination to include industry participation in this testing project is being made in the interest of economy and expanding interest in oil shale. The S. S. Edward B. Greene test is being conducted as part of a nation-wide test of the various fuels refined from shale oil by all the armed services and industry.

The objective of this test is to develop an analytical report on the performance of the shale oil heavy fuel in a commercial application. Preliminary results on the S. S. Edward B. Greene shale oil test burn, together with a progress report on the 36-month Paraho Demonstration Project, will be made at the Anvil Point, Colorado oil shale facilities May 28.

The shale oil heavy fuel test on the S. S. Edward B. Greene is being analyzed by the Babcock and Wilcox Company, manufacturers of the Greene's boiler.

combined with the data from tests being conducted by the Air Force and National Aeronautics and Space Administration and Aviation Application headed by the Navy and Combat Ship and Air Craft Fuel Application. Other data has been developed by the U. S. Coast Guard by using another fuel provided in the demonstration program.

The Energy Research Development Administration and the U. S. Army are testing gasoline fractions from this process for use in land vehicles. The successful completion of this test has been significant in that the development of this type of fuel is independent of foreign imports and will make significant contributions to the nation's independence from foreign energy sources.

month-old Paraho Oil Shale Demonstration program at the federally-owned facilities located on the Naval Oil Shale Reserve near Rifle, Colorado, in which 17 companies are participating. The privately-financed $7.5 million project was launched on September 1, 1973 and is scheduled to be completed in February, 1976.

PURPOSE of the demonstration project is to prove out a patented process and hardware, owned by Paraho Development Corp. of Grand Junction, for recovering oil and gas from shale, according to Harry Pforzheimer, program director, and John B. Jones, president of Development Engineering, Inc., a Paraho subsidiary. DEI is the project operator.

"The full-size vertical retort will have about 20 times the throughput of Paraho's present semi-works plant, or some 11,500 tons of oil shale per day," Jones said. It will have an outside diameter of 42 feet with an overall height of 104 feet, compared to the semiworks retort's 10-½ foot diameter and 75 foot height.

PFORZHEIMER said the primary objective of the full-size retort's operation is to eliminate any concern over the ability to successfully scale up

Like the Paraho demonstration program, private companies will be invited to participate in the new project, although the facilities will be on government-owned property at Anvil Points and will be government-owned facilities.

THE PROJECT is estimated to take about four years. Retort construction and expansion of the existing mine is expected to take about 18 months and the operational period about two-and-one-half years.

Maximum design capacity of the full-size retorting system is a feed rate of 11,500 tons per day of shale, producing a minimum yield of 7,400 barrels of shale oil and about [illegible] BTU's of product gas. The retort and supporting facilities will be located about three-quarters of a mile south of the existing mine, at an elevation of 7,000 feet.

The retorted shale will be deposited in a stable manner in the existing disposal area.

The shale oil produced will be piped to existing storage tanks for shipment to a refinery. The refined fuels will be supplied to the U. S. Navy under an agreement that takes into account production costs and market value of the products.

The low BTU gas will be burned to generate steam and [illegible] for plant use.

GOOD CITIZENSHIP

News Of Efforts To Improve Our Country That Have Proved Highly Profitable

If your car gets around 20 miles to the gallon, you could drive it around the world twenty times on the fuel saved in one year by one concerned American company.

This company devised an energy conservation program in 1971 and adopted it in its plants and offices around the world. In the United States alone, it saved the equivalent of 16 million gallons of fuel oil in just one year.

The program began with simple measures that could be achieved immediately—like turning down thermostats. Then it moved on to energy audits and more sophisticated kinds of energy savings. Eventually 3M Company hopes to achieve energy savings of 30% compared to what would have been consumed had there been no program.

The company's program includes measures that touch many aspects of corporate life—from the gasoline that salesmen use to the amount of glass area that architects can design for a new building.

In some buildings only two-thirds of the available lighting is used. Many buildings are designed with each office area having its own heating and lighting controls so those utilities can be turned down when offices aren't occupied.

A new program to control air supply and exhaust in offices buildings during non-business hours has already contributed substantially to energy savings, and a strict program of exhaust fan control in research laboratories has conserved significant amounts of energy.

In those laboratories, the researchers for the 3M Company are developing "far out" technologies, such as solar energy, as well as products that could have immediate application in home and industry. For example, they've already devised a solar control film for windows that can resist up to 75 percent of the heat that otherwise would come in, to lessen the load on air conditioning.

At one location they are saving more fuel in their heating plant where the use of preheated air in boilers saves 350,000 gallons of oil a year.

At one plant, they have completed engineering and design on using heat exchangers in incinerators which could save an equivalent of about 2 1/2 million gallons of oil annually. And, in many of their plants they recover exhaust heat from process operations and building systems exhaust. Indicative of the energy efficiency of these recovery systems is the fact that an annual fuel saving of nearly 350,000 gallons of fuel oil equivalent has been achieved at just one location.

The company's employees are helping conserve fuel, too, by participating in a Commute-A-Van project. The company provides 12-passenger vans; riders pay a monthly fee to cover costs and drivers ride free for driving and access to servicing the vans.

It could give you a warm feeling to know that some energy has been saved for America's citizens.

Kiwanis Club of Vernal Says —

Oil shale projects

Development peaks for now

An update on shale oil development in Colorado and Utah shows a number producing oil that are eager for loan and price guarantees from the U.S. Synthetic Fuels Corp.

In almost all cases, project companies need the guarantees to help defray the huge cost of upgrading their test operations to extract oil from shale, (retorting) into full-scale commercial operations.

Though the Bureau of Land Management only has jurisdiction over development on the four federal tracts—tracts C-a and C-b in Colorado and U-a and U-b in Utah—activity in western Colorado has nonetheless appeared to have reached a peak, according to the acting director of the BLM's Oil Shale Office, Eric Hoffman.

Projects produce oil

One of the so-called module projects producing oil is operated by Chevron USA Inc. at Clear Creek, Colo. It involves shipping the oil shale after it is mined to a retort facility operated by Chevron near Salt Lake City. Another project has been operated by Occidental Petroleum Co. at Logan Wash. Occidental is one of two main backers of the Cathedral Bluffs project on tract C-b about 41 miles northwest of Rifle, which has produced oil in large amounts, over 130,000 barrels in 1982.

Geokinetics Inc. of Salt Lake City has been producing oil, at its Seep Ridge test site about 70 miles southwest of Vernal. Geokinetics and the backers of the Cathedral Bluffs project has responded to the U.S. Synthetic Fuel Corp.'s third solicitation for loan and price guarantee applications.

A fourth company, Paraho Development Corp., of Englewood, Colo., has also been producing oil at a module facility at Anvile Points, Colo. Paraho has also applied during the third soliciation by the Synthetic Fuels Corp.

Other Colorado prototype projects still in the planning stages, according to Hoffman, include the Equity, Multi Mineral and Superior projects as well as a project backed by Mobil Oil Corp. The Superior projects backers include the Cleveland Cliffs Coal Co. and Standard Oil Co. of Ohio.

The two federal lease projects in Colorado are in the Piceance Basin between Grand Junction and Craig. At the Cathedral Bluffs project, service and production shafts have been completed. Some key permits, such as prevention of significant air deterioration, will have to be reapplied for as the project proposal changes in light of the Synthetic Fuels Corp. application. The project's detailed development plan will also have to be revised, Hoffman added.

$330 million spent

At the Rio Blanco project on tract C-a, where over $330 million has been spent, the delay revolves around Congressional approval for the BLM to lease adjacent land for the storage of overburden removed during construction. Questions about the need for environmental impact monitoring of such a lease program have yet to be answered, said Hoffman. The company has conducted retort tests in Pennsylvania. The main backers of the Rio Blanco project are Gulf Oil Co. and Standard Oil Co. of Indiana.

In Utah, White River Shale Oil Corp., a partnership of Standard Oil Co. of Ohio, Phillips Petroleum and Sun Energy Co., hold both the federal leases. Work continues on mine shafts and support buildings.

Tosco Corp., like Paraho, is also trying to put together a financial package that will get a project going. Tosco, based in Los Angeles, has yet to announce an application with the Synthetic Fuels Corp. Monday was the deadline for the third solicitation.

GEOKINETICS' Agency Draw project, an underground oil shale mining operation proposed for a site in the far-off mountains in the background, would overlook the Willow Creek valley in eastern Uintah County.

Shale oil moves closer to commercial production

Will oil shale fly?

It appears another hurdle has been cleared toward that end. The U.S. Army Corps of Engineers has made a preliminary decision to issue a "404 permit" which is one of the last permits required for the proposed White River Dam.

The dam is an important element in the completion of the White River Shale Project. It will be owned and operated by the State of Utah and will provide, among other things, 75,000 acre feet of water specifically for the development of oil shale. Other uses of the dam will be to increase agricultural irrigation and recreation.

The White River Shale Project has been inundated with problems since its proposal. So far the project has withstood contention between State and Federal Governments over ownership of the proposed development sites. Ever since statehood, the Federal Government has owed the state of Utah a large amount of land, which was to be transferred from Federal to State ownership. Utah decided this oil shale land should be the payback. After years of court battles, the U.S. Supreme Court finally ruled that Utah could not pick which land it was to receive for the age old debt.

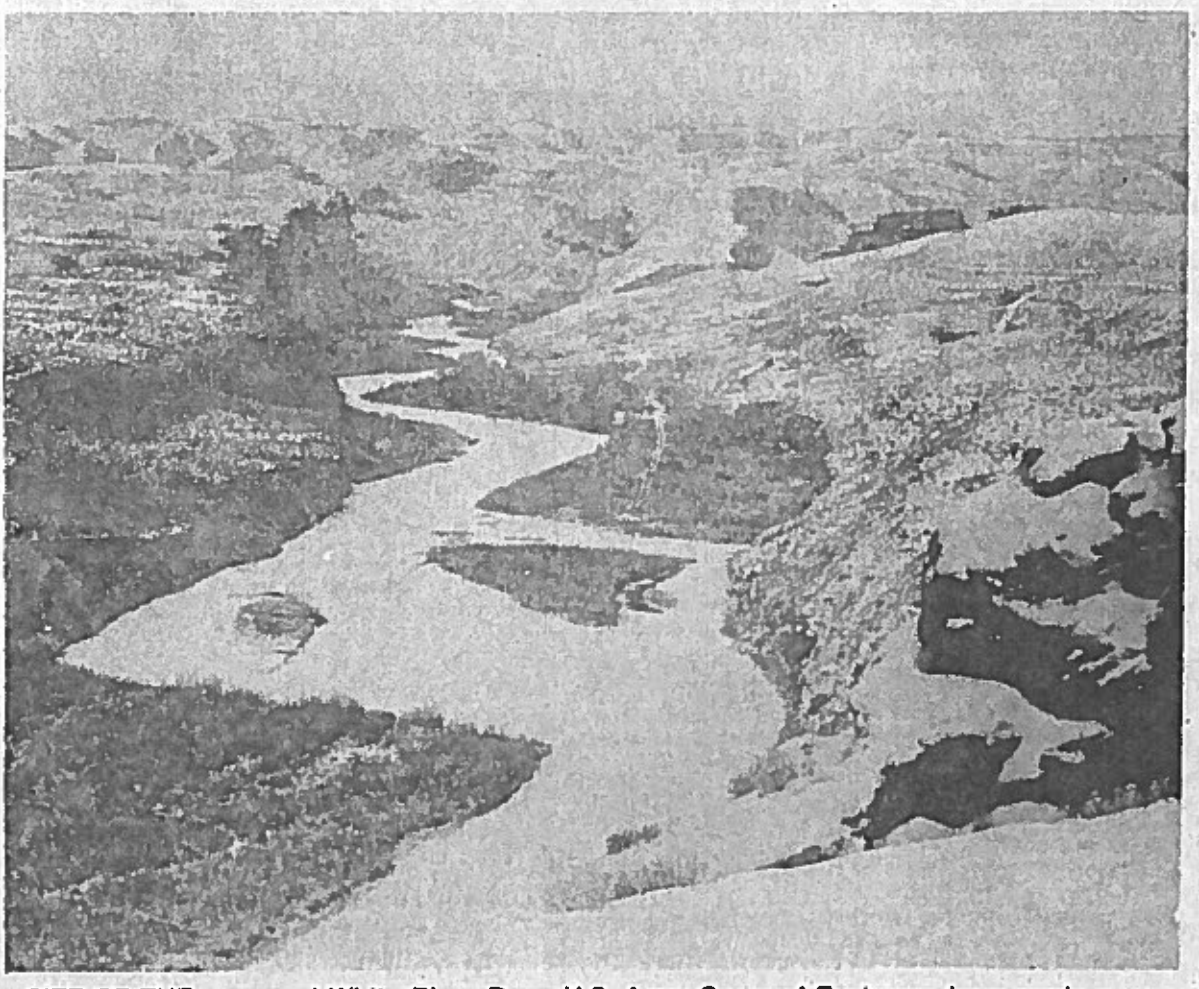
After the Supreme Court ruling, the Ute Indian Tribe claimed the land in question was at one time an Indian Reservation and that it had never been legally dissolved, therefore, they were the rightful owners. In 1980, Federal District Court Judge Bruce Jenkins ruled that the reservation had indeed been dissolved.

Another long standing problem has been environmental standards. The leases were suspended in 1976 pending compliance with Clean Air Act requirements. It was later adequately dealt with and the suspensions were lifted.

Even with these problems, there is still a bigger problem facing the oil shale industry. At the present time, there is a question whether oil shale is economical or not. If things are now able to proceed as planned, the White River Shale Project will not actually produce oil for sale until 1989. By that time the three companies involved, Sohio, Phillips and Sunoco will have invested several hundred million dollars.

That is a huge investment in a pioneer industry in which so many problems persist. According to Corey Grua, manager of community relations for the White River Shale Corporation, this is the first major industry to ever be developed under the new environmental guidlines. Grua said that so far the project has spent $10 million on environmental monitoring alone.

With all these drawbacks, Grua is confident that the multi-billion dollar project will be a success. Oil shale is an important part of the energy future. The known world oil reserves are estimated to be 615 billion barrels of conventional crude oil. The Western United States contains enough oil shale to recover an estimated 600 billion barrels, almost as much as the crude oil reserve in the entire world. This perhaps sounds like the energy answer for the future. Grua says this is certainly not the case. "It is just not possible to take all of our energy needs out of the ground. It will take all possible sources to meet our needs."



SITE OF THE proposed White River Dam. U.S. Army Corps of Engineers have made a preliminary decision to issue one of the last remaining permits. Upon completion, the dam is expected to supply 75,000 acre feet of water for oil shale development.

3/25-83

Spent oil shale is safer than some may think

Shale is a type of sedimentary rock that sometimes contains recoverable oil. That's the good news.

But shale oil has also been found to contain potential carcinogens. That's obviously not good news.

Some have wondered if spent shale, the material left after the oil has been removed, might also contain carcinogens.

That wouldn't be good news either.

But Robert Hinchee, a PH.D. candidate in engineering at Utah State University, has recently done a preliminary study showing that spent shale may be safer than some thought.

And that would't be bad news.

Hinchee recently detailed the outline of this research at meetings of the American Chemical Society held in Seattle, Washington, March 20-25.

Using a test for detecting mutagens known as the AMES SALMONEDDA microsome test, Hinchee tested leachate water run though spent shale and then tested extracts made directly from spent shale. He found no mutagens in the leachate, but he did find mutagens in the extract.

"Although this is a very preliminary study," said Hinchee, "the results are important because the significant factor is not whether there are carcinogens in the spent shale, but whether or not they can get out. This experiment suggests there is low leachability of these mutagens."

In nature, Hinchee pointed out, piles of shale are sometimes 50 meters deep.

"The next step is to try to devise a model for predicting what the movement of compounds though a column like that would be," said Hinchee.

The researcher noted that the answer to that question becomes a significant environmental issue since a ton and a half of spent shale is produced for every barrell of oil products.

Hinchee holds an undergraduate degree from USU and a master degree from Louisiana State University. He has been working with V. Dean Adams, of the Utah Water Research Laboratory, on this project.

aug 3-83
page 12

Oil shale project gets USSFC letter of intent

The United States Synthetic Fuels Corporation July 28 announced that Corporation Chairman Edward E. Noble has signed a letter of intent providing up to $2.19 billion in loan guarantees and price guarantees to the Cathedral Bluffs Shale Oil project in Rio Blanco County, Colorado, and the final contract award of $120 million to the Cool Water Coal Gasification Project in Daggett, California.

Under the terms of the non-binding letter of intent to Cathedral Bluffs, the Corporation will offer the project up to $1.812 billion in loan guarantees and an initial price guarantee of up to $378 million. The amount of the price guarantee will increase as the loan is repaid up to a maximum of $2.19 billion payable at a guaranteed price of $60 per barrel; the price guarantee will have a duration of 10 years. The Guarantee Agreement will contain provisions for substantial profit sharing with the Corporation.

The Cathedral Bluffs Shale Oil project is sponsored by the Cathedral Bluffs Shale Oil Company, a partnerhsip of Tenneco Shale Oil Company and Occidental Oil Shale, Inc. The project, which will produce 14,100 barrels per day of premium synthetic crude oil, will use the modified in situ tecnology developed by Occidental Oil Shale, Inc., and one Union Oil Company Unishale B retort. Initial production is expected to begin in late 1987 at the 5,094 acre federal C-b tract in Rio Blanco County.

Dr. Day Recommends a $100,000 Reduction Plant For Uintah Basin Oil Shales

Before leaving Denver recently Dr. David T. Day, head of the United States government research work into the oil shale industry of the United States, said that shale oil is essentially a true hydrocarbon and of paraffin base, with very little asphalt content. He stated further that from 5 to 15 per cent of gasoline can be obtained by straight-run processes as in liquid petroleum, and that by cracking the residue from 50 to 70 per cent of gasoline could be obtained.

While the paraffin and lubricating content of the shale oil was high and equal to liquid petroleum, also the product known as flotation oil, used in fluxing ores, these products are in such plentiful supply that it would be poor business judgment to attempt to make a market for something that is already plentiful comments the Western Oil World. He advised all oil shale operators to use the Scotch processes, as they are fully demonstrated until improvements are successful. As further advice, Dr. Day said only gasoline or motor spirits and sulphate of ammonia should be taken from shales for the major portion of the extraction, those two products being in strong demand and furnishing quick and profitable markets.

Perhaps the most important advice given by Dr. Day about the successful development of the oil shale industry was the amount of capital invested. He said a small investment would never produce satisfactory results as the output would be so small that no profits of consequence would come. Nothing less than $100,000 for a plant would get operators anywhere, and a larger investment, even up to $1,000,000 would be a great deal better because of the larger output and greater returns. Plants costing from $15,000 to $50,000, he said, were inadvisable.

There appears to be plenty of capital to invest in the oil shale industry, whenever practical knowledge and facts about the business can be shown capitalists. Being essentially a manufacturing and market proposition, good business management and mechanical efficiency are the two factors that must carry investors to success. Boomers and stock manipulators, Dr. Day said, had no place in the oil shale industry and could not long work in competition with capital intelligently invested and handled. There is no element of gambling, speculation or fabulous stakes in the oil shale business; it is just an investment and efficient investment and operation, based on exact knowledge and economical management.

The statement by Dr. Day that lubricating oils and paraffines are in such good supply that they are at times difficult to market for attractive profits may surprise people who have only a casual idea of the oil business in its commercial aspect. The world demands great quantities of gasoline, naphtas, motor spirits and power producing fuel, and gasoline and motor spirits will always be quick sellers at good prices. The statement made that flotation oil used in treating mineral oils, is bringing $15 a barrel, and that it is in great demand, nothing could be further from the truth for only small quantities of flotation oil are used, the price being no more than for any other common oil. One good plant can supply all the flotation oil needed. It is the best business to produce only what is needed most and because of the insistent demand will bring the best prices and the surest profits. No one will question this statement, and it may be applied to oil shales more opportunely, perhaps than to any other industry. This advice is not only given by Dr. Day, but by every other commercial adviser.

The condensed common sense of the oil shale industry, as developed to date, appears to be that prudence suggests that in providing plant equipment install a plant large enough to make the output return profits some worth while (with $100,000 worth of equipment up, dinky plants may fail. Use the Scotch process and sulphate and avoid experimental processes as the base of investment. Start in with the clear idea that only motor spirits, ammonia and those products that are in insistent demand will be sought, modeling the plant to produce those products to the exclusion of others. Of course some by products will be obtained, and they should be turned into money, but this is reinvestment for the three main products should be the object.

f Vernal

n the Verge eclares One of Leading Bankers

this, but when is added the coal, oil and other minerals, there is sufficient tonnage in sight to make a railroad line profitable. The people are not hoping for a railroad until after the war, but they are confident that with the development they are making they will have a railroad direct with Denver, and it would make one of the most profitable trade territories that Denver has."

Mr. Casteel was greatly impressed with what he saw and is preparing to make another trip through the basin in the near future. He was greatly impressed especially with the character of the people who are developing the basin. They are intelligent, thoroughly business like and are different in many ways to the class of settlers usually found in isolated sections. They have good homes, good schools and splendid business institutions that would be a credit to any section bet-

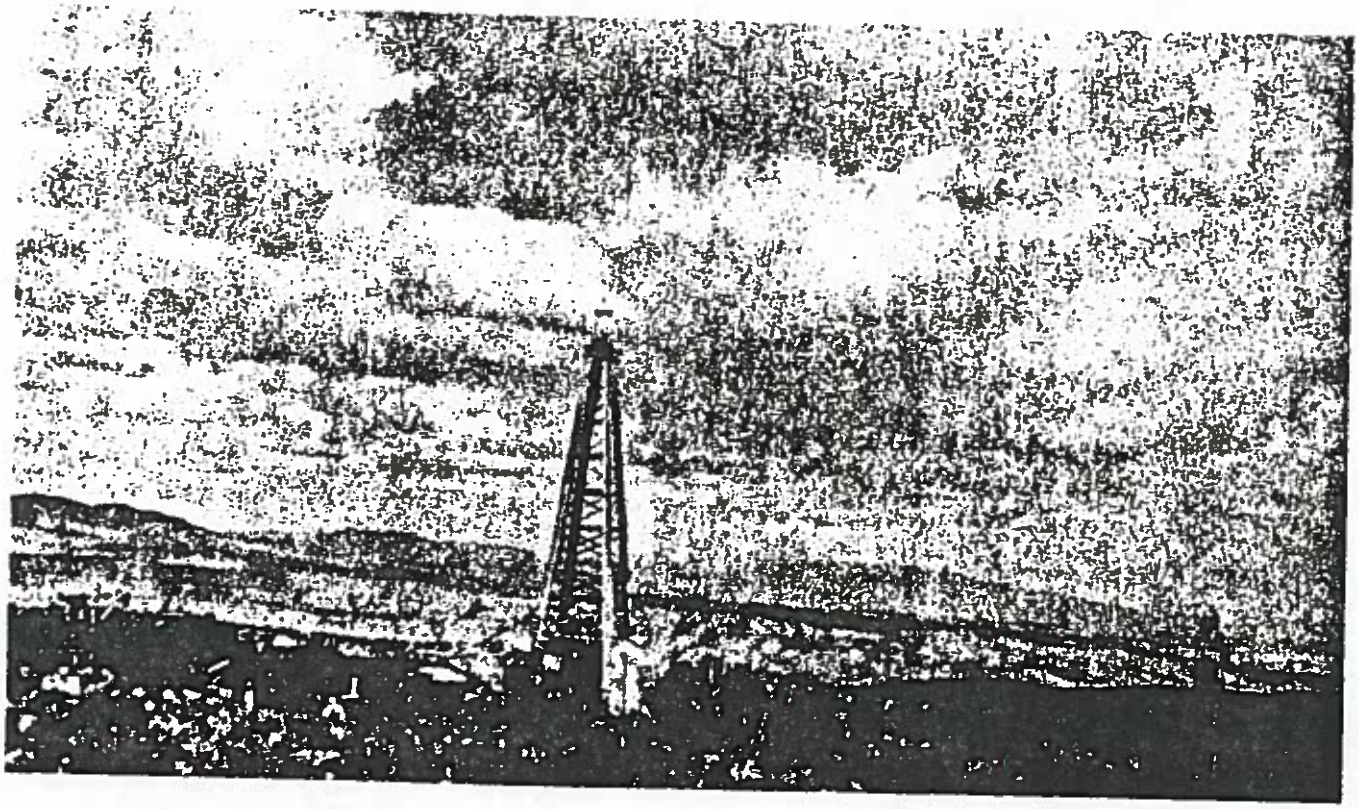


FIGURE 17.—Cable-tool rig on Neal Dome, north of Vernal. View looking northwest. First well drilled to Weber sand, 1922.

EARLY OIL AND GAS OPERATIONS

Prior to 1918 C. J. Neal of Vernal, Utah drilled, for the Uintah Development Company, several wells on the west flank of Asphalt Ridge. One of these, the Uintah Development Company No. 3 well which was located in the center of NE¼ SE¼ sec. 17, T. 5 S., R. 21 E., Salt Lake meridian, was drilled to a total depth of 1,749 ft. The cable tool rig had a coal burning steam boiler and a wooden derrick (fig. 12). The rig was moved onto location by wagons and horses (fig. 13). This well encountered tarry oil in the Tertiary in several zones, together with small shows of gas. Six cable-tool holes were drilled along Asphalt Ridge prior to 1947, many of which had shows of oil and gas.

In 1918 he drilled several shale wells for oil at Rangely on the Emerald Oil Company lease (fig. 1). Also that year he built the first refinery at Rangely on the White River at the present site of the California Company's pipeline station. The plant had a refining capacity of 350 gal. of gasoline per day (figs. 15 and 16).

In 1922 C. J. Neal put together a block of acreage on a small closed anticline a few miles north

FIGURE 18.—First commercial gas discovery in Utah blowing in Utah Oil Refining Company's No 1 Ashley Valley, sec. 23, T. 5 S., R. 22 E., Uintah County, Utah, April 13, 1925. Gas from Morrison sand interval, 1,673 to 1,680 ft., gauged over 15,000 Mcf per day. Gas was later piped to Vernal and used domestically.

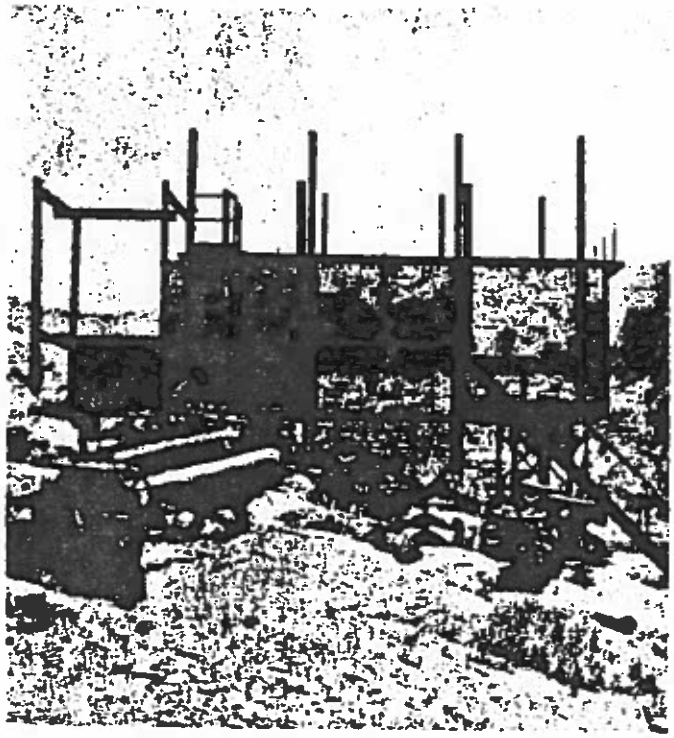


FIGURE 19—Ute oil shale plant, under construction in 1920 on White River south of Bonanza, Uintah County, Utah. Never completed.

of Vernal, which subsequently became known as Neal Dome. A cable-tool rig was moved in and a well drilled to 1,800 ft., recovering fresh water in their objective, the Weber Sandstone (fig. 17).

On April 13, 1925, the Utah Oil Refining Company completed the first gas well at Ashley Valley in the SW¼ NW¼ sec. 23, T. 5 S., R. 22 E., Salt Lake meridian for 15,000 Mcf per day from the Morrison Formation at a depth of 1,673 to 1,680 ft. The well blew gas over the crown block and sand from the well bore showered over the doghouse (see fig. 18).

Early oil shale operations

Many placer mining claims were filed for oil shale prior to its withdrawal from filing in 1930. Assessment work was expensive and although many had the dream of immediate development and riches, only the few who held on over the years and brought their claims to patent, or are in a position to do so, may eventually benefit from the production of oil from the shale. In 1920 C. J. Neal began construction of an oil shale plant on the White River, south of Bonanza, for the Ute Oil Shale Company (fig. 19). The plant was never finished, and the remains of the structure are still in evidence.

Exploitation of metallic minerals

Hard rock mining for precious metals, copper, lead and other minerals did not play an important economic role in the growth of the population of the Uinta Basin. However, the copper ore which was produced from the Dyer Mine located in the Carbonate mining district, 25 mi. north of Vernal, was developed as replacement-type deposits in Mississippian limestone. In 1887 L. P. Dyer and others located the Ace, Antietam, and other claims. Between that time and prior to 1897 over 400 tons of copper ore which assayed in excess of 49.47 percent copper and 26 ounces of silver and $6 worth of gold per ton was sent to the smelter at Park City. In 1899 the operators erected a blast furnace which had a 42 in. water jacket. This furnace operated over two years, until October, 1901. At this time the tenor of the ore averaged 33 percent copper with 26 ounces of silver per ton. The copper which was produced here was 95 to 98 percent pure. Some iron from the nearly Pope claims was used in the smelting process.

Some early prospecting was done in the Browns Park area at Red Creek, Jessie Ewing Canyon, and Willow Creek Canyon. The ore deposits were irregular veins of quartz carrying copper carbonates with some copper sulfides and with small amounts of carnotite. The mention of carnotite in "The ore deposits of Utah" (Butler, 1920, p. 605) caused considerable excitement during the uranium boom of the 1950's, although no ore of commercial significance was found.

South of Ouray in Uintah County, some prospecting and development work was done for copper in beds of the Uinta Formation. Where the sandstone beds are highly carbonaceous small podlike deposits of copper carbonates occur. The ore is of limited areal and vertical extent and the deposits are of academic interest only.

Two miles west of Ouray on the south side of the Duchesne River is an occurrence of molybdenum; the ore is the hydrous sulfate ilsemannite. The deposit resembles the copper occurrences mentioned above and there is no history of production due to the limited extent of the reserves. The prospect was discovered in 1917 (Schaller, 1917).

During 1913 a gold dredge was set up above the present location of the bridge across the Green River at Jensen (fig. 20). Attempts were made with this machine to recover the fine flour gold from the channel and terrace sands although the operation met with little success.

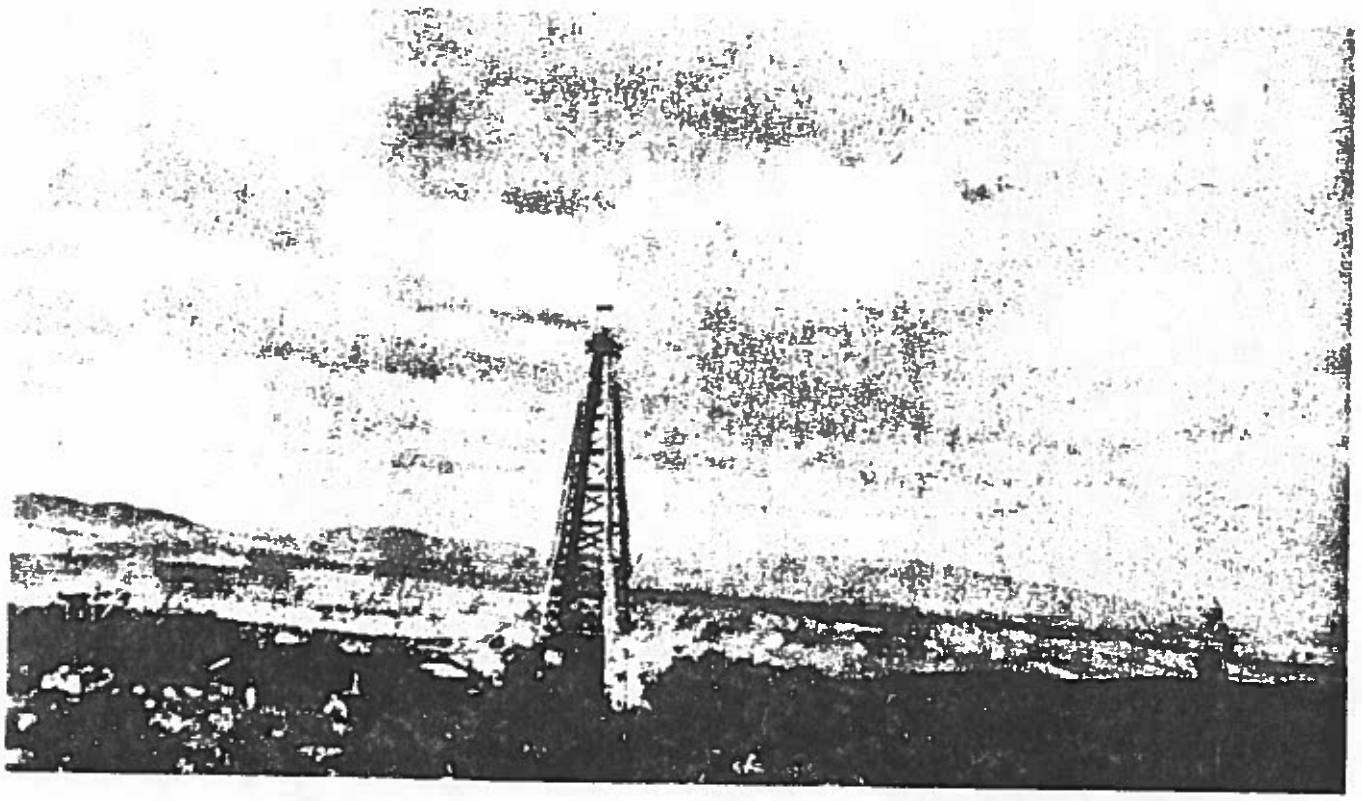


FIGURE 17.—Cable-tool rig on Neal Dome, north of Vernal. View looking northwest. First well drilled to Weber sand, 1922.

EARLY OIL AND GAS OPERATIONS

Prior to 1918 C. J. Neal of Vernal, Utah drilled, for the Uintah Development Company, several wells on the west flank of Asphalt Ridge. One of these, the Uintah Development Company No. 3 well which was located in the center of SE¼ SE¼ sec. 17, T. 5 S., R. 21 E., Salt Lake meridian, was drilled to a total depth of 1,749 ft. The cable tool rig had a coal burning steam boiler and a wooden derrick (fig. 12). The rig was moved into location by wagons and horses (fig. 13). This well encountered tarry oil in the Tertiary in several zones, together with small shows of gas. Six cable-tool holes were drilled along Asphalt Ridge prior to 1917, many of which had shows of oil and gas.

In 1918 he drilled several shale wells for oil at Dragerly on the Emerald Oil Company lease (fig. 14). Also that year he built the first refinery at Dragerly on the White River at the present site of the California Company's pipeline station. The unit had a refining capacity of 350 gal. of gasoline per day (figs. 15 and 16).

In 1922 C. J. Neal put together a block of acreage on a small closed anticline a few miles north

FIGURE 18.—First commercial gas discovery in Utah blowing in Utah Oil Refining Company's No. 1 Ashley Valley, sec. 23, T. 5 S., R. 22 E., Uintah County, Utah, April 13, 1925. Gas from Morrison sand interval, 1,673 to 1,680 ft., gauged over 15,000 Mcf per day. Gas was later piped to Vernal and used domestically.

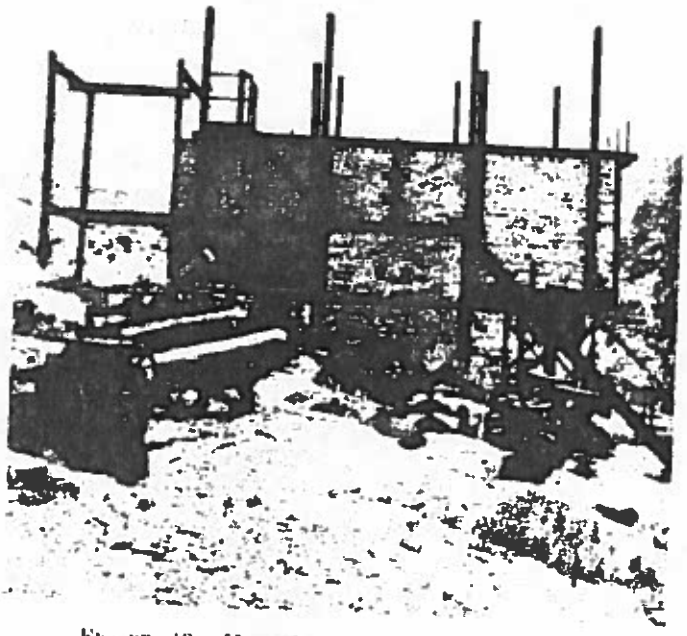


FIGURE 19.—Ute oil shale plant, under construction in 1920 on White River south of Bonanza, Uintah County, Utah. Never completed.

of Vernal, which subsequently became known as Neal Dome. A cable-tool rig was moved in and a well drilled to 1,800 ft., recovering fresh water in their objective, the Weber Sandstone (fig. 17).

On April 13, 1925, the Utah Oil Refining Company completed the first gas well at Ashley Valley in the SW¼ NW¼ sec. 23, T. 5 S., R. 22 E., Salt Lake meridian for 15,000 Mcf per day from the Morrison Formation at a depth of 1,673 to 1,680 ft. The well blew gas over the crown block and sand from the well bore showered over the doghouse (see fig. 18).

Early oil shale operations

Many placer mining claims were filed for oil shale prior to its withdrawal from filing in 1930. Assessment work was expensive and although many had the dream of immediate development and riches, only the few who held on over the years and brought their claims to patent, or are in a position to do so, may eventually benefit from the production of oil from the shale. In 1920 C. J. Neal began construction of an oil shale plant on the White River, south of Bonanza, for the Ute Oil Shale Company (fig. 19). The plant was never finished, and the remains of the structure are still in evidence.

Exploitation of [illegible] minerals

Hard rock mining for [illegible] metals lead and other minerals [illegible] economic role in the growth of the [illegible] the Uinta Basin. However, the [illegible] was produced from the Deer Mine [illegible] Carbonate mining district, 25 mi [illegible] was developed as replacement [illegible] Mississippian limestone. In 1887 [illegible] others located the Ace, Antietam, and [illegible] Between that time and prior to 1897 over [illegible] of copper ore which assayed in excess of 19.4 percent copper and 26 ounces of silver and $6 worth of gold per ton was sent to the smelter at Park City. In 1899 the operators erected a blast furnace which had a 42 in. water jacket. This furnace operated over two years, until October, 1901. At this time the tenor of the ore averaged 33 percent copper with 26 ounces of silver per ton. The copper which was produced here was 95 to 98 percent pure. Some iron from the nearly Pope claims was used in the smelting process.

Some early prospecting was done in the Browns Park area at Red Creek, Jessie Ewing Canyon, and Willow Creek Canyon. The ore deposits were irregular veins of quartz carrying copper carbonates with some copper sulfides and with small amounts of carnotite. The mention of carnotite in "The ore deposits of Utah" (Butler, 1920, p. 605) caused considerable excitement during the uranium boom of the 1950's, although no ore of commercial significance was found.

South of Ouray in Uintah County, some prospecting and development work was done for copper in beds of the Uinta Formation. Where the sandstone beds are highly carbonaceous small podlike deposits of copper carbonates occur. The ore is of limited areal and vertical extent and the deposits are of academic interest only.

Two miles west of Ouray on the south side of the Duchesne River is an occurrence of molybdenum; the ore is the hydrous sulfate ilsemannite. The deposit resembles the copper occurrences mentioned above and there is no history of production due to the limited extent of the reserves. The prospect was discovered in 1917 (Schaller, 1917).

During 1913 a gold dredge was set up above the present location of the bridge across the Green River at Jensen (fig. 20). Attempts were made with this machine to recover the fine flour gold from the channel and terrace sands although the operation met with little success.

Energy report cites obstacles to long-scale oil shale

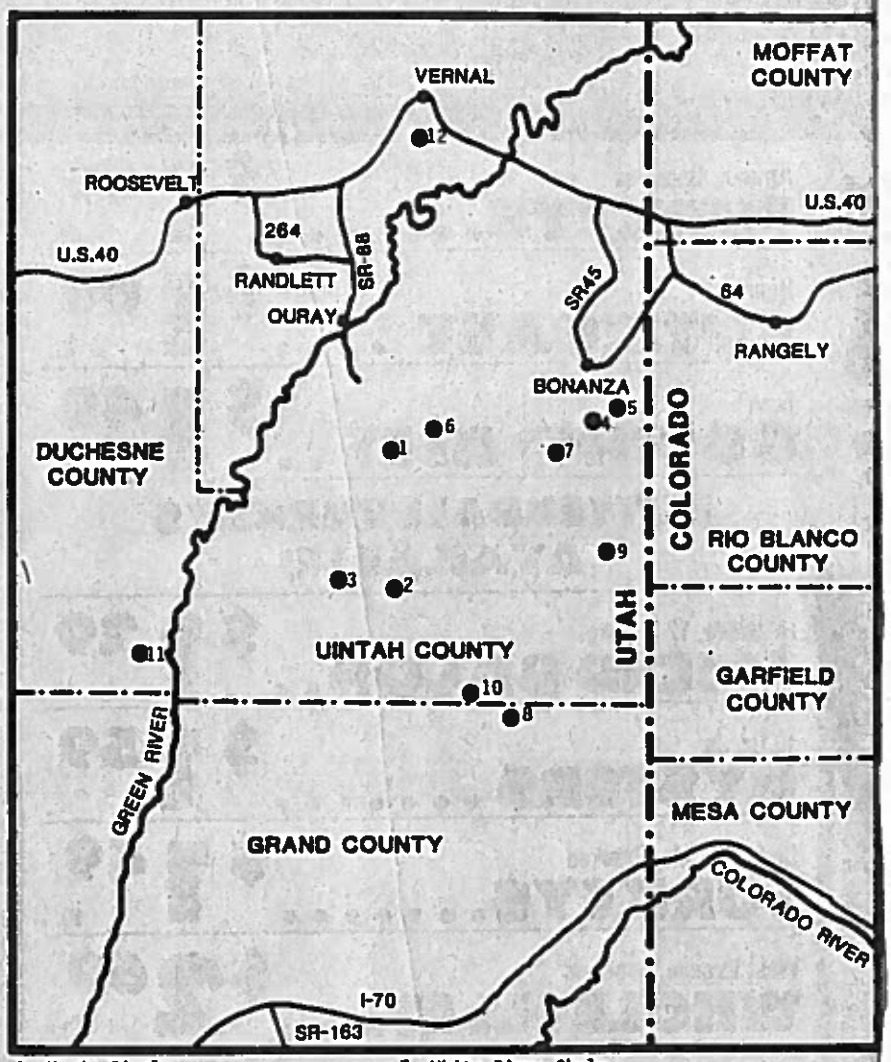
A number of synthetic fuels projects that will withstand the economic and institutional pitfalls facing the synthetic fuels industry and reach the full-scale production stage will be considerably less than currently projected by industry. Large capital outlays, coupled with a tightening of financial assistance by the Synthetic Fuels Corporation, were cited as the major obstacles to large-scale synfuel development in Utah, according to a report issued by the Utah Energy Office, a division of the Department of Natural Resources and Energy.

The purpose of the report, "Assessment of Oil Shale and Tar Sand Development in Utah - Phase II," is to gain insight on the likelihood of a commercial synfuel industry developing in Utah, to analyze potential constraints to that development, and to discuss any array of policy options available to the state which would possibly alleviate those constraints.

Some possible state policy options resulting from the report's analysis include federal/state land exchanges, facility siting procedures, tax incentives, and permit acquisition streamlining. Options were viewed as enhancing project economics and thus improving the likelihood of synfuel development in the states.

Twelve synthetic fuels projects are proposed for construction in and around the state's Uintah Basin. But according to Utah Energy Office program specialist Rick Anderson, the likelihood of all 12 projects being built is very small.

The report concludes that current economic conditions and relatively stable oil prices have resulted in poor project economics for most developments. Anderson says that unless there is a major change in the price of crude oil, very few synfuel projects will be developed in Utah.



PROPOSED SYNFUEL projects located in and around Uintah County. The 12 projects represent a combined 482,800 barrels of oil per day production. Estimates also project that over $10 billion in capital and over 20,000 laborers.

Phase I of the report, which was completed in 1980, dealt with identification of Utah resource bases and establishment of likely production scenarios. "World crude oil prices were rising significantly at the time the Phase I report was completed," Anderson said. "The Phase I conclusion was based on the assumption that world oil prices would continue to escalate to a level where synthetic fuel development would be competitive with crude oil." "Consement. Of the $10 billion initially earmarked for project subsidies, $6 billion will go to coal, $3 billion for oil shale and $1 billion for tar sands and heavy oil projects. The Phase II report indicates that competition for these subsidies will be keen with no assurance that Utah projects will receive assistance.

The report identifies potential air quality violations from the cumulative emissions of the proposed projects as

Anderson says, however, air quality standards likely would not be breached by individual plants due to the expected drop in the number of projects that will reach production.

The synfuel assessment also addresses site leasing and permitting, operation costs, labor force availability, and water and power requirements. The report concludes that while some of these issues present difficulties none are insurmountable

fuels industry and reach the full-scale production stage will be considerably less than currently projected by industry. Large capital outlays, coupled with a tightening of financial assistance by the Synthetic Fuels Corporation, were cited as the major obstacles to large-scale synfuel development in Utah, according to a report issued by the Utah Energy Office, a division of the Department of Natural Resources and Energy.

The purpose of the report, "Assessment of Oil Shale and Tar Sand Development in Utah - Phase II," is to gain insight on the likelihood of a commercial synfuel industry developing in Utah, to analyze potential constraints to that development, and to discuss any array of policy options available to the state which would possibly alleviate those constraints.

Some possible state policy options resulting from the report's analysis include federal/state land exchanges, facility siting procedures, tax incentives, and permit acquisition streamlining. Options were viewed as enhancing project economics and thus improving the likelihood of synfuel development in the states.

Twelve synthetic fuels projects are proposed for construction in and around the state's Uintah Basin. But according to Utah Energy Office program specialist Rick Anderson, the likelihood of all 12 projects being built is very small.

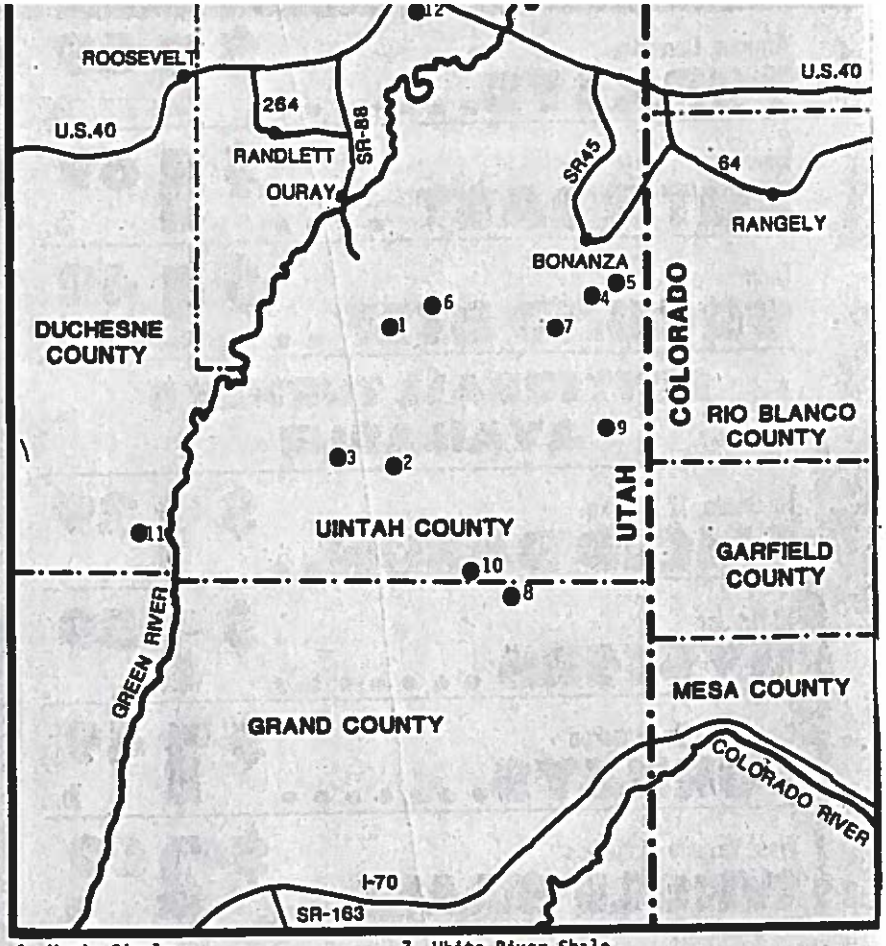
The report concludes that current economic conditions and relatively stable oil prices have resulted in poor project economics for most developments. Anderson says that unless there is a major change in the price of crude oil, very few synfuel projects will be developed in Utah.

Phase I of the report, which was completed in 1980, dealt with identification of Utah resource bases and establishment of likely production scenarios. "World crude oil prices were rising significantly at the time the Phase I report was completed," Anderson said. "The Phase I conclusion was based on the assumption that world oil prices would continue to escalate to a level where synthetic fuel development would be competitive with crude oil." "Consequently," he continued, "the price of crude oil has leveled off and the rate of return on synfuel developments does not provide enough incentive for large-scale private investments.

The current world market value of crude oil is about $34 per barrel. The present cost to produce a barrel of synthetic crude oil ranges from $40 per barrel to as high as $60 or more per barrel.

Complicating matters, the Synthetic Fuels Corporation, established by the U.S. Congress to assist in the development of alternative fuel sources, has demonstrated a conservative philosophy regarding subsidies to synfuel development. Of the $10 billion initially earmarked for project subsidies, $6 billion will go to coal, $3 billion for oil shale and $1 billion for tar sands and heavy oil projects. The Phase II report indicates that competition for these subsidies will be keen with no assurance that Utah projects will receive assistance.

The report identifies potential air quality violations from the cumulative emissions of the proposed projects as another obstacle to widespread synfuel development in Utah.



1 Magic Circle
2 Geokinetics - Lofreco
3 Geokinetics - Agency Draw
4 Paraho - Ute
5 Syntana
6 Tosco
7 White River Shale
8 C & A
9 Enercor - Rainbow
10 Enercor - P.R. Springs
11 Great National
12 Sohio

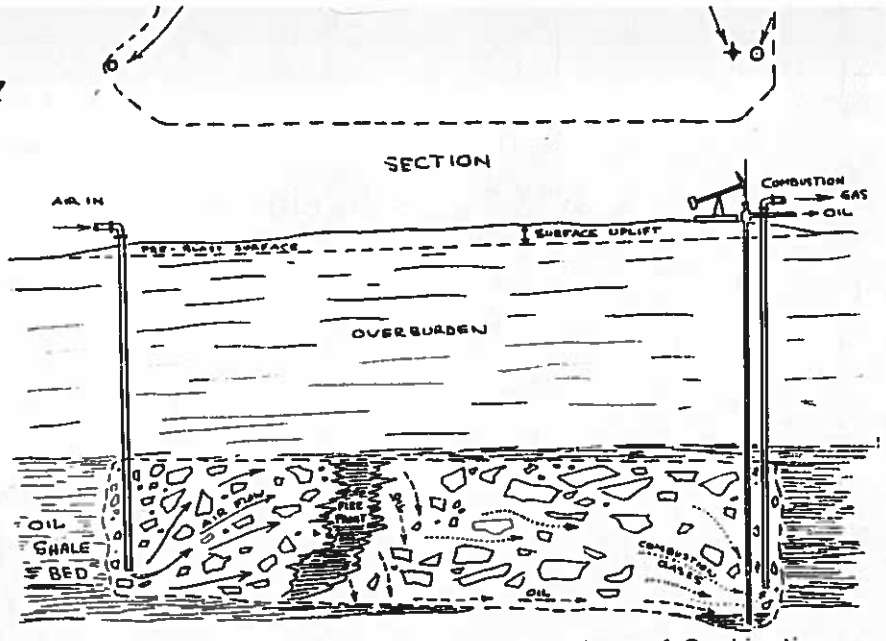
PROPOSED SYNFUEL projects located in and around Uintah County. The 12 projects represent a combined 482,800 barrels of oil per day production. Estimates also project that over $10 billion in capital and over 20,000 laborers.

Anderson says, however, air quality standards likely would not be breached by individual plants due to the expected drop in the number of projects that will reach production.

The synfuel assessment also addresses site leasing and permitting, operation costs, labor force availability, and water and power requirements. The report concludes that while some of these issues present difficulties none are insurmountable.

Of the 12 projects analyzed in the study, 11 have sufficient resource bases to maintain projected production levels for 20 to 30 years. One site has a projected resources base of 15 years. The most optimistic projected level of production for the combined projects is 482,800 barrels per day by 1995.

The report estimates that for every 50,000 barrels of oil produced, synfuel projects will require $1.7 billion of finance capital, 100 megawatts of electricity per year, 7,000 acre-feet of water per year and 2,800 laborers.



RETORT DRAWING of plan and section views of Geokinetics horizontal in situ retorting process. Air is forced into the retort through injection holes at left and the oil and gas come to the surface through exhaust holes to the right. The fire front moves towards the exhaust holes.

Federal energy secretary pledges support for shale

Energy Secretary James Schlesinger has pledged the Carter Administration to proceed this year with a surface retort oil shale development project drafted and steered through Congress last year by Utah Congressman Gunn McKay, McKay said last week.

Schlesinger made the commitment to McKay during two weeks of hearings McKay's committee held on national energy concerns and programs. McKay is ranking member of the Interior Appropriations Subcommittee which funds and formulates energy development programs within the Interior and Energy Departments. The hearings will resume May 14 through 17.

Schlesinger denied a charge that the Department earlier had planned to hold the oil shale project "hostage" pending congressional action on a shale oil tax credit measure sponsored by the Administration. McKay has sponsored a different version of the $3 per barrel tax credit.

In his first congressional appearance since a presidential energy message delivered April 5, Schlesinger said, "I believe we can bring in oil shale at about $20 per barrel. The world price is now at about $18.50 and will continue to rise. We must get on with the business of oil shale development," he said, to be ready for the day when the market factors alone can sustain it.

Citing President Carter's decision to free up more public land for energy development, McKay pressed Schlesinger to "breathe life into these promises. The same speeches have been made before, and yet the country hasn't made the hard choices between energy development and environmental regulation. We won't move ahead until we make those choices."

Schlesinger agreed that some environmental regulations have thwarted private investment in energy development. He said energy utilities are reluctant to commit large sums of money to new coal-fired power plants "if they are going to be ratcheted five years down the road with even stricter environmental regulation." He told McKay his Department is determined to reduce regulations affecting surface coal mining and to take additional steps to encourage plants to maximize coal use.

Schlesinger briefed McKay and the committee on latest energy supply, price and consumption estimates, and concluded that the Administration's planned decontrol of domestically produced crude oil "will not, in itself, solve our import problem," and must be matched by new attention to unused and underused resources such as coal, oil shale, geothermal wells and solar energy.

a new exploratory test well, the No. 2 Larson Unit, about two miles west of Ephraim, according to Carlton Stowe, minerals specialist, Utah Department of Natural Resources.

The new well is projected to about 2,850 feet. It is just northeast of the No. 1 Larson Unit well, which is scheduled as a 13,100 foot test of the Navajo formation. Mobil is drilling below 5,300 feet at that well. Drilling contractor is Helmerich and Payne Drilling Company. The wells are about 24 miles west and a little southwest of Flat Canyon field which produced gas from the Ferron and Dakota sands.

In other activity, in northeastern Utah's Uintah Basin region, Coseka Resources Company completed an extension of production nearly two miles northward from the East Canyon field. It is in the southern area of the basin on the Roan Plateau-Book Cliffs region about 40 miles north of Cisco. The well, 2 Black Horse Canyon, flowed 171,000 cubic feet of gas per day from the Dakota formation at 7,762 feet.

Some 8 miles north of Cisco, Bowers Oil & Gas Company of Grand Junction has scheduled a new test well. It is the No. 1-35 Bowers-Federal in eastern Grand County. It will go to about 2,700 feet and is a mile west of the operator's No. 1-36 Bowers recently completed, flowing 1,900,000 cubic feet of gas per day from a depth below 2,057 feet.

* * * *

Energy Tip

While driving your car this weekend, drive 55 miles per hour. As compared with 70 miles per hour you'll get 21 percent better gas mileage and save about $168 a year.

Geokinetics extends oil shale processes

By Cindy Robertson

"The oil shale in this area is thought to be the bottom of a lake bed," Jim Lekas, manager of Geokinetics, said about the test site about 70 miles southwest of Vernal. "Its depth ranges from over 100 feet deep in the center to only 30 feet deep at the edge.

Geokinitic's method of oil extraction involves an in situ retort.

"We heat the oil shale right in the ground where it lays," Lekas explained, "and avoid the extra expense of mining the rock out of the ground and transporting it to a processing plant."

The shale is first broken up within a section by explosives placed in holes drilled at one end of the site, so air can be injected in the broken shale, and at the other end, for escaping gases.

The oil shale is then ignited in the side with the air holes, and air is continually fed to the fire to keep it burning. The fire moves horizontally through the broken shale, causing the oil to vaporize out of the rock. When the vaporized oil hits the cold rock in front of it, it condenses and drains to the bottom, where it is pumped out.

As the oil is driven out of the shale by the heat, it leaves a coke residue that feeds the oncoming fire. Gases from the burn leave through the holes at the far end, where they are also recovered for use.

"For the process to work", Lekas said a separation must be maintained between the fire front and the oil, so that the carbon residue in the shale is what burns, and not the oil itself."

Many factors are involved in controlling this separation, including the size and pattern of the breakage, and the amount of air fed to the fire, "We have the basic process already worked out," Lekas said. "Most of our research now is for perfecting the placement of blast holes and determining the best size of rock to burn."

Geokinetics research is already paying off. They have produced over 15,000 barrels of oil, and were the first to pay royalties to the state of Utah to have it refined and sold for motor fuel products. The company is presently conducting a commercial prototype burn that is hoped to produce about 25,000 total mass of broken shale to burn the way we wanted it to."

The first retort, in 1974, was very tiny, and no one was sure what to expect. About three days after it was lit, oil began to fill the five-gallon can workers had waiting for it. Soon the can was full, and a scramble began for more containers to hold the rest. The total amount produced from that burn was thirty-five barrels, and Geokinetics has continued to produce oil for the past six years.

Living conditions of those original workers were quite different from those experienced by employees of the Geokinetics field camp today. The camp started with three tents; food and water had to be hauled from town, and there was no electricity. Drilling was done with jackhammers. Today the tents have been replaced by trailers outfitted with most of the modern conveniences, and the employees have increased to about twenty-five, along with their families. The only thing that hasn't changed is Kamp Kerogens isolation, since it is located about seventy miles from the nearest town.

The distance creates a unique situation for school aged children living out there. "Anyone of school age living in the camp takes correspondence courses from Brigham Young University," said John Lekas, Jim's seventeen year old brother. Along with two others, John's school work was mailed in, graded, and returned to him with added instructive notes.

"Each time we finished a course, we would come to town for a supervised examination given by Superintendent Reid," he said.

If Geokinetics goes to full commercial production, the field camp will probably increase to about 100 workers. The research and development phase, however, is scheduled to continue until the end of 1982.

"The company will continue to refine its technology," Lekas said, "but the last two years will primarily be used to identify the costs of environmental controls. These costs will be the determining factor as to whether the project is economically feasible."

According to Lekas, once the project is finished, Geokinetics will be licensed to use the process for five years; after which it will pass into the public domain so others can use it.

Energy questions and answers

By Independent Petroleum Association of Mountain States

Q. Some oilfields have installations that look like small refineries. What are they?

A. There are many different types of equipment used for different purposes.

This includes some equipment used to process condensates, or liquefied hydrocarbons. Other installations are systems for removing water from oil or gas. Still others, which generally are

In the 11-state Rocky Mountain region, records show a total of 161,469 wells have been drilled from the start of the industry through 1979. Of, that number, just over 43 percent were dry, and at the end of 1978, 52,198 were producing.

Here are the numbers on a state-by-state basis for the Rocky Mountain region through 1979 (production figures are for year-end 1978):

Arizona: 429 wells drilled; 82 percent dry; 31 producing.

Colorado: 26,398 wells drilled; 60 per-

Geokinitic's method of oil extraction involves an in situ retort.

"We heat the oil shale right in the ground where it lays," Lekas explained, "and avoid the extra expense of mining the rock out of the ground and transporting it to a processing plant."

The shale is first broken up within a section by explosives placed in holes drilled at one end of the site, so air can be injected in the broken shale, and at the other end, for escaping gases.

The oil shale is then ignited in the side with the air holes, and air is continually fed to the fire to keep it burning. The fire moves horizontally through the broken shale, causing the oil to vaporize out of the rock. When the vaporized oil hits the cold rock in front of it, it condenses and drains to the bottom, where it is pumped out.

As the oil is driven out of the shale by the heat, it leaves a coke residue that feeds the oncoming fire. Gases from the burn leave through the holes at the far end, where they are also recovered for use.

"For the process to work", Lekas said a separation must be maintained between the fire front and the oil, so that the carbon residue in the shale is what burns, and not the oil itself."

Many factors are involved in controlling this separation, including the size and pattern of the breakage, and the amount of air fed to the fire, "We have the basic process already worked out," Lekas said. "Most of our research now is for perfecting the placement of blast holes and determining the best size of rock to burn."

Geokinetics research is already paying off. They have produced over 15,000 barrels of oil, and were the first to pay royalties to the state of Utah to have it refined and sold for motor fuel products. The company is presently conducting a commercial prototype burn that is hoped to produce about 25,000 barrels. The process is currently extracting about fifty percent of the available oil, and as improved techniques are developed, the percentage is expected to increase. If successful, commercial operations could begin, involving several oil shale burns at one time.

Mike Lekas formed Geokinetics to bid on oil shale land and develop a working process. The company made steel models of the horizontal 'in situ' burning process, and after trucking in shale from land it acquired in Utah, tried burning the shale in the models to see if it could be burned horizontally. "The theory was that heat from the fire would rise, and thus cause the fire to burn only the top of the broken area, leaving the rest of the shale untouched," Jim Lekas said. 'Our tests demonstrated that we could get the was full, and a scramble began for more containers to hold the rest. The total amount produced from that burn was thirty-five barrels, and Geokinetics has continued to produce oil for the past six years.

Living conditions of those original workers were quite different from those experienced by employees of the Geokinetics field camp today. The camp started with three tents; food and water had to be hauled from town, and there was no electricity. Drilling was done with jackhammers. Today the tents have been replaced by trailers outfitted with most of the modern conveniences, and the employees have increased to about twenty-five, along with their families. The only thing that hasn't changed is Kamp Kerogens isolation, since it is located about seventy miles from the nearest town.

The distance creates a unique situation for school aged children living out [illegible] would come to town for a supervised examination given by Superintendent Reid," he said.

If Geokinetics goes to full commercial production, the field camp will probably increase to about 100 workers. The research and development phase, however, is scheduled to continue until the end of 1982.

"The company will continue to refine its technology," Lekas said, "but the last two years will primarily be used to identify the costs of environmental controls. These costs will be the determining factor as to whether the project is economically feasible."

According to Lekas, once the project is finished, Geokinetics will be licensed to use the process for five years, after which it will pass into the public domain so others can use it.

Energy questions and answers

By Independent Petroleum Association of Mountain States

Q. Some oilfields have installations that look like small refineries. What are they?

A. There are many different types of equipment used for different purposes.

This includes some equipment used to process condensates, or liquefied hydrocarbons. Other installations are systems for removing water from oil or gas. Still others, which generally are quite large and complex, are designed to sweeten "sour" crude—that is, to remove sulfur compounds, such as poisonous hydrogen sulfide, before pipelining the gas to market. Associated with every field gathering system are compressor plants for gas and pumping stations for crude oil, as well as tank batteries.

A field may contain some or all of the above equipment, sometimes giving it the look of a refinery, but the refining of oil into fuels isn't done there.

Q. How many oil and gas wells have been drilled in U.S. history, and how many are now producing?

A. Through 1979, records show that 2,476,932 wells, including dry holes, have been drilled in the U.S. Of that number, just over 30 percent were dry, and 669,893 were in production at the end of 1968.

In the 11-state Rocky Mountain region, records show a total of 161,469 wells have been drilled from the start of the industry through 1979. Of that number, just over 43 percent were dry, and at the end of 1978, 52,198 were producing.

Here are the numbers on a state-by-state basis for the Rocky Mountain region through 1979 (production figures are for year-end 1978):

Arizona: 429 wells drilled; 82 percent dry; 31 producing.

Colorado: 26,398 wells drilled; 60 percent dry; 5,396 producing.

Idaho: none through 1979, although drilling activity began in 1980.

Montana: 22,565 wells drilled; 49 percent dry; 4,652 producing.

Nebraska: 13,921 wells drilled; 69 percent dry; 1,477 producing.

Nevada: 208 wells drilled; 89 percent dry; 21 producing.

New Mexico: 46,441 wells drilled; 22 percent dry; 26,425 producing.

North Dakota: 6,336 wells drilled; 52 percent dry; 1,755 producing.

South Dakota: 713 wells drilled; 85 percent dry; 80 producing.

Utah: 5,450 wells drilled; 49 percent dry; 1,462 producing.

Wyoming: 39,008 wells drilled; 41 percent dry; 10,899 producing.

In general, these numbers show the higher risk of drilling in relatively unexplored areas, such as Nevada and South Dakota.

Geokinetics reports on first oil shale production in Utah

After nearly five years of work south of Vernal, Geokinetics Inc. Minerals Exploration and Development of Concord, Calif. has issued its first public release on technical data.

A progress report on the Geokinetics horizontal in situ retorting process was made in Golden, Colorado at the 12th annual Oil Shale Symposium Thursday (today) by Mitchell A. Lekas, president of Geokinetics.

Lekas said that after four years of field work, blasting 18 retorts and burning 11 retorts, his company had produced over 5,000 barrels of shale oil for commercial use by the in situ process of extraction, the first commercially produced shale oil in the state of Utah.

Geokinetics has state oil shale leases in the Book Cliff area, about 70 miles south of Vernal. The oil shale bed is approximately 30 feet thick and has an average grade of about 23 gallons per ton. The beds strike in an east-west direction and dip to the north at about 120 feet per mile. Overburden over the shale ranges from zero to 150 feet.

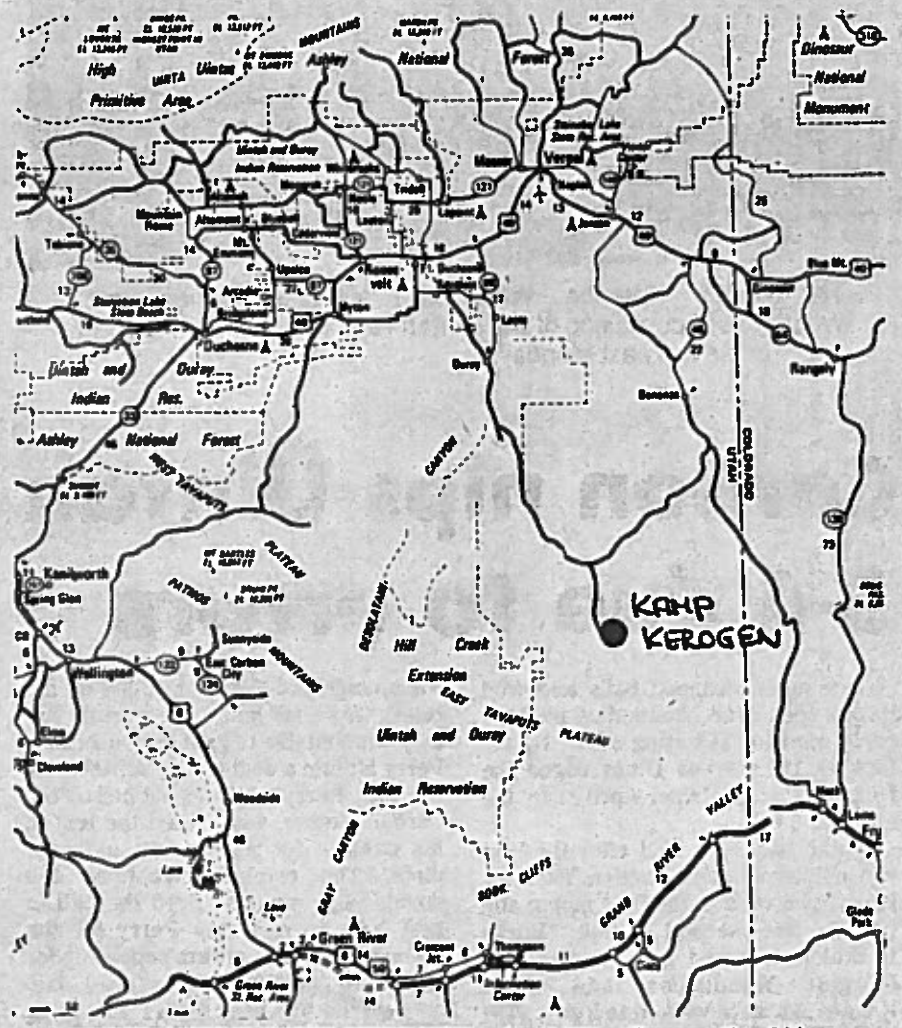
The process, designed specifically for this area where the oil shale beds are relatively thin and close to the surface, is called LOFRECO, said Lekas. Geokinetics is a very small company and therefore the acronym for "Low Front End Cost" is the LOFRECO process.

In the LOFRECO process, a pattern of blastholes is drilled from the surface, through the overburden and fired, using a carefully planned blast system, explained Lekas. The blast results in a well fragmented mass of oil shale with a high permeability. The void space in the fragmented zone comes from lifting the overburden and producing a small uplight of the surface.

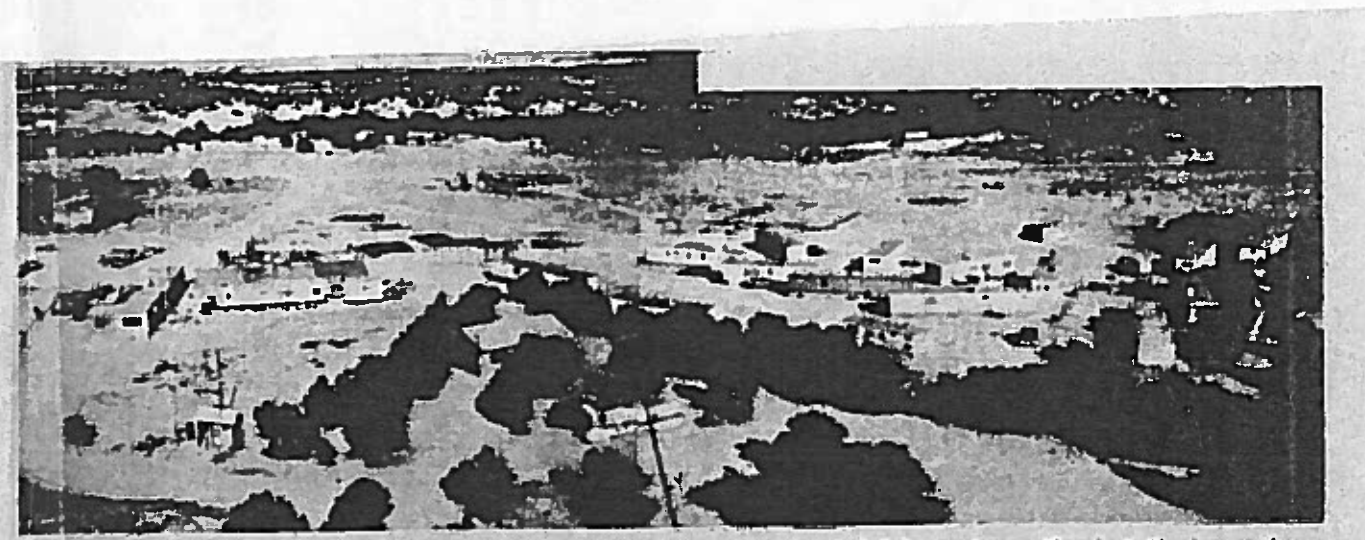
The fragmented zone constitutes an in situ retort. The bottom of the retort is sloped to provide drainage for the oil to a sump where it is lifted by a number of oil production wells. Air injection holes are drilled at one end of the retort and off gas holes are drilled at the other end.

The oil shale is ignited at the air injection wells, and air is injected to establish and maintain a burning front that occupies the full thickness of the fragmented zone. The front is moved in a horizontal direction through the fractured shale towards the off gas wells at the far end of the retort. The burning front heats the oil shale ahead of the front, driving out the shale oil, which drains to the bottom of the retort where it flows along the sloping bottom to the oil production wells. As the burn front moves from the air-in to the air-out wells, it burns the residual coke in the retorted shale as fuel. The combustion gases are recovered at the air-out wells. This gas is combustible and could be used for power generation. Progress of the burn front is monitored by thermocouples set in thermocouple wells.

Geokinetics' initial camp was established in April of 1975, called "Kamp Kerogen." The camp originally consisted of three tents and outdoor cooking and eating facilities. The camp has now grown to a small village with a permanent population of 30 persons, including wives and children.



GEOKINETICS' KAMP KEROGEN, about 70 miles south of Vernal in Uintah County, is shown on this map. The oil shale village is south of Ouray.



KAMP KEROGEN, UTAH is laid out with trailer homes located at the right of this photo. A recreation hall, office, shop and warehouse are located in the center of the village. An environmental lab and weather station can be seen in the left foreground. The oil shale in situ retorts are located in the upper left area of the picture.

Two small retorts were blasted in July of 1975 and the first small retort was ignited March of 1976. After four years, 18 retorts and 11 burns have been carried out with work proceeding seven days a week throughout cold winters, heavy snowfall and difficult living conditions, explained Lekas.

Geokinetics has been hauling its crude shale oil to Roosevelt for refining.

Primary objectives in 1979, according to Lekas, are:

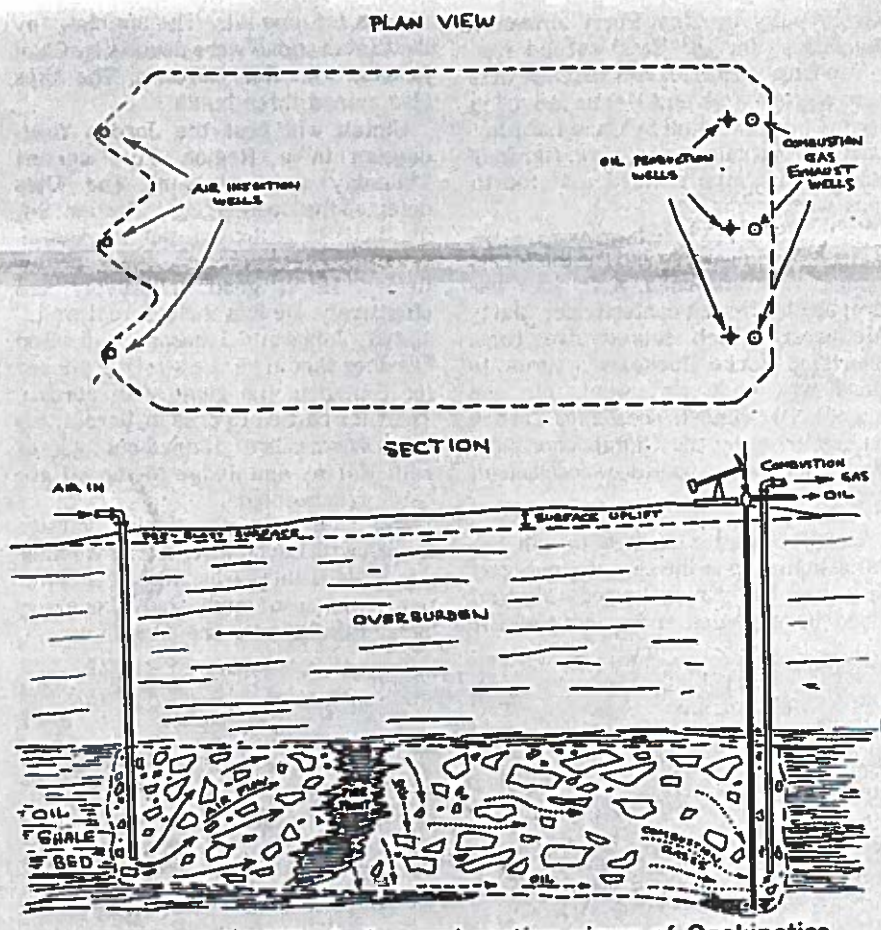
1. Test a number of retorting procedures to optimize oil recovery.

2. Burn a retort with full thickness of the oil shale bed (30 feet).

3. Blast a full-sized retort (200 feet wide by 200 feet long by 30 feet thick).

"In 1980, we plan to blast a cluster of three full-sized retorts. During 1981, we will burn this cluster, and blast a second three-retort cluster. This second cluster will be burned during 1981, and the first half of 1982," said Lekas.

"By mid-1982, we expect to have achieved our overall program objective of developing and testing the Geokinetics Horizontal In Situ Retorting Process. By this date we should have sufficient data on hand to evaluate the technical, environmental and economic feasibility of the process. If the results are favorable, we will be in a position to construct a full scale operating unit producing a minimum of 2,000 barrels of shale oil each day," Lekas concluded.



RETORT DRAWING of plan and section views of Geokinetics horizontal in situ retorting process. Air is forced into the retort through injection holes at left and the oil and gas come to the surface through exhaust holes to the right. The fire front moves towards the exhaust holes.

Federal energy secretary pledges support for shale

Energy Secretary James Schlesinger has pledged the Carter Administration to proceed this year with a surface retort oil shale development project drafted and steered through Congress last year by Utah Congressman Gunn McKay, McKay said last week.

Schlesinger made the commitment to McKay during two weeks of hearings McKay's committee held on national energy concerns and programs. McKay is ranking member of the Interior Appropriations Subcommittee which funds and formulates energy development programs within the Interior and Energy Departments. The hearings will resume May 14 through 17.

Schlesinger denied a charge that the Department earlier had planned to hold the oil shale project "hostage" pending congressional action on a shale oil tax credit measure sponsored by the Administration. McKay has sponsored a different version of the $3 per barrel tax credit.

In his first congressional appearance since a presidential energy message delivered April 5, Schlesinger said, "I believe we can bring in oil shale at about $20 per barrel. The world price is now at about $18.50 and will continue to rise. We must get on with the business of oil shale development," he said, to be ready for the day when the market factors alone can sustain it.

Citing President Carter's decision to free up more public land for energy development, McKay pressed Schlesinger to "breathe life into these promises. The same speeches have been made before, and yet the country hasn't made the hard choices between energy development and environmental regulation. We won't move ahead until we make those choices."

Schlesinger agreed that some environmental regulations have thwarted private investment in energy development. He said energy utilities are reluctant to commit large sums of money to new coal-fired power plants "if they are going to be ratcheted five years down the road with even stricter environmental regulation." He told McKay his Department is determined to reduce regulations affecting surface coal mining and to take additional steps to encourage plants to maximize coal use.

Schlesinger briefed McKay and the committee on latest energy supply, price and consumption estimates, and concluded that the Administration's planned decontrol of domestically produced crude oil "will not, in itself, solve our import problem," and must be matched by new attention to unused and underused resources such as coal, oil shale, geothermal wells and solar energy.

Utah oil and gas drilling

Mobile Oil Company will test shallow zones at a new exploratory test well, the No. 2 Larson Unit, about two miles west of Ephraim, according to Carlton Stowe, minerals specialist, Utah Department of Natural Resources.

The new well is projected to about 2,850 feet. It is just northeast of the No. 1 Larson Unit well, which is scheduled as a 13,100 foot test of the Navajo formation. Mobil is drilling below 5,300 feet at that well. Drilling contractor is Helmerich and Payne Drilling Company. The wells are about 24 miles west and a little southwest of Flat Canyon field which produced gas from the Ferron and Dakota sands.

In other activity, in northeastern Utah's Uintah Basin region, Coseka Resources Company completed an extension of production nearly two miles northward from the East Canyon field. It is in the southern area of the basin on the Roan Plateau-Book Cliffs region about 40 miles north of Cisco. The well, 2 Black Horse Canyon, flowed 171,000 cubic feet of gas per day from the Dakota formation at 7,762 feet.

Some 8 miles north of Cisco, Bowers Oil & Gas Company of Grand Junction has scheduled a new test well. It is the No. 1-35 Bowers-Federal in eastern Grand County. It will go to about 2,700 feet and is a mile west of the operator's No. 1-36 Bowers recently completed, flowing 1,900,000 cubic feet of gas per day from a depth below 2,057 feet.

****

Energy Tip

While driving your car this weekend, drive 55 miles per hour. As compared with 70 miles per hour you'll get 21 percent better gas mileage and save about $168 a year.

Oct 4, 1979

Geokinetics to test process on larger scale

The Geokinetics Inc. Minerals Exploration and Development of Concord, California oil shale development 60 miles south of Vernal is called a low front end cost project.

Anyone who has visited the remote oil shale development site of Geokinetics will readily agree that there is nothing fancy at this operation. Everything is done on a relatively small scale and it has started from scratch.

To hear Mitchell A. "Mike" Lekas explain the struggle of his operations in 1975 when the first retort produced 36 barrels of shale oil and there was nothing around to put the oil in, makes a real success story of a small operation making good.

