The Environmental Biweekly of the Rockies and Great Plains

# High Country News

50¢

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## Are commercial solar systems worth the price?

For some consumers, it's a social decision related to uncertainty

by Joan Nice


**SOLAR ENERGY IS FREE, but the high cost of the equipment to gather it has discouraged consumers.**

Architect Donald Frey says that people should put solar energy systems in their new homes "if they can afford it."

That "if" is surfacing as one of the most important questions facing solar energy advocates. Most consumers are finding commercial solar energy products are too expensive for them.

Solar advocate Bruce Anderson says that when you look at the potential from a square foot of a solar collector and consider that most commercial systems cost $20 to $40 per square foot, it is understandable that a mass market for commercial systems hasn't developed yet. Anderson is executive director of **Solar Age**, the official publication of the American Section of the International Solar Energy Society.

"When a potential buyer hears solar energy explained in these terms (an initial expense of around $30 to save the equivalent of one gallon of oil per year — 50 cents at today's prices), a sale is unlikely," Anderson says in the January issue of **Solar Age.**

Many architectural firms are recommending that people interested in motorized solar systems try several other options first. The standard energy conservation measures are a must — that includes insulation of ceiling, walls, and foundation; caulking; putting on storm windows; and turning down the thermostat on the hot water heater. Next, people building new homes should try to use natural (passive) systems to gain and store heat from the sun. They should see if a heat pump would help shrink their demand for energy.

Only after they've explored these options should they think about incorporating an active (motorized) solar heating system, says Frey of Crowther-SolarGroup-Architects in Denver.

On existing homes, adding commercial solar collectors usually doesn't make fi-

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*Fort St. Vrain alarms Denver residents*

## Nuclear accident spurs investigation

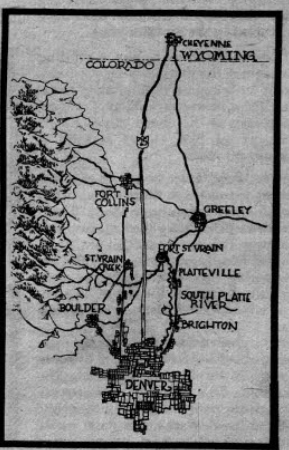
by Philip White

At about 9 a.m. on January 23, a seal ruptured in the helium circulator of the Fort St. Vrain nuclear plant at Platteville, Colo. Soon, helium gas containing radioactive iodine was escaping from the reactor core into the plant interior and then through a vent to the outside air.

When a monitor in that vent detected the release of extraordinary radioactivity, an automatic lowering of the control rods occurred, stopping the core nuclear reaction. The leak continued for about an hour. The Public Service Co. evacuated its 275 employes to Johnstown for testing. Law officers set up roadblocks at a five-mile radius from the plant. When the Colorado Health Department was finally notified at 10:30, health personnel scurried to begin air, water, milk, soil, and vegetation testing near the plant.

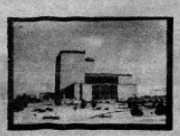
By mid-afternoon, all signs indicated that the leak had been minor and caused no threat to public safety. None of the employes had been seriously contaminated. They were back working in the plant. Health department ground-level sampling showed only natural radioactivity in the area. Richard Walker, president of Public Service Co. which owns and operates the

**(continued on page 5)**




**When construction began on Fort St. Vrain, the nuclear industry was hopeful. Now it's discouraged.**

**See story on page 4.**



# HIGH COUNTRY

By Tom Bell

The Power Supply and Conservation Act (S2080, HR 9020) is bad news. The ramifications of such an act may be much larger than even HCN outlined ("BPA bill shapes destiny of states in Rockies," Jan. 13, 1978). What is happening here in the Pacific Northwest has ominous overtones for the whole country.

And what is happening here is that the entire region is fast running out of electrical energy. It is not only a matter of cost but of availability. Forecasts made by utilities and some government officials in 1975 indicated an energy crunch beginning in 1978-1979. The situation is predicted to worsen during the early 1980s.

Government, industry, and labor are all running scared. The region uses tremendous amounts of electrical energy. It is estimated that industry uses six kilowatts per employed person. That is the result of the cheap and abundant power which was made possible through the Bonneville Power Administration (BPA). Huge federal dams, mostly on the Columbia River, attracted energy-intensive industries. Today, the region is locked in on the paradox of cheap and abundant electricity, which no longer exists region-wide.

The result is widespread fear of industries shutting down and an energy-intensive recession.

Inequities in the system provide political controversy, which does not help the situation. Washington state is mostly served by public utility districts. These districts took advantage of the cheap BPA power. Consumers in Washington pay less than half the cost of power provided to consumers in neighboring states. The average homeowner in Portland, Ore., paid $26 a month for electricity in 1977. Across the Columbia River in Vancouver, Wash., the average was $10.40. And for further comparison, residents of New York City paid $94 for about the same amount of electricity; in Cleveland, $51.

Rate increases are in store for BPA customers. Users were warned last fall that rates could be increased by as much as 200% by 1979.

But at the same time that public power rates are slated for increase, so are private utility rates. Here in eastern Oregon, we can expect a 12% increase this year. Utilities blame the cost of building new generating facilities for the escalating rates. They say construction costs have quintupled in the past four years.

There seems to be no way of avoiding shortages in the years immediately ahead, except for mandatory conservation measures. Those measures could bring political repercussions that could threaten such kingpins as Sen. Henry Jackson of Washington state.

So the stage is set for a crisis of monumental proportions. Electrical shortfall may be somewhere between 15 and 35 million kilowatts by 1995 without conservation measures. It is no wonder that Sen. Jackson and Rep. Lloyd Meeds (D-Wash.) are introducing legislation that might overcome the shortages. The only obvious avenue is eastward to Montana and Wyoming.

The kicker in all of this is that the present proposed legislation aims to preserve as much of the status quo as possible. The companion bills would set up a complex allocation system through which the public utilities (read Washington state) would continue to get as much low-cost power from BPA as they expect to be buying in 1985.

What would be left over would be sold to industry and private utilities, along with some power bought by BPA. Price would become a blend of the costs of the two kinds of power, hydroelectric and thermal.

