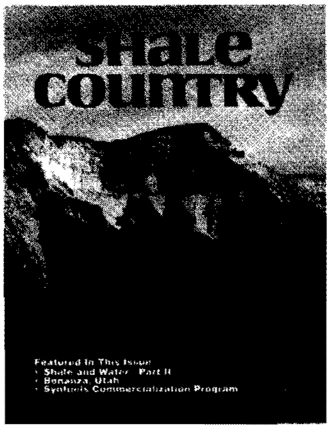
SHALE COUNTRY

Featured In This Issue

- Shale and Water – Part II
- Bonanza, Utah
- Synfuels Commercialization Program

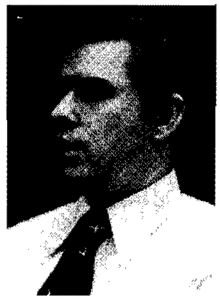
April 1976

THIS ISSUE



On the cover: spring comes to Anvil Points.

Water is a major issue in shale country (p. 4–6); but, it's also used for fun (p. 3); it's sink or swim for the weighty DDPs (p. 20), while ERDA's Bill McCormick has some dry comments (p. 7–9).



Edward S. Safford, **Publisher and President**
Gregory A. Williams, **Executive Vice President**
Alys Novak, **Vice President and Editorial Director**
Richard L. Ronald, **Vice President—Sales**
Jonijane Paxton, **Managing Editor**
Evelyn DiSante, **Associate Editor**
Kathy Carlton, **Production Editor**
Paula Massa, **Contributing Editor**
Ray Lewis, **Art Director**

Brian Novak, **Production Consultant**
Catherine Kilker, **Circulation Director**
Suzanne Sharratt, **Copy Desk**
Carol Edmonds, **Regional Editor**

The Regional Editor can be reached at:
3154 Lakeside No. 304
Grand Junction, Co. 81501
(303) 242-3905

SHALE COUNTRY

Volume 2, Number 4 April 1976

Published monthly. Executive and Editorial offices, 180 Cook St., Suite 414 Denver, Colo. 80206 (303) 388-5931. Third Class Bulk Postage paid at Denver, Colorado. SHALE COUNTRY is sponsored by Ashland Oil, Inc., Atlantic Richfield Co., Gulf Oil Corp., Shell Oil Co., Standard Oil of Indiana, Sohio Petroleum Co., Sunoco Energy Development Co., The Oil Shale Corp. The opinions expressed in this publication are those of specific individuals and do not necessarily reflect the viewpoints of the publication's sponsors or the oil-shale industry as a whole.

SHALE COUNTRY is provided as a public service by the leaders of the oil-shale industry. Published monthly 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. However, should a reader wish to receive SHALE COUNTRY each month for 12 months through the mail, please send your request to Mountain Empire Publishing, Inc., 180 Cook St., Suite 414, Denver, Colo. 80206 along with a check for $5.00 to cover costs of postage and handling in the United States. Outside the United States, the cost is $10.00 for regular mail or $21.00 for air mail.

Photo Credits
Front Cover, Jim Gigoux (Paraho); p. 1, Paraho; p. 3, Greenbelt, Inc.; p. 4–6, Rio Blanco Oil Shale Project, White River Shale Project; p. 7–9, Carol Edmonds, ERDA; p. 10, Colorado Dept. of Health; p. 11, Vernal Area Chamber of Commerce, White River Shale Project; p. 12, Loran Dake; p. 13, Carol Edmonds; p. 14–15, Uintah Basin Area Vocational Center; p. 16–17, TOSCO; p. 18–19, Vernal Daily Express; p. 20, Ray Lewis; Inside Back Cover, Joan Gibbs (c–b).

A PUBLICATION OF
MOUNTAIN EMPIRE PUBLISHING, INC.

"We are sitting on the largest known oil-shale deposits in the world. Development of these reserves must occur but should be orderly and gradual. Thus, the restraints that have been created must be eliminated and the incentives required to move ahead must be provided now," feels Harry Pforzheimer, Paraho program director.

Industry Interview

Why Is Paraho Shutting Down?

As SHALE COUNTRY went to press, the Paraho Oil Shale Demonstration was running out of funds and thus was scheduled to shut down the only large-scale aboveground oil-shale retorting operation in the United States in April, and to close down the project completely in June unless it receives funding from the Energy Research & Development Admin. The reasons why were recently explained to SHALE COUNTRY and to U.S. Congressman Olin Teague, chairman of the Committee on Science and Technology, by Harry Pforzheimer, Paraho Program Director. His key points:

"You asked me to respond to the question, 'Would Paraho build a demonstration project of commercial scale using its existing technology without federal loan guarantees?' My answer at this time is a definite 'No!' And I would like to explain why and what could be done to change the situation.

"In May 1975, Paraho announced its proposal to construct and operate a commercial-scale retort at Anvil Points, near Rifle, Colo. The proposal included a full-sized Paraho module and all the auxiliary equipment. A cost of $76 million was estimated for this logical next step to our on-going successful semi-works scale demonstration.

"Considerable interest was shown by industry and government in this proposal. For example, ERDA has extended our lease on the Experiment Station and the Bureau of Mines has completed a favorable environmental assessment. Also, the solicitor's office of the Interior Dept. issued guidelines for the federal prototype oil-shale leasing program providing, among other things, that expenditures by lessees for patented or demonstrated technology, such as Paraho's, would be creditable against the fourth and fifth lease-bonus payments.

"In July, Senator Jackson's $6-billion Synthetic Fuels Amendment was added to the ERDA appropriations act and was approved by the Senate. With federal assistance in the offing, it looked like everything needed to move ahead with the joint government-industry financing would be available. Thus, when President Ford visited our operation in August 1975, we had no reason to ask for help. But, although President Ford favored the Synthetic Fuels Amendment, things have gone down hill ever since.

"First, questions of jurisdiction and expedience began to develop in Washington. Next, we were advised that another environmental-impact statement would have to be prepared before Paraho could build its full-sized module, which will take ERDA 9 to 13 months. Then, the amendment was defeated in the House.

"Another federal action in December completed the change in the near-term outlook for oil shale from 'uncertain' to 'unattractive': the passage of the Energy Policy and Conservation Act. The subsequent rollback in the domestic crude oil price to an average of $7.66 per barrel made commercial development of synthetic fuels impossible.

"Even with non-recourse, guaranteed loans, we estimate that oil produced from shale, while less costly than liquids or gas from coal, would have to sell currently for about double the newly legislated average price to be commercially attractive. Thus, lessees under the federal oil-shale leasing program now have a new concern: the likelihood of losing their leases after completing their fourth and fifth bonus payments, since legislated conditions, such as new price controls and new Clean Air Act rules, make expeditious lease development commercially unattractive. The lessees' alternative: surrender their leases before the payments are due."

Asked what he feels needs to be done, Pforzheimer said: "First, we must recognize that we have an energy shortage and that all forms of domestic energy development will fall short of meeting our needs, particularly for transportation fuels. Then, new legislation must be passed to correct as many of the adverse federal actions as possible. Such legislation should provide:

1. Grants to encourage module construction and operation. Modules are unprofitable but are essential to the orderly development of oil shale.
2. Assurance to industry, by an exemption from price controls, that commercial synthetic crude products and byproducts will have a free market.
3. Assurance to the communities to be impacted that special front-end federal funding assistance will be available for socioeconomic projects.
4. A moratorium for federal lessees, who have diligently pursued development through the fourth and the fifth bonus payments, until commercial plant construction is justifiable or the initial term of the leases has expired."

He concludes, "If these provisions are included in new legislation, not only would a full-sized, Paraho module be built, but also its construction and operation will accelerate the commercialization of shale oil." *A.N.*

Industry Update

Shale bud—nipped or not?

"Why is everyone so down on oil shale when a rational look shows that synthetic-fuels production is vitally needed and that shale is better in many ways than other synfuels?" That's the question a Washington insider put to SHALE COUNTRY the other day. He went on to say that a review of the federal Synthetic Fuels Commercialization Program task force report indicates that: (1) Shale oil is the best mid-term way, of the various synfuels, to reduce dependence on foreign energy sources since it is *directly* substitutable for imported oil on a barrel-for-barrel basis; (2) in terms of producing liquid synfuels, oil-shale technology has the lowest risk factor when compared to the less well-developed coal liquefaction technology; (3) shale oil production costs are estimated to be substantially less than those of other synfuels—almost half the cost of oil from coal; (4) oil-shale production will emphasize use of plentiful *domestic* resources—after coal, shale is the biggest U.S. fossil-fuel resource; (5) the overall environmental effects of oil-shale plants and coal-based synfuel plants would be similar—but shale-oil plants would emit the least solids into the atmosphere, require the least water, and disturb the least land of the synfuel options.

In short, says this expert, on virtually every count, oil shale is better than the other synfuels. His conclusion: oil-shale production should be encouraged via federal incentives because (1) it is much closer to commercial reality than any other synfuel; and because (2) the nation must gain experience with shale oil's economic, technological, environmental and social problems *now* since the need to use this vast resource will be inescapable in the near future.

Projects hold tight—or suspend

The **C-b Shale Oil Project**—Shell Oil, the operator of this federal lease in Colorado, has notified the U.S. Dept. of Interior that it wishes to suspend operations for 18 months, effective March 1, 1976. The request was filed with Pete Rutledge, the Area Oil Shale Supervisor, who says the suspension—if granted—would "stop time for awhile" on the lease. C-b's notice includes a request to suspend the third, fourth and fifth bonus payments.

According to a project spokesman, during a suspension period, C-b would complete its environmental baseline work, continue to seek more venture partners—and search for methods that would extract more of the oil-shale resource. However, he also noted that although conservation of natural resources was the major reason for the suspension request, underlying factors were the continuing obstacles facing the oil-shale industry.

The Paraho Oil Shale Demonstration—This project is still in its closing-down trajectory, reports Harry Pforzheimer, program director. "Obviously we are disappointed," he says. "We have the only successful retort in operation—and it was privately funded. But, with domestic crude oil under price controls, there's no way for private companies to get into the synfuels business." He adds, "However, we haven't given up. We are receiving encouraging signs that we will be able to continue. But, we suspect the funding timing is such that we will have to shut down and then start back up—hopefully this summer. In the meantime, I and a small staff will remain in Colorado."