Geokinetics has been the first to produce a shale oil for the commercial market. When the shale oil comes to the surface it is about half water. The water is separated and evaporated in a settling pond and the oil is then shipped to Roosevelt for refining.

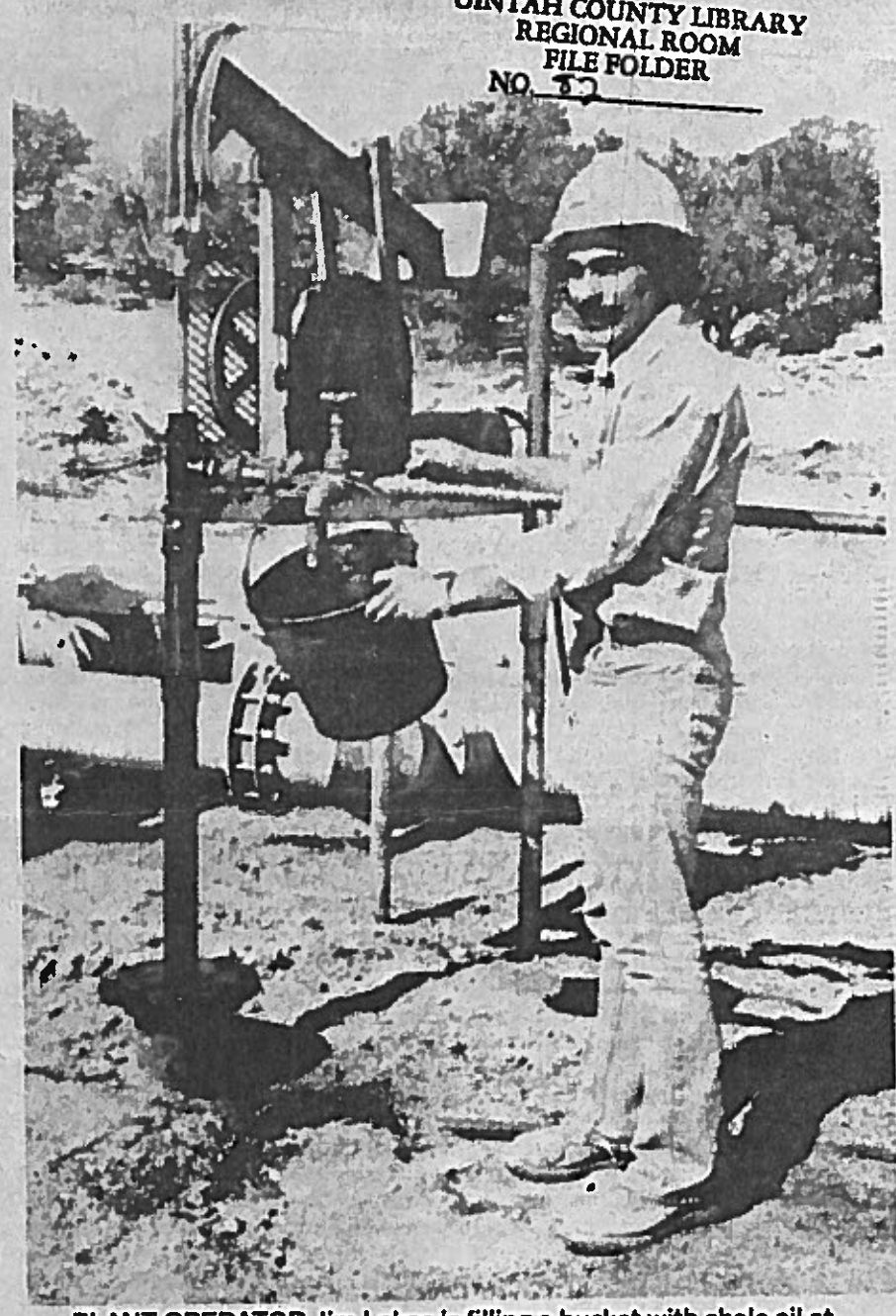
Currently Geokinetics has been producing about 32 barrels per day on a tract. By increasing this production to 200 barrels per day per tract and then increasing the number of tracts production of 2,000 and 20,000 barrels per day can be realized, stated Jim Lekas, plant manager and son of Mike.

Geokinetics has state oil shale leases in the Book Cliff area, about 60 miles south of Vernal. The oil shale bed is approximately 30 feet thick and has an average grade of about 23 gallons per ton. The beds strike in an east-west direction and dip to the north at about 120 feet per mile. Overburden over the shale ranges from zero to 150 feet.

The process, designed specifically for this area where the oil shale beds are relatively thin and close to the surface, is called LOFRECO, said Lekas. Geokinetics is a very small company and therefore the acronym for "Low Front End Cost" is the LOFRECO process.

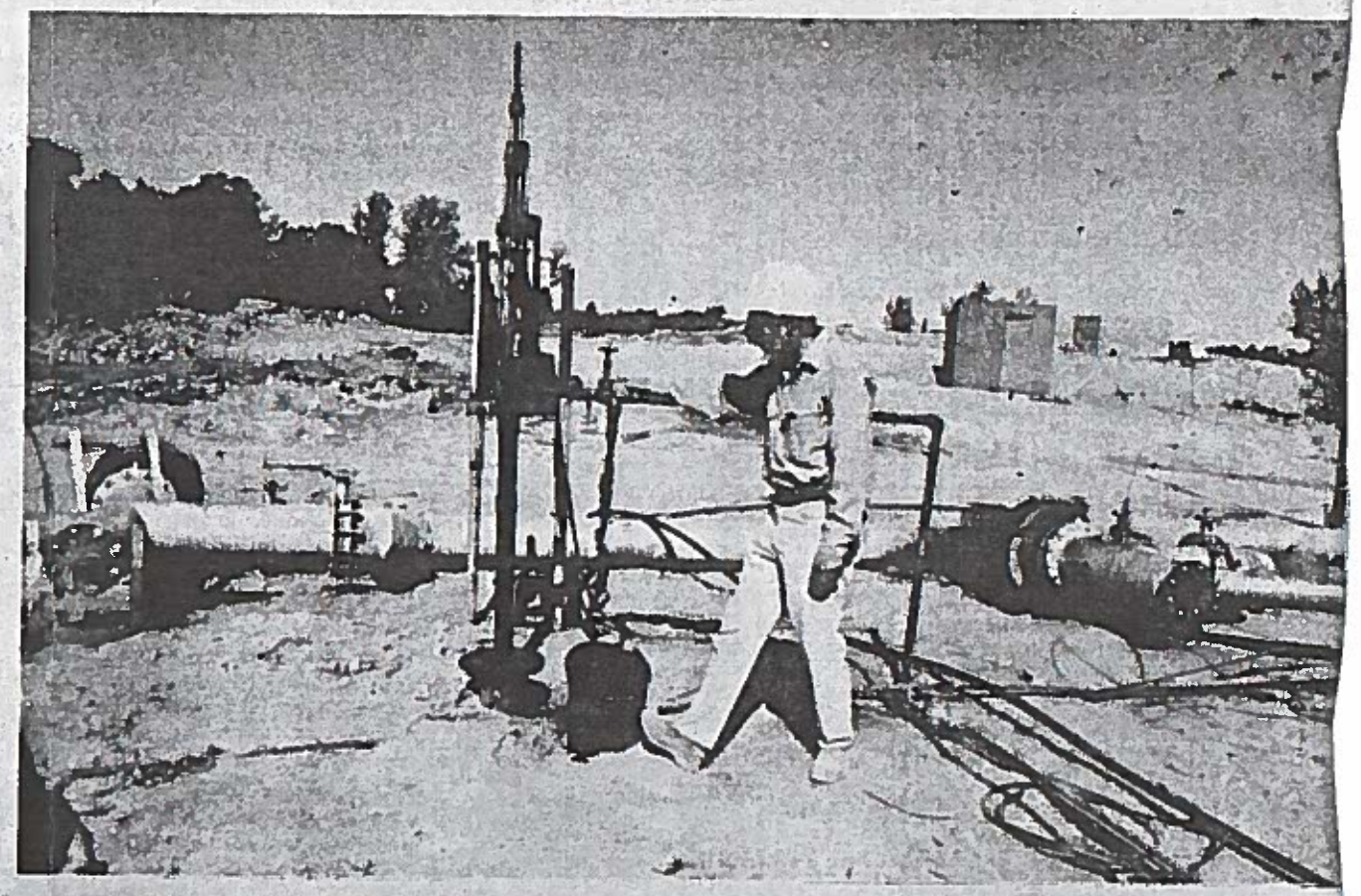
In the LOFRECO process, a pattern of blastholes is drilled from the surface,

(Continued on Page 16)



PLANT OPERATOR Jim Lekas is filling a bucket with shale oil at the Geokinetics operation. The small pump jack lifts the oil from the drainage area where the retorted oil gravitates to after being burned. The oil here is the first to be produced in Utah from shale.

OIL SHALE Environmental Advisory Panel members inspect oil shale outcropping at the Geokinetics oil shale development area about 60 miles south of Vernal. The group toured the area Thursday of last week as part of their quarterly meeting held in Vernal. The group also visited the federal prototype oil leases U-a and U-b.



GEOKINETICS PRESIDENT Mike Lekas is shown filling a bucket with oil shale fluid pumped directly from an underground retort. The large pipes in the background are taking off the exhaust gases from the in-situ retorting process.

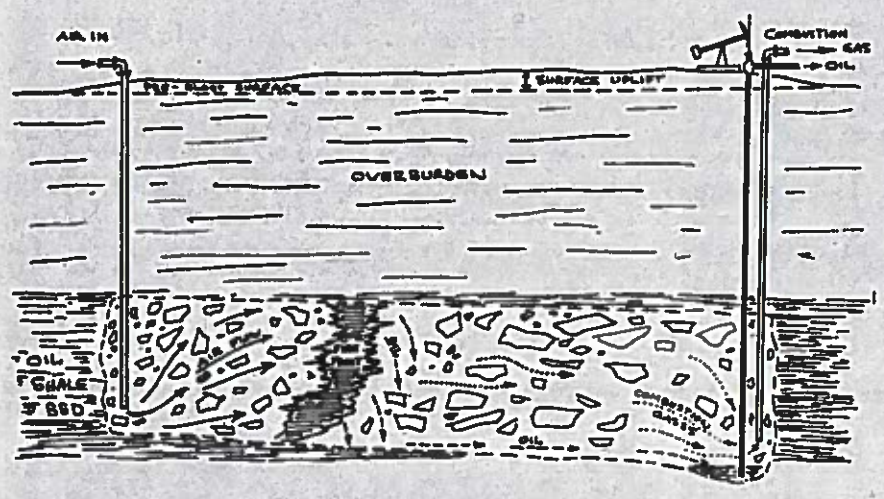
Geokinetics - -

(Continued from Page 1)

through the overburden and fired, using a carefully planned blast system, explained Lekas. The blast results in a well fragmented mass of oil shale with a high permeability. The void space in the fragmented zone comes from lifting the overburden and producing a small uplight of the surface.

The fragmented zone constitutes an in situ retort. The bottom of the retort is sloped to provide drainage for the oil to a sump where it is lifted by a number of oil production wells. Air injection holes are drilled at one end of the retort and off gas holes are drilled at the other end.

The oil shale is ignited at the air injection wells, and air is injected to establish and maintain a burning front that occupies the full thickness of the fragmented zone. The front is moved in a horizontal direction through the fractured shale towards the off gas



RETORT DRAWING of plan and section views of Geokinetics horizontal in situ retorting process. Air is forced into the retort through injection holes at left and the oil and gas come to the surface through exhaust holes to the right. The fire front moves towards the exhaust holes.

STORAGE TANKS at the Geokinetics oil shale operation separated the water from the oil and holds the oil for shipment to the Plateau refinery in Roosevelt. The three tank group holds 400 barrels each and the tank under construction on the left will have a capacity of 3,000 barrels.

HISTORY

If you unwittingly build a fireplace out of oil shale, as the legend says Mike Callahan did, you will soon discover what the Ute Indians have known for centuries—that it is "the rock that burns." Of course, Mike built his fireplace—and burned down his cabin when he lit his first fire—in 1882. Since then, our understanding of oil shale has increased enormously, and none of us is likely to repeat Callahan's Calamity.

Today, our knowledge of oil shale has evolved to the point where we know a great deal about how to extract the oil from the shale and use it in many ways. But that knowledge has come only from many long years of experience with "u-toopooch"—the Ute word for black oil rock.

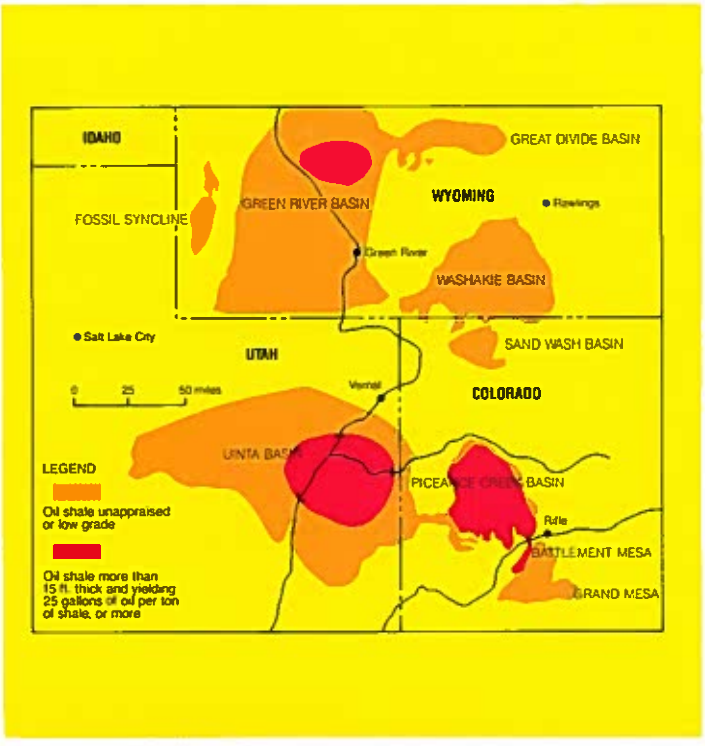
Marlstone in the making

Oil shale's beginnings predate even the Utes, however, and go back 55 million years. Then, two freshwater lakes, Lake Gosiute and Lake Uinta, covered what is now the contingent corners of Wyoming, Utah and Colorado. By this time, the region's dinosaurs had died out and the Rocky Mountains had begun to rise. As the mountains formed, the lakes were cut off from their source of fresh water, causing stagnation.

Over the next 10 million years, the remains of microscopic plants and animals that inhabited the lakes settled to the bottom, mixing with clay and sand to form layers of sedimentary rock. As the mountains formed, volcanic ash and rock were thrown on top of the organic ooze, compressing it into a rock, marlstone, that contains a hard, waxy substance called kerogen. When the marlstone is heated, the kerogen liquifies and becomes heavy shale oil.

Hence, oil shale is not actually oil, but a rock with potential: Through various processing steps, the kerogen in the shale can be converted to oil, and later refined to a usable petroleum product. Today, the area covered by the two prehistoric lakes is known as the Green River Formation and contains the richest oil shale deposits in the world.

Certainly, the Western United States is not the only place oil shale is found—there are deposits in China, Russia, Brazil and other countries, as well as other parts of the U.S. However, worldwide oil shale deposits contain reserves equivalent to some 900 billion barrels of recoverable oil; more than two-thirds of this is in the U.S., and by far the majority of U.S. shale is found in the Green River Formation, a 16,500-sq.-mile area (see map). The region contains an estimated 1.8 trillion barrels of oil in-place, of which approximately 600 billion barrels are estimated to be recoverable.



The Green River Formation

A shale country address

The geological events that shaped shale country turned it into an area that has attracted many people throughout its history. First came the Fremont People, a primitive group who lived in the region from about 950-1300 A.D. During the 1500s, Spanish explorers ranged into the countryside, and by the early 1600s, the Ute Indians had established themselves. Throughout the next 2 centuries, further exploration of shale country took place, led by the Spanish, French and Mexicans.

But, it was the Colorado gold rush of the mid-1800s that brought more permanent settlers to the area. If disappointed at not finding gold, these pioneers found instead a land that was well-suited to fruit production and ranching, and a place that could become a home.

Shale oil—in small doses

Different sorts of mining have played a part in shale country's history for more than 100 years, and the roots of oil shale development stretch back to the mid-1800s when speculators began buying parcels of shale lands. But, the U.S. was not the first country to produce shale oil. In 1350, Austria produced shale oil for medicinal uses. And in 1694, a patent was recorded in England for distilling "oyle from a kind of stone." Probably the first American users of Western shale oil were the Ute Indians, followed by the shale country pioneers, who used it to light campfires, grease wagon

SHALE COUNTRY

SPECIAL EDITION

Volume 5, Number 4 Special Edition 1983

On the cover: In the United States, attempts to develop oil shale—the rock that burns—date back more than 100 years. The Green River Formation, which underlies parts of Colorado, Utah and Wyoming, contains an estimated 1.8 trillion barrels of oil in-place—an amount that far overshadows the Middle East oil fields.

Contents

A PUBLICATION OF
Mountain Empire Publishing

Published 4 times in 1983. Executive and editorial offices, 200 Fillmore, Suite 200, Denver, CO 80206 (303) 388-5451. Third Class Bulk Postage will be paid at Denver, CO. This issue of SHALE COUNTRY is sponsored by the Rocky Mountain Oil and Gas Association Committee on Oil Shale, in particular, the following members: Chevron Shale Oil Co., Exxon Company, U.S.A., Gulf Oil Corp., Phillips Petroleum Co., Sohio Shale Oil Co., Standard Oil Co. (Indiana), Tenneco Shale Oil Co., Tosco Corp. and Union Oil Company of California.

SHALE COUNTRY is provided as a public service by the various members of the oil shale industry. Published 4 times in 1983 as a source of information for those interested in industry developments, SHALE COUNTRY is made available to shale area residents without charge through various community outlets.

Photo Credits

Front Cover, Exxon Company, U.S.A.; p. 2-3, Gayle Bryant, RMOGA; p. 4-5, Gayle Bryant, RMOGA; p. 6-10, Bill Haggerty—Colorado Div. of Wildlife, Rio Blanco Oil Shale Co., RMOGA, Union Oil Company of California; p. 11-13, Susan Marshall, Don Thompson—Thompson Photography (Rifle), Corey Grua—White River Shale Oil Corp.; p. 14-17, Battlement Mesa, Inc., Don Thompson—Thompson Photography (Rifle), Corey Grua—White River Shale Oil Corp.; p. 18-19, Union Oil Company of California; p. 20, RMOGA; Inside Back Cover, Union Oil Company of California.

wheels and preserve harness leather. And in Appalachia, perhaps as early as Revolutionary times, the shales found there were used to produce lamp-oil lubricants and medicines.

Throughout the 19th century and increasingly in the 20th century, this nation's intensifying dependence on petroleum has encouraged spurts of oil shale development. Until recently more economical oil supplies were always discovered to be available. For example, an oil shale plant actually went into operation on the Ohio River in the 1850s, but was abruptly closed down when Col. E.L. Drake's oil well at Titusville, PA, began producing copious amounts of the fluid in 1859.

This ended any talk of an oil shale boom in the 1800s, but the idea was revived in 1915, when the U.S. Geological Survey reported that some 20 billion barrels of oil were locked in the shales of the Rocky Mountains. A flurry of activity followed as thousands of claims were filed on federal lands in the area by would-be oil millionaires. However, these energy pioneers saw their dreams being realized by others—this time, those fortunate few who sunk wells in the East Texas plains and found enormous amounts of oil gushing to the surface. So, again, an oil shale industry was nipped in the bud—essentially until the mid-1970s.

Moving on to modern times

From the 1920s until the 1970s only minor shale development activities occurred, for a variety of reasons. Prior to 1920, for example, mineral claims for oil shale could be filed on federally owned land. However, the Mineral Leasing Act of 1920 changed that, making shale property available to the public only by federal lease. Further, in 1930, President Herbert Hoover issued a directive that removed oil shale lands from all leasing and disposal programs.

But when troubles in the Middle East threatened our cheap supply of oil in the 1960s, an interest in oil shale was again expressed. So began the modern history of shale, and, in 1969, then-Interior Secretary Walter Hickel began working with the Western state governments to develop what was to become the Federal Prototype Oil Shale Leasing Program. This effort culminated with the leasing of four shale tracts in 1974—two in Utah (U-a and U-b) and two in Colorado (C-a and C-b). Two other tracts in Wyoming were offered, but were not bid on because of the low grade of shale found there. Thus, there seemed to be a new dawn for shale developers.

Although it appeared that this time, shale was sure to go, circumstances once again arose in the mid-1970s, causing the federal lease projects to go into suspension and many private developers to slow down their work. Rapid inflation forced developers to reconsider their cost estimates. In addition, federal air quality standards in both Colorado and Utah had to be clarified and ownership questions on the Utah tracts had to be resolved. But, by 1980, such matters were being straightened out and the shale industry shook itself out of its short hibernation to continue on its path toward commercial production.

While the past 3 years have seen further ups and downs in shale country, many developers say they are here to stay, that commercial production of shale oil is realizable. And, indeed, Union Oil Company intends to reach production of 10,000 barrels of shale oil a day from its project north of the town of Parachute, CO, during 1984, creating another chapter in shale country's history. *J.P.*□

Shale country pioneers at camp site (below), and in front of feed stable (upper right); by the mid-1800s, some companies (lower right) were mining shale and processing small amounts of shale oil.

TECHNOLOGY

The spectre of economics has always loomed over the progress of oil shale development—extracting oil from rock is expensive. Although the technology for producing shale oil exists and has for years, the costs so far have inhibited commercial development. Thus, scientists continue to test a myriad of methods for developing shale.

While techniques vary, most of them follow the same basic sequence: The shale is mined, crushed and retorted. Retorting involves heating the shale to approximately 900° Fahrenheit, releasing the oil-bearing kerogen in the rock. The raw shale oil is collected, upgraded to synthetic crude and refined into usable fuels.

The mechanics of mining

Essentially, shale mining is much like any form of mining, but on a much larger scale because of the massive size of the deposits. For example, some shale deposits in the center of Colorado's Piceance Creek Basin are up to 2,000 feet thick. (The typical coal seam in Colorado averages 8-12 feet.)

The characteristics of the shale deposit generally dictate the type of mining that is most practical and economical. Where the amount of overburden—the rock and soil overlying the deposit—is minimal or the mineral is exposed, open-pit, which is a type of surface mining, might be considered.

Open-pit mining is common to many minerals operations—notably iron and copper—but to date hasn't been used for shale. Rio Blanco Oil Shale Co., though, has proposed this development method for federal tract C-a in Colorado, because C-a's deposits lie an average of only 480 feet below the ground.

The open-pit technique usually involves, first, removing and storing the topsoil for later use in reclamation work. Then, the remaining overburden is removed and stockpiled, creating a large pit that exposes the resource. The rock will then be drilled, blasted and taken to a processing facility.

The processed shale (the material that remains after retorting) might also be stored and used—along with the overburden—to backfill (refill) the pit. "The pit must be quite large, though, before backfilling can safely begin," explains Dr. Tom Sladek, former vice president of the Energy Div., Colorado School of Mines Research Institute, Golden, CO. "Estimates are that a company would have to stockpile material for decades before returning it to the pit."

When the shale beds are thinner and/or deeper in the earth, as is usually the case, a standard underground method, such as room-and-pillar mining, will be chosen. With this method, rooms up to 60 feet by 60 feet are excavated, leaving pillars of approximately equal size to support the roof of the mine.

But, while underground mining is more suitable for most shale deposits, a drawback to the method exists. As a rule, surface mining can recover from 40-90 percent of the total resource while on a total resource basis, the recovery from room-and-pillar mining may be as low as 20 percent.

Above-ground retorting

After the shale is mined, most companies will process it above ground in a retort, which is a large, sealed metal vessel independent of the mine. Prior to retorting, the shale must be crushed, or fragmented, so the pieces are all within a given size range; the size of the fragments needed depends on the type of retort used. The crushed shale is then fed into the retort, where it is heated. This can be accomplished directly, by means of combustion, or indirectly, by adding a heat-conducting material, such as ceramic balls or a gas.

After the oil is removed from the rock by heating, the processed shale is conveyed from the retort to a disposal site. Most companies are planning to transport the processed shale to canyons, where it will be moistened and compacted into piles. A layer of topsoil will then be added, as necessary, and the piles revegetated.

In-situ retorting

In contrast to above-ground processes, true in-situ (in-place) retorting does not require mining or constructing a separate retort. The shale is heated and the oil and gases are drawn out while the deposit remains underground. In a sense, the surrounding deposit becomes the retort walls.

Prior to in-situ retorting, the shale must be fractured so that the fragments are evenly exposed to heat and to create channels through which the raw shale oil can flow. Fracturing is accomplished by drilling boreholes and setting off explosive charges below the ground. This lifts the surface somewhat, creating void space within the deposit. Therefore, the deposit must be fairly shallow, because if the overburden is too thick, the explosives will not create voids in the shale. After the shale has been fragmented, heat is introduced to the deposit, usually by combustion. Other methods are also being tested, such as super-heated steam and microwaves.

The heat-conducting element or the flame moves through the fractured deposit, releasing the oil. The oil flows to the lowest point in the retort, known as a sump, which collects the raw oil as it cools from a vapor to a liquid. Raw shale oil and gas by-products are then pumped to the surface via wells.

Obviously true in-situ retorting has some environmental advantages over above-ground processing because no mining or surface retorting facilities are required. Also, the processed shale remains in the ground and does not need to be disposed of and revegetated. On the other hand, potential groundwater contamination could be an environmental disadvantage.

So far, only a small percentage of available shale oil has been recovered using this method, because the shallow deposits required are only found in certain areas, and only a few companies are using this technique. In addition, controlling the size of the pieces of fractured shale is difficult. When fragments are too big, they are not fully retorted because large, direct passages through the rubble exist, and the heat may bypass sizable sections of shale.

In Oil Quest, U.S. Says Rock On

Shale Extraction Sees Renewed Government, Corporate Interest

By JOHN J. FIALKA

Uintah County, Utah

RECORD HIGH OIL prices have sparked new government and corporate interest in developing oil shale, a tantalizingly plentiful but difficult-to-access resource largely abandoned after oil prices crashed in the early 1980s.

The Pentagon is working on plans to direct, within four years, a portion of its $5.5 billion fuel-purchasing budget for high-quality oil, extracted from sedimentary-rock formations called shale, here and in the surrounding region. The move is designed to "catalyze" a new industry that can supply the military with oil from untapped domestic sources, according to a Defense Department official.

The Interior Department, meanwhile, soon will lease tracts of land in the West for research and development of oil shale—something it hasn't done since the 1970s. Officials have received positive comments from independent producers and two big oil companies, Royal Dutch/Shell Group and Exxon Mobil Corp.

Shell has informed the Interior Department it has spent "many tens of millions of dollars" on field research for a new development process and plans to start a U.S. research project by year end. Shell said in a filing with the Interior Department that the U.S. should designate oil from shale as a "strategically important domestic fuel that should be developed on an accelerated basis." The company isn't seeking government assistance but would like the government to elevate oil shale on its energy-priority list. Shell also announced in January that it was working with China's Jilin province to develop oil-shale deposits there.

With an estimated two trillion barrels of shale oil under American soil—roughly 60% of the world's known deposits—successful development would, at least on paper, begin to change the international oil business. The U.S. would become the world's single biggest oil source, far surpassing Saudi Arabia's proven reserves of 261 million barrels.

As oil prices head toward the $60-a-barrel mark and uncertainty hangs over the Middle East and other major suppliers such as Venezuela and Russia, there is renewed interest in so-called unconventional hydrocarbons: fossil fuels that can't be extracted using traditional methods. Canada, the world leader, now pumps more than a million barrels of oil a day from tar-sand formations in Alberta—selling 95% to the U.S.

"We are going back, looking at the old reports and reanalyzing old samples—we're confident you can make a quality jet fuel from shale," said Theodore K. Barna, who heads a team of Pentagon fuel experts, in a recent interview. "We'll be using our domestic potential to produce petroleum and keeping the money here in this country."

Widespread development of U.S. oil shale is far from certain. The complex process of removing energy from rocks remains much more expensive than conventional drilling for oil and would be viable only if oil prices remain high. "The magic number for all of this seems to be about $30 a barrel," said Mr. Barna, a deputy assistant undersecretary who tracks advanced nuclear, biological and chemical technology developments in the office of Defense Secretary Donald Rumsfeld.

Many producers and investors are wary, after about $5 billion of losses in shale investments two decades ago when the most recent government-industry effort to produce oil from shale collapsed. Oil prices defied predictions of hitting $100 a barrel and instead dived as low as $10. In Rifle, Colo., the locals still talk about "Black Sunday"—May 2, 1982—when Exxon announced it was abandoning its shale mine. That ended hundreds of jobs, crashed local real-estate values and killed many small businesses. In 1985, after raising big economic hopes here, three other big oil companies abandoned a $150 million shale mine, failing to produce a single drop of oil.

"We don't want to create a boom expectation when we're not ready for that yet," said Terry O'Connor, a vice president at Shell's exploration-and-production subsidiary in Houston, as he toured his snow-covered research center in western Colorado, where Shell has 16 oil-shale wells in operation. He told a local business group this year that his company is "moving forward in a cautious but increasingly optimistic manner" toward a decision to build a 1,000-barrel-a-day pilot facility.

Oil shale is found in this remote part of Utah amid the remnants of a thick layer of sediment including algae and plants that accumulated on ancient lake beds. Over millions of years the sediment was compressed into clay-like formations that contain kerogen, a high-quality oil, comparable in quality to "sweet" crude. There are two ways to extract the fuel. One is to mine the rock containing it, then to crush the rock and heat it in giant retorts, or vessels, that trap the oil. A second method—under research by both Shell and Exxon Mobil—heats the rock while it still is in the ground and then pumps the kerogen out.

There is no serious talk about offering direct government subsidies or tax credits for shale, the way President Carter did amid the oil crisis of the late 1970s. The closest step to industrial policy now is through the Pentagon fuel program, which buys 300,000 barrels of oil a day. Mr. Barna says the military will declare that a certain, as yet unspecified, portion of that spending will be earmarked starting in 2009 for fuel specifications that match oil shale and other unconventional domestic sources such as oil made from coal.

The world's richest source of oil shale is called the Green River Formation, 16,500 square miles of deposits beneath parts of Colorado, Utah and Wyoming. The most productive part of that is the "Mahogany Zone," a layer of rock that runs through it. The owner of 80% of the resource is the Interior Department, which became the caretaker after Congress zeroed out the Energy Department's shale program in 1985.

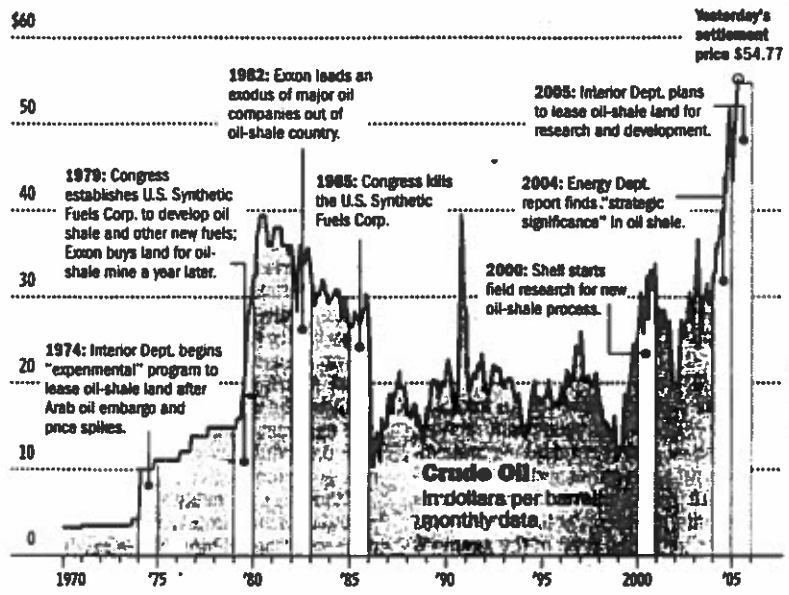
There has been interest from various independent investors. One is Byron Merrell, a 63-year-old self-taught inventor from nearby Vernal, Utah. He has bought tons of kerogen-containing rock from the White River Mine, the large mine that was dug into the Mahogany Zone, then abandoned. Mr. Merrell has since cobbled together his own extraction process from equipment and ideas the big oil companies abandoned.

His venture, Oil Tech, has attracted $2 million in backing from a retired golf-club maker and other investors. He says he plans to "go commercial" in the fall. Working with a couple of technicians and followed by his dogs, "Smith" and "Wesson," he showed a visitor his silo-size test retort. An enlarged version, he estimates, soon will produce 1,000 barrels of crude oil a day for a cost of about $13 a barrel. "At these prices, we figure in about 90 days it'll be paid for," he said.

For the moment, though, the only people known to have made big money in ventures on shale-rich land are two caretakers whom the Interior Department's Bureau of Land Management hired to patrol the deserted facilities of the White River Mine. After weeks of watching suspicious movement of water trucks over the mine's roads, federal agents raided the place in 1993. They seized more than $3 million of marijuana.

The Forgotten Oil?

The prospects for tapping domestic oil-shale reserves have waxed and waned along with the price of crude oil. A brief timeline:



Note: Prices prior to March 1983 are for West Texas Intermediate crude, Nymex near-month futures prices are used thereafter; prices are not adjusted for inflation

Sources: St. Louis Federal Reserve; Energy Information Administration; Nymex via Thomson Datastream

3000
UT98300

June 20, 2003

Memo

To: Duane DePaepe
From: Peter Sokolosky
Subject: Information about Oil Shale Retort in Agency Draw Area (T.13S. R.20E. Section 1, SW, SLM)

On June 19th, you, I and Stan Olmstead stopped by the location of an old oil shale retort near Agency Draw. The attached figure is an ArcView plot showing the location of what was observed. You wanted me to confirm the location of the retort and associated structures-features (images taken are shown in attachment 1). The retort is located in T.13S., R.20E. Sec. 1 SW. A review of the Title Plat for T.13S., R.20E. shows that the southwest quarter of section 1 is private land (an association of individuals received a mineral patent to the SW quarter in 1922, see attachment 2; the Ashton no. 11 had been an association placer mining claim; a copy of the actual patent document can be obtained from the Public Access Center of the Utah State Office).

Page 45 of the Grand Junction Geological Society's 1995 Green River Formation field guide contains a photo of the retort, but no narrative regarding the history of it (attachment 3 is Paul Russell's entire article). Pages 144 and 145 of Doris Burton's 1996 History of Uintah County; Scratching the Surface (attachment 4) cites that the retort was built in 1921 under the direction of R.S. Collett. Pages 510-513 of Doris Burton's (1998) publication ("Digging Deeper,"attachment 5) presents more detail about the Agency Draw retort. Doris, who works at the Regional room of the Uintah County Library may be able to direct our Cultural Resources staff to more information about this site.

A plugged well monument (black dot on attached figure) was located to the north of the retort. There was no information about this well in our IWR (individual well records) since it was on private land. According to information from the Utah Oil, Gas and Mining, the well [named "Agency Draw 1-1A"] was drilled by RME Petroleum in 1983. While the well was not part of the retort operation, it does help to confirm the location of the retort.

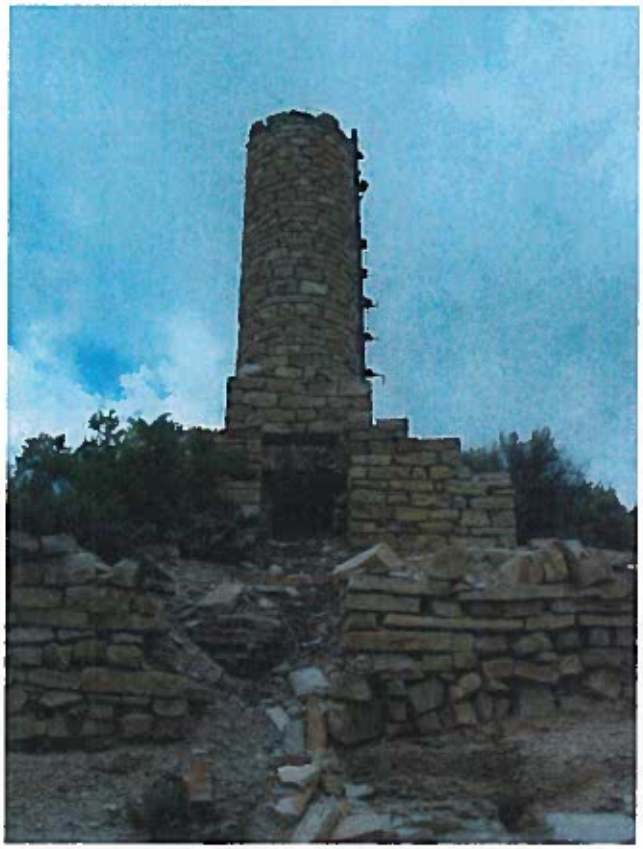
Please let me know if you have any questions, or if you need any other details regarding this memo or want more information about what was observed during the June 19, 2003 on-site. A CD-R is being provided. It contains an electronic copy of this report, a folder containing all the digital images taken during the June 19th on-site and a folder with exported gps data (see the READ_ME document for a bit more detail).

Pete S

attachments

Attachment 1. 10 digital images taken on June 19, 2003 by Peter Sokolosky. Locations of features are shown on the figure attached to the report and are referenced in some of the captions below.

view to north of retort tower (location represented by black asterisk on accompanying figure); vehicle at left is on an existing unimproved road that dissects the southern part of Section 1 (location of road is shown on accompanying figure).



view to west of retort tower

view to north (closer view of south side of retort tower)

another view [to the west] of the retort tower (the vehicle can be used for scale)

view to north-northwest of remnants of dugout(?) located south of the retort tower (location represented by black cross on accompanying figure)

view to northwest of another dugout(?) located to the southeast of the retort tower (location represented by black pentagon on accompanying figure)

another view (to the northwest) of the second dugout

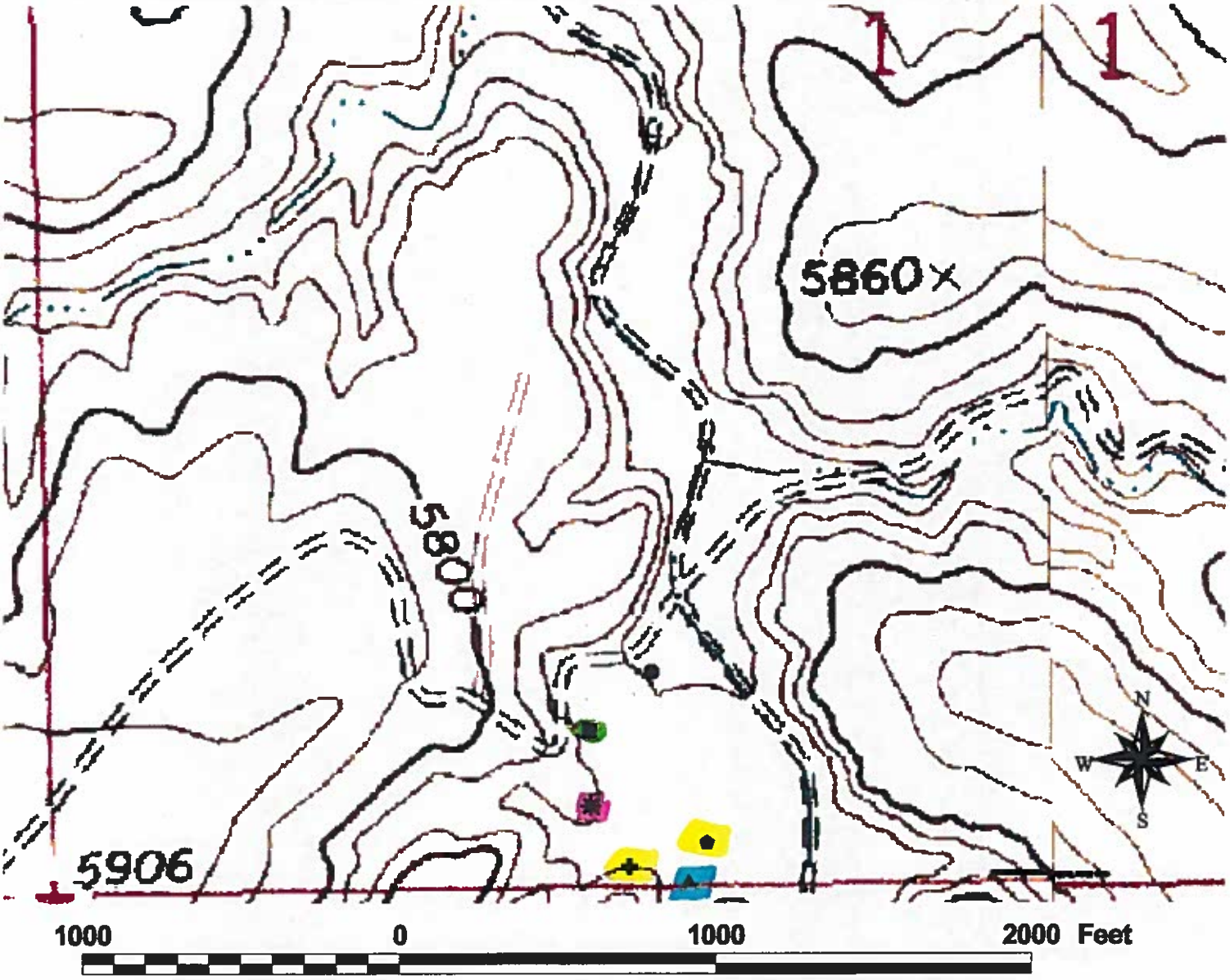
view to south-southwest of building structure located north of the retort tower (location represented by black square on accompanying figure); note individual in doorway gives an idea about size.

view to the southeast of the building structure north of the retort tower

39°42'30.03"N
109° 37'45.05"W

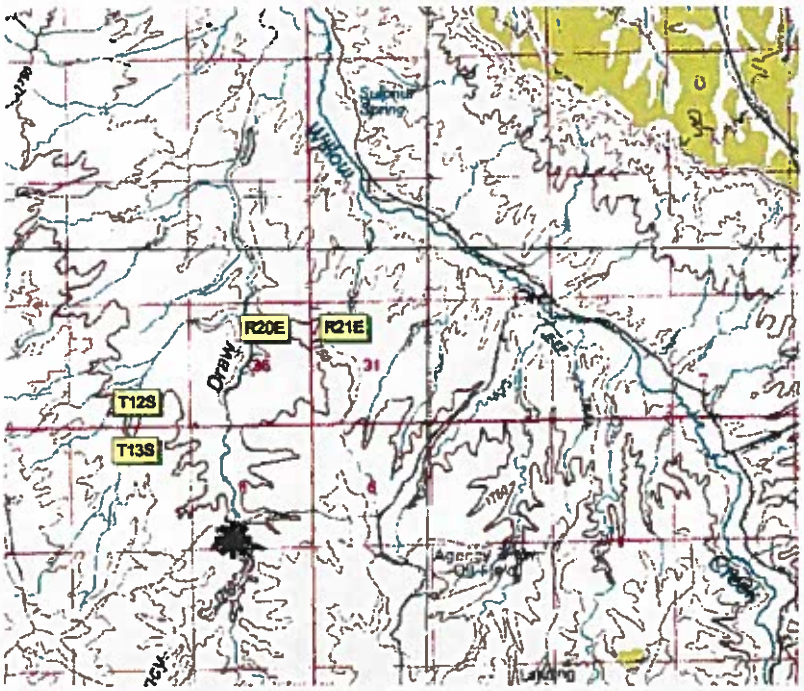
view to north of old grave(?) located to the southeast of the retort tower (location represented by black triangle on accompanying figure)

Figure to June 20, 2003 report regarding oil shale retort (by Peter Sokolosky)



- plugged well
- grave(?)
- retort tower
- building
- old
- dugouts(?)

background topography of retort site is from the Agency Draw NW 7.5" quad (contour interval 40'); scale of plot above 1:6000 and index map at lower right is 1:100000; features gps'd 6/19/03 using GeoExplorer 3 data-logger (differentially corrected using Path-Finder software). Features are within the southwest quarter of Section 1, T.13S., R.20E. (Salt Lake Meridian)



Accession/Serial #: 886603 **BLM Serial #:** UTV 0009178

Note: This record has not been checked against the Legal Land Patent. We don't have an electronic image for this document.

Names

Patentees: R STERLING COLLETT,
REUBEN S COLLETT,
SYLVANUS COLLETT,
LOUIS COLTON,
BENJAMIN P KELLY,
W RAY MACDONALD,
W CLYDE PRICE,
CLARENCE W SHOWALTER

Survey

State: UTAH
Acres: 160
Geographic Name: ASHTON NO 11
Metes/Bounds: No

Title Transfer

Issue Date: 11/7/1922
Land Office: Vernal
Cancelled: No
U.S. Reservations: Yes
Mineral Reservations: No
Authority: July 26, 1866: Mineral Patent-Placer (15 Stat. 251)

Document Numbers

Accession/Serial Nr.: 886603
BLM Serial Nr.: UTV 0009178

Aliquot Parts	Sec./ Block	Township	Range	Fract. Section	Meridian	State	Counties	Survey Nr.
SW	1/	13-S	20-E	No	Salt Lake	UT	Uintah	

Lack of capital holding back oil shale industry

Oil shale is ready to make a contribution to U. S. energy independence now and a sound federally-guaranteed loan program will give it the initial stimulous needed to get it underway, an official of The Oil Shale Corporation (TOSCO) told a Congressional committee Wednesday, October 8.

Charles H. Brown, a senior TOSCO vice president, said the program to help get a pioneer oil shale plant built will also bring new companies and new investors into the energy industry and make it more creative and competitive.

A LACK of capital at reasonable rates, not technology, is holding back oil shale development, said Brown in a statement before the House Science and Technology Committee.

"After the first plants are operating, we believe their results will be positive and there will be no further need for government assistance."

The House is considering legislation, already passed 92-2 by the Senate and endorsed in concept by the White House, to provide loan guarantees or other incentives to get the synthetic fuels industry underway.

The committee's hearings on oil shale development, with Representative Timothy Wirth, D-Colorado, serving as chairman, will move to Rifle, Boulder and Denver later this month.

Brown said there have been similar precedents for federal help in the past in programs such as the development of commercial aircraft and construction of railroads and housing.

FEDERAL AID is needed to build the first-generation shale plants, he testified, because in the present economy private investors won't commit the $1 billion in long-term funds required for a 50,000 barrel-a-day complex. And major oil companies are hampered because their major production efforts are already committed to conventional oil projects such as Alaska, the North Sea and offshore.

The first commercial shale plants will demonstrate convincingly that production from the vast domestic U. S. oil resource is both economically and environmentally feasible, said Brown.

"We believe that commercial-size oil shale plants can be built and operated successfully in the U.S. without strip-mining, without violating SO2 standards (the government's sulfur dioxide air pollution regulations), without surface and water pollution, and without jeopardizing water resources, ruining streams or destroying wildlife."

SOCIO-ECONOMIC impacts from the industry will also be manageable if they are approached realistically on a problem-by-problem and plant-by-plant basis, he contended, and not with the idea that eight or ten plants will spring up overnight in just one area of one state.

But the oil shale executive warned that without orderly development now, the worsening U. S. dependence on foreign energy supplies will probably result in a great number of synthetic fuels plants being built in a rush in the 1980's to make up for lost time.

"This would be a tragedy, in our opinion, because it would strain the capacity of steel plants, fabricators, and the skilled labor force dramatically and lead to unnecessary environmental and socio-economic complications."

If a 50,000 barrel-a-day shale plant using TOSCO's process were operating today, he said, its low sulfur oil would be competitive with the same quality Middle East crude oil at U. S. ports. "It may not be the ultimate technology; it may be a DC-3 instead of a DC-10; but it works."

TOSCO IS a partner in two oil shale ventures in northwestern Colorado, the Colony Development Operation on private land north of Grand Valley and the Federal Lease Tract C-b in Rio Blanco County.

Last March, the company submitted a proposal to the Federal Energy Administration requesting a government guarantee for 75 per cent of the loans needed to build the first commercial-size plant. A 1,000 ton-a-day semiworks plant using the TOSCO process has been successfully tested at the Colony site.

Vernal Express

Vol. LXXXIII No. 45 Vernal, Utah 84078 Thursday, November 6, 1975 26 Pages Price: 15c

Oil shale access roads discussed at meeting

The route location of a new access road into the oil shale development area of Uintah County dominated the discussion at the Utah Department of Transportation planning meeting held in Vernal Wednesday of last week for Uintah, Duchesne and Daggett counties.

Conducting the meeting was Sam Taylor of Moab, UDOT commission member assigned to Eastern Utah.

DISCUSSION on the oil shale access road was divided between a new direct route from Vernal to Bonanza and a route going from the oil shale leases near Bonanza northwest to an existing road into Ouray and then using existing roads north and west to Roosevelt via U. S. 40.

A Duchesne County group favored the Roosevelt road and a Uintah County group favored the direct route from Vernal.

Grant Gerber, chairman of the road from Roosevelt to the oil shale field from Roosevelt explained the need for the road into Duchesne County to prevent a depressed condition due to the decreased oil drilling activities and to tap the manpower reserve in Duchesne County.

According to Gerber's presentation, the road from Roosevelt to Ouray to the oil shale area would be only five-and-one-half miles longer than the present route from Vernal. He said Vernal had one road and the second road should go to Roosevelt.

THE UINTAH County oil shale direct route road statement was given by Ralph A. Preece, director of the Vernal Area Chamber of Commerce Transportation Committee. The statement was signed by Orlan Cook, Uintah County Commission chairman; Samuel Snyder, Vernal City Mayor; Kenneth G. Anderton, Uintah School Board president; and L. Y. Siddoway, Vernal Area Chamber of Commerce president. The 15-paragraph statement stated the direct route road should be built from Vernal.

The statement reasoned that the development was in Uintah County and the first initial access road should be to the county seat where the services, offices, schools, shopping area and accommodations were located. The direct route would also serve the gilsonite mines in the Bonanza area and the Red Wash oil field.

"The proposal to align the route through Ouray cannot be supported by the Vernal area or Uintah County as the first direct route to Uintah County's oil shale land because of the reasons given. It is felt, however, that additional routes will be desirable and necessary as later and more comprehensive development occurs."

A map was shown by Mr. Preece indicating the direct route to be 37 miles from Vernal and the route from Roosevelt to be 53 miles.

UDOT Commissioner Taylor asked the County Commissioners of Duchesne and Uintah counties to appoint a joint committee to come up with a network of roads into the oil shale area with a list of priorities. This was agreed to by the county commissioners representing the two counties present.

IN OTHER road planning discussion, Mr. Preece explained the need of a four-way fire light at the intersection of the Vernal fire station to permit the fire fighting equipment to cross Highway U. S. 40. Also the need to plan for a four-lane highway for the east and west entrances of U. S. 40 into Vernal City was stressed.

Rulon Anderton, Duchesne County Commission chairman, explained the congestion problem through Roosevelt City, an alternate route needs to be considered, he stated.

(Continued on Page 12)

Oil shale production need told Rotary club

With six percent of the world population, the USA consumes 30 percent of the world's consumption of crude oil because of our high standard of living, explained Stanford R. Bardsley to Vernal Rotary members at their Thursday noon luncheon meeting last week.

Bardsley is vice president in charge of exploration for Skyline Oil Company, where he has been since 1960.

QUOTING ENERGY figures from the October issue of the "Shale Country" magazine, Bardsley pointed out that the Arab Middle East has 44.5 percent of the world recoverable crude oil, compared to USSR, 11.7 percent and the USA, 4.9 percent. This is the reason the USA has to import so much crude oil, Bardsley pointed out.

In estimated world recoverable supply of coal, the USA leads with 30.8 percent, with the USSR second place at 23.1 percent. In tar sands, the USA trails with only 1.7 percent of the world supply, led by South America's 59.6 percent and Canada's 38.5 percent.

WHERE THE USA shines is in its reserves of oil shale, stated Bardsley. 72.7 percent of the world supply is in the USA, with China next in size with 10.5 percent.

Vernal is in an ominous position as the center of the oil shale in Western Colorado and Eastern Utah, containing one of the world's greatest natural resources, the Rotary speaker explained.

"Oil shale is a misnomer, there is no oil in it. It contains kerogen, which is heated to a volatile and condensed into oil."

SOME CORE tests in Utah show oil shale as high as 80 barrels per ton, but the average is about 25 to 30 barrels to the ton, pointed out Bardsley. At this rate it takes 22 cubic feet of material to make a barrel of the 14 percent organic material which ends up with 20 percent more volume than you started with, after processing.

Costs of processing oil shale by the two methods were estimated by Bardsley. In the Coloney, or TOSCO, 50,000 barrels a day operations, the cost is about $1.2 billion, or $23,000 per barrel per day capital investment, including a new town. In the Paraho process, estimated for a 100,000 barrel a day operation, the cost is $1 million, or $10,000 per barrel per day capital investment without a new town development.

THE ESTIMATED cost to produce oil from shale on a commercial basis is about $10.15 per barrel. "We need to start developing our resources. We have the tools to do the job, let's get together and get the job done," concluded Mr. Bardsley.

The Rotary meeting was conducted by President Dwight Wetenkamp. William Jolley was presented a plaque for his outstanding high school achievements by Ted Hatch.

Vernal Express

Vol. LXXXIII No. 48 Vernal, Utah 84078 Thursday, November 27, 1975 28 Pages Price: 15c

Federal funds needed for basin development

Uintah County Commissioners, Vernal City Council, Uintah School Board, and in fact, many of the people of the Uintah Basin are taking a hard look at the early costs involved for the oil shale development to be prepared for an influx of construction workers and permanent employees.

ESTIMATING THE front-end cost and who should pay the bill is very important to everyone. A look at some of the front-end cost estimates just to get a perspective has been made by the Uintah Basin Energy Planning Council.

The estimates for roads and bridges to the oil shale tracts is ten to fifteen million dollars. The new schools needed will be at least ten million. Adding to or construction of new sewer and water facilities will be ten million. There is no estimate available as yet for engineering and planning of new or expanded communities.

A total front-end cost of forty million dollars is a reasonable estimate and is comparable to cost figures being used by the Federal Office of Management of the Budget.

The costs are indeed large, but so can the return benefits to the communities, the state and the nation, when oil from the shale is flowing from the Uintah Basin to other parts of the nation for their use.

THE DECISION to lease oil shale land and create an oil shale industry in the Uintah Basin was a federal action, taken after the Department of Interior determined it was in the National interest to do so.

The Federal government therefore should carry its fair share of the costs. We are a self-reliant people, used to taking care of our own problems, and insist on being in the responsible position of making decisions affecting our own future. This does not mean that Federal Assistance should be refused, the Energy Council maintains.

THE OVERALL Economic Development Plan (OEDP) for the basin is a plan that assembles the projects the local people decide they need and want and in the sequence that they dictate.

The preparation of an Overall Economic Development Plan has been underwritten by Uintah County, Vernal City and the Uintah School District. Each entity has agreed to share equally in paying $5,750.00 for professional planning for preparations of an overall economic development plan. The total County plan will then be combined with the Duchesne County and Daggett County and hopefully the Ute Tribe. The combined plans will comprise the OEDP for the Uintah Basin.

The plan will set up a district board, comprised of at least 51

(Continued on Page 16)

Federal funds needed - - -

(Continued from Page 1)

percent local elected officials, a representative of industry, business, professions, finance, union, underemployed and a minority group, and will be called the Uintah Basin Economic Development District Board.

THE TOTAL plan can then be submitted to the Economic Development Administration. If approved, the district would have official EDA status and be eligible for federal funds to assist in financing the projects described or inventoried in the Overall Economic Development Plan.

Much public input has already been received at the Uintah Basin Energy Planning Council Office, 303 Uintah

UBAG energy council tackles oil shale impact planning

The White River Shale Project, a joint venture group composed of Sun Oil, Phillips Petroleum and Sohio Petroleum companies, are lessees of tracts Ua and Ub in Eastern Utah. These tracts are approximately 44 miles by present highways, U. S. 40 and State Highway 45 to Bonanza, then six miles by county road to the lease, for a total of 50 miles.

The employment build-up for construction of a mine and other facilities is projected to start in late 1976 or early 1977. Starting construction force is estimated at 400 employees and increasing until a permanent work force of 2,300 by 1983, according to information gathered by the Uintah Basin Energy Planning Council.

TO HOUSE the work force, new housing must be constructed at some location which has not as yet been determined.

There are several factors which will need to be considered in making this decision; front-end cost for new employees for new facilities, adjoining developed communities is estimated by many authorities at $4,000 per person and an additional $1,500 if in remote areas. (Front-end costs include government related costs such as sewers, water, roads, utilities, schools, etc., but not homes or commercial buildings.)

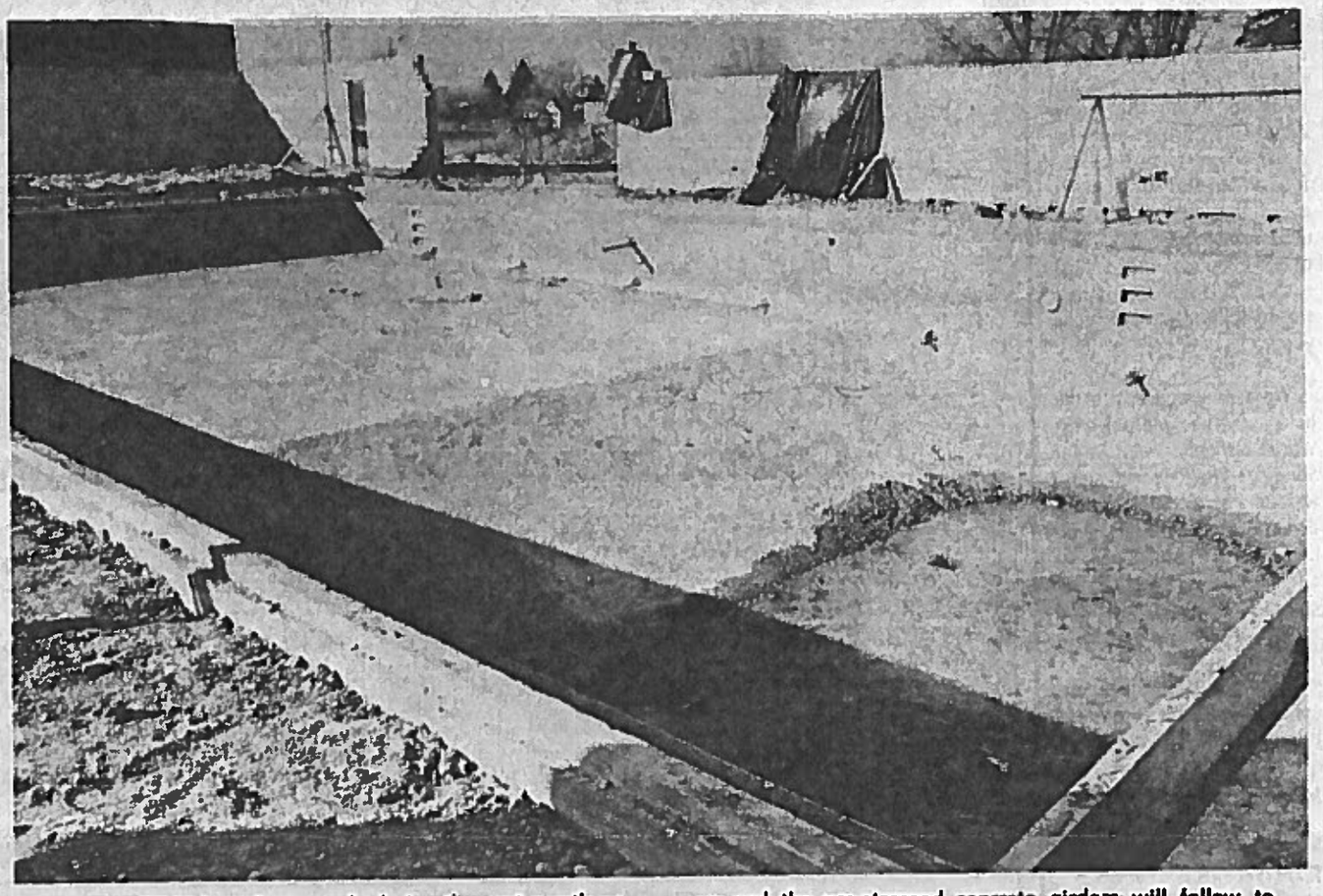
CALCULATING this cost on the basis of 3.1 people per family, the costs are $12,400 and $17,050 per employee. Calculating the cost for a new community at a remote area for 2,300 employees, the governmental costs would be approximately $39,213,000. The cost for the same number of people in a present community would be $28,520,000, or a savings of over $10,000,000.

Providing the transportation facilities are adequate to move employees to work in a reasonable time, it could be assumed that 20 percent of the employees could come from local manpower. This would reduce this front-end cost by considerable amount in addition, but not in direct ratio as the cost of roads and some other facilities would not be changed.

IT BECOMES evident that decisions now made on how to proceed toward new community development will have a marked effect on the future of our present community and on the cost of government.

How do we make these decisions? Do we have the information to base our decisions on? How and where do we get this information if we need more?

(Continued on Page 16)



GREAT STRIDES have been made during the past month on Vernal's community indoor swimming pool. The $700,000 project is nearly 45 percent complete with most of the concrete work done. The cinder block walls are now going up and the pre-stressed concrete girders will follow to support the roof, according to project foreman Ned Oaks. The structure will be finished by next summer in time for hot weather swimming.

COMMUNITY facilities and services in the production areas have a direct and immediate impact on the productivity of labor in these areas. Labor living in service-poor communities is labor with high rates of absenteeism, crime and a poor social, and personal adjustment; it is typically high priced and characterized by a high turn-over rate and low productivity.

STANDARDS of living in the residential areas available to workers in the energy industry have a decided impact on labor recruitment. Many tens of thousands of new miners, engineers, construction workers and others must be recruited in the coming years for western energy industry. Establishing a quality living environment in the production areas is the key to recruiting a productive, stable, safety-minded work force.

RURAL western communities tend to support energy development because it will give them the chance to grow and build a quality community; an even-handed national energy policy must meet these expectations just as it must meet those of the consumer for an adequate, reliable energy supply.

From another point of view: to the extent that western communities must sacrifice their life style to the nation's energy appetite, these communities will expect the nation to impose on its energy hunger

UBAG energy council - - -

(Continued from Page 1)

UNDOUBTEDLY we need a conceptual set of plans, developed to cover a reasonable number of the alternatives with cost estimates attached to provide the base for the decisions we must make, explained a spokesman for the Energy Council.

Impact problems being faced by the Uintah Basin Association of Governments' Energy Planning Council due to the oil shale development are being explored and the greatest problem seems to be how to get the needed front-end money necessary to start projects to serve the oil shale industry and related businesses.

The inability of financial institutions to provide adequate investment funds for public facilities is as serious an institutional problem as that resulting in the shortage of private capital. Without the expansion of public and private capital together, the nation's energy consumer will go unfulfilled and Project Independence goals unachieved.

The shortage of public resources is manifest in the inadequate housing, schooling, roads, services and public facilities and utilities in the impacted rural areas where the energy production is taking place. While no one can predict with certainty the shortfall that will exist by 1985, there is a concensus that the shortage is large relative to the historical pattern of public capital flow into these areas. Thus, current techniques for pumping public capital into these areas can only be judged insufficient. New techniques must be found.

Moreover, four circumstances urgently compel the federal government, private energy developers and the states and municipalities to act to reduce this shortfall:

12-18-75
P1

Preliminary report on oil shale access road

A report on the preliminary cost estimates for new road access to the oil shale prototype site from Vernal was given by Alvin Kay, Vernal Chamber of Commerce Transportation Committee chairman, at the weekly directors' meeting Tuesday noon.

Mr. Kay referred to a recent study made by the Utah Department of Transportation on planning estimates subject to revision upon preparation of more detailed engineering estimates.

SIX ALTERNATE routes have been presented by the UDOT. Three of the routes are from Vernal to Bonanza and three are from Bonanza to the oil shale project. The range of costs for the combination of the various alternatives is $11 to $13.5 million.

The alternative routes are described as follows in the report submitted by UDOT planning department preliminary report.

VERNAL TO BONANZA Alternative A - The length is 37 miles. The general direction is southerly from Vernal with a new crossing of the Green River approximately five miles southwesterly of the present crossing. Following a southeasterly direction across the Red Wash area, the route connects with the present SR-45 about five miles north of Bonanza and follows the SR-45 corridor to Bonanza. Estimated cost is $8.5 million.

Alternative B - The length is 42 miles. The route follows existing US-40 to the Jensen Crossing of the Green River and then proceeds along the southern bank of the Green River utilizing the existing Sr-264 corridor to a new river crossing as given in Alternative A. The route then follows Alternative A on to Bonanza. This alternate does not require a new bridge across the Green River, but will require rehabilitation and widening of the present structure at Jensen. Estimated cost is $8 million.

Alternative C - The length is 45 miles. The route follows only existing corridors and uses US-40 to the Junction with SR-45 and then SR-45 to Bonanza. This alternative will require upgrading of existing roadways along both US-40 and SR-45. The bridge crossing at Jensen will also have to be improved. Estimated cost is $8.2 million.

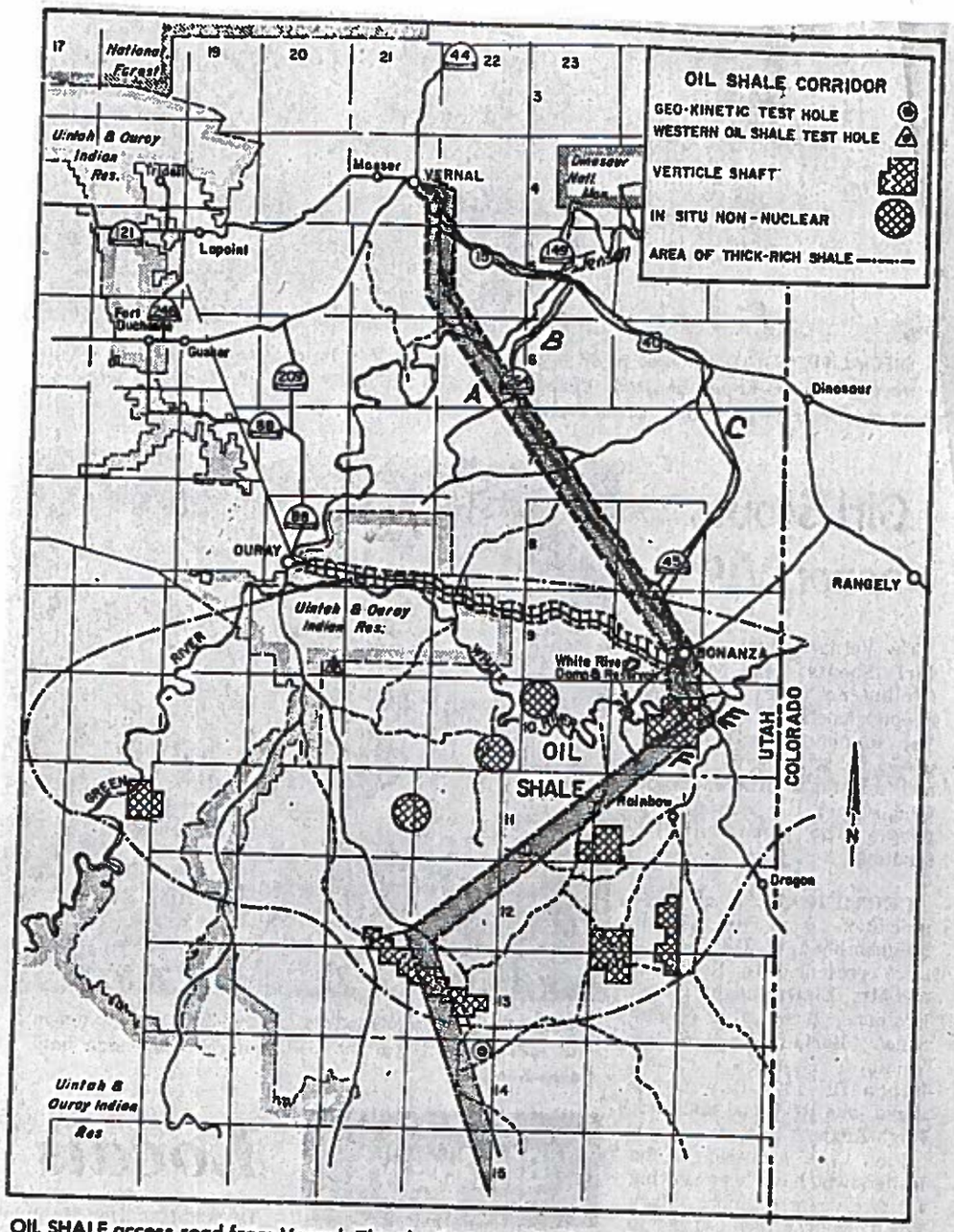
BONANZA TO OIL SHALE SITE Alternative D - The length is 11 miles. The route proceeds southwesterly from Bonanza across the proposed dam and thence into the oil shale development. Estimated cost is $5 million.

Alternative E - The length is 10 miles. The route proceeds southeasterly from Bonanza to a new crossing of the White River thence southwesterly to the oil shale development. Estimated cost is $5 million.

Alternative F - The length is nine miles. The route follows SR-45 southerly from Bonanza to the oil shale development. A new bridge will be constructed at the present crossing. Estimated cost is $3 million.

Alternative F assumes that the proposed dam will not be built, while Alternatives D and E assume that the dam will be built.

Vernal Chamber directors



OIL SHALE access road from Vernal. The shortest route is shown by the shaded corridor from Vernal to Bonanza and then from Bonanza to the Ua and Ub federal leases as drawn out by the Utah Department of Transportation in a recent preliminary cost and access study.

In situ oil shale tracts go to environmental panel

A report recommending tracts for prototype oil shale development by "in situ" methods has been forwarded to the Oil Shale Environmental Advisory Panel (OSEAP) by Assistant Interior Secretary, Jack Horton. William L. Rogers, special assistant to the Secretary of the Interior — Missouri Basin Region, who serves as OSEAP's chairman, released the report September 19 in Denver.

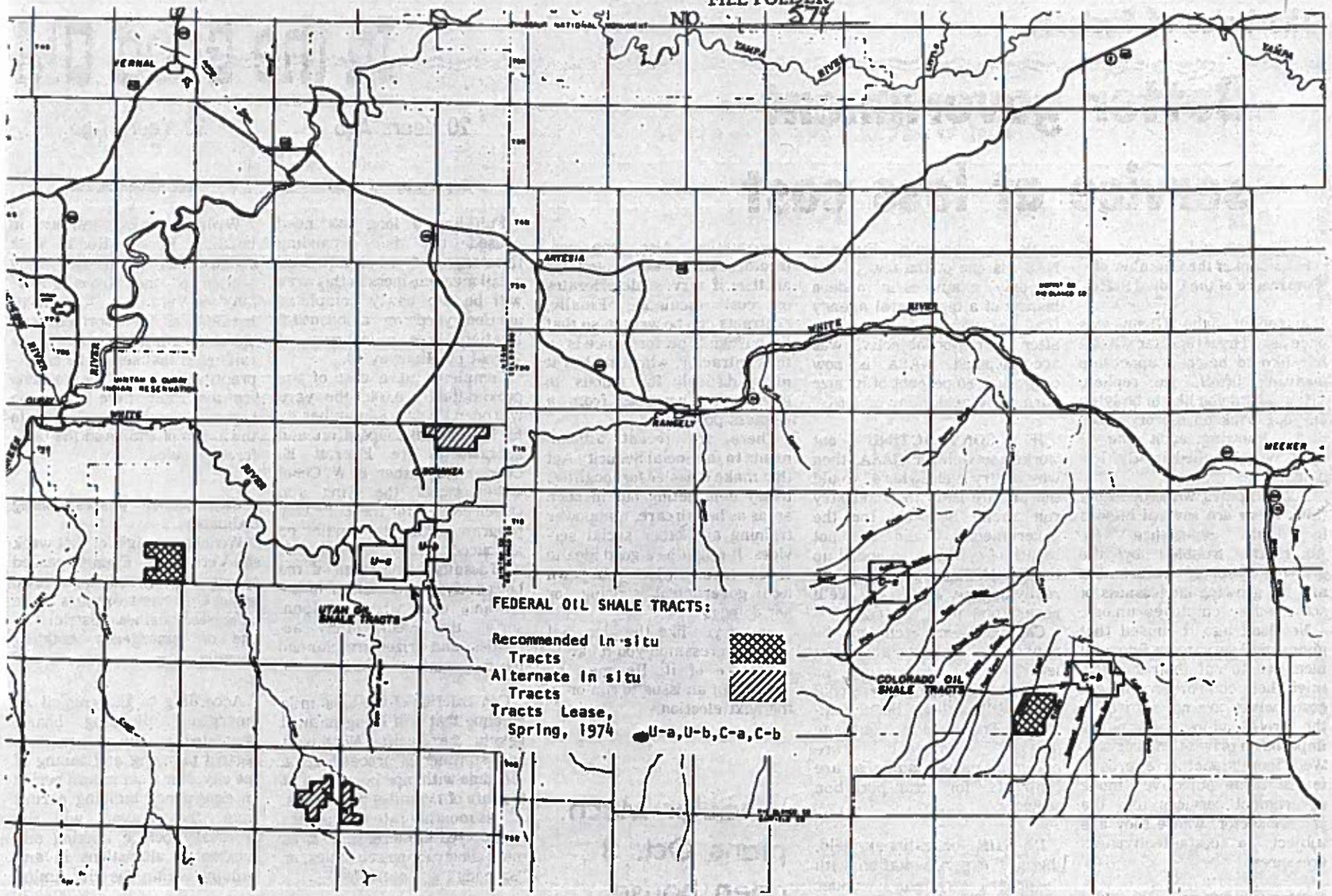
THE RECOMMENDATIONS were made by an interagency tract selection committee, which included members from the states involved. Howard Ritzma represented Utah and Don Pendleton represented the Vernal BLM District.

The committee considered nine tracts proposed by industry in response to a call for nominations that closed July 31. Two tracts were judged by the committee to be best suited, both from a resource and environmental standpoint, for prototype in situ oil shale development.

THEY ARE one tract in Colorado, about three miles southwest of the already leased tract C-b, and a tract in Utah, about 13 miles west of the previously leased tract U-a and about two miles south of the proposed Tosco lease on Utah State lands. The recommended Utah tract is about 45 miles from Vernal by road. Two other Utah tracts were recommended as alternate sites.

Horton asked for OSEAP's advice and comment by the first week in November so that the secretary can make a preliminary determination of tracts to offer for lease sale. The secretary's decision would be followed by a detailed environmental analysis and the publication of a Supplemental Draft Environmental Impact Statement (EIS) covering both tracts. This EIS would supplement the six volume statement issued August 30, 1973, for the Prototype Oil Shale Program. The department's timetable calls for the Supplemental Draft EIS's to be completed in February, 1976.

Today an estimated 33 million Americans — one out of every four adults — have an investment in at least one publicly-held enterprise.



RECOMMENDED "IN SITU" OIL SHALE TRACTS in Utah and Colorado are designated on map as those proposed for prototype development by the Department of Interior. Three alternate tracts in Utah have also been recommended. The tracts are all on Federal lands.

Vernal Express

Vol. LXXXIII No. 52 Vernal, Utah 84078 Thursday, December 25, 1975 38 Pages Price: 15c

Impact study of oil shale in Basin told

The second phase of the socio-economic impact study of oil shale development in the Uintah Basin was presented at a Uintah Basin Association of Governments energy council planning meeting held Friday in the Uintah County Courthouse.

Present to give the review of the 217-page study were its authors, Dr. A. Berry Crawford, Dr. Herbert H. Fullerton and Dr. W. Cris Lewis, all of the staff of Utah State University and representing Western Environmental Associates, Inc.

THE IMPACT study has been made under the direction of Merrill Littlewood, community development manager for the White River Shale Project; Earl Ramsey, director of the White River Shale Project; and Rees Madsen, environmental study director.

Dr. Lewis explained the impact study was made for the White River Shale Project based on a 100,000-barrel-a-day plant with an employment impact of 5,750 jobs in 15 years for a population impact of 12,535 people. The area used in the study included Uintah and Duchesne Counties and Rio Blanco County, Colorado. This area is projected to have 39,800 population by 1991 without oil shale and 52,365 with the oil shale development, according to the study.

It was pointed out that the impact study is only for the one project and does not take into consideration other oil shale developments or tar sand developments.

A GRAVITY model distribution of population impact was made in the study, using the present distribution of population, roads and proximity to the oil shale development. Four cities were used for population centers, Duchesne, Roosevelt, Vernal and Rangely, and also population trends were given if a new town was constructed for the oil shale development.

The study projected the oil shale development over a 20-year period with the eighth year being the climax of activity and the fifteenth year the normal operational stage.

ACCORDING TO the study, if no new town was built, a peak population of 13,780 would be reached during the eighth year. This population would be distributed as follows: Duchesne, 485; Roosevelt, 1,595; Vernal, 4,010; and Rangely, 5,466; at or near site, 1,536; and other parts of Uintah Basin, 689. If a new town was built the population distribution would change as follows: new town, 11,024; Duchesne, 110; Roosevelt, 361; Vernal, 909; Rangely, 1,238; and other parts of Uintah Basin, 138.

Dr. Fullerton stated that a new town makes a tremendous difference in the distribution of the population in the existing towns. He pointed out the estimates for the gravity model would change if variables such as new roads, community attractions, aggressive leaders, changed to attract more people into a given area.

AN ATTITUDE study made by 100 telephone calls, each in the various towns, asking survey questions was explained by Dr. Crawford. "Most people in the survey were in favor of the oil shale development because of the economic growth it would bring to their areas," Dr. Crawford stated.

Earl Ramsey stated the two problems facing the oil shale industry area are financing and demonstrating sufficient technology to entice private industry to invest in the operations.

SOME KIND of financial guarantee will be required before private industry can cope with the oil shale development, Ramsey stated. With the price of oil going back and forth, private industry cannot afford to invest heavily in the oil shale process. A guarantee price for oil, guarantee loans and money for financing front-end help from such agencies as the Energy Research and Development Administration is needed.

The impact study covers the following impact topics: employment, population, income, land, water, community infrastructure, socio-cultural, impact on Ute Tribe, archaeological and historical impacts, demographic trends and crime rates.

MR. LITTLEWOOD stated, "We had to make some assumptions on the oil shale impact and this is the first good look at the impact on the basin which has been made. We cannot make any hard, fast conclusions, but the three doctors from USU have been working one year on the report and still many things can change it."

May 28-81
Page 13

Legislature oil shale and tar sands development

BY HELENE C. MONBERG

Washington-differences between Chairman Jim Santini, D-Nev., and Rep. Dan D. Marriott, R-Utah, the ranking Republican, of the House Mining Subcommittee complicate the outlook for oil shale legislation.

Both have introduced comprehensive oil shale bills. One source on the parent House Interior Committee told this correspondent during the past week, "This is the problem: Dan Marriott figured that Jim would let him take the lead on a lot of things now that the Reagan Administration is in the White House. Most Subcommittee Chairmen don't take kindly to that kind of operation. They want to run their own show."

Marriott might have thought that Santini would be different, as he is now running for the Senate, and he isn't spending a lot of time on Subcommittee work. But he isn't according to those who have been tracking the legislation referred to the Subcommittee.

Meanwhile, Dale Zimmerman, chief of the Bureau of Land Management (BLM) division of onshore energy resources, has come up with a possible solution to the problem of the Department of Interior's 15-year failure to grant tar sands leases because of the U.S. Geological Survey's (USGS) inability to define tar sands and to differentiate tar sands from ordinary oil and allied petroleum products. "This is one way that it could be done to get going on tar sand leasing," Zimmerman told this correspondent in an interview on May 15. "Say that a person held an oil and gas lease on a tract of land. He could apply for a tar sand lease on the same tract. Then he would have two leases, one for oil and gas and one for tar sand, for the same length of time as the oil and gas lease. He could operate on the tract as if he had a consolidated lease providing, of course, he came in with an operating plan approved by Geological Survey and BLM.

"Or if he didn't have an oil and gas lease, he could get one assigned to him and then file for a tar sand lease on the same tract. This would work out well, and it would break the log-jam over tar sand leasing, if the terms of both the oil and gas lease and the tar sand lease were the same and if the royalties were the same--12.5 percent.

It would make it a lot easier for USGS to establish what the resource was because the lessee would already be in the process of developing the tract under his oil and gas lease," Zimmerman stated. USGS has had difficulty defining tar sand deposits, as the law providing for tar sand leasing is vague.

The plan proposed by Zimmerman isn't fail-safe, he cautioned, but it would tend to get development going on tar sands in the Western United States, particularly in Utah, which has the bulk of the nation's tar sands deposits, in the event that Congress fails, once again, to pass legislation this term providing for a combined oil and gas and tar sands lease. Such legislation has failed to pass in recent years.

Lots of things would have to fall into place for Zimmerman's solution to work out; he conceded. For example, a potential lessee had a lease on a major tar sand deposit, but he was unable to get an assignment of the oil and gas lease in the same area at a price that made it commercially feasible for him to go ahead. There would also be complications if the lease terms and royalties were different, he said.

But absent a legislative solution which has eluded Congress in the past two years, Zimmerman's plan just might work, the BLM official underscored. "It is better than wringing our hands, which is all that we have done over the problem for the past 15 years," Zimmerman stated.

As to oil shale legislation, Marriott introduced his omnibus oil shale bill, with co-sponsorship from Rep. Hank Brown, R-Colo., on March 26, and Santini introduced his omnibus oil shale bill, with co-sponsorship from Reps. Morris K. Udall, D-Ariz., and Ray Kogovsek, D-Colo., on March 26. Both would permit oil shale tracts to be larger than the current 5120 acres if the Secretary of Interior should determine that a large tract was necessary for a commercial operation to be feasible; both would permit the mining of other minerals, such as dawsonite and nahcolite with the oil shale; both would permit a lessee to obtain an additional lease for waste disposal and for the construction of oil shale plants and facilities.