There would be a third source of power, available to all customers. It would be high cost power, purchased by BPA from new thermal generating plants. The private utilities would build the plants, with a guarantee that BPA would purchase all the output.

Montana and Wyoming have an ally in the city of Portland. The city maintains that the proposed law would lock in the present inequities. It is excluded from buying cheap power from BPA.

This is once again an example of the illusion that we can proceed with business as usual. There are no guarantees written into the bills which would first mandate severe conservation measures. Nor is there public recognition of the fact that cheap power is no longer possible from any source.

It is also another example of industry seizing on the golden opportunity to tap into the federal till for the costs of new plants, and thereby getting subsidization of its business. If that is going to be the trend of the future, why not nationalize the whole industry?

People here in the Northwest fear the possibility of being drawn into a national energy scheme. They see such a possibility upsetting all ideas of any more cheap power.

The sentiment in Congress also seems to be against passing the bill at this time. The **Oregonian** reports, "Despite the worries of some Oregonians, there is no detectable effort to ram legislation through Congress. . . .There is some doubt among lawmakers that any bill will be completed this year."

The article says that Sen. Jackson seems to want to let Sterling Munro, the new BPA administrator and a former Jackson staff member, get a little more comfortable in his new role before proceeding with the bill.

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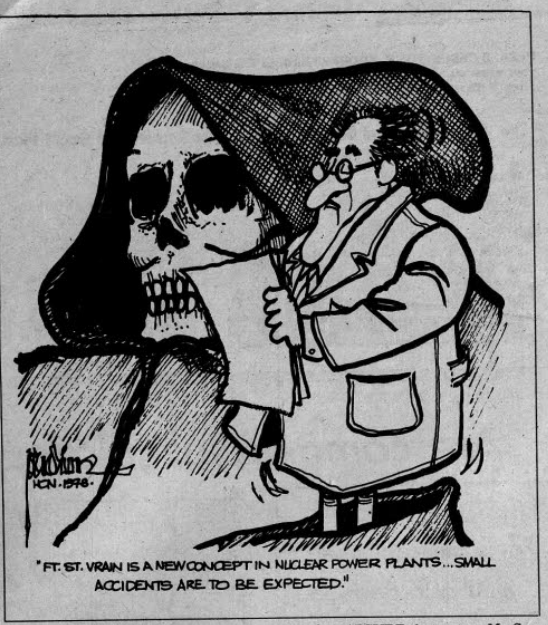



"FT. ST. VRAIN IS A NEW CONCEPT IN NUCLEAR POWER PLANTS...SMALL ACCIDENTS ARE TO BE EXPECTED."

## HCN Letters

### TOO MANY CUTE HERBIVORES

Dear HCN,

Re: Your article on Paul Martin noting the ancestral "roots" of burros and horses in North America (HCN 1-13-78, p. 13). You might have noted the "roots" of saber-toothed cats and other natural controls in North America. Our imbalance results because we reduce predation and natural population controls while we increase the number of cute little furry herbivores.

Dr. W. L. Tuck Forsythe
Moab, Utah

### MORE ESTABLISHED, LESS COMMITTED

Dear HCN,

Environmentalists have become more established and less committed. Deep commitment comes from the heart. And although knowledge is essential, only love saves.

In these dark days for the mountain West and the glorious deserts of the West, anyone who loves the land and its wild creatures must shed tears at what is happening, at what will happen if those who know do not care enough to shout "rape" not only on the Northern Plains, but in the canyons of Utah, the deserts of Arizona, the mountains of Colorado and everywhere else in the West that is threatened with destruction — and that is everywhere! Thank you for caring so much.

Ruth Douglas
St. Helena, Calif.

### WHO NEEDS SHEEP?

Dear Editor,

In response to comments from Frank Cox, Moab, Utah, printed in the Jan. 13 issue, how ABSURD that anyone, Mr. Cox, would ask such a ridiculous question as "Who Needs Sheep?"

The American way of life is based upon freedom of choice. And that means your right not to wear wool and eat lamb as well as my right to take advantage of these two precious commodities. If you have a personal complaint against the woolgrowers, it is certainly your privilege to wear cotton shirts in the dead of winter; however, give me a big, wooly, **warm** sweater anytime! If you question the logic in this, you must be asking, "Who Needs Democracy?"

As for your comment on sheepmen "making millions through tax-supported programs, while not sending a single animal to market," you are misinformed. Look around and you'll find most sheep ranchers struggling to cope with predators, the lack of qualified labor, and the inflated cost of production.

Secondly, woolgrowers are **not** supported by taxpayers. They are independent, hard-working businessmen and taxpayers. An incentive payment is paid from tariffs on foreign wool entering this country — not from tax money.

Third, how can you possibly be serious about sheepmen not sending their sheep to market? The fact that I am writing this letter while wearing an all-wool pant suit disproves your statement.

Linda Baker
Arlington, Tex.

### SORRY, WE SLIPPED

Pauline D. Plaza of Denver, Colo., reminds us that we are not infallible, as evidenced by the Jan. 27 issue. In the William O. Douglas story in that issue we referred to President Robert Taft, who, of course, never made it to the Presidency. (William Howard Taft did.) On the story on Sen. Lee Metcalf's death, we referred to the Alaska National Interior Lands, when we meant to say Alaska National Interest Lands.

We're sorry. The editors have each swallowed a cup of strong, black coffee and promise to try to be more alert in the future.

# Alaska lands bill: our last chance

A hundred years ago, the map of the United States showed only a few mountain ranges and rivers in the midst of what was known as the Great American Desert. While Easterners still are surprised by the midget phone books and the number of blank spaces on the map, the West has changed. It's crisscrossed with roads and dotted with population centers. You can't drive far at night without seeing a light in most areas.

Not so in Alaska. Its map is covered with green and blue patches showing state, federal, and Native ownership, but underneath, the land still maintains its integrity. There are a few cities, mostly along the coast. Stretching beyond them are vast expanses not yet disturbed.

People react in different ways to such opportunities. When presented with a freshly painted wall, some will respect it, being careful not to touch it with smudgy hands. Others seem to find its serenity disturbing and grab a crayon to put their mark on it.