The Rio Blanco Oil Shale Project—Walter Herget, president of this venture (C-a tract), reports that its Detailed Development Plan (DDP) was delivered to the Area Oil Shale Supervisor at the end of March, along with its social and economic growth management impact statement. This is not part of the DDP, but was provided for informational purposes. Also on Rio Blanco's schedule: a review with Rangely, Colo., residents of a community master plan for Rangely, which was put together by Gulf Oil Real Estate Development Co., the Foundation for Urban and Neighborhood Development, Morrison-Knudsen and Rangely townspeople. The plan was funded by the Rio Blanco shale project.

White River Shale Project—This Utah venture plans to submit its DDP in May, so its activities in April will be geared to completing this report. Merril Littlewood, community development manager, also reports that project staff members will continue water-acquisition negotiations with the state of Utah and the Ute Indians. They also expect to be testifying in Washington on the state-of-the-art of oil-shale processing, as the Energy Research & Development Administration and other government agencies continue their oil-shale investigations.

Data relief; shale display

Quality step—Roger Tucker, meteorologist with the Area Oil Shale Office, tells SHALE COUNTRY that air-quality lease stipulation changes have been sent to the federal prototype shale tract lessees. These new stipulations emphasize *quality*—not *quantity*—of data. This is a key step for lease-program data gatherers and analyzers; a perpetual complaint has been that the lease has required "data for data's sake" rather than for its significance. And this move is considered a forerunner of other actions to make the data requirements more meaningful.

Shale star—If you happen to be in Tulsa, Okla., between May 17-21, stop in at the International Petroleum Exposition and see the oil-shale exhibit in the Energy Science Panorama. The Oil Shale Committee of the Rocky Mountain Oil & Gas Assn. has voted to fund this exhibit, which will include photographic and other materials, and a slide presentation on oil shale's history and potential. The exhibit will also display copies of SHALE COUNTRY and some of its cover photographs. *A.N.*

Looking Ahead

Shale Country Makes Recreational Plans

For the people of shale country, development of energy resources could mean an influx of newcomers to towns that have seen little change over the years. And when people are coping with a new social environment, plus working long hours, recreational facilities become an especially important quality-of-life factor.

Alan O'Neill, assistant regional director, Bureau of Outdoor Recreation, Denver, says, "I've talked to energy companies as well as communities, and both feel that when dealing with growth impacts, recreation is almost as important as housing or health facilities."

Of course, new recreational facilities take time to plan and money to build. And how do you meet these needs within the framework of the funding available? That's where the Bureau of Outdoor Recreation (BOR) comes into the picture. "The Bureau is a division of the Dept. of Interior," O'Neill explains, "and was established in 1964 as a federal focal point for recreational planning across the country. We coordinate the activities of other federal agencies, as well as assist communities with financing and planning." O'Neill also points out that almost any type of outdoor recreational facility is eligible for such funding. This includes not only land acquisition for parks, but also financing for tennis courts, swimming pools and golf courses.

One of the main sources for financing is BOR's Land and Water Conservation Fund. The fund is a federal program available to state and local governments for acquiring land and developing recreation facilities, and each year about $180 million is allocated to the states. For 1976, Colorado's share is $2,450,000 and Utah's share is $1,926,000. In Colorado, the Land and Water Conservation Fund program is administered by the Colorado Div. of Parks and BOR, and in Utah, by the Dept. of Natural Resources.

To receive funding for a project, however, a community must be able to produce matching funds, and this is the reason for BOR's Technical Assistance Program. Under this program, not only can a community receive help with planning, it can also get advice on raising matching local funds. O'Neill says, "We try to break through the red tape so that the community gets the facility." Financing methods for the local share could include other aid programs, bank loans—or even donated land, labor and equipment.

Private monies too: Another important aspect of the Technical Assistance Program is the Private Enterprise Program. Since employees of the companies directly involved in growth-impacted areas benefit from the recreational facilities, the companies are often willing to marshal dollars into a project. O'Neill stresses that this is the kind of program that can be worked out as a compromise between public and private responsibility. "And getting people talking together is also part of our job," he reports.

One example of how BOR works is the Colorado River Park concept in Grand Junction. According to Vaughn Baker, outdoor recreation planner with BOR, "Several years ago, residents of the city formed a citizen's group, Greenbelt, Inc., to try and preserve the open space along a 10-mile stretch of the Colorado River, as well as a stretch along the Gunnison where the two rivers meet. BOR became involved last spring. We helped develop a conceptual plan, and we are providing technical assistance to the local sponsors. The city of Grand Junction and Mesa Country are sponsors of the project, and any land that is acquired will be administered and maintained by them."

Despite such successes, O'Neill notes that "Many communities are not yet aware of us, or if they are, they don't realize that we're a servicing agency, not a monitoring one"; we've only been in the technical assistance area about 18 months.

"Now, however," O'Neill continues, "we're getting ready to actively go out and talk to the communities and the energy companies. We have to find out what the communities needs are and what planning has already been done. Since funds for these recreation projects are tapped a year in advance, we've got to try and divert some of this money to energy-impacted areas now." *K.C.*

Grand Junction citizens are working with the Bureau of Outdoor Recreation and other government agencies to preserve the open space along the Colorado and Gunnison Rivers.

A Look At

Water and the Oil-Shale Tracts: Some Clarity in a Muddy Crystal Ball

By Carol Edmonds

Ground water, Indian water rights take spotlight

Last month's SHALE COUNTRY examined the history and general issues related to supplying water for oil-shale development; this article will look at the water acquisition plans of the three projects on federal oil-shale tracts in Colorado and Utah.

Like card players with some promising hands, oil-shale executives have before them promising proposals to serve their water needs. Yet they know that some wild cards still in the deck could work for or against them, such as uncertainties about Indian water rights. Before examining specific company plans, therefore, it is worth reviewing some central oil-shale/water topics (see "Capsule of Water Basics"). Then, let's look at the individual oil-shale projects and their estimated water needs and supplies.

Utah: a compromise

Developers of the White River Shale Project on the tracts known as U-a and U-b in Uintah County, Utah, say their minimum water needs are 13,000 acre-feet a year for a 100,000-barrel-a-day plant—*if* water is reused for such purposes as management of spent shale and dust control, and *if* no water is used for pollution-control devices. Otherwise their annual need may be as high as 26,000 acre-feet.

The tentative source of this water is a proposed dam on the White River north of the tracts. The dam would be a joint project of the state of Utah, the Ute Indians and the Uintah Water Conservancy District. Critical elements of the proposal:

—The state would retain its water rights. At the end of oil-shale development, Utah would then be able to sell the water to other users.

—Indians would be guaranteed water for

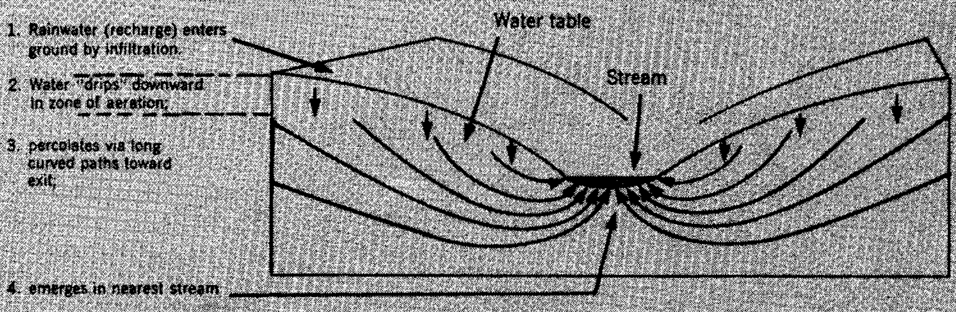
Capsule of Water Basics

Traditionally in the West, the courts and Congress have allowed water to be withdrawn and used by anyone who could put it to beneficial use in accord with each state's laws and customs. Appropriation of surface water in Utah and Colorado has been governed by this principle—the First-in-Time, First-in-Right doctrine. It makes water a separate property right from a land-property right. In contrast, water law in most eastern states provides that persons living along the banks of a river have claim to the water (riparian doctrine).

The First-in-Time, First-in-Right doctrine has been modified, but it is still an underpinning of western water law. Each water right in Utah and Colorado holds a priority date—that date when an applicant first filed for and made beneficial use of the water. Early, or senior rights, are guaranteed their water supply before later, or junior rights, can be met.

Sound simple? Actually, establishing a water right is sometimes like using a knife to divide a quart of water among several persons. The utensil (the law) is unwieldy. And appeal to the courts for adjudication (judgment) of water rights can be an appeal to another cumbersome instrument. Thus, a water right may remain cloudy for years.

One specific example is the complex water-rights issue involving federal reserve water rights. As noted last month, federal agencies are asserting that whenever land



Ground water, if it is tributary, may affect the water table of a surface stream. This schematic drawing shows how rainwater enters the ground by infiltration, drops downward, then percolates toward the stream. Both developers of tracts C-a and C-b are preparing plans of augmentation to protect existing users on streams that may be affected by the projects' use of ground waters.

irrigation of 13,000 acres of their lands. A $1.3-million diversion dam would be built downstream from the main dam for the Indians.

—White River Shale Project would purchase its water from the water district, and the price of water would be based primarily on the cost of amortizing bonds, which would be sold in the public marketplace to finance the dam.

Statistics of the dam indicate the scope of the project:

—It would be designed to last a minimum of 50 years and have a total storage capacity of 118,000 acre-feet; dead storage space, planned to accommodate sediment buildup, would amount to 38,000 acre-feet.

—White River Shale Project would contract for 26,000 acre-feet, and the remainder would go to other uses, such as other oil-shale projects and Ute Indian projects.

—The 125-foot-high dam would have a potential for hydroelectric development at a later date.

Merril Littlewood, manager, community development, of the White River Shale Project, says preliminary studies indicate the dam would have no net major adverse environmental impacts. In fact, it would make the water more accessible to the public and it would be usable for recreational purposes. One negative impact: the riparian (riverbank) land would be flooded so that wildlife population would have to move; but the wildlife could move up or downstream along the 11-mile reservoir, or move to the riparian area created by the project. Another plus: the Div. of Wildlife Resources could plan a sport fishery in the reservoir—now impossible on the White River because of the heavy sediment load, which the dam would ease.