Marriott on April 7 introduced a bill which would provide for a combined oil-gas and tar sand lease and it would permit a hold on of an oil and gas lease to convert it to a combined hydrocarbon lease for a primary term of five years following the filing of a acceptable plan of operations for developing the leased tract.

Sen. William L. Armstrong, R-Colo., on April 30 introduced a bill in the Senate providing for a second lease to allow a current oil shale lessee build oil shale facilities and to dispose of waste shale. Sen. Gary Hart, D-Colo., is planning to introduce a comprehensive oil shale bill in the next few days not unlike the Marriott and Santini bills except that it would require a study before the Interior Department put long-term oil shale leasing in effect.

New oil shale bill goes to House Panel for debate

By Helene C. Monberg
Washington Correspondent

Special to the Vernal Express.

Washington–The comprehensive oil shale bill reported out of the House Mining Subcommittee on June 25 is scheduled to be taken up in the House Interior Committee on June 15, under current scheduling.

This will give the Administration and Congress enough time to work out the participation of the governors in the oil shale leasing process. At issue is not the governors' participation per se, but the extent of the participation.

Carrey E. Carruthers, Assistant Interior Secretary for land and water, is scheduled to meet with representatives of Rep. Ray Kogovsek, D-Colo., and perhaps also the representatives of Reps. Dan Marriott, R-Utah, and Hank Brown, R-Colo., on July 9 to hammer out the Administration's position on this point.

Carruthers testified on June 25 the Administration opposes concurrence by the governors of Colorado and Utah in final designation of tracts in Western Colorado and Eastern Utah to be leased. He made the statement in reply to a series of questions asked him by Kogovsek, at the request of Gov. Richard D. Lamm, D-Colo., and Rep. Timothy E. Wirth, D-Colo. In effect, Lamm wants a veto on tract selection.

Chairman, Jim Santini, D-Nev., of the House Mining Subcommittee urged the Administration and Kogovsek to get together on language acceptable to both. Current plans call for Kogovsek to push for language which would require the Secretary of Interior to state why he overruled a governor's opposition to leasing specific oil shale tracts, in the national interest, backed by Congressional approval of the Secretary's position. This would amount to a state veto altho it is not so characterized by Kogovsek and Lamm.

Kogovsek threatened to offer an amendment in committee to require state concurrence of lease tract designation at the June 25 mark up of the new oil shale bill, jointly sponsored by Santini and Marriott. Kogovsek told this correspondent prior to the July 4 break that he had not decided what to do. Such an amendment would have difficulty getting thru the House Interior Committee.

The states, the Friends of the Earth (FOE) which has been tracking oil shale leasing proposals, and Wirth and Kogovsek would like to see oil shale leasing plans included in the local Bureau of Land Management (BLM) plans. This also will be the subject of discussion at the July 9 oil shale meeting. Kevin Markey of Friends of the Earth testified at the June 25 hearing of the Senate Energy and Mineral Resources Subcommittee that no additional action should be taken on the prototype oil shale leasing program started in 1974 or new oil shale legislation until "improvements are made in the BLM's land use planning process in shale country, on-line experience with initial oil shale facilities, and a comprehensive evaluation of the need for new leasing. "Currently, BLM land use plans are not meshed with the prototype leased tracts, FOE claims.

It appears a new oil shale leasing bill is on the way, despite the delay cautioned by Friends of the Earth.

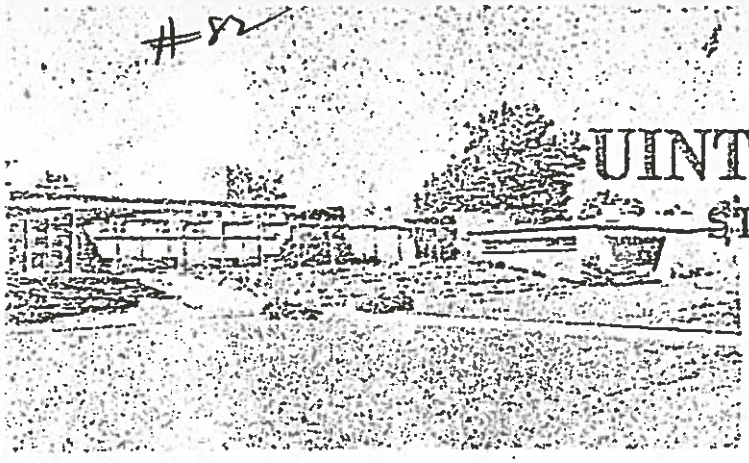
The new Santini-Marriott combined bill provides for the sole new oil shale legislative proposal sought by the Administration: off-tract leasing. It would authorize a second lease to oil shale lessees to provide space for putting up retorting facilities and disposal of spent shale from the least tract being mined.

It would also provide for several provisions not sought by the Administration, including authorizing the Secretary of Interior to lease tracts larger than 5120 acres to support a commercial operation, allowing for multi mineral leasing in oil shale country, and raising the statutory limit on leasing by one entity from one per state to two per state and four nationally. The Senate Subcommittee plans to hold hearings on similar legislation by Sen. Henry M. Jackson, D-Wash., on July 17.

Carruthers told the House Mining Subcommittee on June 25 the Administration plans to continue the Department's prototype lease program up until 1983, with the possibility of leasing up to four additional tracts "if the opportunity presents itself." Carruthers told this correspondent on July 1 he had assigned his deputy, David Russell, to work on designing a permanent oil shale leasing program to put into place late in 1983 and 1984. But such a program would require both legislative authority and the preparation of a new environmental impact statement with full public participation before a new program could be launched, Carruthers stated.

While proposing a leasing moratorium, the FOE conceded in its June 25 testimony that off tract leasing is necessary for "achieving maximum recovery rates–up to 450,000 barrels of shale oil per day eventually at minimum cost–to clarify the Department of Interior's authority to enter into multi-mineral leases and to authorize by-pass leasing of small federal tracts that would not otherwise be leased.

#82



UINTAH COUNTY
STATE OF UTAH

CLERK'S OFFICE
VERNAL, UTAH
84078

August 19, 1982

The Honorable John Warner
Chairman, U. S. Senate Subcommittee
Energy and Natural Resources
United States Senate
4203 Dirkson Senate Office Bldg.
Washington, D. C. 20510

Dear Senator Warner:

The people of Uintah County, Utah, realized your strong desire to help develop oil shale in order to supplement this nation's energy supply when you took your valuable time to hold a public hearing here in Vernal last January on your oil shale bill.

Even though you had the flu and transportation problems, this did not alter your determination to bring your message to oil shale country and hear from oil shale country people who enthusiastically endorse Senate Bill 1484.

Utah, Wyoming, and even Colorado still need this legislation to more efficiently use the oil shale resource, and to remove the unnecessary impediments to establishing a more economical, viable, and long-life recovery operation.

Senator, we have told you before and wish to say again that passing your oil shale bill is very important to us and to the rest of the nation as it will assist this nation in maintaining the quality of life we look forward to for many generations yet to come. We just simply cannot support the narrow philosophy of the Senator from Colorado and his substitute bill.

Please recognize that we are ready and anxious to help the passage of your bill, and would welcome any suggestions on ways to do this. We congratulate you on your determination to pass the right kind of legislation, and your untiring effort on behalf of the people of this nation.

Sincerely,

Roland Merkley
Roland Merkley, Chairman
Uintah County Commission

Neal H. Domgaard
Uintah County Commissioner

Merrill B. Mecham
Uintah County Commissioner

RM/sm

Dinah-Mites
120 East Main
Vernal, Utah 84078

August 20, 1982

COPY

The Honorable John Warner
Chairman, U.S. Senate Subcommittee
Energy & Natural Resources
United States Senate
Senate Office Bldg.
Washington, D. C. 20510

Dear Senator Warner:

The "green coated" Dinah-Mites that greeted you at the airport upon your gracious visit to Vernal in January are not only good will ambassadors for our area, but are also concerned business and professional people who want to see our great nation maintain its position as a world power.

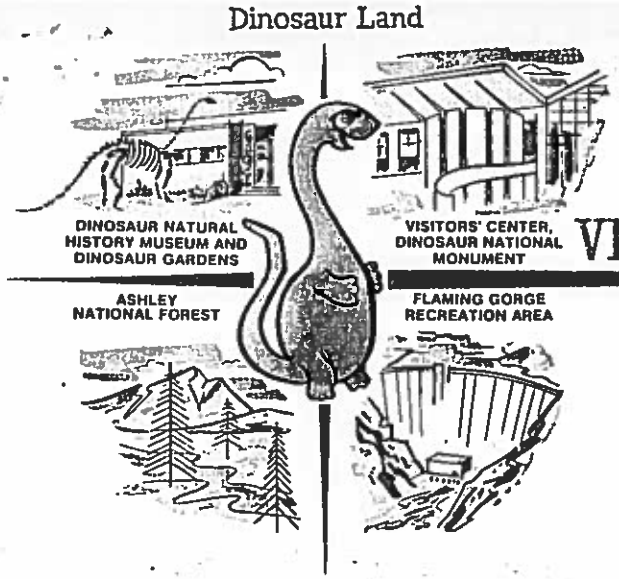
We feel that your bill S1484, if passed will have a determining effect for this in encouraging and paving the way for a vital supplement to our oil reserves in the oil shale industry.

We wish to be counted as a group of supporters for your bill and are ready and willing to help in any way we can. Please offer any suggestions you may have as to how we can join with you to assist in getting S1484 through Congress.

Sincerely,

Gary Taylor
President

GT/js



VERNAL AREA CHAMBER OF COMMERCE

120 EAST MAIN, VERNAL, UTAH 84078, (801) 789-1352

August 20, 1982

COPY

The Honorable John Warner
Chairman, U.S. Senate Subcommittee
Energy & Natural Resources
United States Senate
Senate Office Bldg.
Washington, D. C. 20510

Dear Senator Warner:

At a time when the oil shale developers are experiencing many discouraging problems the passage of your senate bill 1484 would surely give them a much needed "shot in the arm".

We, here in shale country, want to reafirm our enthusiastic support for your bill, as we did when you visited here in January of this year. We are still convinced that passage of this bill will provide considerable incentive for the developers to go ahead with their long range plans to provide our country with a much needed supply of "new oil". We commend you for your untiring efforts in trying to stabilize and encourage the development of these vast energy resources.

Although we stand to benefit directly from the oil shale industry, we feel the issue is not a local one, but one that will benefit our entire nation and our way of life. For this reason we admonish you to continue your efforts to get this legislation passed.

Sincerely,

D. L. Wetenkamp
Executive Vice President

DLW/js

Copies of John Warner's letter sent to:

Committee on Energy & Natural Resources:

The Honorable James A. McClure, Chairman
United States Senate
Senate Office Building
Washington, D. C. 20510

(not on committee)
Sen. Orrin Hatch
Sen. E. J. Garn
Sen. Wm. L Armstrong
Sen. Alan K. Simpson
Gov. Scott Matheson

The Honorable Mark Hatfield
U. S. Senate
Senate Office Building
Washington, D. C. 20510

Rod Madsen
3438 Federal Bldg.
SLC 84138

The Honorable Lowell Weicker, Jr.
U. S. Senate
etc.

The Honorable Pete Domenici

The Honorable Malcolm Wallop

The Honorable John Warner
Chairman, U. S. Senate Subcommittee
Energy & Natural Resources
United States Senate
Senate Office Bldg.
Washington, D. C. 20510

The Honorable Gordon Humphrey

The Honorable Frank Murowski

The Honorable Don Nickles

The Honorable John East

The Honorable John Hines

The Honorable Henry Jackson

The Honorable Jay Bennett Johnston

The Honorable Dale Bumpers

The Honorable Wendell Ford

The Honorable Howard Metzenbaum

The Honorable Spark Matfunaga

The Honorable John Melcher

The Honorable Paul Tsongas

The Honorable Bill Bradley

Vernal Express 4/7/77

Local oil shale near production 60 years ago

Sixty years ago the need for additional sources of energy was recognized not only by prominent men in the oil development field, but also by the government. The answer to that pressing need and future needs was proclaimed to be in shale–the vast deposits of Utah, Wyoming and Colorado. A Shale Research Plant was operated for eight years at Rifle, Colo. but was closed when the government refused to appropriate funds.

These newspaper articles, which will be presented in two parts, were taken from the files of the Vernal Express.

December 7, 1917

MUCH EASTERN MONEY COMING TO DEVELOP OIL WELLS IN UINTAH BASIN

Further evidence of the increased interest in oil operation in the Uintah Basin was the visit of D. H. Gustaveson, one of the world's leading oil men and one of the original organizers of Utah Oil Refining Co. Accompanying Mr. Gustaveson was J. B. Jones, Tulsa, Oklahoma oil producer and petroleum engineer and C. M. Currie, superintendent of Ute Oil Co.

Mr. Gustaveson, in speaking of his trip said, this is about my 10th trip to the Basin and the oil possibilities look greater each time I come in. If the Uintah Basin does not prove among the greatest oil fields in the west, I'll miss my guess. Surely, with so much gilsonite, oil shales, oil seepages and actually producing wells, the field will prove a great producer.

Mr. Jones was a pioneer in investigating the possibilities of shale reduction plants and made the first reports on the vast deposits in Parachute Valley, Garfield County, Colo. These beds are now being developed at Grand Valley by Chicago capital. Many articles of vast and varied uses in science and commerce will yet be made from Utah shales, according to Mr. Jones.

Mr. Jones is an oil producer and petroleum engineer of 20 years experience and is acting as consultant engineer for the Ute Oil Co. but his principal object on this trip is to inspect some rich shale beds. He is taking samples from Watson to eastern refiners and chemists for the purpose of developing the best means of treatment.

At Salt Lake City, Mr. Jones will visit his old friend, Otto Stahlman, the noted metallurgist and mining engineer who has recently developed a process for shale treatment at University of Utah for recovery of oils and by-products.

He is also sending samples to Mr. Strickler of the Wells Refining Co. of Tulsa whose proceeds have given high tests on both Scotland and American Shale.

December 7, 1917

ANOTHER COMPANY ORGANIZED TO WORK RICH OIL FIELD

A local company has been organized to work oil shale property near Watson in the big oil shale territory on White River and in Hell's Hole Canyon.

From Vernal, this property is about 35 miles southeast. Local board consists of Sheriff Richard Pope, pres.; L. H. Woodard, vice pres.; E. R. Lawrence, sec.; together with Clerk James O'Niel Jr. and E. A. Manker, directors.

The company owns 4000 acres of oil shale land in the heart of what is said to be one of the richest bodies of oil shale deposits in the world.

The government has had such men as Dr. David T. Day, Dean E. Winchester and E. F. Woodruff, making field tests since 1913. Their reports appear in Bulletin 641F U.S. Geological Survey and it is understood the government is now using its utmost influence in having these deposits of shales developed as it is claimed not only large profits are to be made in shale oil reduction plants but the oil derived from them will go a long way in relieving the oil and gasoline shortage which is becoming so serious throughout the whole country.

An idea can be formed as to the shortage of gasoline and oil by recent prices which advanced from 25 cents to $3.25 a barrel in Pittsburg. Not only is the government anxious on this account, but for the additional fact that the shale deposits carry nitrate and other explosives so valuable in the manufacture of ammunition.

Startling figures as to probable oil content in this new company claims are given. The company owns 4,000 acres and conservative estimates taken as results of several tests show there are 2,553,000,000 barrels of oil in the shale after it has been torted at the reduction plant.

The minimum depth of this shale deposit is 200 while there are several rich streaks which it is estimated will make it that much richer in number of barrels to be produced. These shales also contain enough gas to furnish power and heat for all operating and distillation purposes.

The oil distilled from the shale is of high gasoline content, tests showing it to be not less than 30 percent.

December 17, 1917

ANOTHER OIL REDUCTION PLANT TO BE BUILT NEXT SPRING

In addition to the reduction plant to be built by the Crane Shale Oil Co., another plant will be built near Watson by a company headed by Verner C. Reed and James Doyle.

Operations will commence on the proposed plant in the spring. Both these men are working on claims which adjoin the Crane Co. They commenced assessment work in 1916. This year they are not only working the assessments, but will work right through until a patent is received.

Both men are well known as oil producers of note. Mr. Reid was the organizer of the Mid west Oil Co.; the largest independent company in the world. He is said to be a multi millionaire.

Mr. Doyle was the owner of the famous Portland Mine of Cripple Creek, Colo., which is still a big producer.

An experimental plant is conducted by these men at the Denver Engineer Works at Denver.

The type of plant to be constructed will be a distinct innovation in reduction plants. At present, throughout the country where oil shale is treated, a separate plant is used to reduce the shale to crude oil, then it is taken to a refinery where the gasoline, naptha, benzine, lubricating oil and other products are separated. But the plant to be constructed here will be both a reduction plant and a refinery combined in one. Great interest is being manifested by prominent oil producers over this new invention. If it proves successful, it will result in lowering cost greatly.

December 17, 1917

UINTAH OIL SHALES SENT TO ENGLAND FOR GOVERNMENT TESTS

Attention has not only been given by the American government and financial interests to the oil shale deposits near Watson, but the government of England is also turning its attention here as well.

The U.S. Bureau of Mines, under the direction of Dr. David T. Day, had four tons of this shale shipped last week to England to have tests made of it.

In order that this shipment, or part at least, reach its destination, it was crated and sent in two separate consignments, in case the ship was sunk on which one of the boxes was sent.

According to Dr. Day and other reports of the Bureau of Mines, the shales properties contained in this district in Uintah County are richer than any deposit that the world has produced.

Oil shale bill to come up in House after recess

Special to the Vernal Express

By Helene C. Monberg

Washington—The House Interior Committee, which cleared a new omnibus oil shale bill on July 22, is now in the process of preparing the report so that the bill can be brought up after the August recess on the House Floor.

"I don't think we can bring it up before the recess because of the House schedule," Chairman Jim Santini, D-Nev., of the House Mining Subcommittee said. But a staff aide indicated this might happen—tho it would be a long shot. "We don't want to give advance notice not much anyway," he confided.

The bill cleared the House Committee with but one dissent, by Rep. Bruce F. Vento, D-Minn., who expressed concern all of the oil shale lands would be hogged by a few oil shale companies. It also cleared the Committee with the addition of five amendments by Rep. Ray Kogovsek, D-Colo., and one by Rep. John F. Seiberling, D-Ohio. Seiberling also withdrew an amendment.

The Kogovsek amendments essentially were those which the states of Colorado and Utah agreed they wanted in the bill, altho they did not provide for concurrence of these states' governors when the Secretary of Interior offers new oil shale leases. Both governors had sought to have concurrence written into the bill.

Basically, the bill allows for those holding leases of oil shale tracts at the present time to acquire additional acreage solely for the purpose of disposing of spent shale and for the construction of plants and facilities on the additional leased land. The Seiberling amendment which was adopted by voice vote, allowed only present lessess to hold such ancillary leases by limiting the off site leases to lessess which held oil shale leased tracts as of Jan. 1, 1981. It also authorized such ancillary tracts to be leased solely to oil shale lessees of federal lands. The bill had originally allowed such ancillary leases to be issued also to holders of oil shale leases on private and state lands as well as federal lands.

to plan for its continued development.

The bill continues to allow leases of 5120 acres, but a Kogovsek amendment increased the lease up to 15,460 acres where the Secretary determined the larger acreage was needed to support an economically viable, commercial shale operation.

The limitation was put on the amount that the Secretary could authorize in a lease tract to answer the criticism voiced by Vento that the final total acreage should be determined by Congress, not by the Secretary.

Vento indicated concern that Interior Secretary James G. Watt might provide for unusually large oil shale lease tracts. The Kogovsek amendment was approved by voice vote. "The intent of this amendment is to disperse oil shale development throughout the area", he said.

The bill provides for specific authority for the Secretary of Interior to issue multi mineral leases. Thus the Secretary of Interior can allow saline minerals such as dawsonite, nahcolite and halite to be leased along with oil shale in the Piceance Creek Basin in Colorado. These sodium minerals are intermingled with oil shale in the Basin.

A Kogovsek amendment to the bill on this provision tightened up the language somewhat, stating multi mineral leases could occur only under such "terms, conditions and restrictions as may be imposed by the Secretary" of Interior. It was approved by voice vote. The bill also provided for leasing additional federal acreage in small tracts to avoid bypass of small acreages that could not otherwise be economically mined.

The fourth and fifth Kogovsek amendments were new language in the bill. The fourth authorizes the Secretary to lease additional oil shale lands only after consultation with the governors of Utah and Colorado, but he might go ahead with leasing tracts which they don't want leased if he regards it to be in the national interest and he details his reasons for doing so the governors, prior to issuing the leases. This Kogovsek amendment was adopted by voice vote after very little discussion.

By Helene C. Monberg

Washington—The House Interior Committee, which cleared a new omnibus oil shale bill on July 22, is now in the process of preparing the report so that the bill can be brought up after the August recess on the House Floor.

"I don't think we can bring it up before the recess because of the House schedule," Chairman Jim Santini, D-Nev., of the House Mining Subcommittee said. But a staff aide indicated this might happen—tho it would be a long shot. "We don't want to give advance notice not much anyway," he confided.

The bill cleared the House Committee with but one dissent, by Rep. Bruce F. Vento, D-Minn., who expressed concern all of the oil shale lands would be hogged by a few oil shale companies. It also cleared the Committee with the addition of five amendments by Rep. Ray Kogovsek, D-Colo., and one by Rep. John F. Seiberling, D-Ohio. Seiberling also withdrew an amendment.

The Kogovsek amendments essentially were those which the states of Colorado and Utah agreed they wanted in the bill, altho they did not provide for concurrence of these states' governors when the Secretary of Interior offers new oil shale leases. Both governors had sought to have concurrence written into the bill.

Basically, the bill allows for those holding leases of oil shale tracts at the present time to acquire additional acreage solely for the purpose of disposing of spent shale and for the construction of plants and facilities on the additional leased land. The Seiberling amendment which was adopted by voice vote, allowed only present lessess to hold such ancillary leases by limiting the off site leases to lessess which held oil shale leased tracts as of Jan. 1, 1981. It also authorized such ancillary tracts to be leased solely to oil shale lessees of federal lands. The bill had originally allowed such ancillary leases to be issued also to holders of oil shale leases on private and state lands as well as federal lands.

The bill increases the number of federal leases that one entity can hold to two leases per state and four nationwide. A federal-tract lessee can acquire an additional lease in either Colorado or Utah after that company has achieved production from both of its existing leases and it is within 15 years of exhausting the recoverable reserves on one of its existing leases.

Kogovsek sponsored the amendment which increased the period to 15 years from 10 years, as the bill originally provided. It was adopted by voice vote. Kogovsek claimed this would give a lessee with a going operation more time

5120 acres, but a Kogovsek amendment increased the lease up to 15,460 acres where the Secretary determined the larger acreage was needed to support an economically viable, commercial shale operation.

The limitation was put on the amount that the Secretary could authorize in a lease tract to answer the criticism voiced by Vento that the final total acreage should be determined by Congress, not by the Secretary.

Vento indicated concern that Interior Secretary James G. Watt might provide for unusually large oil shale lease tracts. The Kogovsek amendment was approved by voice vote. "The intent of this amendment is to disperse oil shale development throughout the area", he said.

The bill provides for specific authority for the Secretary of Interior to issue multi mineral leases. Thus the Secretary of Interior can allow saline minerals such as dawsonite, nahcolite and halite to be leased along with oil shale in the Piceance Creek Basin in Colorado. These sodium minerals are intermingled with oil shale in the Basin.

A Kogovsek amendment to the bill on this provision tightened up the language somewhat, stating multi mineral leases could occur only under such "terms, conditions and restrictions as may be imposed by the Secretary" of Interior. It was approved by voice vote. The bill also provided for leasing additional federal acreage in small tracts to avoid bypass of small acreages that could not otherwise be economically mined.

The fourth and fifth Kogovsek amendments were new language in the bill. The fourth authorizes the Secretary to lease additional oil shale lands only after consultation with the governors of Utah and Colorado, but he might go ahead with leasing tracts which they don't want leased if he regards it to be in the national interest and he details his reasons for doing so the governors, prior to issuing the leases. This Kogovsek amendment was adopted by voice vote after very little discussion.

The fifth Kogovsek amendment allows an oil shale company on its option to prepay rents and royalties prior to the year they are assessed, and it directs the governor to distribute such payments "only to those counties, municipalities or jurisdictions impacted by oil shale development and/or where the lease is sited." This restriction was written into the amendment because the states have not been automatically passing rents and royalties from federal mineral lands to the counties or origin. The money is to alleviate local impacts from oil shale development.

aug 20-81
page 3

New oil shale plants decrease water demands

(Special to the Vernal Express)
By Helene C. Monberg

Washington—The new oil shale projects approved by the Department of Energy (DOE) on July 29 and Aug. 5 would use only 11,400 acre-feet of water annually, according to the study on syn-fuels development in the Colorado River Basin recently released by the Water Resources Council (WRC).

The study indicated a 50,000 barrel-a-day oil shale conversion plant would use 5,700 acre feet of water a year from the Upper Colorado River Basin. Each of the plants approved in oil shale country, the Colony project of Tosco and Exxon, and the Parachute Creek Project of Union Oin Co. of California, would be 50,000-barrel-a-day plants, as both projects are now envisioned. Both are in Western Colorado.

Environmental Protection Agency Administrator Anne M. Gorsuch told this correspondent on Aug. 5 EPA is keeping an eye on these new syn-fuels plants thru a special office. It turns out EPA has an alternative fuels group here which has as its contact Frederick D. (Derry) Allen.

Asked what EPA had been doing in the past and what it would be doing in the future to keep an eye on the water quality, air quality and solid waste disposal problems as they relate to the two Colorado plants and the new Great Plains coal gasification plant approved by DOE for North Dakota, Allen said, "These projects got their permits to operate some time ago. We are tracking these projects thru a coordinator in Denver—John Philbrook—in our Denver regional office. He is the one who will be keeping up to speed on these projects to see that they meet air and water quality standards." Allen wasn't sure what EPA was doing regarding the solid waste problems posed by these projects, but it will tract that too, he said.

The WRC study released recently in draft form will be released in final form before the WRC goes out of existence on Sept. 30.

One of the most interesting things about the study is that it indicates coal gasification will take considerably more water than oil shale conversion under projects now in the discussion stage. It shows that high BTU coal gasification projects which would River Basin study; it is a high BTU project which is expected to use 6,000 acre-feet of water a year out of Garrison Reservoir on the Missouri River in North Dakota.

There were some interesting observations in the study, whose contents have long been known: that the Upper Colorado River Basin would support a 3 million barrel-a-day syn-fuel industry, and that such an industry could consumptively use about 150,000 acre-feet of water per year for each million barrels of syn-fuels production, or its equivalent.

It indicated an increase in runoff from weather modification is not likely to add to the water supply of the Upper Colorado River Basin. "Enhanced snowfall from weather modification would be advantageous to skiers, snowmobilers and supporting businesses" as well as syn-fuels industry.

"However, increased snowfall raises costs for snow removal and avalance control, increases the snow damage to orchards, reduces grazing potential for livestock and wildlife in high pastures, and raises costs for mining and timber operations. Because of these and other institutional factors, major weather modification is not likely in the near future," the draft study on the upper Basin concluded.

Events have overtaken the study in one regard. It indicated syn-fuels development might have an adverse effect on endangered species in the area, particularly the Colorado River squawfish and the humpback chub.

The U.S. District Court in Denver on Aug. 3 ruled that the listing both of these fish as endangered species was invalid and void, as the Secretary of Interior had not followed the correct procedures—public notice and public participation as required under the Administration Procedures Act—before so listing these fish as endangered.

All of the proposals in the Council Upper Colorado study were potential at the time they were considered. Now both the Union proposal, approved on July 29, and the Tosco Colony proposal, approved on Aug. 5, will be subsidized by the government, so both are expected to go forward as actual commercial-scale synthetic fuel projects to convert oil out of shale.

(Special to the Vernal Express)
By Helene C. Monberg

Washington—The new oil shale projects approved by the Department of Energy (DOE) on July 29 and Aug. 5 would use only 11,400 acre-feet of water annually, according to the study on syn-fuels development in the Colorado River Basin recently released by the Water Resources Council (WRC).

The study indicated a 50,000 barrel-a-day oil shale conversion plant would use 5,700 acre feet of water a year from the Upper Colorado River Basin. Each of the plants approved in oil shale country, the Colony project of Tosco and Exxon, and the Parachute Creek Project of Union Oin Co. of California, would be 50,000-barrel-a-day plants, as both projects are now envisioned. Both are in Western Colorado.

Environmental Protection Agency Administrator Anne M. Gorsuch told this correspondent on Aug. 5 EPA is keeping an eye on these new syn-fuels plants thru a special office. It turns out EPA has an alternative fuels group here which has as its contact Frederick D. (Derry) Allen.

Asked what EPA had been doing in the past and what it would be doing in the future to keep an eye on the water quality, air quality and solid waste disposal problems as they relate to the two Colorado plants and the new Great Plains coal gasification plant approved by DOE for North Dakota, Allen said, "These projects got their permits to operate some time ago. We are tracking these projects thru a coordinator in Denver—John Philbrook—in our Denver regional office. He is the one who will be keeping up to speed on these projects to see that they meet air and water quality standards." Allen wasn't sure what EPA was doing regarding the solid waste problems posed by these projects, but it will tract that too, he said.

The WRC study released recently in draft form will be released in final form before the WRC goes out of existence on Sept. 30.

One of the most interesting things about the study is that it indicates coal gasification will take considerably more water than oil shale conversion under projects now in the discussion stage. It shows that high BTU coal gasification projects which would produce 250 million cubic feet of synthetic gas daily would take 7,500 acre feet of water, and low BTU coal gasification plants of the same size could take up to 13,500-acre feet of water annually.

The North Dakota project is only half the size of the proposals for coal gasification outlined in the Colorado River Basin study; it is a high BTU project which is expected to use 6,000 acre-feet of water a year out of Garrison Reservoir on the Missouri River in North Dakota.

There were some interesting observations in the study, whose contents have long been known: that the Upper Colorado River Basin would support a 3 million barrel-a-day syn-fuel industry, and that such an industry could consumptively use about 150,000 acre-feet of water per year for each million barrels of syn-fuels production, or its equivalent.

It indicated an increase in runoff from weather modification is not likely to add to the water supply of the Upper Colorado River Basin. "Enhanced snowfall from weather modification would be advantageous to skiers, snowmobilers and supporting businesses" as well as syn-fuels industry.

"However, increased snowfall raises costs for snow removal and avalance control, increases the snow damage to orchards, reduces grazing potential for livestock and wildlife in high pastures, and raises costs for mining and timber operations. Because of these and other institutional factors, major weather modification is not likely in the near future," the draft study on the upper Basin concluded.

Events have overtaken the study in one regard. It indicated syn-fuels development might have an adverse effect on endangered species in the area, particularly the Colorado River squawfish and the humpback chub.

The U.S. District Court in Denver on Aug. 3 ruled that the listing both of these fish as endangered species was invalid and void, as the Secretary of Interior had not followed the correct procedures—public notice and public participation as required under the Administration Procedures Act—before so listing these fish as endangered.

All of the proposals in the Council Upper Colorado study were potential at the time they were considered. Now both the Union proposal, approved on July 29, and the Tosco Colony proposal, approved on Aug. 5, will be subsidized by the government, so both are expected to go forward as actual commercial-scale synthetic fuel projects to convert oil out of shale.

Additionally, the Geokinetics Oil Shale Development and Production Office will be moved on Sept. 1 from Concord Calif., where the Geokinetics home office is based, to Salt Lake City, Geokinetics announced on Aug. 12. This appears that Geokinetics will materially expand its oil shale operations in the Vernal, Utah, area.

#82

retort in agency draw

oil shale interest flared years ago

by David L. Beck

Tribune Staff Writer

OUT IN Eastern Utah, where the barren land is covered with sagebrush and pinion and juniper, where rabbits roam and an occasional deer — followed by an occasional hunter — stands a stone tower, souvenir of an earlier interest in the oil shale that underlies the land.

The tower stands in Agency Draw, east of Willow Creek in Uintah County. Nearby are the remnants of the stone houses built for the crew that built and briefly ran it. Only a jeep trail leads to it.

The tower is a retort, the pilot plant for what was hoped would be a commercially feasible shale oil operation. Reid Spjut, a Skyline Oil Co. geologist (the firm has shale leases and gas wells nearby) says he assumes — he has not climbed the tower — that it is lined with metal

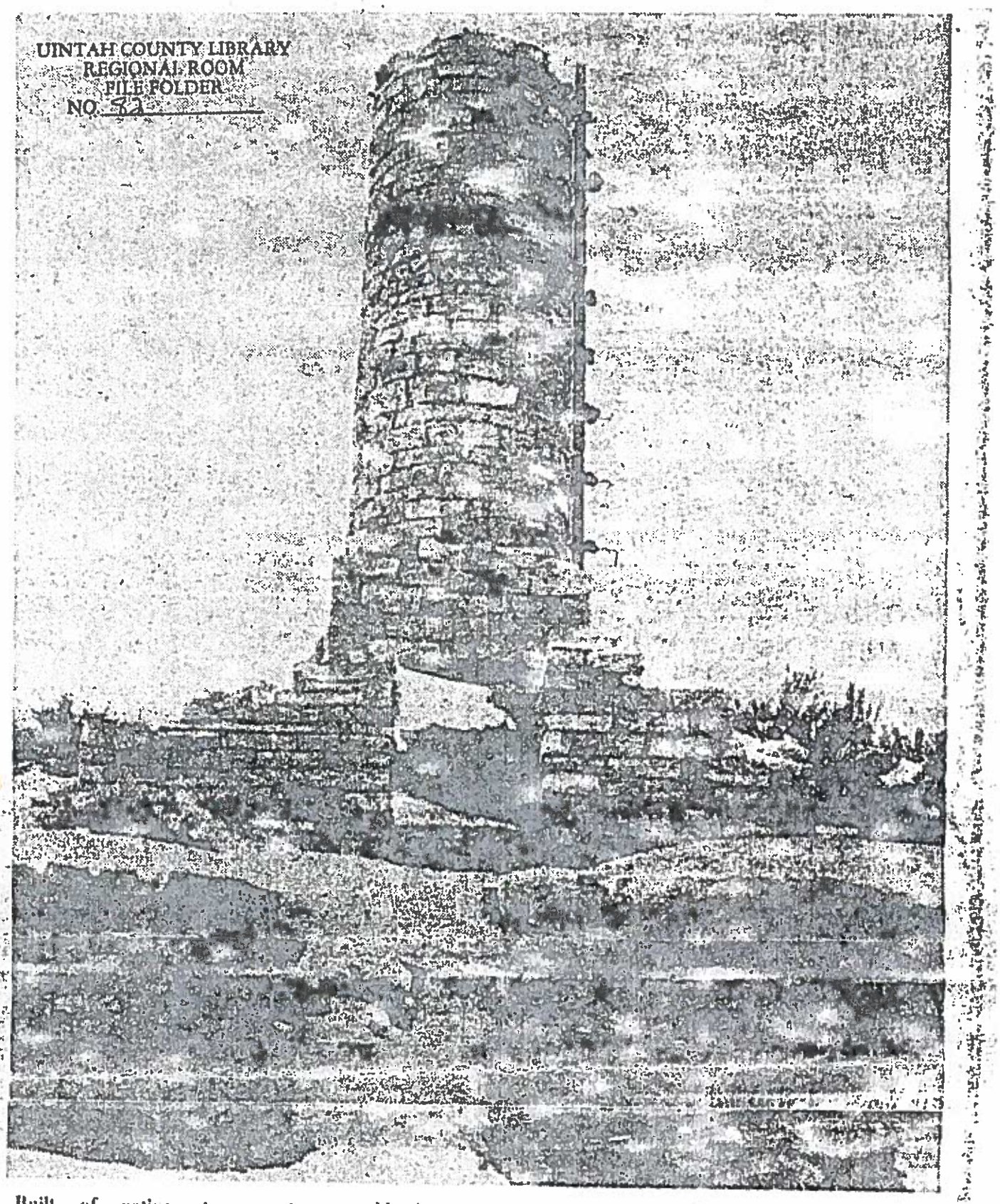
ON THE TOP is a large gear connected by a drive shaft to a smaller gear at the bottom. Though whatever motor turned the gears has long since disappeared, the gears must have been connected to an agitator deep inside the retort, moving the heating shale around.

On the back are a series of vents. It was thought then that the oil extracted from the shale could be fractionated during the same process — retorting and refining all at once. The idea (which Mr. Spjut says doesn't work) was that the gas could be drawn off at the top, the heating oil in the middle, and the heavier oil at the bottom.

Mr. Spjut, after browsing through several years of the Salt Lake Mining Journal, says the project was begun in 1921 by R. S. Collett of Salt Lake City who, reported the Journal on April 30 of that year, had a crew of 80 men at work on a road from Rainbow to Agency Draw, a distance of over 50 miles.

By June 15, 1921, the Journal was reporting that J. H. Galloupe had become associated with the project. Galloupe was a Coloradan who had invented a process for extracting oil from shale. He had recently built a similar retort in Dillon, Mont., and four others for the Western Shale Oil Co. near Mack, Colo.

BY THEN another name had entered the story, a New York financier with offices in Salt Lake City whose name was variously reported in the Journal as R.L.J. Davis and D.J.L. Davis. (The Polk's City Directory for that year lists a D.J.L. Davis with offices in the Utah Savings and Trust Building. It does not list an R.L.J. Davis.)



Built of native stone, retort could handle 10 tons of shale a day. It was pilot project.

In September it was reported that Galloupe was at work on the Agency Draw retort, and by Jan. 15, 1922, the Journal noted that preliminary tests had been completed with success.

The retort was rated at a capacity of 10 tons of shale a day. Assuming 35 gallons per ton from the best grade of shale, the project was capable of turning out 10 barrels of oil a day, says Mr. Spjut.

Agency Draw sits on an outcrop of the Mahogany Ledge, a zone of the Green River Formation — the richest oil shale in the area. Max Peatross of Myton, who became interested in the derelict retort, relates the story of a man named Abe Hatch, a one-time Willow Creek resident who now lives in Vernal.

MR. HATCH remembers riding out to the retort where the mother of the girl he was courting cooked for the 15-man crew. They blasted the shale out of a couple of nearby quarries with black powder; his girl's stepfather rented them a team and wagon to haul the shale to the retort, where pinion was burned to heat the shale.

(He says, incidentally, that a normal day's output from the retort was 40 drums of oil, a figure Mr. Spjut doubts.)

One difficulty with commercial production in the area was that the oil had to be hauled 50 miles by wagon over the road Collett built, to the railhead at Rainbow or Watson — the nearest outpost of the Uintah Railroad Co.

But the Agency Draw project never went into commercial production.

Galloupe returned to Colorado to work on the plans for the larger retort or retorts that would be needed. On March 30, the Journal carried an item datelined eight days before in Grand Junction. It reported the death of Galloupe from influenza and pneumonia.

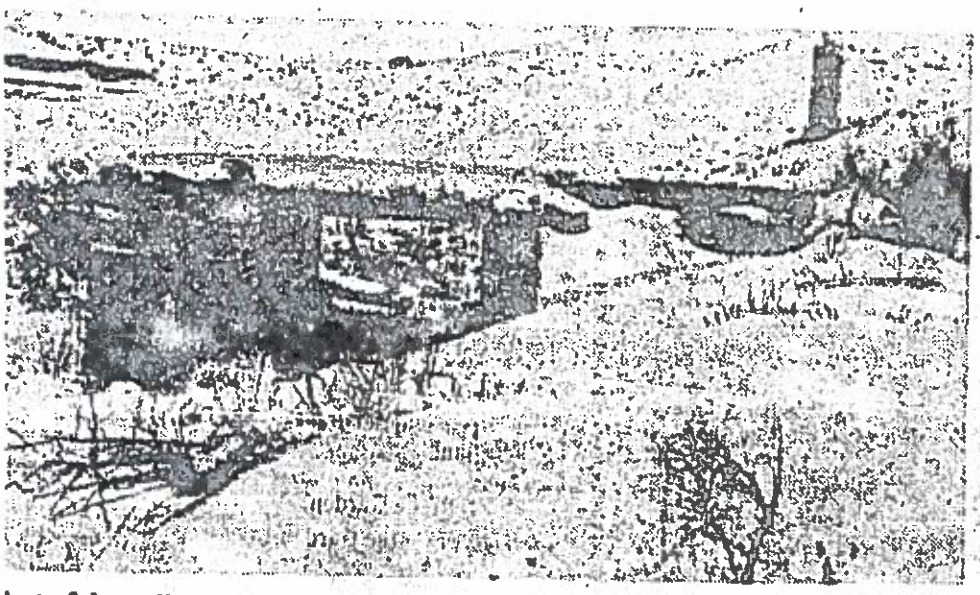
That apparently ended the operation. Today, says Mr. Peatross, the slag pile has grown over, the ledges have weathered and look natural once more. The tower remains and a part of one stone house, that is all.

THE ROAD Collett built is still there; or at least, there is a road running from Watson and Rainbow, near the Colorado line, to Willow Creek, and it may be assumed that it follows the line of the old road.

(Collett had proposed to the Grand County commissioners that his crew begin work on another road, leading south to Thompson, Utah. The county was to start work at the Thompson end. The commissioners never agreed to it, which would have built a road over the Book Cliffs, was dropped.

To get to the retort today, Mr. Spjut suggests starting from Ouray, Utah, about 40 miles to the north. From there a dirt road, passable maybe eight months of the year by passenger car, winds down Willow Creek to a bridge called Santio Crossing.

You cross the creek to the west, and from there it's about five miles to Agency Draw, of which the last mile and a half are mere trail. A four-wheel-drive vehicle will do it easily, he says, or the land is level enough to walk.



Part of the walls of this stone house, plus the retort in the background, are all that remain of the shale extraction project at Agency Draw.

The Salt Lake Tribune, Sunday, February 17, 1974 H 3

Funeral services for Mrs. Minerva Ann Van Wagoner Hanks, 72, mother of Mrs. Eva Ashton of Vernal, were conducted Sunday in Mitchell funeral home in Price under the direction of Bishop Duane A. Frandsen of Price Second Ward, Church of Jesus Christ of Latter-day Saints.

Mrs. Hanks died in a Price hospital the previous Thursday of coronary thrombosis.

Born in Provo Sept. 15, 1878, Mrs. Hanks was a daughter of Ephriam and Katherine Hamilton VanWagoner. Orphaned at the age of seven, she was reared by the Ballinger and Holdaway families in Price.

Her parents were early pioneers of the Latter-day Saint Church who came to Utah with [illegible] of the handcart companies.

In 1897 Mrs. Hanks was married to Henry Stewart. He died several years after their marriage, and she was married to Neal Hanks June 15, 1910.

Prominent in the livestock industry in Price for many years, Mr. and Mrs. Hanks operated several large holdings in the Nine Mile area and had homes in Roosevelt and Price.

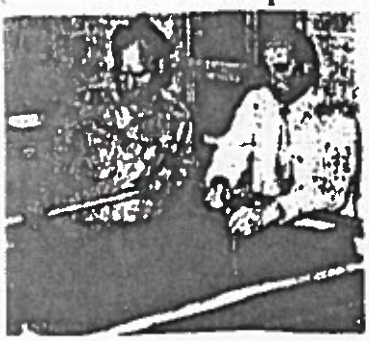
Mr Hanks died Jan 2, 1946, at which time Mrs. Hanks moved to Price.

She was active in the Relief Society and also was a member of the American Legion auxiliary.

Survivors, besides Mrs. Ashton include a son and two daughters, Van Stewart, Salt Lake City, and Mrs. Donna Hanks Dapin, Price; three grandsons and a great grandson.

Burial was in Price city cemetery.

in Contour Map



various heights on a new conproject are Alvin Bowden, Jaycommittee member; Alvin Kay, Ralph Preece, external vice pre-

The Echo Park Dam committee, under the direction of Vice Chairman Dale Jensen, has organized four sub-committees: Educational committee, chairman, L. Y. Siddoway; publicity committee, under the direction of Chris McKinlay; the speakers' bureau, led by Clair R. Hopkins, and the water users' committee, chairman Glenn H. Cooper.

The speakers' bureau, working with the educational committee, will choose eight speakers to present the truth on Colorado River Water developments in the State of Utah to residents of the Basin, and later expand to the rest of the State.

The speakers will receive an intensive course of instruction on the historical background of the Colorado River and the

Mrs. C. F. Tucker Dies Wednesday In Las Vegas

Mrs. Charles F. Tucker of Las Vegas, Nev., former Vernal resident, passed away Wednesday at 2:30 p.m. Funeral services will be conducted Monday, April 9 at 2 p.m.

Mrs. Tucker is survived by her husband and only daughter, Mrs. Ryan (Marion) Tucker Johnson and one granddaughter, Shirley Johnson and one grandson.

The Tuckers homesteaded a ranch in Wyoming where they spent several years prior to moving to Vernal. The Tuckers have been in Nevada for approximately 23 years.

Water Board Favors Colorado River Report

The Board of Directors of Utah Water Users Association Tuesday went on record in support of recommendations for the Colorado River Storage Report, announced T. W. Jensen, secretary-manager.

The Board supported the recommendations which would include construction of five reservoirs, three affecting Utah at Echo Park, Flaming Gorge and Glenn Canyon.

The Board also passed a resolution to request the Bureau of Reclamation to complete its study of the Gooseberry Project in Sanpete County at an early date.

(Continued on page 8)

erts the sheepman.

Oil Shale Has Great Future Predicts Petroleum Expert

Development of oil shale in Utah and Colorado has a great future said Capt. Robert H. Meade, CEC, USN, director of petroleum reserves, on a recent visit to Salt Lake City.

The executive said that the U. S. Navy has three large oil shale reserves in the Uintah Basin, two near Rifle, Colo., where the U. S. Bureau of Mines is conducting experiments, and a third of some 60,000 acres near Dragon, Utah.

Capt. Meade acknowledged there was a diversity of opinion among experts as to just when oil shale can be reduced commercially and sold in competition with crude oil obtained by conventional drilling operations.

"But it is coming, we are confident of that," he declared.

American Legion Post Created for Jensen Veterans

JENSEN — A new American Legion Post was created last week in Jensen when a group of Veterans met at the vacant room in the AuMiller building Tuesday evening.

Name chosen for the Post was "Leland Vaughn Gardner Post 124" in honor of the only soldier lost from Jensen in World War II.

Wm. Sutter, district commander from Ft. Duchesne and Junius Hacking, chaplai nof Vernal, were present. Officers for the new organization were chosen with Howard Cowan named commander; Max James, first vice commander; Robert Niel Thorne, second vice commander; Asa Johnston, adjutant; Calvin Stewart, sergeant at arms and Wallace Moon, chaplain.

HOSPITAL NEWS

Patients receiving medical care at the Uintah County hospital during the past week were Harold Jones, Mrs. Gilbert Brown, Mrs. Winfield Hatch, Mrs. H. S. Miller, David Smuin, Gerald Bowden, Mrs. J. H. Ratliff, Pamella Abplanalp, Rae Ashton, Warren Caldwell, Mrs. Joe Trujillo, Mrs. Clifford Massey, Gayla Cook, Sandra Alexander and Willie Smith.

Surgical patient was Ivan W. Sheffer.

Uintah County Accident Rate Keeps Low

Only four minor property damage accidents in Uintah County for the last six weeks is a record that drew commendation from Trooper Sammy Hatch, highway patrolman.

Trooper Hatch praised county residents for their safe driving especially as the winter months normally have a high ratio of mishaps.

Although Spring is here and road conditions will be better, Trooper Hatch urged motorists to continue their vigilance in preventing deaths and injuries on the roads.

May 15 is the deadline for automobile state inspection, he reminded car owners.

TOP STUDENTS, IN CLASS OF '51,

Along with an excellent record in school, community and church activity, Uintah High School Class of '51, enrollment one hundred, can boast 10 students with a scholastic average of 90 percent (A—).

Highest scholastic averages

'WHO'S WHO' NAMED BY UHS

during their entire high school career were achieved by Merlene Davis, daughter of Mr. and Mrs. Harold E. Davis, and Max Caldwell, son of Mr. and Mrs. Chellus M. Caldwell.

Each of these students will receive a Gruen wrist watch, a yearly award presented by Gardner Jewelry company.

Representative scholars are elected annually to the Senior "Who's Who" election being based on the students' four-year records under the following evaluation: Scholarship, 70 per cent; school activity, 20 percent, and civic and church service, 10 percent.

Names of honored students with their major areas of accomplishment, are as: Merlene Davis, business, yearbook; Max Caldwell, athletics, business;

(Continued on page 8)

ners Cost City $350 In 2 Weeks

d flies would not have occured. A number of vacant lots in the city are fire hazards and the condition behind some of the business houses also is a menace, the council said.

The Vernal City milk ordinance was discussed owing to the possibility of Hiland Dairy Co. operating on the present location of the Central Creamery.

Piedmont Dairy and Federated Milk Producers Association sent representatives to express their desire to distribute milk here if the ordinance was changed.

The city council said that its primary consideration was to the milk consumer and the general feeling was that the ordinance is satisfactory.

A delegation representing 30 families in the area from Fifth West and Fifth North to one mile west and one mile north wished to make arrangements to tie on to the city water line.

The delegation incided Arnold Taylor, representing FHA; Alma Preece and W. A. Jacobe. The matter was taken under advisement by the council.

Vernal Exp

Vernal, Uintah County, Utah 84078, Thursday, October 19, 1972

Oil Shale Hearing Gets Favorable Testimonies Here

Testimony given at the U.S. Department of Interior oil shale environmental statement hearing here Thursday was unanimously favorable for a prototype site development of oil shale in Uintah County.

THE PROPOSAL would make six 5,120-acre lease sites available in Wyoming, Colorado and Utah for private oil shale development. Included is the Mahodanyn Ledge area in the southeast corner of Uintah County which holds the state's heaviest oil shale concentrations.

Five of the six persons who submitted statements to the hearing, held in the Vernal Junior High School, gave strongly favorable testimony, and the sixth, speaking from an environmental viewpoint merely indicated the ecological studies are not complete.

THIRTY-FIVE PEOPLE attended the hearing, conducted by Dent Dalby of the Department of Interior. Others on the hearing panel included John Donnell, U.S. Geological Survey; Hal Boeker, Bureau of Sports Fisheries and Wildlife; Steve Utter, U.S. Bureau of Mines; and Henry Ash, chairman, oil shale task force.

Gordon Harmston, state director of natural resources, represented Gov. Calvin L. Rampton at the hearing.

HE TESTIFIED that there is more oil and gas activity in Uintah County at this time than in any comparable area in the world. Utah can only advance as its natural resources are developed, he said.

"We were instrumental in preparing the environmental statement and feel we can fulfill the requirements."

(Continued on page 8)

Oil Shale Hearing . . .

(Continued from page 1)

"Utah has 225,000 acre-feet of Colorado River water, of which 160,000 acre-feet are to go into the Central Utah Project. We wish to be certain water will be here to develop these hydrocarbons," said Mr. Harmston.

HARMSTON SAID negotiations with Mexico will depend on salinity of water offered them. Any development of the oil shale must be subject to rigorous controls, he added.

Oil shale development would require enormous amounts of water which would be taken from the Colorado River and then replaced. Utah would take an allotment of water from the river, which continues on through Arizona into Mexico.

Bert L. Angus, Uintah County commissioner, said he and his fellow commissioners support orderly and planned development of oil shale with "adequate environmental safeguards."

HOWARD R. Ritzma, State Committee on Environmental Problems of Oil Shale, said a committee of the Utah Legislative Council has prepared a comprehensive mined land reclamation bill for consideration by the 1972 Legislature.

It would "create a state entity to regulate mining operations of all types that disturb the land," he said. "It requires reclamation of mined lands and proposes standards for such work."

Ritzma said no definite plans have been developed for study of specific environmental problems, but that it is likely some studies may begin in Utah in late 1972 or early University 1973 under auspices of the of Utah engineering experiment station.

The studies would be part of a survey of clean energy sources initiated by the National Science Foundation.

BUELL BENNETT, Vernal City manager, represented Vernal City and pledged strong support for oil shale development with environmental safeguards. Glenn H. Cooper, Vernal Chamber of Commerce, also was favorable.

Charles R. Henderson, C. & R. Research Co., said he about is optimistic the potential for restoring plant life on spent shale residues after making studies of the situation.

"MANY PEOPLE think oil shale, because of its tremendous calculated potential, is a great reserve," Henderson said. "This if a fact. But if we found ourselves with oil imports cut off, the water requirements alone would defeat the massive development for an acute energy crisis. Oil shale source and development should not be delayed until a crisis."

Shell Oil, Gulf Oil and Skyline Oil were all represented at the hearing, but withheld statements which they said would be presented at the hearing in Salt Lake City.

AFTER THE hearings are complete, environmental problems will be considered and a final report will be issued.

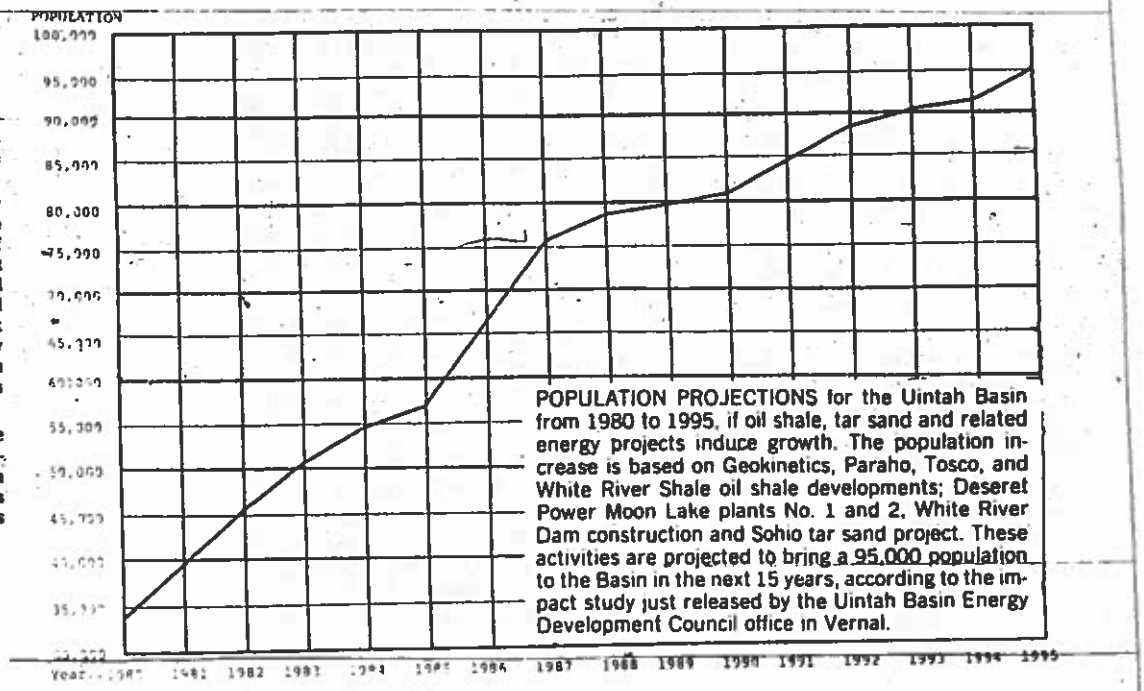
Jan 24, 1980

Oil shale impact study indicates population boom

A Uintah Basin oil shale impact study was revealed this week that foretells a population increase of nearly three times the present size during a 15 year period. The population explosion would jam the schools and make unprecedented demands for housing and municipal services, according to the report.

Uintah County, where the energy resources are clustered, would be hardest hit. Its school enrollment of 5,355 students last fall was already 232 over capacity. The energy-based population influx is expected to swell that enrollment by 4,927 in the peak year of 1988—starting with 148 new students in 1980, jumping to 859 more in 1981, 1,764 in 1982 and similar leaps threafter.

For Uintah Basin as a whole (including Duchesne and Daggett counties), total enrollment last fall from kindergarten through high school was 9,354 only 354 under capacity. It faces the prospect of 7,580 more students by 1988.



POPULATION PROJECTIONS for the Uintah Basin from 1980 to 1995, if oil shale, tar sand and related energy projects induce growth. The population increase is based on Geokinetics, Paraho, Tosco, and White River Shale oil shale developments; Deseret Power Moon Lake plants No. 1 and 2, White River Dam construction and Sohio tar sand project. These activities are projected to bring a 95,000 population to the Basin in the next 15 years, according to the impact study just released by the Uintah Basin Energy Development Council office in Vernal.

The same year would see total Basin population peak at about 60,000 according to the projections. The present population is 33,140.

There are now 10,931 dwelling units in the Basin. The new energy-related population will require 7,751 additional units by 1988.

The work force to construct new energy projects will steadily increase from 1980 to a peak of 4,200 in 1987, then start to drop off. The work force to operate the facilities, a more permanent population, is expected to reach 3,690 in 1991 and then level off.

To arrive at total new populations anticipated, 85 percent of the operational jobholders are assumed to be married (60 percent of the construction workers), with 3.6 persons per family, statistically. These require support services, such as housing construction, food and entertainment, which generate more jobs, more families, more support services. A larger multiplier 7,625, is thus applied to the permanent operation workforce to estimate the total new influx of people.

Therefore, the 1987 construction work force of 4,200 would mean a total of 4,200 new dwellings needed, but a total population increase of 12,781. The operation workforce of 3,690 in 1991 (with the support population) would require 6,102 dwellings and mean a new population of 23,931 by that year.

These impacts were based only on development of four oil shale projects well along in planning and preparation: Geokinetics, Paraho, Tosco and White River Shale, as well as the first unit of Moon Lake Power plant and White River dam and hydro power plant.

A host of other projects in the conceptual planning stage were not included. If these were also brought to fruition, the impact on the basin would be multiplied proportionately. These include Sun-Sohio-Phillips and Cleveland Cliffs shale oil shale project, unit No. 2 of Moon Lake power plant. Sohio Cooperative tar sands project and Uintah County road and bridge construction projects. Others, in the research and development stage and not included in the impact projections, include Raytheon Oil shale project, Halliburton-IIt Research Company oil shale project and Cleveland Cliffs IIT Research Company tar sand project.

The information was prepared by Uintah Basin Association of Governments and Uintah Basin Energy Development Council for the Utah Department of Community and Economic Development Council at the request of DOE. It is a rough draft of the report subject to modification.

The report is based on:

—Moon Lake power plant construction start in 1980 and completion in 1984; Paraho start in 1981 and completion in 1986; Tosco start in 1981 and completion in 1984; White River Dam construction start in 1981 and comple-

(Continued on Page 16)

Jan 24, 1980

Oil shale impact - - -

(Continued from Page 1)

tion in 1983; and White River Shale start in 1982, to be finished in 1990. The latter would have the largest construction work force, peaking at 4,200 in 1987.

A proposed transportation plan to serve the energy resource area of southern Uintah County has been proposed for three main projects, estimated to cost over $57.5 million.

Road project No. 1 will connect South Asphalt Ridge, the Greater Red Wash Oil and Gas Field, the two Moon Lake (Deseret Generation) Power plants, the Paraho Shale Plant, the White River Shale Plant, the American Gilsonite Plant, the Zeigler Gilsonite Plant, the White River Dam, Reservoir, and Hydro Electric Plant. It will provide for improved access to the proposed Sun/Sohio/Phillips/Cleveland Cliffs Shale Projects, and provide access to other shale lands, developing gas field, and tar sands area south of the White River Shale Project along the Seep Ridge Road.

The road from south of the White River follows closely the 1905 alignment of the Watson Rail head to Vernal road.

This area will require about 82 percent of the County's projected new energy permanent work force and 1990 and near 90 percent of the projected construction work force in 1987.

This area is projected to produce from a low of 60,000 barrels per day up to 330,000 barrels per day of shale oil by 1990. The 60,000 barrels per day will require moving approximately 420 large truck and trailer loads of oil to market per day until the pipe line is constructed.

The initial road project needed to provide the above services will start at 4500 South 1500 East, Vernal, and run south and southeast in a near straight line interconnecting with the Bonanza road 5½ miles north of Bonanza requiring 26 miles of new and improved road and one bridge over the Green River.

The road will then extend south from Bonanza four miles across the White River to the White River Shale Project Junction.

The bridge across the White River is part of the White River Dam Project funded by the State of Utah.

Road project No. 2 is from Geokinetics to Ouray to provide a transportation link to the other major oil shale and energy projects on the west and southern part of the county and interconnect them to the populated area on the west side of Uintah County and Roosevelt City.

This road project will serve Tosco Oil Shale Project and Geokinetics Oil Shale Operation, the only project presently producing oil from oil shale. These two projects are projected to produce from 35,000 barrels per day to 120,000 barrels per day by 1990 and will require about 18 percent of the projected new energy permanent county work force in 1990 and 10 percent of the construction work force in 1987.

This road will be needed to move an estimated 43,000 barrels of oil per day and will require moving 224 truck and trailer loads per day by 1990 or until pipeline facilities are available.

In addition, this project will serve a very large and growing gas development area along with some oil production, one new gilsonite mine, and provide access to large undeveloped oil shale and tar sand areas, including the Naval Oil Shale Reserve and lands with oil shale R & D projects in process.

The initial construction for this transportation project will start at the end of the pavement three miles south of Ouray and extend 30 miles up and along the Seep Ridge Road to the Geokinetics Plant.

Road project No. 3 is from Ouray to Bonanza and is designed to distribute more of the job opportunities and growth potential to the west side of Uintah County, Roosevelt, and Eastern Duchesne County.

This plan will interconnect the high density job area around Bonanza to the Ouray area near the center of the Uintah Basin allowing additional work force to come from Utah relieving the pressure on the Rangely area, where coal mining and other energy jobs will create substantial socio-economic impacts.

This interconnecting road will also provide a road to the Ute Indian Irrigation Project and diversion dam on the White River and to a large area being developed now for oil and gas production. This interconnection link will require reconstruction of a road which has been in use since 1905 when it was built to connect Ouray, Fort Duchesne, Roosevelt, Whiterocks, and West side with the railroad at Watson.

Sept 18-80
Page 17

Oil shale lease bill passes House approval

The house of Representatives gave its unaminous approval Monday to an oil shale leasing bill which Rep. Dan Marriott, R-Utah, said has "broad bipartisan support" and will expedite oil shale development in Utah, Colorado and Wyoming where most of the nation's deposits are located.

The bill now goes to the Senate where the Energy Committee has held hearings and may mark up a bill as soon as Wednesday.

Rep. Gunn McKay, D-Utah, feels that the House bill doesn't go far enough and leaves Utah somewhat out of the "total package." But Mr. McKay said he hopes to get this remedied in the Senate. Mr. McKay wasn't on the House floor during the debate on oil shale. The reason for his absence was that he was at a session of the Appropriations Committee, he said.

Mr. Marriott, on the other hand, served as minority floor leader for the oil shale measure and also made a speech in which he promised the bill would expedite the oil shale program.

He conceded that more legislative work remains regarding oil shale. "But given the lateness of the congress and the only recent arrival of the administration's recommendations in this issue, such an inquiry is impossible in the days that remain," he said. "Its my hope that early in the 97th Congress we may conduct a review of the matter of oil shale to assist in moving this program from demonstrative to commercial development.

Chairman Morris K. Udall, D-Ariz., of the Interior Committee was floor manager for the bill which permits the secretary of the interior to lease to anyone holding an oil shale lease on additional lands outside the existing lease for the purpose of disposing of oil shale waste.

The chairman also promised to act in the next Congress on the broader oil shale legislation proposed by the Carter administration.

Liters to gallons conversion table

Liters	Gallons	Liters	Gallons	Liters	Gallons
1	.26	34	9.0	68	18.0
2	.53	35	9.2	69	18.2
3	.8	36	9.5	70	18.5
4	1.1	37	9.8	71	18.8
5	1.3	38	10.0	72	19.0
6	1.6	39	10.3	73	19.3
7	1.8	40	10.6	74	19.5
8	2.1	41	10.8	75	19.8
9	2.4	42	11.1	76	20.1
10	2.6	43	11.4	77	20.3
11	2.9	44	11.6	78	20.6
12	3.2	45	11.9	79	20.8
13	3.4	46	12.2	80	21.1
14	3.7	47	12.4	81	21.4
15	4.0	48	12.7	82	21.7
16	4.2	49	12.9	83	21.9
17	4.5	50	13.2	84	22.2
18	4.8	51	13.5	85	22.5
19	5.0	52	13.7	86	22.7
20	5.3	53	14.0	87	23.0

To be more precise: 1 liter = .2642172 gallons
1 gallon = 3.785412 liters

Sept 18-80
page 17

Fate of oil shale off-tract disposal bill up to Hart

(Special to the Vernal Express)
By Helene C. Monberg

Washington—The fate of the oil shale bill authorizing off-site disposal of spend shale and plant siting on public lands other than oil shale lease lands is up to Sen. Gary Hart, D-Colo., it appeared here at the end of the week.

The staff of the Senate Energy Supply Subcommittee told this correspondent on Sept. 12 it had been given no direction on what to do with the bill, following hearings on the legislation on Sept. 9.

The Utah delegation would like to tie the oil shale bill to a tar sands bill which provides for the leasing of tar sands, primarily in Utah, by converting existing oil and gas leases in the state to hydro-carbon, or multi-mineral, leases. This would give both pieces of legislation more clout.

However, Sen. Dale Bumpers, D-Ark., has threatened to add a bill providing solely for competitive leasing of publicly held minerals, notably oil and gas, as an amendment to one or both bills. The bill would be more inviting to such an amendment if it were a combined oil shale-tar sands bill, and that's giving the Coloradans pause.

But Hart has taken no position on how to handle the oil shale bill yet, Don Smith of the Hart staff said here on Sept. 12. Hart is in the state campaigning for re-election.

Sen. William L. Armstrong, R-Colo., is co-sponsor of the bill also, but he has been very low-key about it. Neither bill sponsor was at the hearings on the oil shale bill on Sept. 9.

The House Interior Committee reported out a similar bill under sponsorship by Chairman Morris K. Udall, D-Ariz., of the House Interior Committee and most of the area Congressmen last month. Rep. Patricia Schroeder, D-Colo., and Rep. Timothy E. Wirth, D-Colo., objected to the bill being taken up on suspension of the House rules before environmentalists had an opportunity to testify on it in the Senate Subcommittee on Sept. 9.

So the bill was taken off the House suspension calendar. Plans were made to have it put back on the suspension calendar on Sept. 15, but Chairman Jim Santini, D-Nev., of the House Mining Subcommittee will not be in town on that day. So now it is expected to come up on suspension of the rules on Sept. 22. Neither Mrs. Schroder nor Wirth will object to the bill's being taken up on suspension at that time, their offices told this correspondent on Sept. 12.

But it will be Hart's decision on attempting to move the bill in the Senate that will be crucial because he is a member of the majority party and principal sponsor of the Senate bill. The Senate Subcommittee headed by Sen. Wendell Ford, K-Ky., went out of its way to give the environmentalists a hearing on the off-site disposal bill, unlike the Santini Subcommittee, which did not invite them to testify at a shirt-tailed hearing on the House companion measure on July 31.

Ford comes from a coal state, and there's no percentage for him to move on the oil shale bill unless he is given solid reasons to do so by Hart, a fellow Democrat up for re-election.

Hart has not done so to date, according to Committee sources and the Hart office.

The Hart-Armstrong bill would give the Interior department the authority to lease up to 6400 acres of additional lands for spent shale disposal or plant siting in addition to the 5,120 acres of land already held by the holders of the four oil shale lease tracts for oil shale development. Interior Department witnesses claimed that the bill was not broad enough. Environmental groups argued that the legislation was premature and not needed at this time.

But Blaine Miller, president of the Rio Blanco Oil Shale Co., which holds Colorado prototype lease C-A, testified it would be necessary to lease additional public lands to make development of C-a feasible. In order not to hold up the tract development, Miller strongly urged the Ford Subcommittee and the Senate Energy Committee to report the Hart-Armstrong bill at once.

It is understood that Hart will try to work out some accommodation with the environmental groups—Friends of the Earth, Environmental Defense Fund, and the Sierra Club—who are cool to the off-site disposal bill. These are likely to include careful monitoring of the tracts used for plant siting and oil shale disposal; a better definition of fair market value; to require the holders of the prototype leases to prove that such leases are necessary and get prior Secretarial approval for off-site plant siting and disposal; to secure state approval for such use of public lands; to require a lessee to demonstrate that he can conduct operations in an "environmentally proper manner and that he can pay fair market value for the additonal lease.

$38 bbl. is break-even point for oil shale, says Union Oil

By Helene C. Monberg
(Special to the Vernal Express)

Washington—John M. Hopkins, president of Union Energy Mining Division of Union Oil Co. of California, said here on Oct. 10 Union regards $38 a barrel for shale oil as the "break-even point" for development.

Imported oil is now selling for about $30 a barrel.

About half of the $38 price would go into the operating cost and about half into the capital recovery costs, Hopkins stated. He estimated there would be about a 15-20 percent return on investment with shale oil at that price.

Hopkins presented a press briefing on oil shale at the American Petroleum Institute (API) on Oct. 10 in a series that API is starting on syn-fuels briefings.

Hopkins said that Union would file an application for financial help in loans and loan guarantees under the Energy Security Act under the solicitation that the Department of Energy (DOE) put out on Oct. 8. Union and other companies that might be interested in such help have until Nov. 14 to get their applications into DOE for distribution of up to $5 billion to aid companies with syn-fuels technologies to bring them to commercial scale.

Hopkins was careful, however, to state that Union has not yet made a go-ahead to scale up its technology to a commercial-scale 50,000 commercial plant, nor has it decided what federal incentives it wants, if any, to help it "go commercial," he said. "We are considering that now," he explained. Such help would be in addition to DOE loans and loan guarantees.

One problem is that it has not been more than a couple of years ago that the cost of a 50,000-barrel-a-day plant to retort shale oil was estimated to cost $1 billion. Now it is estimated to be $2 billion. "And it may be $3 billion by the time we get it constructed," Hopkins observed. Union plans to scale up its technology in segments of 10,000 barrel-a-day plants, with the five segments totalling a 50,000 barrel-a-day complex.

The backgrounder provided on the Union process at the API briefing said that it provides for above-ground retorting of shale which has been mined, crushed and fed into surface facilities. The shale is moved upward thru a vertical vessel by means of a solids feeder. Heating is by indirect mode by a hot recycle gas stream. Kerogen (shale oil) flows downward, is condensed by incoming cold oil shale and drawn off for further processing.

Hopkins said that Union owns 20,000 acres at Parachute Creek on the edge of the Piceance Creek Basin in Colorado where it has been conducting its experiments in a demonstration plant for nearly 35 years, on an off-and-on basis. Now it has improved a road in the area and has been scaling up its plant with a view to moving its process to the commercial stage.

"We want to prove up the technology," Hopkins said. Initially he said Union planned to sell the resulting shale oil in the "Rocky Mountain market." Later, he said it might be moved by pipeline to larger markets. He said Union had offered to sell shale oil to a California utility, Southern California Edison, for $3 a barrel in the early 50's. It was no sale, he said, because Cal Edison could buy oil and gas cheaper then.

Hopkins said Union had "all of the permits we need for a 10,000 barrel-a-day retort," a water right which would allow Union to scale up to a 150,000 barrel-a-day plant or plants, which, he estimated, would use 20,000 acre-feet of water, and a disposal area which has been approved by the state of Colorado.

The water would be used in a closed system, with no discharge, and a sealant will be put down over the disposal site for the spent shale so that there will be no contamination of ground water, Hopkins explained. It has been estimated that 800,000 barrels of shale oil a day can be produced from the Piceance Creek Basin without violating either the federal Clean Air Act or the state Clean Air Act, he said.

If Union goes ahead with the five-segmented 50,000 barrel-a-day shale oil retort complex, Hopkins said it would take about three years to build. Once the Union technology has been proved up, he said Union would license it to others, and he said he expected other companies would make their technology available to Union thru license agreements.

Union has never done any research on in situ retorting, Hopkins said. "We feel our process has a slight edge" economically, he told the press.

Hopkins has been with Union since his graduation from the University of Colorado in 1942 with a degree in chemical engineering. He has worked in all phases of Union's refining, transportation and marketing activities until he was named president of Union's Mining Division in 1979. That division is in charge of the company's oil shale and uranium resource development.

Oct 14, 1980

Apr 6, 1980

By-products from oil shale would aid other industries

By Helene C. Monberg

Washington—By-products from the full-scale development of oil shale deposits in the West would provide materials for a wide-ranging swath of industries—housing, commercial building, air and water pollution control, industrial chemicals and Portland cement.

They could also be used in enhanced oil recovery and in the production of aluminum, glass, containers and detergents.

Large-scale development of oil shale would be responsible for helping to solve many of the nation's basic problems ranging from the energy crunch to the high cost of housing, according to a study on oil shale by-products by Jeannette Nielsen of Nielsen Resources Corp. of Idaho Springs, Colo. It was published as a paper by Nielsen Resources during this past month.

The Nielsen study is predicated on the recent announcement by Exxon, USA, that the United States can become energy self-sufficient within 30 years—even tho U.S. domestic demand for oil levels off at 15 million barrels a day—providing 6 million barrels of shale oil daily are produced from the central part of the Piceance Creek Basin in Northwestern Colorado. This Basin has the world's thickest and richest oil shale beds. Another 2 million barrels could come from oil shale deposits in Utah. Many, notably Sen. Gary Hart, D-Colo., have questioned the Exxon predictions concerning synthetic fuels, including shale oil, development.

But if the Exxon prediction is correct, industry would be under tremendous pressure to use the by-products from oil shale development. The Nielsen report stated, "In order to produce 6 million barrels of shale oil per day, 12 million tons of oil shale must be mined and processed, producing 10 million tons of waste materials as well as 6 million tons of overburden a day (from the Piceance Creek Basin in Colorado). The remaining 2 million barrels a day would be recovered from room and pillar underground mines around the periphery and in the southern end of the Piceance Basin as well as in the Uintah Basin (in Utah). The impact on the mining, heavy equipment and engineering industries will be unusually large." So too, would be the impact on disposal sites.

There are so many minerals in the spent shale and overburden as well as other minerals intermingled with the oil shale itself that the number of by-products from oil shale development is impressive, according to Nielsen.

Development of oil shale would also provide "most of the basic materials needed to bring back affordable housing to the United States and the world. This application of the resource may make structural lumber, plywood sheeting, bat insulation and dry wall industries virtually obsolete. In addition, this resource will supply abundant residual carbon fuel and low BTU gas for process energy to supply these new industires, the Nielsen study stated.

Other uses for the byproducts of oil shale development, it said were: flue gas desulfurization reagents, alkaline enhanced oil recovery reagents, alkalis for the basic chemical industry, alumina for the aluminum industry, alkalis and energy for the container industry, some waste water cleaning agents, and most of the raw materials needed for non-phosphate detergents. "Companies can diversify into all these new industries by participating in the development of this single resource," Nielsen underscored.

It is well known that several sodium-related minerals occur with oil shale in the Piceance Creek Basin. From nahcolite, one of the sodium minerals, 400,000 tons of soda ash a day could be produced and consumed by the pollution control industry, according to Nielsen.

With the addition of sand, nahcolite-rich spent oil shale could be used to produce a foam glass product to use in housing and building construction. Nahcolite can also be used in housing and building construction. Nahcolite can also be used in the alkaline enchanced recovery of oil process as a reagent in the manufacture of basic industrial chemicals, in the desulflurization of flue gas in coal-burning power plants and other industrial plants, Nielsen said.

Dawsonite, another sodium-related mineral intermixed with oil shale in the Piceance Creek Basin, could be used to produce aluminum. "Reserves total 27 billion tons of dawsonite...Presently 90 percent of the aluminum ore used in the United States is provided by foreign sources," notably imported bauxite from politically unstable Jamaica. "By developing the reserves of the Piceance Basin, the United States can become self-sufficient in the aluminum industry and will no longer be subject to embargos," Nielson pointed out.

Limestone, which occurs in the overburden in oil shale development in the Piceance Creek Basin, could be used in the local production of portland cement, and zoolites, or natural filters or ion exchanges, could be used in the manufacture of detergents and in enhanced oil recovery processes the Nielsen study observed.

Other products from spent shale could be used to produce glass for the container industry, many types of building materials and abrasives, the Nielsen study reported. Sheer quantity would reduce costs, it indicated.

NOV 13, 1980

#82

Oil shale by-products could provide housing, heat

(Special to the Vernal Express)
By Helene C. Monberg

Washington—By products from the development of oil shale in the West could provide enough housing to meet the needs of the labor force and enough waste heat to fuel the shale oil and allied industries.

That is the conclusion of a study on oil shale by-products by Jeannette Nielsen of Nielsen Resources Corp. of Idaho Springs, Colo. The study was published as a paper by Nielsen Resources during this past month.

It is based on the recent announcement by Exxon, USA, that the United States can become energy self-sufficient within 30 years by embarking on a massive syn-fuels program in this country, including the production of 6 million barrels of oil per day from the shale deposits in the Piceance Creek Basin in northwestern Colorado. The Exxon prediction is regarded by many critics as being over-optimistic.

Exxon has estimated that 870,000 employees would be needed to develop the oil shale deposits at Piceance Creek Basin. This influx, together with service industries and dependents, would add 4 million to the population living in and near oil shale-producing areas in Northwestern Colorado and Northeastern Utah, according to this estimate.

No sweat, according to the Nielsen study. "Housing could be provided for this increase in population by using the building products and cement developed from the waste of the resource itself," the Nielsen study found. Additionally, the low BTU gas and carbon resulting from the retorting of oil shale could be used to fuel the new industries, it maintained.

In the Piceance Creek Basin alone, "there is enough raw material to produce sufficient insulating and structural building materials to replace every structure in the world," the Nielsen study stated. "This use of the (oil shale) resource is easily as important as its use for synfuels," it said. It's estimates indicate some 10 million tons of waste material would be produced and 6 million tons of overburden would be the result of the production of 6 million barrels of shale oil a day from the Piceance Creek Basin. That's a lot of waste.

But Nielsen maintains spent shale could be used to produce a wide range of building materials as follows: an insulative subbage, insulative materials such as prills and rock wool, a light-weight insulating building block, a denser building block, insulating cores for complete and wall and-or roof panels and roofing materials such as shingles and glass ceramic tiles. Both glass and a specific type of cellular glass can be produced from spent shale with the addition of soda ash, which can be made from nahcolite in the Basin shale, and from sand. This makes a top-grade building material—foam glass, out of which a small home can be built from glass and concrete, according to Nielsen. Nielsen illustrated the "shaleglass house" which could be built out of spent shale and limestone from the overburden turned up to mine the shale. Roof, sides and foundation were made of spent shale and portland cement, the drawing stated.

The oil shale industry and related industries might be fueled, in part at least, from the process energy resulting from retorting shale into oil, the Nielsen report stated. "The low BTU gas which evolves in the retort process can be converted to electrical energy and-or the residual carbon left in the oil shale after the retort process. One ton of (shale) oil of 42 gallons of oil-per-ton-quality contains 6 million BTU of oil per barrel, 2-3 BTU in residual carbon, and 1-2 million BTU in low BTU gas," according to the Nielsen study. Both the gas and carbon could fuel the new by-product industries, it said.

This low BTU gas can be used in oil shale processing itself or can be used in developing and processing by-products, such as dawsonite, which is intermingled with the Piceance Creek Basin Shale. Dawsonite can be used to produce aluminum. The processing of this by-product into aluminum by using the waste heat or energy from oil shale processing "is especially attractive for the aluminum processing as the aluminum industry is a major consumer of electrical energy," Nielsen reported.

House passed oil shale bill differs from Sen. Hart's bill

(Special to the Vernal Express)
By Helene C. Monberg

Washington—In an unusual move, the Senate Energy Committee has reported out a House-passed bill on oil shale, bypassing a similar bill by Sen. Gary Hart, D-Colo., and expects to take it up in the Senate about Dec. 1.

In response, according to Hart's staff, Hart plans to introduce amendments to the House-passed bill making it nearer to his by-passed bill. It is likely that Sen. William L. Armstrong, R-Colo., will go along with the House-passed, Committee-backed bill.

Sen. Wendell Ford, D-Ky., has told this correspondent he understands that Sen. Dale Bumpers, D-Ark., plans to introduce his bill as an amendment to the oil shale bill which would provide for competitive leasing of all oil and gas lands. If the Bumpers rider is not tabled, it would kill the oil shale bill.

Hart's office said it had heard Bumpers plans to put such a rider on the oil shale bill too. Hart told this correspondent a week ago that he expected no further action this year on any oil shale-tar sands legislation. The action by the Senate Energy Committee came as a surprise to him and to his staff too. Hart left for a family holiday on Nov. 20 and was not available to the press this past weekend. It was his first vacation since he won re-election in an extremely close contest on Nov. 4.

Republicans on the Senate Energy Committee and the committee minority staff revived the dying House-passed oil shale bill, according to several accounts. They did not like to Hart bill on grounds it would delay work on the Ca lease in Colorado, hence run up the cost of the shale oil.

The House-passed bill would authorize the Secretary of Interior to lease additional public lands under the 1920 Mining Leasing Act "to anyone holding an oil shale lease issued prior to 1985 for the purpose of disposing of oil shale waste, construction of plants, facilities or any other purpose necessary for the production of oil shale other than mining of shale."

The report on the House-passed bill, which the Committee approved on Nov. 19 for filing and which became available on Nov. 21, stated additional land will be leased only for such period as needed; if the use of lands for processing facilities and as a spent shale disposal site becomes "essentially a permanent use," that a sale be made of the surface rights only, reserving the mineral estate to the United States; and if shorter periods are involved, annual rentals be paid under an adjustment clause that provides for a continuint reflection of fair market value. It provides that land planning procedures of the 1976 BLM Organic Act be followed and that an environmental impact statement (EIS) or assessment be issued on the additional land used for oil shale facilities and waste disposal.