Perhaps these feelings have something to do with the ways people are reacting to HR 39, Rep. Morris Udall's bill to withdraw more than 99 million acres of Alaska's federal lands for protection. They call it a "lock up" and say it doesn't make sense to set it aside "for the bears." They cringe at the "waste" of letting the state's mineral reserves lie there untouched.


The environmentalists argue that oil and gas pipelines will carry the resources down from the North Slope (at tremendous cost in both dollars and, ironically, energy). They point out that the state and the Native corporations are choosing more than 100 million acres, largely on the basis of their mineral potential, which will no doubt be developed. They cite statistics showing that less than four per cent of the nation's energy resources lie under the lands proposed for withdrawal. The land isn't just being left to the bears — human beings are being given consideration, too, through subsistence hunting privileges.

Somehow their arguments about preserving ecosystems and entire river basins sound too philosophical, and their statistics are ignored. There's a feeling too deeply entrenched telling the bill's opponents, "It's just not right."

We Americans are meddlers by nature, it seems. It's hard for us to realize that this is the last frontier and that for once, we've got to leave well enough alone.

—MjA

National Park Service photo

**LAKE CLARK NATIONAL PARK is proposed under the Alaska National Interest Lands bill.**

# *King Coal's legacy of irresponsibility*

Lessons of the past should serve as a useful guide to the future. With this in mind, we recently read **Night Comes to the Cumberlands**, a book written in 1962 by Appalachian lawyer Harry Caudill. In the book Caudill describes the history of the Cumberland Plateau in eastern Kentucky. For most of the first half of this century, the plateau country was one of the most depressed regions in the United States.

The plateau has experienced the boom-and-bust cycle that has become a trademark of the coal industry. "For nearly 60 years," Caudill writes, "the greater part of the region's mineral wealth had lain in the iron clutches of absentee corporations. They had prospered and bankrupted and prospered again. But, through their triumphs and tragedies, their successes and failures, the corporations had clung to all the old rights, privileges, immunities, powers, and interests vested in them by their 19th century land and mineral deeds.

"These relics from a laissez-faire century were construed to authorize the physical destruction of the land and the abject impoverishment of its inhabitants. With strip mining . . . the shades of darkness moved close indeed to the Cumberlands."

The 19th century mining traditions are still in force in many respects — the 1872 Mining Law, for instance, has undergone relatively few changes. But, in the area of coal strip mining, the recently-passed Surface Mining Control and Reclamation Act took a major step toward reasonable enforcement of surface mining standards to protect health, welfare, land, and people.

Now, however, mining companies are contending that the enforcement of Interior's interim strip mine regulations authorized by the law will cause them "immediate and irreparable injury, loss, and damage." Over 100 companies and the National Coal Association have filed a lawsuit asking that the courts issue both temporary and permanent injunctions against enforcing the regulations. The companies contend that Interior has overstepped its authority and that its rules are inconsistent with the law.

The suits offer a long list of items which they claim are "illustrative of the defects of the rules." These include restoration of the land to premining use — including rectifying improper management of the land by others before mining took place — and authorization of mine inspections without search warrants. At least two companies mining in the West are parties in lawsuits — Sunoco Energy Development Co. and Cordero Mining Co.

It is useful to remember that the search for energy — especially coal energy — is not new. While it's just beginning intensively in the West, it has gone on in the East for 100 years or more. And, the behavior of the industry, operating under privileges granted during a "laissez-faire century," should provide a warning, lest history repeat itself here.

About 30 years ago, a company's unstable spoils pile broke under the weight of heavy rains, thundering down the Weddington Fork of Ferrells Creek in the Cumberland Plateau country, destroying houses, stores, and farms along its route. The company contended that it was an Act of God — he put the rain there, after all. The courts agreed. The fact that the spoils pile was unsafe didn't matter — the stripping had been carried out in the "normal" manner.

About 20 years ago, several farmers in Kentucky were ruined when strip mining companies dumped rubble on their bottom land and "plumb broke" them. The judge explained that, once they sold their mineral rights, the only rights the farmers had *on their land were to "breathe and pay the* taxes." The companies made no reparations.

And, six years ago this month, 130 million gallons of water and mine refuse rushed down the narrow Buffalo Creek valley in West Virginia when a refuse dam failed, killing 124 persons and leaving 4,000 homeless. The disaster could have been prevented, according to a citizens' committee that investigated it, by proper construction of the dam. Company officials called it an Act of God.

This same industry now claims that mining regulations will cause them "irreparable damage."

In addition to this demonstrated, callous disregard for land and individual welfare, the industry's record in protecting even its own workers is abominable. More than 120,000 miners have been killed since the industry's U.S. beginning, and it is one of the least safe industries in the country. And, again, the coal industry has been dragged kicking and screaming into improving even this obvious problem.

In short, the coal industry is not a good corporate citizen, and there is a track record to prove it. Left to itself, the coal industry is reckless and irresponsible in matters of both life and property.

Some may argue that it isn't fair to imply Western coal companies will be irresponsible just because Eastern companies have been. However, many of the companies now operating here are the same, or subsidiaries of, companies that earned the tarnished images in the East.

The kind of disasters detailed above haven't happened in the West, yet. However, without vigilant policing of the industry, we can be certain that they will.

In its move to weaken and disable federal regulations, the industry is making yet another bid to reclaim its 19th century privileges in a 20th century world.

—DSW

## Fort St. Vrain, Colo.

# Unique reactor not living up to industry's hopes

by Philip White

About 30 miles north of Denver on Interstate 25 is a sign which reads: "Fort St. Vrain — Next Exit." A digression from the high road here will put you in James Michener's **Centennial** country. Fabled Long's Peak, first climbed by John Wesley Powell in 1868, lies to the west in Rocky Mountain National Park.

Thousands of years ago, Indians hunted mammoths here. A hundred and forty years ago, the fur traders came, building Fort Lupton and Fort Vasquez along the South Platte River. In 1837, Ceran and Marcellin St. Vrain built their fort and Kit Carson resided with them for a time. Indian attacks in the early 1840s caused the abandonment of the fort and within 50 years, the area was becoming strongly agricultural.

It is so today, mostly, although municipal and industrial growth takes more of the land, water, and air each year.