A chief advantage to this plan is that it converts a potential blockade into an asset. Littlewood explains: "The quantity of Indian water rights under the Winters doctrine and implied reservation doctrine have not been recognized. This will act as a precedent to quantify those

The White River is the tentative source of water for developments on tracts U-a and U-b in Utah, via a proposed dam that would also serve the Ute Indians and various other projects.

has been reserved for federal use, the government also has reserved sufficient water for that land, even though it has not done this through state courts. A specific oil-shale/water question related to this issue is Indian water rights, especially those along the White River, which may eventually be sought as a water source by several oil-shale developers.

A key to this situation is an old legal case. In 1908, the U.S. Supreme Court ruled that Indian reservations are entitled to sufficient water to supply their lands, and that this water was reserved when the Indian reservation was established by the federal government. In this case, known as Winters vs. the United States, the court also held that water rights set aside for Indian reservations are superior to those of subsequent appropriators who obtained their water rights under state law after the reservations were established. And it said that this "superiority" held even though the Indians had not yet placed their water to beneficial use. Today, however, the question of how to quantify "sufficient water" is only one of several being raised about federal reserve water rights and Indian water rights.

Another major issue in the water-rights arena involves ground water. Specifically, surface water runs in streams and rivers; it is visible. Ground water, on the other hand, is "invisible" water that percolates into the ground, travels underground, then gathers in underground aquifers (like reservoirs), which can serve as water sources for wells. But, there's a hooker: shallow ground water may be considered as part of a stream—if its withdrawal affects the water of the surface stream. Such ground water is known as tributary ground water. In contrast, nontributary ground water has no effect on surface streams. Since ground water usage can affect surface water rights, oil-shale developers, and others, who plan to use ground water, must consider the impact that withdrawal of this water will have on nearby surface streams.

Finally, as noted before, supply also is a key oil-shale/water concern since lack of availability is another water basic in semi-arid Colorado and Utah. However, in recent years new technology has been developed that will help answer shale water supply questions. For example, one of the more sophisticated tools now being used to figure water supply in Colorado is known as CORSIM—Colorado River Simulation Model, an engineering study of the surface water supplies of the Colorado and White River Basins in the state of Colorado. Employing a huge computer, the massive program is a joint effort of 10 oil companies, two water conservancy districts, the city of Colorado Springs, the Denver Water Board and Public Service Co. of Colorado. The model, completed in 1974, is periodically updated to reflect changing conditions. A company can feed into the computer its water rights to determine what the water supply would be in a given year. The computer simulates actual flow of the river. Managing the project are two engineering firms in Denver—David E. Fleming Co. and Parsons, Brinckerhoff, Quade and Douglas, Inc.

rights." He says of the White River dam, "It looks like the surest solution to our water needs. Rapport with the three groups (the state, the water district, the Indians) is all extremely good. We feel we want to pursue it as quickly as we can. We may even contract for and prepay water costs so that the dam can be built even though we might not use it right away, just to firm up our water supply."

White River project officials had hoped to acquire their own water rights rather than to purchase water from a water district. Nevertheless, Merril Littlewood describes the proposed dam as "a model compromise, the product of the attitude of the people of the state of Utah, including the Ute Indians, since water will be made available for oil shale while also serving the needs of the state and the Indians."

Ground Water for C-a

While Indians are the kingpin of the water story for oil shale in Utah, ground water is the critical issue on the federal tract C-a, southeast of Rangely, Colo. The developers, the Rio Blanco Oil Shale Project, say that their studies predict enough water for a 50,000-barrel-a-day plant will be available from ground water and that this water will be supplied by the mine-dewatering operation. If plant expansion above 50,000 barrels a day occurs, then long-term water requirements are expected to be met by the development of both surface and ground water; thus applications relating to both are pending in the water courts.

About the water needs for initial development, Kay Berry, Rio Blanco's vice president of processing, says, "We have surface water rights and could pipe White River water to the plant, but at present this water serves as backup for the expected ground water." The reason: the project plans to use open-pit mining and underground water is expected to seep into the mine. "We have to dewater the mine," Berry says, "and that won't be easy, but it will provide a water supply."

Legally, the oil-shale developers have a right to dewater the mine. Yet the Colorado constitution also cites rights to irrigate lands and establishes a priority system for irrigating lands. When dewatering lowers the water table of nearby irrigated lands, whose right is senior? And, if the oil-shale developers must augment the water supply to atone for a lowered water table, how much must they supply?

Berry says, "Dewatering is predicted by a computer model to affect some senior water rights." A computer helps Rio Blanco assess potential impact by providing a model for the whole Piceance Basin—its 570,000 acres and three perennial (year-round) streams—Piceance Creek, Black Sulphur Creek and Yellow Creek. Settlement of the critical issue of augmentation of the water supply should come in a trial in the Water District Court in Glenwood Springs. Trial date is May 17, and the trial is slated to last 2 weeks.

Rio Blanco officials figure they will ultimately need 60,000 acre-feet per year for a 300,000-barrel-a-day plant. The White River industrial water rights obtained by the Rio Blanco Oil Shale Project serve as a backup and supplement where ground water is not available in sufficient quantity. Rio Blanco also has located a potential off-channel reservoir on Yellow Creek and plans are being made to divert water from White River to storage in the Yellow Creek Reservoir before pumping the water on up to the tract.

C-b: ample water

On tract C-b, southwest of Meeker, developers see water supply as a minor problem. Says Bob Loucks, project manager, "The water problem is one of our lesser problems. We believe there's ample water out there to handle Project C-b." In fact, the mine on the tract may produce water in excess of demand and that's why the federal leasing program chose this site—to test a very watery shale tract.

Specifically, C-b's senior landman, R. C. Williams, figures the project will need 12½ cubic-feet-per-second for a 50,000-barrel-a-day plant. "There is enough water under the tract to take us through the construction period," Williams says. And in terms of dewatering, the underground C-b mine can be designed to minimize leakage. Williams says also that use of ground water will probably require augmentation, unless C-b can prove that the ground water is nontributary. During the initial mine development, C-b will conduct more tests to further define the aquifer systems.

For future needs, C-b may pipe water in from the Colorado River. Since the two C-b developers (Shell and Ashland Oil), are also partners in the nearby Colony Development Operation, a private oil-shale venture, Loucks points out, "If Colony builds its pipeline to divert water from the Colorado River, we'd probably divert our water from the river too. The pipeline would be sized to supply C-b also."

Domestic water: it's available

Water for community growth generated by oil-shale development seems to pose little problem for the oil-shale companies. As Denver engineer Russ Cameron points out, "Under laws and customs, domestic water suppliers have highest priority. You can pay more for domestic water." And cost seems to be no obstacle for a thirsty municipality. None of the three federal oil-shale tract projects indicated they were purchasing water rights for any populace that might be generated by their developments. But they are apprising nearby communities of their prospective water workloads and potential water needs for domestic (employee) uses. For example, the White River project assumes a new community will need, at most, 4,000 acre-feet a year, and that this water could be drawn from the proposed dam on the White River.

In sum, the water-supply needs of each oil-shale project are still, at best, only tentative. But each project has established a first choice and has at least one alternate. For Utah, the choice is a White River dam; on C-a the choice for the first stages of production is ground water; and on C-b the project leaders will be eyeing ground water as a primary water source during the plant-construction phase.

Situation Report

ERDA and FEA Look—Warily—At Shale

Government pulls the shale strings today

In February, the American Chemical Society held a program in Colorado Springs to discuss the federal Synthetic Fuels Commercialization Program. At that time, and at press time, the U.S. Congress was once again considering funding legislation for this program. The Senate bill did not mention oil shale; the House bill did, but endorsement of the shale section was wavering.

Congressional and Administrative support for oil shale is considered essential by the industry—not just to insure commercialization but, in fact, to insure survival. However, as noted before, such support is a sometime thing; thus oil shale's permanent position in the commercialization program is unclear. Nevertheless, it is important for SHALE COUNTRY readers to understand the rationale behind the program, including its oil-shale portion. Therefore, this article will summarize key points of the program and key statements from those responsible at the Energy Research & Development Administration (ERDA) for its implementation. Also included, on p. 8, is an FEA shale viewpoint. But, first, let's clarify . . .

. . . **What and why is ERDA?** The U.S. Energy Research & Development Administration was established by legislation in 1974 as the lead federal agency for energy research and development. Its mission is to develop all energy sources, to make the nation basically self-sufficient in energy, and to protect public health and welfare and the environment. ERDA programs are divided into six major categories: energy conservation; fossil energy; solar, geothermal and advanced energy systems; environment and safety; nuclear energy; and national security. ERDA programs are carried out by contract and in cooperation with industry, universities and other government agencies.

"Baloney to other energy options," says Bill McCormick, head of ERDA's Synthetic Fuels Commercialization Program. "If you look carefully at the energy situation in the next 25–30 years, it is very clear that alternative energy sources such as nuclear and solar will not be sufficiently developed to handle the supply-demand gap we are facing. Thus, we are convinced there will be a *significant* demand for synfuels in the 1990s, a demand that will require 100 major synfuels plants. And we are convinced we've got to get the industry going so we can start to address synfuels' legal, environmental and social issues. If it doesn't happen soon, there will be a crisis later. Then the government will have to come in and develop synfuels alone and that would be a tragedy for our free-enterprise system. We must start to develop an industry-government partnership *now* and get a limited number of plants underway. Then we will have the information we will need to make intelligent decisions in the 1980s about full-scale synfuels development."

What is the Synthetic Fuels Commercialization Program? It is an incentive program to encourage the private sector to construct and operate first-of-a-kind commercial-scale synthetic fuels plants. These plants include shale conversion to synthetic petroleum; coal conversion to gas or oil; solid waste conversion to gas or oil.

What are the major objectives of the program?

—To gain information and to initiate development of industry infrastructure by investigating environmental, economic, institutional, technical and other potential problems, and by promoting private sector synfuels experience.

—To supplement existing and planned domestic energy production by reducing reliance on imports and by providing less expensive energy if the world price rises.

—To improve the U.S. international position in energy matters by demonstrating U.S. capability to tap its vast resources and by establishing U.S. leadership among consuming nations.

How is this program different from other ERDA programs? As contrasted with ERDA's energy R&D program, which is aimed at developing new or improved technologies in order to demonstrate *technical* feasibility (such as ERDA's oil-shale in-situ research), this program would create through federal incentives, *commercial* demonstration of a limited amount of synthetic fuel production using already-developed technology that can be applied between now and 1985.