The Hart bill as revised by Hart had sought to limit the second lease to present lessees of oil shale lands, required the preparation of a full EIS on the second leased tract for non-mining use, and provided that the lessee pay value foregone on the second lease. Republicans on the Committee said they could not go along with the Hart bill on grounds it was special interest legislation for one lessee-Ca—and that it would run up the cost and delay work on Ca for so long that they felt it would make this prototype program uneconomic.

Rio Blanco Oil Shale, Inc., holds the Ca lease, 5120 acres of leased land in the Piceance Creek Basin in Northwestern Colorado. Rio Blanco plans to strip-mine the Ca tract and 5120 acres is too small to tract to accommodate a strip mine, disposal area and processing plants, including an above-ground retort. Special legislation is needed because there is a provision in the 1976 BLM Organic act by Rep. Patricia Schroeder, D-Colo., forbidding off-site leasing for oil shale development.

The House-passed bill, co-sponsored by six Western Congressmen including Chairman Morris K. Udall, D-Ariz., of the House Interior Committee and Reps. Gunn McKay, D-Utah, David D. Marriott, R-Utah, and Ray Kogovsek, D-Colo., was a stripped down version of an earlier Administration bill.

The Administration proposal included authority for the Interior Department to issue multi-minerals leases, to issue two leases per state per person or four nationally. Chairman Jim Santini, D-Nev., of the House Mining Committee limited it to the one additional off-site leasing provision. It passed the House under Udall's floor leadership on Sept. 15, and the Senate Energy Committee held a hearing on the Hart bill on Sept. 9. But it shelved the Hart bill and reported out the House-passed bill on Nov. 19. Action on the bill could be taken at any time, but Hart's office said he did not expect it until after Thanksgiving, circa Dec. 1.

Meanwhile, Brock Short, who has been working as a specialist in the Bureau of Land Management on oil shale problems, completed a transition backgrounder on the Administration's oil shale program this past week and transferred to the U.S. Geological Survey on Nov. 24, with headquarters in the San Francisco office. So that leaves the present oil shale task force with one less expert to call on. Short said he expected his backgrounder would be entirely rewritten before it is turned over to the Reagan transition office which is operating here.

week trip to Germantown, Tenn. [illegible]

Feb 21-80
page 29

Oil shale problems explained at SLC hearing

Oil and Oil shale company representatives testifying at a field hearing of the House Interior Committee's mines and mining subcommittee in Salt Lake City said Friday they have the technology to economically produce oil from shale and tar sands, but need legislative help in fighting a morass of regulations stifling their efforts.

The subcommittee heard testimony from all of Utah's congressional representatives, and from Gov. Scott M. Matheson, all of whom urged congressional help in expediting development of Utah's oil shale and tar sands.

Gov. Matheson told the group Friday the energy potential from Utah's shale and tar sands is "almost staggering." An estimated 50 billion barrels of shale oil may ultimately be recoverable, he said, with an additional 5 to 10 billion barrels from tar sands.

While Utah has tried to foster a continuing interest by the federal government in synthetic fuels, "that federal interest continues to be cyclical, with vast stretches of total indifference punctuated by frenzied action when gas lines develop," he said.

"Now that the federal government has contracted synfuel fever, we have a legitimate fear that our economic, social and environmental well-being will be considered a small price to pay to imperceptibly slow the armade of Arab oil tankers," he said.

The governor especially criticized the federal government for historically regulating Utah tar sands "to the bottom of federal energy priorities," failing to provide the attention and funding necessary to develop commercial operations of extracting oil from those sands.

He called for enactment of better leasing procedures of tar sands on land controlled by the Bureau of Land Management (BLM), and an extensive research program of drilling, coring and assaying to determine the extent of deposits in the state.

the community and developers, adequate lead times and generous financial assistance. We are working now on the planning; we will look to you for financial assistance."

Both Gov. Matheson and Dr. Alex Oblad, a tar sands expert from the University of Utah, stressed before the committee that Utah's resources are vast, but that synthetic fuel will be only a drop, or possibly a "teaspoon," in the energy consumption bucket.

It may take years for even that teaspoon to be produced, Dr. Oblad said. "There is just no way synfuels or other alternate energy forms will have any impact for a minimum of 15 years," he said. "And by impact, I mean even as much as being 1 to 5 percent of our total energy use."

If Americans are to maintain their current lifestyles, he said, the United States will have to "pull out all the stops" in producing energy from coal, oil and gas.

Dr. Oblad also told the committee a major problem in rapid production of synthetic fuels is obtaining funding for research and pilot plants. Noting his years of work in the oil industry and the nation's top research programs, he said "with my track record, it seems a little strange that I have to spend over half my time trying to get funds for research in an area as critical as this."

Representatives from the oil and oil shale companies, as well as Dr. Oblad, said research has come to the point where oil shale extraction can go into commercial development, and where tar sands extraction can be started in pilot programs.

Dr. Oblad estimated oil could be produced from tar sands for $15 a barrel, not including mine development costs. H.E. Bond, president of Arco Coal Co., estimated oil could be extracted from oil shale for between $25 and $30 a barrel, a price which includes a "reasonable profit,"

Mr. Bond and other company representatives told the committee, however, that problems with land leases, obtaining permits, meeting

Oil and Oil shale company representatives testifying at a field hearing of the House Interior Committee's mines and mining subcommittee in Salt Lake City said Friday they have the technology to economically produce oil from shale and tar sands, but need legislative help in fighting a morass of regulations stifling their efforts.

The subcommittee heard testimony from all of Utah's congressional representatives, and from Gov. Scott M. Matheson, all of whom urged congressional help in expediting development of Utah's oil shale and tar sands.

Gov. Matheson told the group Friday the energy potential from Utah's shale and tar sands is "almost staggering." An estimated 50 billion barrels of shale oil may ultimately be recoverable, he said, with an additional 5 to 10 billion barrels from tar sands.

While Utah has tried to foster a continuing interest by the federal government in synthetic fuels, "that federal interest continues to be cyclical, with vast stretches of total indifference punctuated by frenzied action when gas lines develop," he said.

"Now that the federal government has contracted synfuel fever, we have a legitimate fear that our economic, social and environmental well-being will be considered a small price to pay to imperceptibly slow the armade of Arab oil tankers," he said.

The governor especially criticized the federal government for historically regulating Utah tar sands "to the bottom of federal energy priorities," failing to provide the attention and funding necessary to develop commercial operations of extracting oil from those sands.

He called for enactment of better leasing procedures of tar sands on land controlled by the Bureau of Land Management (BLM), and an extensive research program of drilling, coring and assaying to determine the extent of deposits in the state.

He also urged the committee to press for passage of economic incentives for energy companies and for clarification of regulations on pollution and safety.

Gov. Matheson told the committee that Utah would look to congress for financial help in controlling the impact of the increased population in areas of the state where synthetic fuel operations may be developed.

He said a new Department of Energy study indicates the "socioeconomic absorption capacity of our oil shale region is low, requiring careful planning, extensive cooperation between the community and developers, adequate lead times and generous financial assistance. We are working now on the planning; we will look to you for financial assistance."

Both Gov. Matheson and Dr. Alex Oblad, a tar sands expert from the University of Utah, stressed before the committee that Utah's resources are vast, but that synthetic fuel will be only a drop, or possibly a "teaspoon," in the energy consumption bucket.

It may take years for even that teaspoon to be produced, Dr. Oblad said. "There is just no way synfuels or other alternate energy forms will have any impact for a minimum of 15 years," he said. "And by impact, I mean even as much as being 1 to 5 percent of our total energy use."

If Americans are to maintain their current lifestyles, he said, the United States will have to "pull out all the stops" in producing energy from coal, oil and gas.

Dr. Oblad also told the committee a major problem in rapid production of synthetic fuels is obtaining funding for research and pilot plants. Noting his years of work in the oil industry and the nation's top research programs, he said "with my track record, it seems a little strange that I have to spend over half my time trying to get funds for research in an area as critical as this."

Representatives from the oil and oil shale companies, as well as Dr. Oblad, said research has come to the point where oil shale extraction can go into commercial development, and where tar sands extraction can be started in pilot programs.

Dr. Oblad estimated oil could be produced from tar sands for $15 a barrel, not including mine development costs. H.E. Bond, president of Arco Coal Co., estimated oil could be extracted from oil shale for between $25 and $30 a barrel, a price which includes a "reasonable profit,"

Mr. Bond and other company representatives told the committee, however,, that problems with land leases, obtaining permits, meeting environmental regulations, and getting federal funding to lighten their costs are stifling their efforts.

John Downen, vice president of Geokinetics, a company already producing small amounts of oil from shale, told the committee "we are sitting on a one-mile postage stamp surrounded by unleased federal acreage on all sides," because of the problems in obtaining such leases.

Mr. Downen said land needs to be made available on a "continuing, ordinary basis," so that companies can plan future operations.

Oil shale projects still dangling

FILE FOLDER NO. 54

The withdrawal of the White River Project's petition for financial assistance from the U.S. Synthetic Fuels Corporation and Sohio Shale Oil Co. backing out of the Paraho-Ute oil shale project does not indicate a lack of confidence in oil shale, but it is a reassessment of the projects by companies involved.

Friday last week Sohio announced its withdrawal from the Paraho-Ute partnership, which is negotiating with the U.S. Synthetic Fuels Corporation for loan and price guarantees to construct an oil shale facility in northeastern Utah.

The facility will use Paraho retort technology to extract oil from shale.

Sohio Shale Oil Company has participated in the Paraho-Ute project since the spring of 1983 and represents a 10 percent equity interest in the project.

According to Chuck Metzger, vice president of governmental affairs for Paraho, the withdrawal of Sohio from the Paraho-Ute Project is not a substantial blow to the future of the project.

"We are negotiating weekly with the SFC and have some other investors we hope will fill in the gap left by Sohio" Metzger said.

Sohio maintains that it continues to believe that oil from shale will contribute to meeting this country's energy needs, but "as we look at it we are concerned about participating in the program (Paraho-Ute) based on our goals. That doesn't mean the project isn't right for another company," said John Andes, spokesman for Sohio Shale Oil Company.

Metzger said Paraho will continue to negotiate with the SFC and "hopefully in April we will get an award."

Also last Friday, the three sponsors of the White River Project, Phillips Petroleum Company, Sohio Shale Oil Company and Sun Shale Oil Company notified the SFC of their intention to withdraw their pending request for financial assistance under the third solicitation.

Friday's action will not affect the construction schedule of the mine access for 1984.

According to Andes, spokesman for Sohio, one of the partners in the White River project, the withdrawal of the project was based on two reasons: White River is in the process of reviewing its project which isn't a proper time to be before the SFC, and each of the partnerships from different directions have economic concerns about the project.

The sponsors are now evaluating the overall White River Shale Project plans to determine if changes are warranted to enhance long-term commercial viability as well as reviewing the current project schedule.

Andes said the White River Project would not resubmit under the SFC's fourth solicitation next year.

Both projects, White River and Paraho, were waiting for an April board meeing of the SFC, when another oil shale project would receive an award.

The only Utah oil shale project to receive an endorsement from the SFC is Geokinetics, Inc., in southwestern Uintah County.

The White River and Paraho-Ute projects are about 45 miles southeast of Vernal.

The U.S. Synfuels Corporation was created by Congress in 1980 mainly to provide financial incentives to the energy industry to develop domestic synthetic energy technologies derived from fossil fuel sources, including oil shale and coal gasification. Contributing to the corporation's creation was the major world oil market disruptions resulting from the Iranian revolution and the Iran-Iraq war in the late 1970s.

But recently the U.S. Synfuels Corp. has been besieged with problems.

The corporation has had trouble generating industry interest in their programs because of stable oil prices and its officials have been criticized for paying themselves excessive salaries and benefits.

According to the 1983 SFC annual report, over $5.9 million was given out by the SFC in salaries to the 111 staff members last year. The average salary is $53,998 a year.

Feb 29, 1984

April 6, 1984

Vernal Express
Friday

Paraho takes stride in SFC negotiations

Hidden by all the ado of pledges by the U.S. Snythetic Fuels Corporation (SFC) to fund six other projects to the tune of $4.38 billion, the Paraho-Ute project received a significant "thumbs up signal."

The Paraho-Ute project, proposed for southeastern Uintah County, was reviewed by the SFC Thursday, and the board agreed to the financial terms of the project.

A lingering objection to the Paraho-Ute project by the SFC has been its lack of financing. Approval of the terms Thursday was quite significant when the alternative was to drop the project from further consideration, said Dr. Charles Metzger, vice president in charge of governmental affairs for Paraho.

"We are now moving forward to finalizing terms of agreement and letter of intent," Metzger said.

If the project meets the conditions of the SFC, it could receive price and loan guarantees as early as Sept. 1, 1984.

"The significance of the SFC decision on the project was lost in the awards to the other projects," Metzger said.

Projects receiving backing from the SFC were the Forest Hill Project in Wood County, Texas, a heavy oil project funds up to $60 million; Kentucky Tar Sands project in Logan County, Ken., a tar sand project funded up to $543 million; Northern Peat Energy Project in Southeastern Main to produce a peat substitute for oil, coal and wood, funded up to $265 million; Louisiana Synthetic Fuels, a coal gasification project in Plaquemine, Ibereville Parish, La., funded to $620 million; and the Chaparrosa Ranch project up to $100 million. Also $2.7 billion was released for the Union Oil Phase II project in Colorado.

Paraho plans to produce 14,436 barrels per day of hydrotreated shale oil plus eight megawatts of electric power from western shale. They are negotiating for both a loan and price guarantee. Start up of construction was scheduled for mid-1984 but Metzger said the startup date has been pushed back to mid-1985.

Sufficient financial backing of the Paraho-Ute project has been a concern of the SFC since Paraho applied for federal backing.

Last February, Shoio Shale Oil Co. announced its withdrawal from the Paraho-Ute partnership after participating since the spring of 1983.

Other partners in the Paraho-Ute project are Paraho Development Corporation; Kellogg Rust Synfuels, Inc., Raymond Engineer, Inc., Texas Eastern Sunfueld, Inc., and Utah International.

Paraho officials cast growing re

In a show of confidence in the future of oil shale development in Uintah County, two top executives from the Paraho-Ute oil shale project said their future is in "better shape than it has ever been," while in Vernal Tuesday.

All the fanfare is not without cause, according to Larry Luken, president and chief executive officer of Paraho. The recent "thumbs up" signal from the U.S. Synthetic Fuels Corporation is "a long awaited decision which brings our project closer to being a reality."

That reality may occur as soon as mid-1985, but first the project must meet certain conditions set by the SFC.

Luken and Chuck Metzger spoke to public officials at a special meeting Tuesday evening after the SFC Thursday of last week announced that an agreement had been reached on the business and financial terms for the 14,100 barrel per day Paraho-Ute facility.

The SFC gave Paraho until Sept. 1, 1984 to come in-line with several other conditions required for SFC price and loan guarantees. Paraho has requested about $2 billion in price and loan guarantees from the SFC.

Lukens said these conditions were to fill the equity gap left when Sohio backed out of the Paraho project last December.

Another minor condition that must be met by the Sept. 1 deadline is acquiring project management, which "will be easy to satisfy," Lukens said.

"It is a matter of which comes first, the chicken or the egg," he said. "In a grassroots organization like Paraho, we wait until we know we have the real product before moving ahead with more confidence."

Although the projected start-up date will be sometime in mid-1985, should the SFC give a letter of intent in September, a local office may "start popping up" shortly after approval.

Initial oil shale production is anticipated to commence in 1989.

At the peak of the project, 2,200 construction workers and operators will be employed on site. After the construction phase, the operation force will be 600-700 work

"We feel we have the community t positive impacts ar project," Lukens sa

But Lukens said number of people be the project in such a s area, there will be impacts.

"We want to work community to ensur sition," said Chuck president of charge relations for Paraho

The Paraho-Ute p for a 2,300 acre site 3 of Vernal, will use P to extract oil from o

Vernal Express
Wednesday

WEDNE
April 11

Vernal, Uta
92nd Year

28 Pa

Single Co

..owing reports on local project

anagement, which
isfy," Lukens said.
which comes first,
egg," he said. "In
zation like Paraho,
ow we have the real
oving ahead with

jected start-up date
n mid-1985, should
etter of intent in
l office may "start
ly after approval.
production is an-
ence in 1989.
e project, 2,200 con-
and operators will
ite. After the con-
he operation force
will be 600-700 workers.

"We feel we have an obligation to the community to see that only positive impacts are incurred by the project," Lukens said.

But Lukens said that with the number of people being brought in by the project in such a sparsely populated area, there will be some negative impacts.

"We want to work with the existing community to ensure a smooth transition," said Chuck Metzger, vice president of charge of governmental relations for Paraho.

The Paraho-Ute project, proposed for a 2,300 acre site 30 miles southeast of Vernal, will use Paraho technology to extract oil from oil shale. The process uses burnt shale to heat oil shale to a temperature that oil can be drawn off. Once the retort is on line, the entire process will be internal—using no outside sources of power.

Lukens said every phase of the project is ready to go, all that the company is waiting for is backing from the SFC.

Both Luken and Metzger were confident that the project could come to an agreement with the SFC in September, because the Paraho project adds a diversity to oil shale technology backed by the SFC and because of the encouraging attitude of the state of Utah, from the governor on down to the local county and city officials.

"We couldn't be more pleased with working in Utah," Lukens said.

"The people in Washington (D.C.), at least the SFC chairman Ed Noble, are aware of the favorable attitude toward oil shale in Utah and that helps a lot," he said.

"We are now in the ninth inning, and when we come to bat in September we're going to give it all we've got and the local people should not let off," Luken said.

In addition to Paraho, the project sponsors include The Signal Cos., which has taken the lead role in the project, Texas Eastern Synfuel Inc., and Raymond International Inc.

WEDNESDAY,
April 11, 1984

Vernal, Utah 84078
92nd Year No. 29

28 Pages

Single Copy 25¢

INSIDE

Deadlines:

FRIDAY,
June 22, 1984

News: Thursday 10:00 A.M.

Advertising: Thursday 2:00 P.M.

Vernal, Utah 84078
92st Year No. 50

Phone 789-3511

12 Pages

Single copy 25¢

Oil shale

Paraho-Ute put on hold

Another cloud has darkened the already gray future of the development of Uintah Basin oil shale as Larry A. Lukens, president of Paraho Development Corporation, announced that the Paraho-Ute Project has been placed on indefinite hold.

The project, planned for commercial production of oil shale on Paraho's property about 50 southeast of Vernal, will stay on hold pending a resolution of the U.S. Synthetic Fuels Corporation's (SFC) present uncertain status, Lukens announced last week.

While agreement of the key financial and business terms of the SFC assistance package was reached in early April, the continuing absence of a quorum of SFC directors required to allow the SFC to make binding commitment necessitates this action, Lukens said.

"Paraho is experiencing a serious cashflow shortage resulting primarily from the significant capital outlays that were required to continue the company's pursuit of the SFC assisted project," Lukens said.

The present cash flow problem has been exacerbated further by Paraho's inability to collect on certain receivables, the major portion of which are claimed by Paraho from the Department of Energy, and are due to the costs Paraho incurred to relocate its pilot plant research facilities located near Rifle, Colo.

The relocation effort was necessitated by the Department of Energy's refusal to extend Paraho's lease at the previous Anvil Points location.

Lukens announced that the company has undertaken further cut-backs in order to reduce its overhead. The latest round has resulted in the company reducing its staff to one part-time employee.

Lukens confirmed that the proposed loan transaction with a certain major corporation is at a stand still. In a previous announcement Paraho was negotiating a $1 million loan from an outside firm. The corporation has not advanced any additional funds to Paraho in excess of the $262,000 previously reported and further negotiations have been suspended.

"The company with which Paraho was negotiating the loan agreement is understandingly reluctant to invest further in the Paraho-Ute Project given the uncertain future of the SFC."

Situation Report

Oil Shale—1976: Review/Preview

By Alys Novak

The oil-shale industry strides across 1975 and into 1976—with some questions still on its mind

President Ford visits shale country; the lessees of four federal tracts amass a ton of environmental and planning data; two in-situ leases are contemplated; private ventures seek government commitments . . . these are just some of the 1975/1976 highlights of the oil-shale industry. But before getting into the today and tomorrow of the industry, let's review some history.

Neither oil shale nor the oil-shale industry is new. The deposits developed in prehistoric times and the industry first budded centuries ago. But, although the United States holds the largest oil-shale deposits in the world, commercialization of this vast American resource has not yet come. Cheaper crude oil sources and government indecision have kept the oil in the shale.

During this low-profile period, however, there have been several notable experiments, including the U.S. Bureau of Mines oil-shale development project at Anvil Points near Rifle, Colo., in the 1940s-50s. Also active in recent years have been several significant private ventures, such as the Colony Development Operation and the Paraho Oil Shale Demonstration.

In terms of technology, oil-shale producers generally plan to use aboveground plants to process the shale. Thus they will first mine the shale, usually from underground mines of the room-and-pillar type. Once the shale has been mined, it will be crushed into smaller pieces and then fed into oil-shale retorts that are designed to heat the shale to high temperatures—heat is needed to turn the kerogen in the shale rock into a form of crude oil. Finally, the shale oil will be treated before being piped to refineries.

In-situ processes, the retorting of oil shale in place, have also been investigated. Pure in-situ methods, once proven, would require no mining; present modified methods do require some mining.

Gear up, gear down

Over the years, many companies have acquired oil-shale land holdings, but the federal government owns 80 percent of the shale deposits, via its vast public-land domain in the Mountain West. Thus, for this reason, as well as policy and economic reasons, the government has always held control of the go/no-go button for oil shale.

In 1973, that button was given a slight push by America's energy crisis. The push: the announcement of a new federal oil-shale prototype leasing program. In January 1974, that program officially got started with the opening of competitive bidding by private companies for six 5,000-acre oil-shale tracts, two in each of the three oil-shale states (Colorado, Utah, Wyoming). No bids were made for the Wyoming tracts, which were thought to have in-situ potential, but are leaner deposits. The four other tracts were bid for and awarded—for record-high amounts.

During 1974, the federal tract operators and several other shale ventures geared up planning, design and environmental study efforts. However, by the end of the year, energy-crisis panics had slackened while inflation had doubled. Result: some components of the oil-shale industry geared down once again. The most significant sign of this slowdown was an announcement in October 1974 by Colony that its plans to build America's first commercial oil-shale plant were being indefinitely delayed because of inflation, tight money and the lack of a national energy policy. Many old-timers took the announcement as proof that, once again, the promised shale boom was going bust.

C-b federal-lease shale tract in Colorado: site of intensive data-gathering in 1975, as this project prepared its Detailed Development Plan.

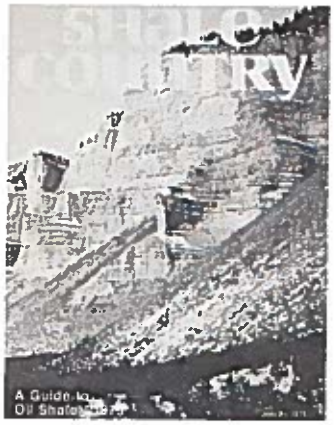
Oil-shale development plans did not die, however, in 1975. Several private ventures, particularly Paraho, pushed ahead with field-testing efforts; and the program on the federal tracts moved into an intense data-collecting stage. So, let's now focus on oil shale—1975/1976. (To gain additional perspective on shale country and oil shale, see the map on the inside back cover.)

Lessees aim at DDPs

The goal of the federal oil-shale prototype leasing program is to generate essential information about shale's environmental impacts and commercial viability. The leases specifically state that each step of the lessees' proposed environmental and development plans must be approved by the federal Area Oil Shale Supervisor's Office (AOSSO) before initiation. And even prior to this approval, these plans must be reviewed by OSEAP—the Oil Shale Environmental Advisory Panel.

The big step that each lessee has been aiming at in 1975 is the timely submittal of a Detailed Development Plan (DDP). Each DDP must include conceptual information on what the lessee plans to do in its commercial program, when it will be done, and how it will meet environmental criteria. DDPs must be filed with the Shale Supervisor on or before the third anniversary date of the lease. Upon approval, the lessees will move toward

Looking Ahead



Where Now, SHALE COUNTRY?

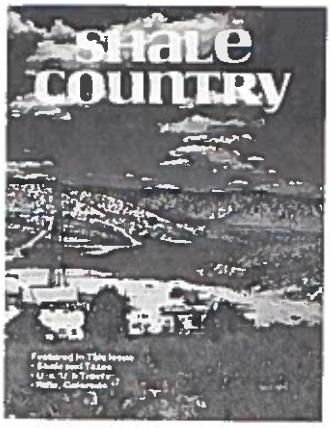
With this 12th issue of SHALE COUNTRY, as the magazine completes its first year of publication, it is time to ask: Where are we in oil-shale development? Do we know more than we did a year ago? And what's ahead? Like the January 1975 issue of SHALE COUNTRY, this issue is a guide, a map to what has happened with glimpses of what may happen; it will try to link the past to present and future. The January 1976 issue, also a guide, will delve even more into the outlook for the coming year. We are calling these two issues, "A Guide to Oil Shale—1976," Part I (December) and Part II (January).

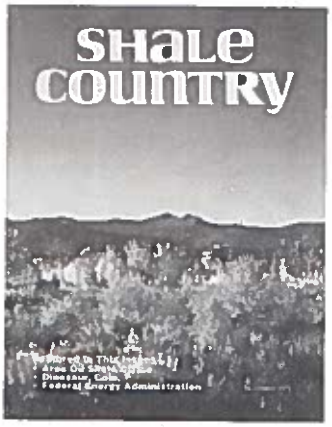
Where have we been? SHALE COUNTRY was started to fill a need—translating the maze of documents, persons and programs into a readily-understandable picture for the citizen concerned about how oil shale may touch his life. Thus, in the past 12 months we have looked at the projects on federally-leased shale land (Rio Blanco and C-b in Colorado; White River in Utah) and we have examined other shale ventures, including Paraho Oil Shale Demonstration at Anvil Points, Colo., and the Colony Development Operation at Parachute Creek, Colo. We have tried to delineate major issues in oil-shale development—taxes, water, net energy, mining, in-situ processing of shale, Detailed Development Plans, land rehabilitation, to name a few. We have sought out spokesmen for industry and for citizens. We have visited the oil-shale communities to learn of their current problems and concerns about oil-shale impact.

And we have been on the scene when officials, panels and seminars addressed oil-shale-related questions. For example, we were there when President Ford visited Anvil Points and when the Oil Shale Environmental Advisory Panel convened in Denver, Meeker, Vernal, Rangely and Grand Junction.

As we predicted in January, there has been no oil-shale harvest—jobs and facilities have yet to open up. But there have been some industry decisions, though many of them tentative, and some indications of government policy. For example, all of the operators of the federal lease oil-shale tracts—C-a, C-b and U-a/U-b—are outlining their projections in lengthy Detailed Development Plans for filing with the Area Oil Shale Supervisor's Office. And on all the federal tracts, the lessees have their first year of environmental baseline data finished or nearly finished—from the tagging of wildlife to the study of microscopic plant and animal life in the streams. And the lessees have begun to get a handle on the sites' ecology.

Apparently our readers have found this publication useful. Our letters-to-the-editor tell us the magazine is read around the country—from Congressional offices in Washington, D.C., to grocery stores in Roosevelt, Utah. By the way, SHALE COUNTRY is mailed to almost every state in the union (and some foreign countries).





We hope our readers will continue to let us know what they like or don't like about our coverage. And we hope that as SHALE COUNTRY starts its second year, you will continue to share your concerns with us. We have found many of our readers are in the same spot President Ford found himself before his visit to Anvil Points. They know of oil shale, but they don't know the specifics. We want to continue to provide those details. The President observed, "Until you see the actual operation, I don't think you can appreciate the potential or the problems." SHALE COUNTRY aims to offer the next best thing to being there—giving the reader a keyhole view of the changing shale scene.

Where are we going? As the only regular, general-interest publication on oil shale, we hope to continue to serve as a useful reference source for citizens, legislators, students, the news media and others. We can't give our readers all the answers, since neither the companies nor the government has them. But we will continue to hunt for information, to view the changes and to ask those classic questions—What are the real numbers? Who's who in shale? What's happening on the sites? What's coming? *The Editors*

actual operation as soon as possible to take advantage of the financial incentives built into the leasing program; early development permits a direct offset of the last two (of five) bonus payments.

By the end of 1975, DDPs were in the works at the C-b Shale Oil Project, and at the C-a and U-a/U-b projects. All expect to submit theirs early in 1976. It will then take about 6 months for review/approval of each plan. So 1976 will be a year for much discussion of DDPs. Therefore, let's look at the progress of each lessee more closely. (More information about these projects and others is given in the "Vignette" section.)

Colorado Tract C-a: In January 1974, Gulf Oil Corp. and Standard Oil Co. (Indiana) successfully bid for the first oil-shale tract offered under the federal program. The winning bid: $210 million—the most costly per-acre federal mineral lease ever executed. The project took its name—Rio Blanco Oil Shale Project—from the county in which the tract is located.

During 1974 Rio Blanco chose staff and contractors and began data-gathering efforts. In 1975, these efforts intensified. In addition to detailed environmental baseline studies (see "Environment" section), Rio Blanco concentrated on many other major categories, such as mining engineering, hydrology and geology. It also emphasized community planning (see "Newcomers" section in the January 1976 issue), and it studied C-a's power, pipeline, water and other peripheral needs. In C-a's case, as well as the other tracts, the studies are designed to cover every development aspect, to provide very detailed data, and to examine alternatives covering the environment, technology and economics.

Presently, the Rio Blanco staff numbers less than 100 and should remain at this level during 1976. Other 1976 projections recently were reported by J. Blaine Miller, Rio Blanco executive vice president. He said: "We are now in the final stages of preparation of our Detailed Development Plan, which we plan to submit in March 1976. At that time we will also provide a Community Development Plan for information purposes.

"If our DDP is approved within 6 months of its submittal, we would anticipate the beginning of construction in mid-1977. Production of 50,000 barrels per day would be reached by 1985.

"In terms of mining and processing, we plan a modular approach of expansion to full-scale commercial operation. Initially, a single TOSCO II retort producing about 7,000 barrels of oil per day will be built, followed by a second TOSCO II 7,000 barrel-per-day retort module after 3 years. Expansion to a full-scale operation of some 50,000 barrels per day would occur after this 6-year period and could also include a gas-combustion type retort.

"We are planning above-ground retorts because they would be required for conventional open-pit mining or underground operations with present technology. In-situ retorting could be employed later, if that technology proves feasible. We have been studying the relative economic, environmental and technological values of both open pit and underground mining. We favor open pit since it allows greater resource recovery." (Government lease program designers designated the Colorado C-a tract as having the most potential for an open-pit operation.)

"In terms of people, we expect the initial operation to require a peak construction force of 800 workers and a permanent labor force of 370 for the first module. For the expanded operation to 50,000 barrels per day, the construction work force is expected to be about 2,200 at its peak; the permanent force would be about 1,150."

During 1976, Rio Blanco Oil Shale Project specifically hopes for submission and approval of its DDP; for resolution of questions about water rights and off-tract disposal areas; and for initiation of telephone system installation, electric powerline construction and access road construction.

Colorado Tract C-b: The C-b Shale Oil Project, a joint venture of Ashland Oil, Inc., Atlantic Richfield Co., Shell Oil Co. and The Oil Shale Corp., also geared up in 1974. In 1975, key C-b events have been its work to complete its DDP for submission and a switch in operators.

Bob Loucks, of Shell, who now serves as C-b project manager, reports: "On June 1, Arco resigned as operator and Shell took over this responsibility. However, there has been no change in philosophy and minimal change in staffing. We now have about 30 full-time staff members. Of course, we also get support from contractors and from other company personnel.

"Basically, there has been no change in our mining and processing plans as outlined in our preliminary and exploration plans submitted at the beginning of the lease program. That is, we still plan to use the TOSCO II retort and to do underground, room-and-pillar mining. In regard to C-b's water situation (this tract was designated to test for underground mining that could have water problems), Loucks reports: "We don't know *the* answer to our water question yet, and won't until we do more work on the site. This, however, won't hold us up. We will develop additional hydrologic information as a normal part of our efforts. And we have developed several alternatives for handling the water; it's just a matter of choosing the best environmental/economic way."

Loucks also reports that "By November, a full year's worth of environmental baseline studies were completed, so we were free to finish up our DDP. We also have begun the initial engineering design work with a local (Denver, Colo.) contractor, Stearns-Roger, leading toward Phase I work in 1976. We already have completed a major study on mine design, hydrology and rock mechanics, which will serve as key input for our engineering design work.

"Our DDP team has worked for 5 solid months on the plan, cooperating all the way with the Shale Supervisor. We submitted several drafts for review to the AOSSO, a complete draft for OSEAP to review in late October, and then the final copy goes to the AOSSO. We feel that the plan is well thought out and that we know what we can do as engineers and as solid citizens.

"We hope for approval of the plan by mid-1976, so we are working full speed to get detailed designs from our contractors. Once the plan is approved, our current projections indicate that about 400 craft people would be needed, starting next summer to undertake Phase I. This will include sinking shafts, building roads and surface facilities, and installing materials-handling equipment."

Loucks concludes, "The DDP is extensive exposure of our plans. It's 1,200 pages long; it's a public document; and it includes information not only on our development plans but also on our predevelopment and post-development in-

tentions."

Utah Tracts U-a/U-b: Aiming for early submission of a DDP in the first quarter of 1976—15 months before the due date— White River Shale Project officials have made a number of tentative decisions on how to develop Utah tracts U-a and U-b. Their present scenario calls for limited initial production in a preliminary stage White River describes as its "commercial development phase." Full-scale production would be somewhere between 50,000 to 100,000 barrels a day—White River Shale Project's original production goal.

The initial phase may be conducted in Colorado in conjunction with the Paraho Oil Shale Demonstration at Anvil Points. Reason? White River is looking for ways to save time. If its DDP is approved in late 1976, then White River would still have only a few months to spend money that could be credited against its fourth bonus payment. Since Paraho already has a semi-works retorting plant, its construction of a full-sized retort could take less time than if White River were to build its own retort in Utah. But the Paraho scale-up will be delayed by the Energy Research and Development Administration's request for another environmental-impact statement. So if White River officials decide Paraho won't save them time, they may opt to build their own module from scratch. All three White River companies—Sun Oil, Phillips Petroleum and Sohio Petroleum—are also Paraho participants.

White River Program Director Earl Ramsey says a White River module would be capable of producing between 1,000 and 4,000 barrels a day and could be "very similar" to Paraho's proposed module. The White River plant would require about 2 years to engineer, design and construct, and 1 year to operate and demonstrate, according to Director Ramsey. The plant would probably be located somewhere in the center of the two-tract area. Once the full-sized module was proven, the project would be expanded—more retorts would be built. Operation of a commercial plant would be dependent on the production rate but could require some 2,000 workers, Ramsey estimates; at the peak of construction, there could be as many as 3,000 to 4,000 workers.

While the Paraho process of retorting shale appears to have top billing for White River, Ramsey says, ultimately another process could be chosen. He explains, "We think the Paraho retort has the best chance of being the one we would select. But we haven't eliminated the other processes entirely."

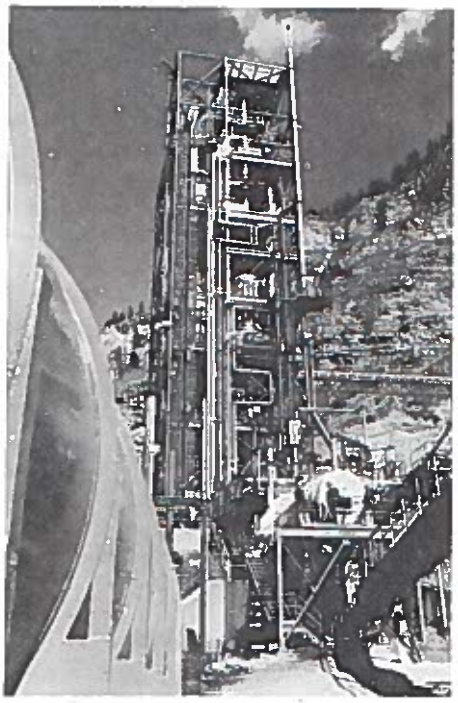
While observing that "The more I see of this business, the harder it is to make a firm decision," Ramsey does cite several other expected White River project decisions:

—This shale project will start with one mine; later there may be two connected mines.

—Disposal of spent shale will be in Southam Canyon, probably entirely on-site; shale under that canyon is located at a depth where it could be mined later, even with the spent-shale disposal pile on top of it.

—The two federal tracts will be developed jointly, with the approval of the Dept. of Interior.

A big decision still unresolved is where to provide housing for workers that would serve a plant. White River is considering a new community (to be discussed in the January 1976 issue). Another big concern is water; however, while White River officials had originally thought they would need 36,000 acre-feet each year for both the project and any community, they now say the amount will be less than that, assuming the Paraho process is used. Two principal alternatives for water are a dam on the White River or piped water from the Green River, a more costly option.



This TOSCO II semiworks retort has been tested at and above its design capacity of 1,000 tons per day by the Colony Development Operation, and has produced more than 100,000 barrels of shale oil.

Private efforts fluctuate

Several private oil-shale ventures remained in the spotlight during 1975; the progress of some of the key efforts now will be reviewed.

Colony Development Operation: Back in 1964, this joint venture of private industrial firms was formed with the objective of constructing America's first commercial oil-shale plant. Since then, some of the partners have changed and so have some of the plans.

During this period, Colony obtained substantial private oil-shale properties in Colorado; its semiworks plant, which utilizes the TOSCO II retorting method, was operated periodically over several years and successfully processed more than 1,000 tons per day; $12 million has been spent for preparation of definitive designs and construction estimates for the project; and the venture spent more than $3 million on environmental studies. Also roads were begun, new community plans were made, water rights were acquired . . . then came October 1974 and the suspension announcement from the present four venture partners—Ashland, Arco, Shell and TOSCO.

Hollis Dole, general manager, reports that as of 1975, "Colony is still in a state of suspension. Our position is no different than it was 1 year ago, and we expect to continue in this state until political, economic and energy policies are better understood.

"Nevertheless, during 1975, we did continue our environmental studies and our socioeconomic planning, and we completed construction on access roads, and a railroad spur. In other words, we concluded all those things that were underway, with the main thrust being the filing of our master plan for Colony's proposed new community,

called Battlement Mesa. We submitted a rezoning application to the Garfield County Commission for this 3,000-acre planned-unit development near Grand Valley in the spring and it has been approved. Also, our draft environmental-impact statement has been completed by the Bureau of Land Management and will soon be through the review process. And we are working on all our background permits, so we will be prepared to go forward again. But presently, we are in a standby position, with a minimal maintenance staff.

"As for 1976, everything depends on the government. If a federal synthetic-fuels policy is set forth, and if the Colony partners choose to reactivate the project, how fast we get going depends on the time of the year. It would take 6-9 months under the most optimal conditions."

Occidental: In the midst of constructing a large underground retorting chamber near DeBeque, Colo., Occidental Petroleum Corp. was predicting that the company would have the first commercial-sized retort operating in this country at year's end. The retorting chamber, slated to be completed by the end of 1975, "demonstrates a major advance—the ability to build a large (in-situ) retort," in the words of Dick Ridley, executive vice president of Occidental Oil Shale, Inc., a subsidiary of Oxy's Oil and Gas Div.

This shale research operation, which began in 1972 on a 2,000-acre site in Logan Wash, is taking a different approach to oil shale. Oxy is the principal company in recent years to investigate a modified in-situ techniques—all but 10 to 20 percent of the rock is retorted underground. Oxy has used conventional mining techniques to dig a mine some 1,500 feet long, and has carved out and fired three relatively small retorts, each about 32 feet on the horizontal side and from 70 to 120 feet high. Each chamber was slightly bigger than its predecessor.

The fourth room is about 120 feet on each side and some 300 feet high. While capacity of the smaller chambers was about 30 barrels of oil a day, capacity of this newest chamber is 300–500 barrels a day. It would take 40–50 chambers the size of this largest chamber to operate a commercial plant.

Will Oxy build a commercial plant? Ridley, manager of operations, says the decision should be made sometime in mid-1976, and that Oxy could be in production by early 1979. He testified in October in Washington, D.C., "The biggest constraint is land." The current site can be developed commercially, but its small size and low grade ore would make profitable operations difficult. "Given a 25- or 30-gallon-per-ton site, there would be absolutely no question (about profitable commercial operations)," Ridley says.

So Occidental Petroleum may get into the federal government's prototype leasing program for in-situ oil-shale development. Oxy has nominated two tracts in Colorado, and it is likely to bid on a Colorado tract. Meanwhile, the company plans to concentrate on producing shale oil from its commercial-sized single chamber.

Paraho Oil Shale Demonstration, which headquarters at the Bureau of Mines facility at Anvil Points, Colo., aims to move soon from its present semiworks testing stage to a full-sized commercial module.

Paraho Oil Shale Demonstration: Paraho, a contraction of Portuguese words meaning "for the good of mankind," also denotes a private oil-shale project that proposed in 1975 to follow its ongoing operations with gradual and orderly expansion by construction and operation of one full-sized commercial retort called a module. Paraho argues that the module approach will accelerate the development of an oil-shale industry and would provide an opportunity to monitor the environmental impact of full-scale equipment before commercial plants are built. Instead, the Paraho project encountered a new hurdle: a government request for an additional environmental-impact statement.

To review, the Paraho project, located 10 miles west of Rifle and just off I-70, was designed to test an oil-shale retort invented by John Jones, Jr. Jones' company, Development Engineering, Inc., Denver, leased Anvil Points from the government. DEI is operator for Paraho; the Energy Research and Development Administration is the government's gatekeeper. Jones and Harry Pforzheimer of Sohio Petroleum enrolled 17 private companies as financial participants (see Paraho "Vignette" listing), and launched the project in late 1973. This year the participants hiked their original $7.5-million budget to $9 million.

The existing project is slated to terminate in July 1976. However, Paraho has proposed, as its next logical step, to build and operate an expanded oil-shale plant. The price tag for costs of construction and 30 months of operation would be $76 million. The loose ends were to be tied up, and the proposal funded by the end of 1975. Instead, late in the year, ERDA decided to require a new EIS for Paraho's expansion plans; Paraho had hoped that only the environmental assessment already prepared by the Bureau of Mines would be required. Now, preparation and approval of the new document may take 9 to 13 months. Meanwhile, private investors are not likely to commit funds pending results from the EIS.

But Program Director Pforzheimer is far from stymied. He has applied for government funds to tide the Paraho project over while the EIS is being prepared, and to permit preparation for the proposed expansion.

At the Anvil Points facility two retorts already have been installed and operated, a pilot plant and a larger semiworks plant. Both are junior in size to the proposed full-scale commercial retort. The smaller retorts have good track records. A 56-day continuous run of the semiworks retort last March yielded 10,000 barrels of shale oil that were refined into seven different fuels for the U.S. Navy.

Now that results on these small-scale

retorts have shown a pattern of success, Paraho is eager to move ahead. A $6-million appropriation has been requested from ERDA's phased-funded program. The money would allow Paraho to continue design work for expansion, to order long lead-time items, to begin preparations for more mining, and to continue R&D on the existing equipment. Otherwise, cautions Pforzheimer, "We're reaching a hiatus pretty quick where we will begin to let people go." There are no layoff plans now; but the current project is slated to end in July. So would employment for the 100 workers at the plant—unless ERDA provides the $6 million or the scale-up is funded. If the expansion does proceed, a total of 300 workers would be needed.

Paraho also is asking for a government loan of 75 percent of the construction costs of building the $52-million complex. The remainder of construction costs as well as $24 million in operating costs would be provided by industry. The loan would be repaid at the end of the demonstration, when Paraho would sell the entire complex to ERDA.

As he told President Ford when the Chief Executive toured Anvil Points in August, Pforzheimer sees the expansion as a way to accelerate "oil shale's ability to make an important contribution toward alleviating the national energy shortage." Construction of the expanded project could begin in 1977, and operations could get underway in 1978, he says. The plan calls for construction of one full-sized retort, identical in every respect to the 10–20 retorts a commercial plant would require.

Superior: This firm became interested in oil-shale development because it has held 6,500 acres in fee land in the Piceance Basin for about 40 years. In 1967, it began studying the land and discovered that the oil shale on the property contained nahcolite and dawsonite, which made it different from other sizable blocks of fee acreage in the Basin. As a result, the company has spent several years developing an "integrated process," which reportedly extracts four products from the shale—shale oil, raw nahcolite, alumina and soda ash.

Ben Weichman, manager of Superior's Oil Shale Dept., reports that "Perhaps the highlight of 1975 was the successful operation of a pilot retort at our Cleveland, Ohio, test facility. This means that when the land exchange with the BLM is consummated, we will be ready to begin construction of a full-sized module on our land in Colorado." For mining/economic reasons, Superior wants to exchange 2,500 of its acres for 1,700 acres of BLM land.

"What about 1976? Surely the most important item pending for Superior is the land exchange. At this time, there has been no change in the status of the exchange because BLM is still working on its own environmental and economic analyses of the proposed switch. However, we are hopeful of meeting with them before the end of the year to resolve any questions. If the land exchange is consummated in a timely fashion, we will open a mine on our property in 1976. And, we are ready to begin mining immediately. We would not transfer the pilot retort from Cleveland, but rather, we would begin engineering for the full-sized module. We would first open the mine with a pilot adit to get final rock mechanics data, a recovery rate for mining, and a final test of the water conditions in the mine. Then we would mobilize the construction of the full-sized retort," says Weichman.

On the C-a tract, Rio Blanco Oil Shale Project's numerous studies have included core drilling to obtain geological and hydrological samples.

TOSCO: Two decades ago, The Oil Shale Corp. was founded; since then it has grown to become not only a leader in the shale industry, but also the nation's 28th largest oil refiner/marketer, and a leader in developing related technologies for recycling scrap tires and upgrading coal. However, The Oil Shale Corp. is best known for the TOSCO shale technology, a continuous-retorting process that takes place in an enclosed chamber without a direct fire.

TOSCO also is known as a partner in the Colony and C-b shale efforts and in 1975, it continued its participation in these ventures. And in 1975 it licensed its TOSCO II process for retorting oil shale and its mining, crushing and spent-shale disposal technologies to Gulf Oil Corp. and Standard Oil (Indiana) for use in developing their federal lease tract C-a.

In addition, TOSCO announced plans to develop its shale lands that it has leased from the State of Utah. These are located about 35 miles south of Vernal, Utah. In regard to this project, Mike Spence, vice president of TOSCO, reports that "In 1975, we have carried out a soils sampling program, air survey work and other field studies on the Utah leases. Pending final approval by Utah of a unitization agreement, we plan to spend $8 million in resource evaluation, environmental and preliminary design programs between now and the mid-1980s, leading to the eventual construction of a 75,000-barrel-per-day plant."

Vice-President Spence explains that TOSCO has acquired 29 oil-shale leases in Utah over the past few years, which add up to 14,680 acres in four physically separate, but nearby, blocks. The unitization agreement covering the leases will allow them, for development purposes, to be treated as if they are a separate entity.

He also notes that included in the first phases of the development program will be a core-hole drilling program, the installing of a 100-200-foot meteorological tower to measure air-quality characteristics, the tapping of several underground wells to determine water quality and quantity, plant and animal studies, and the continuation of soils work. Revegetation studies will be a major part of these efforts too.

TOSCO also plans to open an office in Vernal soon. Ultimately, if built, its plant will mean 1,500 permanent jobs and an increase of $1 billion to the tax base of the area.

Union Oil Co.: This company became interested in oil shale more than 50 years ago when it acquired shale land holdings in Colorado; today Union has some 20,000 acres of land and attendant water rights. It also has developed its own upflow retorting process and it constructed and operated a semiworks shale retorting facility in Colorado from 1955–1958, which ran at rates up to 1,200 tons per day. Then it closed down the plant saying the process could be commercialized whenever economic conditions warranted. Two years ago Union announced it had reactivated its oil-shale development efforts, and since then it has been conducting various environmental and design studies.

Steve Lipman, manager of Environmental Development for Union, reports that "In 1975, our emphasis has been on engineering efforts—on designihg a prototype retort operation for our private lands in Parachute Creek. At the same time we are completing all of our baseline environmental studies.

"Our 1976 plans depend on what Washington does—on whether an economic incentive program for commerical oil-shale plants is approved and if we feel these incentives would be adaptable to our planned program. In any case, we intend to carry on all of our planning on the assumption that Washington is getting close to an appropriate incentive program. Thus, we will be prepared to go forward once the program is approved. Of course, there would still be many details to work out before beginning actual plant construction."

Westco: A new private shale venture gained attention in 1975: 10 oil companies (see map) banded together with a small, independent Utah company, Western Oil Shale Corp. (Westco), to design an in-place, underground method of economically separating oil from shale. And the project could evolve into a multimillion-dollar in-situ oil-shale experiment. If all goes well, shafts could be sunk in March or April 1976 for three large chimneys to process shale underground. Whether the current study, which ends in January 1976, leads to an experimental project may be decided as early as the end of 1975, says project director Dr. Hank Coffer, Las Vegas, Westco vice president.

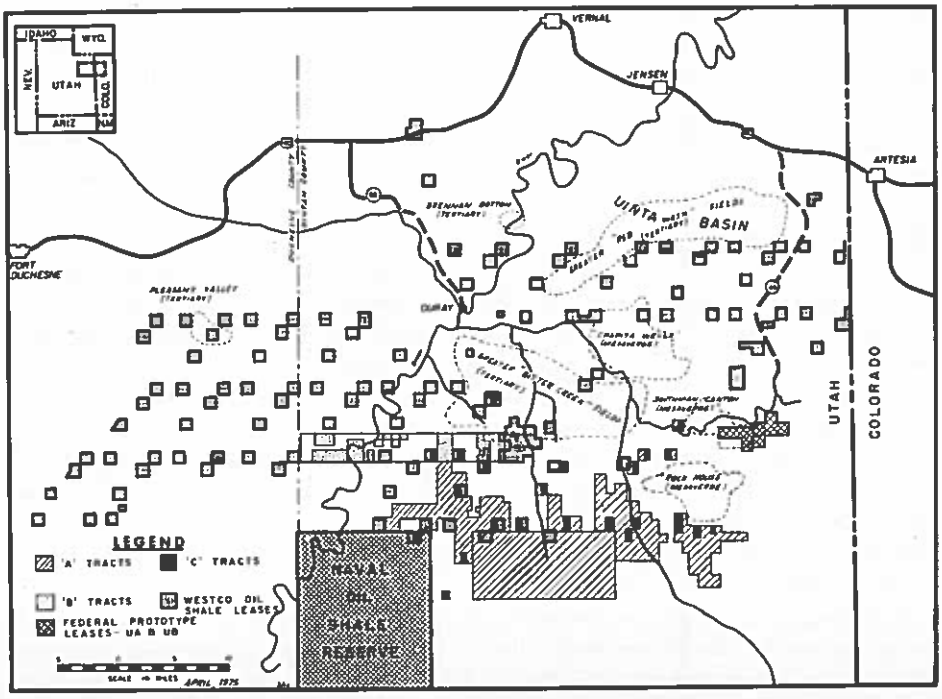
Participation of new partners in the in-situ study is still possible, Coffer says. The budget is $400,000 for this design phase and costs are being borne equally by the ten companies. Westco is providing the land and day-to-day management; the firm owns 76,000 acres of oil-shale land in Utah's Uintah County. Plans call for modified in-situ development—recovery of oil by underground retorting of the shale after some mining via conventional methods, and fracturing of the remaining rock.

If the project goes ahead, local headquarters will be established in Vernal. For now, the design phase of this in-situ shale project is continuing on schedule.

1976???

It's plain to see that 1976 will be a year for critical shale decisions. Not only must Detailed Development Plans be evaluated, but also economic and policy questions must be answered. Thus, the January issue of SHALE COUNTRY will zero in on the issues and concerns that will affect the status of the oil-shale industry—and the shale area itself—for years to come.

The White River (right)—just north of the U-a/U-b federal shale tracts—gives the Utah project its name and will likely serve as its source of water. **Westco's** extensive oil-shale holdings are marked on the map (below) by wavy lines. Of the 76,000 acres of scattered tracts, a 120-acre parcel, near Vernal, Utah, is the site for a 10-company oil-shale in-situ venture. The companies are: Arthur G. McKee Co., Ashland Oil, Chevron Oil Field Research, Cities Service Oil, Getty Oil, Gulf Oil, Mobil Oil, Shell Oil, Standard Oil (Indiana) and Sunoco.



Environment

Baseline Studies Lead the Way

Data mountains suggest answers to oil-shale environmental concerns

When considering the environment of the oil-shale lands, it is first necessary to keep in mind the climate and geology of this region. These sites are semi-arid areas defined by ridges and valleys with steep cliffs of rock, scattered with clumps of sagebrush and woody shrubs and populated by mule deer, jack rabbits, assorted other wildlife . . . and a few human beings.

The second factor to keep in mind is that the environment of the shale area is being scrutinized like practically no other area *ever* has. One specific example: "More will be known about the makeup and interrelationships of flora and fauna on the prototype tracts, before mining, than has ever been known before on an area of this size." That statement, from the recent article in SHALE COUNTRY about the study of the ecology of plants and animals on the federal oil-shale tracts, reflects the extent of just *one* of the environmental efforts that have been going on in the shale area in 1975—and before—and that will continue into 1976 and beyond.

The reason for this monumental effort is simple. Environmental awareness is a fact of oil-shale life. Not only must the federal lessees meet demanding environmental requirements throughout the entire span of their involvement with the tracts, but so must each private venture.

The federal leases state the environmental requirements quite specifically: "The Lessee shall conduct all operations under this lease in compliance with all applicable Federal, State, and local water pollution control, water quality, air pollution control, air quality, noise control, and land reclamation statutes, regulations and standards." The leases also specify that before actual development can begin on the leased deposits, the lessees must compile comprehensive baseline data on all environmental indices in their leased area to determine the conditions existing prior to any development operations under the leases. And they must also conduct a monitoring program of the environment before, during, and subsequent to development operations as a continuing check on compliance with the leases. Although the regulatory procedures and agencies are slightly different for the private shale ventures, they too must adhere to similar stringent requirements and schedules. Therefore, a discussion of lease environmental programs is applicable to all shale efforts.

Measuring, measuring

What are the key environmental indices involved in the baseline and monitoring programs on the shale sites? Basically, there are four: water (surface and ground); air (quality); flora and fauna; and soil (survey and productivity). Archeology is another environmental factor being carefully investigated.

How do the shale companies go about finding out about these factors? The recent SHALE COUNTRY article on the lessees' air quality and meteorological programs details the thoroughness of such studies. It explains, for example, that the air-quality measurements being taken on the tracts include: particulates, sulfur dioxide, hydrogen sulfide, total hydrocarbons, methane, carbon monoxide, ozone, nitric oxide and nitrogen oxides. The meteorological measures include: air temperature, wind speed and direction, humidity, lateral and vertical turbulence, solar radiation, evaporation and visibility. Special noise studies also are being conducted as well as analyses of air movements and relative humidity.

These studies require the use of such apparatus as meteorological towers, automatic recording instruments, computers, specially-instrumented aircraft, radiosondes, and pilot balloons. They also require highly-trained specialists. Thus, each shale company employs numerous staff/contractor environmental personnel and the expenditures involved run

Guest Column

Oil Shale— An Ace In The Hole For National Security

By P.A. Petzrick, Cdr.
Director, Navy Energy and
Natural Resources R&D Office

During a recent visit to Colorado and Utah, I was impressed by the depth of understanding of the nation's energy problems displayed by the local citizenry. Their modesty, however, suggests they do not fully realize the tremendous importance to our national security of the resources they are looking at each day. To attempt to put these resources into perspective, I have used the simple gambit of distorting the world map to proportion a country's size according to the relative amount of each critical fossil fuel available to that country. A quick glance at the resulting figures tells an important story.

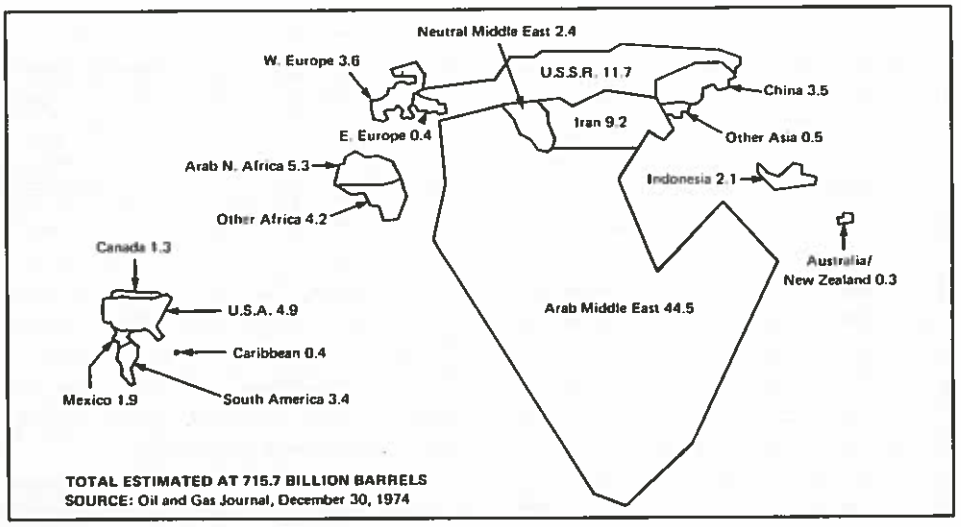


Figure 1—World Recoverable Crude Oil

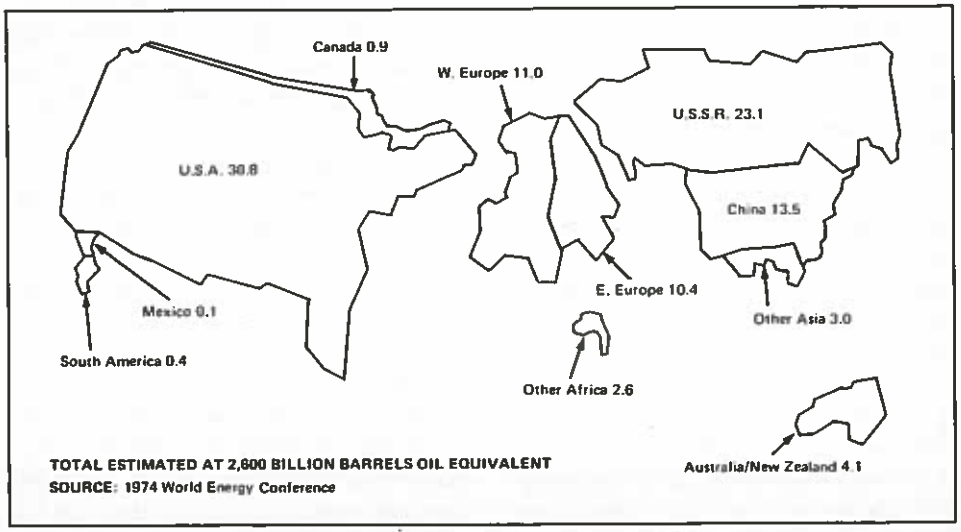


Figure 2—World Recoverable Coal

The basis of our energy problem is shown in Figure 1. With only 4.9 percent of the world's crude oil, America has a standard of living and a level of industrial development that accounts for one-third of the world's demand for crude oil. From a national security point of view, the story is even more disturbing. We have a large inventory of ships and airplanes built to consume liquid hydrocarbon fuel, which has traditionally been derived from crude oil. It is no accident that our military machinery is such a heavy user of oil. Liquid hydrocarbon fuels have offered the best combination of energy density and safety of even the most sophisticated fuels that could be developed for military applications. For those vehicles—land, air and small ships—where nuclear power is impractical, liquid hydrocarbon fuels are still the best bet for the future. As shown in Figure 1, dependence on crude oil for military fuels creates uncertainty as a result of the inequitable worldwide distribution of this resource. Unfortunately, national dependence on crude oil contributes to world tension, increasing the need for military forces.

Referring to Figure 2, the distribution problem is largely resolved if one could consider coal as the source of these liquid hydrocarbon fuels. For this reason, the Department of Defense is vitally interested in coal-liquefaction efforts of the Energy Research and Development Administration (ERDA) and those of other nations. From a practical point of view, however, liquid fuels prepared from coal will be expensive; they must compete with direct use of coal as a fuel; and they will give rise to the environmental problems associated with mining coal.

The alternatives of special interest to the citizens of Colorado and Utah are tar sands and oil shale, the distribution of which is shown in Figures 3 and 4. While

Spurns Data for Data's Sake

the requirements of the Federal Register . . .'

Humor frequently softens Box's criticism. After revegetation project in the Texas panhandle, Box revealed to a reporter his most significant finding: "Plant immediately before a rain."

tives.

Many times there isn't enough interpretation possible because there isn't enough research there. The people involved in the research haven't worn out enough pairs of boots. (After the passage of NEPA) hundreds of firms sprang up, hiring all sorts of people who haven't had the experience to do these environmental-impact statements.

I don't want to sound pessimistic. People in government and industry are trying hard. We are much ahead of where we were. But environmental-impact statements in general haven't looked closely enough at the tradeoffs.

Q. *Such as?*
A. Water is a good example. Do we use the water for coal, gas, oil shale, for agriculture or to run down the river to provide for the fish?

Q. *Where does the oil-shale panel fit into your critique?*
A. One of the panel's main defects is its size. But its limitation is also its strength—the diverse interests and backgrounds of panel members. Its main function is simply an overview of the environmental impacts of development. I doubt we have much impact on specific items; there's not that much scientific muscle here. But we do raise a lot of questions about the adequacy of what (the companies) are doing, and why.

One of our problems is that we are focusing in on oil shale where we probably ought to be taking one or two steps backward and looking at energy development. If there is a better source of energy with less environmental impact, then we ought to be looking at it.

Q. *Turning to your area of expertise, rehabilitation, do you think rehabilitation of spent-shale sites is possible?*
A. I think it's possible. There are still some scientific questions to be answered and some engineering questions. But the big problem is going to be in the art of getting it done, getting somebody with a green thumb. You can get two wheat farmers side by side and one will harvest 80 bushels of wheat and the other will have a crop failure. There are no certified rehabilitation experts. But we do know enough now where we can do a pretty darn good job of rehabilitating the sites.

The biggest issue in rehabilitation is how to handle the high salt contents of the soils: how do you put the shale pile together? How do you get the plants to grow in this zone? How do you handle the salts?

Q. *Do you think it is important to plant native species on rehabilitated sites?*
A. I would break with my environmentalist colleagues here. No, I don't think it's necessary or even makes good scientific sense to plant native species the first time around even if your objective is to reclaim the native species. We had the same hassle on coal. Some people said, 'We want it just like mother nature had it with little blue stem on the prairie.' Well, if you want little blue stem, you may have to get there like mother nature did—through a series of plant succession steps. Maybe you should plant broom corn rather than little blue stem. (On oil-shale lands) you may want to plant a weed—it may be barley—to get back to the native plant cover.

Most of my optimism about revegetation is based on revegetating other sites. If you pin me back and ask, are there examples of can we do it with oil shale, examples that can be extrapolated to other sites, I'd say no. But there has been a lot of work in other areas such as revegetating road cuts and coal sites.

Q. *You have criticized the location of the Plant Materials Center in Meeker as being of little value to oil-shale sites in Utah. Why?*
A. Meeker is too high an elevation, too far south.

Q. *What do you see as the key environmental issue in oil-shale development?*
A. Water. One has only to live in a Western state to realize water is a most valuable, elusive resource. This will be an overriding issue. *C.E.*

U.S. reserves of tar sands are relatively small, they could be very important to the security of the nation and the western hemisphere. Navy testing of Canadian tar sands products suggests an exceptionally good yield of high flashpoint, nonaromatic jet fuel. These fuels are essential for safety aboard ship and very desirable in all aircraft operations. Thus, even the small U.S. resources could be an important source of military operational fuels. The technology developed in utilizing U.S. resources might be the basis for substantial development of South American resources so that their full potential could be realized for western hemisphere security.

It is oil shale, however, that gives the real edge to the United States. This tremendous resource at almost the geographical center of the United States is probably the most important long-term source of liquid hydrocarbon fuel available to the nation. Recent testing of fuels derived from shale oils from the Naval Petroleum and Oil Shale Reserves shows that oil shale is an excellent source of military operational fuels. There may be some special refining problems; but, in general, the work of the Bureau of Mines and of industry over the past decade has demonstrated that we could rely on oil shale as a source of fuel for the Department of Defense and related critical industries.

In summary, as shown in Figure 5, this abundance of oil shale gives the United States an overall edge in the aggregate of important fossil fuels available in the world. It should be noted that in this aggregate, America does possess one-third of the world's recoverable resources to match our present one-third of the world's demand. Perhaps more importantly, the availability of technology to efficiently utilize all sources of fossil fuel presents a world map with far better distribution of these critical resources. This distribution will, in itself, help to promote world stability, thus enhancing our own national security.

The key edge in resources—the ace in the hole—lies in western Colorado and Utah.

(The opinions reflected in this article are those of the author and do not necessarily reflect those of the Dept. of Defense.)

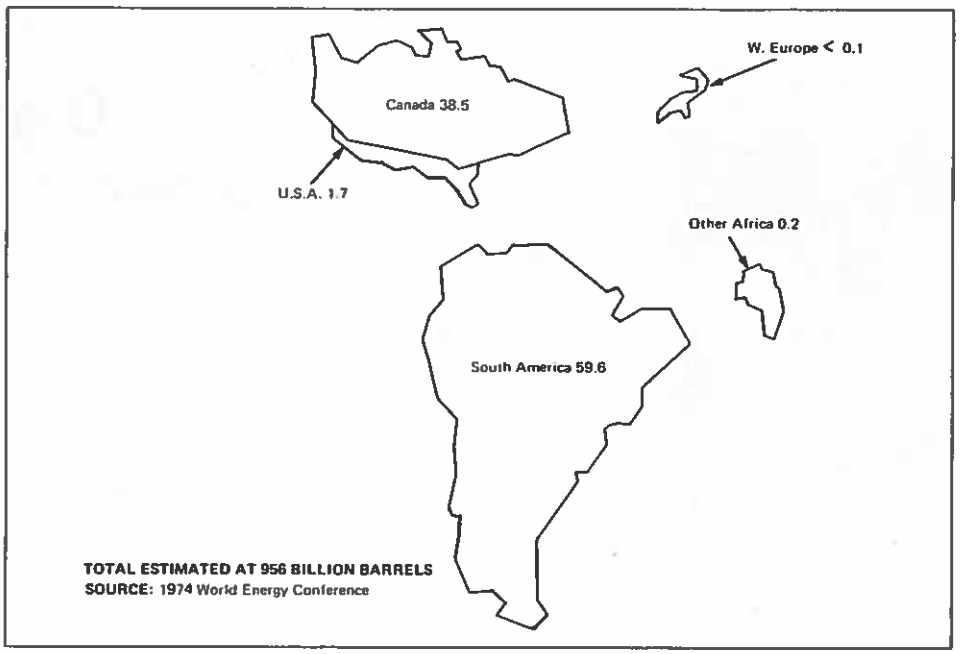


Figure 3—World Recoverable Tar Sands

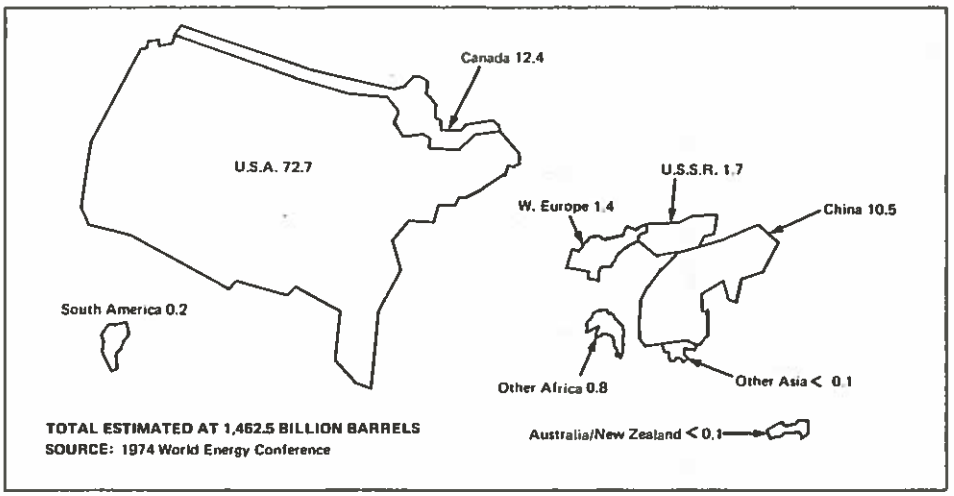


Figure 4—World Recoverable Oil Shale

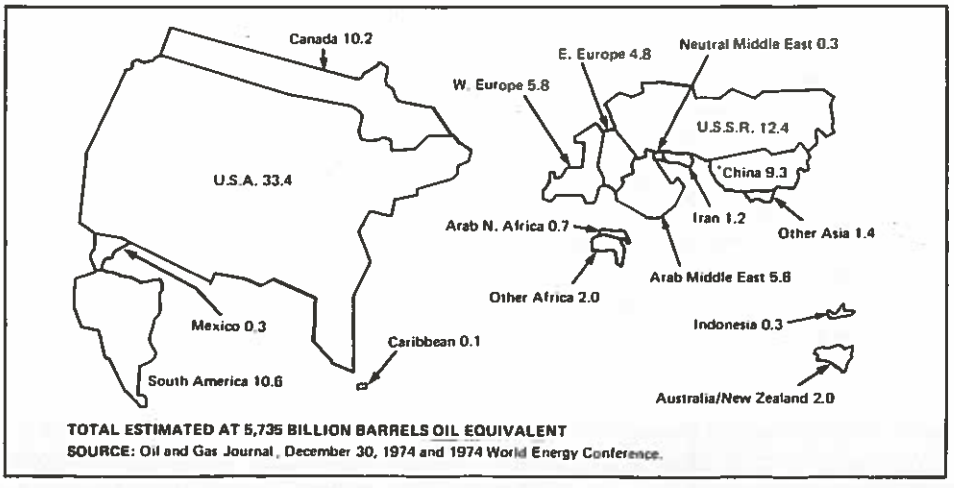


Figure 5—World Recoverable Fossil Fuel

Digging Into Shale's Rocky Past

Almost everyone in shale country is familiar with the story of Mike Callahan, who in 1882, accidentally discovered oil shale in Rio Blanco County. According to legend, Callahan invited a few neighbors to his housewarming, which turned out to be more literal than he had expected. Unwittingly, Callahan had built the fireplace from shale rock found in the area—and when he lit the fire the cabin went up in flames.

The discovery of "the rock that burns" may have brought Callahan fame, but it certainly did not bring him fortune. Shale development has always been marked by ups and downs—mostly downs. For example, according to Paul Russell, research director with the Bureau of Mines in Denver, "Oil shale was not new. The Mormons at Juab, Utah, produced oil from shale as early as 1855." And back East, 53 companies were producing oil from various bituminous substances, including oil shale, by 1860. But, two decades later, the budding petroleum industry in Pennsylvania already had ruined the incentive for developing an oil-shale industry.

Interest in shale died down after Callahan's time, and wasn't reawakened until 1913, when the U.S. Geological Survey began investigating shale reserves in the Green River area. During the summers of 1915 and 1916, the USGS sent Geologist Dean Winchester out West to survey the shale lands. Winchester calculated that approximately 40 billion barrels of oil were available from shale in the area.

Winchester's report was the beginning of an oil-shale boom. Speculators rushed to the Western Slope in droves, and under the 1872 Mining Law, approximately 30,000 claims were staked—some on top of each other. The 1920 Mineral Leasing Act brought an end to most of the claim-jumping, but by this time many land titles were in dispute, and Russell points out that repercussions are still being felt today. "Unless the proper fees have been paid and the proper assessment work has been done, the government considers all claims prior to 1920 invalid."

World War I and threats of an oil shortage gave further impetus to the oil-shale boom. People were lured by the magic of the word "oil" itself—not realizing, of course, that developing oil shale had little relationship to discovering crude oil. And many of those who plunked their money down on oil shale were not able to distinguish between investment and speculation. Often they were taken in by fake promotion. There were at one time, for example, more than 100 companies apparently organized solely to bilk the gullible public with phony oil-shale stock.

Further hampering the development of oil-shale were the unanticipated problems encountered by the shale prospectors. Everyone, for example, expected to use coal mining methods on oil shale, but these were never tried. There were many designs for retorts—few of which worked well. And, unlike gold, an oil-shale claim couldn't be worked by a single man. During the early 1920s, there were some 200 oil-shale companies in existence, many made up of four or five operators who sank their savings into these ventures. By the end of the decade, most of these companies had either dissolved or gone bankrupt.

Despite such problems, interest in oil shale ran high during the 20s. For instance, in 1925 the Bureau of Mines started a project near Rifle, in an attempt to determine equipment and methods for retorting shale. But they couldn't compete with the East Texas oil fields and the project closed down in 1929. It didn't matter much anyway. By this time interest in oil shale had almost disappeared—killed by fake promoters, the Depression and once again, new discoveries of low-cost oil.

But oil-shale interest experienced a reincarnation. The advent of World War II brought fears of an oil shortage and so oil shale came back to the front burner. The Bureau of Mines began yet another project for the Navy and opened a mine at Anvil Points in 1944. Activities were discontinued in 1956, however, when Congress refused to make any more appropriations for the project. The research done at Anvil Points did prove valuable, however, because as Russell explains, "While technology has improved, oil-shale mining methods and equipment design basically haven't changed much since the days of the shale pioneers of 1944–46."

During the Anvil Points era, and until the leasing of the federal oil-shale tracts in 1974, private industry made little effort to develop shale. But now, even though some of the obstacles encountered in the past still have to be dealt with, the future of oil-shale development appears to be bright. Improved technology is smoothing out some of the problems, and once again, high oil costs and lack of new oil sources are back in the picture. This time around, it looks as if oil shale is on its way to becoming a full-scale commercial industry. *K.C.*

OIL SHALE

Oil shale exists in large quantities in Utah, Colorado and Wyoming. The potential recovery is estimated at about 380 billion barrels of oil. Uintah County contains an estimated 33 billion barrels of this resource. Several companies have expressed interest in this and have large areas under lease, but commercial development is awaiting economical methods of extraction.

OTHER

Coal, silver, copper and iron all exist in varying amounts in Uintah County. Coal deposits in Uintah County and nearby Rio Blanco County, Colorado are estimated as unlimited. Excellent silica deposits exist in the area, but have had little development. A good grade of hemalite iron in fairly large deposits exists in Uintah County, but these are undeveloped. Small amounts of uranium also occur in the County.

Paraho oil shale retort module set for local area

Paraho Development Corporation, a leading oil shale development Corporation, a leading oil shale development company, acknowledged last week that it has received notification that the Department of Energy (DOE) is ready to negotiate on Paraho's proposal for the Design and Demonstration Plan for an above ground oil shale module to be located 40 miles southeast of Vernal.

This module, a single, full-size oil shale retort, is the first step in the commercial application of the Paraho technology for the development of the vast oil shale resource.

"The initial contract between the DOE and Paraho, Phase I, will be for the preparation of a detailed design and cost estimate for a module retort," stated Harry Pforzheimer, Program Director.

Funding for this program, $6.5 million will be from the DOE and Paraho project sponsors. Sponsors include Sohio Shale Oil Company (a subsidiary of the Standard Oil Company (OHIO), Phillips Petroleum Company, Mobil Research and Development Company, The Cleveland-Cliffs Iron Company, Moon Lake Electric Association, Davy McKee Corporation, and Paraho.

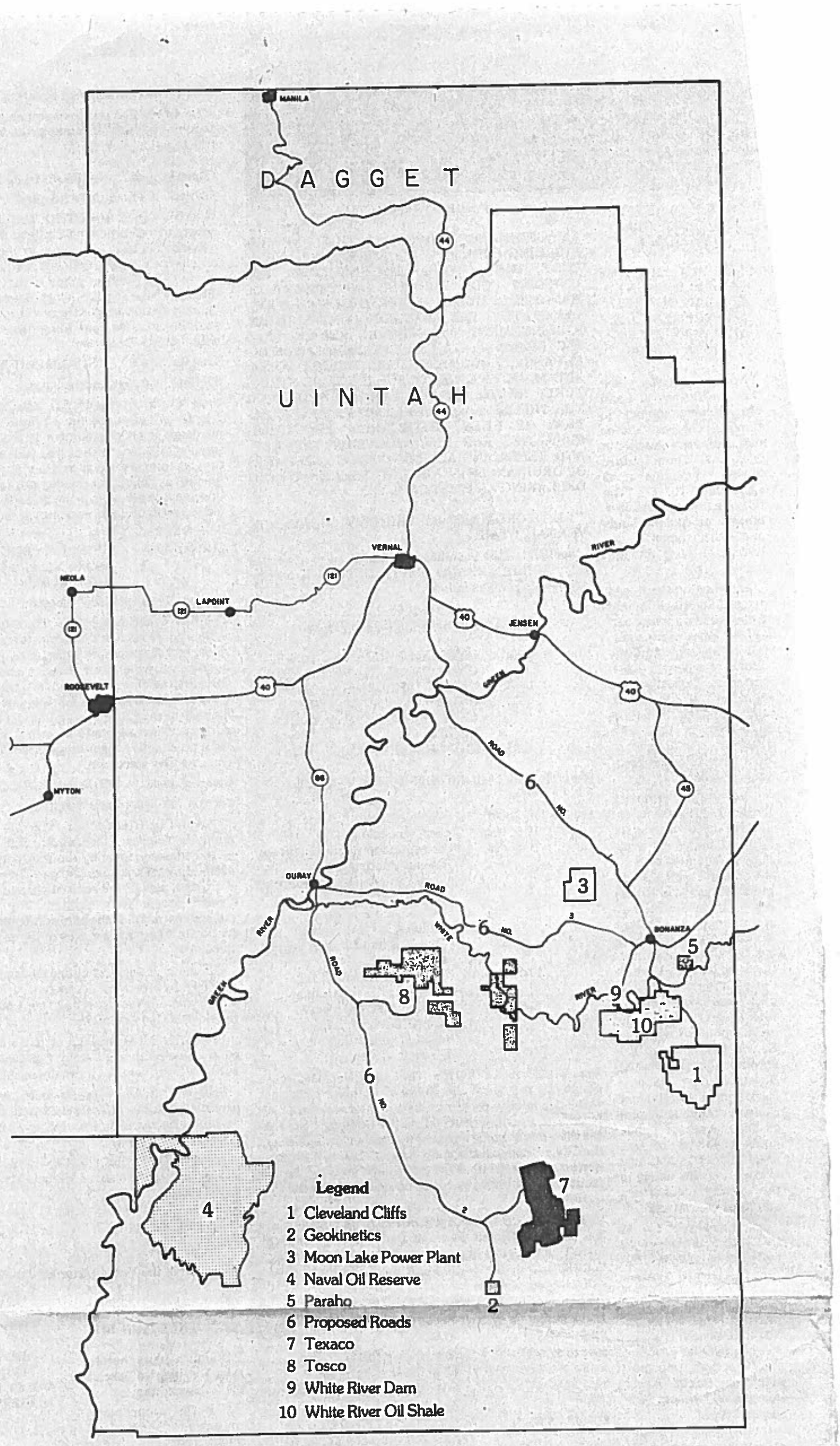
The work that will be carried out during Phase I will be by a Project Team composed of Paraho, The Standard Oil Company (OHIO), the Cleveland-Cliffs Iron Company, Davy McKee Corporation, VTN Consolidated, Inc., and Aerovironment, Incorporated.

A positive outcome from Phase I should lead to the construction and operation of a commercial shale oil plant. Initial operation of the first module in such a plant could be as early as 1983.

Paraho Development Corporation has produced over 110,000 barrels (ove 4,600,000 gallons) of crude shale oil the Anvil Points Oil Shale Facility ne Rifle, Colorado which is being leased the company from the DOE.

Paraho has successfull demonstrated its patented technolo to be environmentally and economica ly acceptable on the semi-works scal The module program will ta Paraho's successful technology out the semi-works scale and into the co mercial scale.

The site which has been selected fo the facility is in northeastern Uta about 40 miles southeast of Vernal. Th side is a state lease that is held by Paraho and has estimated reserve o over 57 million barrels.



NINE UINTAH COUNTY ENERGY PROJECTS along with proposed roads could turn the southern end of the county into a beehive of activity. The projects are centered around the rich oil shale deposits and will need better roads to serve the isolated sites. The impact from these projects will more than double the present area population in a ten year period.

Situation Report

Paraho: On the Frontier of New Technology

By Carol Edmonds

Developed after a worldwide search, this process may expand for final test.

Paraho: translated from Portuguese, it means "For the good of mankind." It also could come to mean an economical, environmentally-acceptable way of coaxing much needed oil from shale.

Paraho Oil Shale Demonstration: a 30-month research and development project located on Colorado's Western Slope. Its backers think the project may open up this nation's huge reserves of oil shale to commercial development. Financial support comes from 17 participants, including large and small oil companies, as well as utilities, engineering, construction and mining firms.

How did they all come together for a $7.5-million project, now at the half-way point? And where do they go from here? The questions are crucial at this time when the United States is anxiously hunting for new sources of energy. And the Paraho Demonstration—if it does indeed reach the goal it is aiming for—could contribute significantly to the energy capabilities of the nation.

Around the world to Colorado

The 1½-year-old Demonstration traces its origin to two men, one who initiated a worldwide search for the best oil-shale technology, and the other, an inventor. Their names: Harry Pforzheimer, vice president of Sohio Petroleum Co., who gave Paraho its structure and financial support; and John B. Jones, Jr., inventor of the Paraho retorting process.