Toward the east from Exit 119 is an acre of shiny green farm implements awaiting buyers in a lot at the highway. Beyond are huge plowed fields, silos, haystacks and barns, cornfields, cattle in feedlots, and a row of warehouses with fenced pens holding thousands of white turkeys.

Just past a bridge over St. Vrain Creek, in a farmyard under cottonwood trees, sits a carefully painted Rock Island Line caboose. A more curious structure looms above this farmland a half-mile to the northeast: a futuristic, light-green, 15-story building shaped like a long-legged, chunky "L." The vertical part is windowless. The building is fenced and landscaped with lawn and spruce.

Inside, the Public Service Co. of Colorado (PSCo.) heats helium gas which then converts water to steam which moves turbines to produce electricity. The helium is heated to 1,400 degrees F. by the fissioning of uranium atoms.

The Fort St. Vrain Nuclear Generating Station was built by Gulf General Atomic of San Diego and is the only nuclear power station between Omaha and the West Coast. No other U.S. nuclear plant houses its reactor core in a prestressed concrete reactor vessel (PCRV).

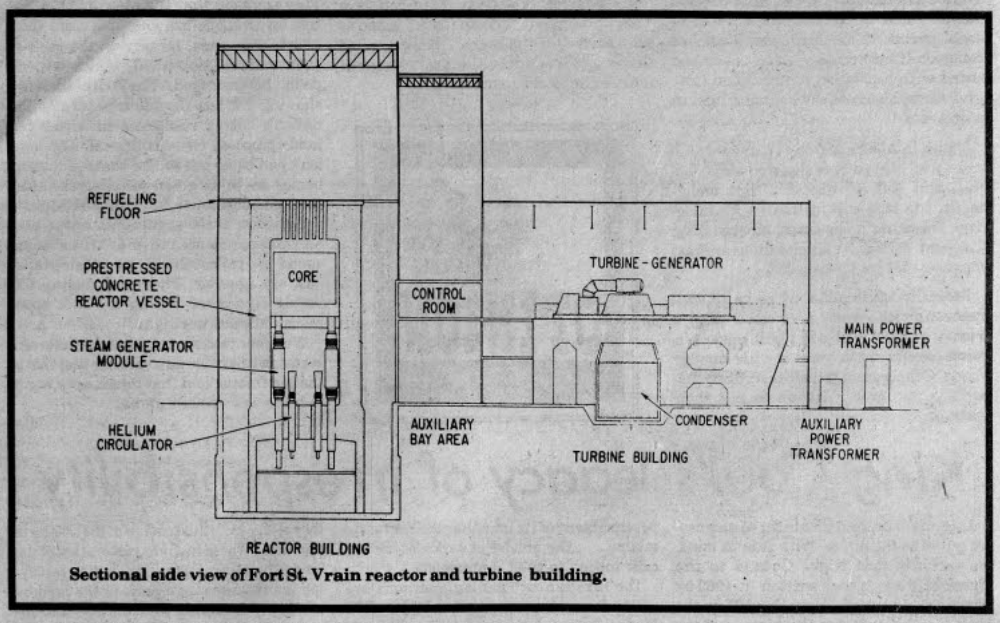
Fort St. Vrain is the only high-temperature, gas-cooled reactor (HTGR) in the world.

### FROM ARROWS TO ATOMS

Developed in the late 1950s, the HTGR idea was demonstrated in 1967 when the Peach Bottom, Pa., Atomic Power Station produced about 40 megawatts of electricity for Philadelphia Electric Co. (Essentially a demonstration plant, Peach Bottom was decommissioned after proving its reliability to the satisfaction of its owners.)

By then, plans for Fort St. Vrain, an 8-to-one scale-up of Peach Bottom, were well along. Construction began in September 1968 and the plant was essentially completed in December 1973 when the initial fuel loading was accomplished.

Already, the plant was behind schedule and ahead of cost estimates. According to newspaper accounts, the plant cost $300 million, five times the original estimate, and was six years behind schedule. After fuel loading, the plant experienced a long series of problems with mechanical equipment. The plant didn't put electricity into the PSCo. grid until December 11, 1976.




**Sectional side view of Fort St. Vrain reactor and turbine building.**

to increase from 40% to 70% of its 330-megawatt design capability.

Officials hoped to be up to 100% by early 1978. However, a pinhole leak in a steam generating tube (the non-nuclear side) forced the plant to shut down on November 30, as it neared the 215-megawatt level. Finding the leak and training welders kept the plant idle until mid-January.

Paul Bronson, supervisor of the Fort St. Vrain Nuclear Information Center at the plant site, says PSCo. now hopes to be producing 330 megawatts by spring. Meanwhile, the company is planning for the first refueling operation. Bill Fitzmaurice, director of information for PSCo., says the first refueling is scheduled for late March. Fuel elements have been prepared and will be shipped between now and then by General Atomic Company. Approximately one-sixth of the 1,482 fuel elements in the core will be replaced during each annual refueling.

Bronson says the fuel elements removed this spring will go by truck to the National Reactor Testing Lab west of Idaho Falls, Idaho, and will be stored there awaiting reprocessing."

### MOST MODERN

Despite the problems, PSCo. remains enthusiastic about the HTGR. President R. F. Walker told the last shareholder meeting that he is "firmly convinced it is a step in the right direction." Board Chairman R. T. Person and Walker have said that PSCo. is "proud of its part in the development of what we feel to be the most modern and efficient nuclear generating station in the nation."

Fitzmaurice says that since Fort St. Vrain is "a step ahead in nuclear generating technology, some of the first-of-a-kind equipment in the plant took longer to design, build, and test than anticipated." Five years ago, the HTGR concept was regarded as the most promising for efficient nuclear generation. Several more HTGRs were in the planning stages in the U.S. and elsewhere. Today, there are no outstanding construction permits for HTGRs in the U.S.

Gary Reeves, information officer for PSCo. in Denver, admits that the waning of HTGR enthusiasm in recent years is due in part to the problems at Fort St. Vrain. "It can't be denied that those interested in HTGRs are waiting to see how our plant performs. However, it should be noted that all nuclear projects are on hold at this time, even the light water reactors. This is due to a decrease in the rate of consumption growth and to the red tape involved in the while a conventional plant takes about 5 years. The licensing requirements are discouraging utilities from going nuclear," Reeves said.