How did this program begin? In his 1975 State-of-the-Union message, the President called for accelerated development of U.S. energy technology and resources as well as strong energy conservation measures. As part of the plan to accomplish this energy self-sufficiency goal, the President proposed a Synthetic Fuels Commercialization Program. Thus, an Interagency Task Force, composed of 50 members from 13 federal agencies, was formed in February 1975, under the direction of the Energy Resources Council, to examine alternatives for implementing the President's synfuels objectives. The final results of the Task Force's efforts were released as a four-volume "Synthetic Fuels Commercialization Program" report in January 1976. (Copies may be ordered from the U.S. Government Printing Office, Washington, D.C. 20402. Costs are: Volume I, Overview, $2.85; Volume II, Cost/Benefit Analysis of Alternative Production Levels, $4.30; Volume III, Technology and Recommended Incentives, $12.75; Volume IV, Draft Environmental Statement, $12.)

What is the report's key recommendation? The Task Force stresses that federal financial incentives are needed *now* to initiate a limited commercial demonstration program to provide the basis for a synthetic fuels industry. Thus, the Task Force has outlined a federal incentive program designed to insure initial production of the equivalent of 350,000 barrels/day of synthetic fuels before 1985. This is the first phase of a possible two-phase program that could ultimately encourage up to 1 million barrels of synfuels by 1985.

Why are synfuels needed? "America's dependence on foreign sources of oil and gas continues to grow. Domestic production of oil and natural gas has been declining since the early 1970s. By 1980, if past trends persist, the U.S. will depend even more on foreign energy sources than today. Although the development of Alaskan and Outer Continental Shelf oil and gas, improved energy conservation, expansion of nuclear power facilities, and greater direct burning of coal can buy time, our dependence on foreign sources of oil and gas will continue to grow if synthetic fuels are not produced in substantial quantities," says Dr. William T. McCormick, Jr., who chaired the Task Force while at the Office of Management and Budget. He is now at ERDA heading up its newly-formed Office of Commercialization.

Why are federal incentives needed? According to the report, at the present time there are a number of serious impediments to private sector commercialization of synthetic fuels. The uncertainty of future prices of world oil is perhaps the most important factor discouraging private investment. If world oil prices were to fall substantially, large plant investments could not be paid off from revenues of low-price, but high-cost, synthetic fuels. In addition to the financial risk, there are numerous environmental, regulatory, and labor and materials uncertainties. Federal government involvement is needed to overcome these.

What type of federal incentives are needed? The Task Force examined a variety of options, including tax changes (investment tax credits, construction

FEA Official: Forget 'Stupid Coach'

Roger Sant, a top official in the Federal Energy Administration—FEA—was in Grand Junction, Colo., recently to speak to Club 20, an organization of 21 Western Slope counties. The next day Sant, escorted by Colorado's socioeconomic impact coordinator Burman Lorenson and by SHALE COUNTRY'S regional editor, boarded an aircraft to see firsthand shale and coal country in northwest Colorado. However, fog prevented Sant from viewing all but two oil-shale projects. He did, however, chat about FEA and the national energy picture. He noted that Washington officials had forewarned him to expect the western Colorado populace to be "pro-development at any cost." He found, instead, that the townspeople he spoke with had "a reasonable attitude. They also want to contribute." The following quotes are taken from a speech Sant (whose official title is Assistant Administrator for Conservation and Environment) delivered in Grand Junction and from an interview.

To Roger Sant, the Ford administration's top official for energy conservation, "The experience of energy in the past 2 years has been one of blaming everybody you can find for not finding a solution." He likens it to the story about the high school homecoming football game. The home team was behind 6 points, they got the ball on their own 20, and the first and second string quarterbacks were injured. So the coach sent in the third-string quarterback and told him to "run two off-tackle plays, and punt." Remarkably, the kid gained 40 yards in two plays. And, on the third play, he did as he was told and punted. When the quarterback came off the field, the coach yanked him by the helmet and shoulder pads and demanded, "What on earth was going through your mind?" The kid answered, "I was thinking—what a stupid coach."

Like the kid, everyone tries to pin the energy crisis on a stupid coach, Sant says. Sant himself sees any solution of energy problems as interwoven with economics. "We're dependent for about 75 percent of

"Environmental concerns about oil shale we can work out, *if* we can get the product on the market," says Roger Sant, a top official in the Federal Energy Administration.

expensing, and accelerated depreciation) and government-owned management structures. The recommended incentive for shale oil and syncrude was for the federal government to provide up to 50-percent non-recourse loan guarantees and price guarantees, competitively bid. The major features of this incentive are: It protects the lender from some capital risk through the non-recourse loan guarantee. It protects the corporation in the market place through price guarantees by assuring a fixed price. And the procedure of competitive bid for a price guaranty should result in lower shale oil and syncrude prices, which will reduce the cost to the government of the price support program.

From the government point of view, the major strength of the recommended incentive is that it:

—Encourages industry competition and broad participation through its loan-guarantee provision for those firms needing risk sharing.

—Reduces or eliminates government costs as market prices approach the production prices of syncrude.

—Does not require government management or operation of plants, thus minimizes federal involvement.

—Provides an anticipated subsidy limited to the production-plant life and thus would not result in permanent subsidy to industry.

What does the report say about the environmental impact of such a program? The environmental-impact statement provides a comprehensive description of the potential impacts—from landscape alterations to health-care demands—that may result from a synthetic fuels program. In turn, the Task Force has recommended a detailed environmental protection strategy, which includes such steps as site-specific EIS's, an environmental advisory board, carefully prepared development plans for individual plants, coordination with local and state agencies, as well as comprehensive environmental monitoring and surveillance. A major goal of the commercialization program, in fact, is to yield environmental and other data that will allow development of the synthetic fuels industry as the program's experience in the nation's interest warrants it.

What is the states' role in the program? The Task Force received comments from the states through the National Governors Conference and the western governors, as well as other organizations, and made significant changes in program recommendations based on those comments. As a result of the states' interest in a synthetic fuels program, the Energy Resources Council has also established a new intergovernmental coordinating committee to receive state input on synfuels and other energy issues that require federal/state interaction.

What is the future of synfuels commercialization? ERDA says, "Despite the deletion of the synthetic fuels commercialization program by the House in December 1975, the Administration still strongly supports a substantial loan-guarantee program as a major step toward this nation's energy self-sufficiency. ERDA expects Congressional reconsideration of synfuels legislation this year and strongly supports its early enactment." Time, of course, will tell the amount of commitment government has to synfuels and to shale. As Bill McCormick said at the conference, if the Synthetic Fuels Commercialization Program is defeated again, it may be shelved—for years.

A.N.

our energy on oil and gas (as opposed to such sources as coal, synthetic fuels)," he says. "And . . . our estimates (show) that we're going to run out of those two fuels" within the next 10 to 30 years. Obviously, substitutes must be found. The apparent problem, an energy crisis, is not the real problem, Sant observes. "The real problem is that we face an economic threat to our society if we can't somehow find substitutes for our existing energy at prices we can afford." He goes on: *"We're not going to run out of energy, we're going to run out of dollars to pay for it."*

His conclusion: any national energy policy must find substitutes for energy at prices people can afford, work the "least possible environmental damage," and "come on *now*, not 15 years from now."

One answer: "We ought to get all the oil and gas that we can find. We've got to go to Alaska, we've got to go off-shore. The same thing goes for coal. After that, everything is pretty high-priced. Nuclear power . . . try looking at the cost of resistance heating coming from a nuclear power plant; it's about 4 or 5 times more expensive (than gas). Solar heating and cooling works out to be on the order of 80 cents to a dollar per gallon . . . not very cheap."

No morality in conservation

Sant sees no moral questions in production and conservation. Rather, "It seems to me that there is nothing intrinsically good about conserving versus producing; there is nothing good, morally good, about conservation. It's an economic threat we're trying to overcome. If it costs less, you'll buy it. If it doesn't cost less, we're going to have a hard time getting it out into the country."

Where, then, does oil shale fit in as an energy substitute? Though Sant is, by nature of his job, concerned about the environment, he shunts aside ecological questions on oil shale. "Unless some of the processes we're talking about get more cost competitive, you don't need to worry about the environmental problems," he says. "It's really hard to write a scenario where oil shale becomes competitive in the market in the next 10 years. Environmental concerns we can work out if we can get the product in the market . . . But right now it's very hard to make it cost-competitive with other sources. Oil from shale *is* a great idea and we're going to have it (someday)."

As far as an overall energy policy, Sant doesn't see a cohesive policy emerging in an election year. He notes another complicating factor, "The problem is, we've got to create some certainty . . . some security in terms of dealing with this question. That's difficult, because the marketplace is being set by an OPEC (oil-exporting countries) price that may vary . . ."

Overall, Sant regards energy questions as questions of "putting first things first." He says, it takes more than finding a scapegoat or stupid coach. Energy problems will require hard work in conservation, coal, synthetic gas, oil shale and "a little bit of this and that," Sant states. "It's not going to be one thing or another. All of it has got to happen, all of it has to come together at some time."

C.E.

Environment

States Offer 'Healthy' Shale Help

Both Utah and Colorado have set up task forces in their departments of health to deal with the developing oil-shale industry. And, while there have been some misunderstandings of what was expected by industry and agency, the emphasis of the departments of both states, according to spokesmen, is "making it easier on the shale companies." When they say "making it easier," however, they don't mean compromising the regulations or in any way diminishing health standards; rather, both states say they wish to help the shale companies in the application for permits and the many studies they must perform to comply with the health standards.

Howard M. Hurst, associate director of the Utah Div. of Health, Salt Lake, notes that "Under the Div. of Health, five bureaus might be involved at one time or another with oil shale. These are: the Bureaus of Air Quality, Water Quality, Radiation and Occupational Health, Sanitation and Solid Waste Management. The operations of these bureaus in terms of shale can become quite complex," Hurst says. "For example, the Bureau of Solid Waste Management is charged with overseeing the disposition of spent shale. However, this might also involve the Bureaus of Air Quality and Water Quality because these factors would also be affected during disposal."