From 1966 to 1967, at Pforzheimer's urging, Sohio conducted a worldwide survey of oil-shale information and tech-

Snow-covered raw shale (foreground) is transported first to crusher, then to retort (background).

nologies. Among the finds was Jones, a chemical engineer who was president of his own engineering firm in Denver. Jones' oil-shale credentials included employment by the Bureau of Mines at Anvil Points, near Rifle, Colo., in an oil-shale research program conducted during the late 40s and early 50s. Jones also served as a consultant to the government of Brazil on its oil-shale program in the 50s and continued his private oil-shale research as a principal in Cameron and Jones, Inc., Denver, until he formed his own company, Development Engineering, Inc. (DEI).

Jones, who had invented the Paraho process during the 1960s, caught Pforzheimer's eye. He became intrigued by the possibilities of testing the Paraho process for use in a commercial oil-shale plant. So, at Pforzheimer's request, Jones worked out a 30-month project for such a test. Together Pforzheimer and Jones put a $7.5-million price tag on the project, which would be carried out at Anvil Points. An oil-shale ghost town since it was closed in 1967, the federal site provided the basic support facilities needed as well as a considerable volume of usable equipment. The cost and the duration of the project were reduced considerably by incorporating the Anvil Points facility and equipment into the Paraho Demonstration Project.

17 say "Yes"

After firming up this plan, the next step toward getting the project underway was raising the capital. Thus, in April 1973, 35 companies answered an invitation to meet in Denver to hear a proposal for the Paraho Oil Shale Demonstration. With a target of 15 companies, each contributing $500,000, by the day's end, the Demonstration was one-third of the way toward being funded. Five companies, led by Sohio, had agreed to join. Three months later, the project had 10 participants, and, convinced that the Demonstration should get underway, they authorized its immediate commencement. Those 10 thought that 5 more participants could be found, and they were more than right. Seven more joined.

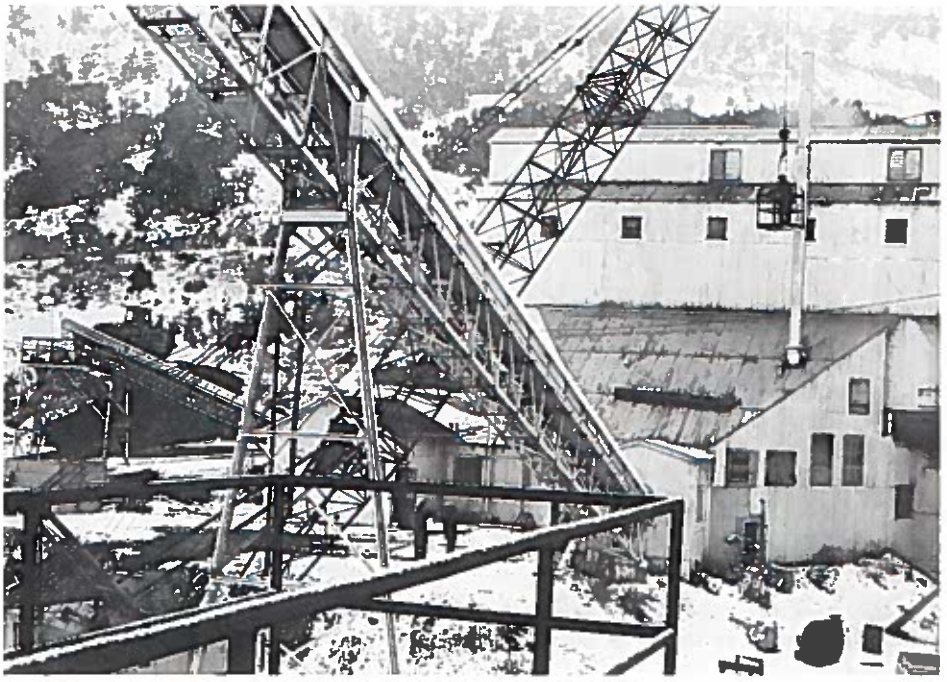
A key figure in the project's birth, Harry Pforzheimer was named Paraho Program Director. As an industry adviser on oil shale to the National Petroleum Council, he is well-versed in the subject. And Pforzheimer is known in the oil industry as a tight-fisted company executive with a knack for succeeding where others have failed. Jones' firm, DEI, acts as the operating company for the Paraho Demonstration. The Paraho headquarters are located in Grand Junction, while the retort demonstration operation is at Anvil Points near Rifle, Colo.

Thus, with financial backing set, and organizational details firm, the Paraho Demonstration was off the launching pad in September 1973. At that time, engineering of a retort started in Denver and preparation to erect it began at Anvil Points. The keystone of the Paraho retorting process is a cylindrically-shaped kiln (or retort), built of low carbon steel and installed vertically. Processing begins at the top of the retort, which accepts chunks of rock. These eventually emerge calcined or retorted (the heat process to extract the oil) at the bottom of the kiln, unchanged in shape or size. During processing, heat is transferred from rising gases to the rock. These gases leave the vessel near the top, and, in the case of oil-shale retorting, carry with them a mist of oil droplets—the harvest of the process.

In February 1974, the pilot retort was delivered to Anvil Points; it is 60 feet high and 4½ feet in diameter. The next month, March 1974, Paraho erected a bigger semi-works-sized retort alongside the same auxiliary equipment that supports the pilot retort. More than 10 times the cross-sectional area of the first kiln, the bigger retort is 75 feet tall and 10½ feet in diameter. May 1974 was a landmark month, when the first shale oil was produced from the smaller pilot Paraho retort.

Scaling up to full size?

Encouraged by these preliminary results, Paraho has now proposed an expansion of the project, originally scheduled to end in February 1976. Still on the drawing boards, the proposal would extend the life of the project to include building and operating a third, massive retort. Construction could begin as early as 1975, and operations could begin 1 year later and would last from 6 months to 3 years. Cross-sectional area of the proposed retort would be about 20 times that of the semi-works retort. Approximate dimensions: 40 feet in diameter and 100 feet high. Known as a full-size



"X" marks the spot—which, in this case, is a raw shale conveyor belt, criss-crossed by a crane (background).

module, it would be like a single cell of a commercial retorting plant. To produce 100,000 barrels of oil daily in a commercial plant would require approximately 14 such retorts.

This proposed scale-up would allow Paraho to study a full-size retort such as commercial plants would use; plus, sustained larger-scale mining operations would be studied. Conventional room-and-pillar mining is now being used to loosen 2,500-3,000 tons of ore each week. A full-size retort module would have a bigger appetite—some 10,000-12,000 tons of crushed shale rock per day.

The commercial-sized module retort would take 200 workers about 1 year to build. However, before this proposal can become reality, there are a couple of hurdles to be jumped. First, groundbreaking for the retort awaits further word from the Dept. of Interior on an environmental assessment of the scale-up. Then Paraho officials must attempt to finance privately the proposed government-owned plant on government property. Estimated price: $50 million.

Pforzheimer describes the expansion proposal as a way to accelerate oil-shale development at a savings to both taxpayers and shale developers. He points out that this experimentation can occur without the full-blown, as-yet-unknown environmental impact and the $1-billion needed for a commercial complex.

Pforzheimer feels that a major financial incentive to potential financial backers could come if the Dept. of Interior rules favorably on the request that investors in the Paraho expansion be permitted certain expense credits authorized by the prototype lease if they hold federal prototype shale leases in Colorado and Utah. Pforzheimer predicts that, if successful, operation of the full-size mine and retort at Anvil Points could evaluate the environmental impact and eliminate some of the risk of commercial development, and thereby become the catalyst needed for financial commitment of several commercial ventures, possibly as early as 1976.

Bob Helstand, chief chemist at Anvil Points, uses Fischer Assay to measure the amount of oil recovered from shale.

R&D marches on

Meanwhile, research and development continues at Anvil Points. The operation employs 70 persons, and draws hundreds of visitors to the site each month—mostly oil-industry and government executives, lawmakers and Paraho participants. Jim Gigoux, Paraho's director of community and governmental relations, states, "Our first successful 10-day runs were accomplished on the pilot plant during the summer (1974) and on the semi-works retort during the Christmas holidays. The larger unit is now undergoing operational tests of longer duration."

Jones explained that the biggest stumbling block has been "old hardware," recycled from the idle Bureau of Mines equipment that was left at Anvil Points after 1967. The air blowers, for example, came from gas blowers Jones had installed in 1946 for the Bureau. But although old hardware temporarily plagued the project, dust problems have been relatively minor, since the shale that is fed into the Paraho retort is chunky, from ¼ to 3 inches in size. A dust-collection system is being installed to vacuum out any emissions at various transfer points in the retort complex.

Results, ledgers encouraging

While the future of the proposed Paraho expansion is still not confirmed, the 30-month Demonstration has already yielded some encouraging results:

—No water is consumed in the retorting process.

—All of the kerogen is retorted and some residual carbon from the shale is used as an additional heat source.

—The Paraho process recovers a very high yield of product oil.

—Excess low-energy gases produced in the retorting process could generate all of the electricity required for a commercial plant and supplement energy needs of the surrounding community, creating a significant net energy surplus.

—Overall thermal efficiency in retorting is thus 84-92 percent.

—Gas produced is essentially sulfur-free.

With these results firmly under its belt, the Paraho Demonstration program at Anvil Points will continue to concentrate its efforts on tests of different variables such as gas mixtures, temperatures of operation, and gas-to-shale and throughput rates (the rate at which shale is processed in the retort). Jones explains that Paraho will study different levels of variables in the 4½-foot diameter pilot retort, select the range of variables that has the most promise, and demonstrate them in the semi-works retort.

Not only test results, but also ledgers look encouraging to Paraho. Pforzheimer says that at the end of the first year of the Paraho project, capital expenditures were apparently ahead of schedule, but for all practical purposes the project was on budget. "Indications are we will still complete the $7.5-million program on schedule," he said.

A man given to understatement, Pforzheimer is sure enough of the current 30-month project to state that he thinks Paraho has a key to commercial production of oil shale. "We are very encouraged by the results at the semi-works plant. We appear to have a process," he says. And, if the past is prologue, it won't be long until Paraho announces financial backing for the biggest retort yet to be built.

32 Pages Single Copy 25¢

Vernal Express

Vol. 90 No. 3 Vernal, Utah 84078 Thursday, January 21, 1982 (USPS 658-080)

Paraho-- only Utah project left for funds

Paraho Development Corporation is the only firm in Utah to be one of the 11 synthetic fuel companies to still be in the race for federal financial backing for their $2 billion oil shale project 50 miles southeast of here..

If Paraho secures the federal backing, construction of oil shale surface retort and mine will begin this fall, said Harry Pforzheimer III, director of corporate and public affairs of the Paraho Development Corporation.

The U.S. Synthetic Fuel Corporation received 62 solicitors for $8.6 billion which they have been allotted for development of snythetic fuels.

Last week the U.S. corporation reduced the number of projects to 11 with the Paraho project being the only one in Utah and the only one dealing with oil shale. The others are coal related.

"We are disappointed that no more Utah firms were selected, but we are optimistic that several will be selected with the second solicitation," said Brec Cooke, assistant director for Energy and Minerals in the Utah Department of Energy and Minerals.

The seven criteria which the U.S. Synthetic Fuel Corporation based its selection of the 11 are access to necessary resources, committment of project sponsors, all permits in hand or realistically obtainable on a schedule, the firm's right to technology, complete comprehensive financial study, design work sufficient to allow for costs, and the condition of the rights to the site of the project, said Ron Ollis, Utah Department of Mineral and Natural Resources.

According to Pforzheimer, the reason his firm was selected is because it met the criteria and because "they were trying to take projects that are at high maturity," Pforzheimer said.

When the Paraho project comes on line in 1986 it will be Utah's first commercial oil shale retort producing 42,000 barrels of hydro-treated shale oil daily, Pforzheimer said.

Later this month, the U.S. Synthetic Fuel Corporation will select four or five projects of the 11 which will then enter into detailed negotiations in June for financial backing.

"We are confident we will be one of those selected," Pforzheimer said.

At the peak construction period there will be 2,000 workers employed at the project site. This number will subside to 1,400 when the project is in operation.

Pforzheimer said his firm has looked at a new town site, construction camp and ways of assisting local towns with the impact generated by the Paraho project.

"We had excellent success in dealing with state and local governmental officials," Pforzheimer said.

The company has secured water for the project from the White River, but Pforzheimer said that for the secure long-term source of water, the White River Dam is preferred, but not absolutely essential.

New oil shale, tar sands leases planned in DOI budget

Feb 18, 1982

By Helene C. Monberg

Washington—New oil shale leases are planned for 1983 and a new tar sands leasing program is planned for 1984, according to the 1983 Department of Interior budget.

The Administration has programmed $4,939,000 for oil shale leasing in fiscal 1983, Interior Budget Officer Joseph W. Gorrell told this correspondent, on inquiry, this past weekend at a budget briefing.

Of that amount, some $3,791,000 has been allocated to the Bureau of Land Management and $1,148,000 for the new Minerals Management Service (Old U.S. Geological Survey Conservation division abolished on Jan. 19) to gear up for a new permanent oil shale leasing program, he said. This includes the leasing of "one or two more tracts in 1983," according to Interior of budget material.

In addition, Interior is gearing up for a new tar sands leasing program in the wake of new legislation passed by Congress last year, and some $750,000 is allocated to put a new tar sands leasing program in place in 1983, with tar sands leasing to begin in 1984. Most, if not all, of the tar sands leases are expected to be in Utah.

The 1983 fiscal year begins on Oct. 1, 1982. The funding for the 1983 budget for oil shale and tar sands is $925,000 over that provided in the 1982 program for these closely tied syn-fuels programs, according to budget data released by the Interior Department.

The Interior Department is back in the energy business in a big way, the Departmental budget notes.

In addition to the half dozen agencies the Department already has which are energy-related and the big public land leasing program run by the Bureau of Land Management (BLM), the new budget calls for the transfer of the Naval Petroleum and Oil Shale Reserves, the Strategic Petroleum Reserve, and the five power marketing administrations, with total fiscal year 1983 budget requests of about $1.2 billion. This is an increase of $258 million for these activities over the 1982 level of funding estimated at $930 million, according to the Administration.

Most of the program transfers must be approved by Congress, and Interior budget officials are very low-key about them at this point. But it is the first time in many years that it appears Interior will get major new missions in any field. Of course, power marketing was handled by the Bureau of Reclamation before it was transferred to the new Department of Energy in 1977. But the other programs are "firsts" for Interior.

Interior's new 1983 budget totals $6,024,618,000, a $293 million increase over the amount budgeted for Interior agencies in 1982. With $1.2 billion added to Interior's 1983 budget from the break-up of the Department of Energy—Mr. Reagan says he wants to abolish Energy as a Department—Interior's 1983 budget would total $7,224,000,000, the largest budget in the Department's history. In addition, it will be taking back a couple of Indian education programs from the Department of Education, which is to be turned into a Foundation, and the budget for those two programs for 1983 would total $52 million additionally.

Interior Secretary James G. Watt's gun-ho attitude about leasing public lands for mineral development has been bought by the Administration all the way. For all too long the public lands of the nation, mainly in the West, had lain fallow, "out of the economic mainstream," according to the 1983 budget. A small amount of realty holdings, mainly buildings and some land held by the General Services Administration, will be sold during the next year at a cost of $1 billion, the 1983 budget estimates.

The Interior budget reiterates many times that there will be substantially more public land leasing in 1983. For BLM this means a $10.2 million increases in its programs for energy and minerals leasing "reflecting the Administration's commitment to development of onshore and offshore energy resources."

The major thrust in lease sales will be on the Outer Continental Shelf, where nine additional oil and gas leases will be held in 1983, in the lucratic Gulf of Mexico and off Alaskan shores, for which $4.2 million more is budgeted for the next fiscal year.

In addition, the President's request includes $4.1 million increase to accelerate onshore oil and gas leasing activities in BLM, leading to issuance of an estimated 30,000 leases during the year and increases post-lease activity to expedite actual development.

A current backlog of lease applications will be reduced by one-third under the proposed appropriations. It will support onshore oil and gas leasing in Alaska, as well as in the "south 48" states, the Interior Department budget stressed.

There will also be selective increases in programs of the U.S. Geological Survey to carry on mineral surveys, the Bureau of Mines research on strategic and critical minerals and materials, the new Minerals Management Service to improve collection of royalties from mineral leases on federal and Indian lands, the Bureau of Indian Affairs to spur natural resources development on Indian reservations, and a major increase in Office of Surface Mining grant program to states to allow all but one coal-producing state to take over regulation and mined land reclamation programs. (Apparently Georgia still wants Uncle Sam to run those programs for it.)

At the same time, the Department expects a lot more back in receipts from that it lays out to spur leasing and similar activities on federal lands in 1983. "Interior estimates that it will receive about $20.5 billion in receipts in fiscal year 1983. This is almost double the level expected in FY 1982.

The increased FY 1983 receipts include $18 billion projected to come from revenues from oil and gas leases on the Outer Continental Shelf," and the remainder will come from on-shore leases, it said.

A spokesman for conservative Republican Senator Orrin Hatch of Utah tipped this correspondent last year at this time that the Administration would have one major goal in the minerals field: boost oil and gas leasing on public lands, notably on the vast Outer Continental Shelf. His prediction was right on the money.

NOV 17, 1982

Vernal Express
Wednesday

Paraho officials say they're optimistic about 1983 start

Officials of Paraho Development Corp. Tuesday displayed before local officials more of their optimism about a second shale oil project in Uintah County beginning next year.

Paraho played host at the Vernal Municipal Airport to a member of the U.S. Snythetic Fuels Corp. board of directors, M.M. Masson, and a handful of Synthetic Fuels Corp. staff members. After sack lunches and an update on Paraho's plans, the group took a plane ride over the firm's site for a proposed shale oil facility. The site is a short distance northwest of the White River Shale Oil Corp. project site, about 45 miles southwest of Vernal.

Paraho's delegation included President Larry A. Lukens, who said: "As far as we're concerned, we're ready to build a commercial oil shale facility in Uintah County. The project is feasible. We want to start breaking ground next year."

Afterward, Masson said Paraho has good reason to be optimistic. The company has made the final "cut" in the selection process for a recipient of federal loan guarantees. Secondly, he added, "We're getting toward a selection. Within the next few months, something's going to happen."

That phrase also ended his remarks earlier before local officials.

"You've got to get through 20 to 30 percent of the engineering estimates before you can get cost estimates. That's the way it is with lending institutions, whether it's us or anyone else," said Masson.

"Although we're moving slow, there is a lot of engineering and pricing work to be done to avoid the same mistakes made in the nuclear power industry," he told the audience.

Masson said he wanted the Synthetic Fuels Corp. to "stay away from interferring."

Lukens said, "We want your interference."

Earlier this month, Paraho vice president Chuck Metzger announced that four of Paraho's backers agreed to help provide financial support in a commercial oil shale venture, including Standard Oil Co. of Ohio, Texas Eastern Oil Co., Davy McKee, one of the nation's largest engineering firms and Cleveland Cliffs, an eastern coal company.

Metzger said Paraho's 14 partner companies, which also include Phillips Petroleum, Chevron and Sun Energy Co., have spent $80 million to $90 million during the past 10 years developing a shale oil retorting technology.

"We're feeling very good about the way things have progressed," he said. "What happens from this time on is up to us."

Paraho officials expect the first of three retorts to go into operation by 1985, producing 10,500 barrels of shale oil a day. They expect a total workforce of construction and operating personnel at almost 2,000 by mid-1984.

Paraho environmental director Bob Heistand said the final environmental impact statement for the project will be ready by February 1983. Permits approved so far include solid and hazardous wastes, air quality, and preliminary approval from the federal Mine Safety and Health Administration, said Heinstand.

Permits under consideration include those for effluent water discharge, water retention dams and rights of way to the project site. Permits in the application stage include those for waste water, building a construction camp and a Mine Safety and Health Administration review of hazards, Heistand added.

limiting factor to energy development in ty in bolstering our energy storehouse.

Paraho sign agreement for oil shale claims

Paraho Development Corporation has signed an agreement with Gulf Oil Corporation and Frederick H. Larson, giving Paraho the right to acquire a number of unpatented oil shale mining claims north of the White River in Utah.

In return for the rights to these claims, Paraho has agreed to allow Gulf access to certain proprietary technical information on Paraho's oil shale retorting process. The claims cover approximately 602 acres adjacent to the site of the proposed Paraho-Ute commercial oil shale facility in Uintah County.

The agreement with Gulf and Larson and the completion of certain transactions with the state of Utah will add significantly to Paraho's resource base. Prior to the agreement, Paraho's holdings consisted of approximately 289 million barrels of in-place oil shale resource.

The claims are located on lands currently owned by the federal government. The state of Utah is seeking to acquire these lands from the federal government in lieu of lands it had a right to acquire but did not receive when it became a state. If the state acquires the lands, Paraho plans to exchange the claims for Utah State oil shale leases.

Gulf retains certain right to the claims, but these rights will expire if Paraho has completed a commercial oil shale retort by Jan. 1, 1990.

Paraho Development Corporation is presently negotiating with the U.S. Synthetic Fuels Corporation for loan and price guarantee assistance for the Paraho-Ute project. If the negotiations are successful, the project is scheduled to begin construction in mid-1983. Completion of the first phase of construction is scheduled for October 1985 with production of 10,500 barrels per day of shale oil.

When completed in 1990, the project will have a production capacity of 39,500 barrels per day.

Vernal Express
Wednesday

Paraho officials say they're optimistic about 1983 start

Officials of Paraho Development Corp. Tuesday displayed before local officials more of their optimism about a second shale oil project in Uintah County beginning next year.

Paraho played host at the Vernal Municipal Airport to a member of the U.S. Snythetic Fuels Corp. board of directors, M.M. Masson, and a handful of Synthetic Fuels Corp. staff members. After sack lunches and an update on Paraho's plans, the group took a plane ride over the firm's site for a proposed shale oil facility. The site is a short distance northwest of the White River Shale Oil Corp. project site, about 45 miles southwest of Vernal.

Paraho's delegation included President Larry A. Lukens, who said: "As far as we're concerned, we're ready to build a commercial oil shale facility in Uintah County. The project is feasible. We want to start breaking ground next year."

Afterward, Masson said Paraho has good reason to be optimistic. The company has made the final "cut" in the selection process for a recipient of federal loan guarantees. Secondly, he added, "We're getting toward a selection. Within the next few months, something's going to happen."

That phrase also ended his remarks earlier before local officials.

"You've got to get through 20 to 30 percent of the engineering estimates before you can get cost estimates. That's the way it is with lending institutions, whether it's us or anyone else," said Masson.

"Although we're moving slow, there is a lot of engineering and pricing work to be done to avoid the same mistakes made in the nuclear power industry," he told the audience.

Masson said he wanted the Synthetic Fuels Corp. to "stay away from interferring."

Lukens said, "We want your interference."

Earlier this month, Paraho vice president Chuck Metzger announced that four of Paraho's backers agreed to help provide financial support in a commercial oil shale venture, including Standard Oil Co. of Ohio, Texas Eastern Oil Co., Davy McKee, one of the nation's largest engineering firms and Cleveland Cliffs, an eastern coal company.

Metzger said Paraho's 14 partner companies, which also include Phillips Petroleum, Chevron and Sun Energy Co., have spent $80 million to $90 million during the past 10 years developing a shale oil retorting technology.

"We're feeling very good about the way things have progressed," he said. "What happens from this time on is up to us."

Paraho officials expect the first of three retorts to go into operation by 1985, producing 10,500 barrels of shale oil a day. They expect a total workforce of construction and operating personnel at almost 2,000 by mid-1984.

Paraho environmental director Bob Heistand said the final environmental impact statement for the project will be ready by February 1983. Permits approved so far include solid and hazardous wastes, air quality, and preliminary approval from the federal Mine Safety and Health Administration, said Heinstand.

Permits under consideration include those for effluent water discharge, water retention dams and rights of way to the project site. Permits in the application stage include those for waste water, building a construction camp and a Mine Safety and Health Administration review of hazards, Heistand added.

Paraho sign agreement for oil shale claims

Paraho Development Corporation has signed an agreement with Gulf Oil Corporation and Frederick H. Larson, giving Paraho the right to acquire a number of unpatented oil shale mining claims north of the White River in Utah.

In return for the rights to these claims, Paraho has agreed to allow Gulf access to certain proprietary technical information on Paraho's oil shale retorting process. The claims cover approximately 602 acres adjacent to the site of the proposed Paraho-Ute commercial oil shale facility in Uintah County.

The agreement with Gulf and Larson and the completion of certain transactions with the state of Utah will add significantly to Paraho's resource base. Prior to the agreement, Paraho's holdings consisted of approximately 289 million barrels of in-place oil shale resource.

The claims are located on lands currently owned by the federal government. The state of Utah is seeking to acquire these lands from the federal government in lieu of lands it had a right to acquire but did not receive when it became a state. If the state acquires the lands, Paraho plans to exchange the claims for Utah State oil shale leases.

Gulf retains certain right to the claims, but these rights will expire if Paraho has completed a commercial oil shale retort by Jan. 1, 1990.

Paraho Development Corporation is presently negotiating with the U.S. Synthetic Fuels Corporation for loan and price guarantee assistance for the Paraho-Ute project. If the negotiations are successful, the project is scheduled to begin construction in mid-1983. Completion of the first phase of construction is scheduled for October 1985 with production of 10,500 barrels per day of shale oil.

When completed in 1990, the project will have a production capacity of 39,500 barrels per day.

Dec 8, 1982

Paraho to stick with shale oil

The development process for Paraho Development Corp.'s oil shale retorting process will go on despite a setback in getting federal loan guarantees for commercial production.

"The biggest reason we feel confident is that we've literally produced oil from it," said Paraho vice president Charles F. Metzger. "We've produced over 100,000 barrels, which are products we know can be refined."

The company has advanced to the third stage of a four stage development leading a commercial plant, a "semi-work" facility, which is a scaled-up version of the pilot plant at Anvil Points, Colo. "We've scaled it up to look at the characteristics and see how the project works at a larger scale," Metzger said.

Dropped from consideration

The U.S. Synthetic Fuels Corp. announced last week that Paraho had been dropped from the final round of consideration in the second solicitation of loan guarantee applications. Paraho can apply during the third solicitation. The company had the only oil shale project which made it to the final round.

Paraho applied for a guarantee of nearly $1.3 billion. Company officials had expressed optimism about starting building of a commercial facility next year.

Metzger said the company has not "lost its enthusiasm" for the Paraho-Ute project in Uintah County. Paraho's retorting technology has less of a "risk factor" because it has been used to a great extent.

Gravity-flow system

He described Paraho's retorting process as a gravity-flow system in which the oil shale enters the retort chamber from the top and is heated inside to draw out the petroleum and natural gas. Because of the counterflow caused by the raw shale, the oil and the gas rise in a mist to be condensed and separated.

Metzger said research will continue at the pilot plant, which will be moved from a federal to a private lease tract about a half mile away.

(The first step in the Paraho process was a "batch" plant or a "static retort," which is without a mechanical means to bring the shale into the retort continuously.)

About 80 percent of the 100,000 barrels produced so far was sent to a Standard Oil Co. of Ohio refinery in Toledo under a U.S. Department of Defense contract. The product exceeded specifications, according to Metzger. Paraho also entered into a contract for a small amount of oil with a refinery in Fruita, Colo., near Grand Junction, he added.

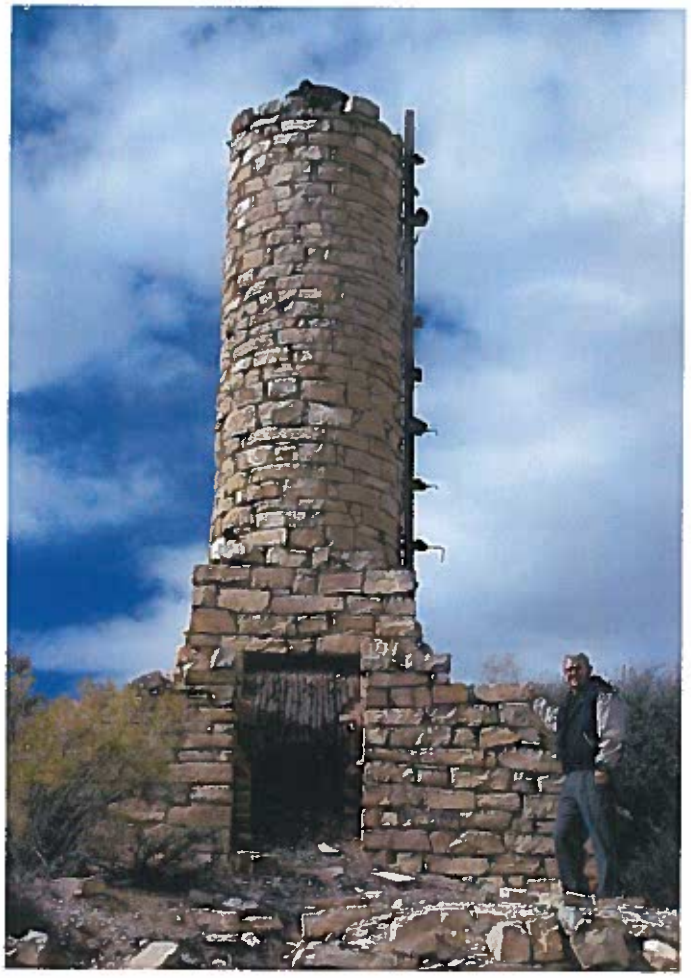
Spent $80-90 million

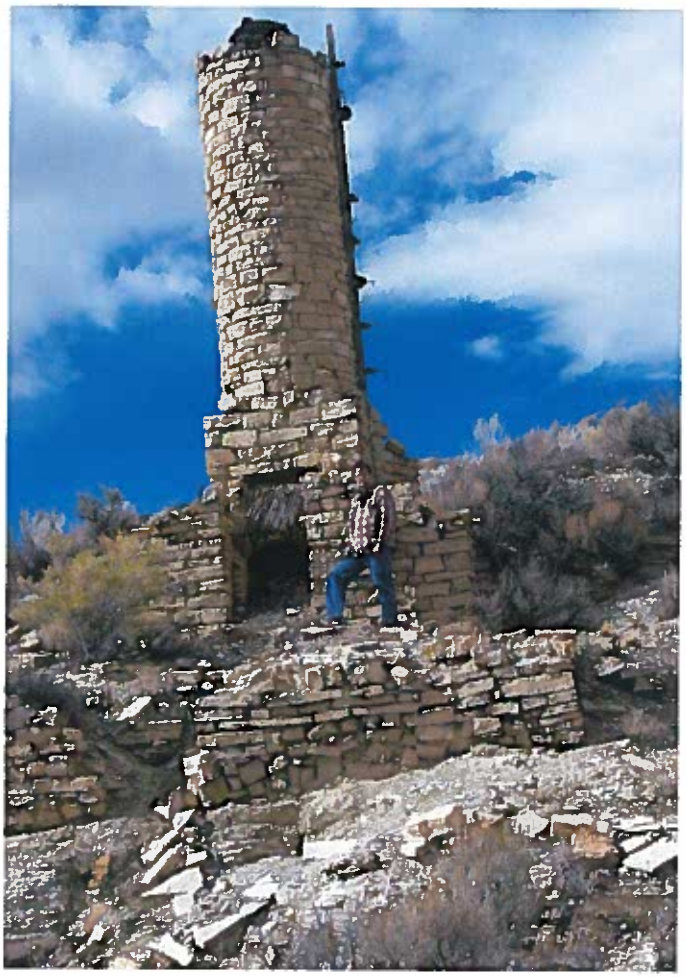
Paraho has 14 backers that have spent between $80 million and $90 million in development of the retorting process, according to Metzger. They include Phillips Petroleum Co., Bartlesville, Okla., Sun Energy Company (formerly Sunoco), Radnor, Pa., and Standard Oil Co. of California (Chevron), San Francisco.

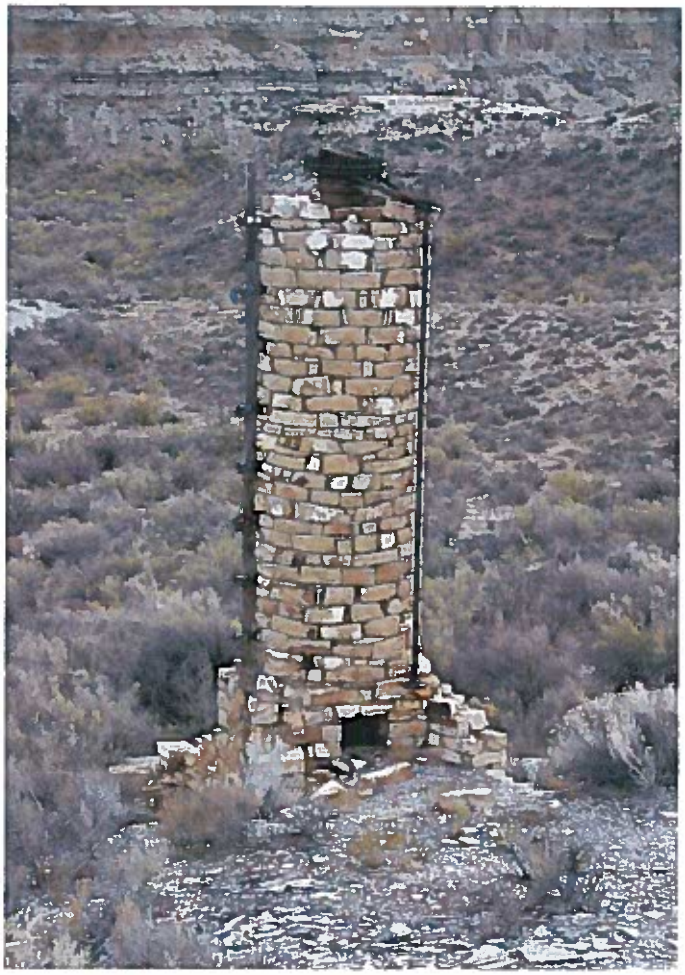
Phillips and Sun are backers of the White River Shale Oil Corp. project about 45 miles southeast of Vernal, which has proceeded solely with private backing with the additional help of Standard Oil of Ohio.

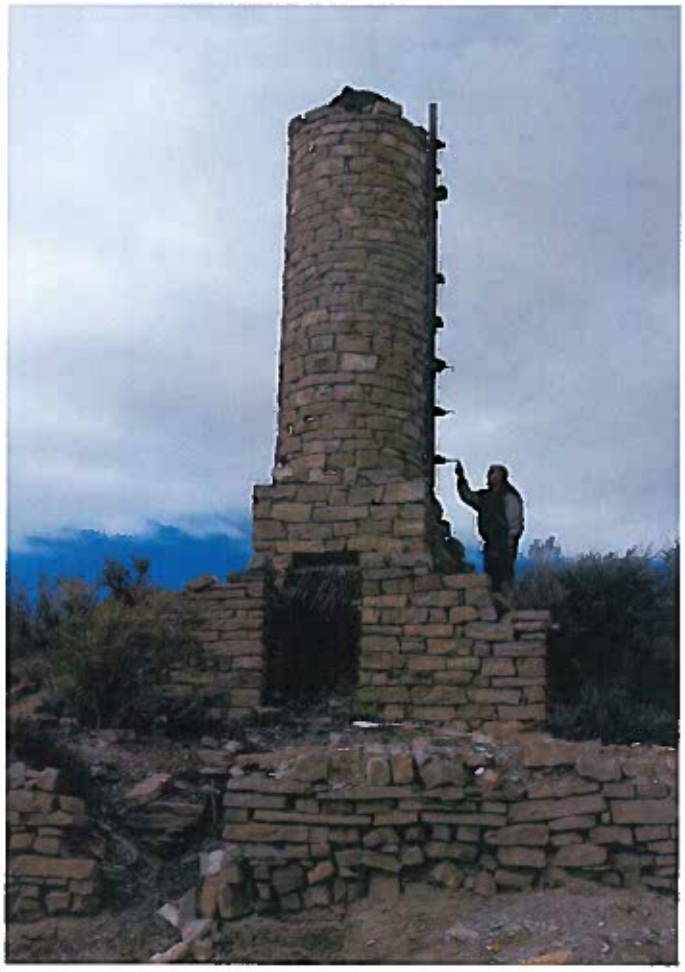
The Paraho-Ute site is about five miles to the northwest.

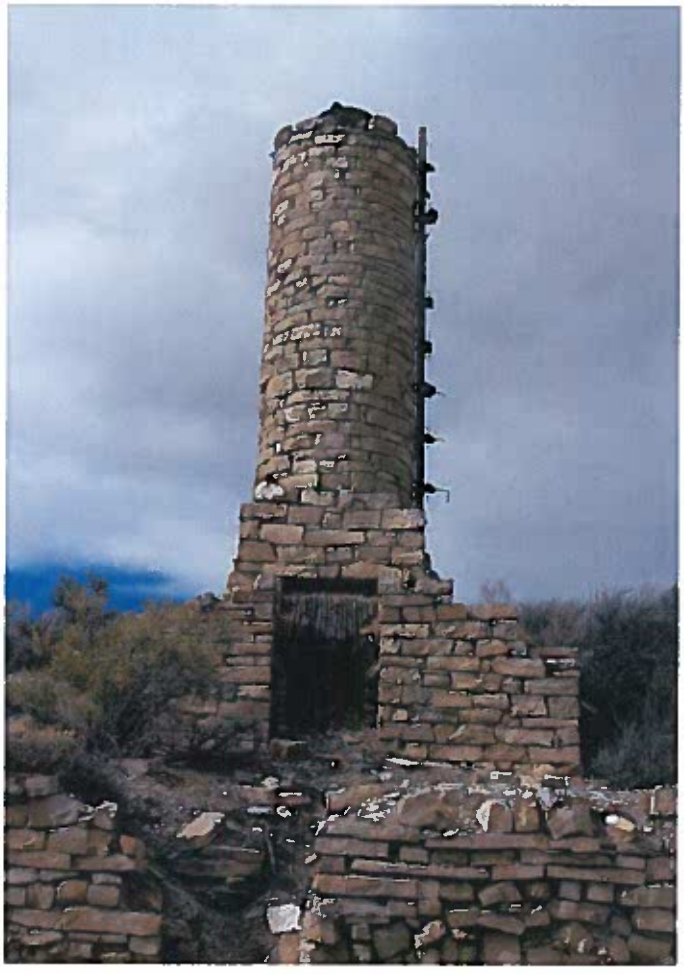
These photos were taken by ~~Jacob~~ Jordan Merrell, GSI Dept of Uintah County, in 2004. They are of the Agency Draw Retort that is on the Seep Ridge Road down from Ouray.

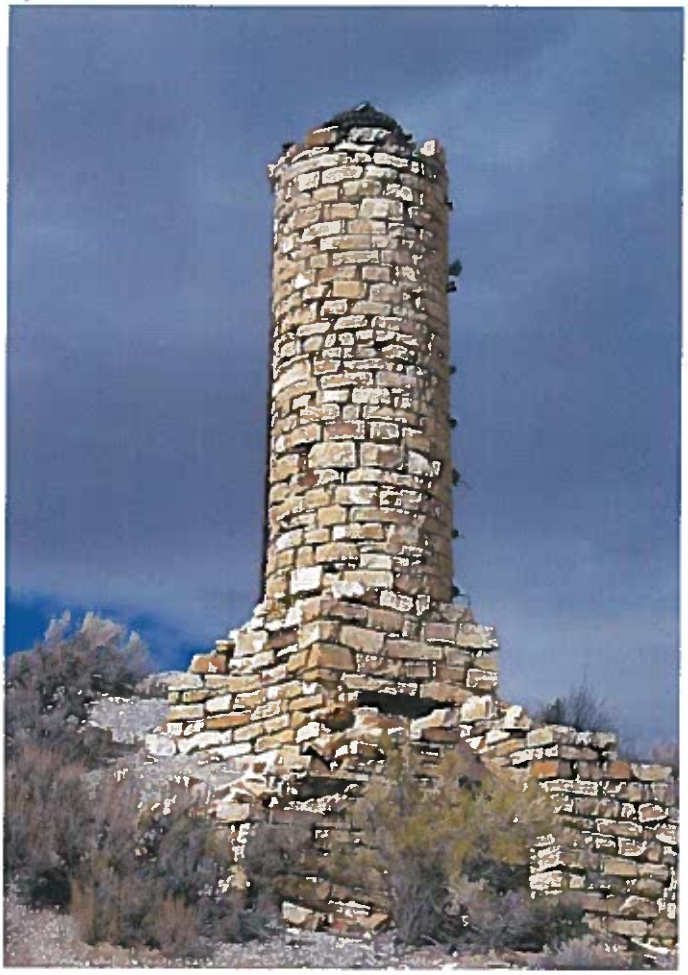


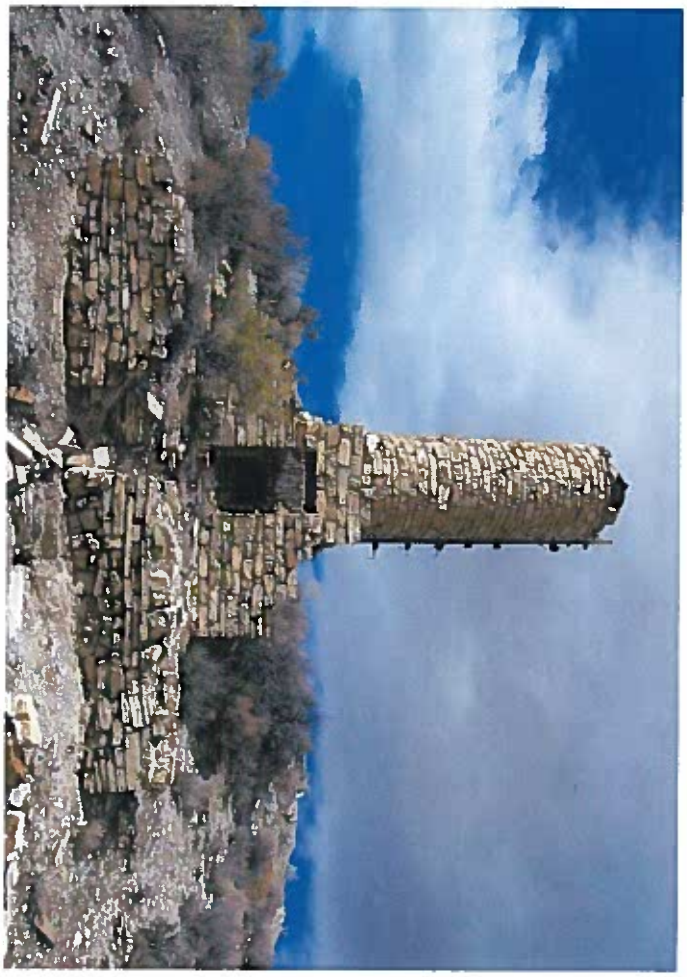


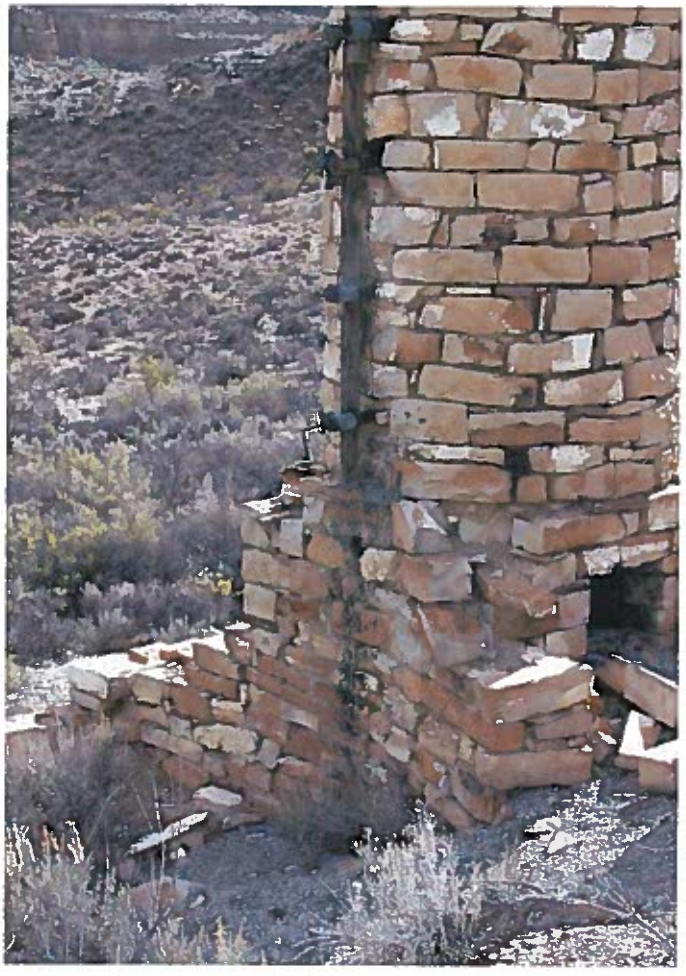


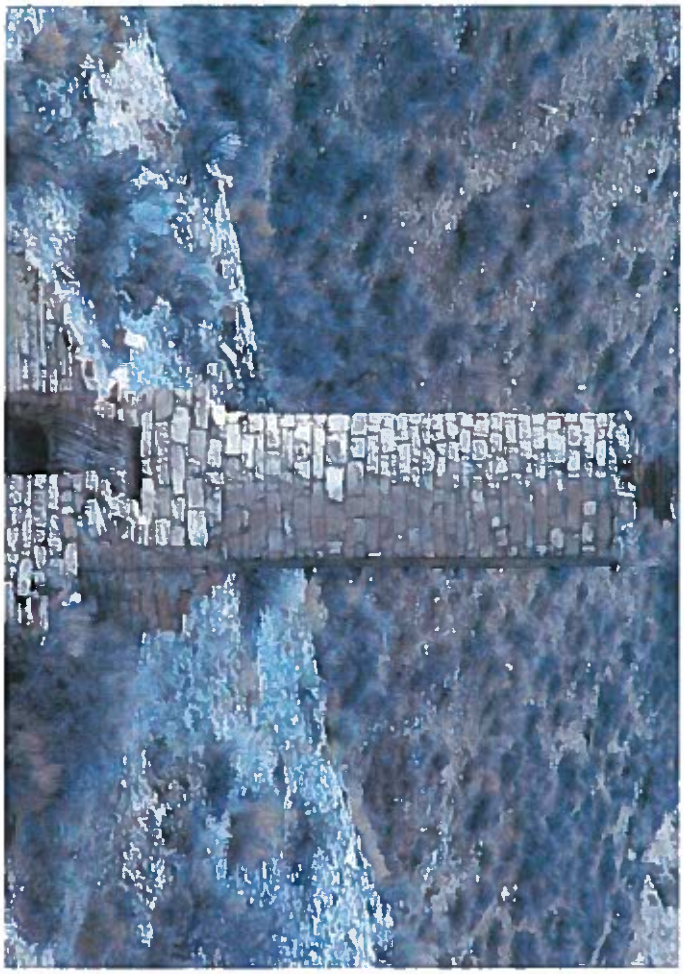


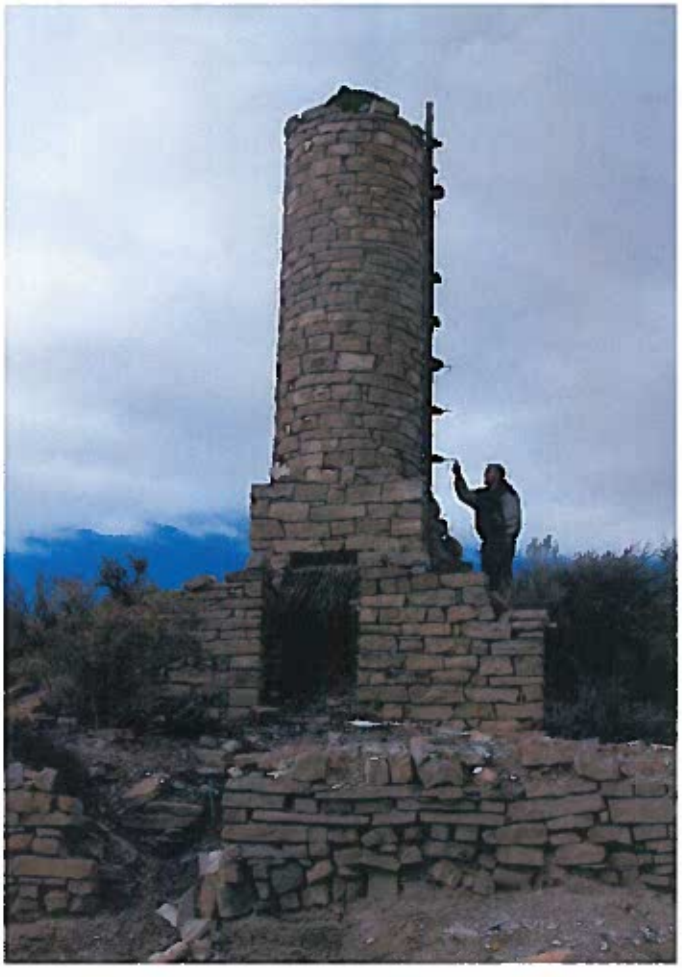


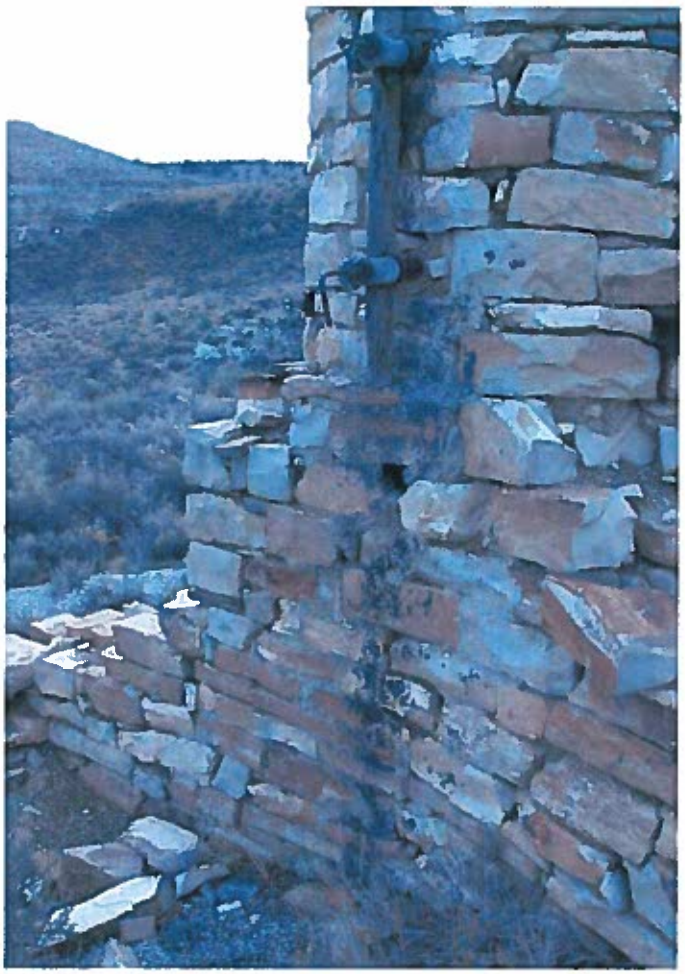


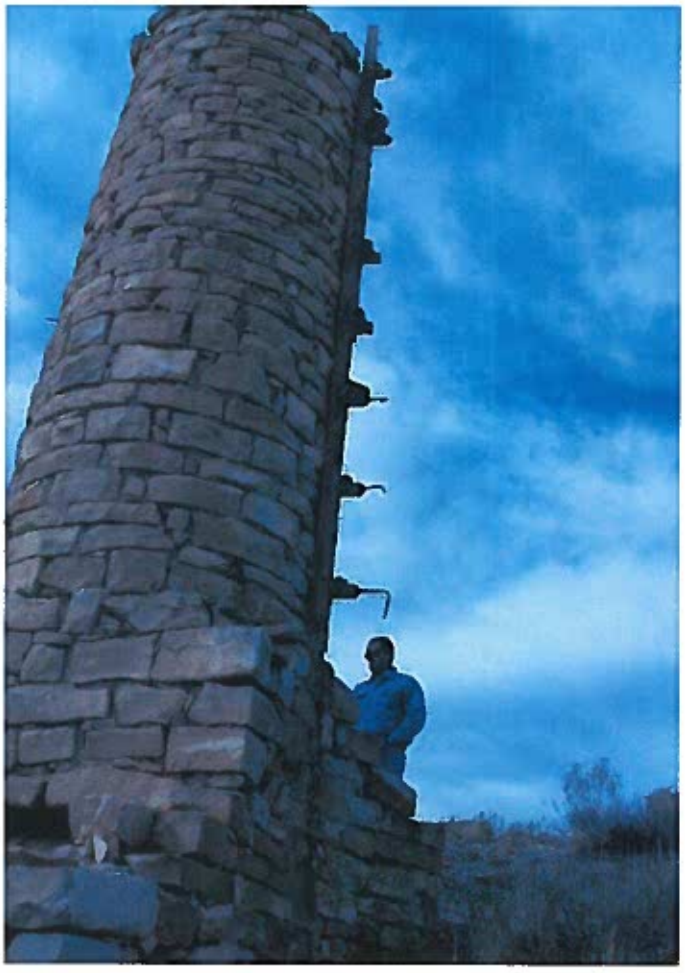


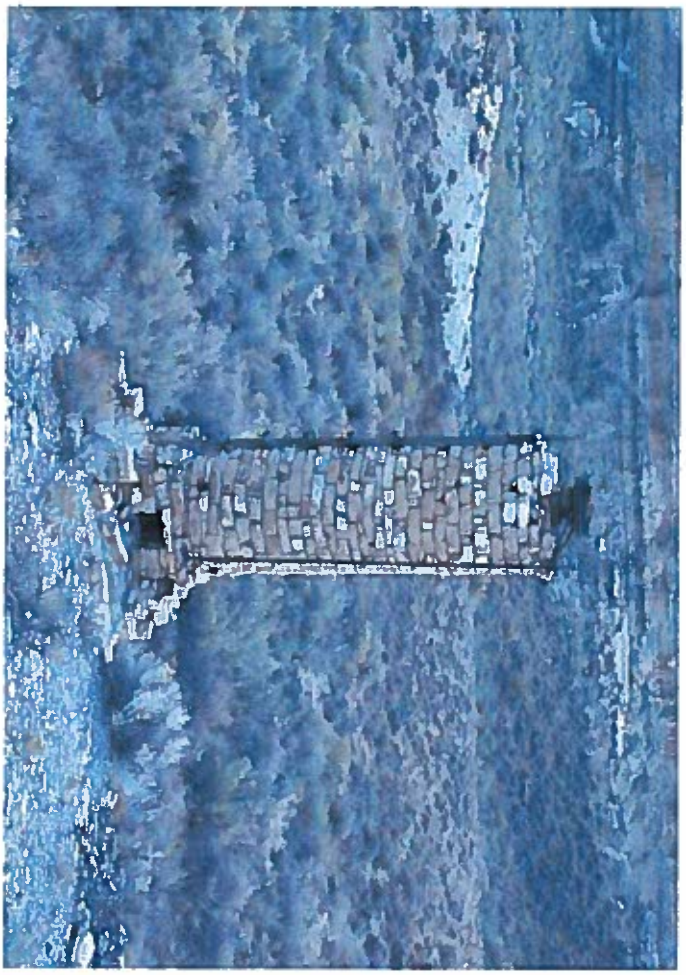


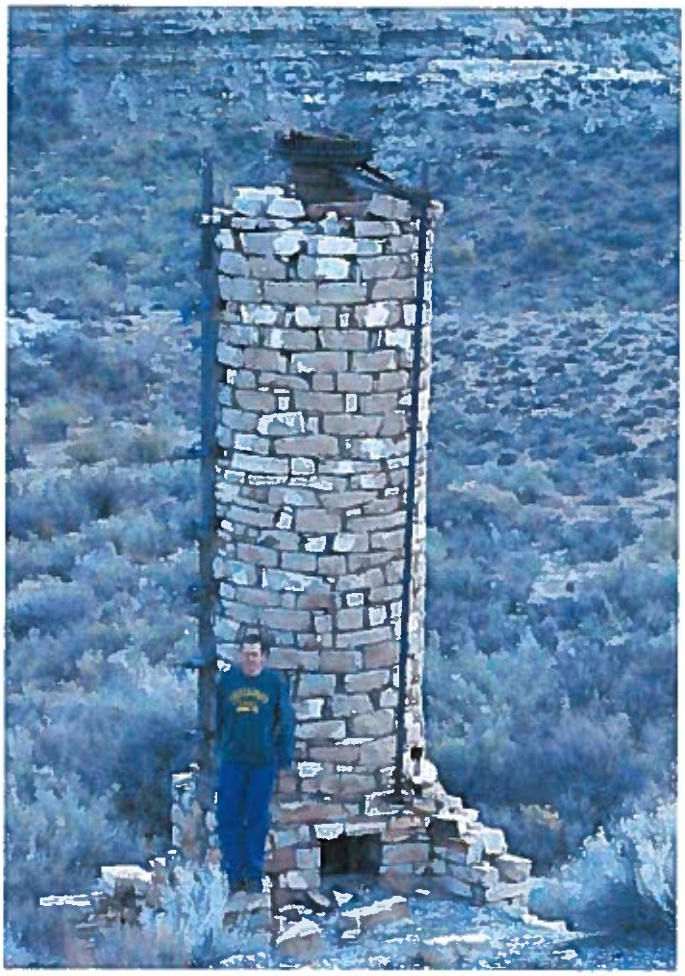


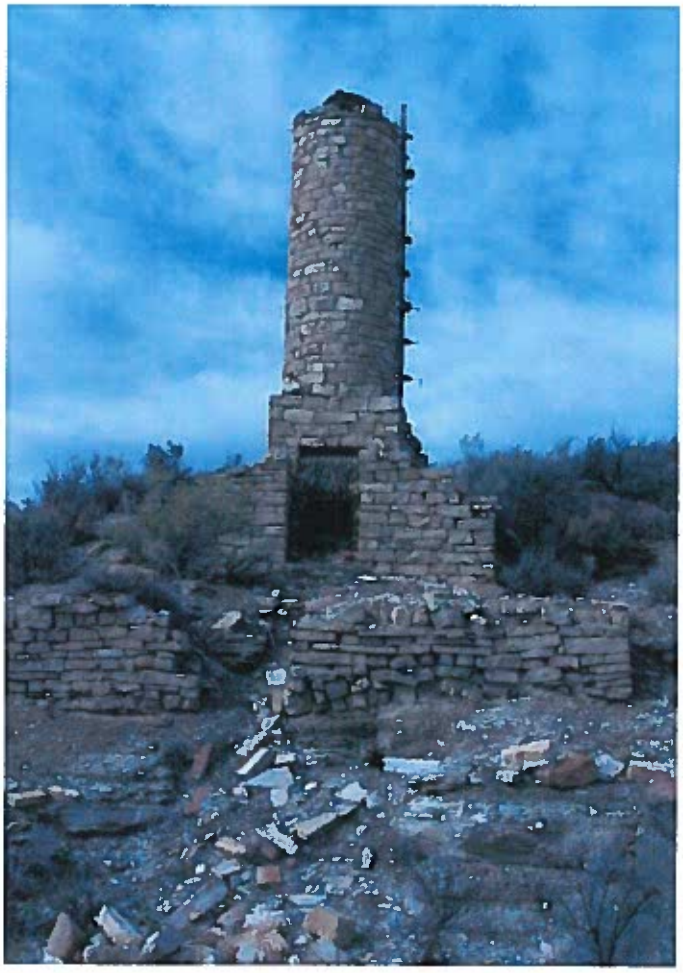


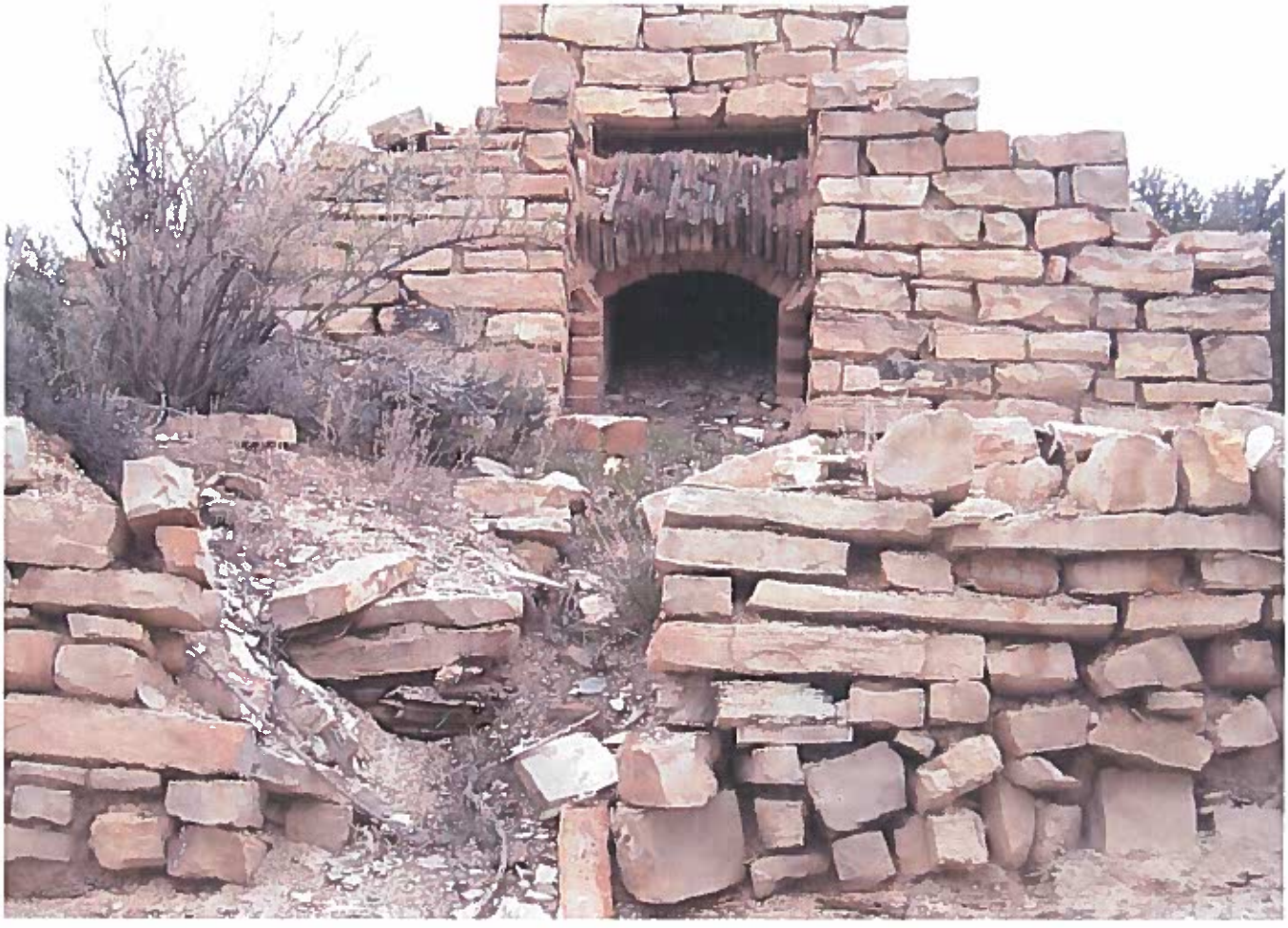













NOAA

The Vernal Ex

TWENTY-SEVENTH YEAR. No. 2. VERNAL, UTAH, FRIDAY, JANUARY 11, 1918.

Potash is Discovered to be a By-Product of Utah Oil Shale

of a style, anteed to good tast store. W times a

been in the properties in which oil shale deposits are interested, returned to Vernal on Wednesday of this week. Mr Hughel's purpose in making the trip was to have chemical tests made by the Detroit Chemical Co., Detroit, Mich., of the oil shale from Uintah Basin, for medicinal properties, such as ichthyol alaline, etc. It was discovered during the progress of the test that the shale contained potash, a product which heretofore has been unknown to be contained in shale found anywhere in the United States. Although final results have not as yet been made, such as qualitative tests for potash and other valuable by-products, still great encouragement is given by the chemical company as to the quality and number of by-products which can be manufactured from the shale which is found in the Whiteriver district. Eighty-five per cent pure potash has a market value of $240 per ton, and is used in the manufacture of cyanide potassium and explosives, also as a fertilizer.

Mr. Hughel found unusual interest being taken in Utah oil shale in every city in which he visited. In Detroit, automobile manufacturers are having investigations made of the shale as a possible solution in the increased production and lower cost to consumers of gasoline. These tests are not being made for the promotion of any stock-selling concern, but merely to protect the manufacturer's own interests in the production of cheaper gasoline, as in a large way this will be a controlling factor in further expansion and increased prosperity in the manufacture of automobiles.

While in Washington, D. C., Mr. Hughel was invited to confer with Dr. Day of the federal bureau of mines, in relation to the local oil fields. Dr. Day assured Mr. Hughel that the government was square behind any enterprise in developing oil shale properties. As an evidence of this the cost of reduction has been considered one of the cheapest and most efficient that has as yet been developed. It is on the order of a vertical still which through different degrees of heat, all products such as gasoline, naphtha, benzine, lubricants, gas, etc., are distilled. After all oil values are taken from the shale, the residue is then transformed to furnish the heat for the whole process, making it self-sustaining throughout, with no expenditure for fuel except for the initial run. The gas, in addition to the oils, can be used for commercial use, as it is of a very high quality, or it can be used to furnish the fuel providing the residue isn't desired to be utilized.

While in Michigan Mr. Hughel spent the holidays with his relatives.

OIL NOTES.

108 Gallons to Ton.—Chas. A. Campbell, president of the Uintah Basin Producing & Refining Co., who was in Salt Lake recently having tests made of oil shale from the Watson field, declares himself as highly pleased with results shown. The samples which Mr. Campbell had tested are said to have contained 108 gallons of oil to every ton of shale.

Good Advertising for Watson.—The Mining American, a mining paper, published at Denver, devotes its whole edition of Dec. 22, to Utah shale and its deposits. The cover contains a photograph showing a shale deposit near Watson.

Naval Oil Reserves Described.—In a recent statement released from the U. S. Geological survey, a press bulletin on shale in Utah and Colorado and information on the withdrawals of shale land to be used as a naval oil reserve, are given. Naval reserve No. 2, containing over 80,000 acres of land is situated between Watson and Nile Mile, and was created the early part of this year at the [illegible] The with

NOTICE TO WATER-USERS.

On account of having to instal a fire hydrant in the upper end of town, it will be necessary to cut off the water supply on Monday and Tuesday next, January 14 and 15. Inasmuch as this will affect every water user, they will please govern themselves accordingly, by laying in a supply of water till service is resumed.

FRANK HATCH
City Water Supt.

NOTICE OF ANI MEETING

The annual m of the stockhold the Vernal Mill Light company held at the office Uintah Abstract pany in the Co-op Vernal, on Monda uary 14, 1918, at a. m. for the pur hearing the annu ports and the of officers for suing year.

HERBERT TYZ
Se

promotion of any [illegible] concern, but merely to protect the manufacturer's own interests in the production of cheaper gasoline, as in a large way this will be a controlling factor in further expansion and increased prosperity in the manufacture of automobiles.

While in Washington D C Mr Hughel was invited to confer with Dr Day of the federal bureau of mines, in relation to the local oil fields Dr Day assured Mr Hughel that the government was squarely behind any enterprise in developing oil shale properties As an evidence of this, Secy Lane of the department of the interior has ordered that machinery intended to be used in oil shale reduction plants, should take precedence over all government or other orders for machinery at various manufacturing plants through out the country.

Dr Day is expected to leave on a trip which will take him to California, Wyoming, Nevada, and Utah While in Utah, he will stop off in Watson and investigate more thoroughly the oil lands between there and Vernal. Dr. Day has been commissioned by Secy Lane to urge development and to give all possible aid in rushing to completion all contemplated plants for the reduction of oil shale.

Another big item of local interest, which was transacted by Mr Hughel, was that of giving an option on a large section of oil shale land on White River These people guarantee that within twelve months, they will erect a 100-ton plant Other features of the contract are that a bonus shall be given when the option is taken over and one-fourth of the purchase price to become payable in six months. This offer came without any solicitation on the part of Mr Hughel whatever The company who is making this offer, whose name is withheld for the present, is a strong eastern company, with plenty of financial backing to push to completion any contemplated enterprise

Another concern secured an option on 12,000 acres on White river from Mrs Avon Girard, who is associated with Mr. Hughel, in oil enterprises. The leasing company intends developing the property with the possible erection of some kind of a plant sometime next year

While in Denver, Mr. Hughel investigated the chew process that is being conducted by James Doyle at the Denver Engineering Works in the reduction of shale. This system [illegible] whole edition of [illegible] shale and its deposits The cover contains a photograph showing a shale deposit near Watson

Naval Oil Reserves Described.—In a recent statement released from the U S Geological survey, a press bulletin on shale in Utah and Colorado and information on the withdrawals of shale land to be used as a naval oil reserve, are given Naval reserve No 2, containing over 80,000 acres of land is situated between Watson and Nile Mile, and was created the early part of this year at the request of Secy Daniels The withdrawal in no way affects the deposits near Watson on which plants are to be erected.

102 Locations Filed on in Three Weeks.—During the last three weeks of December there were 102 claims filed on and recorded at the county recorder's office. The ground filed on was the shale deposit near Watson, the saturated sands near Whiterocks and ground on which drilling is intended, west of Vernal, The locators include men from all over the west, and large interests in the east There were locations made for a group of oil men headed by J B Jones of Tulsa, Okla, and D. H. Cushenbery eight miles from Jensen, by Nile Hughel.

More Locations at Whiterocks.—A party of men consisting of S. K Shirk Frank Zufelt, Chas Fox, Chas. Davis, William Hobbercorn, and J. J. Barnes, made a trip to Whiterocks, to file on the sand deposits in that locality, on Monday of this week. These claims are located immediately west of those of Dr. P. S Coke.

Cedar-Butte Oil Sand Interests Oil Men.—A letter which contains much local interest came from Dr P. S. Coke, who is now in San Francisco. He reports as having been in consultation with the Crane people, who are contemplating the erection of several reduction plants in the west, and they delare that the sand taken from the ground owned by the Cedar-Butte Co., near Whiterocks, is the best that they have yet seen. They predict a great future for this company. While in San Diego, Cal. Dr Coke visited the Hercules Powder works, who are working on a process of shale reduction, which is said by him to be simple, cheap and practical Dr. Coke is expected to be in Salt Lake the middle of this month.

ready received in Denver and the chapter has received word from headquarters that they are satisfactory.

We are glad to be able to announce the formation of branches of the chapter as follows:

District 13 Looton and Bonnet Branch Mrs Pheoble E. Tanner chairman; Mrs. Irene O'Driscoll, secretary

District 23 Dry Fork Branch—"The Silver Gate."—D. C. Caldwell chairman; Mrs. Gail Hall, secretary.

District 9 Mrs. O. A. Wilson chairman, Mrs. Stella Underwood secretary

District 11 Whiterocks Branch

More Dairy Ca
Had F

Following are two letters received at the county agent's office fro Wisconsin regarding prices for dai cattle:

"High grade Holstein and Guer sey Holstein heifer calves, four eight weeks old will cost from $ to $25, yearlings from $40 to $ depending on whether they are sh yearlings, yearlings, or long yearli of breeding age; bred heifers fr $75 up. Know where there are th or four carloads of high-grade h ers that can be purchased at fr $75 to $85 at this time. Cows be bought for from $100 up.

"Holsteins can be found in largest numbers, then Guerns then Jerseys. The enclosed le just received from one of our en gency demonstration agents, sh condition at one point.

"Do you know of anybody wants to buy a good bunch of scys? There are fifteen in the bu all but four of them being registe There are eight cows, two of t springers, and seven heifers, tw them bred. The heifers range f eight to eighteen months of age

"These animals belong to a who is getting quite old The is too much for him. The reaso is selling them is that he is to quit active farming.

"This would be a fine chance anyone that wants to get st with Jerseys. The cows coul bought for from $100 to $135

Private oil shale could support 300,000 BPD industry

By Helene C. Monberg

Privately held oil shale lands in Colorado and Utah are sufficiently large to support an oil shale industry of at least 300,000 barrels-a-day output for 30 years, according to the new report on synthetic fuels issued by the Congressional syn-fuels task force on Sept. 28.

In addition, there are five sites in Utah which could each support a plant producing 50,000 barrels per day of syn-fuels from tar sands for 30 years, the report stated. Utah is the only state in the country which has sufficiently large and thick tar or oil sands to produce oil from the deposits, it said, altho Getty Oil Co. is presently testing some oil-impregnated earth deposits near McKettrick, Calif., with a view to producing 20,000 barrels of oil a day from the McKittrick deposit.

The richest Utah tar sand sites are Asphalt Ridge, P.R. Springs, Sunnyside, Circle Cliffs and Tar Sand Triangle. Of the 26,910 million barrels of tar sands reserves in this country, 25,100 million are in Utah and are held by the federal and state governments, Indian tribes and private owners.

The information comes from a breakdown on syn-fuels resources prepared by Cameron Engineers, Inc., of Denver, now a branch of Pace Co., of Houston, for the task force on syn-fuels of the Senate Budget Committee. Sen. Gary Hart, D-Colo., headed the task force, which went out of business on Sept. 28 after making a two-month study of syn-fuels at a cost of $72,000, Hart said at a press briefing.

The Cameron study for the task force indicates that there are enough privately-held tracts in oil shale country in Western Colorado and Eastern Utah of sufficient size and richness 15 to 25 gallons of oil per ton of shale to move ahead with shale oil production even if the federal government does not put up more oil shale tracts for lease. The "feds" own 78 percent of the oil shale land in Colorado, 70 percent in Wyoming and 77 percent in Utah, where the state and Indian tribes also have holdings of six and eight percent, respectively.

Modified in-situ or on-site retorting would result in the largest number of privately-owned tracts of land with an adequate resource to support 50,000-barrels-a-day plants for 30 years, the report stated. There are 17 such sites in the west, 14 in oil shale country in Colorado and three in Utah.

At the outside, "the 17 blocks of land which are privately held and are amenable to in-situ (processing) have adequate resources to support 850,000 barrels-per-day production for 30 years," the Cameron study said. Eight of the in-situ privately-held blocks of land could support output at 100,000 barrels per day or more for thirty years.

If underground mining with surface retorting were to be used to extract oil from shale, there would be ten privately-held tracts, nine in Colorado and one in Utah, which could support 50,000 barrel-a-day plants for a 30 year period. Four of these tracts could support 100,000 barrel-a-day plants, the Cameron study showed.

In addition, one privately-held block of land in Colorado could support surface mining and retorting at the rate of 300,000 barrels-per-day for more than 30 years, it said.

Theoretically, up to 1.45 million barrels of oil from shale could be provided from these private lands, the Cameron study concluded.

Fourteen water stations have been installed to measure water flowing on and around the Utah tracts. But, "In this very arid environment," Ross explains, "continuous measurements are made at only six 'live' stations"—stations where the water always flows.

Environment

Probing U-a/U-b's Environment

Utah's shale tracts: a portrait in desolation—and the site of multiple environmental studies

Rain is scarce in Utah's shale country; so are plants, wildlife and even people. But today, in preparation for an oil-shale industry, this desolate area is the site of intense environmental study. Teams of scientists, ranging from biologists to meteorologists, have invaded the shale region to gather the environmental information required by the federal oil-shale leasing program prior to mining activity.

The organization behind all this Utah activity is VTN, a national multidisciplinary engineering, architectural and planning consulting firm. In the summer of 1974, VTN received a multi-million dollar contract—one of the largest of its kind ever awarded in this country—to manage and conduct the environmental baseline information program on tracts U-a and U-b leased to White River Shale Project, a joint venture of Phillips Petroleum, Sohio Petroleum, and Sun Oil.

As manager of the total baseline project, which is slated for completion in the last half of 1976, VTN must oversee a kaleidoscopic array of programs. These range from studies of upper air currents to investigations of underground supplies of water. The environmental studies on Utah's shale tracts differ from similar programs in Colorado: In Utah, there is less of almost everything to study—water, vegetation, wildlife. . . .

In VTN's Denver headquarters, Doug Ross, vice president, notes that "The Uinta Basin only gets about 7 inches of precipitation annually"—quite a bit less than the shale areas of western Colorado. "Since there is less moisture," he adds, "there is less vegetation." In fact, John Lane, VTN's project manager for the environmental study, notes that "there are only four general vegetation types" on the Utah shale land. And, Lane says, the sparser vegetation adds up to less wildlife than found in Colorado shale country.

Focus on water: The Utah shale area has both less surface water and underground water than Colorado. But, despite its scarcity, water plays a central role in VTN's environmental studies. As Lane explains, "No section of the environment stands alone. Each is affected by the others"—and this is particularly true with water. As one example: Lane points out that "The quality of surface water can be directly related to the amount of sedimentation caused by erosion of the surrounding land. The erosion, in turn, is controlled by the rate and amount of precipitation, local vegetation and soil conditions." Thus the water-quality program relates directly to meteorologic, vegetation, geologic and soil studies as well as other study areas.

These relationships, however, form only one piece in the total environmental puzzle. In its final assessment, VTN will integrate all the pieces of information about the air, water, biology, geology and the soils in the U-a/U-b environment. In fact, Lane stresses, "The real value of the environmental assessment is in defining the ecological interrelationships among these areas as they function as a dynamic whole." Thus, in its final report, VTN will discuss the total picture of the Utah shale area's desolate, and fragile environment—from upper air currents to pools of water deep in the earth. *E.D.*

More bucking than a bronco— Summer fun on Utah's Green River.

Picky, picky, picky—Quarry specialist at work on bones at Dinosaur National Monument's Visitor Center.

Calling all tourists, fishermen, water-skiers, campers—Flaming Gorge Lake, edged with deep, vividly "painted" cliffs.

"We were here first"—Shale country early visitors on view at Dinosaur National Monument.

Vol. LXXXIV No. 8 Vernal, Utah 84078 Thursday, February 19, 1976 24 Pages Price: 15c

Problems in oil shale industry told officials

Officials of the White River Oil Shale Project met with Uintah County Commissioners and Vernal City officials Wednesday of last week to "Share some of the current problems and uncertainty of operation."

"Synthetic fuel development needs encouragement, but lately everything has been going backwards for us," stated Earl Ramsey, program director for White River Shale Project, a consortium of Phillips, Sohio and Sun Oil companies, who bid $120 million for two tracts in Utah known as U-a and U-b, to the city and county leaders present at the meeting.

"Congressional help is needed, but this being an election year, we don't expect much," stated Ramsey. About $150 million is needed for the technical demonstration alone. When the products from the industry are regulated and the costs are not, oil companies can not afford to take the risk involved in developing oil shale, explained Ramsey.

UNLESS SOME kind of federal grant-type money is made available such as the Energy Resource Development Act (ERDA) to provide the means of demonstrating the technical problems, the oil shale industry cannot move forward, Ramsey pointed out. Tremendous amounts of front-end money is needed to get the project on commercial production. "We want the project to go and we will do everything we can to make it go," Ramsey explained.

The crucial turning point will be June 1, 1977 when the fourth optional lease payment is due. At this point the project can be abandoned and the fourth and fifth lease payments amounting to $48 million will not have to be paid. If the project continues, the last two payments can be used to develop the lease.

Ramsey said a detailed development plan for the lease obligations is planned to come out about this April and then public hearings will be held in Vernal and Salt Lake City about two months later.

AFTER THE detailed plans are submitted, the initial mine access phase can start for a single retort operation phase, which will last about seven years. The commercial operation phase is planned to start after the single retort phase has been completed and is estimated to be about nine years after the beginning of the single retort phase until the first start-up of the commercial phase.

White River Shale is anxious to drill a mine shaft and open a room to see what the rock looks like, Ramsey explained. This summer five additional core holes are planned to obtain the underground information needed. The mine shaft is needed to give some Utah shale to test in already operating retorts and also give some spent shale to experiment with in revegetation.

DURING THE single retort phase very little impact is expected, about 350 people to start the operation and 200 for a two-year operational period.

Everything is dependent on government help, Ramsey stressed. If we don't get help the project will not go, he said.

Lyle Blanchard, manager of offsite engineering for White River Project, discussed access road routes into the tract site. Only one-fourth of a mile of road is needed to be built for the demonstration phase, 1977-82. The demonstration phase time can be used to plan other roads into the area.

In conclusion Ramsey stated, "The problems will be solved, but they are not within our reach right now, this is the reason for the current pessimism concerning oil shale."

Thurs. June 12, 76 Page 13

574

PAUL L. HOWARD, State Director for the Bureau of Land Management in Utah, (left), is presented checks totaling more than $24 million by Merril Littlewood, representative of oil shale lessees. These were the second annual lease bonus payments made by the lessees to BLM on oil shale tracts in Eastern Utah.

Second oil shale lease bonus payments given BLM

The Department of the Interior's Bureau of Land Management received oil shale lease bonus payments last week totaling more than $24 million.

THE CHECKS were presented to Paul L. Howard, state director for BLM in Utah, by Merril Littlewood, manager of community development for the White River Shale Oil Corporation.

One payment was for $15,119,360 from Sun Oil Company and Phillips Petroleum Company and the other payment was by the White River Shale Oil Corporation for $9,021,440.

Sun Oil Company and Phillips Petroleum submitted a combined high bid of $75,596,800 in March, 1974, for the first prototype oil shale tract offered in Utah by BLM. In April, 1974, the White River Shale Oil Corporation submitted a high bid of $45,107,200 for the second prototype oil shale tract offered in Utah.

STOCK IN the White River Shale Oil Corporation is owned equally by Sohio Petroleum Company, Phillips Petroleum Company and Sun Oil Company.

Mr. Howard said these were the second annual bonus payments made by the lessees to BLM. The first payments were made at the time the leases were issued. The lessees are also required to pay an annual rental fee of $2,560 on each tract.

According to Howard, each of the two tracts contains 5,120 acres. They are contiguous, south of the White River and approximately 40 miles southeast of Vernal.