Pending development of a feasible fusion generator, which would use atoms found abundantly in ocean water as fuel, the nuclear power industry has high expectations for HTGRs, for several reasons, including efficiency, security, and lack of thermal pollution.

Using helium gas to transfer reactor heat to the steam generator is easier to control and is safer, they claim, than using water. In addition, the HTGR operates at 1,400 degrees, instead of the 800 degrees at which the other boiling-water and pressurized-water reactors operate. Thus, the HTGR achieves greater fuel efficiency.

The plant employs a row of large cooling towers to allow full operation without any hot water discharge to local streams or lakes. (All desirable fish in St. Vrain Creek and the South Platte were killed long ago by upstream effluent from municipal and industrial sources anyway.)

Also, Fort St. Vrain produces close to zero plutonium, which is considered one of the major safety problems with conventional nuclear plants. If in the hands of terrorists, it would be a threat to national security. It also is extremely toxic; one small fleck, if inhaled, can cause cancer.

Plutonium is produced through the fissioning of U-238, the fuel used in the conventional light water reactors. At Fort St. Vrain, however, the initial fuel load was composed of 882 kilograms of enriched uranium and 19,458 kg of thorium. In natural uranium, the isotope U-238 outnumbers U-235 by 140-to-one. The highly

**Five years ago, the high-temperature, gas-cooled reactor concept was regarded as the most promising for efficient nuclear generation.**

**PAUL BRONSON hoped the plant would be producing 300 megawatts**

# Accident investigation starts. . .

(continued from page 1)

plant, said the release to the atmosphere was probably "no more than 3-4 curies." Walker said that the annual permissible release for the plant is 5,000 curies. Officials of the U.S. Nuclear Regulatory Commission (NRC) called it a "very low-level release."

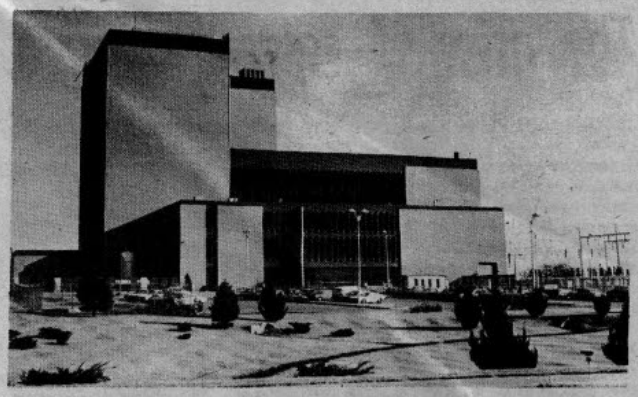
Thirty-five miles away, the million persons in the Denver metropolitan area were relieved at this news. Nonetheless, many were pondering troublesome questions, questions beginning with the words "what if..."

### CHRONIC VEXATION

Since the plant first began producing electricity in December 1976, mechanical difficulties have caused a rash of shutdowns of various intervals. The helium release occurred only about a week after the plant resumed operation following a 45-day shutdown to repair a pinhole leak in a steam tube. Being the first accidental release of radiation, the January 23 incident clearly is "the most serious problem in the plant's history," according to Gary Reeves, PSCo. information officer.

The history of plant malfunction, capped by the helium release, prompted angry reactions. Colorado Sens. Floyd Haskell and Gary Hart called for a NRC study. Friends of the Earth (FOE) called for an independent (non-NRC) investigation of the plant itself, the incident, and the entire subject of high-temperature, gas-cooled reactor (HTGR) technology and safety.

In Washington, Robert Pollard of the Union of Concerned Scientists said the NRC must "do the job that Congress charged it with — regulating public health and safety — rather than protecting the nuclear industry." He said that "so-called inadvertent releases of radioactive material" will continue to happen until more stringent NRC regulation occurs. He said he was afraid that "we're going to have to wait for a very major accident until something is done."



FORT ST. VRAIN sits alone on the Colorado prairie.

In Denver, the state radiation chief, Al Hazle, could have said "I told you so" after the incident, according to the **Rocky Mountain News.** Hazle and other state officials had warned the company that such an accident could occur, but Public Service Co. had insisted it couldn't.

Conventional light-water nuclear plants use water to transfer the thermal heat from the reactor core to water in steam generators (see separate story). Fort St. Vrain is unique in being the only plant in the world to use helium gas as a core coolant. Helium, an inert gas, will not become radioactive itself, according to Reeves, but it will transport radioactive substances. In the wake of the Fort St. Vrain incident, one question is uppermost in the minds of nuclear critics: is gas coolant a greater public safety hazard than water?

"No detailed independent analysis of the safety of the HTGR has ever been done," FOE says. "The only one available is a study done by General Atomic, hardly an objective party. From a narrow perspective, gas cooling means less chance of a core meltdown. The helium carries fewer radioactive materials than water coolant, but many questions remain unanswered concerning the consequences of a major loss of gas coolant. Public Service Co. is finding out that there are serious problems relating to the reliability of the gas handling equipment."

On Feb. 3, Dan McNellis, manager of Public Service Co.'s Denver division, told a group of critics called the Boulder Mobilization for Survival that there is "zero" chance of a major accident at Fort St. Vrain.

FOE's press release on the afternoon of the incident pointed out that if a major helium release had occurred, "wind conditions and the precipitation in the area made conditions perfect for widespread contamination of the Denver metropolitan area."

That did not happen. Colorado Health Department's report on February 2 showed that none of its 60 tests showed above-normal radiation. Tests on the 23 employes most directly affected showed no evidence of contamination or iodine increases in their thyroid glands.

### ON HOLD AGAIN

Once again, the neutrons at Fort St. Vrain are being absorbed by graphite control rods rather than initiating chain reactions. The plant will remain dormant until the NRC completes its investigation and gives the green light to resume power production. Once again, PSCo. officials have pushed into the indefinite future that long-anticipated day when the plant finally operates at 100% of its 330-megawatt design capacity. (It was at the 68% level on January 23.)

From one standpoint, the incident was of minor importance, undeserving of the banner headlines in the Denver newspapers. From another perspective, the incident reinforces the uneasiness of critics regarding the fallibility of nuclear plants, despite their double and triple backup safety systems. This concept was suggested in a comment by an NRC official on the day of the leak: "If this hadn't been an unplanned release, we wouldn't have even batted an eyelash."