According to Hurst, it will be up to the various bureaus to take applications for permits from the shale developers when the industry reaches the stage of starting construction. This will involve emissions into the air, the water, solid wastes and sewage facilities. . . . At this time, however, Hurst says that "We are mostly working with them to insure that the data they develop are what we need and can base future comparisons on. They haven't gotten too far down the road in terms of actual development, so to date we have pretty much been holding discussions with the companies to fully acquaint them with Utah's requirements. We've been involved as deeply as they've needed us so far. However, we do have a formal conference every 2 or 3 months to get a progress report from the companies.

"Later, we will be reviewing all of their environmental plans to check whether they comply with standards for permits. Now, however, we want to make their job as easy as possible, and make ourselves as available as possible to help them out," he concludes.

Processes, permits, performance

At the Colorado Dept. of Health, Robert Siek, assistant director of the department, explains that this department also has an oil-shale task force, with representatives from each of four divisions within the department. These include the divisions of: Water Quality Control, Engineering and Sanitation, Air Pollution Control, and Occupational and Radiological Health. Says Siek, "These individuals track all aspects of energy development although the task force was originally set up 2 years ago to monitor only oil-shale development. It has just evolved since then that they look at coal, uranium and other energy minerals, as well as oil shale."

Much of the work done by the task force involves processing applications for permits, although the Div. of Occupational Health performs inspections only, since no permits are required from this division. According to A. C. Bishard, chief of the stationary sources section of the Air Pollution Control Div., and spokesman for the task force, "The task force does not replace the responsibilities of any of the individual divisions; instead we facilitate coordination between the activities of the divisions and disseminate information to the directors. We also make available information on regulatory requirements to the shale companies so their efforts won't be fragmented. The shale companies have many permits to get, so it is the philosophy of the state agencies to coordinate—to be fair and less restrictive than perhaps they were in the past. That's not to say less stringent, however." Bishard points out that in cases where Colorado has promulgated its own regulations that are more stringent than federal regulations (air pollution standards are an example), it is because the conditions in Colorado are unique.

Robert Siek, assistant director of the Colorado Dept. of Health: The task force "tracks all aspects of energy development . . ."

He adds that health department regulations are made quite clear, and that anyone, including the shale companies, applying for a permit must become aware of what is required. "Our major goal now is to make people aware that we're here—to make it easier on them to get through the processes required, and to let them know that we're reasonable people." *J.P.*

Community Profile

It's a Bonanza, Really

By Paula Massa

You can get there from here, and you can call there from here, but contact with Bonanza, Utah, can be more of a challenge than with most places.

From Grand Junction, Colo., it is 104 miles over a mountain pass, then 33 miles on a dirt road near Rangely to the state line, then 15 miles over an oiled road to Bonanza's doorstep. (Those without a pioneering spirit may enter from the north on the asphalt highway U.S. 40 between Vernal, Utah, and Dinosaur, Colo., then onto state highway 45.) Or by telephone: "Operator, get me 'information' in Bonanza, please . . ." to which comes the reply, "I'd have to connect you with the operator to Vernal . . . there are five phones in Bonanza . . . it's not much of a town."

Bonanza's name is not meant to deceive; it is the location of the world's only commercial gilsonite mining operation, according to officials there. Gilsonite is a hydrocarbon used in paints, insulation, auto sealers, building board insulation, foundry uses, explosives, well cementing and printer's inks. Actually, gilsonite deposits are probably a major reason why men first chose to locate in that part of the state, according to speculation by Paul Borden, a retired manager of American Gilsonite Co., now living in Vernal. Since then gilsonite has been mined from the vertical veins located in the area, and has spurred, among other things, the establishment of four towns or company camps, and a railroad.

So Bonanza yesterday and today can be described in the words of Dwight Wetenkamp, manager of neighboring Vernal's Chamber of Commerce, as "a housing development, really." That's pretty much what it's always been. About 15 or 20 houses, a grocery store and the Gilsonite offices and maintenance buildings sitting on arid land sprinkled with sagebrush—that's Bonanza. Most of the company's approximately 150 employees live in Vernal and commute the 48 miles to work. The rest live in Bonanza.

Next store: Rainbow and Dragon— When you drive to Bonanza from Vernal, you know you've arrived when the pavement ends. Beyond that, due south about 5 miles are the federally-leased oil-shale tracts U-a and U-b. From that point extends the route once traveled by the Uintah Railroad, a narrow gauge that ran between Mack, Colo., to Dragon and Watson, Utah, a stop 10 miles south of Bonanza, then on to camps at Rainbow and Dragon. According to Borden, the train chugged with materials from the mines from 1904 until 1939.

"Bonanza was originally built as a stagecoach stop in 1904 between Dragon and Vernal," Borden explains. He adds that the American Gilsonite Co. first started in 1890 as the Gibson Asphaltum Co. near Roosevelt at Gusher, Utah, which is about 60 miles northwest of Bonanza.

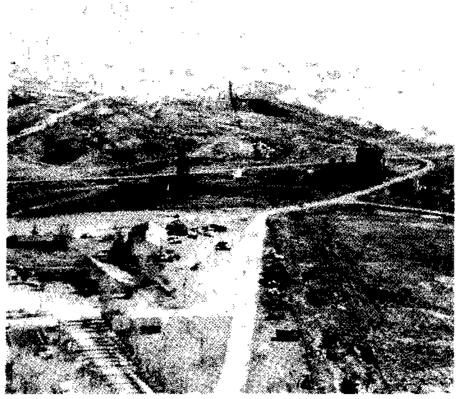
The railroad was constructed by the company under the new name of Barber Asphalt Co. and was abandoned when it became too expensive to ship materials that way. The company moved its headquarters to Bonanza. In 1945, the company, then Barber Oil Co., merged with Standard Oil Co. of California to form American Gilsonite Co. "About 18 houses were moved from Rainbow then," Borden explains. He adds that some of them have been torn down in the past few years, however, because they rested on top of mineable veins. An old post office is now used for storage, while the present grocery store has sheltered many a weary traveler on his way to Vernal.

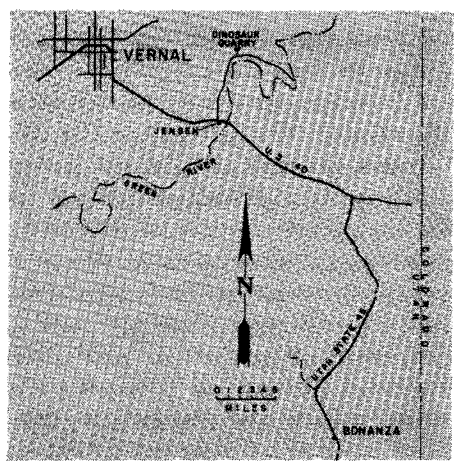
"They even moved a one-room log school house from Rainbow," Borden reminisces. He also says the company added another room to the school. "At one time there were as many as 50 kids and eight grades there," reports the retired manager whose own children attended school there for awhile. Now grade through high school students in Bonanza—15 in all—travel by bus to Vernal public schools.

But Bonanza is by no means a ghost town, and the name is still appropriate. Company manager Richard Dewey says gilsonite mining there is "steadily increasing" with about 400 tons of the substance being mined daily. And he points out that American Gilsonite Co. has pioneered in areas such as hydraulics, pipeline operations and refining operations that have meant progress for the whole mining industry. He adds the company was the first in the 50s to transport slurry-solids via a 72-mile pipeline to the Grand Junction area, where the hydrocarbons were refined into coke and gasoline.

Now, however, it is transported by trucks to Craig, Colo., where it is packed and readied for shipment, for sale and processing. According to Dewey, about 50 or more uses have emerged for gilsonite from one of its first uses in asphalt. "There's plenty of it left," he says, "we expect it to continue."

World's only commercial gilsonite operation shown below.





Real Estate Corner

Masterful Planning for Zoning in Shale Country

Opinions on the zoning situation in shale country run the gamut from "there's adequate zoning for any kind of development" to "we need more ________ zoning" (fill in the blank with residential, industrial, commercial . . .). While some shale-country counties are currently going through the process of drawing up new master plans, the general consensus is that zoning is available for most types of construction—although an approval for rezoning might not be so easy to come by.

In Utah, Chuck Henderson, of the Uintah County Energy Planning Council, says that he has not seen too many plans for development that have not been approved, although "some are in a state of suspension. We are in the position now," he continues, "of losing quite a few of the oil company people who were involved in oil and gas exploration. This is because the Pacific Northwest Gas Co. is moving out of Vernal as a result of the governmental rollback on the price of oil. Thus, a lot of houses are coming on the market, and some planned residential developments may not go forward at this time."

Uintah County's Planning and Zoning Board, he adds, is now intent on rewriting the county's master plan because, according to Henderson, "A really complete study made of where people are locating, what the availability of land is, and where development might take place has never been done. There is room for quite a bit of expansion; however, if we get a large change in the population, there will also have to be a change in zoning regulations.

"For example, the land around the oil-shale areas is already tightly zoned agricultural and mining, so there are strict limits on what can be built on that property—other types of development or structures would not be allowed. So, if the companies wanted to do any kind of housing construction—like a new community—the zoning would have to be changed."

Henderson notes that the county commissioners are trying to get funding for undertaking a new master plan. "What we need," he says, "are studies of alternatives for planning in Uintah County. Our pattern during the past few years has been one of an influx of growth, and we need to have a direction for handling it."

Colorado: Is there or isn't there?

In Colorado's shale area, several counties are already in the process of drawing up new master plans. According to Steve Schmitz, a planner for the Colorado West Area Council of Governments (COG), "There is currently a moratorium on planning in Garfield County while development regulations are being drawn up. However, recently, some zoning applications for residential development have gone through. I'm not aware of any requests for industrial or commercial zoning in that county. In Rio Blanco County, its new master plan is just being wrapped up and public hearings are being held, so zoning should be available there soon for development. The same situation is true for Moffat County, which has just completed its draft comprehensive plan. A general observation is that all the shale-country counties lack adequate housing, either for rent or sale. However, I believe that some of these problems could be solved by the new master plans."

Loran Dake, projects coordinator for the City/County Development Dept. in Mesa County, agrees that there are housing problems in that county, although "zoning is adequate to accommodate 250,000 people." The problem is that, although there is "an overabundance of zoning available," housing in an affordable range is not coming on the market quickly enough to accommodate the people moving in. Dake says that "Not very much has been done here in the way of innovative zoning concepts, although zoning for PD's (planned unit developments) is on the books. However, as a result of the way the subdivision regulations are set up, and past marketing trends, conventional housing seems to prevail. PDs are more suited to hilly terrain and currently there are not adequate sewage systems to serve these areas. The flat lands around Grand Junction are simply more economical to develop at this time and these are zoned for conventional housing."