IT IS estimated that 244.4 million barrels of oil may be recoverable from the first tract offered compared with 265.8 million barrels from the second tract.

Mr. Howard said extraction of the oil shale is expected to be by an underground mining process.

The prototype oil shale program is intended to encourage development of oil from the shale deposits in Utah, Colorado and Wyoming but under controls to prevent unacceptable destruction of the environment or other resource values.

CONCERNING THE two Utah tracts, Mr. Howard noted that the State of Utah has filed application with the Secretary of the Interior for transfer of the leased lands to the state. The state has agreed that in the event title to the lands passes to the state after issuance of oil shale leases by the United States, the state will succeed the United States as lessor under those leases and will fully honor all terms and conditions of the leases.

While the state's application is in litigation, all oil shale payments received by BLM in Utah are being placed in escrow, added Mr. Howard.

Sept. 12-16
page-13

Interior ruling suspends oil shale work one year

A government industry plan to develop a large new source of energy in the western shale oil fields has been virtually halted, and the chances of reviving it are not good according to a Washington report.

THE DEPARTMENT of Interior has suspended for a year the leases on two Colorado tracts on which the oil industry had intended to try to extract shale oil. Corporations operating on two fields in Utah have asked that their leases be suspended as well.

Environmental and economic reasons were cited by oil companies in asking that their leases be suspended and payments to the government temporarily stopped. They said it would be more expensive than originally thought to extract the oil, that clean air standards might be violated, subjecting the companies to federal charges, and that the government was unable to provide a disposal site necessary for one large project in Colorado.

FURTHERMORE, THE oil companies, which bid millions of dollars to develop the tracts, were disappointed that Congress would not guarantee loans to finance the expensive and novel engineering needed to extract the oil.

The plan could be revived next August, but one Interior Department official said Friday that the chances of that happening are "pretty grim."

By agreeing to the suspension of leases, Interior temporarily excuses the oil companies from paying any more installments on the leases in Colorado. However, if the suspensions are not continued next year,, payments would have to be resumed unless the companies relinquished the leases.

Standard Oil and Gulf already have paid about $126 million of the $210 million they bid for rights to develop one tract. Shell Oil and Ashland Oil have paid about $70 million of the $117.8 million they bid on another tract.

A SHELL executive, Robert Meeker of Houston, said Friday that his company probably would choose to relinquish its lease "and lick our wounds and walk away" next August unless conditions change or the suspension is continued by the Interior Department.

His company, he said, discovered that "the general economics of shale are not all that attractive." It would take a price of about $20 a barrel to make shale extraction profitable, he said. The world price now is about $12. Government sources estimate a price of $16 to $18 for shale oil would make it economically sound to begin extraction in Colorado.

THE TRACTS are located in northwest Colorado, in an area known as the Piceance Creek Basin. In a region including parts of Colorado, Wyoming and Utah, the federal government had once estimated that 600 billion barrels of oil could be taken from the shale.

The major environmental problem encountered in Colorado is dirty air. The government discovered that even now, before development, the air is so dirty with hydrocarbons and dust particles that it violates federal clean-air standards. Any industrial development would make matters worse and open companies to charges of violating the Clean Air Act.

Oil shale environment studies continue despite problems

Even with the year suspension on the federal lease agreement of the White River Shale Project, increased costs due to inflation and the air pollutants at oil shale sites already in violation of the Environmental Protection Agency, oil companies are still optimistic that their investment in oil shale will some day help to alleviate the energy shortage so imminent today.

TWO VERNAL-based environmental study project managers said this week they were continuing their base-line plans in hopes of a brighter economic outlook for the oil shale industry.

Joe Merino, resident manager for Tosco, Inc.'s Sand Wash Project, said his company has leases on 14,800 acres of state lands 35 miles south of Vernal.

Tosco has agreed with the State of Utah to spend about $8 million dollars over a period of eight years in the development of its oil shale leases.

EARLY THIS year Tosco scientists planted more than 2,000 shrub seedlings on top of 350 tons of spent oil shale in an experiment to determine how best to revegetate the material. At the present time the shrubs are growing extremely well, said Merino. Because of the unusual amount of rainfall the plants in the spent shale, natural soil, irrigated and non-irrigated plots all appear to be growing at the same rate. It will probably take until next year to tell the difference, Merino pointed out.

Tosco is presently starting its air quality monitoring program by setting up a fixed tower and flying a tethersonde balloon once a week. The balloon will gather data concerning relative humidity, temperature, wind speeds and direction, and barometric pressure at different elevations over a period of two years.

Project, the baseline environmental report is in its second year, reported Madsen. About $6 million has been spent and $7.4 million is planned for the two year environment study of about 10,000 acres on the federal leases south of Bonanza.

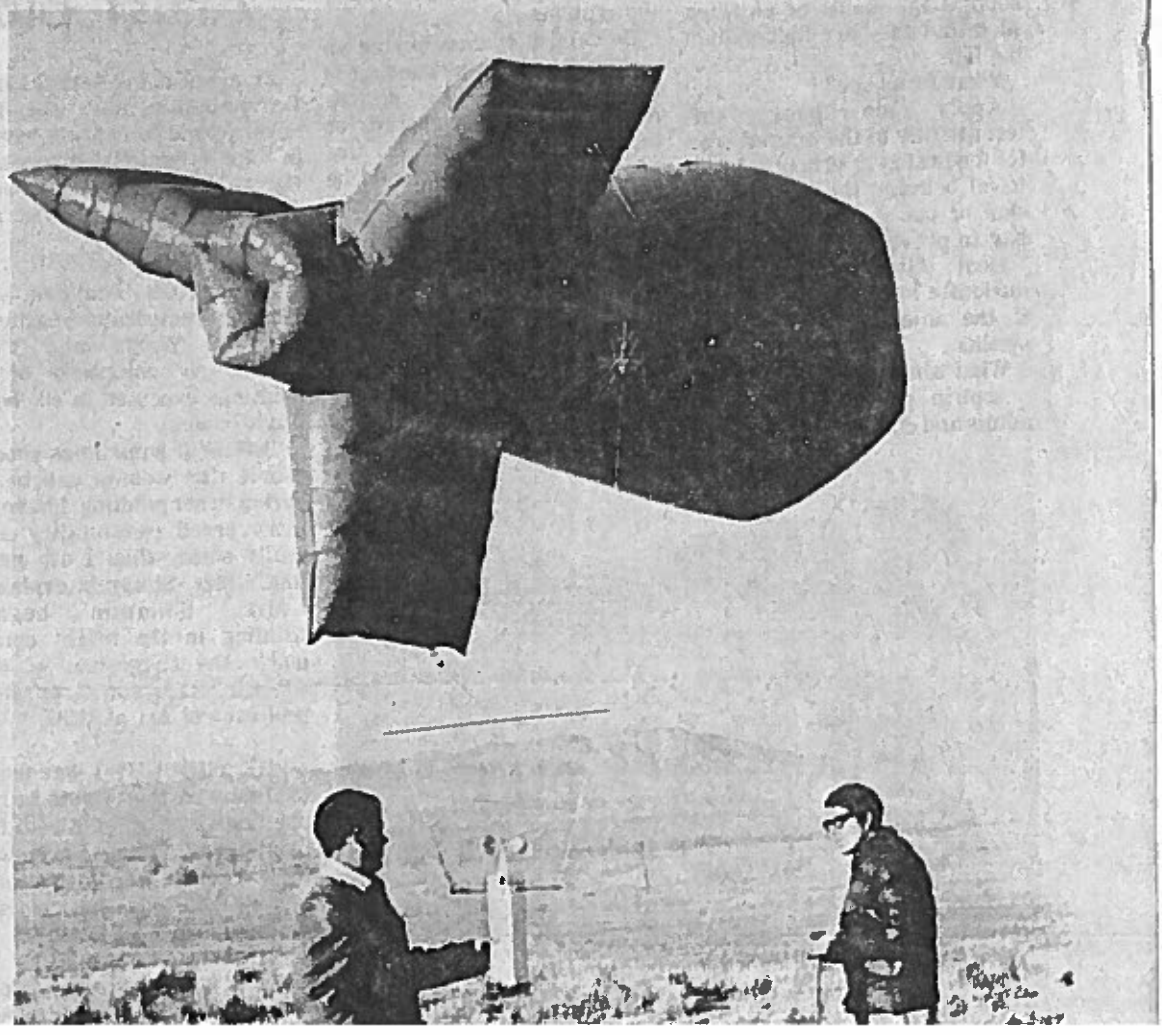
To date, White River Shale Corp. has paid $87 million for its three bonus lease payments and its environmental studies, stated Madsen. With the Interior Department's approval of a year suspension of the lease agreement, there will be a limited amount of engineering work on the environment study. During this period it was planned to spend about $1.2 million but this will be cut to about one half this amount, according to Madsen.

Working on the White River Shale Project environment study has been the VTN Corp, who has had the contract on the water resource monitoring; Aervironment, Inc. has been doing the air resources study; Biowest, Inc, has done the biology study and Dr. C. M. McKell, USU, has been doing the revegetation study at the site and in spent shale in the USU greenhouse in Logan.

The action to suspend operation at the White River Shale Project will delay the payment of the $24 million fourth and fifth bonus bid payments so the economic and environmental problems can be worked out. Environmental monitoring will continue during the suspension period.

During the suspension period White River Shale will attempt to come up with an acceptable plan with the federal clean air standards. According to Madsen the tracts exceed the existing federal air standards with no developments at all.

The first year baseline environmental report on the White River Shale Project was made in January this year. The detailed development plan and hearing was held in June. The second year baseline report is due in January, 1977 and the bonus bid payments would have been due in June of 1977 and 78 prior to the Nov. 1 suspension agreement, explained Madsen.



Wash Project, said his company has leases on 14,800 acres of state lands 35 miles south of Vernal.

Tosco has agreed with the State of Utah to spend about $8 million dollars over a period of eight years in the development of its oil shale leases.

EARLY THIS year Tosco scientists planted more than 2,000 shrub seedlings on top of 350 tons of spent oil shale in an experiment to determine how best to revegetate the material. At the present time the shrubs are growing extremely well, said Merino. Because of the unusual amount of rainfall the plants in the spent shale, natural soil, irrigated and non-irrigated plots all appear to be growing at the same rate. It will probably take until next year to tell the difference, Merino pointed out.

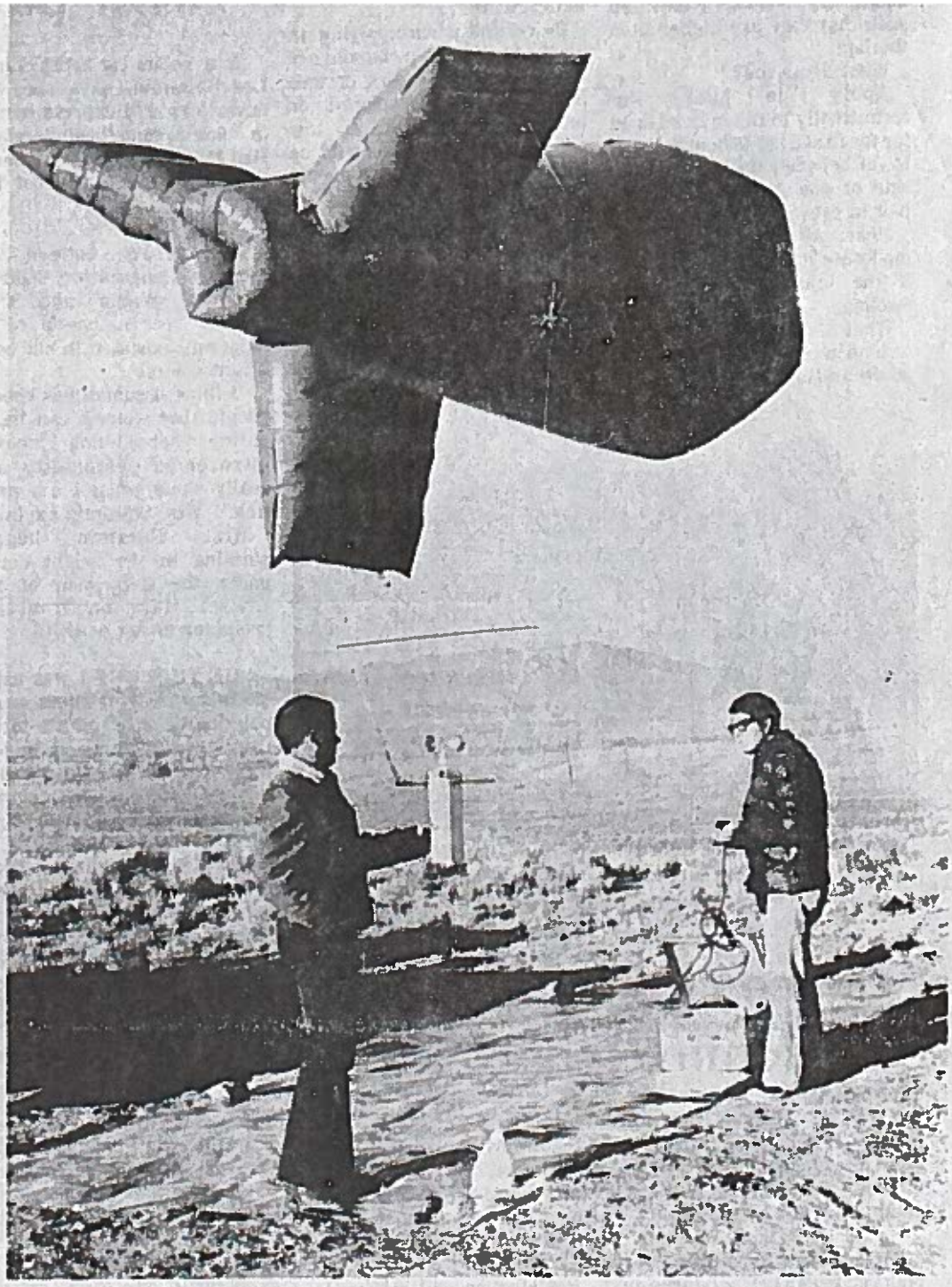
Tosco is presently starting its air quality monitoring program by setting up a fixed tower and flying a tethersonde balloon once a week. The balloon will gather data concerning relative humidity, temperature, wind speeds and direction, and barometric pressure at different elevations over a period of two years.

READINGS are made every 30 seconds by a sensor package fastened to the balloon which sends data to a computer which prints out the readings as the balloon ascends to a maximum height of 3,000 feet. This data can then be used to determine the inversion layer level and its thickness, explained Merino.

Within several weeks acoustical sounding equipment will be installed at the Tosco oil shale site to take readings to study the particulate matter that may be contained in the air.

Another shrub plot equipped with electronic reading equipment instruments will also be planted this week, said Merino. The new plot will be north of the first plot and will give electronic data concerning soil temperature, moisture, wind speed and barometric pressure. This plot will help determine the climate in which the plants will grow best. A water quality study will come in the next phase of environmental baseline study, concluded Merino.

ON THE White River Shale



TETHERSONDE BALLOON equipment used to monitor the air quality at the Tosco oil shale site is being demonstrated by Joe Merino, resident manager, right, and George Cozart, technical consultant. The sensor package is being fastened to the balloon. Readings will be sent electronically to a computer which will record all data being sampled every 30 seconds on a tape. The tape will later be translated to give information concerning the air quality of the area being tested.

Vernal Express
27 March 2002

RHC 0574

Single Copy 50¢

Retort approval proposed with restrictions

By Steven R. Wallis
Express Editor

The Uintah County Planning Commission will recommend to the Uintah County Commission that an oil shale retort in the Bonanza area receive a conditional use permit, but it must meet all state and federal permitting requirements first.

The oil shale retort was moved to its present location on State School Trust Lands in Cowboy Canyon about 17 miles southeast of Vernal.

"The Planning Commission unanimously approved the experimental oil retort, but attached a number of conditions," said Wes Baden, Uintah County Planning Commission chairman.

Because the request was in a zone which allows oil shale only as a conditional use, the Planning Commission can only make a recommendation to the Uintah County Commissioners who will make the final decision.

Recommended conditions for the conditional use permit include:

— The company submits proof that it has all the necessary permits and applications.

— That approval is limited to one acre for experimental purposes only with no mining.

— The approval would be for surface occupancy only. Once Oil Tech Inc. is through with the project and their permits expire, the property will revert back to the state.

"No permission has been granted by SITLA for occupancy of the property," said Dave Ebbertson, School and Institution Trust Lands.

"The project is in trespass which needs to be resolved," Ebbertson said.

Possible ways in which the trespass could be resolved include shutting the retort down or paying of a fine.

"After resolving the trespass issue, they still need to jump through all the hoops," Ebbertson said.

The earliest the issue could be heard by the Uintah County Commission is April 8, but Baden said there is no way the company can meet all the conditions in that short a period.

Jack Savage, president of Oil Tech Inc., said that he had met with state officials on many occasions and they didn't seem to have a problem with what was being proposed.

The oil shale retort had been operated in Vernal City and at the White River Oil Shale site before being moved to Cowboy Canyon. The company experimented with the retort at the White River site during a temporary use permit from the BLM. Once the permitting period expired, the BLM did not renew the permit.

Not Scanned

110th Year No. 13 • 20 Pages

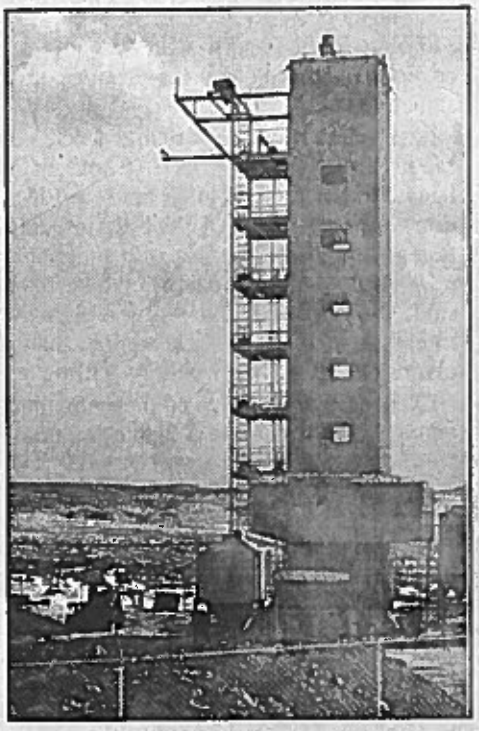
RHC 0574

Vernal Express 3 April 2002

Penalty set for trespass of shale retort

Oil Tech Inc. will have to pay $30,000 penalty for their oil shale retort located near Bonanza and $10,000 a year for a surface lease on their one-acre facility.

John Andrews, attorney for State Institutional Trust Lands Administration (SITLA), said the penalty was based on the $10,000 lease times three which is the maximum penalty SITLA is authorized to assess. The $10,000 a year is based on other properties in similar locations.



Oil shale retort owners will be fined for being in trespass.

Oil Tech Inc. was formed February 2000 for development of an oil shell retort which would extract oil from oil shale. The process is based on a retort designed by Byron Merrell of Vernal who is the manager for the facility. About a year ago, the retort was moved to its present location in Cowboy Canyon about 5.3 miles east of the Bonanza Gilsonite facility in southeastern Uintah County.

Jack Savage, principle investor in Oil Tech, said during a Uintah County Planning Commission meeting last month, that he sat down in a room will all affected state agencies, including the Uintah County economic development director and asked if there was anything that needed to be done prior going ahead with the research and development of the project.

"Everyone said, 'no,'" Savage said.

Savage agreed that the retort was in trespass and he needed to get a surface occupancy lease before proceeding.

"We had an attorney in Denver to help with the permitting, but we were in no hurry," he said.

Four members of the County Planning Commission recommend- ing permit for under five acres.

If company chooses not to comply with the terms set by the state for the penalty and lease, the company will be asked to remove their facility from state land, Andrews said.

Once the company has complied with state and federal permits, it can apply from a conditional use permit (required for an oil shale retort) from the Uintah County Commission.

Savage said the retort has been operated for a couple of hours on a daily basis. The company is using oil shale hauled to its location from the White River Shale facility some 15 miles away.

With the retort in trespass, it cannot be operated, but the company can continue to secure the site.

The only other company experimenting with oil shale is Shell Oil Corp on the western side of

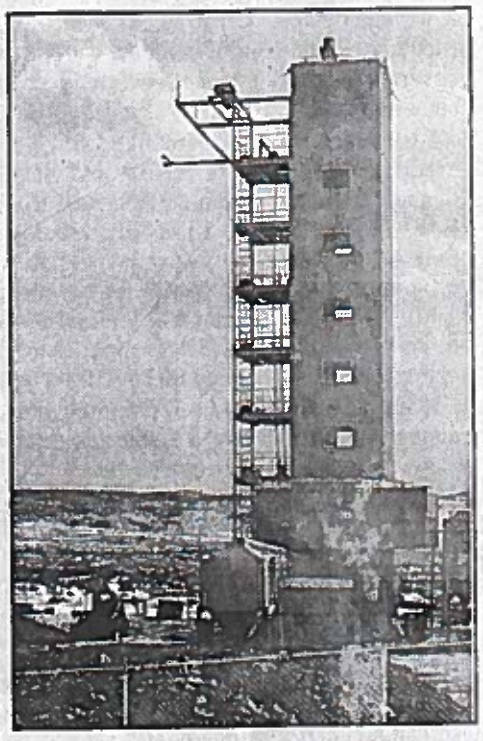
# of shale retort

Uintah Express 3 April 20

Oil Tech Inc. will have to pay $30,000 penalty for their oil shale retort located near Bonanza and $10,000 a year for a surface lease on their one-acre facility.

John Andrews, attorney for State Institutional Trust Lands Administration (SITLA), said the penalty was based on the $10,000 lease times three which is the maximum penalty SITLA is authorized to assess. The $10,000 a year is based on other properties in similar locations.

Oil Tech Inc. was formed February 2000 for development of an oil shell retort which would extract oil from oil shale. The process is based on a retort designed by Byron Merrell of Vernal who is the manager for the facility. About a year ago, the retort was moved to its present location in Cowboy Canyon about 5.3 miles east of the Bonanza Gilsonite facility in southeastern Uintah County.



Oil shale retort owners will be fined for being in trespass.

Jack Savage, principle investor in Oil Tech, said during a Uintah County Planning Commission meeting last month, that he sat down in a room will all affected state agencies, including the Uintah County economic development director and asked if there was anything that needed to be done prior going ahead with the research and development of the project.

"Everyone said, 'no,'" Savage said.

Savage agreed that the retort was in trespass and he needed to get a surface occupancy lease before proceeding.

"We had an attorney in Denver to help with the permitting, but we were in no hurry," he said.

Four members of the County Planning Commission recommended to the County Commission that a condition use permit be granted to the company once they have provided proof that they have complied with all state and federal permits.

Savage said Oil Tech owns about 20,000 acres of oil and gas leases in the area of the retort, but will in about a year apply for a small mining permit for under five acres.

If company chooses not to comply with the terms set by the state for the penalty and lease, the company will be asked to remove their facility from state land, Andrews said.

Once the company has complied with state and federal permits, it can apply from a conditional use permit (required for an oil shale retort) from the Uintah County Commission.

Savage said the retort has been operated for a couple of hours on a daily basis. The company is using oil shale hauled to its location from the White River Shale facility some 15 miles away.

With the retort in trespass, it cannot be operated, but the company can continue to secure the site.

The only other company experimenting with oil shale is Shell Oil Corp on the western side of Colorado. Oil shale is a sedimentary rock containing solid and combustible organic matter (kerogen and bitumen) in a mineral matrix. Oil shales are much more common than is generally recognized, occurring on every continent and in every geological system.

Vernal Express
8 May 2002

Express online: www.vernal.com

110th Year No. 19 • 20 Pages

County okays retort pending all permits

A conditional use permit was approved pending the filing of all paperwork for Oil Tech Inc., a small oil shale retort company that has had a facility for the past two years in Cowboy Canyon, 5.3 miles east of Bonanza.

The retort is located on an acre of state property administered by the State Institutional Trust Lands Administration (SITLA). Official from SITLA found the company in trespass and assessed a penalty of $30,000 and a surface lease for $10,000 a year.

Monday Dale Peterson, Uintah County Building and Zoning, said the company had paid its fine and the Uintah County Planning Commission had recommended approval of the conditional use permit if all necessary permits had been obtained. Peterson said the company was in a "Catch-22" because it could not obtain the permit from SITLA unless the county gave its approval of the project.

Commissioner Lloyd Swain asked to be removed from the discussion and voting on the project because he has a 10 percent interest in the project.

A complaint was filed because the company is operating without a the process might not work. Others objected that the company was on public land without any permits and questioned the impacts to the area and the roads into the site.

The Planning Commissioner recommended approval of the site only after written verification of all permits had been obtained.

"That's a little difficult because state lands doesn't approve their permit until after the county approves theirs," Peterson said. The Planning Commission recommends that the county approve a lease and not the ownership of the project and that it be for the experimental retort and not a mining operation.

The project produces about a barrel of oil an hour. It doesn't have a fire, all heat is generated by electricity.

Commissioner Dave Haslem said that the commission had run into the same problem on another project and the way to get the project moving would be to approve the project pending all permitting.

John Kay question the commissioner how they could issue a conditional use permit when all the permitting is not in place.

"We will proceed with this if they get the permits from the state," said

all permits

A conditional use permit was approved pending the filing of all paperwork for Oil Tech Inc., a small oil shale retort company that has had a facility for the past two years in Cowboy Canyon, 5.3 miles east of Bonanza.

The retort is located on an acre of state property administered by the State Institutional Trust Lands Administration (SITLA). Official from SITLA found the company in trespass and assessed a penalty of $30,000 and a surface lease for $10,000 a year.

Monday Dale Peterson, Uintah County Building and Zoning, said the company had paid its fine and the Uintah County Planning Commission had recommended approval of the conditional use permit if all necessary permits had been obtained. Peterson said the company was in a "Catch-22" because it could not obtain the permit from SITLA unless the county gave its approval of the project.

Commissioner Lloyd Swain asked to be removed from the discussion and voting on the project because he has a 10 percent interest in the project.

A complaint was filed because the company is operating without a business permit and without a conditional use permit. The retort is located in a mining and grazing zone which allows a retort as a conditional use if approved by the county commission.

Jack Savage, president of Oil Tech Inc., said that he had met with state officials who said they had no problem with the pilot plant. The project is preparing for a 30-day run to be able to monitor air and water emissions.

The project includes about 1,000 tons of shale, drier, crusher, retort, crushed shale bin, storage tank and chain link fence.

Peterson said that several complaints about the project were heard at the County Planning Commission last month. Their complaints involved taking a one-acre postage stamp-sized property out of the middle of State Trust Lands and have it owned by a company where the process might not work. Others objected that the company was on public land without any permits and questioned the impacts to the area and the roads into the site.

The Planning Commissioner recommended approval of the site only after written verification of all permits had been obtained.

"That's a little difficult because state lands doesn't approve their permit until after the county approves theirs," Peterson said. The Planning Commission recommends that the county approve a lease and not the ownership of the project and that it be for the experimental retort and not a mining operation.

The project produces about a barrel of oil an hour. It doesn't have a fire, all heat is generated by electricity.

Commissioner Dave Haslem said that the commission had run into the same problem on another project and the way to get the project moving would be to approve the project pending all permitting.

John Kay question the commissioner how they could issue a conditional use permit when all the permitting is not in place.

"We will proceed with this if they get the permits from the state," said Haslem. "All we are trying to do is move this thing along."

"I sit here listening to this and wonder what is going on?" said Roger Hacking. "We spend lots of money on economic development and here is a process which could do more economically for the valley than anything else and we are arguing about semantics. I cannot believe what I am hearing."

"If this were developed it would bring more money than we could dream of," Hacking said.

"All that we want them to do is follow federal regulations," said Lanny Kay.

"But they are not on federal ground," Commissioner Cloyd Harrison said.

"At this point it is not a matter of what is right or wrong, they have paid their fine and are waiting for something from the county."

Commissioners approved the conditional use permit, pending the company receiving all necessary permits.

Seep Ridge project progressing

While some oil shale projects are closing offices, the Geokinetics joint venture, the Seep Ridge Project, is opening their office.

The Seep Ridge Project, near Vernal, the only Utah oil shale project to receive the backing of the Synthetic Fuels Corporation (SFC) will be moving ahead by the middle of this year despite low oil prices and technology which have dampened other projects.

The Seep Ridge project received a letter of intent from the SFC last June, and is "very encouraged" about moving into field operations by January, said Mike Lekas, president of Geokinetics.

Geokinetics Inc. and the Gilbert Shale Oil Company (GSO), a subsidiary of the Peter Kiewit Son's, Inc., have formed a joint venture to carry out the $45 million shale oil project. The joint venture is owned 85 percent by GSO and 15 percent by Geokinetics. GSO will be the managing partner, and will provide the project site and site improvement.

The Peter Kiewit Sons', Inc., is a major construction company, based in Omaha, Neb. with extensive experience in construction of shale oil facilities.

The joint venture, the Seep Ridge Shale Oil Company, will be opening a Salt Lake City office this summer.

Many of those employed with Geokinetics have transferred to the new company.

"We look to move ahead vigorously," Lekas said.

Field operations should begin about January, and confirmation of the SFC loan and price guarantees should be a reality by the middle of the year.

"I am very encouraged, and don't expect anything to interfere with the SFC backing," Lekas said.

The SFC assistance will consist of loan and price guarantees totalling $45 million, a small project compared to the billion dollar other oil shale project. The government will provide an initial guaranteed price for shale oil of $42.50 per barrel, and will pay the difference between the guaranteed price and the market price.

The government has also guaranteed loans for 60 percent of the cost of constructing the Seep Ridge production facility, to be located at Geokinetics Kamp Kerogen, about 70 miles southeast of Vernal. The project will produce 1,000 barrels per day of shale oil, utilizing the LOFRECO in-situ extraction technique developed by Geokinetics.

The Seep Ridge project will not be the first time for squeezing oil from shale for Geokinetics.

In 1983 Geokinetics constructed two full-sized underground retorts, each two acres in size, and ignited them into operation. They have been producing 250 barrels per day and have a potential to produce 300 barrels per day.

Geokinetics has completed a contract to provide shale oil jet fuel to the U.S. Air Force. The fuel has been delivered to a number of air force bases, and flight tests, using F-16 and F-111 fighters, have been conducted.

Although the Seep Ridge Project is dwarfed by other oil shale project, Lekas is of the opinion that it is because of the project's size and technology that it has succeeded with the SFC where other Utah projects have failed or are still trying.

Since a major replacement of members on the SFC board and intense scrutiny of the SFC budget, there has been a change in direction in the program.

The direction has been away from the very expensive projects and aimed at the smaller projects that offer a diversification of technology.

This new direction makes the Seep Ridge 1,000 barrel a day project more attractive to the SFC board, and is the reason for Lekas's optimism.

93rd Year No. 33

40 Pages

Single Copy 25¢

May 1, 1985

SFC defers action on shale project

The Synthetic Fuels Board deferred further action on the Seep Ridge oil shale project in southeastern Uintah County last week placing the project in mothballs while partners on the project determine if the condition is temporary or permanent.

At the April 23 meeting of the SFC Board a status report on the Seep Ridge project was reviewed and the board determined to defer further action on the project for approximately three months, or until such time as either the corporation has more completely resolved its overall shale program, or the project can develop more advantageous marketing alternatives.

The Seep Ridge Project is a joint venture by Geokinetics, Inc., which holds the patents on technology for extracting oil from shale, and Gilbert Shale Oil Company, a subsidiary of Peter Kiewit Sons, Inc. Kiewit is a major construction company, based in Omaha, Neb. with extensive experience in construction of oil shale facilities.

The Seep Ridge project would produce about 1,000 barrels of shale oil per day, and has a letter of intent from the SFC board backing the project with loan and price guarantees, totalling $45 million. The project is planning to use the LOFRECO in-situ shale oil extraction process.

Hopes that the project would get off the ground this year have been dashed by the SFC's denial to act on their original letter of intent, seeing problems with the project.

Senator Glade Sowards, who was recently appointed to the National Energy Association board, said that it is now his feeling and others share his opinion that if the SFC board does not allocate the money that it should be used for other purposes.

The Utah Congressional Delegation were "very disappointed" with the SFC's decision to defer action on the Seep Ridge Project, Sowards said.

Critics of the SFC say that Congress should "cut our losses before it's too late" by voting to abolish the SFC, which was created in 1980 to encourage development of alternative fuel sources.

The quasi-government corporation "threatens not only to squander $7.9 billion on the senseless commercialization of uneconomic technologies but it likewise diverts limited taxpayers' dollars away from the kinds of programs that offer the greatest promise for enhancing the prospects of synfuels development," said Rep. Mike Synar, D-Okla.

"We can and should cut our losses before it's too late," Synar, a sponsor of legislation to abolish the agency, told a House Energy and Commerce subcommittee Wednesday.

Synfuels Corp. Chairman Edward Noble defended the agency, saying, "The country has made a great deal more progress in synthetic fuels than is generally recognized.

"The corporation is now in a position to assist a few more projects, which together with those already under contract, will...give the country this synthetic fuels option," he said. It is not a matter of "throwing money out the door."

Rep. Daniel Schaefer, R-Colo., a state that has benefited immensely by SFC funds, asked his colleagues, "Why should we play Russian roulette from an energy standpoint?"

The Seep Ridge office in Salt Lake City has been closed and five employees were furloughed last week after an SFC announcement.

Officials are now determining whether the present situation is permanent or temporary, a spokesperson for Geokinetics said.

The SFC Board also continued the waiver for the Paraho-Ute project, another Uintah Basin project, to allow SFC staff time to analyze information only recently provided by the project's sponsors.

Indexed tax credit for oil shale proposed

By Helene C. Monberg,
Washington correspondent

Washington--Rep. James P. Johnson, R-Colo., expanded his $3 tax credit proposal before the House Ways and Means Committee on Tuesday afternoon.

He said it should be indexed for inflation.

He said the phase-out, now at $23 per barrel, should be raised to "between $25 and $30 per barrel," in mark-up in the Committee later.

He said he favored extending the date when the credit would phase out to "perhaps 1990."

All along the line of a bill by Rep. Ed Jenkins, D-Ga., Johnson said, Jenkins is one of the many House Members sponsoring a tax credit for syn-fuels. Johnson in February introduced his $3-tax-credit-for-oil-shale bill.

"I am sure the Committee will consider these options. The point is this: the adoption of the tax credit NOW provides the necessary and IMMEDIATE economic stability private industry says it needs. It will result in investment for construction activities now, and bring the shale oil facilities on line as soon as possible, consistent with the environmental and other federal, state and local government requirements which must and will be met," Johnson testified.

He noted that this country spent $10 billion last year to import crude oil to meet nearly one-half of our domestic crude oil demand. "We simply must reduce our reliance on unreliable foreign sources of energy.

"Shale oil production will assist in that goal. The $3 tax credit for shale oil production will help provide the proper atmosphere to bring about that necessary production," Johnson stated. A poll that Johnson sent out to industry last year to ask about "the single most productive type of incentive to stimulate the industry" resulted in unanimous industry response 'that a $3 a barrel income tax credit, adjusted for inflation' would be most helpful, Johnson testified. Note, he told the Committee, that the government would not have to forego any income at all through this method because industry would have to make the expenditure first before it could claim the tax credit.

He said at least one energy company, Union Oil, with a project near Grand Valley, "has stated it will begin construction of a $100 million first module of 10,000 barrels-a-day on passage of the $3 oil shale tax credit," Johnson stated. Other advantages are that the tax credit is simple and immediate and can provide "at least a beginning point to provide an immediate economic stimulus" now until complemented by other incentive programs. "But other incentive programs should not be a substitute for the tax credit," Johnson stated.

If the government had not withdrawn federal oil lands from leasing in 1930, "a commercial shale oil industry might have been allowed to develop and that development might have placed a price cap on foreign crude oil today, Johnson said. "Perhaps that is more conjecture than fact, but it is interesting to contemplate," he said. He presented a complete back-grounder to the Committee on the current status of oil shale, obviously a task which it had taken his staff and experts weeks to put together.

SENATOR ORRIN HATCH talks briefly to Winslow Weber and Harley Hales after an hour of answering questions from Uintah High School Students. Hatch remained in Vernal Wednesday and went to Roosevelt Wednesday night.

Sen. Hatch offers answer to oil shale problems

Dressed in cowboy boots and ever reminding his audience of his Uintah Basin heritage, Senator Orrin Hatch gave some straight answers to controversial questions from Uintah High School students and educators, Feb. 13.

During his afternoon visit in Vernal last week, Hatch said that federal regulations are stopping the development of oil shale in Utah.

"We don't have enough free enterprisers in government to push oil shale. It will be two to four years before getting enough friends in government to develop oil shale."

He suggested a Sagebrush Rebellion, similar to the one in Nevada which turned federal lands to the states, as an answer to the whole problem.

"It's our way of saying we've had enough," Hatch said about his intent to get a Sagebrush Rebellion going in Utah.

"Failure of leadership," charged Hatch answering a question, "is the reason for the Russian invasion of Afghanistan."

Because of President Carter's weak policy with the hostage situation in Iran, Russia has made advances in the Middle East, Hatch said.

Hatch suggested what Carter should have done was to give the Iranians a time period to release the hostages after which the U.S. would hear the complaints of Iran and recognize the country. If Iran wouldn't release the hostages in the time period we should have bombed their harbors and sabatoged their oil fields.

"I believe we will still get the hostages out because the Iranians can't hold out much longer, but it will not b without a big cost," Hatch said.

Speaking about the draft, Hatch sa he was opposed to the draft, but necessary, in time of war, he was favor of it.

The ERA only lacks three states to b approved, and if passed "it would mea that every woman will be draftable lik men," Hatch said explaining h position on drafting women.

"We (Senator Jake Garn and I) w fight its passage with all our ability Hatch added. "Women should ser only if they volunteer."

Sen. Hatch was honored at a n dinner Wednesday and after speak at two meetings with the high sch and school board in Vernal, he went Roosevelt to speak with the Chamber Commerce.

Oil shale development becomes more important

After years of relative inaction, the U.S. Department of Energy is taking new steps to develop the tremendous oil shale deposits of Utah, Wyoming and Colorado.

As initiated by Rep. Gunn McKay, $15 million was appropriated by Congress for the design and potential construction of a commercial-scale surface oil shale module.

"We cannot afford to sit back as our energy supplies dwindle and leave untapped a major source of oil," McKay said.

He said up to 700 billion barrels of oil, many times greater than the proven oil reserves of Saudia Arabia, are thought to be recoverable from the high-grade oil shale deposits in the three states.

The energy department has called for companies to make proposals on the design and potential construction of an oil-shale extraction process that would be carried out on a commercial scale. The project would be a surface operation rather than the potentially destructive "in situ" underground method.

The department anticipates that it will award several contracts to design different kinds of oil shale retorts, or heating vessels. The shale must be heated to at least 900 degrees to release the oil.

McKay said the contracts could be awarded by December and the actual module designs would take about a year to complete.

Interested firms must make proposals to the department by July 16. The most promising concepts will be selected from those submitted by early fall, and the actual awarding of contracts would take place in December.

The designs would take up to about a year to complete.

Department officials noted that last April President Carter proposed that a $3-per-barrel oil shale production tax credit be used as a way to stimulate the early commercial development of oil shale.

The tax credit, which still must be approved by Congress before it could take effect, would begin to phase out when world oil prices reach $20 a barrel. It would be completely eliminated when prices reach $23 a barrel.

George Fumich Jr., director of the department's fossil energy program, said the tax credit is still the administration's preferred way to stimulate oil shale production, "since it permits a larger number of industrial participants and leaves the crucial business decisions in the hands of industry.

"Should the tax credit not prove acceptable, however, the program we are beginning will ensure that we have updated designs and can move forward quickly with actually cost-shared construction of the first module with little, if any, loss of time," Fumich said.

Report shows oil shale safer to mine than coal

Initial studies by Tosco Corporation and the Denver Research Institute indicate the potential dust explosion and fire hazard in oil shale mining and processing is much less than in some coal mining operations.

Tosco and DRI are conducting an oil shale mine safety study for the U.S. Bureau of Mines and reported their preliminary findings at the 12th Oil Shale Symposium at the Colorado School of Mines (April 18-20).

It is expected that on completion of the Tosco-DRI study, the Mine Safety and Health Administration will promulgate safety regulations governing fire and explosions in oil shale operations, if any such regulations are required.

Over the past 35 years, more than 3 million tons of oil shale have been mined in several large operations in Colorado with no accidents attributed to dust explosions. However, two unplanned fires occurred in 1978, one at a modified in situ test site and the other at a federal experimental shaft project.

Eventually, a commercial oil shale industry of up to 1 million barrels per day production could employ as many as 20,000 persons directly in mine and plant operations, said Robert B. Crookston, Tosco's mining manager.

The Tosco-DRI study, using laboratory experiments and field tests at the Colony Development Operation mine in northwestern Colorado plus analysis of other available data, determined that the explosion potential of oil shale rock, dusts and vapors during mining, crushing, and processing depends upon the volatile hydrocarbon content of the material itself and the richness and concentration of the dust in a given area.

Further tests were recommended to establish the flammability of retort gases and of oil shale rock fragments.

A number of scenarios describing hypothetical fire and explosion incidents, based on industry experience, were described and analyzed using laboratory data and findings. Central themes included spontaneous combustion of crushed oil shale rock, dust explosions in a mine with or without methane gas concentrations, explosions of shale being processed in a retort or fires in surrounding apparatus that could ignite dust, and special hazards resulting from methane gas being present in an underground modified in situ retort.

Among the findings, Crookston said, were:

1. Oil shale has an overall explosive index of 0.0001 compared to an index of 1.0 for Pittsburgh seam coal, which indicates a much reduced tendency of oil shale to explode.

2. The smaller the particles and the richer their content, the more the fire and explosivity properties of oil shale dust increase. However, even dust from shales with a 35 gallon per ton oil content have a low tendency to ignite or explode compared to most coal dusts. A dust loading study showed that the total potential yield of volative hydrocarbons from oil shale is only about 1-10th of the amount necessary to propagate an explosion.

3. Oil shale dust loses volatility as it ages, causing its fire and explosivity properties to decrease even further.

4. Oil shale is less liable to spontaneously combust than typical western coal. Spontaneous combustion is influenced by surface area, chemical composition and moisture content of broken or crushed oil shale.

5. In a small-scale rubble fire, fuel-soaked oil shale fragments burned poorly and combustion didn't spread to untreated pieces of rock.

6. In one large mine sampled, not enough dust was found (relative to the size of the open spaces) to propagate an explosion.

Oil shale pact signed

JUN 1 9 1980

Page 1 - Sec B.

GRAND JUNCTION, Colo. (UPI) — A $4.4 million contract with the Department of Energy for a demonstration oil shale retorting facility is another step toward commercial development, officials of Paraho Development Corp. said Tuesday.

The Department of Energy has awarded contracts to two companies to build demonstration "modules" for a full-scale commercial plant. One contract, for $5.6 million, went to Superior Oil Co. of Englewood, Colo., and the other, for $4.4 million, went to Paraho.

A third bid by TOSCO was rejected by the DOE, "All were technically sound, but we could not reach a satisfactory business arrangement with TOSCO," said DOE spokesman Robert C. Porter.

Superior plans to build its 13,000-barrel demonstration plant in Rio Blanco County in northwestern Colorado. Paraho's 11,000-barrel plant will be built near Vernal, Utah.

"This could lead to the commercial building and operation of a full-sized Paraho retort," said Paraho spokesman Harry Pforzheimer III. "It will be simply taking existing Paraho technology, which has been successfully demonstrated on a semi-work scale, and scaling it up approximately 30 times to a full-size vessel."

Salt Lake Tribune Business

Mines—Markets—Finance

Thursday Morning
June 19, 1980

Section B Page 15

Tosco Pursues Oil Shale Plans in Utah

Tosco Corp., Los Angeles, said Wednesday it is going ahead with plans for development of its Sand Wash oil shale unit in eastern Utah even though the Department of Energy has decided not to participate in funding.

Tosco said the deal washed out because the two could not come to terms on protecting of Tosco's proprietary oil shale retorting technology.

The Tosco process was developed over 15 years with Tosco funds. It involves the tumbling of heated ceramic balls in rotating kilns of crushed shale to recover the kerogen content of the shale.

Tosco said Wednesday it will go ahead with final design engineering and environmental impact statement work leading to construction of a commercial oil shale plant.

The Sand Wash property, near Vernal, is on 15,000 acres of oil shale deposits leased from the state of Utah.

The DOE said although Tosco's proposal was the highest rated technically, the two could not reach an acceptable business arrangement.

"Tosco's current plans are such that development of the Sand Wash project will not be impeded by the DOE decision," commented John D. Lyon, executive vice president of Tosco's Oil Shale Division.

Report says oil shale refining too expensive

Public subsidies will be needed to launch an industry capable of extracting as little as 200,000 barrels a day of liquid fuel from Western oil shales, a congressional synthetic fuels study concluded Monday.

The Congressional Office of Technology Assessment, in a 517-page report to the Senate Energy and Natural Resources Committee, said the marketability of shale oil, which hinges somewhat on substained oil price increases, could be a potentially fatal constraint.

The report said a 400,000-barrel-a-day oil shale industry could be created by 1990 with existing technology and without additional leasing of federal lands. But it said the effort would create social and economic problems for sparsley settled western shale states unless more is done to resolve them in advance.

"Utah and Colorado, with most of the nation's oil shale reserves, are looking at the business end of a very large federal cannon, loaded with billions for synthetic fuels development," Sen. Orrin Hatch, R-Utah, said. "This report lends credence to the fears that some of us in the West have regarded the inherent dangers of any crash federal programs to develop Western lands."

House-Senate conferees agreed last week on a $20 billion program to create a synfuels industry.

The technology assessment reported:

—"To establish a 200,000 barrerl per day or larger industry within 10 years would require financial incentives. The most effective would be production tax credits, purchase agreements and prices supports."

—A 400,000-barrel industry could be built with subsidies but without extensive federal land leasing around two currently active private projects, three suspended ones and one new project on private lands. It might cut the annual U.S. oil import bill—expected to hit $90 billion this year—by $4 billion or more.

—"To produce 1 million barrels per day by 1990 would require leasing, land exchanges, and substantially greater subsidies" and could result in a $10 billion reduction.

A 400,000-barrel-a-day project could cost $14 billion to complete by 1990.

"A 15 percent real rate of return, which is a higher rate than used for more conventional investments, would increase the price of shale oil syncrude by $14 billion to $62 a barrel making it noncompetitive without subsidy with the prices forecast for foreign oil," the report said.

Eighty percent of the richest oil shale is on federal lands.

POISON EMERGENCIES .....
1-800-622-4225
UTAH LEGAL SERVICES (Low income non-criminal help). 1-800-662-4245

(Courtesy of Frontier Airlines)

Thursday, July 10, 1980

Paraho oil shale module near Bonanza gains 10 sponsors

Ten major energy companies have become industry sponsors for the commercial-size Paraho oil shale module design and demonstration plan recently awarded to Paraho Development Corporation by the Department of Energy (DOE) to be located in Uintah County about 40 miles southeast of Vernal.

The companies are Chevron Research Company (Standard Oil of California), Conoco, Inc., Devy McKee Corporation, Mobil Research & Development Corporation, Mono Power Company (Southern California Edison), Phillips Petroleum Company, Sohio Shale Oil Company (Standard Oil of Ohio), Sunoco Energy Development Co., Texas Eastern Synfuels, Inc., and The Cleveland-Cliffs Iron Company.

Phase I work has begun and will cntinue for 18 months at a cost of about $9 million. During this time the planning, design, and cost estimates for the construction and operation of a single, above ground, commercial-size Paraho oil shale retort, a mine, and the supporting facilities will be completed. This will be followed by a Paraho proposal to construct the plant at a cost of around $200 million which will utilize the provisions of the new Synthetic Fuels Act. Operation at the beginning of 1984 is anticipated.

This Paraho module will process about 18,000 tons of oil shale per day, producing over 10,000 barrels of crude shale oil plus a product gas which will be used for the generation of electricity. Expansion of this facility to 30,000 barrels per day of shale oil production is under consideration and may become the subject of a separate study.

Commercial-size modules represent he next logical step in the development f the vast oil shale resources of the United States and of the rest of the world," Harry Pforzheimer, Jr., President and Chief Executive Officer of Paraho said. "Paraho's technology has been demonstrated to be environmentally acceptable and operationally viable on a semi-works scale.

"Economic projections to a full size commercial plant, incorporating a 75% guaranteed loan is provided in the new energy legislation, produce attractive rates of return assuming no cost overruns during construction, start-up on schedule, followed by continuous operation."

"Paraho's successful demonstration of a combination of attractive economics and good operability in commercial-size equipment should result in the construction of more oil shale plants and the attainment of this country's national shale oil production goals provided we can get on with the job without further delay," Pforzheimer said.

Paraho has produced over 4,600,000 gallons of crude shale oil utilizing its patented technolgy at the Anvil Points Facility near Rifle, Colorado. John B. Jones, Jr., inventor of the Paraho technology said, "We want to continue our research at Anvil Points which we lease from DOE. However, the commercial size Paraho oil shale module will be sited on Paraho's Utah State lease situated 40 miles southeat of Vernal."

Paraho has developed a working team of project subcontractors for the module project. The team consists of The Standard Oil Company of Ohio (SOHIO), The Cleveland-Cliffs Iron Company, Davy McKee Corporation, VTN Consolidated, Inc., AeroVironment, Incorporated, and Woodward-Clyde Consultants. Under Paraho's management, this project team will be responsible for performing the scope of work indicated in the DOE agreement. Sohio will be Paraho's primary subcontractor.

Oil shale is a sedimentary rock containing the solid hydrocarbon known as kerogen. This rock is mined and crushed before processing by Paraho. The retort heats the shale to 900° Fahrenheit, causing the kerogen to break down into oil vapers, gases, and carbon. When cooled, the vapors form an oil mist.

The mist is collected and separated, producing oil for refining and a useable gas for generating electicity. Some of the carbon is burned to fuel the Paraho process and some is gasified increasing the production of useable gas and the thermal efficiency of the Paraho process.

Paraho shale oil has been refined successfully in commercial equipment under programs sponsored by the U.S. Navy. The resulting jet fuels, diesel fuels, gasoline, and heavy fuel oil have all been thoroughly tested in the laboratory and in full size mobil equipment.

Approximately two trillion barrels of shale oil exist in the tri-state area of Colorado, Utah and Wyoming. The Department of Interior has reported the 600 billion barrels of this oil are recoverable with present technology. This is more than the proven reserves of natural crude oil in the entire world.

Vernal, Express 24 July 1980

Utah development director tells of community impacts

Utah is committed to support the Uintah County energy development area and give support to companies involved in energy development," said Reid Searle, Utah Director of Economic and Community Development at last weeks Vernal Area Chamber of Commerce meeting.

Searle named six companies that have oil shale, tar sands and energy projects in Uintah County. They are White River Shale Project, Tosco, Inc., Paraho Development Corp., Geokinetics, Inc., Sohio, and Deseret Generation and Transmission Cooperative.

All of the energy projects will probably not go, but if two or three do it will cause impact in the area, Searle said. The state will see that the necessary permits are available and give all the help possible to companies coming into the state to develop energy resources.

The Uintah Basin area could increase from its 30,000 population to 70,000 in ten years, if the proposed developments materialize. This growth can bring benefits as well as problems, Searle explained. The benefits will provide more services, buildings and retail shopping outlets. The problems include zoning and building regulation enforcement and inadequate utility facilities.

To succeed in accommodating rapid growth, good planning is necessary, and community leaders must take issues in hand and keep the area a nice place to live, Searle said.

More outside money is necessary in growth areas, Searle pointed out. As population increased outside the taxing area state and federal funds must be used. Community impact funds and new community development funds are available usually on a matching basis from the federal government. If federal funds are received, a program manager not directly attached to any entity is necessary, Searle pointed out. State committments are needed if HUD funds are secured.

Searle said the state cannot share tax revenues with local governments and this is why an amendment is needed to help state and counties share tax monies with cities where needed in impacted areas. A Legislature bill also needs to be passed that will give matching funds to areas that need community development because of rapid population growth.

Good community planning must include the federal government, state and all available agencies cooperating hand in hand to come up with solutions to growth problems and assure a good quality of community life. The state energy office is here to offer any type of assistance the state can to help solve the pressing growth problems or impact the growth may cause, Searle concluded.

aug 24 '80
page 17

Interior may ask for industry interest in oil shale leasing

By Helene C. Monberg

Washington--The Interior Department may call on the oil shale industry later this month for expressions of interest in special technology, Jeff Zabler of Interior's oil shale task force said here in a weekend interview. The task force was established on June 17 to gear up for oil shale leasing.

"We haven't made a final decision on this yet, but we are considering asking industry for its expressions of interest in special technology" for which oil shale tracts may be leased, he stated. "We are thinking about doing it later this month."

Oil from shale can be recovered in several ways, including retorting on site, or the in situ method, modified in situ, surface and underground mining and later processing. Interior wants to know what special technologies industry would like to pursue prior to issuing a call for nominations of oil shale lands to be put up for lease.

Such a call for industry interest in technology will have to be done soon because the task force is tentatively planning to call for nominations of federal tracts to be leased in January, Zabler stated.

Interior hopes to finish a number of studies on oil shale leasing by Oct. 1. On that date they are to be presented to Under Secretary James A. Joseph, who will determine when and if Interior will resume its oil shale test leasing program.

Zabler said meetings will be held on the criteria to be used for tract selection in the West soon, in Salt Lake City, Aug. 25, and in Denver, on Aug. 28. This is a necessary preliminary to making a delineation of the tracts to be leased and a preparation of an enviornmental impact statement on the leasing program.

Interior is looking at two leasing programs, a resumption of the prototype program under which four federal leases were sold in 1974, two each in Colorado and Utah; and a permanent program for oil shale leasing which might occur in the 1982-1983 time period.

For a variety of reasons, there has never been a permanent oil shale leasing program in this country since oil shale became a leasable mineral in 1920 under the Mineral Leasing Act.

Zabler underscored a couple of points in the interview, which clearly was based on the expectation that Interior will get on with oil shale leasing, although this decision has not been made yet, officially.

He said Interior would continue to seek public participation in what stipulations local areas want in leases. These stipulations could, of course, bind the industry to do certain things primarily to lessen the impacts of oil shale development on local communities.

If the stipulations were onerous, they would undoubtedly affect the interest of industry in leasing and the amount of the bids. A meeting of the group working on lease terms, conditions, procedures and stipulations will be held in Salt Lake City on Aug. 18.

Interior is thinking of notifying all government agencies of its activities in oil shale concerning both prototype and long-term leasing. Among the agencies which would be most helpful in getting their programs to dovetail with Interior's oil shale leasing plans are the Departments of Housing and Urban Affairs, Education, and Health and Human Resources, and the Farmers Home Administration in the U.S. Department of Agriculture, Zabler said.

"We don't have the authority by law to become a coordinating agency and we don't have the personnel to carry out such a program, but we can and should let the other government departments know what we are planning," Zabler stated. He noted energy impact aid at the present time is limited to a small program in coal and uranium developments, and that the program does not cover oil shale.

Interior has some authority to extend impact aid to affected communities under the 1976 Organic Act for the Bureau of Land Management, but it has never been implemented, Zabler observed.

Careful coordination of leasing terms could help mitigate local problems, according to Zabler. He gave as an example a provision in Interior's proposals on oil shale legislation which would allow a company to get an additional lease when it had only 10 years left on its initial oil shale lease.

"The big advantage to that provision is that it would avoid the boom-bust cycle, and it would allow a company to keep a permanent labor force. It wouldn't have to shift it all over the place," he said. Reps. Gunn McKay, D-Utah, and Dan Marriott, R-Utah, have introduced this legislation in Congress as HR 6882. No action has been taken on it as yet, however. It contains other legislative changes sought by Interior, including larger lease tracts, and permitting the leasing of additional land for siting oil shale facilities and for disposal of spent shale.

NO. 574 Dept 4/1100

Udall moves ahead on oil shale bill despite protests

(Special for the Vernal Express)
By Helene C. Monberg

Washington—Despite protests of Rep. Patricia Schroeder, D-Colo., that environmental organizations did not have an opportunity to testify on the new oil shale legislation, Chairman Morris K. Udall, D-Colo., has scheduled mark-up of the bill for the coming week in his House Interior Committee.

Udall has, in effect, overruled her protest in the interest of getting the bill thru the Senate and House this year. He has also put his own reputation behind the bill by reintroducing it as a clean bill as chief sponsor on Aug. 18. The House Mining Subcommittee reported it out on July 31.

Co-sponsors on the bill include Subcommittee Chairman Jim Santini, D-Nev., and Reps. Dan Marriott, R-Utah, Richard B. Cheney, R-Wyo., Gunn McKay, D-Utah, and Ray Kogovsek, D-Colo. The bill authroizes the Secretary of Interior to issue additional leases to those holding federal prototype leases to use for the building of plants and for disposal of oil shale waste, including spent shale.

The additional land to be leased would be adjacent to the present leased lands. Interior Department witnesses testified time is of the essence in getting such legislation passed this year if work is to proceed on the two Colorado oil shale leases, both issued for 1974 under Interior's prototype program.

Mrs. Schroeder received copies of letters from half a dozen organizations asking to be advised of any hearing on oil shale. Some wanted to testify. Most of the letters were addressed to Udall and to Sen. Henry M. Jackson, D-Wash., as chairman of the Senate Energy Committee, with copies going to Mrs. Schroeder. She had to put a provision in the 1976 BLM Organic Act prohibiting the issuance of extra leases for disposal of spent shale and plant construction.

Among those who sought notice of the hearings included Southern Utah residents concerned about the Environment (SOURCE) of Cedar City, Utah, and the following Colorado organizations: the Environmental Defense Fund, The Colorado Department of Local Affairs—Western Colorado Office, the Rocky Mountain Chapter of the Sierra Club, the Wilderness Workshop of the Colorado Open Space Council, and the Two Rivers Citizens Association headquartered at Grand Junction. All of the letters were sent in June or July.

Santini scheduled a hurry-up hearing on the oil shale legislation sought by the Interior Department on July 31 and his Subcommittee reported out a bill the same day. Only Interior Department witnesses were heard, with brief testimony from spokesman from companies involved in Oil Shale Lease Tracts C-a and C-b in the prototype program. No other witnesses were scheduled or, according to the Subcommittee, requested to be heard.

Mrs. Schroeder hit the roof when she discovered in early August that the Santini panel had reported out an oil shale bill without hearing any of the environmental groups who have asked to be heard. She said her office had been told that none asked to be heard, and "my subsequent research suggests this is not the case." She enclosed a half dozen attached letters to prove her point; in a letter to Udall that she wrote on Aug. 5.

"In light of the above, I would respectfully request that consideration of this legislation by the House Interior Committee be delayed until arguments from both sides of the issue can be heard by the Committee. As the proposed legislation would have a large impact on oil shale development in Colorado, I think the possibility of holding field hearings might be explored," Mrs. Schroeder wrote to Udall.

A careful check of what happened by this correspondent during the past week thru inquiries of staff of the full Committee, the Subcommittee and the Schroeder office indicates that the full Committee staff bucked the correspondence to the Santini Subcommittee.

The Subcommittee staff, currently short-staffed because of the resignation of one staffer, L. Courland Lee, and the phasing out of another, Will Dare, paid no attention to the requests.

This was clearly a lapse by the Subcommittee staff, but under reorganization Udall has little or no control over Subcommittee staffs. That's the perogative of the Subcommittee Chairman.

Udall did have authority to hold up consideration of the legislation until the environmentalists could be heard. After discussions with the full Committee staff, he decided not to hold up the bill, of which he is now the principal sponsor.

With only five weeks left in the Congressional session and with Interior Departmental specilaists on oil shale pushing hard for swift action, Udall decided that there was no time to hold additional hearings. He knows he will take flak from environmentalists on it, but he thought the outcome on reporting out the bill would be the same as it was on July 31. So he overruled the protests.

Sept. 11-80
Page 27

Senate hearings held on Sen. Hart's oil shale bill

(Special to the Vernal Express)
By Helene C. Monberg

Washintgon—The Senate Energy Supply Subcommittee headed by Sen. Wendell Ford, D-Ky., held hearings on Sept. 9 on a bill by Sen. Gary Hart, D-Colo., to speed oil shale development particularly on Colorado prototype tracts Ca and Cb in Rio Blanco County.

Meanwhile, House action on a similar bill has been delayed by Rep. Patricia Schroeder, D-Colo., because the House Mining Subcommittee did not permit environmental witnesses to testify at a hearing on a similar bill on July 31. Chairman Morris K. Udall, D-Ariz., of the House Interior Committee had hoped to bring up the bill on suspension of the rules on Sept. 8. Mrs. Schroeder complained to the Speaker, Rep. Thomas P. (Tip) O'Neill, D-Mass., that several of her constitutents had not had an opportunity to be heard, and the bill was taken off suspension.

In her letters to Udall and O'Neill on Sept. 2, Mrs. Schroeder stated: "On Aug. 26 the House Interior Committee ordered HR 7941 to be reported. Passage of this legislation will have a conspicuous impact on the development of oil shale in Colorado. The consequences of this development should not be taken lightly.

"Today I am writing to ask that consideration of HR 7941 by the full House be delayed until the transcripts of the Sept. 9 Senate hearing on a similar bill become available. As you know, environmental groups were inadvertently excluded from testifying on this legislation on the House side. I am simply asking that the House refrain from acting on this measure until a full hearing on the issue has been held," Mrs. Schroeder stated in her letter to Udall and to O'Neill.

Whether Udall will try to take up the House measure, of which he is now co-sponsor, on the next suspension of the rules on Sept. 22 in the House will depend on how soon the Senate hearing transcripts become available. Several environmental groups requested to be heard on oil shale legislation before the House Mining Subcommittee. Their requests were disregarded. This was a mistake by staff of the House Mining Subcommittee which could cost the bill Congressional approval this year.

Both the bill by Hart and the bill approved by the House Interior Committee provide for off-site disposal of spent shale and for off-site construction of shale oil retorting and processing plants and other facilities, so that they do not have to be build on the rich oil shale lease tracts.

Both bills apply ONLY to the prototype lease program launched by Interior in 1974 on which only two tracts were leased in Colorado and two in Utah. So it is a very limited bill. It does not include the many features that the Interior Department wants changed to move shale oil development forward.

Kevin Markey of Friends of the Earth in Denver is highly concerned about the legislation, however. He has called this correspondent and several Congressional offices to protest it. His concern is bottomed on the very likely possibility that some effort will be made to broaden the bills to include the Administration oil shale legislative recommendations, on which no hearings have been held at this point except for the shirt-tailed hearing of the House Mining Subcommittee on July 31. Because of the sweeping nature of the Administration recommendations, it is unlikely that either the House or Senate would approve of broader legislation without a thorough set of hearings in both the Senate Energy Committee and the House Interior Committee. But that is the concern of environmentalists, they have informed Members of Congress from Colorado and Utah and this correspondent.

In addition to allowing for additional leases of public land to dispose of spent shale and to site plants for shale oil development, the Administration wants to increase the size of lease tracts from the present limit of 5,120 acres per least tract, at the discretion of the Secretary of Interior. It wants to lease four more tracts under the proto-type program begun in 1974.

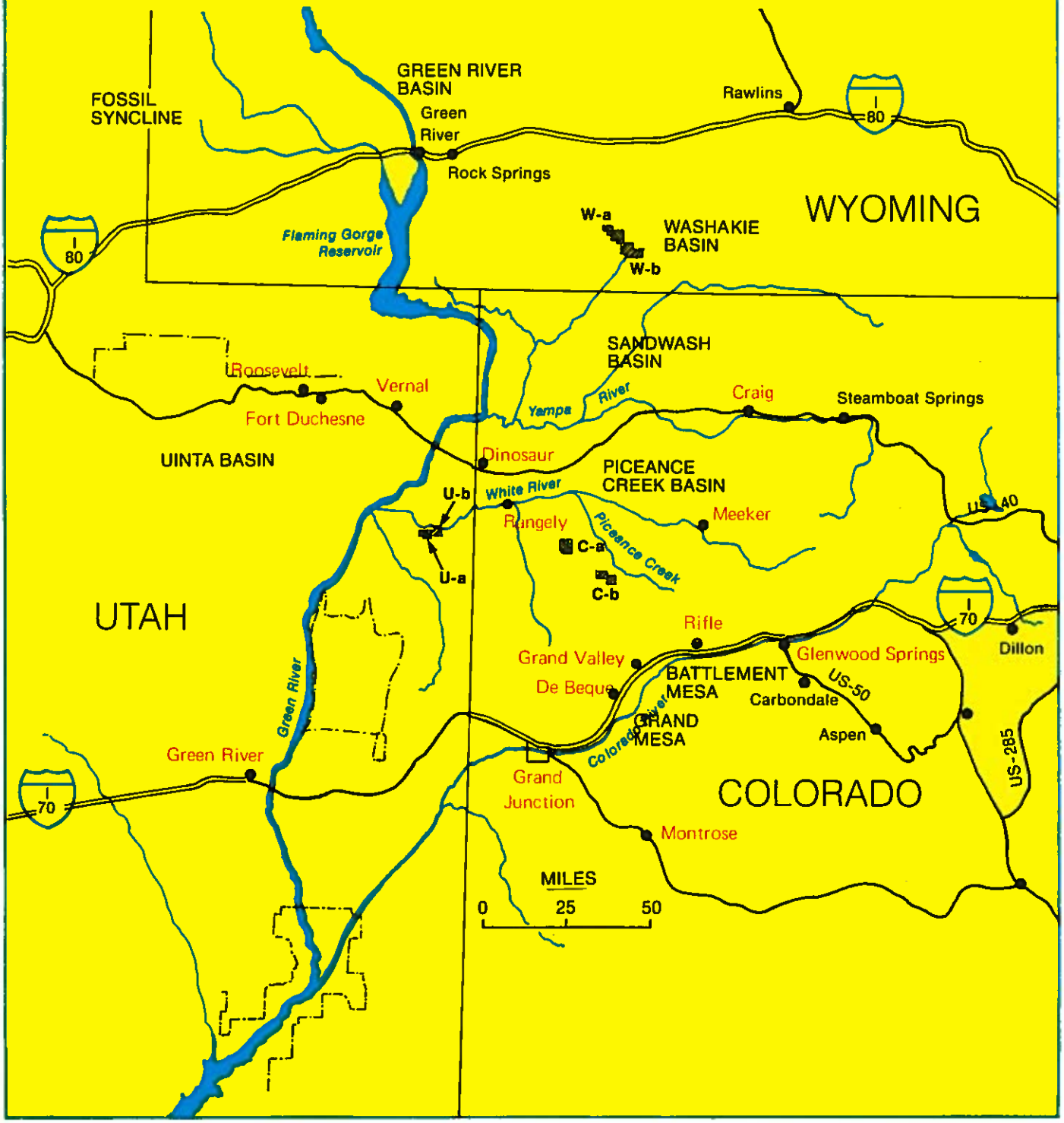
The Administration wants to increase the number of leases that any lessee can hold to two per state and four total; the limit is now one. It wants authority to enter into multi-mineral leases in the Piceance Creek Basin in western Colorado—it thinks it already has such authority, but others question this. And it wants other changes in the law relative to ownership of a leasehold.

Hart's bill was the only one considered at the Sept. 9 hearing because Sen. Orrin Hatch , R-Utah, never got around to introducing a separate bill, as he had earlier planned to do.

Hart claims that he "welcomes" an oil shale industry totalling 400,000-500,000 barrels of shale oil a day by 1990. He said he had not received any real opposition to his oil shale bill, and that environmentalists are accepting a 500,000 barrel-a-day shale oil industry by 1990 as "a necessary evil." He said he regarded their acceptance as "a watershed statement" at recent hearings he held in Rifle as chairman of a synthetic fuels task force.

Shale Country Communities

The Green River formation, a 16,500-square-mile area covering the connecting borders of Colorado, Utah and Wyoming, is the site of America's largest oil-shale deposit. For the people living in this region, the development of energy resources—not only oil shale, but also coal and uranium— could mean social and economic transformation in an area that has seen little change during the past years. As attention focuses on this region, many of its communities are in the limelight, and places such as Grand Junction, Colo., and Vernal, Utah, are becoming familiar nationwide. This map shows some of the key communities in the area: Rangely, Rifle, Meeker, Glenwood Springs, Roosevelt and Fort Duchesne, and some of the key shale projects, such as the federal lease tracts (C-a, C-b, U-a, U-b).



#82

Roundup

Shale oil official wary of more regulatory groups

By George Ferguson
Associate business editor

Shale oil developers would take a dim view of new Utah energy siting legislation that would require the creation of new state and/or local regulatory agencies.

R. Glenn Vawter, senior vice president of Tosco Corp., says such legislation would inevitably duplicate existing environmental and regulatory functions and increase costs to taxpayers and affected industries.

The Facility Siting Subcommittee of the Utah Energy and Development Council is finalizing recommendations for legislation to be presented to the next state Legislature.

James M. Byrne, director of the Utah Energy Office, said a draft will be sent to council members and other interested parties Friday, and the proposed legislation will be reviewed at the council's next regular meeting, July 6.

Vawter also is vice chairman of the Committee on Oil Shale for the Rocky Mountain Oil and Gas Association. Tosco was heavily involved in development and commercialization of oil shale facilities at the Colony Project in Colorado — a project its partner, Exxon USA, pulled out of.

Tosco, however, still is involved in the Sand Wash Oil Shale Project in Uintah County. Vawter also is chairman of the Utah Oil Shale Legislative Subcommittee for RMOGA. He noted that the committee represents 27 petroleum and mining companies directly or indirectly involved in oil shale, tar sands, and other aspects of the synthetic fuels industry.

"We believe the state of Utah and its political subdivisions have a justifiable and legitimate interest in the planning, development and regulation of new oil shale facilities. But we strongly recommend that the council consider and do what it can to facilitate the time and orderly development of oil shale through the existing regulatory framework," Vawter said.

He said the Committee on Oil Shale would not favor new legislative and/or administrative regulations that would impair the ability of private industry to perform its proper role in the planning and decision-making processes associated with the oil shale industry.

Vawter said the committee favors:

— Any administrative and/or legislative assistance available to aid the oil shale industry in facilitating advanced planning regarding Utah's environmental controls. Also favored would be assistance in preparing for the important task of analyzing and mitigating socio-economic impacts.

— A permanent system of coordinated review of the numerous permits, licenses and other applications presently required by the federal, state and local governments.

— Continued involvement of affected local government organizations in appropriate ways during the review process.

The Energy and Development Council has heard testimony from the heads of energy siting agencies in Washington and Wyoming. Washington was the first state to enact a siting law.

Vawter noted that while Utah has not adopted siting legislation, the state has reacted to environmental concerns through the enactment of statutes and promulgation of regulations. He said they require application for and award of comprehensive permits prior to commencement of construction of industrial facilities.

"Thus in the areas of air quality, water quality, mined land reclamation and many others, Utah requires that industrial facilities be both sited and constructed so as to minimize adverse environmental impacts," he said.

"Utah has similarly reacted to socio-economic concerns. SB 170, which was passed by the 1981 Utah Legislature, requires all proposed major industrial facilities to prepare and file with all affected units of government, a statement assessing the socio-economic impacts associated with the project, as well as a plan for mitigating these impacts.

"Although not termed facility siting, these existing laws and regulations are designed to perform the same functions and to achieve the same goals."

He said most state siting laws contain five major ingredients: 1) a notice of intent to construct industrial facilities; 2) determination of need for such facilities; 3) defining the roles of state and local governments in approving and monitoring such facilities; 4) establishing the public participation process, and 5) performing the monitoring function.

with a variety of national brand products as well as an assortment of private label items.

The company also offers affiliated retailers a wide range of support services which include advertising and marketing services, store development, and electronic store services.

In 1981, Fleming's net sales were $3.4 billion.

Vernal Express

Uintah County, Utah, Thursday, October 5, 1944 No. 40

nited War Fund rive Gets Under ay in Uintah

The United War Fund drive Uintah County opened this ek and will extend until Oc- ber 14th. W. S. Henderson, unty chairman, announces that er 50 per cent of the total ount collected during the ive goes to the USO and vari- s servicemen's organizations d the American Prisoners War nd. The balance goes to suf- ring humanity in allied terri- ries.

Besides Mr. Henderson, Mrs. argaret S. Witbeck is first vice airman; Marguerite M. Colton second vice chairman; M. O. swell, third vice chairman, d Frank Slaugh, secretary and easurer.

Precinct workers include Ar- th Huber, Lapoint; Ethel Good- ch, Tridell; Florence Marimon, hiterocks; Nellie Whitlock of eeton; Mrs. Azel Seeley, Bal- rd; Mrs. E. W. Kronquist, Ft. uchesne; Mildred Bachelor and osephine Taylor, Randlett; Mrs. larold Dudley, Avalon and Le- ta; Hazel Wardle, Ouray; Doris froome, Willows.

Muriel Remington, Glines; El- a Stringham, Maeser; Maude hacker, Mt. Dell; Irma Collett, shley; May Nickell, Naples; Mrs. Nathan Chivers, Davis; Mrs. W. C. Haven, American line, L. D. Barry, Barber As- phalt, Bonanza; Mrs. Ray Kim- ball, Gusher; Iras White, Tess Siddoway, Mrs. Marvin Smith, Louise Kimball, Vernal, repre- senting the American Legion Auxiliary, Lady Lions, Interme- diate and Senior Current Topics Clubs.

Maeser Couple Have Four in U. S. Service

Mr. and Mrs. John N. Massey of Measer have three sons and one daughter now serving in the armed forces: Enid Massey, sea- man second class, WAVES; Sgt. Norval Massey, now in France, T-Sgt. Garth Massey, in India and Burnell Massey, now in England.

Miss Massey enlisted in the WAVES in May and was assign- ed to Hunter College, Brooklyn, New York for her boot training She was then transferred to Cor- onado Island, San Diego, Calif- ornia. At the time of her inlist- ment she was employed at Eitel- McCullough Co. in Salt Lake. She attended the Uintah High School, and graduated with the class of 1941.

Sgt Norval Massey arrived in France shortly after D-Day with the combat engineers. His mil- tary record dates back to March, 1941, when he entered service with the National Guard. He was first stationed at San Luis,

8,631 Cans Processed at Local Center

Large Supply Does Not Include School Lunch Project

There have been 8,631 cans of food prepared by private parties since the canning center opened last May, according to Doyle Y. Landon, director of Food Produc- tion War Training Program here. This figure does not include the much larger number of cans put up under the school lunch pro- gram, which has been operating daily until 5:00 p. m.

A feature of the Wartime Emergency Adult Education pro- gram, the cannery was set up pri- marily to illustrate the best methods of food processing and conservation for farm families, but it is also available for use to everybody in the community. Mr. Landon explained that the federal government appropriat- ed the money for needed equip- ment so that classes in budget- ing, producing, and conservation of food for rural families can be carried on successfully. Most of the machinery was purchased through this program, with the school lunch providing some. Albian Anderson, maintenance supervisor for the Uintah Coun- ty schol district, set up the can- ning apparatus.

A visit to the cannery, which is located in the old Central school building, indicated that the plant is operating efficient- ly to preserve food for the com- munity. The produce is first put in a washing vat, after which it is put in the blanching vat and steamed. From there it goes into the cans, where salt or other seasoning is added. The cans are then placed on an endless belt which carries them through an exhaust box, about twenty feet long and one foot square, which steams the cans to the proper sealing temperature, 170 degrees Fahrenheit. The cans are next put in the large retorts, or pres- sure cookers, where they remain, at various pressures and for dif- ferent lengths of time, depending on the produce. The last step in the process is to place the hot cans in a cooling tank of water.

The plant operates regularly three times weekly, Monday, Wednesday and Friday,. with seven supervisors who direct ac- tivities. These are Mrs. Eugene Tuckett, Mrs. Evlyn Richardson, Mrs. LaBerl Gutzman, Mrs. James, Robert Aycock, Charles T. Pope, and Arnold Perry. Mrs.

(Continued on Page Four)

Will Haslem Dies At Veterans' Hospital on Coast

JENSEN (Special)—Wm. Has- lem, 56, of Beverly Hills, Calif., died Tuesday at a veteran's hos- pital in West Los Angeles, result- ing from an illness of cancer of the stomach.

Mr. Haslem, a sergeant on the Beverly Hills police force, was born at Coalville, Utah, July 17, 1888, a son of Sam and Margaret Hoffman Haslem. He came to the Uintah Basin at an early age. He attended elementary schools here and was also a student of the Wilcox Academy. His family resided at Jensen where Mr. Haslem's mother now resides.

When a young man he was employed on a cattle ranch in Carbon County, Wyo. and when World War I was declared he was one of the first to enlist from that county. He held the rating of first sergeant at the time of his discharge.

Eighteen years ago Mr. Has- lem moved to California. For 16 years he has been on the Beverly Hills police force. Each summer during the 18 years he has spent his vacations in Vernal and Jen- sen.

In May he became critically ill and was taken to the veter- an's hospital for an operation.

Besides his widow, Mary E. Haslem, he is survived by his mother, four brothers and four sisters, Melvin of Stearfish, S. D.; Joe, John and Clyde of Jensen, Mrs. F. W. Brown of Kansas City, Mo.; Mrs. Allen Pearce of Meeker; Mrs. Blanch Wilkins of Jensen and Elsie of Vernal.

Funeral services were held on Wednesday with burial at the Sawtelle National cemetery.

Meat Cutting Demonstration To be Given Here

Byron Fisher, local processer, will conduct a meat cutting dem- onstration at the community can- nery, located in the old Central School building, on Friday even- ing, October 13th at 6:30 p.m., according to Doyle Y. Landon. The purpose of this demonstra- tion is to show how meat is cut which is going to be canned. Mr Fisher will give a complete demonstration which will in- clude the cutting of meat and poultry, preparing it for the can, and processing it by steam after it is canned.

The general public is invited to attend this demonstration and especially those are urged to at- tend who plan on canning either beef or venison in the commun- ity canning plant. Mr. Fisher has had considerable experience in meat canning as well as cut- ting.

Shale Plant May Come to Eastern Utah

Government Survey Of Shale Areas Is Now Under Way

WASHINGTON— Intimation is strongly conveyed in a state- ment issued by Secy. Ikes recent- ly that the projected govern- ment plant for testing methods of extracting oil and gasoline from shale will be established in the Colorado-Utah area; the two plants to experiment with extraction of oil from coal and from lumber wastes will go else- where, one probably to Wyoming and the other to West Virginia.

The secretary announced that the bureau of mines is about to send engineering parties into the field to examine each of 150 sites that have been offered or pro- posed. The first party has al- ready gone into Colorado and set up headquarters.

Of this investigation the secre- tary said:

"A preliminary survey for an oil shale demonstration plant site already is being conducted in the Colorado-Utah area. Bureau engineers have established a headquarters office at Rifle, Colorado, and are now examin- ing the 25-mile area between Rifle and Debeque, known as the Pleance Creek basin.

"This region was chosen for the initial survey, because larger areas already are government owned.

"The Pleance Creek basin in- cludes naval oil shale reserves Nos. 2 and 3. Shales of the basin are in the green river formation which contains about 80 per cent of the estimated recoverable shale oil of the United States."

The secretary made clear that only one plant will experiment with oil shale.

For the record the secretary says:

"The actual locations will be determined by such factors as oil yields and processing proper- ties of raw materials in the area, cost and topography of the land, proximity of towns or cities and housing facilities, nearness of industries offering needed ser- vice, climatic conditions and the availability of transportation, el- ectric power, water, steam and natural gas.

The field surveys to check these factors will follow a care- ful study of available laboratory information and an exhaustive examination of the briefs and ex- hibits presented in support of various site suggestions.

Application to be

Potpourri

Shale's many uses, many studies

Just about everything you've always wanted to know about shale country's air trace elements, groundwater, flora and fauna, geology, soils, archaeology, paleontology, scenic sites . . . as well as the shale industry's proposed corridors, water supply systems, offsite development support facilities . . . have been the subject of study after environmental study by industry researchers. The problem in the past, however, often has been—who studied what and when?

Now the answers are readily apparent in a new report just prepared and released by the Environmental Subcommittee of the Rocky Mountain Oil and Gas Assn. Oil Shale Committee.

The report, entitled "Summary of Industry Oil Shale Environmental Studies," presents a guide both to environmental programs currently underway or completed, and to programs planned or intended but not currently underway. Even better, these programs are categorized carefully in the report by environmental topic and by the company/venture that sponsored the study.

In addition, the report contains a bibliography of these environmental studies. This provides author's name, title of the study, date of publication, and other reference information.

Copies of the report may be obtained from the Rocky Mountain Oil and Gas Assn., Oil Shale Committee, 950 Petroleum Club Building, Denver, Colo. 80202. There is no charge for the report.

What's shale good for?

Have you ever wondered how shale oil can be put to use? The answer is really fairly simple—it can be used however we want it to be used.

More specifically, although shale oil is an "unconventional" energy source, a "man-made, synthetic" resource compared to the crude oil made by nature, it will be used just as conventional sources of petroleum are used.