## An expurgated tale of atomic power

Along the wall at the Fort St. Vrain Nuclear Information Center hangs a series of explanatory drawings which illustrate the history of the development of nuclear power. Each picture represents a milestone in nuclear history:

1803 — John Dalton originated modern atom theory.

1896 — Henry Bacquerel discovered that uranium is radioactive.

1898 — Pierre and Marie Curie discovered radium.

1903 — Einstein said E-mc2.

1913 — Niels Bohr envisioned the atom as miniature solar system.

1919 — Sir Ernest Rutherford achieved the first nuclear reaction.

1942 — Enrico Fermi made the first self-sustaining nuclear reaction at the University of Chicago.

1946 — Atomic Energy Commission established.

1951 — Electricity generated for first time from atomic energy at Arco, Idaho, plant.

Seems that 1945 was sort of skipped over.

## *Unique reactor...*

(continued from page 4)

technical and energy-consumptive enriching process screens out U-238 until the uranium is 93% U-235.

Thus, since so little U-238 was loaded initially at Fort St. Vrain, little plutonium is being produced, and some of that is fissioned in place. Nonetheless, critics say the safeguards problem with U-235 is nearly as critical as with plutonium.

In skilled hands, a bomb could be fashioned from less than 20 kg of U-235, according to nuclear physicist Ted Taylor in John McPhee's book, **The Curve of Binding Energy.** The Hiroshima bomb, "Little Boy," contained about 60 kg of U-235.

At Fort St. Vrain, the atom-splitting process in the U-235 is controlled by neutron-absorbing control rods made of graphite and boron. When the rods are lifted, neutrons start flying into U-235 atoms, which form new atoms and release enormous quantities of heat energy in the process. Excess neutrons are also produced, which enter thorium nuclei. Thorium then becomes U-233, which is fissioned to release heat. Thus, "the major portion of the energy production results from the inexpensive thorium," the General Atomic booklet on Fort St. Vrain explains.



## *New senator defends states' rights*

Montana's newest U.S. Senator, Paul Hatfield, appears to be a states' rights advocate. Hatfield was recently selected by the Montana governor to fill the remaining 11 months of the term of Sen. Lee Metcalf (D), who died Jan. 12.

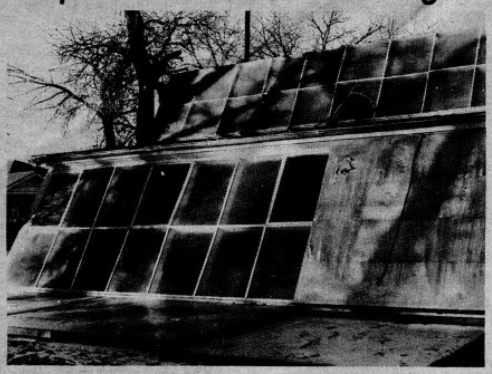
So far, Hatfield has refrained from speaking out on national issues, saying that his heavy caseload as a state chief justice kept him less informed about national issues than the ordinary layman. However, as a state judge, he witnessed "a steady erosion of states' rights through federal intervention," he said in a **Billings Gazette** story. "I have been increasingly concerned about the continuing infringement of federal activity on sovereignty of the state and the lives of the people."

Hatfield remains an enigma to environmentalists. "As senator, I intend to help rifricing the quality of the environment that distinguishes Montana's lifestyle," he said.

Some observers say that Hatfield's appointment may mean trouble for the upcoming Senate bid of Rep. Max Baucus (D-Mont.). Hatfield has already said he will probably campaign for the Senate seat next fall. But a **Gazette** editorial gives the edge to Baucus in a primary battle. Baucus, the newspaper says, is "well organized, has staff with campaign savvy, and the advantage of being in Congress."

**Gazette** political analyst Duane Bowler says it's possible that Montana Gov. Tom Judge picked Hatfield to enhance his own chances of winning the Senate seat someday. If he wins the coming election, Hatfield may be willing to vacate his seat after a few years for a federal judgeship, Bowler says. Baucus, on the other hand, might be

# The price of solar heating...



**HOMEMADE solar energy devices generally have a lower efficiency and a shorter life than commercial ones. They sometimes produce more heat per dollar spent than an equivalent commercial device, however. The photo shows a home-built solar greenhouse in Laramie, Wyo., designed and built by Joe Orr.**

(continued from page 1)

nancial sense, according to Frey. In most cases too many compromises are involved. The homeowner ends up paying a lot of money (perhaps $10,000 to $20,000 per system) to install a solar heater that is probably a compromise in terms of orientation and design, he says.

Whether or not buying a solar system is a wise decision for a consumer also depends upon the cost of the energy the solar heat is replacing.

"Active solar systems used for heating domestic hot water and, to a somewhat lesser extent, those used for space heating are economically competitive with electric energy in most parts of the United States," says Sheldon Butt, president of the Solar Energy Industries Association. In an article in **Solar Age,** Butt says that although the industry's position is improving, "Solar's position is no better than marginal when compared to oil, and we are far from competitive with natural gas."

Commercial solar devices used to heat domestic water are generally more competitive than space heaters, because they save fuel year-round rather than only during the heating season, according to Butt.

At the rates paid for electricity in Idaho, a solar water heater will pay for itself in two to five years, according to the Idaho Energy Office.

**ARCHITECT DONALD FREY recommends that people interested in commercial motorized solar systems try several other options first — among them energy conservation, passive solar heating, and heat pumps.**

### THE DO-IT-YOURSELFERS

By rolling up their sleeves and doing it themselves, some people have avoided the high costs of commercial solar devices. Homemade devices are usually not as efficient or as durable as commercially available hardware. Nevertheless, the do-it-yourselfers appear to be providing heat at a lower Btu (British thermal unit) per dollar cost than the commercial firms.

"I don't know how efficient they are, but we use them," says Paul Michaud of Ft. Collins, Colo., who has been heating his domestic water with a set of homebuilt collectors for three years now. The system cost him $200.

Any signs of deterioration in his equipment? Any operating problems? Not yet, Michaud says.