Loran Dake, projects coordinator for the City/County Development Dept., Mesa County, Colo.: ". . . zoning is adequate to accommodate 250,000 people . . ."

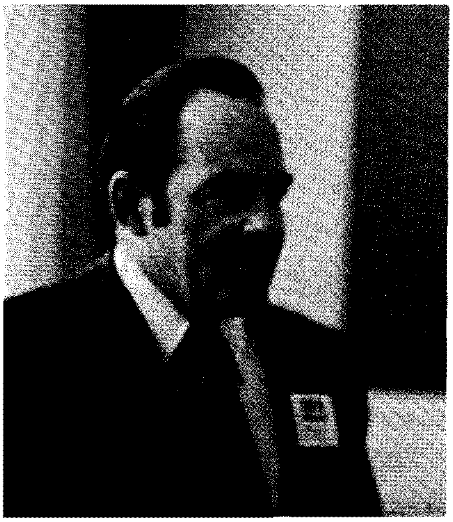
Dake also points out that while at one time it was felt that not enough land in Grand Junction was zoned for industrial development, a study by the City/County Development Dept. showed that adequate zoning did already exist for new industry in and around the city. He adds that it is often difficult to get rezoning requests through, unless good reason for the request can be shown, except in the case where utilities and transportation corridors are available. "We are trying to establish a new master plan for the county," he says. "Until recently, there was no reason to look at changing our master plan, but the times are changing and the area is growing rapidly. We are now in the position of having to set priorities and manage development at an orderly rate, and in the best interests of the community." *J.P.*

His boss says of George Wear, who is assistant socioeconomic energy impact coordinator for Colorado, "He keeps me out of trouble." And a local community leader observes, "He has a relaxed, nonintimidating manner. He's not an up-tight bureaucrat." Wear, whose office is in Rifle, is assistant to Burman Lorenson, state energy impact coordinator headquartered in Denver.

Wear's job is a ticklish one, because he must retain credibility with two groups that are likely to be at odds with one another. He is appointed by the Governor, and he must work with local communities. In the Governor's office Lorenson says, "He (Wear) keeps me totally aware of the local communities' feelings and when I might be treading on sacred sand. He's not bashful about representing the local feelings. If he doesn't think the message is coming across, he sits you down and makes it come across. The Governor appreciates his counsel very much."

Another view of Wear—this one from western Colorado—comes from Bob King, Superintendent of Schools in Meeker, and head of a school administrators' committee requesting oil-shale bonus-bid monies from the state. Says King, "George has kept us up to date on funds, the manner of application and distribution. To us he is not a representative of state government, so much as he is a representative of this area *to* state government."

Part of this credibility with the local people may be linked to the fact that Wear is a "home-town" boy. A descendant of two area pioneer families, Wear was born near Maybell in Moffat County, where his father ranched. He attended grade and high schools in Meeker, was graduated from Mesa College, the U.S. Military Academy at West Point, and from George Washington University.



A veteran of three combat wars, World War II, Korea and Vietnam, Gen. George Wear is now serving a civilian role on Colorado's Western Slope as Gov. Lamm's assistant socioeconomic energy impact coordinator.

Vignette

George Wear— No Up-Tight Bureaucrat

From World War II to Vietnam—Then he began a 30-year career as an Army officer, including training as a parachutist and helicopter pilot. Wear's 5½ years of infantry combat service spans three wars: World War II, Korea and Vietnam. His final Army assignment was at the Pentagon as Director for Personnel of the Joint Chiefs of Staff.

When he retired from the Army, General Wear moved to Glenwood Springs and was named in the summer of 1974 by then Gov. John Vanderhoof to staff the newly created oil-shale office in Rifle. Take a Brigadier General away from the Potomac and place him in a modest office building (also housing the Colorado West Area Council of Governments) near the Colorado River, and what happens? It could have been another battlefield. One problem that surfaced: community leaders had little confidence in Don Rapp, the state oil-shale coordinator at that time. When a Democratic governor replaced the Republican administration, Lorenson was named to succeed Rapp, and Wear stayed.

Governor's Eyes, Ears—How does Wear see his job? "I have been referred to as the Governor's eyes and ears on the Western Slope. Initially, my position was strictly an oil-shale related function. But it soon became apparent that much of our energy impact was coal. My job has broadened from a concern for oil shale in Region 11 (four northwestern Colorado counties) to a concern for all of the energy-impact related problems in the Western Slope."

One of his newer responsibilities is to act as coordinator for the Governor's Western Slope Energy Impact Advisory Committee. Another task: to assist Lorenson in administering the oil-shale bonus-bid monies appropriated by the state to the local communities (these same funds pay for the oil-shale coordinator's office). Once the state legislature has appropriated the oil-shale funds to local communities, the money cannot be doled out until Lorenson and Wear approve specific plans for expenditure and Wear draws up a contract that must be approved by the Governor's office, the Attorney General and the State Comptroller. Referring to this cumbersome process, one Western Slope community leader calls it a "bureaucratic jumble," but credits Wear with "making every attempt to expedite the process."

So the Brigadier General's current success seems linked to an ability to leave the battlefields behind. Lorenson observes that Wear acts as a conduit between the local communities and the state, rather than as a mediator between two warring parties. Lorenson says, "He sincerely represents what the local people are saying."

Supt. King remarks about Wear, "He's a delight to work with." *C.E.*

Newcomers

Employment in Shale Country—Uneven

To those not living in the area, shale country with its many energy resources—shale, coal, oil—sometimes suggests a picture of unlimited employment opportunity. Unfortunately, this is not the case since, at present, energy development is occurring on a relatively small scale, and most jobs in coal mining, oil shale and power-plant construction are still years in the future. In the meantime, shale country employment, like the rest of the nation's, has been affected by the recession.

John Wilson, Western Area CETA/WIN (Comprehensive Employment Training Act/Work Incentive Program) Coordinator for the Colorado Div. of Employment points out that during 1975, the unemployment rate in three of Colorado's Western Slope energy counties, Garfield, Mesa and Rio Blanco, averaged approximately 5 percent. "This rate may seem low in comparison to the rest of the country as a whole," he says, "however it is much higher than anything we've ever known. Overall operations for Unemployment Insurance claims have doubled over the past 2 years."

According to Wilson, the construction industry in the area was the most severely hurt by the economic recession, although other businesses have also suffered. And while the economic outlook for 1976 appears brighter, the employment situation is still somewhat precarious. "Right now," Wilson reports, "we only have one serious labor shortage—we need sheepherders in the Craig area. That, of course, is a continuous problem for us, since few people enjoy that type of life."

But even though jobs are scarce, Wilson notes that the area is seeing an influx of people from other states, especially from California. "There are both skilled and unskilled workers," he says, "and while they're not coming in by the thousands, it's a larger increase than what we're used to. These people are coming for a number of reasons: the environmental and recreational aspects of the area, the nationwide publicity about the energy boom, and the relatively low unemployment rate. What they don't realize, however, is that the coal companies are not hiring by the hundreds and some of the shale companies are laying people off. And even though our unemployment rate is low compared to other parts of the country—it still means that we have more people than we have jobs."

Many of the newcomers eventually leave, however, not only because of the job situation, but as Wilson points out, "Some of these people often have to face a change of lifestyle that they're not prepared for. For instance, if they do find a job, the salary scale will probably be much lower than what they've been used to. Also, there are different kinds of recreational and cultural facilities here, and sometimes this can mean a big adjustment."

Lead time needed for training

Employment opportunities in the area will improve, of course, if the energy industry opens up in the next 10–15 years. According to Wilson, "The energy companies have indicated that they wish to use the available labor force as much as possible, in order to reduce growth impacts on the communities. We know, of course, that some of the needed skills will be for construction workers, miners, heavy equipment operators, certain levels of management and skilled office workers. We'll also need more people in non-energy related jobs such as teachers, police officers and government workers."

But since most of the labor force in the area is semiskilled or unskilled, training will be needed. And Wilson feels that although most schools and colleges are making some plans, the training burden will probably fall on the Delta-Montrose Technical Vocational School. The school, which is about 5 miles south of Delta, is not fully operational at present. It is, however, in the process of acquiring buildings and organizing staff, and should be fully operational by fall of this year.

"The problem," Wilson explains, "is that training means lead time. We need to know how many workers will be needed, when they will be needed, and exactly what kinds of skills they should have. But those figures are just not available. We're working with regional councils of governments and the energy companies, both officially and unofficially, but we haven't yet been able to get a grasp of the situation."

Utah: drilling down, unemployment up

The employment situation in Utah's shale country is similar to Colorado's. The unemployment rate is high for the area, and once again there are more people than jobs. The average unemployment rate in 1975 for non-agricultural, wage and salaried employees in the three-county area (Daggett, Duchesne and Uintah) was 7.7 percent.

William Kremin, Jr., manager, Job Service, Utah Dept. of Employment Security, Vernal, attributes much of the rise in the area's unemployment to the drop in oil and gas drilling, which occurred when Congress discontinued the oil-depletion allowance. "Several of the oil companies," he explains, "moved to other areas, where costs are cheaper because of greater accessability to refineries and transportation. Not only did that put a lot of drilling people out of work, but it also had an adverse affect on retailing in the communities. The unemployment rate does seem to be stabilizing, however, and is not quite as severe as it was last year."

As for the future, Kremin points out that the area has one of the world's largest deposits of gilsonite and phosphate; there are expectations for tar sands; oil and gas drilling could become feasible once again; and oil-shale development could gear up. "The main problem," Kremin notes, "is that everything is up in the air. For instance, if development of the federally-leased oil-shale tracts takes place, we don't know where the workforce will settle. If a road is built from Rangely, Colo., to the Utah tracts, Rangely will actually be closer to the tracts than either Vernal or Roosevelt. So, many of our plans will be affected by such questions as where the roads will be built, will there be new communities and if so, where they will be located."

The new Uintah Basin Area Vocational Center, which is expected to be completed in spring of 1977, will include 60,000 square feet of space for classroom and lab facilities.

How many workers and when?