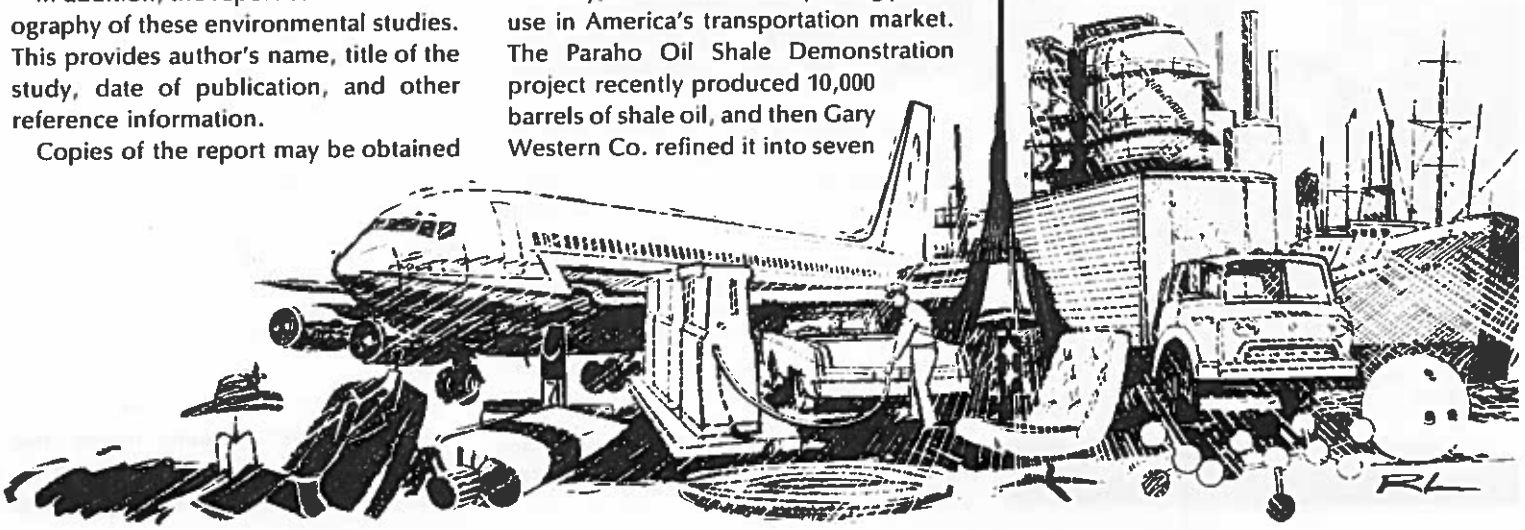
To review the energy consumption situation, five basic markets—transportation, industrial, residential, electric power production and commercial—are today served by five primary energy sources. These are: oil, natural gas, coal, water power and nuclear fission. About 45 percent of all the primary energy consumed in the U.S. presently is oil; and almost all of America's transportation fuel is oil.

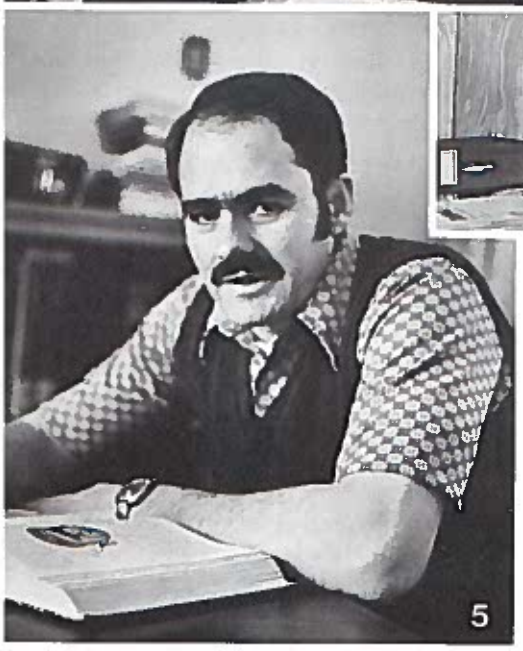
Today, shale oil is already being put to use in America's transportation market. The Paraho Oil Shale Demonstration project recently produced 10,000 barrels of shale oil, and then Gary Western Co. refined it into seven different fuels—three types of jet fuel, two types of diesel fuel, one type of lead-free gasoline, and one type of heavy fuel oil. All meet military specifications and are now being tested by various military branches as well as by NASA and the Energy Research & Development Administration.

And the gasoline is being tested right here in shale country, too. Harry Pforzheimer, Paraho program director, reports that his truck and other vehicles of Paraho employees have operated successfully on the lead-free gas made from the shale oil. For test purposes, each employee was given 10 gallons of the gas to use on his private vehicle.

Looking into the future, we can expect shale oil to be used to run vehicles, to power utility plants—and to serve as feedstock for numerous petroleum-based products, such as fertilizer or plastics or cosmetics or pharmaceuticals or foods . . .

How will we use shale oil? In short, the way we want to use it—so we gain the best cost/benefit tradeoff. *A. N.*





On the Meeker scene: (1) Antlers Hotel became the first courthouse around 1884; (2) Rio Blanco County Courthouse, built in 1935, is on Meeker's main street; (3) White River Museum Curator Dorothy Herring shows hand-type press that printed the first issue of the Meeker Herald in 1885; (4) Iva Kendall, museum staff assistant, stitches quilted pillow covers for furniture on display; (5) Russ McDaniel, mayor and Pioneers Hospital administrator, says Meeker townspeople want growth "to provide opportunity for their children"; (6) Bob King, Supt. of Schools, describes search for front-end money to fund needed school buildings as "perplexing problem."

Community Profile

Meeker: Old Town, New Problems

From soldiers in adobe barracks to oil-shale developers in hotel

Stop by the Meeker Hotel, and you will at once be in touch with the present and past of Meeker, Colo. The hotel dates back to the town's birth when soldiers built a military post in the area right after Ute Indians had ambushed U.S. troops and killed the region's unpopular government agent, Nathan Meeker, in 1879.

A regional planner wryly observes that the Meeker Massacre was the town's first try at controlling growth. But growth marched right on; today the city is home for 1,700 persons. And the Meeker Hotel often houses oil-shale developers; just southwest of Meeker is the heart of shale country, the Piceance Basin where the federal prototype oil-shale tracts C-a and C-b lie. Also, to the west are Superior Oil's oil-shale holdings of nearly 7,100 acres.

Dorothy Herring, the curator of Meeker's White River Museum, relates that Meeker was incorporated in 1885 and for many years was the only incorporated

Ninety-six cents out of every dollar goes for War expenditures. The other four cents goes for ... For Freedom's Sake

The Vernal Express

BACK UP YOUR BOY

Vol. LII — Vernal, Uintah County, Utah, Thursday, July 16, 1942 — No. [illegible]

Legion National Head to be Here for Meet

Col. J. D. Atwood To Speak at State Legion Meet Here

Jefferson D. Atwood, national vice commander of the American Legion, will be a speaker at the Utah Department convention to be held at Vernal August 6 and 7, according to George E. Larson, department commander. Vice Commander Atwood, attorney of Roswell, N. M., will be the principal speaker at a patriotic program and pageant to be given on the opening night of the convention.

A colonel in the army reserve, Mr. Atwood saw service on the Mexican border and in World War I as a captain, major and lieutenant colonel.

A highlight of the convention will be the inauguration of the American Legion's August Bond Harvest. A caravan made up of army jeeps, trucks, field pieces and light equipment from Fort Douglas will come to Vernal August 7 to aid in the state-wide bond drive. John M. Wallace, Salt Lake banker and former mayor of the capital city, is the chairman and will deliver the keynote address of the drive. Many of the inhabitants of the Uintah Basin will see Jeeps for the first time as the caravan makes stops in the principal centers along Highway 40 to Vernal.

The morning of the opening day of the convention will feature a display of the interesting attractions of the Great Uintah Basin, including the world-famous Dinosaur National Monument, Uinta mountains, Indian pictographs and ancient relics of the prehistoric inhabitants of this region. Interesting facts will be given on gilsonite, phosphate and the many untouched resources which abound in the Basin.

COL. J. D. ATWOOD . . . National vice commander of American Legion, will attend convention here in August.

The climax of the annual gathering of World War I veterans will be a Legion Frolic at Docs Porch with music by Uncle Ray's Kadoodlers.

More than one hundred reservations for hotel and cabin space have already been received by the housing committee, according to Charles D. Anderson, chairman. Plans are being made to take care of five hundred visitors. The two hotels and four auto camp courts accomodated almost this number who attended the District Lions convention in June.

With the Men in THE ARMED FORCES

Gus Hatch Stationed at San Diego Marine Base

Mr. and Mrs. Bus Hatch, former Vernalites now residing in Salt Lake received word from their son Gus, now training at the marine corps base at San Diego, stating that he was still with three other Vernal boys, Harold Winward, Dale Stewart, and Vernon Richards. The four boys left Salt Lake together enroute to the training base, and are still in the same platoon.

Gus is a graduate of the Uintah High School, and has been attending the University of Utah the past winter.

ROBERT F. LIVSEY . . . made secretary of Northern Utah District Lions Clubs.

Forest Employee Chosen Lions District Secretary

District Governor B. H. Stringham announces the appointment of Robert F. Livsey, administrative assistant at the Ashley National forest office, as district Lions secretary. Mr. Livsey is also secretary of the Vernal club.

Born December 21, 1907, Fort McKinley, Philippine Islands, Mr. Livsey spent the first fifteen years of his life in army camps throughout the Philippines, United States and Panama, to which his father, who was an army master sergeant, was assigned.

Mr. Livsey graduated from high school at Gadsden, Ala., in 1925. While in Alabama he was a member of the Alabama National guard band. In 1926 he graduated from the L D S business college at Salt Lake City. He was employed as bookkeeper-stenographer by W. H. Clark and Son, Salt Lake City stockbrokers, from 1927 to 1929, and was employed by Bamberger Electric railroad as secretary to the president from 1930 to 1932.

Mr. Livsey entered the forest Service in 1933. Prior to transfer from Moab to Vernal in 1936 he served on five national forests in Utah and Idaho.

Uintah Basin Parish Gets New Priests

Two Benedictine missionaries Rev. Wendelin Luetmer, O S B, and Rev. Blase Schumacher, O S B, of St. John's university and ab-

Ashley Reserve To be Opened For Deer Hunt

Large Increase in Deer Herds Make Possible Opening of Area

This year, for the first time since 1925, the Ashley game preserve will be opened for the hunting of buck deer during the regular season, according to an announcement by Henry Slaugh, local game warden, who attended a meeting of the state big game committee in Salt Lake last week end.

The game preserve, closed in March, 1925, will be declared open by the State Fish and Game department, said Mr. Slaugh, at the suggestion of the Ashley Forest Service, the sheep and cattle associations and the Vernal Gun Club.

Originally embracing a quarter million acres, the area was set aside as a refuge for the fast diminishing deer herds, said Forest Ranger Glen Lambert. The area extended from the farms on the fringe of the valley to the crest of the mountain on the north and from the top of Little Mountain on the west to Green River on the east. It included parts of Dry Fork, Taylor, Brush Creek and Diamond mountains. Taylor mountain was opened to hunting last year.

The original reserve has been reduced from time to time until at the present time there remains but 25 000 acres in the restricted area. This is included in the Diamond mountain grazing units.

The game control committee will also declare an open season on 200 female deer in an area on the north slope known as the Manila ranger district. This includes the Lewis Allen draw and the Greendale district.

Since the National Park service has restricted hunting in the Dinosaur National Monument, the game committee were of the opinion that this would provide ample

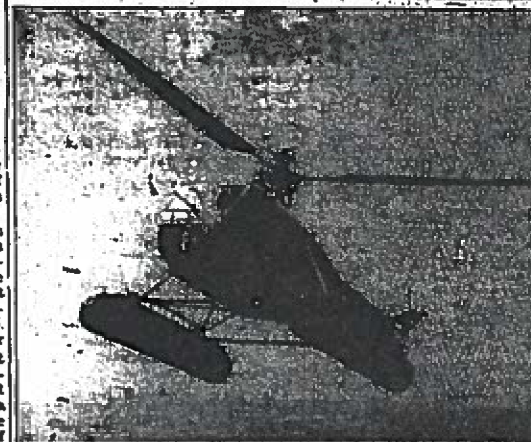
(Continued on page five)

Bennett - Lapoint To Hold 24th Celebration

Lapoint and Bennett will combine their talents at the Buckaroo Park, just three miles west of Lapoint on July 24th, for a Pioneer Day celebration featuring a pro-

Air Service for Vernal Is Post War Plan

Helicopter to Go Into Quantity Production



This Sikorsky type of helicopter, which will be built in quantity for the Army Air Forces by Nash-Kelvinator Corporation, peacetime manufacturer of automobiles and refrigerators, can alight on land, water, snow, thin ice, a rooftop or a parking lot. The craft can hover motionless in mid-air; descend and ascend vertically without forward motion and fly backward, sideways or forward with equal facility.

Motor Ways Would Serve Uintah Basin With Helicopter Fleet

Helicopters will whir through Uintah Basin skies after the war carrying freight, passengers and express if a petition filed Saturday at the capitol is granted by the public service commission.

Rio Grande Motor Way, Inc., the motor carrier subsidiary of the Denver & Rio Grande Western railroad, wants to serve 10 Utah cities with the sky craft as part of a network of operations auxiliary to bus and railroad lines in this state, Colorado and New Mexico.

A map attached to the petition showed that Ogden, Salt Lake City, Heber, Duchesne, Vernal, Provo, Price, Nephi, Mt. Pleasant and Marysville, as well as most of the principal cities of Colorado and New Mexico, would be on the air routes.

The petition said it is believed that helicopters or similar aircraft have been developed to the point where their operation would be practical, and although none can be obtained now, will be available after the war.

It was set forth that the air transportation would be coordinated with bus and rail routes in such a way that when bad weather or forced temporary discontinuance of helicopter schedules, the ground lines could take up the burden.

This is the first such application filed in Utah, although a number are pending in other states.

Applicant does not now own any aircraft, but has been assured aircraft necessary for its proposed operations will be available at the end of the war.

Applicant purposes to operate at least one daily round-trip schedule over the routes as soon as equipment, personnel and facilities are available and to operate such additional schedules as may be required to serve the public convenience.

The application sets forth that the railroad expects to co-ordinate its air-rail-bus services so passengers, mail baggage and express may be transferred from planes to trains or buses in event of bad flying weather or to transfer passengers and property from trains and buses to planes in event of washouts or other occurences interfering with ground travel.

U. S. Scans Utah Shale For Making Gasoline

WASHINGTON, July—A study is to be made during the summer by the senate committee on natural resources of the possibilities of producing gasoline from western coals and shales.

Representatives of the bureau of mines and other technical men of the government service will collaborate with the committee, of which Senator O'Mahoney of Wyoming is chairman and Senator Murdock a member. The Utah senator said Friday, after the western study had been agreed upon, that it is imperative that the United States develop new sources of gasoline supply, for the demand is mounting while the supply is rapidly diminishing.

Dr. Sayers, head of the bureau of mines, and Assistant Secretary of the Interior Chapman met with the senators Friday morning and were in sympathy with the investigation and impressed with the need for turning to coal and shale as a source of gasoline.

(Continued on page five)

Small Fires Reported on Ashley Forest

The Ashley National Forest has experienced three small fires during the past week. Two of these fires were caused by lightning and

21 Men to Report From County for

U. S. Scans Utah Shale For Making Gasoline

WASHINGTON July—A study is to be made during the summer by the senate committee on natural resources of the posibilities of producing gasoline from western coals and shales

Representatives of the bureau of mines and other technical men of the government service will collaborate with the committee of which Senator O'Mahoney of Wyoming is chairman and Senator Murdock a member The Utah senator said Friday, after the western study had been agreed upon, that it is imperative that the United States develop new sources of gasoline supply for the demand is mounting while the supply is rapidly diminishing

Dr Sayers head of the bureau of mines, and Assistant Secretary of the Interior Chapman met with the senators Friday morning and were in sympathy with the invest tigation and impressed with the need for turning to coal and shale as a source of gacoline

(Continued on page five)

U. S. Scans Utah Shale For Making Gasoline

(Continued from page one)

Two years ago, when this committee was west, Senator Murdock sought to direct their attention to gasoline possibilities in coal, but the committee at that time was not interested.

Since then however the war demand, plus studies and experiments conducted by the bureau of mines and other scientific men, have demonstrated not only the possibility, but the desirability of turning to coal and shale, both of which abound in Utah and Wyoming and shale in the Dakotas and several other western states Utah coal, under test, says the senator has produced as much as 70 gallons of gasoline to the ton.

The resources committee will open hearings in Washington the

first week in August, calling principally government experts to move to Pittsbourgh, center of the eastern coal and oil fields, and from there to Salt Lake.

Scientists from the Salt Lake mines bureau station from the University of Utah will testify as to experiments they have been conducting with coal and shale, and give the committee the benefit of their research. Senator Murdock believes that as a result of these hearings, a comprehensive proposal may be laid before congress in the fall looking to the launching of a new gasoline industry based on shale and coal.

April 22, 1945

Uintah Basin Oil Shale April 22 Tests Mulled

Uintah Basin oil shale deposits are being considered as a possible location for a field test of in-situ retorting processes, according to Senator Frank E. Moss (D-Utah).

In-situ retorting is a process whereby oil is recovered from underground shale deposits without using standard mining processes to bring the shale to the surface. In-situ, or in-place, retorting could involve methods which use extreme heat to melt the shale, allowing the kerogen to then be brought through pipes or other means to the surface.

"UTAH'S northeastern section, especially the Uintah Basin, has excellent deposits of oil shale which has been tested at 25 gallons per ton or better," Senator Moss said. "I have strongly urged the Department of Interior to give extra consideration to the Utah deposits for surface retorting, and in-situ development."

Even if Utah deposits are not chosen, any achievements in this area will be of benefit and will have wide applicability in Utah.

"The Interior Department is faced with making a tough decision of whether to use Utah for this experimentation, or Colorado or Wyoming," Senator Moss said. "The three states are in somewhat of a competitive position with Interior efforts being directed to gaining information regarding extent to oil recovery and efficient use of the resource."

Voice of the People

Uintah Basin Energy Planning Council—Clearinghouse for Utah Oil Shale

It takes more than three questions to learn ABCs of shale prospects

In a small nook of the county courthouse at Vernal, Utah, is the unimposing-looking office of the Uintah Basin Energy Planning Council. Opened last April, the aims of the office are at odds with its modest appearance. Gov. Calvin Rampton established the Council last November 16 in an Executive Order creating the "local clearinghouse" for regional oil-industry planning and development. The council was also instructed to act as the state's adviser on energy questions before the U.S. Interior Dept. Bureau of Land Management. Other major council responsibilities include identifying and securing funds for energy impacts and actually directing oil development planning if the area's local governments request this.

The Energy Planning Council is under the direction of the Uintah Basin Assn. of Governments (UBAG), a blanket agency for three contiguous counties—Uintah, Duchesne and Daggett—and works toward regional intergovernmental cooperation. UBAG's executive director, headquartered in Roosevelt, is Clinton Harrison. A native of the Uintah Basin, Harrison came to his current post 3 years ago when he finished his U.S. Army service.

The director of the Energy Council itself is Chuck Henderson, a man with a background as varied as oil-shale technology. Henderson, a Vernal native, has a string of titles: member of Interior's Oil Shale Environmental Advisory Panel, senior member of the Utah Oil and Gas Div. Board, developer, inventor. He once developed his own process to draw oil from shale and interested a company in starting a commercial enterprise; however, the firm decided it wasn't convinced of the economic feasibility of the project, and dropped it. In later years, when revegetation of spent oil-shale disposal sites became a major issue, Henderson revegetated his own experimental plot, "so I'd be satisfied there's a way to do it."

Starting with a wobble—The 13 voting members of the Energy Council were appointed by the Governor, and include officials from each of the three counties. Since Henderson was employed in April, he has organized task forces of the Council's 32-member technical advisory committee (these members do not vote). These task forces study potential energy development impacts—transportation, environment, socioeconomics, financing, water, community services and recreation. Task force members are, for the most part, government employees who help research areas of concern. Chairmen of the task forces are Vernal residents well-versed in their particular study areas.

While the task forces proceed with research, the Energy Planning Council's day-to-day office work frequently involves informal education—of government officials, university researchers, planners, land developers and others who have questions on oil shale. Henderson observes, "There are so many people studying oil shale. They think they're going to ask three questions and learn what the oil-shale business is all about. After you spend a half-day with them, they decide to go home and think about it."

The Big 3—Three questions frequently posed by visitors are: Is there going to be water? Are they going to ruin the countryside? How quick can I get a job? Sometimes a visitor asserts that oil-shale development is a pipe dream. Henderson replies that today's oil-shale potential is a distant relative to the development around 1919 of a private oil-shale plant that operated near the lands now being explored by the White River Shale Project. Today, Henderson points out, oil-shale technology is more efficient and the price of oil has lighted fires under industry and government.

Henderson and UBAG's Harrison gave SHALE COUNTRY these details about the Energy Council and their own perspectives on regional energy development:

Q. *What is a top priority of the Energy Council?*

Henderson: We want to maintain a good standard of living in the area—preserving the open space, mountain lakes, rivers (during commercial development of oil shale).

Harrison: The council needs to get a picture of the problems coming down the road and find out what is expected of local government. Also, they must find financial sources for local community development and keep track of related legislation.

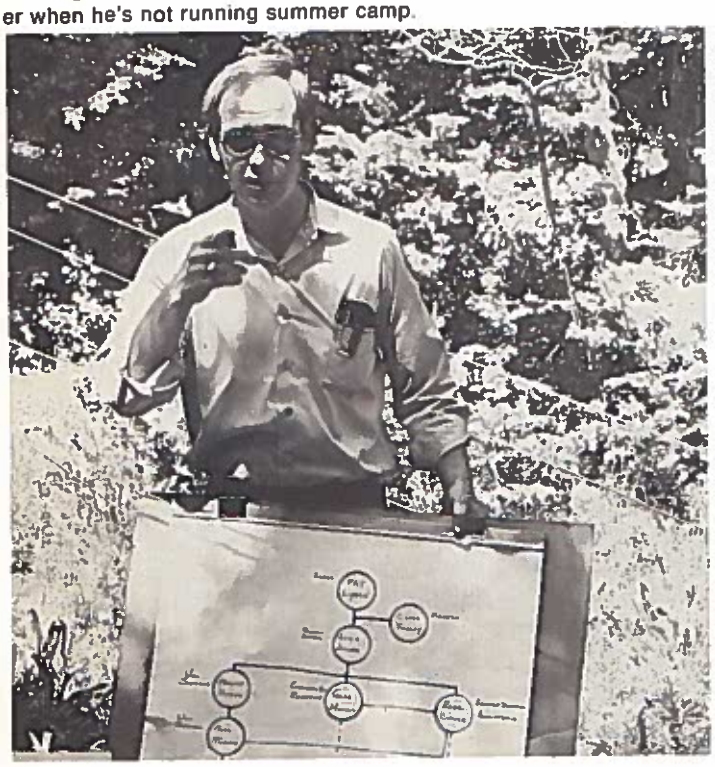
Q: *What are current Energy Council activities?*

Henderson: We're reviewing sources of income for the schools, we're working on transportation and water studies. Transportation appears to be the most critical problem after water. The Uintah Water Conservancy District and the Central Utah Water Conservancy District are the sponsoring agencies for a proposed dam on the White River that the state of Utah is planning. L. Y. Siddoway, our water task force chairman, is also director of the Uintah Water Conservancy District, and so we're working closely with that group. The Dept. of Transportation is studying highway needs, and a former highway commissioner, Francis Feltch, is heading our transportation task

Fence repairs, rain-or-shine—Despite rain, crew leader Elaine Allec and camper Steve Raner, age 15, of Rifle, work to take down White River National Forest sign for repairs.

Rock dam—Constructive handiwork of the YEP campers includes this rock dam, creating pools for fish, on Meadow Lake Creek northeast of Rifle.

Briefing—John Jacobs, program director, is a Silverton school teacher when he's not running summer camp.



YEP worker—Donna Club, of Rifle, was among the 50 youths, aged 15 to 19, in the Youth Environmental Program.

Oil-shale 'old-timer'—Chuck Henderson (left), director of the Uintah Basin Energy Council, has long been an oil-shale student.

Lead time aplenty—Clinton Harrison (right), director of the Uintah Basin Assn. of Governments, says there is sufficient lead time to plan wisely for oil-shale impacts. When the area's conventional oil boom hit, "We never had any notice."

force.

A proposed townsite (to serve oil-shale development) is southwest of Bonanza and north of the proposed dam. There's a possibility of a marina and recreation area at the townsite. Alvin Kay, a past mayor of Vernal City, is heading our recreation/public information/legislation task force. (Other chairmen are Bill Gibson, finances, vice president, First Security Bank of Vernal; Robert Nelson, socioeconomics, past director of the Bureau of Land Management office in Salt Lake City; Kenneth Anderton, education, chairman, Uintah school board; Ken Sowards, community services, head of the Utah Travel Board; and Rees Madsen, environment, White River Shale Project.)

Q: *What role will the Energy Council have in deciding whether there will be a new community to house workers on tracts U-a and U-b?*

Henderson: We're working closely with the White River Shale Project (U-a and U-b developers).

Harrison: We think it will be a joint decision. The decision is needed momentarily, but you need so much information—so much information that is not there. If there is a new community, a lot of funding just has to be spent on planning. We're talking maybe a million dollars just for planning. The source of that money? The federal government certainly owes some responsibility for planning funds.

Henderson: Another factor in a new town is the duration of the industry. Looking at the reserves they have on U-a and U-b, those leases give them a chance to operate maybe 20 years at their maximum capacity. When you start financing a city and selling property with a 20-year life and no promise of additional reserves, you may run into real financial problems convincing the bankers and so forth to provide capital.

Q: *What about studies now underway through Utah State University on the economic and social impacts of oil-shale development? Will these be helpful?*

Harrison: They could be helpful. We spend an awful lot of time with those people trying to get them to come down out of their academic world into the real world of dollars and cents.

Q: *A concern in the Roosevelt area is that oil shale should not follow the helter-skelter growth pattern that resulted from recent oil exploration in the area. What are the prospects for orderly oil-shale development?*

Harrison: With the lead time we have in oil shale, we can make the resulting population and growth much more palatable than was done with oil. We never had any notice with oil.

Q: *What other energy developments do you foresee for this region?*

Henderson: The first thing we're going to see is the development of asphalt or bituminous (tar) sands. The lead time is extremely short when compared to oil shale. The (tar sands) resource is on state and fee or private lands, so the amount of time required to do the environmental work should not be so long. Relatively the same products are found in bituminous sands (as in oil shale), which makes them more strategic than other types of natural oils.

Q: *What are your long-range goals for the council?*

Henderson: I'd rather not spell those out in detail now. We've got a terrific job of educating somebody down the line. The current developmental process (for the fledgling oil-shale industry) should be improved with experience and availability of more easily-recoverable reserves.

On a short-term, everyday basis, Henderson is trying to bring energy-development issues down to earth. But he also stresses the complexity of these issues. Both Henderson and Harrison assert that the Energy Council is capable of sorting through this immense complexity. Although at times the task may seem like searching for needles in a haystack, they believe that the council can accomplish its mission, stated in the Governor's Order, of insuring "optimum coordination of energy-resource development." *C.E.*

Potpourri

Celebrating Age 200

The British, oil shale are coming

One of them is a northern Utah native whose husband's folks were Uintah County pioneers in the cattle business. Another is a young man who can recall his student days in the late 60s when free-speech riots rocked the Berkeley campus of the University of California. Another is a Grand Junction woman who wants an amphitheatre in her city.

They are leaders in Bicentennial projects celebrating our nation's 200th birthday, and, in Colorado, also celebrating the state's Centennial. The Utah native, a resident of Vernal, is Mrs. Hugh Colton, a grandmother and one of 25 members of the Utah Bicentennial Commission. She directs Bicentennial projects in the counties of Uintah, Daggett and Duchesne. The young man is Curt Neumann, director of the Rifle Committee for '76 in Colorado. Earlier this year Neumann donned colonial gear and re-enacted Paul Revere's historic ride, shouting to delighted youngsters in downtown Rifle "The British are coming."

Still plugging for an amphitheatre and city bike paths is Karen Cobb of Grand Junction, Colo. She is also one of two Western Slope members of the 16-person Colorado Centennial-Bicentennial Commission.

While the Bicentennial projects planned in shale country are ambitious and numerous, few are directly related to energy. One of those few is based in Glenwood Springs, Colo., where the city has purchased a 22-acre site north of town on land once used by Basic Chemical Co. for limestone crushing operations. Known as the Two Rivers Centennial Park and Community Center, the proposal includes a Regional Resource Planning Center. Data at the center might include geologic surveys, aerial photos, soils information and wildlife studies. The project has been nurtured by George Stricker, whose post as Garfield County's Bicentennial Executive Director was funded for nearly a year by a grant from Mid-Continent Coal and Coke Co. This funding ran out and Stricker moved from the area, but he left behind an inventory of other fund sources for the project.

"The Bicentennial is a'comin'"

Finding themselves knocking on the same financial doors of energy companies in their area were Stricker and Neumann. But money seems scarce. The Rifle Committee for '76 is proposing a $250,000 Western Heritage Community Center that may include an oil-shale library. A Shale Country Historical Society has been formed to gather history on oil-shale programs and to display that history, perhaps in a special museum.

A big statewide Bicentennial project being drafted in Colorado calls for "futures" workshops and may take a look at possible energy impacts. Known as the Colorado Options Project, it suggests "planning with the people" to set forth alternative scenarios of Colorado's future. The budget, some $500,000, depends on the funding, which is now being sought.

In Mesa County, Colo., where Marietta Benge is Bicentennial chairman, a $6,000 city-state funded project will use slides, narrative, animation, music and other sound effects to portray the county's history, including a brief mention of oil shale. The film, being coordinated by Mesa College instructor Dan Roberts, will premiere in early 76.

A similar film project on a larger scale is underway in Utah as part of a $62,500 statewide film series coordinated by the University of Utah's Bureau of Community Development and its education specialist Jack McDonald. Using local authors and resources, a small crew is filming documentaries on the past, present and future of the Uintah area and three other regions in the state. The University, state and federal Bicentennial commissions, and the local travel association are funding the project. The film will include coverage of the area's current oil boom and projections on oil-shale development.

All funding for Utah Bicentennial projects in shale country is allocated, according to officials. But Colorado still has funds, authorized by the state legislature and available to local communities on a 50-50 matching basis. Commissioner Cobb urges, "We need good projects in Western Colorado. I'd like to see 100 proposals from the Western Slope by the December 31 deadline."

So Bicentennial projects in shale country are still embryonic; some critics call them impractical dreams. But as Stricker points out, the country was founded by men who found that no less than the "impossible" could be accomplished through Revolution. Some revolutionaries are still hard at it. *C.E.*

Vernal Express 1-30-69

Uintah Basin Possible Site for Oil Shale Nuclear Blast

The Uintah Basin may be the site of a future underground nuclear detonation as the first phase of "Operation Utah,' was announced jointly Thursday of last week by Western Oil Shale Corp. of Midland, Texas and CER Ceonuclear Corp., Las Vegas,.

"OPERATION UTAH' is an experiment aimed specifically at commercial recovery of oil from shale by underground nuclear detonation and in situ retorting.

LAUDS EFFORT

The Utah Geological and mineralogical Survey expressed delight over the chance that the experiment may take place in Utah.

Howard Ritma, petroleum geologist, said, "We hope 'Operation Utah' will turn out to be the technological breakthrough needed to open an oil shale industry in the United States. If it is successful this could mean a tremendous new industry for the Uintah Basin and Utah as a whole."

He noted that there are thicker and richer deposits in Colorrado, but they are almost completely controlled by the federal government.

UTAH LANDS

"Restrictive federal leasing requirements have delayed and discouraged private industry from undertaking large scale attempts at producing oil from these rich deposits. In contrast, Utah is the only state of the three oil shale states (Utah, Colorado and Wyoming) with significant blocks of state-owned land on which experimental work of this nature can take place, Mr. Ritzma said.

The Utah Geological and Mineralogical Survey will watch the experiment closely, particularly noting the safeguard to protect ground water values and to prevent radiation leakage, he said.

FIRST OF THREE

GER Geonuclear Corp., controlled by Continental Oil Co. and E. G. & G., will direct the first phase of the three-phase project. The phases are to select a preliminary site and evaluation of the situation, nuclear phase and retorting phase.

The site now under investigation is in the Uintah Basin and is believed to have many of the characteristics which will justify its choice as a location for nuclear testing.

If the evaluation proves favorable, other oil companies may be invited to participate in the project, it was stated by Ted B. Lacaff Jr., president of Western Oil Shale. Their findings are expected by early summer.

SECOND PHASE

Detailed plans will then be submitted to the Atomic Energy Commission and other government agencies for the second phase, that is the detonation of a nuclear device and fracturing of the oil shale deposit.

The third phase will consist of evaluating the shale rubble created by the detonation, redrilling of wells, and the firing and extraction of fluid hydrocarbons.

For every dollar donated by

Basin Area is Center of Nuclear Gas and Oil Shale Explorations

Vernal Express April 3, 1969

Vernal may well become the atomic city of the three-state area of Utah, Wyoming and Colorado. Announcements have been made that nuclear devices are being planned for gas wells in southwestern Wyoming, for oil shale extraction in the Rulison project 12 miles southwest of Rifle and the Operation Utah project 25 miles south of Vernal.

The first nuclear blast to be set off in the recovery of natural gas took place a little over a year ago in northwestern New Mexico in a project called Gasbuggy. From all indications the success of this project is prompting other experimentation wells in gas production and also in the recovery of oil from oil shale rock.

THE BULK of the world's oil shale reserves are found in the Green River Formation in the states of Colorado, Wyoming and Utah. The formation underlies approximately 16,500 square miles of the three states in sections of from 15 to 2,000 feet thick, which averages 15 gallons of oil per ton, underlie 1,380 square miles in Colorado and represent more than one trillion barrels of oil in place.

OF THIS total resource, 480 billion barrels of oil are contained in shales averaging 25 gallons of oil per ton. Present information indicates sections averaging 25 gallons of oil per ton in Utah that are 10 or more feet thick represent 90 billion barrels of oil and those in Wyoming represent 30 billion barrels of oil.

It is the higher 25 gallon per ton shale that is presently being considered for utilization by in-place nuclear methods.

UINTAH COUNTY'S COMMENTS ON SENATE [illegible]

#82 OIL SHALE LEASING BILL.

SENATOR JOHN W. WARNER, CHAIRMAN OF THE SENATE SUBCOMMITTEE ON ENERGY AND NATURAL RESOURCES, THE UINTAH COUNTY COMMISSION, REPRESENTING THE PEOPLE OF UINTAH COUNTY AND THE UINTAH BASIN, ARE PLEASED TO HAVE YOU VISIT US.

WE APPRECIATE THIS OPPORTUNITY TO EXPRESS TO YOU, AND TO THE SENATE ENERGY AND NATURAL RESOURCE COMMITTEE MEMBERS THROUGH YOU, OUR SUPPORT OF YOUR OIL SHALE LEASING BILL S-1484.

WE APPRECIATE THE WORK AND RESEARCH REQUIRED TO FORMULATE SUCH AN ACCEPTABLE APPROACH AS YOU HAVE ASSEMBLED IN THIS BILL TO MEET MOST OF THE CONCERNS OF THE LOCAL PEOPLE, THE STATES, INDUSTRY, AND THE NATIONAL INTERESTS.

WE KNOW YOUR EXPERIENCE AS SECRETARY OF THE NAVY, UNQUESTIONABLY GIVES YOU AN UNUSUAL COMPREHENSIVE UNDERSTANDING OF THE IMPORTANCE OF A DOMESTIC SUPPLEMENTAL SUPPLY OF LIQUID PETROLEUM FOR OUR NATIONAL SECURITY, AND THE ECONOMIC WELL BEING OF ALL AMERICANS.

WE REALIZE IT IS DIFFICULT FOR A MAN OF YOUR POSITION TO SCHEDULE TIME FROM YOUR LIMITED FREE TIME TO FIND OUT HOW THE PEOPLE LIVING IN SHALE COUNTRY FEEL ABOUT COMMERCIAL OIL SHALE DEVELOPMENT, AND ABOUT THE COUNTRY WHERE OIL SHALE IS TO BE DEVELOPED.

YOU WILL FIND THAT THE GREAT MAJORITY OF THE PEOPLE LIVING IN THE UINTAH BASIN, THE HOME OF UTAH'S RECOVERABLE OIL SHALE RESOURCE, ARE VERY SUPPORTIVE OF ALL NATURAL RESOURCE DEVELOPMENT, AND PARTICULARLY THE PRODUCTION OF OIL FROM OIL SHALE.

SENATE BILL 1484 OPENS THE DOOR, AND ASSISTS THE STATE IN DEVELOPING ITS SCHOOL SECTION LANDS IN A MORE ECONOMIC MODE--BY ALLOWING BYPASS LEASING AND OFFSITE LEASING. THIS MAKES THE STATE SCHOOL LANDS MUCH MORE VALUABLE AND ATTRACTIVE TO INDUSTRY, AND WILL CONTRIBUTE ADDITIONAL INCOME TO OUR PUBLIC SCHOOLS.

THE BILL, AS WRITTEN, WILL STABILIZE THE INDUSTRY BY PROVIDING ADDITIONAL FUTURE RESOURCE FOR PRODUCTION. IT WILL INCREASE THE PERMANENCY OF THE JOBS, THE TAX BASE, AND STIMULATE THE CONTINUING EFFORTS OF INDUSTRY TOWARD A HIGHER PERCENTAGE OF RECOVERY AND DEVELOPMENT OF NEW AND MORE EFFICIENT RESOURCE RECOVERY SYSTEMS.

IN OTHER WORDS, S 1484 WILL BE INSTRUMENTAL IN ENCOURAGING EFFICIENCY OF OPERATION, CONTINUING TECHNOLOGICAL ADVANCEMENTS IN RECOVERY SYSTEMS, AND PROVIDING A LARGER RESOURCE POTENTIAL TO STABILIZE INDUSTRY AND COMMUNITY LIFE, WHILE CONTRIBUTING TO OUR ENERGY SUPPLY.

THIS BILL RECOGNIZES THE VALUE OF ECONOMIC RECOVERY OF ALL MINERALS, REGARDLESS OF OWNERSHIP, AND PROVIDES A MECHANISM TO REMOVE CONFLICT FROM FEDERAL LANDS THAT ARE NOT SUITABLE FOR INDEPENDENT MINING OPERATIONS, ENCLOSED WHOLLY, OR IN PART, WITHIN OTHER LANDS.

THIS BILL IS NOT IN CONFLICT WITH THE FEDERAL LAND POLICY MANAGEMENT ACT OF 1976, AND PROVIDES REASONABLE CONSULTATION PROCEDURES WITH STATE AND LOCAL GOVERNMENTS TO PROVIDE A MORE HARMONIOUS METHOD OF INCREASING AMERICA'S VITAL NEED FOR LIQUID PETROLEUM ENERGY, FREE FROM FOREIGN DEPENDENCE AND CONTROLS.

THERE IS NO DOUBT IN OUR MIND THAT SENATE BILL S 1484 WILL INCREASE THE EFFICIENCY OF OIL SHALE OIL PRODUCTION BY REMOVING UNNECESSARY IMPEDIMENTS TO DEVELOPMENT, IN ADDITION TO INCREASING THE TOTAL MINERAL LEASING ACT INCOME TO THE FEDERAL GOVERNMENT, AND AN EQUAL PERCENTAGE INCREASE TO THE PRODUCING STATE.

PRACTICALLY, THE PRINCIPAL RESULT WILL BE TO INCREASE THE PRODUCTION OF OIL, ALONG WITH ADDITIONAL ROYALTY INCOME FOR ALL, WHILE MAINTAINING THE QUALITY OF LIFE IN SHALE COUNTRY, AS WELL AS NATIONALLY.

WE BELIEVE THE HOUSE OF REPRESENTATIVES, THROUGH REPRESENTATIVE UDALL'S COMMITTEE ON INTERIOR AND INSULAR AFFAIRS, DID A GREAT NATIONAL SERVICE BY COMPILING AND PASSING H.R. 4053, PROVIDING A BASE FOR THE SENATE TO USE AS A REFERENCE AND GUIDE FOR CONSULTATION AND IMPROVEMENT, RESULTING IN S 1484, AS REPORTED OUT.

SENATOR, WE HAVE TOLD YOU WE FEEL COMFORTABLE WITH S 1484, AND CERTAINLY SUPPORT ITS PASSAGE. WE HAVE TOLD YOU WE ARE A VERY PATRIOTIC AND PRO-DEVELOPMENT GROUP OF PEOPLE.

WHAT WE HAVE SAID IS NOT TO SAY WE DO NOT RECOGNIZE A VERY CHALLENGING SOCIO-ECONOMIC PROBLEM ASSOCIATED WITH THE DISTRIBUTION OF THE BONUS MONEYS AND THE MINERAL LEASING ACT FUNDS PAID TO OUR OWN STATE.

SHOULD THE STATE BUDGET, AS PRESENTLY SUGGESTED, NOT BE AMENDED AND GIVE PRIORITY AND PART OF THE OIL SHALE BONUS TO THE AREAS IMPACTED BY OIL SHALE AND OTHER FEDERAL MINERAL LEASING ACTIVITIES, THEN OUR PRO-DEVELOPMENT STANCE COULD REVERSE.

WE FEEL IT WOULD BE UNFAIR, AND IT IS CERTAINLY NOT OUR INTENTION, TO SETTLE FOR A BOOM-TOWN ATMOSPHERE FOR OUR PEOPLE, ESPECIALLY AT THIS TIME WHEN THE UNITED STATES CONGRESS HAS MADE AVAILABLE TO THE STATE 50% OF THE FEDERAL MINERAL LEASING INCOME, AND HAS DIRECTED THAT THE PRIORITY USE OF THESE FUNDS SHALL BE USED TO MITIGATE IMPACTS FROM MINERAL LEASING ACTIVITIES AT THE LOCAL GOVERNMENT LEVEL.

SENATOR, FOR MORE THAN FIFTY YEARS, THIS COUNTY HAS PROVIDED BETWEEN 1/4 AND 1/5 OF THE TOTAL STATE MINERAL LEASING ACT INCOME TO THE STATE, AND THE THREE UINTAH BASIN COUNTIES HAVE RAISED THAT CONTRIBUTION CONSIDERABLY, SO WE DO NOT WANT TO BE LEFT OUT IN THE COLD.

WE ARE NOT ASKING YOU TO TAKE ANY SPECIFIC ACTION ON THIS ISSUE AT THIS TIME, BUT MERELY TO BE KNOWLEDGEABLE OF HOW SOME IN THIS STATE INTERPRET THE FEDERAL STATUTES.

WE MAY HAVE TO COME TO YOU FOR HELP AT A LATER TIME. AGAIN, SENATOR, WE THANK YOU FOR VISITING US. YOU HAVE OUR SUPPORT, AND HAVE AN ENJOYABLE AND SAFE TRIP HOME.

Uintah County oil shale projects still have foot in door for SFC help

V-E. Dec. 7-1983

By Steven Wallis
Express News Editor

As the U.S. Synthetic Fuels Corp. closes the book on western oil shale projects and turns its attention to coal projects, it would appear that two major oil shale projects in Uintah County will not receive federal assistance, but appearances can be deceiving.

The SFC's decision to fund the Union II oil shale project in Colorado and a much smaller project, Seep Ridge, in Utah also carries a glimmer of hope for the Paraho Ute and White River projects which were not funded.

Following last Thursday's board of directors meeting, Edward E. Noble, SFC chairman, emphasized that the board has instructed its staff to be aggressive and flexible in seeking coal projects over the next few months, with the intention of reaching letter of intent decisions for the strongest coal projects in April 1984.

"At that time," Noble said, "the directors will complete all of the remaining Third Solicitation projects with the hope that monies will be available for at least one additional shale project which will further contribute to the diversity for this resource."

The only remaining projects in the third Solicitation are the White River project, Paraho project and two eastern oil shale projects.

Both the White River and Paraho projects are requesting loan and price guarantees for their project in southeastern Uintah County.

The only Utah oil shale project given a letter of intent last week was the Seep Ridge Project south of Vernal.

A total amount of SFC assistance of $45 million, $23.7 millon in initial price gurantees and $21.3 million in loan guarantees was authorized for the Seep Ridge Project, proposed by Geokinetics, Inc.

The price and loan supports will allow the project to expand from 300 barrels of shale oil a day to 1,000 barrels of shale oil a day and guarantees $42.50 per barrel.

The Oil Parachute Creek Shale Program, Phase II in Colorado received a price gurantee only of up to $2.7 billion in two increments. The SFC will guarantee $60 per barrel that may be increased up to $67 per barrel for the Union II project with the utilization of Union "C" technology.

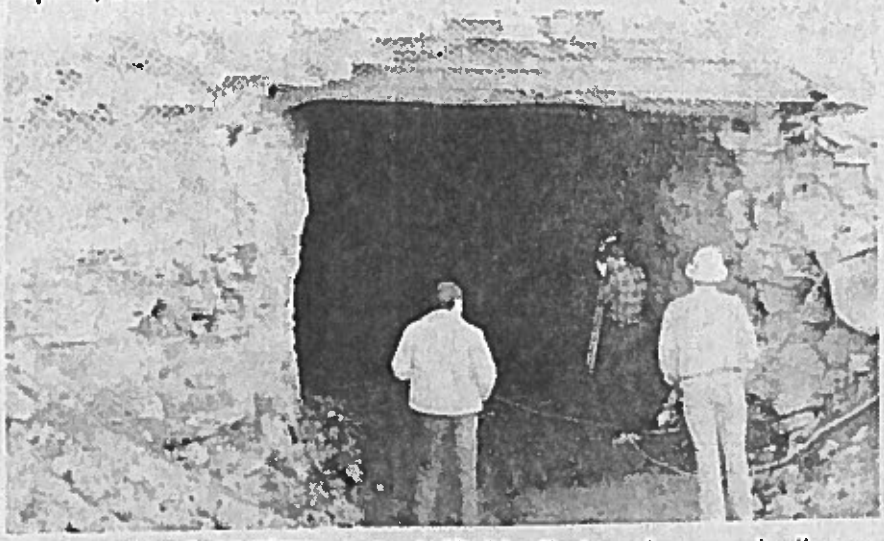
Price and loan guarantees for both projects will be for 10 years.

With the shale projects for which letters of intent were authorized Thursday, the Cathedral Bluffs project in Colorado, which has already received a letter of intent, and the Union Phase II project now in start-up, western shale production capacity receiving federal assistance will be approximately 68,820 barrels per day with possible expansion to 251,000 barrels per day.

By authorizing letters of intent to the Seep Ridge and Union II projects, the SFC hopes to stimulate commercial production to the widest diversity of feasible technologies: in situ technology with Seep Ridge and next generation technology with Union II. Final closing of these project contracts will be by the spring of 1984.

Both Paraho and White River officials say they will continue to negotiate with the SFC for federal support of their projects.

Vernal Express/Advertiser Thursday, November 26, 1981



MINING PERSONNEL inspect Utah's first underground oil shale mine at Hells Hole Canyon on White River Shale's tract Ua and Ub.

Utah's first underground oil shale mined

Three hundred tons of mahogany zone shale was removed last week from a partial tunnel in the Hell's Hole Canyon area, south of Bonanza. The White River Shale Oil Corporation is using the shale for testing in the Union B pilot retort facility in Los Angeles, Calif.

This is the first underground oil shale mining operating in Utah and is a prelude to White River's plan to develop the world's largest underground mining process on Federal Lease Tracts Ua and Ub during the next two decades.

Nov. 31-81 Page 21

Colorado oil shale halt not too surprising

574 ON

Occidental Oil Shale Inc.'s decision to halt construction on its $4 billion Colorado commercial shale project—a setback amidst what has been a major boom—shouldn't come as a shock, industry observers said, reported Gary Schmit of Cox News Service in Grand Junction, Colo.

Some responded to the announcement several weeks ago by simply adding the Cathedral Bluffs project to a virtual litany of stops and starts, booms and busts in oil shale development that span most of this century, said Schmit.

The announcement that Occidental will halt the Cathedral Bluffs operation indefinitely and lay off 500 employees is the most dramatic setback the industry has suffered since the current boom in shale development began about two years ago. However, it is not the only indication that many questions about the fledgling industry remain unanswered.

"What this tells us is the same old economic uncertainty is still around," said Pete Rutledge, the federal government's area oil shale supervisor, who works in Grand Junction. "It's a disappointment, but it's not entirely unexpected."

Two other projects—Rio Blanco (a joint effort of Gulf and Amoco) and Multi Mineral—recently announced sizable layoffs and have put their projects in holding patterns similar to that announced by Occidental.

"There is a constant reassessment of sizable projects in oil shale, tar sands and even the oil and gas industry," said Jack Swenson, executive vice president of the Rocky Mountain Oil and Gas Association. "High interest rates, tight money and questions about future oil prices are entering into a lot of decisions.

The larger the project, the greater the risk of companies backing it. In such times of economic uncertainty, oil shale and other big money projects that have never been tested commercially are the first to suffer, Swenson said.

"The economics of oil shale have always concerned me," said Monte Pascoe, the Colorado natural resources director. "Historically, there have been a lot of ups and downs, and this is just one more of them," concluded the Schmit report.

A Look At

UTAH: From Sego Lilies to Shale

By Carol Edmonds

Welcome mat is made of pioneer spirit; but safeguarding environment is not overlooked.

It was once a detoured state, an arid land as attractive as a prickly cactus to the Westward-moving pioneers. But then the Mormons settled on the land, irrigated much of it and established a kind of truce with the countryside. Today Utah, a land of 83,000 square miles—bigger than the combined states of New York, New Jersey, New Hampshire, Vermont and Massachusetts—is home for 1 million people (compared to 32 million in those five Eastern states). While no longer unsettled, Utah still has patches of desolation, still has vestiges of pioneering spirit, still is ready to welcome an unproven, controversial newcomer to the state. The newcomer: oil-shale commercial development.

Utah's welcome mat for oil shale is made in part of Utah's past. As Gordon Harmston, executive director of the state's Dept. of Natural Resources, explains, "Maybe in Utah we remember our Utah heritage. We remember when our ancestors were eating sego lilies, when they really didn't have enough to eat or wear. Maybe we just recollect the importance of making a living."

This heritage translates today into an oil-shale welcome mat, an attitide both receptive and insistent that technology be used not only to develop the resource but also to protect the ecology. This outlook is well expressed by Utah Gov. Calvin Rampton, who told oil-shale developers in March, "As far as this state is concerned, we're in favor of the development of these resources . . . (But), we've got to recognize that never again is the public going to be willing to see the country despoiled by the recovery of mined resources."

Reclamation's low profile

An example of this qualified welcome: the Utah legislature has just passed a mined land reclamation act, which applies to oil shale, among other mined resources. It provides for a governing board (over oil, gas and mining) to require that all mining operators file notices of reclamation plans before any mining begins. The board may require miners to furnish proper surety to guarantee fulfillment of reclamation plans. Violation of the act can be punished by a fine of $1,000 per day for each day of contempt. Aim of the reclamation act: to return the land "to a stable ecological condition compatible with past, present and future local land uses."

The law was not enacted hastily. Two years ago a similar attempt to pass a reclamation bill met loud objections from mineral developers. But this year state officials say they worked closely with the bill's prime sponsor, Rep. Genevieve Atwood, a geologist, and representatives of the mining industry, to insure passage of a reclamation act that the Governor describes as offering "proper protection without too much burden on the industry." State natural resources chief Harmston, whose department houses the act's governing board, says the reclamation bill will have "a low profile at first. We're not trying to kill industry. We don't want to have the great hue and cry that we want to stop all development."

Utah, the dark horse?

It is this cooperative stance toward industry, as well as the fact that Utah is not being as carefully scrutinized by environmentalists as are the front-runner oil-shale tracts in Colorado, that impels some observers to predict that Utah may be the dark horse in commercial oil-shale development. While the state's deposits are not thought to be as thick as in Colorado, the Uintah Basin is still a vast storehouse of "the rock that burns." Oil-shale mineral rights in Utah are extensive and updated core drillings may someday show that total oil in the Utah shale equals the total of Colorado's.

The most well-known oil-shale project in the state is the White River Shale Project, a three-company endeavor on 10,000 acres of federal land in the Uintah Basin. Known as U-a and U-b, these tracts were leased by Phillips Petroleum, Sun Oil and Sohio Petroleum in May and June of 1974. White River project officials say commercial development could occur in the early 1980s.

Another big oil-shale landowner in Utah is Skyline Oil Co., headquartered in Salt Lake City. The company owns 16,154 acres—much of it adjoining U-a and U-b—which it has leased to Sohio Petroleum Co. and, in part, to Cleveland Cliffs Co. Like Sohio, Cleveland Cliffs is a participant in the Paraho Oil Shale Demonstration Project, involving testing and refinement at Anvil Points, Colo., of the Paraho oil-shale process. Sohio is expected to use its Skyline-leased lands as part of the White River Shale Project.

Another owner of Utah lands that contain oil-shale deposits is Texaco, Inc., also a Paraho participant. Company officials in Denver say Texaco's oil-shale lands in Utah amount to some 10,900 acres just southwest of the federal tracts, and that Texaco has "no development plans at this time," pending results from the Paraho demonstration.

The state of Utah has also leased a vast amount of state land in the Uintah Basin to oil-shale developers. Close to 274,000 acres are under lease, according to

Examining Shale Country's Health-Care Facilities—Utah

Health-care facilities in shale country are of concern both in Colorado and in Utah—although there are pronounced differences in the situation between the two areas. In this two-part article, SHALE COUNTRY takes a look at the medical and health-care capabilities of the shale region: this month, what's happening in Utah is presented; next month, the Colorado situation.

New hospital on the horizon

In Vernal, Utah, Uintah County Hospital Administrator John Arnold enumerates some of the problems that may affect the area's health-care quality in the near future: "Right now," he says, "we have six physicians in Vernal. One of them will be leaving soon to undertake a surgical residency; another will most likely be retiring this summer, so that will leave us short of physicians. Another problem is Uintah County Hospital, which was licensed in 1949 as a 31-bed acute-care hospital. The facility has been out of standard for 10 years, so we can only get a temporary license to operate for 6 months at a time."

In an effort to solve the problem of hospital facilities, the County Commissioners and the Hospital Board recently commissioned a study by Design West Health Facilities, Inc., of Logan, Utah, to evaluate alternatives for facilities to serve the area. Arnold explains that the team came up with three programs: (1) to continue to maintain Uintah County Hospital, which would cost from $100,000-$300,000 per year; (2) to remodel the present hospital, at a cost of some $3.7 million; (3) to pick a new site and build a new facility. Arnold says that the first alternative is not viable, and that "The second alternative is not really a good choice either, since the present hospital site is limited and it would not be possible to expand the facility beyond 50 beds."

That leaves the third choice: a new hospital on a new site. Arnold says a new 48-bed hospital could be built for "under $5 million," but to do this, a hospital district must be established. Arnold explains that "The establishment of a district would change the governing authority of the hospital, and would enhance the ability of the authority to tax. The county is limited as to the amount of mills it can charge for the hospital, and the amount needed for the new hospital would exceed that limit. To set up the hospital district, the County Commissioners will put a public notice in the newspaper, and half the regular voters will have to oppose the plan for it to be defeated." Arnold feels that a hospital district will be established, and that the third alternative will get underway soon.

Where do doctors come from?

The shortage of doctors in the area is the other pressing problem. One plan suggested to meet the shortage and to afford specialized medical care for Utah shale-area residents is outlined by Arnold: "We are affiliated with the University of Utah School of Medicine and we have jointly applied to the Dept. of Health, Education and Welfare for funding to establish an interdisciplinary health-care training center. If this goes through, we will have three faculty members, three residents, and three medical students here at all times, in addition to other personnel in training." Arnold points out that although some of these personnel would be in the hospital only temporarily, others would be there full-time as faculty.

On a long-term basis, Arnold says, "We want to move from being a rural general practice hospital to being a more complex specialty-intense medical-care facility, so we can handle 20,000 to 30,000 people." However, he explains that this is not accomplished quickly, since it takes 3-10 years to build a staff. And, says Arnold, with the energy industries—natural gas, oil, tar sands, and eventually oil shale—pressing forward, population growth could come rapidly. He states: "Now we have to serve 18,500 people. In 5 years, we may have to serve 20,000 people, and by 1980, who knows? We have to keep growth in mind at all times.

"If oil shale is into the production phase in 2 years," he continues, "we would be faced with providing health-care services for that industry. We must have candid dialog with the shale industry to help us assess and predict the situation. We are anxious to discuss every option with the shale developers and their staff, because in the health-care industry, you have to translate what you don't do into reality—and that could mean dead people." *J. P.*

Model by Design West is of proposed new hospital for Uintah County.

Donald G. Prince, assistant director of the Div. of State Lands in the Utah Dept. of Natural Resources. The leases, good for 20 years, cost the oil companies 50 cents an acre for the first 10 years, $1 an acre for the second decade, in addition to future royalty payments.

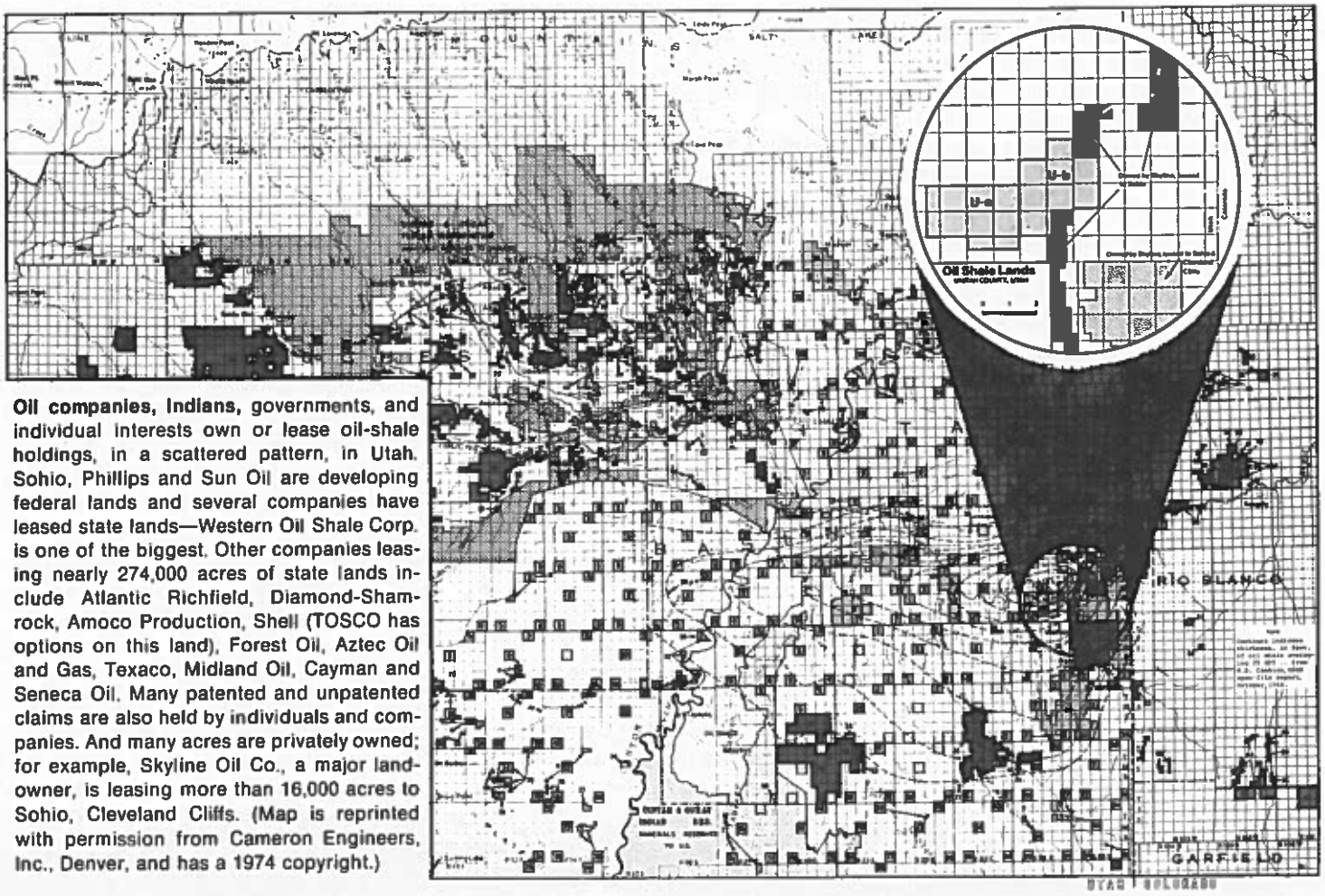
The Utah state leases have no environmental-impact statement (EIS) requirement as such. However, companies are required to submit mining development plans and environmental assessments to a statewide environmental coordinating committee, which can approve that statement or require a full-fledged EIS from the state agency administering the land. The Oil Shale Corp. (TOSCO) has worked with this committee in TOSCO's preliminary planning for a 75,000 barrel-a-day oil-shale complex on some 14,688 acres in five blocks of Utah land west of the federal shale tracts.

The state's supervision of oil-shale development in Utah could someday extend to the two federal prototype tracts of U-a and U-b. Whether that happens depends on the outcome of a suit in U.S. District Court in Salt Lake City. The issue dates back to the Utah statehood act, which gave the state four sections out of every township. Many of these townships were preempted by national parks and other federal uses, so Congress voted to allow the state to choose other land of equal acreage elsewhere in the state. Included in Utah's selections were the tracts of U-a and U-b (selected by the state before the tracts were bid). The U.S. Interior Dept. is claiming the value of the in-lieu lands far exceeds the value of the lands given up by the state, but Utah officials contend the law's in-lieu land selection provisions say nothing about land value. State officials have said they expect a settlement within 2 years.

While the suit is being settled, the $120 million in bonus bid money being paid by the White River Shale Project in annual installments has been impounded. Neither the state nor the federal government can touch the funds until the suit is settled. The state has pledged that if it is awarded the lands, it will enforce the provisions of the federal lease.

Spotlighting local role

Another part of the oil-shale welcome comes from local governments, who seem receptive to shale development and eager to shape its impact. The state administration is very sensitive to the role of local government and its desires for autonomy—especially since 1974 when the legislature enacted a state land use bill; the Governor signed it, but then



Oil companies, Indians, governments, and individual interests own or lease oil-shale holdings, in a scattered pattern, in Utah. Sohio, Phillips and Sun Oil are developing federal lands and several companies have leased state lands—Western Oil Shale Corp. is one of the biggest. Other companies leasing nearly 274,000 acres of state lands include Atlantic Richfield, Diamond-Shamrock, Amoco Production, Shell (TOSCO has options on this land), Forest Oil, Aztec Oil and Gas, Texaco, Midland Oil, Cayman and Seneca Oil. Many patented and unpatented claims are also held by individuals and companies. And many acres are privately owned; for example, Skyline Oil Co., a major landowner, is leasing more than 16,000 acres to Sohio, Cleveland Cliffs. (Map is reprinted with permission from Cameron Engineers, Inc., Denver, and has a 1974 copyright.)

Heritage shapes present—Utah Dept. of Natural Resources Chief Gordon Harmston, whose forefathers helped settle Utah, says most persons in the state remember their heritage, when Utah pioneers "really didn't have enough to eat or wear"—a recollection that makes them acutely aware of the importance of making a living.

a people-initiated referendum defeated the measure 2 to 1.

A Governor's order last November appoints local officials to coordinate "oil-resource development" (including oil shale) under the direction of the Uintah Basin Assn. of Governments, the regional governing association for the counties of Daggett, Duchesne and Uintah. Known as the Planning and Development Advisory Council, the group consists of 13 local government representatives, aided by a technical committee of state, local and industry officials. The council is to act as a clearinghouse for oil development. Since May, an executive director has been employed by the council. He is Chuck Henderson, a member of the Interior Committee's Oil-Shale Environmental Advisory Panel and past chairman of the State Land Board. Part of his job, as described by the Uintah Basin Assn. executive director Clinton Harrison, will be to "translate into English, so that they can be used by elected officials," the numerous oil-shale studies, such as reports being researched through Utah State University. Such studies need to be intimately linked to local needs rather than to academic questions of interest to professors, Harrison points out. "We need a lot of good technical answers," including answers about the impact of growth on the communities' schools, utilities and property values, Harrison says. He adds, "We can handle the problems if we know what they are."

One way the problems are being identified is through the "Utah Process," a state planning effort that uses computers and identifies "alternative futures," different combinations of possible developments—such as oil shale and tar sands—and their impact on tax base, property values, population and other conditions in local communities.

Savoring precious water

One problem Utah has attacked head-on is the availability of water. Observers have said, "Water in Utah is precious, savored as champagne might be in another state," and state officials are working intently to have that water available for at least the first phase of oil-shale development. The Utah Board of Water Resources resolved in May to segregate 36,000 acre-feet of White River water a year for oil-shale projects. And the board is considering a reservoir site, about 4 miles southwest of Bonanza, Utah, for 116,000 acre-feet of storage, which would provide water for U-a and U-b and also provide flood control, silt retention and irrigation for the Indian lands below. The Utah water board has met with the Colorado Water Conservation Board to begin talks on sharing the White River among Colorado and Utah energy projects as well as for the needs of the Ute Indians.

With 23 percent of the Upper Basin States' allocation of the Colorado River, Utah averages 1.4 million acre-feet of water a year, says Daniel Lawrence, director of the Utah Div. of Water Resources. About one-half of that entitlement was depleted last year. A new act passed by the state legislature will enable Utah to provide some of that water for oil-shale interests. Under the bill, the state engineer reviews applications to renew water allocations. If an applicant has not made good on his proposed water use in the past 5 years, his award may be cancelled and the water returned to the public.

As more oil companies show interest in locating shale activities in Utah, its government officials keep a close eye on the state's unique shale country. Some of the characteristics they particularly note: most of Utah shales are buried more deeply in the earth, so surface mining is not an issue or a fear (but there is concern about how to handle spent shale); it does not appear that the oil shale itself is so situated that dewatering or salinity will be major problems; Utah's shale deposits cover a larger area and are probably thinner than in Colorado.

Adding it all up—the physical outlay of shale, the state's welcome mat, the pioneering openness to shale development, the result could be that oil shale may one day join sego lilies in sagas about resources and sustenance for the Utah people.

Various oil shales to be tested by Paraho Corp.

Paraho Development Corporation, a leading oil shale development company, announced last week that it will begin soon the first of a series of field operations to test various types of foreign and domestic oil shales.

Operations will be conducted at the Anvil Points Oil Shale Facility near Rifle, Colorado, leased from the Department of Energy. The larger scale field tests are a direct result of prior laboratory work by Paraho on these foreign and domestic shales, according to John B. Jones, Jr., president of Paraho and inventor of the Paraho process.

Paraho has been actively involved in oil shale development at the federal government's Anvil Points facility since 1974 and has successfully demonstrated an environmentally and economically acceptable oil shale technology in semi-works scale.

"Representatives from Germany, England, Sweden, Morocco, Israel, Indonesia, and other countries with substantial oil shale deposits have visited Paraho's facilities, provided oil shale samples, and are interested in the Paraho process for producing shale oil," said Harry Pforzheimer, Paraho Program Director.

"The purposes of these processing tests will be to determine how different shales perform in Paraho's process and to produce sizeable samples of typical products. The resulting shale oil is needed by the various countries for subsequent pilot plant work to determine the optimum refining program required to produce the finished petroleum products desired."

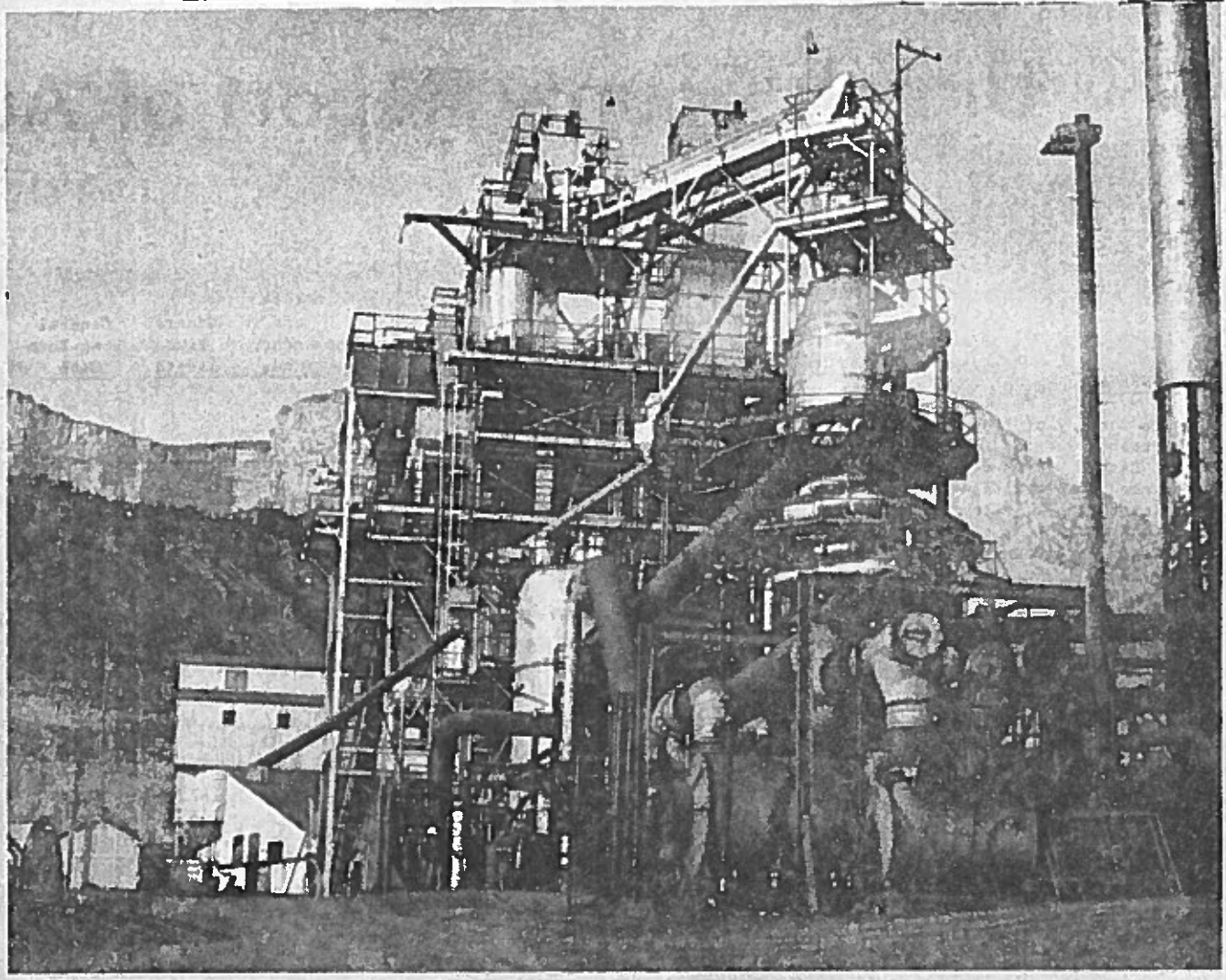
"The first of the foreign oil shale tests will begin in September and will utilize 150 tons of oil shale which were mined and shipped from Israel," Mr. Jones said. This shale will be processed in Paraho's second largest field retort, a vessel which heats the oil shale in a continuous process causing the solid organic substance in the rock (kerogen) to break down, releasing an oil and gas mist. The mist is collected and separated producing oil for fuel or refining and a usable gas for generating electricity.

"Israel, as well as several major world-wide engineering companies working with a number of different shale deposits, have made detailed surveys of all of the available oil shale technologies to determine which technology is the most feasible for processing various types of oil shale. The Paraho technology was chosen as having superior promise," Jones said.

Since 1974, Paraho's operations at Anvil Points have produced over 4,600,000 gallons of crude shale oil, the largest production of shale oil in the shortest time at lower costs than any oil shale operation to date in the United States. Paraho's above-ground technology has solved the environmental problems which have long plagued oil shale technologies.

Paraho's retorting technology consumes no water. As a result, the overall water requirements for an oil shale facility have been greatly reduced. Present calculations show that a commercial oil shale facility using Paraho's technology would require less than one barrel of water for every barrel of shale oil produced. This water would not be consumed, but would be recycled mostly for revegetation and human needs.

In addition to the upcoming foreign and domestic shale test, Paraho is involved in the initial stage of the next logical steps in oil shale development. These next steps consist of engineering, constructing, and operating a single, commercial-size retort or module. This would establish the environmental and economic acceptability of Paraho's technology in full-size equipment and will provide the investors confidence required to encourage commercialization of the vast oil shale resource of the western United States estimated at 1.8 trillion barrels. A 100,000 barrel a day commercial facility would contain 15 to 20 such full-size module retorts.



PARAHO OIL SHALE RETORT--Paraho's oil shale retort will be used to test various foreign and domestic oil shales. Lump size oil shale is fed by a conveyor system into the top of the vessel where it is heated to recover crude shale oil and a usable product gas. Paraho's technology has been successfully demonstrated on Colorado and Utah oil shales to be an environmentally and economically acceptable process in semi-works scale and has produced more crude shale oil at lower costs than any other technology to date.

Engineers say oil shale is most advanced and cheapest syn-fuel

By Helene C. Monberg

Oil shale retorting technology is one of the most advaced syn-fuels technologies, and shale oil is the cheapest of the four most likely syn-fuels, according to Cameron Engineers.

A study which the Rocky Mountain Division of Pace Co. (Cameron Engineers) of Denver did for the Senate Budget Committee came to that conclusion, S. Frank Culberson, president, told a syn-fuels task force of the committee headed by Sen. Gary Hart, D-Colo., on Sept. 5.

Oil shale retorting technology rates with coal gasification as most attractive in terms of end results, the study by Cameron showed. But shale oil is by far the most attractive price-wise, it found. It rated the production economics of the four major syn-fuels—shale oil, oil (tar) sands, coal liquids and coal gas as follows: shale oil $26 per barrel of crude oil equivalency, based on 1979 dollars; oil sands $31; coal liquids $36-$37; coal gas $40.

These costs are based on 100 percent equity and a 15 percent discounted cash flow return on investment. Shale oil costs could be lower if modified in-situ (on-site) technology shows a significant advantage. Costs for direct coal liquefaction and domestic oil sands are more uncertain because these are however, no established class of 'second-generation' retorting processes on the horizon. Modified in-situ processes, as being tested by Occidental Petroleum and Rio Blanco Oil Shale (Gulf/Standard of Indiana), may be ready for commercial application in five years if satisfactory yield can be demonstrated," the Cameron study said.

Culberson told this correspondent that Gulf and Standard are going to test all types of above-ground and in-situ technologies on Colorado Oil Shale Federal Tract C-a in Rio Blanco County. The C-a lessees are busy digging a shaft and pumping water, he said.

Also moving right ahead is Occidental on Colorado Oil Shale Federal Tract C-b in Rio Blanco County, along with a new partner, Tenneco of Houston. Details of Tenneco's involvement in C-b have not been disclosed to date, he said. Queries which this correspondent has directed to Chairman C. W. Rackley of Tenneco have not been answered to date, RE the Tenneco tie-in with Occidental on C-b.

Culberson said he did not think that the COLONY venture to develop an oil shale project on private land near Grand Valley, Colo., would get the green light from the partners, Atlantic

	Regular Commercial Testing Program		Accelerated Program		All-Out Crash Program	
Syn Fuel*	1985	1990	1985	1990	1985	1990
shale oil	20	125	55	350	150	850
coal gas/liquids	65	125	65	430	125	900
oil sands	..	...	5	20	10	50
*Total in 000's of barrels of oil equivalency per day	85	250	125	800	285	1,800
Investment in 1979 $ by Billion of $	3	8	4	28	10	60

Culberson, president, told a syn-fuels task force of the committee headed by Sen. Gary Hart, D-Colo., on Sept. 5.

Oil shale retorting technology rates with coal gasification as most attractive in terms of end results, the study by Cameron showed. But shale oil is by far the most attractive price-wise, it found. It rated the production economics of the four major syn-fuels--shale oil, oil (tar) sands, coal liquids and coal gas as follows: shale oil $26 per barrel of crude oil equivalency, based on 1979 dollars; oil sands $31; coal liquids $36-$37; coal gas $40.

These costs are based on 100 percent equity and a 15 percent discounted cash flow return on investment. Shale oil costs could be lower if modified in-situ (on-site) technology shows a significant advantage. Costs for direct coal liquefaction and domestic oil sands are more uncertain because these are furthest from commercialization. Coal gasification is expensive, but coal gas is a product with high end -use value, Culberson stated in his prepared testimony.

Coal gasification and oil shale technology are closest to commercialization in this county, according to the Cameron report. "The only high BTI coal gasification technology ready for commercial application (now) is based on Lurgi coal gasifiers. Developmental coal gasification processes which could be ready for engineering design by 1985 include the slagging Lurgi, Texaco and COGAS processes," the report said.

"A number of above ground oil shale retorting processes are ready, or nearly so, for scale-up to commercial size. These include Union Oil, TOCSO, Paraho, Superior Oil and Petrosix. There is.

Culberson told this correspondent that Gulf and Standard are going to test all types of above-ground and itl-situ technologies on Colorado Oil Shale Federal Tract C-a in Rio Blanco County. The C-a lessees are busy digging a shaft and pumping water, he said.

Also moving right ahead is Occidental on Colorado Oil Shale Federal Tract C-b in Rio Blanco County, along with a new partner, Tenneco of Houston. Details of Tenneco's involvement in C-b have not been disclosed to date, he said. Queries which this correspondent has directed to Chairman C. W. Rackley of Tenneco have not been answered to date, RE the Tenneco tie-in with Occidental on C-b.

Culberson said he did not think that the COLONY venture to develop an oil shale project on private land near Grand Valley, Colo., would get the green light from the partners, Atlantic Richfield and TOSCO, until Congress decides what incentives it is going to offer the syn-fuels industry, if any. They want, in particular a $3-a-barrel -tax credit on shale oil, they have told the Colorado and Utah Congressional delegations.

Altho there are fairly extensive amounts of tar or oil sands in Utah, the Cameron Engineers study indicated "there is no significant or large-scale effort underway to develop technology for extracting U.S. oil sands." All of the activity is centered on the huge Athabasca tar sands deposit in Western Canada, it noted. Coal liquefaction processes tailored to the U.S. market are some years away from commercialization, it said.

Cameron estimated production levels and costs under three scenarios as follows:

in 1979 $ by Billion of $	3	8	4	28

Local oil shale project signs letter of intent

Geokinetics Inc., The Peter Kiewit Construction Co., Inc. and the U.S. Synthetic Fuels Corporation last week signed a letter of intent specifying terms of assistance for the Geokinetics Seep Ridge Oil Shale Project.

The assistance will consist of loan and price guarantees totaling $45 million. The government will provide an initial guaranteed price for shale oil of $42.50 per barrel, and will pay the difference between the guaranteed price and the market price.

The government will also guarantee loans for 60 percent of the cost of constructing the Seep Ridge production facility.

The Seep Ridge Project is located 70 miles southwest of Vernal and will produce 1,000 barrels per day of oil, utilizing the LOFRECO in-situ extraction technique developed by Geokinetics.

Geokinetics president, Mike Lekas said, assuming the SFC board gets a quorum in July, there is a good possibility Geokinetics could begin producing oil from Seep Ridge as early as 1986. A quorum is needed before the company can enter into any definitive agreements.

Lekas said the synthetic fuels board gave chariman Ed Nobel authorization to sign the letter with Geokinetics before over half the board resigned. The board's action came only after Geokinetics met certain conditions, including finding a partner to provide equity capital.

The Peter Kieweit Construction Co., Omaha, Neb., has agreed to provide $14 million of that money and will construct the Seep Ridge Plant, Lekas said.

Kiewit is a major construction company with extensive experience in construction of shale oil facilities, including work at the Union Oil plant at Parachute Creek, the Exxon-Tosco Colony Project, and the Teneco-Occidental Cathedral Bluffs Project. Kiewit is also an equity partner in the Cathedral Bluffs Project.

Lekas said the Seep Ridge project will merely be an expansion of Geokinetics' research and development effort near Vernal. For the past eight years the U.S. Department of Energy has shared with Geokinetics the cost of producing oil near Seep Ridge.

The Seep Ridge project will be based on the simultaneous operation of seven two-acre retorts with a total dai-

Continued on page 2

Vast amounts of water needed for oil shale development

By Helene C. Monberg

Washington--R. Dobie Langenkamp of the Department of Energy (DOE) told a Senate Armed Services Subcommittee headed by Sen. Gary Hart, D-Colo., this past week that it would take 200,000 acre-feet of water to run a million barrel-a-day oil shale industry.

Asked about the high water estimate made by Langenkamp, Hart in an interview over the weekend stated it appeared to be high to him. "We are not going to have a million-barrel-a-day oil shale industry in the Colorado-Utah-Wyoming area any time soon. The President is proposing about a 400,000 barrel-a-day industry, and I estimate that would take about 80,000 acre-feet of water," Hart stated. "Water could become the Achilles Heel in developing the oil shale resource."

Water for energy was not covered in the President's energy outline presented to the public on July 15. "Obviously, the subject will have to be addressed. My guess is that the Members of Congress from the area involved or from the West generally will have to address the problem," Hart stated, unless the Administration comes up soon with a proposal.

"There are only two ways to go, for the federal government to build some projects which are multiple-purpose and which include water needed for energy development, or for the energy companies to buy up water rights. I much prefer the former," Hart stated. Langenkamp said DOE had not pursued a law suit to establish water rights of the federal government to permit development of the U.S. Naval oil shale reserves. "But the problem will not go away just because it hasn't been addressed," Langenkamp stated.

Assuring enough water for oil shale developments and other synthetic fuel developments under a high priority federal "syn-fuels" program is likely to be a sticky wicket. At some time the federal government will have to acquire water rights to assure enough water for the necessary energy developments, Langenkamp warned. But it has been wary to date of going to court to litigate the issue because the states are so opposed to the federal reserved water rights doctrine established by the U.S. Supreme Court (SCOTUS) in recent years. Under this doctrine, the water right is said to have vested by SCOTUS when the public domain was set aside for specific

Hart Military Construction and Stockpiles Subcommittee on July 19. Despite the President's new energy effort outlined July 15, he indicated that DOE has no plans at this time to change its 1980 program for oil shale on the naval reserves. "The Naval Oil Shale Reserve pre-development plan is in its third year. During 1979 fiscal year, the surface hydrology study at Naval Oil Shale Reserve No. 1 will be completed, as will the Fischer assays on the core holes which were drilled during fiscal year 1978. It is also expected that a revision of the NOSR No. 1 resource estimate will be completed during this period. Finally, the environmental-meterological baseline monitoring requirements will be established," Langenkamp told Hart. The budget request for all of the naval reserves of petroleum and oil shale totals $72,900,000 for fiscal year 1980, of which most is earmarked for the Elk Hills, Calif., reserve.