Kathy and Joe Streeter built a 10-foot by 20-foot attached solar greenhouse on the south side of their home in Riverton, Wyo. On sunny winter days, it provides all the heat necessary for their home. It cost them about $2 per square foot of collecting surface.

The San Luis Valley Solar Energy Society sells plans for a forced air solar collector that costs $1.50 to $2 per square foot of collector space to build. Most commercial collectors cost 10 times that amount — but they are lighter, more efficient, more durable, and don't demand hours of your time.

Malcolm Lillywhite, founder of the Domestic Technology Institute, a firm that teaches community leaders how to build low-cost solar devices, is skeptical about the direction that the commercial solar energy industry is heading. Most segments of the industry seem to be striving for long-lasting, maintenance-free systems, rather than low-cost ones.

"Most people can't put in collectors that will last 20 years without a subsidy," Lillywhite says. He estimates that two-thirds of the commercially-built solar systems in existence today were at least partly paid for by government grants. Many of the rest, he says, businesses put in for advertising purposes.

Solar equipment should be judged by the amount of heat it can produce per dollar spent, rather than by how long it will last (regardless of cost), Lillywhite says. In other words, a collector that will last 10 years may be as good a buy as one that will last 20 years, if its low cost makes up for its lower efficiency and shorter life.

### SOCIAL DECISION

The question of economics is disturbing to at least one commercial manufacturer, too. Don Erickson of Rocky Mountain Products in Denver says that for a total installation, he's charging people $30-35 per square foot of collector space. He says he's still not seeing any financial rewards for his business.

"Solar energy has got to get to the point where it's not a leech on the government," Erickson says.

What is motivating the people who do buy commercial solar energy systems? Consulting engineer Bob Bushnell of Boulder, Colo., says, "Typically my clients are making a social decision related to uncertainty. They're saying, 'We don't trust the federal government and we want to disengage.' It's an insurance against the unavailability of fossil fuels, and they're willing to take the financial risk."

**By rolling up their sleeves and doing it themselves, some people have avoided the high costs of commercial solar devices.**

# Congress looks at range bill

A range improvement bill introduced in the House by Rep. Teno Roncalio (D-Wyo.) has won praise from agricultural groups, but has not entirely pleased environmentalists.

The bill would provide $350 million for range improvements on federal grazing lands over the next 20 years. It also sets up a new grazing fee formula, allows for disposal of excess wild horses and burros, and describes grazing improvements that may proceed without environmental impact statements.

"The bill is a recognition of the fact that it is not livestock that have caused the destruction of public lands," says Ron Michieli of the National Cattleman's Association. "The lands just haven't been kept up."

Both the cattleman's association and the National Woolgrowers Association have endorsed the bill, Michieli says.

Environmentalists seem lukewarm about the legislation. Johanna Wald of Natural Resources Defense Council (NRDC) says she supports the wild horse and burro provision, but is concerned about the section that defines "environment impact improvements" and "non-environment impact improvements."

This section "encases in concrete what should be left up to the discretion of BLM (the Bureau of land Management)," Wald says.

Roncalio believes this section is important to the bill, however, because an NRDC lawsuit, coupled with congressional "pronouncements," has had a "chilling effect on the government's willingness to implement a vigorous range improvement program. My bill seeks to solve this dilemma for once and for all by specifically spelling out those range improvements which can proceed prior to the completion of the court-ordered environmental impact statements and those which cannot," he says. The NRDC suit has forced the bureau to do 212 environmental statements on grazing activities. None are complete yet.

Roncalio's bill would allow improvements such as fencing, small water developments, fish and wildlife projects, the restoration of native vegetation, and vegetation manipulation through grazing management to proceed on federal lands without completion of environmental impact statements.

On the other hand, the bill prohibits the use of range improvement funds for "environmental impact improvements" until impact statements for an area have been completed. Such improvements include chaining, chemical and herbicide treatment, major water development, stream modification, and seeding with non-native species.

Wald questions the wisdom of this section, saying that Congress's declaring these activities to be free from environmental impact will not make it so in all cases. In addition, Wald says, the bill erroneously equates "intensive management" with "environmentally sound management."

### WILD HORSES AND BURROS

Another section of the bill would amend a 1971 law that protects wild horses and burros from inhumane treatment and massive slaughter.

The trouble is that "in certain areas, populations of wild horses and burros have been so well protected by the law that their numbers now exceed the carrying capacity of the range," Roncalio says. BLM's adoption program for excess horses "has been frustrated by the fact that the 1971 law prohibits the government from transferring title to the animals," he says.

In an attempt to solve these problems, the range bill would: 1) require inventories to locate excess animals, 2) allow transfer of title to adoptor after a period of one year, and 3) allow humane disposal of excess animals that nobody wants to adopt.

"I believe the one-year holding period under humane conditions will involve expense to the adoptor that will absolutely preclude resale of the animals to slaughterhouses," Roncalio says.

### GRAZING FEES

Another section of the bill proposes a grazing fee formula for federal lands that is based not only on the value of the forage, but also on the rancher's ability to pay. The formula was devised by a technical committee set up by the department of Interior and Agriculture.

Thirteen Western Congressmen have signed on as co-sponsors to Roncalio's bill — Max Baucus (D-Mont.), Frank Evans (D-Colo.), Jim Johnson (R-Colo.), Gunn McKay (D-Utah), James Santini (D-Nev.), Harold Runnels (D-N.M.), Manuel Lujan (R-N.M.), Eldon Rudd (R-Ariz.), Ron Marlenee (R-Mont.), Dan Marriott (R-Utah), Steve Symms (R-Idaho), Robert Duncan (D-Ore.) and Al Ullmann (D-Ore.).

Sen. Frank Church (D-Idaho) has introduced similar legislation in the Senate.

*Oil man feels ignored*

# BLM soon to enter wilderness preservation fray

**by Philip White**

No livestock grazing, no motor vehicles, no drilling or mining or timbering, no discharge of firearms, no entry without backcountry permit. Two-night limit. No more than 50 humans in area at one time

These are the rules presently being applied in the management of the Aravaipa Canyon Primitive Area in southeast Arizona, near Safford. The rules were not formulated by an oligarchy of wilderness zealots in the National Park Service or the U.S. Forest Service. They were instituted in 1970 "to insure that Aravaipa Canyon remains in a wild and undeveloped state" by the Bureau of Land Management (BLM), an agency not known for its aggressive management.