Kremin adds that "We're very concerned about growth impact and would like to have our own workforce trained when energy development gets underway, because we've already had a taste of what being unprepared can mean. When wildcat oil was found in Duchesne and Uintah Counties in 1969, there weren't many skilled workers in the area. Workers from Texas, Oklahoma and Wyoming started flooding in—and Duchesne County's population jumped from 7,200 to 15,000. But the tax base didn't catch up to the growth until a year or two later."

As for training the workforce, Kremin notes that "We will be able to plan better once the oil companies come up with some definite figures. For instance, not only will we need different techniques, equipment and skills for oil shale than for oil and gas, but the skills will also vary with the processes that the companies decide to use. And once again there's always that concern about a time schedule."

Despite these uncertainties, the Uintah Basin Area Vocational Center in Roosevelt is already trying to anticipate some training needs. According to Marlin Johnson, institutional director, the Center, which is a state school, now has 900 students and a satellite office in Vernal.

Johnson explains that most of the training for coal mining will probably continue to be handled at the College of Eastern Utah in Price, which now seems to be ahead of the demand in producing coal miners. The Uintah Basin Center, however, is working with industry, government and educators, trying to determine the future needs of other energy industries.

"The Center is building a new $2^1/_2$-million facility at Roosevelt, which should be completed in spring of 1977," Johnson says. "There will be room to expand for oil-shale training, and while we don't have oil-shale expertise on the staff, I'm sure industry will help us out in that area. However," he continues, "when and how many are the big questions. We have state funding available for energy-related training, but so far these funds are still sitting until we can get more information about future manpower needs."

But despite the fact that most energy-related jobs have not yet opened up, and despite the high unemployment situation in the Utah shale area, Kremin does note that, "occasionally we do have a need to bring in outside labor. Some skills that are in strong demand at present are for diesel mechanics, electricians and heavy equipment operators. But these needs do vary, and if anyone is interested in moving into the area, I would strongly advise that they first write to me, and be sure to enclose a resume." *K.C.*

(**Editor's note:** If you wish further employment information, contact William Kremin, Jr., Utah Dept. of Employment Security, 780 W. Main, Vernal, Ut. 84078; John Wilson, Western Area Administrative Office, Colorado Div. of Employment, Valley Federal Plaza, Grand Junction, Co. 81501)

Guest Column

Severance Taxes— What, Why, How, When?

By H. Michael Spence
Vice President
The Oil Shale Corporation

This is an age of concern and conflict over the availability, production and control of mineral resources, including energy resources. One matter of controversy is the application of the mineral severance tax to such resources. This article looks at the tax's history and at its causes and effects in an effort to clarify the topic.

What is it? "Severance tax" usually refers to a tax on producers who "sever" (remove) natural resources, such as oil, coal and ores from the earth, and is based on resource value at the point of "severance."

Who uses it? Some 25 to 30 states presently impose the severance tax upon one or more types of mineral extraction. The most common such tax is on oil and gas production; this tax occurs in about 25 states. Other mineral production has been taxed in most states where the amount of production is sufficient to generate significant tax revenues.

How are they set? Severance taxes are determined by establishing two factors: (1) a specified base unit of production, or unit-value, to which (2) a specified tax or tax rate is applied. The base of the severance tax may consist of one or two components. In the simplest form of severance tax, only a base unit of resource production, such as a ton, a barrel, an ounce, is required to which an absolute money rate is applied. Example: a severance tax might be 10 cents per ton.

Two principal methods for establishing the severance tax base are upon gross (before cost deductions) and net (after deductions) values. Determination of which method to use is particularly important in the case of those minerals that require further processing after extraction before they are saleable and when the ultimate sales price is the means of determining the value-base for severance taxation.

What is the "right" rate? Tax rates and net taxes paid for severance taxes have varied significantly on different minerals in different states. Most state severance tax rates for mineral production have been in the range of 1 to 3 percent, with one state going as high as 30 percent.

Tax rates can be misleading if not considered in the context of the whole tax structure. A common factor that can dramatically alter the actual taxes paid are the exemptions, credits and exclusions that are customary in many states. Credits for ad valorem property taxes paid, exemptions for minimum levels of production, and exclusions for small producers are three methods often used to modify the tax paid and to satisfy certain state policies or political objectives.

Who gets the $? One important question is that of states vs. local use, a critical aspect if the need for the tax is to alleviate negative local social impacts of growth because of mining activity.

What are the keys to an equitable severance tax policy? Before enacting such a tax, there should be:

—*An examination of the total tax burden of the mineral industry compared to total taxes on the other segments of industry.* To provide reasonably equitable taxation, some comparability and parity should exist among the various industrial segments because of competition among all segments for labor, capital and markets.

In Colorado, for example, the minerals industry is subject to (1) ad valorem property taxes, (2) state income taxes, (3) sales and use taxes, (4) royalty payments on state and federal lands, (5) oil and gas production tax, as well as other excise taxes and license and permit fees. In addition to state taxes, mineral production is subject to federal income taxes. All of these together constitute the total tax burden, which is a cost of doing business and must be paid out of income.

—*An evaluation of possible discrimination in the economic and consumer effects of a proposed new tax.* Punitive severance tax proposals that clearly single out the mineral industry on a discriminatory basis must be recognized for what they are, an attempt by some interests to ban or constrain mineral development by means of a prohibitive penalty on production.

—*An evaluation of the financial characteristics of each type of mineral operation to be taxed and the economic effects of taxation.* Some industries require capital-intensive processing facilities and others require modest capital investment; some industries are economically marginal, others are more profitable; some industries are monopolistic, others are highly competitive; and some industries involve high risk and

Some Pros and Cons

Supporters of severance taxation usually contend:

—The state should be compensated for removal of part of its "natural heritage."

—The mineral industry makes large profits and the severance tax is an easily administered and available form of taxation.

—The mineral industry benefits from preferential federal tax treatment and those preferences should be equalized by added severance tax.

—The tax burden from severance taxes will ultimately be borne by consumers, many of whom reside in other states, thus transferring the tax burden out of the

Mike Spence, *TOSCO vice president, takes a look at severance taxes.*

heavy exploration costs, others require little or none. These different operating and financial characteristics mean that tax costs will affect each operation differently.

Using the example of oil shale, we have an untried industry, without proven profitability, which has the special risks inherent in any new business. It is apparent that additional taxation will certainly be harmful in establishing the industry. In particular, tax schemes that impose taxes on gross proceeds rather than on net proceeds, without consideration of the profitability question, ignore the realities of life. Since there is no industry presently in existence, the state cannot expect any immediate revenues. Anticipatory taxation in advance of any evaluation of profitability will only delay the timing of future revenues.

A fundamental point: the tax base is determined substantially by the level of economic activity within the taxing jurisdiction. Business property, private incomes and property values that form the base are created and maintained through productive industry. Another fundamental: the secondary economic effects resulting from business activity are significant. The Colorado Dept. of Revenue calculates that wages paid to workers on a new industrial development will pass through the local economy three times. Thus, even if an existing basic business activity is marginal, and unable to absorb a new tax, its continued existence creates and maintains income, property values and sales taxes through its operations, employees and suppliers. Therefore, the net effect of reduced business activity is far greater than the direct losses of tax revenues from the business itself.

—*An evaluation of public costs and benefits resulting from the industry.* There are cases, for instance, when the mineral industry has not paid a fair share of taxes. On the other hand, there are cases where it may be appropriate for the general public to share costs of a vital industry when the industry cannot bear the entire burden and when the net economic impact of that industry will benefit the public. There are also cases when the industry has paid more than its fair share. For example, the oil-shale industry in Colorado, in addition to paying the usual taxes, will pay about $72 million in federal-lease bonus monies to the state.

—*An evaluation of public policy considerations that affect taxes.* While the basic purpose of taxation is to raise public revenues, the nature and structure of taxes often have real effects in implementing various public (state and national) policies. Example: it is the federal policy to develop independence in oil supply. Thus state policies that would constrain oil production would conflict with national goals.

Another public policy consideration: who is to ultimately bear the severance tax burden. There is an assumption often expressed that severance taxes are passed on to others by the producer in the form of higher prices. That may or may not be true—depending upon the particular circumstances of the mineral being taxed and the pricing mechanism in effect. Taxes may be passed on to consumers in the form of higher prices if the demand is strong for the product and if the tax covers all foreign and domestic producers. If the demand is weak, and competitors in other jurisdictions can undersell, the taxpayer may not be able to pass the taxes through. Similarly, if government price controls are in effect, taxes may or may not be allowable as a pass-through.

—*An evaluation of tax credits, exemptions and deductions.* Many states that impose severance taxes allow a variety of tax exemptions and credits from severance taxes because of policy or practice. The general purpose of the deductions is to tailor a tax that reflects local economic realities.

What's a basic conclusion about severance tax policy? The history of severance taxes in the United States indicates that they have *rarely* been imposed with full consideration of the various economic and policy effects that they impose. It is necessary, therefore, to review and evaluate the many diverse effects of severance taxation and to compare overall tax burdens imposed on all taxpayers. This study should result in the use of reasonable and equitable taxes spread over a broad tax base with encouragement of economic opportunity, and tailored to be responsive to the particular differences in various industries.

(Abstracted from a speech given to The National Western Mining Conference and Exhibition in Denver, Colo., January 30, 1976.)

state.

Opponents of severance taxation usually contend:

—Mining creates value out of otherwise unusable resources for use by all the public and does not remove value from the state.

—The severance tax is discriminatory against the mineral industry as a group.

—A severance tax based on gross proceeds is inherently inequitable among various types of mineral production.

—The additional business costs of a severance tax will result in "high-grading" mineral reserves and reduce production through removal of marginal producers.

Jack Wallis: His newspaper grows, reflecting "a faith in area business."

Voice of the People

Jack-Straws:

Sees 'faith in area business,'

A soft-spoken man, *Vernal Express* publisher Jack Wallis saves his lampoons for the written word. His front-page column, "Jack—Straws," offers straws of information gathered from whatever wind happens to be blowing through Vernal, Utah each week. From oil shale to land-use planning, New Year's resolutions to weather and roads, Jack Wallis expresses his opinion in the weekly.

Wallis is a third-generation newsman; the weekly family newspaper was purchased by his grandfather, originally visiting Vernal as an inspector for the state board of health. Jack Wallis never yearned to get into the newspaper business; he had seen the long hours it demanded. But, "You get the fever," he says simply and 7 years ago Wallis succeeded his father as publisher.