Although production is going forward at both Elk Hills and Teapot Dome naval oil reserves in California and Wyoming, the only oil shale that has been produced from the naval oil shale reserves in Colorado and Utah has been enough to keep the Paraho project going at Rifle, where a small amount of shale has been processed for refining into oil for the Navy's use. Langenkamp estimated the total of the three oil shale reserves' oil in shale was 26 billion barrels of oil, with 22 billion located at No. 1 in Colorado and 4 billion located at No. 2 in Utah. He further testified about 5.1 billion barrels at the Colorado reserve "are considered to have potential for economic recovery using the types of technology presently under development." The Paraho plant processed only 200 barrels of oil from shale a day when operating.

Langenkamp saw no future significant oil shale development without significant government aid. "The front-load costs are too big an apple to bite on" by industry itself, with costs of a single plant running $1 billion or more, Langenkamp told the Hart Subcommittee. "I agree," Hart said. They generally agreed that before the development of oil shale reserves starts to "pay off to the American people," as Langenkamp put it, the federal government would have to help with the financing, the water question would have to be resolved, along with environmental concerns. "Much hinges on technology," Langenkamp testified.

Hart said he hoped the program decided on would not result in industry "keep lining up for federal aid." Otherwise the efficiency of the private sector due to risk-taking would be missing, Hart emphasized. With the risk removed, industrial contractors were not likely to be any more efficient than government, he concluded.

million barrel-a-day oil shale industry.

Asked about the high water estimate made by Langenkamp, Hart in an interview over the weekend stated it appeared to be high to him. "We are not going to have a million-barrel-a-day oil shale industry in the Colorado-Utah-Wyoming area any time soon. The President is proposing about a 400,000 barrel-a-day industry, and I estimate that would take about 80,000 acre-feet of water," Hart stated. "Water could become the Achilles Heel in developing the oil shale resource."

Water for energy was not covered in the President's energy outline presented to the public on July 15. "Obviously, the subject will have to be addressed. My guess is that the Members of Congress from the area involved or from the West generally will have to address the problem," Hart stated, unless the Administration comes up soon with a proposal.

"There are only two ways to go, for the federal government to build some projects which are multiple-purpose and which include water needed for energy development, or for the energy companies to buy up water rights. I much prefer the former," Hart stated. Langenkamp said DOE had not pursued a law suit to establish water rights of the federal government to permit development of the U.S. Naval oil shale reserves. "But the problem will not go away just because it hasn't been addressed," Langenkamp stated.

Assuring enough water for oil shale developments and other synthetic fuel developments under a high priority federal "syn-fuels" program is likely to be a sticky wicket. At some time the federal government will have to acquire water rights to assure enough water for the necessary energy developments, Langenkamp warned. But it has been wary to date of going to court to litigate the issue because the states are so opposed to the federal reserved water rights doctrine established by the U.S. Supreme Court (SCOTUS) in recent years. Under this doctrine, the water right is said to have vested by SCOTUS when the public domain was set aside for specific purposes, such as the creation of Naval Oil Shale Reserves No. 1 and No. 3 in 1916 and 1924, respectively in Garfield County, Colo., and Naval Oil Shale Reserve No. 2 set aside in 1916 in Carbon and Uintah Counties, Utah.

Langenkamp testified before the third year. During 1979 fiscal year, the surface hydrology study at Naval Oil Shale Reserve No. 1 will be completed, as will the Fischer assays on the core holes which were drilled during fiscal year 1978. It is also expected that a revision of the NOSR No. 1 resource estimate will be completed during this period. Finally, the environmental-meterological baseline monitoring requirements will be established," Langenkamp told Hart. The budget request for all of the naval reserves of petroleum and oil shale totals $72,900,000 for fiscal year 1980, of which most is earmarked for the Elk Hills, Calif., reserve.

Although production is going forward at both Elk Hills and Teapot Dome naval oil reserves in California and Wyoming, the only oil shale that has been produced from the naval oil shale reserves in Colorado and Utah has been enough to keep the Paraho project going at Rifle, where a small amount of shale has been processed for refining into oil for the Navy's use. Langenkamp estimated the total of the three oil shale reserves' oil in shale was processed only 200 barrels of oil from shale a day when operating.

Langenkamp saw no future significant oil shale development without significant government aid. "The front-load costs are too big an apple to bite on" by industry itself, with costs of a single plant running $1 billion or more, Langenkamp told the Hart Subcommittee. "I agree," Hart said. They generally agreed that before the development of oil shale reserves starts to "pay off to the American people," as Langenkamp put it, the federal government would have to help with the financing, the water question would have to be resolved, along with environmental concerns. "Much hinges on technology," Langenkamp testified.

Hart said he hoped the program decided on would not result in industry "keep lining up for federal aid." Otnerwise the efficiency of the private sector due to risk-taking would be missing, Hart emphasized. With the risk removed, industrial contractors were not likely to be any more efficient than government, he concluded.

SOME TOWNS go to the dogs! Not Vernal's Main Street, "Its for the birds". This young mallard seems to be enjoying the comforts of home in a pond created by a broken water main near Montgomery Brothers on 5th East and Main unaffected by all the construction work going on around his watery domain.

Voice of the People

Vernal Banker Expects 'People

Outdoorsman, banker and city councilman Bill Gibson says, "It's great to be a part of something new." And the "new" he has in mind is the potential full-scale, commercial oil-shale industry. A resident of Vernal, Utah, for the past 8 years, Gibson's interest in oil shale began a few years ago when he undertook to study the possible socioeconomic impacts of oil-shale development in Uintah County as a University of Washington banking school study project. Gibson, who is vice president and manager of the First Security Bank of Vernal, finished his study in 1974. Yet he already thinks his research is outdated and that his growth projections were too low.

As a banker, Gibson welcomes the new business that growth resulting from oil-shale development will bring. Also, as an outdoorsman who raves about "the unbelievable array of beauty that we have at our fingertips here in eastern Utah," Gibson believes that this environment and oil-shale development can co-exist. He does foresee some problems—crowded schools, for example. But he relies on "the attitude of the people" to help find solutions. "People here are certainly not backward," he says. "The Chamber of Commerce is extremely active and the Lions, Rotary, Kiwanis and others are working for organized growth. And we have the people resources to accomplish this."

To find out more about the viewpoints of this Vernal resident/businessman, SHALE COUNTRY recently interviewed Gibson, who is also past president of the Vernal Area Chamber of Commerce, current director of the Chamber's industrial development group, director of the Dinosaurland Regional Travel Board, member of the Vernal City Planning Commission, the Utah Bankers Assn. and the Vernal Area Community Christmas Committee. Gibson and his wife Sharon are parents of three children, ages 9 to 13. His wife is a kindergarten teacher.

Gibson's oil-shale observations include:

Q. *When you made your oil-shale development socioeconomic study, what did you find?*
A. First, let me explain that most of my information came from Chuck Henderson (now director of the Uintah Basin Energy Planning Council, established by the Governor). He's one of our most knowledgeable people about the oil-shale industry.

In terms of the study itself, we feel that we underestimated the population impact. We feel we didn't even scratch the surface of what the overall effect is going to be on growth. Reason: We were only looking at one oil-shale development (White River Shale Project, which is part of the federal prototype leasing program). Now TOSCO (The Oil Shale Corp.) and WESTCO (Western Oil Shale Corp.) also are studying the potential of oil-shale development on private oil-shale holdings and on lands leased from the state.

We had projected a population increase of around 5,000. But by 1980, it now looks like Vernal City and the Ashley Valley could have a population of some 30,000 (about twice the current population in this area), if all the developments take place.

Q. *What kind of growth do you anticipate if oil-shale development does not occur?*
A. I think we would continue to realize about a 3- to 5-percent moderate growth trend.

Q. *What are the current economic resources of the Vernal area?*
A. Oil production is our number-one economic resource right now. (But) exploration is being curtailed for oil and natural-gas development, because of Congressional oil depletion and price-control moves. Probably number two in revenue is tourism. We're located in a recreational center, which provides us with an abundance of tourist opportunities, some of which haven't begun to be realized or developed. Currently, the Flaming Gorge and the Dinosaur National Monument are the big tourist attractions. Farming and ranching are number three (in the overall economy). Then would come phosphate and gilsonite production, and general commerce. Actually, there's no question that we would grow moderately anyway (without oil shale). Business attracts business. We have such a fine area that it attracts people by itself.

Q. *Exploration in the oil fields has declined, as you mentioned. And Uintah Basin unemployment has stayed around 7 percent as jobs have dropped off and*

to the public money market. In turn, the Agency could use the bond proceeds to make loans to local governments of any jurisdiction or to other public or private entities for a variety of public facilities and housing. State finance agencies, of course, are not a new device; but the Wyoming Authority was given much broader lending powers. For example, it could make loans for a wide variety of public purposes to governments and private entities. Thus, it could respond to diverse needs. For example, one community might need $3 million for a water-treatment plant; another might require $2.5 million for a railroad grade separation; all communities might need capital for housing. This recommendation passed the Legislature virtually as submitted, and the Wyoming Community Development Authority now exists.

A second specific legislative recommendation was for a constitutional amendment that would double the limits of bonded indebtedness for cities, counties and school districts. This, too, passed the Legislature, so at the next general election in 1976, the proposed constitutional amendment will appear on all Wyoming ballots.

Of course, raising bond limitations carries with it its own revenue source through the ad valorem tax. But, the Authority is different. That is, the Authority operates like a bank: it loans money only if it can be repaid. The "tax geography" analysis showed that the money needed by cities and towns would go to the state, counties and school districts by law.

Well, laws can be changed. So, the Impact Committee made two specific legislative recommendations to do exactly that. First, the Committee recommended that the state double its return from 1/6 of sales tax returns to 1/3 of the collected amount. This would increase city and town revenues by 15 percent. This recommendation passed.

Another potential for redirecting revenue flow lay in a disparity between city and county tax bases. A Wyoming law, the Joint Powers Act, allows counties and cities to work together, but on a very limited basis. So, the Impact Committee recommended an amendment to that Act that would liberalize the areas of cooperation between counties and cities. This cooperation would allow for a flow of "extra" county dollars to city needs. This amendment also passed as proposed.

Although the proposed legislative recommendation helped get the proper revenue flow from one governmental jurisdiction to another, the money needed for anticipated facilities and services was still short—short by $6 million a year for the next 20 years. Clearly, there was a need for new tax revenues, so the Committee came up with an answer that is possibly unique in tax law. It recommended a tax on the production of coal; but, it was a tax carefully tailored to fit the problem—no more, no less. The tax was designed to bring in $120 million over the next 20 years; revenues were specifically dedicated for capital costs of water, sewer, highway and road projects in coal-impacted areas; provisions were made for continuing revenues to be pledged to make up debt service deficits; and finally, it contained a "self-destruct" clause—once the $120 million was paid in, the tax went off the books. This recommendation also passed as proposed.

One special point about the "Coal Impact Tax" as it is called: while it was being developed, the Committee closely communicated with coal industry representatives. They recognized the problems facing Wyoming communities and recognized their responsibility in the matter. For the most part, they fully supported the Committee's coal tax recommendation.

That's the story to date. It's too soon to say how effective the Wyoming approach will be. But we have taken several important steps. I do see, however, a glaring gap in our preparations—the problem of early planning by communities. The enacted impact legislation established the financing machinery that can be used once industrial development starts. But hard decisions are not being made, permits are not being issued and construction schedules are not being set. Everything is pending—pending the outcome of an environmental suit, the completion of impact statements, the resolution of strip-mining controls, federal leasing policy, an energy policy. All of these are beyond community and industry control.

When will the size and shape of the problems come into focus? No one knows, but, we should use this time for early planning. Unfortunately, that is not being effectively done because small communities cannot commit sizable portions of their limited financial resources to plan for events that may never materialize.

I believe this area of planning is one where the federal government could assume an effective role. Thus, we have recommended, both to the Federal Energy Administration and to Congress, that a revolving fund, of say $50 million, be established for energy states to use for early community planning.

In the meantime, we can draw some conclusions. One: in the near future we are going to experience some kind of major, energy-related growth, and the resulting socioeconomic impact is going to be a local problem. Two: we at the local and state levels have the ability and the responsibility to meet this problem by designing the legislative machinery ahead of time and putting it into effect.

Better off

We can be optimistic about the future. In the long run, our towns will be much better off than they are now. For example, Rock Springs, Wyo., long a case study of impact ills, is a better town today than it was 5 years ago—with a much brighter future. So is Gillette because of the oil boom that took place in the 60s. My town of Casper enjoys excellent facilities and a high level of services because of its mineral tax base. Therefore, we should not lose sight of the fact that while industrial impact has its disadvantages, it also has its opportunities—the opportunity to build first-class towns with high levels of services—and with long-term financial stability. "Impact" really is prosperity too.

(Abstracted from a speech given in Grand Junction, Colo., November 1975)

Resources' Will Channel Growth

A student of oil-shale impacts, banker Bill Gibson says, "I want to know what effect oil-shale development is going to have on me as an individual as well as a banker."

the labor supply has increased. Will this situation continue?

A. Yes. However, we are leveling off (in the local economy). Nevertheless, we're fortunate here; there are many areas in the United States experiencing a much higher unemployment rate.

Q. *One of the brighter spots in the Vernal local economy of late has been construction, mostly housing—up 88 percent in the first 6 months of 1975, compared to the same period in 1974. What does the future seem to hold?*

A. Housing *is* available. Now, you can see "For Sale" signs in the valley. A couple of years ago this was not the case. Within the next 2 years, we may be confronted with another (housing) shortage. But growth is not going to come as rapidly as it did in 1973 and 1974. And (it won't come) until the oil-shale companies are on the verge of starting construction.

Q. *If oil shale does become a commercial industry, how do you, as chairman of the financial section of the Uintah Basin Energy Council, think the communities will pay for impact from this growth? How will they pay for the utilities, the schools, the streets?*

A. That matter is largely up in the air. Right now Uintah County is seeking EDA (Economic Development Administration) funds; we are establishing ourselves as an Economic Development District. When approved, we will apply for funding of various projects based on priorities. This is the only way to go, even if it is not the most desirable. However, a major concern is that we may become too dependent on government. Then when we're in the middle of a project, if the funds are cut off, what can we do? I'd like to see us not become too dependent on the federal bureaucracy. But it's becoming a way of life. We almost have to fall in line and ask for our share.

Another source of revenue is the oil-shale lease bonus money. A major share of these funds should come back to the county of origin, where the growth impact is. Apparently, however, our state legislature and the federal government feel they don't want one county to be richer than another. But there ought to be (some way) to get some of this bonus money back into the impact areas for development use.

Q. *Utah is also hampered since its bonus money is being held in escrow while the courts decide ownership of certain oil-shale land (including U-a/U-b; now under federal control, the land could become state property).*

A. Yes, those monies are held up, but we feel the interest on that money ought to be freed. Since the money is being invested in time certificates of deposit, as a minimum, the interest could be freed and used for master planning to figure out what kind of capital we're going to need.

I don't think we're being fair with the oil-shale industry if we ask them to put up front-end money when they've already obligated themselves for $48 million for the project (White River), success or failure, and millions more if it gets the green light.

Q. *Do you think there will be squabbles or jealousies between cities wanting impact funds, roads and so on?*

A. I think we're all mature individuals with one goal in mind—development of communities we can be proud of. One encouraging sign is that Uintah County commissioners and Vernal City have in recent months been holding joint business meetings. In the past, the commissioners and city have really not worked very closely with one another. Now we're meeting to discuss common problems, such as what future growth will bring. This is a very important first step. And I think we can improve this relationship further. After all, Vernal City is a part of Uintah County; it's very important we work together.

Q. *One final question—just as a matter of curiosity. What made you decide to study oil-shale impacts several years ago?*

A. It was something I knew completely nothing about. It undoubtedly is going to be an industry that is going to affect us more than any other industry over the next few years. Therefore, I want to know what effect it's going to have on me as an individual as well as a banker. And I hope to make a small contribution toward the solution of our energy crisis. Oil shale is really interesting. I've enjoyed studying it.

C.E.

Letters To The Editor

It's been a while . . .

. . . since we've had the space to run a "Letters to the Editor" page. But it's time we did because readers' letters have been piling up—mostly requests for more information or for subscriptions—but some corrections and complaints too. So here are some of the key ones.

Hoot, Screech—We've Been Outfoxed!

"ECI employees working on ecological aspects of oil-shale development on Tracts C-a, C-b and Union Oil's Parachute Creek property have read with interest the first issues of SHALE COUNTRY and have been pleased with the careful balance of subject matter you have achieved. However, in the July and August issues, two of ECI's photographs were incorrectly captioned. On page 14 of the July issue, the photograph is of a screech owl (not a horned owl); on page 16 of the August issue, a red fox is depicted, rather than a coyote.

"I would appreciate your indicating these corrections in a future issue. Thank you."

Stephen G. Martin, Ph.D.
Vice President
Ecology Consultants, Inc.
Fort Collins, Colo.

Oops! SHALE COUNTRY can't tell the difference between a fox (above) and a coyote or a horned owl and a screech owl (below). Back to zoology class.

(Regarding the "coyote" picture), "This is a fox—not a coyote. Your point would be more believable if you knew the difference."

Kerry Evans
Rock Springs, Wyo.

Editor's Note: *You're right, readers—we mislabeled the two animals and we apologize. Guess we've just had coyotes on our minds since our company prepared and published a special documentary on sheep about a year ago, which included a discussion of the sheep-coyote situation.*

Pharmaceutical Services Too

"I have just finished reading the latest issue of SHALE COUNTRY—a most interesting publication. I find it difficult to believe, however, that in your assessment of health-care needs in Colorado's shale country no mention was made of the delivery of pharmaceutical services—a job that has been done through the years with little fanfare by the independent pharmacist who has served the country unstintingly."

John C. Davis, III
President
Davis Bros., Inc.
Denver, Colo.

Editor's Note: *The basic constraint with this article, of course, was space. We decided to begin our discussion of health care in shale country with a look at needs. In the future, we will certainly have many opportunities to review all the various facets of health services.*

Not the first

"I have just received the August issue of your excellent publication and beg to differ with the headline only on the article which appears on page 7.

"I believe that the honors for 'First of its Kind' may not properly belong to the Oil Shale Environmental Advisory Panel.

"Quite some time ago, the Missouri Basin Systems Group (MBSG), a planning and pooling association concerned with electric power development in the Missouri River Basin developed an environmental advisory committee to provide input in relation to the proposed Missouri Basin Power Project near Wheatland, Wyoming.

"While I do not know the specific date of organization, I do know that the committee has met regularly and is now known as the Environmental Resources Group.

"If you wish further information, MBSG is Denver headquartered, and the executive director is Robert O. Marritz."

Dick Easton
Asst. to General Manager
Colorado Rural Electric Assn.
Denver, Colo.

Editor's Note: *Thank you for your comment. This is exactly the type of information we like to pass on to our readers.*

Shale Pioneer Reminisces

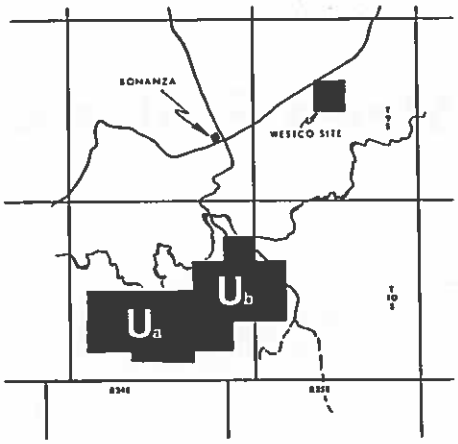
"Enclosed is a check for $4.00. I would like very much to receive SHALE COUNTRY issues since its inception and continue to receive it in the future.

"Only those of us who pioneered the Bureau of Mines Project beginning in 1944 are able to imagine the frustration of free enterprise vs. government in developing a much needed energy resource.

"Your SHALE COUNTRY covers depict that beautiful western slope country that is vast enough to allow a giant-sized oil-shale industry."

Mrs. Tell Ertl
Boulder, Colo.

Editor's Note: *We are pleased to fulfill your request for a subscription to SHALE COUNTRY. And we are well aware of the Ertls' pioneering role in shale and, therefore, would very much like to interview you for a "Vignette" article for a future issue (article tentatively scheduled for March 1976).*



The Westco site shown marks the spot where 10 oil companies and Western Oil Shale Corp. plan an in-situ oil-shale experiment that should soon move into Phase II—field execution.

Newcomers

Westco Aims At In-Situ Answer

Not many months ago, a "new" oil-shale project was born when 10 major corporations joined a small, independent Utah company, Western Oil Shale Corp. (Westco) in a feasibility study effort. Their purpose: to investigate the technical feasibility of modified in-situ recovery of oil from oil shale (underground, in-place retorting of the shale oil after some mining has been done). The project site: about 40 miles southeast of Vernal, Utah, and 3 miles northeast of Bonanza, Utah, on land Westco leases from the state of Utah (see map).

To find out why and how the Westco project got started and where it is going, SHALE COUNTRY asked Dr. Hank Cofer, Westco vice president for an update. And here are Westco's answers.

Q. *Why was the Westco in-situ shale effort begun?*

A. In-situ retorting of oil shale has been discussed for years as one means to increase national energy supplies and to favorably develop the oil-shale deposits in northwest Colorado, southwest Wyoming and northeast Utah. The major question has always been whether in-situ retorting is technically and economically feasible. Thus, in a series of meetings between representatives of industry and Western Oil Shale Corp. starting in 1974, a decision was made to jointly undertake the design of a definitive set of experiments determining technical feasibility of modified in-situ oil-shale retorting methods.

Q. *How was the site chosen?*

A. Many potential sites in Colorado and Utah were considered. The present site near Bonanza was selected early in 1975 based on easy road access, favorable lease situation, utility and offsite support facility availability, and an oil-shale interval and overburden representative of properties now held by participating companies and of a large portion of governmental lands.

Q. *What was the next step?*

A. A design of the proposed project was developed by participating companies during 1974 and 1975. Major concerns were that the project would yield the desired answers on technical and economic feasibility of modified in-situ oil-shale retorting. By June 1975, several major decisions had been made: (1) The experiment should be jointly sponsored by industry and government; (2) Provisions should be made to allow any company or institution to participate; (3) A well should be cored on site to verify oil-shale richness and thickness; (4) The experiment should be carried out with minimal effects on the environment; (5) Both in-situ gas combustion retorting and hot gas recycle retorting should be considered; (6) Primary emphasis should be on safety in conducting the experiment; and (7) Accurate instrumentation and analytical techniques would be important design requirements.

Q. *Who are the companies involved in this effort?*

A. The 10 companies that participated in Phase I of the experiment and contributed time, talent and financial support to the design include: Ashland Oil, Inc., Chevron Oil Field Research Co., Cities Service Oil Co., Getty Oil Co., Gulf Energy and Minerals Co., Arthur G. McKee & Co., Mobil Research and Development Corp., Shell Oil Co., Standard Oil Co. (Indiana) and Sun Oil Co.

In addition, technical personnel from the U. S. Energy Research and Development Administration's Laramie Energy Research Center, Los Alamos Scientific Labs., Lawrence Livermore Lab., Sandia Labs., and the U.S. Bureau of Mines Denver Mining Research Center have participated in the project as well as numerous Utah state agencies and other federal governmental agencies.

Q. *What is the current status of the Westco project?*

A. The experimental project has progressed on schedule. Phase I (resource and environmental evaluation, experimental design) is complete; the results were encouraging and so we are now ready for Phase II, field execution. It is expected that the joint participation of industry, government and research agencies will continue throughout Phase II. And Westco has submitted a proposal to ERDA relating to funding support for the project. (Westco also must resolve a suit filed by Occidental.)

Q. *What will Phase II cost and how long will it take?*

A. Total Phase II project costs are estimated to be $45.8 million (1975 dollars) with no escalation and no contingency. These costs are based on a 3-year experiment execution schedule that will include these major categories: mine development, rock fragmentation and process operations support; surface process facilities; project management; and project support. Environmental monitoring and protection costs have been integrated into all these categories and are estimated to be more than 12 percent of the total project cost.

Q. *What's the next step?*

A. As now envisioned, the 3-year joint industry/government project could begin this summer, 1976, with the first in-situ retorting experiment tentatively set for late 1977. It is expected that the project will create about 20 temporary staff positions and will accommodate up to 150 more transient craftsmen.

A. N.

Environment

Miner Meets Ecologist

There was a time when the miner scooped out his ore, abandoned his mine, and left the reclamation expert, if there was one, to tidy up afterward. But today's miners, including oil-shale developers, are required by law to make mining and reclamation harmonious. The miner and the ecologist must work hand-in-hand even *before* mining begins. Explains Dr. Thad Box, a natural-resource specialist, "It makes sense to give some thought to what you're going to do with the land before you tear it up." Box is Dean of the College of Natural Resources at Utah State University in Logan, and a member of the Oil Shale Environmental Advisory Panel. He states that rehabilitation of the land really is a matter of commitment, rather than technology, and he points to well-developed reclamation techniques in coal and potash mining as examples.

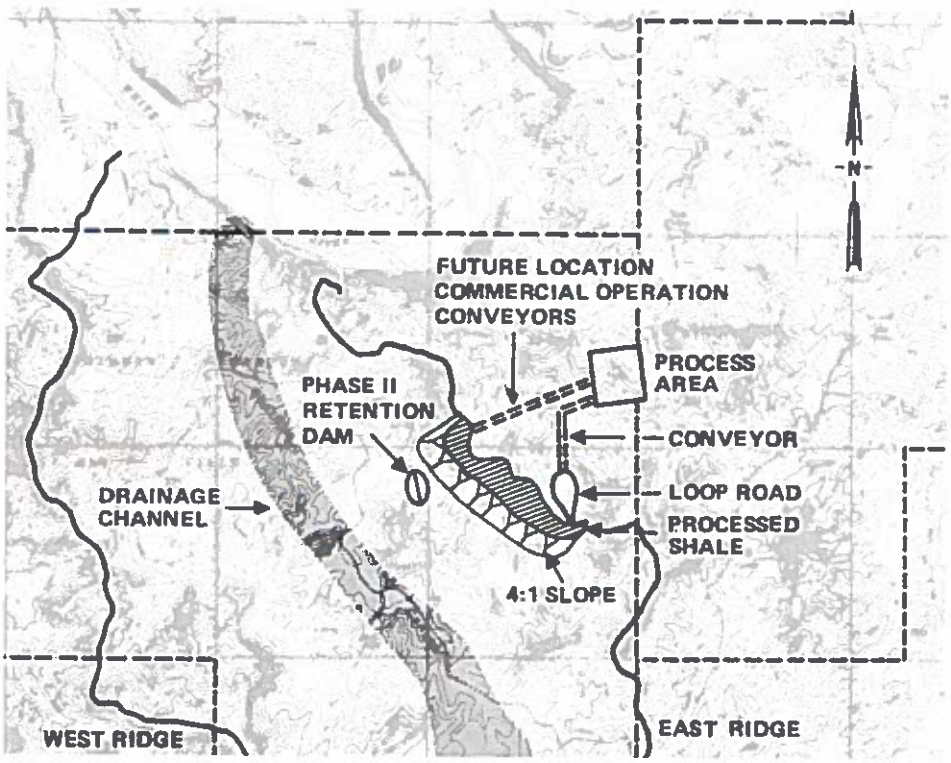
Box describes the basic rule for rehabilitation: planning starts *before* the first mining blueprints are done. First, the mining engineer and rehabilitation expert must agree on objectives for use of the land after it is mined. For example, Box asks, "Do you decide you want to put the land back as it was, or do you want to make it a swimming pool?" In the case of federally leased oil-shale tracts, the ultimate reclamation objective is stated in the leases: the land must be left in a stabilized, revegetated condition consistent with environmental conditions at the time baseline data were gathered. In other words, a natural community is to be restored on the tracts. The objective is stated even more simply by Charles Spielman, vice president of mining for the Rio Blanco Oil Shale Project, who says, "We're going to try to get something to grow out there that will be good for the cattle and the deer."

Once the future land-use objective is determined, the mining engineer draws up a fundamental design. And he decides how the mounds of dirt are to be moved. For example, on tracts U-a and U-b in Utah a total of 185 acres of land will be disturbed. The miner must design a mine plan that segregates and stores those parts of the soil that will support plant growth. He must work with the rehabilitation expert to see that the processed shale is disposed of in a manner that is environmentally acceptable, and the two experts must know how the land is to be managed once it is revegetated. Will there, for instance, be supplemental irrigation, or will natural precipitation be the only source of rainfall?

To glean an idea of how miner and ecologist cooperate, SHALE COUNTRY interviewed two officials of tracts U-a and U-b (known as the White River Shale Project), Rees Madsen, environmental coordinator, and Lowell Page, manager of mining. They explained the balancing of factors that include mine safety, mine comfort, costs, operability of the mine and land rehabilitation.

People safety first

Since the White River project is planning an underground mine, above-ground effects of the mine will be minimal. One effect, however, could be subsidence of the surface lands, thus project planners are designing the mine



Processed shale will be moved from the processing area by conveyor belt to the loop road, where trucks will move it to the disposal area. Conveyors will be brought as close as possible to the point of disposal, since movement by conveyor is less environmentally disturbing and less costly than trucking. (Sketches are from preliminary plans of the White River Shale Project in Utah.)

Sept 29, 1977

Western Resources WRAP-UP

Oil shale moves forward

The federal government is gingerly moving into oil shale development.

The Interior Department has informed the lessees of Colorado Oil Shale Tract C-a it will notify them by Sept. 22 whether it will approve their plan to develop the C-a tract leased from the government in 1974. (Note-The C-a modular plan was approved).

Interior on Aug. 30 announced approval of the detailed development plan of the lessees of Colorado Oil Shale Tract C-b. Both Colorado oil shale tracts are located in Rio Blanco County in northwestern Colorado. Like C-a, C-b has been under lease from the government since 1974. But for technical reasons, the leases on both tracts have been suspended for the past year.

Interior made a contract award of $473,459 on Sept. 8 to Environmental Research and Technology, Inc., of Los Angeles to do an environmental impact statement (EIS) on a proposed land exchange between Interior and Superior Oil Co. of Houston. Superior has sought the land exchange for several years to block up land it owns in the oil shale-rich Piceance Creek Basin in northwestern Colorado to experiment with a closed system multi-mineral oil shale process which it has developed.

Nahcolite, dawsonite and soda ash would be extracted with the shale under the Superior process. The awardee must complete the contracted EIS by Sept. 24, 1978. The deadline gives Interior another month, or until Oct. 29, 1978, to review it, make changes and submit it to the Council on Environmental Quality. The EIS will be comprehensive enough to cover both the land exchange sought by Superior and a non-competitive lease favored by Interior officials and Sen. Floyd K. Haskell, D-Colo.

Following a protest by Interior Secretary Cecil D. Andrus and b[illegible] Sen Gary Hart, D-Colo. [illegible] Office of [illegible] with persons formerly activists in the environmental movement long cool to oil shale development. The Carter Administration's heavy emphasis on energy, including developing new sources of domestic supplies, and the clout that incoming Energy Secretary James R. Schlesinger has had at the White House are cited as the main reasons for the new developments.

Insofar as the two active Colorado oil shale tracts are concerned, Area Oil Shale Supervisor Peter A. Rutledge and his staff have worked hard to assure environmental safeguards in the detailed (mining) development plans that have been submitted to him by the lessees under the lease terms. Interior backed Rutledge in his approval of the C-b mining plan, and the odds are that it will do likewise on C-a, althought the lessees of the two tracts plan to develop them somewhat differently. Both plan to use modified in-situ processes with some underground mining to create the void needed for on-site retorting. Lessees of C-b are Occidental Oil Shale, Inc., and Ashland Oil, Inc. Lessees of C-a are Gulf Oil Corp. and Standard Oil Company of Indiana.

SOME SETBACKS

Some efforts to move ahead on the oil shale development front have not panned out. The two oil shale tracts leased by the federal government in Uintah County in eastern Utah are tied up in court in disputes over title. Although they were leased in 1974, they are not expected to be developed any time soon, Interior sources told Western Resources Wrap-up (WRW) here this week.

Repeated efforts that ERDA has made to participate in the Navy-Paraho experiment have failed. ERDA is trying once again to get about $3.4 million reprogrammed, $3 million for

position, sources close to O'Leary told WRW this week. He has just been named Deputy Secretary of Energy. His nomination to his new post went to the Senate on Sept. 13, along with that of two Californians to hold high posts in the new Department of Energy. They are Dale D. Myers of California, to be Undersecretary and Robert D. Thorne of California, to be an Assistant Secretary of Energy Technology.

While the Admnistration was bringing the new Department of Energy front and center to emphasize its concern about the energy crisis, the Bureau of Mines once headed by O'Leary at Interior is in danger of being phased out in a reorganization, Interior sources said this week. And Sen. Bob Packwood, R-Ore., chairman of the Republican Senatorial (Campaign) Committee, called the President's energy program "unworkable". If the Administration would be willing to let all petroleum products hit their value in the market place by deregulation, "we would have all the oil we'd need for 200 years from oil shale, tar sands and coal," Packwood told our press briefing group here on Sept. 12. He estimated it would take up to 15 years and a price tag of $19 a barrel of oil to do so, but such a program would work "because we aren't running out of (oil in) oil shale, tar sands and coal," Packwood maintained.

Colo., the Office of Management and Budget recently dropped its proposal to terminate the Oil Shale Environmental Advisory Panel established in 1974 to monitor the leased oil shale tracts. The Panel includes representatives from local oil shale areas, from the oil shale states of Colorado, Utah and Wyoming, environmental groups and several federal agencies, with Interior the lead agency. In addition to keeping an eye on environmental and socio-economic impacts in oil shale country, the panel has proved to be a helpful coordinating unit for local, state and federal governments.

THE NAVY Department on July 20 awarded a contract totalling $3.7 million to Paraho Development Corporation to retort up to 100,000 barrels of shale oil, according to an announcement made by Rep. James P. Johnson, R-Colo. The shale oil will be retorted at the federal Anvil Points Oil Shale facility near Rifle, Colo., under lease to Paraho, a Grand Junction, Colo.,-based company. The Navy has already experimented with 10,000 barrels of shale oil for use in its ships and aircraft. "Actual tests with jet engine components have demonstrated that fuels derived and refined from oil shale are compatible with jet engines with little or no engine changes," Sen. Wendell H. Ford, D-Ky., told the Senate following hearings on alternative fuels for aviation that he held last fall in a Senate Space Subcommittee which he then headed.

The Energy Research and Development Administration (ERDA), soon to become a part of the new Department of Energy which comes into existence on Oct. 1, has $28 million budgeted for oil shale R&D in fiscal 1978, nearly $6 million more than in the 1977 fiscal year ending Sept. 30. ERDA's two major thrusts in oil shale recently have been studies on in-situ or on-site retorting of oil from shale and on environmental impacts. ERDA is also interested in obtaining natural gas from the Devonian shales in the Midwest and East, but this is a separately funded ERDA R&D program.

The federal government has never been so active in oil shale development and R&D. This comes particularly as a surprise to many long-time observers of oil shale because the refining the oil retorted under the Paraho contract and $400,000 for continuing a refining experiment on synthetic liquid fuels under a contract ERDA has with Chevron Oil Co. The proposal has just gone to the Office of Management and Budget (OMB), and if OMB approves it, it must clear two authorizing committees (Senate Energy and House Science and Technology) and two Appropriations Committees in Congress. ERDA sources told WRW this week it is unlikely it will get the green light to reprogram funds–if it gets it–until next month at the earliest.

As a practical matter, the loan guarantee provision in the Senate-passed ERDA 1978 authorization and a similar bill before the House this week prohibits use of loan guarantees for oil shale development. It provides that "no loan guarantee for a full-sized oil shale facility shall be provided . . . until after successful demonstration of a modular facility producing between 6,000 and 10,000 barrels" of shale oil a day without unduly impacting on the environment or local communities. It also prohibits use of loan guarantees "for the manufacture of component parts for demonstration facilities."

Although loan guarantees for coal gasification have considerable support, they are opposed for oil shale development by this Administration and by Colorado Senators Haskell and Hart and by Colorado Representative Johnson, who represent the oil shale areas first likely to be developed. All, in effect, ask the same question: why should the government put up loan guarantees for oil shale if the lessees are willing to go ahead with development of the federal oil shale leases on their own?

CHAIRMAN John C. Dingell, D-Mich., of the Energy and Power Subcommittee of the House Commerce Committee in May asked Federal Energy Administrator John F. (Jack) O'Leary specifically where he (and the Administration) stood on this point. In a letter of reply to Dingell dated May 24, O'Leary stated: "I do not support loan guarantees for commercial oil shale facilities because it is my understanding that several oil shale operators have indicated a willingness to proceed with commercial ventures without government

Western Resources WRAP-UP

Aid to oil shale industry

By Helene C. Monberg

Washington--Government price supports and loan guarantees would be the least costly form of federal assistance, overall, to help a new shale oil industry get a foothold in this country.

That is the result of an analysis of various types of government aid to get a syn-fuels industry into operation in this country which was recently completed by the Congressional Research Service (CRS) of the Library of Congress.

Where the industry is not regulated by the government, CRS looked at four types of syn-fuels, shale oil, syncrude from coal, fuel from biomass (such as forest waste or manure), and high BTU gas from coal.

Generally speaking, it found that price supports backed up by loan guarantees would be the least costly types of subsidies to the federal government, overall, both for the long-haul and the short-haul.

For the shale oil industry, it ranked price supports and loan guarantees as of "medium" range cost to the government for the full life of an oil shale facility and for the short-term while getting the facility built.

If the government were to build the shale oil plant itself, or if it were to provide a construction subsidy for it to be built by industry, the cost would be high over the full life of the plant to the U.S. Treasury. But the initial costs of a plant built by the government would be low, according to the CRS study. It estimated the cost of a construction subsidy for industry to build a shale oil facility as "moderately" costly. It assumed that the plant would be built in modules or segments and scaled up into 50,000 barrel-a-day shale oil plants later.

If the government were to provide price supports to shale oil to compete in the market place, the initial cost would be high; but for the long-haul, the price support method would be low-cost to the government, as the cost of the product produced in volume would drop and the price support would no longer be needed.

Among the advantages of price guarantees to utilities, the CRS study showed, are that they would "transfer part of the product cost to the federal government," thereby providing "some economic incentive for state regulatory commissions to approve synfuel projects" because the entire cost of the syn-fuel would not have to be included in the utilities' rate base. Price guarantees also aid non-regulated companies interested in going into syn-fuels because they "assure profitability, which, in turn will assist" the companies in going to the money market and successfully attract capital. "Profitability is a major need of unregulated energy firms and price guarantees directly meet this problem," the study stated.

Loan guarantees from the "feds" likewise assist in gaining access to capital, particularly for small and middle-size firms, the study said. "Capital exposure is a major problem for non-regulated middle-sized and small energy firms and specialized ventures. For these firms a non-recourse loan guarantee would be important production from economic and technical uncertainties," it said.

Access to another form of aid to the syn-fuels industry is likewise important, the CSR study said, and that is "access to the resource on public land." This is particularly important in the case of oil shale, where 84 percent of the best land is held by the federal government, and only four small tracts, two in Colorado and two in Utah, are under lease. It's important to "all firms desiring to participate in a venture...but for the smaller firms ...access to public land thru leases is important" because they generally have no holdings, the CRS study indicated.

Overall, the study indicated that any subsidy to industry from the government, be it in the form of price supports, loan guarantees, direct loans, grants, government purchase contracts, or tax credits are of more importance to the smaller and medium-sized companies than large energy companies because it is harder for them to generate capital.

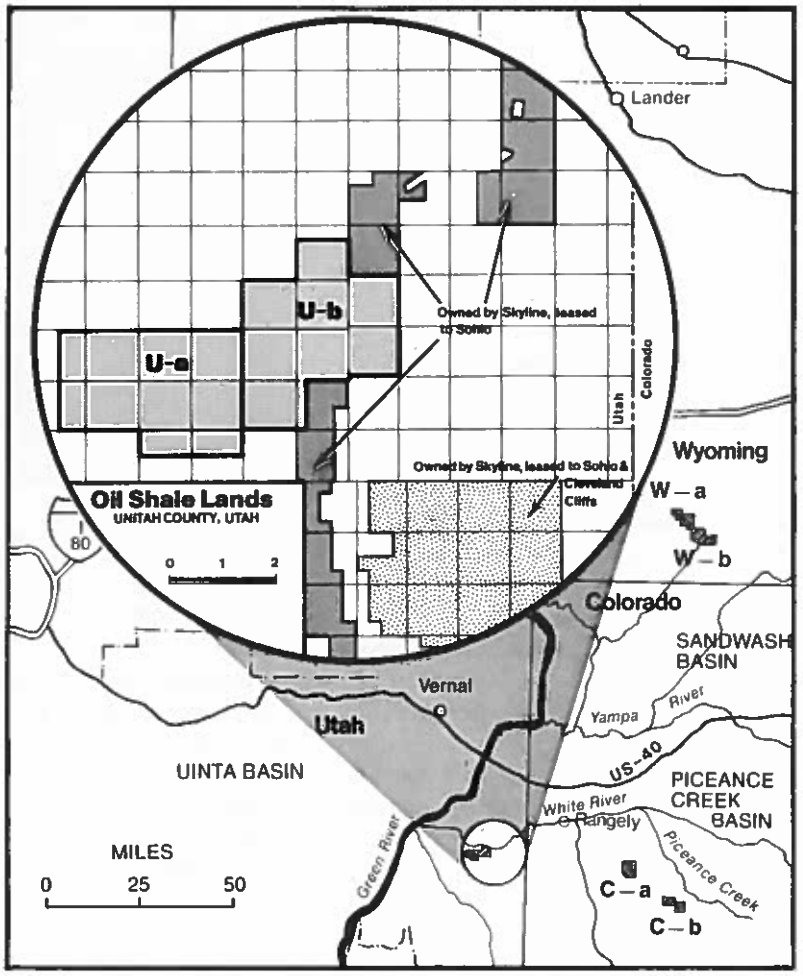
Tariffs and import quotas are beneficial to all if they really do protect a new industry, like syn-fuels, from foreign conpetition. To the extent that they are effective, the study shows, they would allow a syn-fuels industry to gain a foothold in the economy and also "are likely to assist in gaining access to capital." They pose a lot of problems, of course, including aiding the well-developed fossil fuels domestic industry as well as the new syn-fuels industry. "This is an inefficient method of protecting the profit needs of syn-fuels ventures," the study stated. Tariffs and import quotas have also worked imperfectly in recent years, and most recent Administrations have opted for freer trade rather than restrictions on international trade.

Situation Report

White River's U-a, U-b—Two Tracts, One Project

By Carol Edmonds

Experts finecomb 10,240 acres of desert.



Imagine getting down on your hands and knees with a microscope to examine an area the combined size of Berkeley, Calif., and Cambridge, Mass., and you will have a rough idea of what is taking place on the desert of northeastern Utah on 10,240 acres of land known as tracts U-a and U-b. The red-tinged, uninhabited desertland, located 45 miles southeast of Vernal, Utah, and 40 miles southwest of Rangely, Colo., is part of the federal government's oil-shale prototype leasing program.

The two tracts were leased in May and June 1974, by three oil companies that bid a total of $120 million and later organized themselves as the White River Shale Project. The group consists of three companies—Phillips Petroleum, Sun Oil and Sohio Petroleum. The first two companies leased tract U-a; all three companies leased tract U-b. The White River Shale Project team makes any major decisions with the consent of all three companies.

Placing tracts U-a and U-b side-by-side, the government made joint development of the two tracts possible. Economically, joint development is sound; oil shale on the federal lease tracts in Utah is believed to be located in thinner deposits and to be of lower quality than on the Colorado federal tracts. Estimated recoverable reserves under the two Utah tracts is ½ billion barrels, less than the expected yield from either of the Colorado tracts. On C-a alone, the Interior Dept. estimates a yield of more than 4 billion barrels.

At this time, U-a and U-b are being studied as intensively as a psychoanalyst would delve into a man's mind. Depending on the outcome of the studies, a 100,000-barrel-a-day oil-shale mining and processing complex could be operating on the site by the early 1980s. An immediate goal of White River shale officials is the completion of a detailed development plan required by the federal lease no later than the third anniversary date. Although the federal deadline is mid-1977, project officials aim to have the first draft ready by the end of 1975, and the final plan prepared by December 1976.

Who, what, where is White River?

To accomplish these goals, professional management and staff have been assembled. The first official on board was Earl H. Ramsey, a Sun Oil Co. executive. Ramsey moved to Salt Lake City with his family last September—lured, he says, by the chance of getting "in on the ground floor of a new industry."

Three other project officials also were appointed. Merril Littlewood, a Certified Public Accountant, was hired by Sohio Petroleum Co. to head community development; C. E. Doney came from Phillips Petroleum to be the project's engineering manager. Supervising site activity as Environmental Coordinator is Rees Madsen, a civil engineer who previously worked for Sohio in Cleveland, and now has an office in Vernal. Currently, less than 10 employees—not counting contract employees—are working for the White River project, but that number is expected to increase to about 20 in the next 2 years.

Going from who to where, anyone who glances at a map of northeastern Utah and locates the two tracts knows from where White River Shale Project borrows its name. The White River flows in a snake-like ribbon north of the tracts and actually cuts a swath across the

northern border of tract U-a (the tract to the west). The 10,000-plus acres hold water-carved gullies and canyons and resistant sandstone ridges.

Doney says the Utah tracts "look like the surface of the moon"; a visit to the quiet, lonely tracts shows his comparison is apt. Once off the dirt roads, a person is unlikely to encounter any sign of humanity—unless it is a project employee or two. If a person sticks to the dirt roadways, he may encounter an occasional truck, carrying, perhaps, a hydrologist or a biologist who is part of the 2-year environmental baseline study required by the federal lease. That study, explains Madsen, is an inventory of the natural site before any development. It will answer the question, "What was the site like before development started?"

Under environmental study, the area's water, air, soils, plant and animal life are examined. To study the environment, an engineering firm has been hired: VTN, which has offices in Vernal and Denver, and home offices in California. VTN area manager Doug Bowmen is the project's chief hydrologist. He supervises five other VTN and subcontractor employees who monitor air, water and other environmental factors.

In addition, the land is combed periodically by other specialists from VTN and from additional contractors, such as the Utah State University Foundation, the state archaeologist, a Brigham Young University paleontologist and the Utah Div. of Wildlife Resources.

Not every environmental study on the two tracts began at the same time, but most got underway last fall, and project officials say the baseline study should be finished by December 1976. Madsen says that since last fall, workmen have drilled 34 ground-water monitoring wells—ranging from 20 feet to more than 1,300 feet deep; workmen have built 12 air-quality and meteorological stations, and 14 surface water-monitoring stations—7 on flowing streams and 7 on normally dry drainage channels. Early findings, subject to change, indicate that ground water, as expected, is limited and its quality is relatively poor. And, one constituent—ozone—in the "virgin" air already

In Hell's Hole Canyon—This contraption is a ground water monitoring well, and it is situated on Utah shale tracts in a canyon whose name describes the inhospitable, arid climate in the summer.

periodically exceeds federal standards.

Another area of environmental scrutiny of the project includes plant and animal life on land, water and air—the biology of the tract. This covers everything from microbes to mountain lions. Very preliminary observation indicates, for example, that there is one resident deer herd along the White River but not on the tract itself, and that there is no wild horse herd on the tracts, as originally rumored. But detailed large game counts may fill in different information later.

Archaeology and paleontology are also on the environmental checklist, and specialists in these fields have found a petroglyph, some shells, petrified wood and large mammal bones. Research is just beginning, but so far, "They haven't found anything they didn't expect to find," Madsen reports.

Sound detailed? It is.

Project officials say their environmental studies are aimed at covering "the spirit of the lease," as well as its letter. Madsen explains why: "The last thing we want is to go through 2 years (of environmental studies) and be ready for development and then for some reason be found deficient in our studies." Originally, ecological studies were budgeted at under $2 million. After review of White River's environmental study plans by the federal Area Oil Shale Supervisor and the Interior Dept. Oil Shale Environmental Advisory Panel (OSEAP), project officials jacked up their environmental budget. Now, Madsen says, the expected cost for environmental studies is "near $6 million."

Project officials also say they are looking for areas where environmental monitoring seems redundant or excessive. They might find, for example, that they need to maintain two rather than four water-monitoring stations of flowing streams. Environmental data collection plans—and any revisions in those plans—require joint review and agreement by project officials, the OSEAP and the federal Area Oil Shale Supervisor. Whatever the intensity of these studies, Madsen sees positive spinoff benefits for such agencies as the Bureau of Land Management and U. S. Geological Survey who will be able to use the environmental data for public purposes. (All such data are made public.)

Question: Is Utah shale different?

Other site work, besides the environmental baseline activities, has included geological exploration and revegetation studies. Exploratory geological drilling was completed January 15. One major assessment from those samples will involve the nature of Utah shale. As Madsen explains, "We don't know yet whether there's a difference between Colorado shale and Utah shale." Based on Fischer assay tests and historical findings, Madsen says there may be "a different mineral makeup in our shale," probably fewer minerals.

Meanwhile, Ramsey and other project officials wrestle with other parts of the detailed development plan. A decision on retorting, for example, rests on work being coordinated by the engineering-mining-construction contractor, which is Bechtel, Inc., of San Francisco, hired in February.

In the "mostly likely" category of retorting techniques to draw the oil from the shale, Ramsey lists the Paraho process, the TOSCO II process and the Petro-Six process. He points out that all

three oil companies in White River are active participants in the Paraho Oil Shale Demonstration, which is half-way through a 30-month test program at Anvil Points near Rifle, Colo. "More information (from Paraho) is becoming available on a current basis, whereas most of the other projects have no current activity," Ramsey notes. Several other lesser-known processes are also being investigated. The contractor should recommend a retorting process by August, Ramsey says.

Mining will likely be room-and-pillar, an underground carving-out of "caves" supported by pillars of ore that are not mined. Whether there will be two or more mines has not been determined. Mining consultant for the project is The Cleveland Cliffs Iron Co.

As to decisions on water needs, Ramsey says, "We can't be completely descriptive until we decide on the size of the mine and the output of the refinery." Assuming a 100,000-barrel-a-day output of oil, approximately 36,000 acre-feet of water per year would be required for the shale complex and community needs of plant employees. "We have not acquired any water rights up to this point," Ramsey says, but the Project is in contact with the state of Utah, the Bureau of Reclamation, the Uintah County Water Conservancy Dist., and the Ute Indian Tribe. Utah Gov. Calvin L. Rampton has told project officials that the state is proceeding as fast as possible to have adequate water available for shale development. The Utah Div. of Water Resources has hired a consultant to check possible dam sites north of the tracts for water impoundment.

A method for transporting the low-grade crude shale oil has not been determined, but project head Ramsey says, "Based on my personal experience, it will be difficult to justify anything other than a pipeline."

Disposal of the shale after retorting is another question mark. Will the White River project need extra land to dispose of the spent shale? "At the moment, I don't believe so," Ramsey says. Two of the larger canyons on the site might serve as disposal areas; underground disposal in the mines might be used in later years.

Will shale workers live in new town?

Employee housing needs come under the category of community development. Large numbers of employees won't be hired until after approval of the detailed development plan—or not before 1977. The construction phase would follow, and, after construction, full-scale operations. Ramsey estimates a 100,000-barrel-a-day operation could require up to 2,000 employees.

Where these people will live is a question that White River Shale is hoping will be answered by the Uintah Basin Energy Planning and Development Advisory Council. Established by the Governor, this group draws on representatives of most of the elective governmental bodies in the Uintah Basin. If their answer is a new town, White River's community development director Littlewood says it "must be an attractive town to compete with other areas so people would come to stay."

Earl Ramsey, program director—At home in a new industry now, White River chief cites interest of Utah public and their elected officials in carefully planned oil-shale development.

One of the biggest "ifs" in the whole project is whether commercial development is economically feasible. As Ramsey puts it, if cost projections are not "economically acceptable to our three owner-companies," or if project officials decide there is no workable, economical method of retorting the Utah shale, the project would shut down. Obviously, company officials still think the project can be a money-maker.

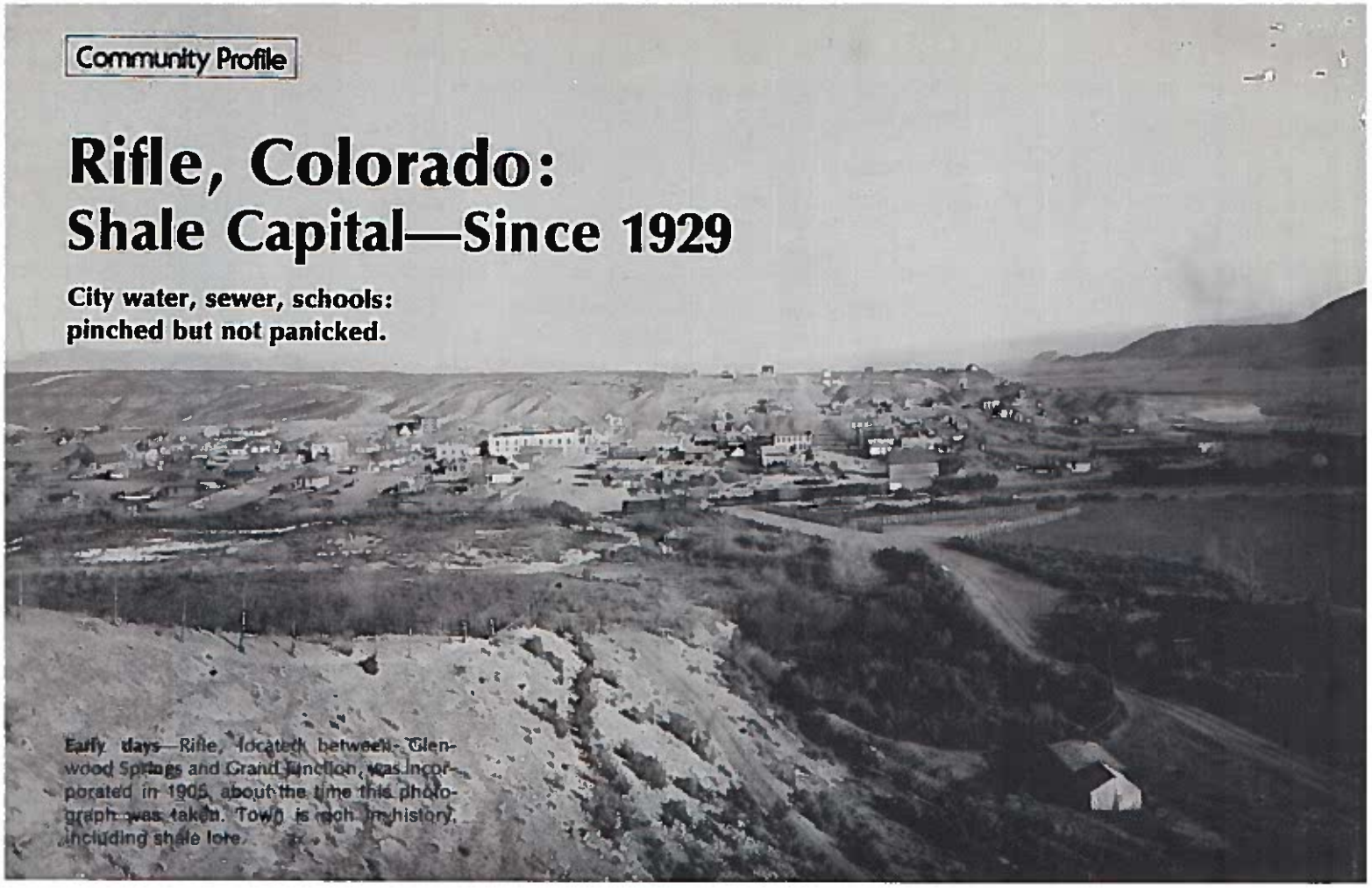
Earl Ramsey comes across as reasonably confident of the pioneer program, and underscores the attitude of the people in Utah toward the White River Shale Project as "one of acceptance . . . wishing to help in any way possible." He also speaks of "wide interest of government at all levels," as well as the interest of environmental groups in oil shale. Ramsey says the people in Utah are "environmentally conscious. . . . They're counting on us and the government to protect the environment." It is, Ramsey says, "a very pleasant atmosphere to discuss a new venture."

As precious as shale—Just north of the Utah tracts is the White River, which gives this shale oil project its name. Ground-water is scant in the region; the river is likely source of water for the project.

Community Profile

Rifle, Colorado: Shale Capital—Since 1929

City water, sewer, schools: pinched but not panicked.



Early days—Rifle, located between Glenwood Springs and Grand Junction, was incorporated in 1905, about the time this photograph was taken. Town is rich in history, including shale lore.

A native of Rifle, also mayor of the town, A.W. Van Arsdale leans on the counter in his office building, now an insurance agency, in former years a bank. The aging yet solid building may reflect the character of Rifle—a small town built on big hopes and sometimes fed on disappointment. One city official quips, "Most of the townspeople came here in 1929 expecting this oil-shale thing to break, and instead they got stuck." In 1929 the federal government began a short-lived test program at the Anvil Points U.S. Naval Oil Shale Reserve 5-½ miles west of Rifle.

Oil-shale geological history in the area, however, dates back epochs ago, about 50 million years, when the region around Rifle—mostly north and west—was covered by Lake Uinta. Through the centuries the lake disappeared, and in the more recent past, the town site of Rifle was founded in 1889 at an elevation of 5,345 feet just north of the Colorado River on the edge of Western Colorado's oil-shale rich Piceance Basin. The town supposedly took its name from some forgetful trapper who left a rifle at a campsite near the creek in the area. Rifle was incorporated in 1905, and began concentrating on agriculture, livestock and mining.

Ringside seat on shale

Located between Grand Junction and Glenwood Springs on U.S. 6-24, now the I-70 route, Rifle today is just southeast of the heart of Colorado's public and private oil-shale developments, many of them in neighboring Rio Blanco County. More than 2,400 persons live in Rifle—an estimated increase of 250 since the 1970 census. The weekly Rifle Telegram publishes a front-page slogan in large type in every issue: "Set your sights on Rifle—oil-shale capital of the world."

The slogan is a sign of the perseverance and pride of the townspeople. Says Van Arsdale, "For years and years this has been a rather—for lack of a better word—'depressed' area, as far as economics go. But our people are self-sufficient. We've been able to solve most of our own problems."

Mayor Van Arsdale is part of the town's proud tradition. A relative was an area homesteader and Garfield County's first elected county commissioner. Van Arsdale lives in a house built in 1929; lumber for the structure came from a sawmill his great uncle operated at Rifle Creek.

Mrs. Emolyn Kansgen, another community member who reflects the city's strong roots, helps direct the Rifle Creek Museum. Years ago the museum building was a schoolhouse, the same schoolhouse Mrs. Kansgen attended first as a student, than as a teacher. The building was originally situated north of town in an area that was to become the Rifle Gap Recreation Area, now offering fishing, boating and water skiing.

But just as history is a part of Rifle, so is change. The modern world flocked to Rifle's doorstep, for example, in August 1972 when earth artist Christo Javacheff unfurled his brilliantly colored orange nylon Rifle Curtain across Rifle Gap. The curtain hung for 28 glorious hours before strong winds ripped it apart.

Economic winds have blown hot and cold on Rifle, too. In early 1972 the Rifle mine and mill operations of the Union

and to allow about 20 kernels for each sparrow. Although six or seven kernels of wheat are required to insure fatal results, much more than a fatal dose is frequently taken. Only as much poison should be put out as is likely to be eaten in one day, since exposure to moisture reduces the virulence.

5.—Owing to the suspicion accompanying English sparrows during poisoning campaigns, a few are likely to be left. For this reason the use of poison in connection with traps is advocated. When sparrows are trapped, they rarely escape to profit by their experience. In practice it has been found that by the time traps fail, a small part of the original flock remain. The survivors, although well aware of danger in traps, are as susceptible to the allurements of poisoned baits as ever. Hence the use of traps followed by poison is decidedly more advantageous than either of them alone.

"The English sparrow destroys most kinds of fruit. It also destroys buds and flowers of cultivated trees, shrubs and vines. In the garden it eats seeds as they ripen, and nips off tender young vegetables, especially peas and lettuce, as they appear above ground. It damages wheat and other grains, whether newly sown, ripening, or in shocks. As a flock of 50 sparrows requires daily the equivalent of a quart of wheat, the annual loss caused by these birds throughout the country is very great. It reduces the numbers of some of our most useful and attractive native birds, as bluebirds, house wrens, purple martins, tree swallows, cliff swallows, and barn swallows, by destroying their eggs and young by usurping nesting places. It attacks other familiar species, as the robin, oriole, red-eyed vireo, catbird, and mockingbird, causing them to desert parks and shady streets of towns. Unlike our native birds whose place it usurps, it has no song, but is noisy and vituperative. It defiles buildings and ornamental trees, shrubs and vines with its excrement and with its bulky nests." In careful research work it has been shown that while these sparrows destroy some harmful insects, a greater number of useful insects are destroyed by them.

In a general campaign against English sparrows, a vigorous and widespread attack is absolutely essential. The problem is not to drive them away from a certain locality, but to accomplish as nearly as possible their complete extermination. As each city square has a sparrow population of its own, which must be destroyed there if at all, certain effective methods of destruction are out of the question. Neither law nor public sentiment will allow the use of firearms or the unrestricted use of poison. The use of traps therefore is strongly recommended. The fact that native birds, when caught in such traps can be liberated unharmed, is particularly important in suburban localities.

Following these suggestions closely with general co-operation and consistent follow-up work will count. Let us all follow these suggestions, then count the dead English sparrows.

Note: These notes have for the most part been taken either verbatim or adapted to our conditions from Farmers' Bulletin 493.

Your loving son
GEO. R. GOODRICH.

The letter mailed to his sister, Laura, is as follows: It has been a long time since I last heard from you so I thought I would write a few lines to assure you I had not forgotten you. I am well and as hearty as ever. For a few days I had a catch in my left hip, something like father got so often. I had taken a slight cold and think it settled in my hip. I am alright now though.

One would think that being out in all kinds of weather as we usually are that we would all get rheumatism or some other ailment that would disabled us for life, but I don't believe one could find a

manwaring, who is in the same company of marines as Geo. Goodrich, tells of the fine character of young Goodrich. He says that he has marched side by side with Goodrich and has found him to be a straightforward, clean, fine fellow. He goes on to say that they have been together a great deal and have learned to take things as they come—mud, rain, "Cooties" and a little high explosives once in a while.

Geo. L. Goodrich, father of the young man who is thought to be missing, has sent letters to the Home Service section of the Red Cross at Washington, and to other officials in an effort to learn some definite news in regard to his son. As yet nothing has been learned.

GASOLINE LOCOMOTIVE IS ORDERED BY THE CEDAR-BUTTE OIL CO.

Work is going along as rapidly as the weather will permit at the workings and mill site of the Cedar Butte Oil Co., located near Whiterocks. Dr. P. S. Coke, managing director of the company states that excavation is completed and preliminary work done on the site of the mill and reduction plant, and that as soon as spring opens, concrete work will commence. Daily receipts of lumber and other building material are being received. Machinery that will be used in the plant has been ordered for some time, and now that government contracts are not so pressing, it is expected that an immediate delivery can be assured.

A gasoline locomotive is between Price and Whiterocks, and will be used for hauling the oil saturated sand from the workings to the mill, a distance of 1200 feet. Steel rails are already on the ground, amounting to 40,000 pounds. When these rails passed through Roosevelt, natives there imagined the coming of the railroad was at last to be a positive fact.

The Cedar Butte company own some very rich deposits of saturated oil sand, which are said to be the richest of any in the United States. The company owns a huge mountain of the sands, which it will remove by excavation.

Dr. Coke states that some disappointment is felt by officials of the company in not getting the plant into operation before this, but so many hindrances and delays have unavoidably occurred, through failure of material to arrive and other causes, that work could not be pushed. About ten houses have been built by the company and everything is now awaiting favorable weather for work to be pushed for the completion and operation of the plant next spring or early summer.

—W.S.S.—

The Raven Oil & Refining Co. is keeping the local merchants in stock with kerosene refined at their small plant at Rangely. There has been some delay in getting the gasoline over here, but it is expected that regular shipments will be coming in the very near future. Local motorists are anxiously awaiting for the arrival of the "gas" which is said to be of a far superior grade than that on the market now, giving a greater mileage.

YEAR OF POSSIBILITIES IN STORE FOR UINTAH COUNTY IN OIL SHALE

The year 1919 is looked upon to be an important year in the development of oil shale, and its reduction into oil and its various by-products. When it is considered that Uintah county possesses some of the richest shale deposits in the United States, and the development of these deposits will mean an industry that will outrival the Utah Copper company by double in immensity of operation and profits, great things are looked for.

It has been demonstrated time and time again that shale can be profitably worked. A profit can be realized even if the shale contained nothing more than gasoline and oil. But there are so many by-products, many of which are now hard to obtain, that there is little doubt as to whether they can be operated successfully. There are several large financed companies who are now in this field or who are about to enter it. The Ute Company, which is a well financed company of St. Louis, is now working on the erection of a reduction plant near Whiteriver. The Ute company has demonstrated that it means business and next year it is expected the plant will be in operation. Others interested are James Doyle, who is associated with Verner Z. Reed in developing several claims near Watson. Mr. Reed is a multi-millionaire and has oil holdings through the country, while Mr. Doyle is a prominent mining man and engineer. They have applied for a patent on their holdings, having performed the necessary assessment work. There are several other eastern interests who have shale holdings and who, now that the war is ended, and no harmful legislation is in sight, will soon commence development operations.

—W.S.S.—

The Findley family, who have been stricken with influenza, are recovering, and it is expected it won't be very long before they are all out of quarantine. They have had the services of a nurse and have had kind neighbors to assist them in their sickness and through the recent bereavement of their daughter.

—W.S.S.—

Ice cutting is going on at the Calder ice pond in full swing this week. The recent cold weather assured a good thickness.

Vernal Express.

VERNAL, UTAH, FRIDAY, FEBRUARY 28, 1919. $2.00 PER ANNUM, IN ADV

Circulates throughout entire Uintah basin. A published in the interest the people all the time. sure enter your name on subscription list.

Bond Election Will be Held Tues., April 1

Everything is Readiness for Election to Decide on the $140,000.00 Road Bond Issue

Definite announcement is made by the county commissioners of the special bond election, to be held April 1. The issue will be for $140,000, $30,000 of which will be for the purpose of purchasing machinery, materials and tools to be used for the construction and maintainance of the roads, and the balance of the fund will be used for the construction, grading, repair and maintance of public highways. The official notice of the election appears in another part of the paper.

Until the time of the bond election, the question of whether to bond or not will no doubt create more interest in Uintah county than anything else

There are always a good many sides to any question and in calling this election the County Commissioners have given the people the chance to decide what shall or shall not be done in the way of road building. This is the only way by which the voters can express their wishes for no matter how willing the people may be to tax themselves for roads every one, including the Commissioners is powerless to do anything until the people have expressed their desires in an election. This is as it should be and notwithstanding the fact than an election costs some money the people should be given the chance to do what they wish in the matter of public improvements, more especially road building.

There has been more or less of this sentiment expressed of late years; the attitude of a great many people being that they are more than willing to be taxed for good roads, but so long as an election is not provided for such taxes they cannot be levied.

One thing that particulary impresses itself on those familiar with the situation is the fact that the County Commissioners have not been given any authority under the law to raise any money for roads. The poll tax law was always unsatisfactory and brought in very little money for a great deal of effort, and it's value as a means of maintaining roads has been practically nothing. This law has been repealed and as the matter stands now there will be no money whatever collected for road purposes in Uintah county except the state road levy.

If the proposed bond issue should carry one cent of the money would be spent on the State road.

Utah Shale & Oil Corp. Will Build a Plant

Oil Shale Reduction Plant Will be Constructed at Watson, This Spring—Sparr in the East.

Announcement is made this week by the Utah Shale and Oil Corporation that they will erect a shale oil reduction plant on their property at Watson. The Casper, Wyo., Tribune contained the following in its issue of Feb. 24, concerning the proposed plant:

"Probably the first complete commercial oil shale plant in this country will be built by the Utah Shale and Oil corporation which is officered by local men and has in its stockholder personnel some of the most prominent oil men and financiers in the country The plant according to present plans will be built at Watson, Utah, for the purpose of commercializing the vast tracts of shale in western Colorado and Utah.

"C. W. Sparr, vice president and managing director of the company is a well known Casper man, and is now in Washington consulting with representatives of the U. S. Bureau of Mines regarding the erection of the plant and is working closely with the Utah corporation for an early completion of the plant. Mr. Sparr expects to remain in Washington about two weeks during which time thorough discussion of governmental plans will be had.

"Utah shale is a close corporation. There is not a share of stock on the market as it is all being closely held by promifnent financiers and well known geologists of Casper, Chicago, New York and Washington.

The company has extensive shale deposits in Utah and Colorado and is heavily interested in wells that are drilling in Texas and Oklahoma. When the plans for the erection of the plant are completed and the plant built, the company will be on a dividend paying basis from the oil investments that have been made."

WOOLGROWERS MEET IN S. L. ON APRIL 1

The Utah Woolgrowers' association will hold its annual convention at the Hotel Utah commencing April 1 at 10 a. m. Questions of vital importance to the woolgrowers of Utah are to be discussed, according to C.B. Stewart, secretary of the association. A record breaking attendance is expected and woolgrowers from the most of out of the way parts of the state have expressed their intention of attending.

Mr. Stewart is sending an an-

Programs of Interest for Next Sunday

The Churches Have Made Special Efforts for the Opening Services To be held Coming Sunday.

All is in readiness for the opening of the churches for general service next Sunday. Special programs have been prepared, and it is expected that a large attendance will be present. We print brief announcements from the various churches in Vernal. The correspondents give the programs in the outlying districts.

Vernal First Ward

Priesthood meeting will convene at 9 o'clock in the morning, and Sunday school starts at 10:30 with a specially prepared program. In the afternoon at 2 o'clock fast meeting will convene at 3 o clock in the ward house. The bishopric urge a large attendance at this session, It is also announced that tithing receipts will be presented. Conjoint services of the Y. L. and Y. M. I. A. of the Vernal First and Second ward will be held in the evening at the ward house with the following program:

Piano duet.....
..Merle Cragun and Patsy Mease
Male quartet .....
Wallace Cragun, Anton Strebel, Den A. Critchlow and E. H. Belcher.
Reading .....Mrs. Ada Winder
Vocal duet. Gladys and June Bennion
Address .....Pres. Don D. Colton

The services in the evening commence at 7:30 and an invitation is extended to all.

Vernal Second Ward

It was planned to have services in the new chapel, but it was deemed inadvisable, however, owing to the fact that the fan which is a part of the heating aparatus has not yet arrived. All carpenter and woodwork, painting and calcimining, however, is completed and temporary seats would have been installed until the regular benches arrive. Church services next Sunday, though, will be held in the Vernal Central school building, with priesthood meeting commencing at 9:00 o'clock and Sunday school at 10:30. A specially prepared program has been pepared for the Sunday school, and is as follows:
Memorial Address ..Pres. Colton
Short Adresses by Gladys Bennion and Esther Jensen, recently returned missionaries.
"Angel's Serenade," (Bragra) ...
.....Peter Hansen Trio
There will also be other musical numbers. A full attendance is especially desired as promotions will

Income Tax Dodgers to Be Hunted D

Government to Treat Such quents Very Severely, Wi Punishment of Law Exa

How does Uncle Sam deal dodgers? This inquiry wi prompted by the severe provided in the new revenue brought from Commissioner Roper, a frank statement a Internal Revenue Bureau's toward those who attempt t taxation.

"Any person who delibera ceals tax liability, or who f return in order to reduce any internal revenue tax deliberately abets such, con or fraud, finds arrayed aga the entire strength of this pressing for the full civil a inal penalties. That is the toward the tax-dodger, expr one sentence. Whether it moonshiner, a stealthy traf habit-forming drugs, a juggl come figures, a delinquent ing the sworn return the quires, or a revenue violato other kind, the Bureau is with the duty of hunting h and exacting the full pu provided in the law.

"Toward the taxpayer wh to comply with the internal laws, fully and honestly, the extends a helping hand. tion with the taxpayer is ou word and objective.

"These two contrasts—t of the law for the tax-dod the violator, and the aid o lawful agency for the volun payer—are policies necessar administration of tax law modern conditions,

"One of the most difficult many problems in tax collect classify those who fail to f obligations imposed by the Bureau is obliged to ma large staff and to use the discretion in properly labell cases. Even-handed justic heavy responsibility, an through careful sittings ca quents be classified.

"There are three distinc of delinquency with which to deal. First, the taxpay had reasonable cause, broug by exceptional conditions be control; secondly, the fello didn't look up or didn't rea obligations; and thirdly, th who wilfully evaded compli the law.

"As for the man who sho sonable cause within certa

years. In the meantime the largest financial interests of the state are working to assist the Commercial Club Committee in its plan to construct a railroad into this most fertile and prosperous section of Utah.

SECRETARY OF STATE HARDEN BENNION REPORTS TRIP TO BASIN

Salt Lake City, April 9.—Bad traveling conditions exist on the Helper-Duchesne road, says Secy. of State Harden Bennion, who has just returned from a visit covering a week in Duchesne county. He says it will be several weeks before the highway can be put in shape for convenient travel.

Seven trucks are in service on the Helper-Duchesne post road and other such vehicles will be put on as soon as they can be obtained and as soon as such repairs to the highway have been made as to permit larger scope of travel. There is unusual prosperity in the Uintah country, Sec. Bennion says. The season there is slightly behind that of the Salt Lake valley, but the people are preparing to plant increased acreages this year to all crops known to thrive in that region. Citizens of the Basin, Mr. Bennion says, are anxious waiting to see what Salt Lakers are going to do toward building a railroad into that region. In case no move is made by Utah men to construct the railway it is believed the business will be carried off by Denver. Mr. Bennion says many cattle are being sold in the Uintah basin region and driven off into Colorado. Julius Christensen recently bought a herd of young steers for the Colorado range. He paid $180,000 for the lot.

10,000 ACRES OF UINTAH COUNTY OIL SHALE IS SOLD THIS WEEK

Grand Junction, April 5.—One of the largest oil shale sales made in the intermountain section recently was closed yesterday through Attorney John F. Halderman of this city, when 10,734 acres in Uintah county, Utah, located about 40 miles southeast of Ouray, Utah, was purchased by A. W. Martin, of Denver from the locators, most of whom are Grand Junction people and the largest holder of whom was J. H. Dorby of this city and Vernal.

COMMUNICATED

Vernal Express: As you invite your attention to be drawn to any mistakes in the splendid newsy article in your issue of April 4, "Growth of Vernal and Surroundings," I respectfully call your notice to date of completion of Tabernacle. I came to Vernal in 1906 and the Tabernacle was completed after that date. You can obtain exact date from your stake clerk. Very cordially yours, WM. H. SMART.

The Red Cross has just received a shipment of cut garments and will appreciate having the workers call for these at the earliest possible moment, as the shipment is already delayed and any haste will be in order.

ROAD TO FRUITLAND IS RECOMMENDED TO BE COMPLETED

Salt Lake, April 9.—(Special)—Completion of the road from Heber City to Fruitland by way of Daniels Canyon and Strawberry valley, is recommended by the secretary of agriculture for this year, according to word received by Ira B. Browning, state road engineer. The project as contemplated was to have taken two years, but the federal department favors having all of the work, requiring an estimated outlay of $94,798, done this year. The recommendation of Secretary Houston on the matter will probably be submitted to the state road commission at its weekly meeting today.

The entire road which is 43.3 miles long, is to be constructed this year.

Mr and Mrs. Clarence Johnson of Roosevelt, were visiting their many friends in Vernal a few days of the present week.

The Duchesne high school is displaying a large banner at the foot of Main street this week, advertising their big barbecue in May. To some the meaning of this banner is a puzzle as only the initials of the school are given.

F. L. Moore, who has been in the employ of the Consolidated Wagon & Machine company for more than a year, as traveling salesman and collector, has resigned to take up farming work in Laveda, Colo. Mr. Moore and family left Thursday morning.

The Twentieth Century club entertained 16 couple of its members and friends at a card and dancing party Tuesday evening in the Golden [illegible] hall. Ben A. Critchlow and Mrs. L. H. Woodard won the prizes in the "500" game. Light refreshments and music was enjoyed.

The Calder Confectionery is building a candy kitchen which when completed will be a great asset to his institution. Much of the candy handled in the store can be skillfully made fresh each day and will undoubtedly stimulate the trade. The kitchen is being erected on the property of Pontha Calder near his home.

Oran Curry of Ft. Duchesne passed through Vernal Wednesday on his way to the Fort after spending several weeks in Oklahoma and several eastern cities. Mr. Curry states that there are innumerable Indian soldiers returning from the front, both officers and enlisted men. The Indians did considerable work as scouts on the western front in the late drives against the Germans. Mr. Curry has been employed as a forest ranger for the past year.

The Bear dance of the Ute Indians will be held in Ft. Duchesne a few days this week. It is said that they will be the guests of Merchant Wong Bing, while in Ft. Duchesne.

the year and sent Mr. Dawson to
Dawson has certainly had the syr
his heroic efforts to bring relief
No one can possibly realize what
obstacles that have confronted h
department at Washington neve
It not sent its personal represent
after going over the whole rout
conditions as he finds them, and
the Fourth Assistant Postmaster
lead in the matter.

It is to be hoped, now the
given to settle this matter, that
will be magnanimous in bringin
we cannot see any other solutio
mail for this end of the Basin v
like to see any act on the part
could be construed as being unfr
people here as a whole are friend
they hope to have this friendshi
nanimous attitude on their part.
a whole lot in having this matter

Vernal has never at any ti
proper mail route for Duches
been that the distance is too grea
to attempt to serve Vernal and t
or Price. As well might we com
Basin shall come in by way of
should get our mail from Watso
expeditiously and more economic
It is nothing less than an outrag
Helper and then haul it back 12
most impassable road. We feel
see the logic and justice of our

That a propr presentation
when Mr. Dawson and Mr. Da
meeting of the board of govern
nd other invited citizens was he
ning, when after much discussi
Don B. Colton, L. W. Curry, E
Wallis were appinted a commi
committee subsequently met an
and L. W. Curry to address the
placed in charge of the recept
tary Wm. M. Anderson, L. W. C
Bennion were detailed to accom
road to Watson and over the
ossibly to Grand Junction when
the Chamber of Commerce.

Peace Treaty Ne

Paris.—President Wilson and
the Peace conference are hamm
today say that the President has
gotiations at the Conference and
the progress thus far. It is expec
made to the satisfaction of everyo
no intimation is given out just wh
and executed.

illian Pierson is very ill
esent time. It is said to
dropsy. We hope she will
ver.
nnett amusement commit-
organized a baseball team.
been practicing for some

lief Society of Bennett has
a beautiful quilt and are
over to the Red Cross of

was a killing frost here,
which turned the corn and
rk. The weather is very

ASHLEY

June 3.

m. Morrison and her two
dren narrowly escaped be-
sly injured in a runaway.
The horse got the bridle
ie way and started to run.
rison jumped out to stop
and the horse knocked her
buggy passing over her.
run from the Joe Burton
ough town with the child-
e rig, until some men got
urnd it behind the Co-op.
ed it. They all escaped
eing seriously injured.
Weeks has gone up into the
to work for the Forest
r the summer.
hley Primary has been or-
nd held their opening so-

cial last Monday at the home of Mrs. Nephi Preece. The following officers were put in to preside: Mrs. Mary E. Preece, president; Mrs. Mabel Stagg and Miss Clara Noel, counselors; Miss Nina Atwood, secretary; Miss Lela Preece, social leader; Emma Evans, Thelma Corless and Mamie Kidd for teachers.

Miss. Flora Murray of Maeser is staying with her aunt, Mrs. Anna Morrison, at present.

John and Elias Winn and Mrs. Carson Kidd were among the conference visitors that left for Salt Lake City last week.

Mrs. Lewis Kabell and her mother Mrs. Johnson, were the guests of Mrs. W. S. Powell for several days during the week.

Nells Behrman and family have moved into the place that they purchased from Frank Hartle. Mr. Hartle and family have moved onto the Sunshine ranch for the summer.

Mrs. Stella Thompson and James Winn are both on the sick list.

GLINES

June 4

Joe Carroll returned from a trip to Watson this week.

Jerry Harrison of Lapoint was over the forepart of this week on business.

A party and dance will be given in the ward house next Monday night, in honor of Ivan Perry, who leaves Wednesday to fill a mission in the central states. A short program will be rendered after which there will be dancing. The orchestra for the Golden Rule dance hall will furnish the music for the dance.

Andrew Herring is working with the sheep for Bodily's.

Mrs. Archie Jenkins of Roosevelt was over last week.

The Sunday school gave a successful dance last Wednesday night.

DEVELOPMENT OF UINTAH SHALE ON BIG SCALE IS BEGUN

Development of the oil shale industry in Uintah county is proceeding on a big scale. Near Ignatio, on the White River, close to the Colorado line, the Ute Oil company has three wells down and is now erecting a plant to refine the oil.

The company is also erecting a big plant to care for the shale in that section of Uintah county, the supply of which is practically inexhaustable.

Structural steel, retorts and all the machinery necessary for the construction of the plant is now on the ground. A tramway is being built and everything is in readiness to transact the work on a big scale.

PROBATE AND GUARDIANSHIP NOTICE

(Consult County Clerk or the respective signers for further information.)

NOTICE TO CREDITORS

Estate of Peter Thams, Deceased.

Creditors will present claims, with vouchers attached to the undersigned, at his office in the Uintah State Bank Building, at Vernal, Utah, on or before the 24th day of September 1919.

DON B. COLTON,
21-44t Ancillary Administrator.