Nine full-time employees and 13 correspondents from neighboring communities, mostly farming areas, work for the Express. The paper's circulation is 4,800 in a county of some 18,000 persons. While each issue has been averaging 24 pages, recent issues have climbed to 28; advertising has increased—reflecting, says Wallis, "a faith in area business, an anticipation of oil-shale development."

Wallis explains for a visitor some of the town's major issues, such as controversy between the city of Vernal and neighboring water districts about extension throughout Ashley Valley of the city's water and sewer lines. Chief issue: who should pay for any expansion of the utilities system? Another local concern is location of a new road from the oil-shale tracts being developed by White River Shale Project, 50 miles southeast of Vernal. While Vernal wants the new road leading to its doorstep, neighboring Roosevelt would prefer that the first road built be routed via Ouray (bypassing Vernal) to Roosevelt.

Wallis recalls one of his most controversial stands was his support 2 years ago of a land-use bill passed by the state legislature and later defeated in a referendum. "Land use—planning the right use of the right land—is the whole secret of oil-shale development," he declares. "But people are scared. They think land use means you'll take their land away or they'll lose a voice in the control of things in their area. The fear is in other issues too. You mention strip mining, for example, and everybody passes out."

One of the perennial issues Wallis addresses in his column is oil shale. Remarks the publisher, "Since I was kneehigh to a grasshopper, I have heard of oil shale. Forty years ago, sheepherders used to burn it to keep warm by it. They have always talked about oil shale, just like they've always talked about the railroad coming into this area." Today Wallis is more optimistic about oil shale's future than he is about the construction of railroad tracks to Vernal. Although he thinks, "Oil shale is more down-in-the-mouth than it's ever been," Wallis maintains, "but oil-shale development will have to come sooner or later." He favors the development "if it's done right, if growth is managed so that we don't have a ghetto or so that we aren't overrun by people."

Wallis also observes widespread local support, especially for in-situ (in place) oil-shale developments, which the populace thinks would be less environmentally harmful. Any of the developments, he notes, will occur on arid, desolate lands that are known locally as "the badlands."

He writes in his column, "People have been burning oil shale in our area since the early colonization of the state by Mormons. Many predictions have been made concerning this resource. We have the resource. The demand is growing. The challenge is how to produce the product at a profit without damaging our environment."

Other comments from "Jack—Straws" column this year include:

Back-end money

"Much stress has been placed on the need for what is called 'front-end money' to help develop energy-impacted areas . . . Now a study is underway to provide some kind of trust fund to insure 'back-end' money. Just as the words connote, one (front-end) means getting money before a project arrives and the other (back-end) after it leaves.

"The budget laws of the state allow county budgets to build up only certain

Outspoken Vernal Publisher

cites need for 'back-end' aid

amounts in reserve without lowering the mill levy. The law reasons that as your reserve increases the levy should be lowered. In a trust fund system, the extra money in times of prosperity would form a type of investment that could be used in later years as a hedge against the time when the resources were exhausted and the tax base dwindled back to normal.

"San Juan County (to the south) experienced this problem in its uranium boom in the 1950s, and Duchesne County (to the west) is presently going through a type of up-and-down prosperity.

"This concept would take special legislation and is being studied by a special committee upon the request of the Utah Association of Counties.

"This plan looks like a good one for Uintah County in the event the property valuation shoots up with oil-shale and tar-sands developments and then settles back down after the resource is diminished."

Bitumen filling the void

"The wheels of energy developments seem to be turning very slowly. We are referring to the development of the vast coal, oil shale and tar sands deposits in the Uintah Basin.

"One of these resources lies within 2 or 3 miles of Vernal's city limits in Asphalt Ridge. Bitumen literally oozes from the oil-impregnated rock found in Asphalt Ridge, and it has been estimated to contain more than a billion barrels of oil . . .

"We hope the tar-sands commercial-oil extraction development can get underway soon and fill the void prior to oil shale production. The tar-sands production of about 1,000 barrels a day would get us ready for the 50,000 and 100,000 barrels a day oil-shale production and help the county move in the direction of supplying its petroleum needs from other sources than crude oil."

Resolved that . . .

In the midst of concerns about the development of oil shale, tar sands, and related community growth, Wallis had some goals on the first day of 1976. He wrote:

"Here are some of the headlines we would like to see during 1976, some of them admittedly fanciful, indicating local preparations for the future.

'New regional hospital constructed and operated by private corporation.'

'Plans approved for expansion of Vernal Municipal Airport.'

'Direct route road from Vernal to oil shale area via Bonanza approved.'

'Approval given for White River Dam and reservoir construction along federal (oil-shale) r 'otype lease lands south of Bonanza.'

'Oil shale semi-works construction starts on White River Shale Project U-a and U-b oil shale leases.'

"On a national level we should like to see headlines such as:

'U.S. ends year without seeing major war anywhere in world.'

"On a state level we'd like to see headlines such as these . . .

'Oil shale (federal) lease money released from trust and allocated to area of impact' . . ."

Throughout 1976, "Jack—Straws" is likely to carry comments on each of these concerns.

Summing up the issues facing the Vernal area, Wallis describes them as "problems of trying to expand a rural area into a more aggressive operation." While he can get caught in the crossfire—and even admits to occasionally "planting" something controversial in his front-page column to see if his audience is actually reading the Express, Wallis says he aims "to try to be as fair and broad as I can."

The column continues to generate comment, good and bad, and Wallis calls the experience of writing it "fun" and "traumatic." Perhaps the hard labor that both the column and the entire newspaper production require is observed by his children, for their father says none of his five sons nor his daughter has expressed much interest in stepping into their father's shoes. They haven't got the fever. Yet.

C.E.

Potpourri

Life With a DDP

In the first one completed, there are 1,050 pages per copy, and there are now 201 copies in the Shale Supervisor's office, weighing a total of 2,010 pounds. It is the result of a tremendous effort to present highly-technical information in a language understood by a non-technical person, yet without sacrificing substance. "It" is the Detailed Development Plan (DDP), a unique document that describes the most probable path oil-shale development will take on one of the federally-leased tracts in Colorado and Utah. And equally important, the document assesses the environmental impact this development will have on the area and the plans for returning the land to a stable condition after oil-shale extraction.

By definition, then, the DDP would present a challenge to anyone. As Dr. Thad Box, Oil Shale Environmental Advisory Panel (OSEAP) put it, "The difficulty in writing the DDP is that everyone wants a doctoral thesis on his area of expertise, but also wants it short enough to read in a few minutes." Nevertheless, a DDP is one major requirement each lessee must satisfy on or before the third anniversary date of the project's lease.

C-b Shale Oil Project: On February 9, C-b Shale Oil Project became the first lessee to submit a formal DDP to the Area Oil Shale Supervisor's Office (AOSSO), an Interior Dept. agency. Bob Loucks, C-b Project Manager, reports that his technical staff spent 10,500 man-hours or 5 man-years preparing the DDP for print, and that non-technical personnel worked 2 man-years or 4,000 man-hours on it. "There were five technical people from C-b's staff working full time on the DDP the past 4 or 5 months. They had the responsibility of compiling all of our baseline data and condensing it into a uniform, readable statement of our development plans.

"There was a lot of midnight oil burned, and many weekends spent in meeting our deadlines. But I would compliment each and every person working

"During one of the deadlines for C-b's Detailed Development Plan," related Bob Loucks, Project Manager, "the staff rented a room at the Brown Palace Hotel (Denver), so they could get away from the office and concentrate on the draft they were finishing. One man had a terrible cold, but wouldn't quit. So, there he was, in the middle of the bed with covers over his head teepee-style, reading the draft. And we did make that deadline!"

on the DDP for their dedication in getting the job done."

How did the families accept all this extra work, Loucks was asked. "There may have been some strained family relationships," he said wryly, "but I can report that there were no divorces at C-b as a result of the DDP."

Rio Blanco Oil Shale Project: At presstime, Rio Blanco (tract C-a) was in the final stages of writing its Detailed Development Plan. "Our overtime work started in October," says Larry Weiner, Cameron Engineers, Inc., Project Manager. Weiner is part of a four-man team from Cameron that is integrating the information gathered by Rio Blanco and its contractors. "Right now we're putting in up to 80-hour weeks. It's a hectic pace, but unavoidable with so many things going on at once. For instance, we prepared six outlines of the draft, submitting most to the AOSSO before we even launched into the actual writing. And each outline received feedback. Coordinating the planes, buses and mail that carried this information back and forth to the AOSSO office in Grand Junction was a job in itself.

"Then we had trouble just getting the volume down to a reasonable size. The first draft was 4,000 pages. AOSSO asked us to shorten it, and now it stands at about 1,700 pages. Even so, the environmental section is probably too detailed, but we don't want to take the chance of not having enough detail."

Through it all, however, Weiner has kept his sense of humor. "About 5 months ago, I told my wife and kids not to expect me home for dinner. But my wife hasn't complained. After all, I used to work for the aerospace industry, so she's happy I have a job."

White River Shale Project: Earl Ramsey at White River (tracts U-a and U-b in Utah) reports that Bechtel Engineering in San Francisco is writing the DDP for White River. The volume will be about 700 pages with an additional 2,000-page reference section. "We've had 40 to 50 people working on it for several months," he says. "It's been a huge task to piece together reports submitted by Colorado and Utah contractors into one document. But I hope we can bridge the gap between the engineering material and the general reading public."

Where Now? The process does not end after the DDP is submitted to the AOSSO. Eric Hoffman, Environmental Geologist at the agency, describes the process: "First of all, copies of the DDP are distributed to various government agencies, the Oil Shale Environmental Advisory Panel, and regional libraries. Copies are also kept at this office for public use and notices about the DDP's publication are released to the Federal Register and the press." The second step is to hold public hearings. Dates for the C-b DDP are April 20 in the Freeman Fairfield Square, Meeker, Colo., and April 22 in the U.S. Post Office auditorium, Denver. Comments from all sectors are then considered by the AOSSO, which is responsible for accepting or rejecting the DDP.

Hoffman reports that thus far the DDP relationship between the industry and government has been "most constructive, with numerous phone calls, memos, meetings. I have seen none of the animosity that often occurs when government and industry try to cooperate on a project." His only problem: "I just hope my office can bear up under the weight of all these volumes, and I mean that literally!" *C.K.*

Snowy branch in shale country