BLM, a component of the Interior Department, administers about 470 million acres. That's about 703,100 square miles, chiefly in the Western U.S. and Alaska, and amounts to one-fifth of the entire area of the 50 states. BLM managers prevail over two-thirds of the federal lands.

When the Wilderness Act was passed in 1964, powerful special interests caused the lawmakers to omit BLM from the wilderness inventory duties imposed on the Forest Service and the Park Service. To this day, not a single acre of BLM land has been designated wilderness by Congress.

By 1975, however, BLM had included 11 areas comprising 234,000 acres in a self-initiated "primitive area" program. To give this figure some perspective, only one in every 2,000 BLM acres is protected as a wilderness area would be. No one claims that BLM has had a lively wilderness program going.

In October 1976 Congress passed the Federal Land Policy and Management Act, known as the BLM Organic Act. Suddenly, an agency that had been operating within an amorphous structure of more than 2,500 separate public land laws was reborn in a baptism by synthesis. BLM had specific direction in land use planning and multiple use management. Also, BLM had its first orders to assess its roadless areas and make recommendations for wilderness classification.

## TOSSING AND TURNING

Don Carpenter hasn't slept well since. Carpenter is president of at least three organizations: an oil development firm called Rainbow Resources; a coalition of mineral and timbering interests called Outdoors Unlimited; and the Petroleum Association of Wyoming. Carpenter thinks the Forest Service and BLM are in cahoots with environmental groups to secretly place several hundred million acres into the wilderness system.

In its Dec. 13 issue, the **Casper** (Wyo.) **Star-Tribune** printed the following account of a speech by Carpenter:

" 'RARE II (the current Forest Service inventory of potential wilderness lands) is only a dress rehearsal for a plot by preservationists to lock up over half of the public lands for wilderness.'

"Carpenter told landmen at a luncheon that the techniques used in RARE II studies of forest lands were being perfected by the Sierra Club, Wilderness Society, and other groups for a later battle to tie up the BLM lands in the western states.

"The oil and gas industry had little or no input in 'workshops' conducted by the Forest Service for RARE II," Carpenter charged.

In an editorial in the same **Star-Tribune**, the newspaper supported Carpenter's fears:

"It is obvious that the RARE II studies will reflect the views of wilderness advocates and that any input from industry, agriculture, and the logging industry will largely be ignored.

"Apparently the same techniques will be applied when the Bureau of Land Management begins its public land resource evaluation early in 1978 to determine 'wilderness characteristics.' "

## MALICIOUS MISCHIEF

Carpenter's comments and the **Star-Tribune** editorial angered Forest Service personnel at the Bridger-Teton Supervisor's Office in Jackson. Supervisor *Reid Jackson sent the publisher of the* **Star-Tribune** a strongly-worded reply which said, in part:

"Statements like this border on malicious mischief and remind us of the recent episode of dirty tricks. The editorial reported certain events as facts when indeed they are not.

"The RARE II workshops were well publicized in Wyoming. The Bridger-Teton issued a statewide news release on July 18, three full weeks before the workshops. Well over 30 oilmen turned out for the afternoon workshop in Jackson on August 10. They were quite vocal expressing displeasure about not receiving personal invitations.

"We were sympathetic to a point and promised to send notices to several oil and gas trade associations in the future. We pointed out, however, that no other persons or groups had been given special notice.

"One thing the public does know about the oil and gas and the wood products industries is that they don't lack for attention. Our staff has probably spent more time in discussions with oil and gas men during the past five months than with all other types of forest users. The RARE II records contain more written input from oil and gas companies than from all other sources combined."

Bart Koehler, regional representative of The Wilderness Society, characterized Carpenter's statements as arrant mummery. "Mr. Carpenter's comments are ridiculous," he said. "We are not in any type of conspiracy to tie up public lands through the RARE II or the BLM Wilderness inventory. We didn't mastermind either program.

"We want the best samples of BLM country and the most deserving forest lands protected as wilderness and the rest of the public lands released in a timely fashion. We certainly are not seeking wilderness status for every BLM roadless acre."

The national BLM staff is revising a wilderness review policy, which will be released early this spring. Public meetings will be held in all Western states having significant portions of BLM lands. The public will be given 60 days to comment on the proposed policy. After it is revised in response to the comments, an inventory will begin. The inventory is expected to take about one and a half years, starting in mid- to late-1978, according to John McComb of the Sierra Club. McComb has been working closely with the BLM on the policy.

Under the Organic Act, BLM must report on the wilderness potential of its 11 primitive areas and 44 natural areas by 1980. All other roadless areas over 5,000 acres with wilderness characteristics that were identified in the inventory must be studied by 1991. The BLM will look first at public lands in Alaska and in the East, such as the 10,000 islands which BLM governs in the Great Lakes region. McComb says that BLM estimates of the number of acres that will be inventoried vary from 30 million to 80 million acres.

BLM is still deciding how to handle roadless areas with wilderness potential during the interim, a question that has caused many of the problems with the Forest Service wilderness studies.

Another major question still being ironed out is what criteria will be used for judging wilderness characteristics. Wilderness advocates have spent several years arguing with the Forest Service, saying that under the Wilderness Act, wilderness areas don't have to be alpine areas absolutely free from the marks of man. Under the Carter Administration, these arguments have generally been accepted. McComb says, "I hope that the BLM has learned from the long, painful lessons of the Forest Service on issues of purity and interpretation of the Wilderness Act."

An article in BLM's magazine, **Our Public Lands**, indicates the agency has accepted a liberal definition of wilderness. It says the thrust "of the wilderness program is not necessarily to preserve those areas having scenic grandeur, but rather to identify lands that have retained a large measure of their natural integrity — lands that offer the opportunity for solitude and introspection."

Judging from the alarm that some industry representatives have expressed at even the prospect of BLM wilderness, the agency's job will not be easy.

The Wilderness Society, in its **Wilderness Report** for November 1977 said it expects BLM's inventory to elicit "vociferous protests" from "mining, timber, grazing, land speculator, and other development interests which have long used, and all too often abused, the public domain."

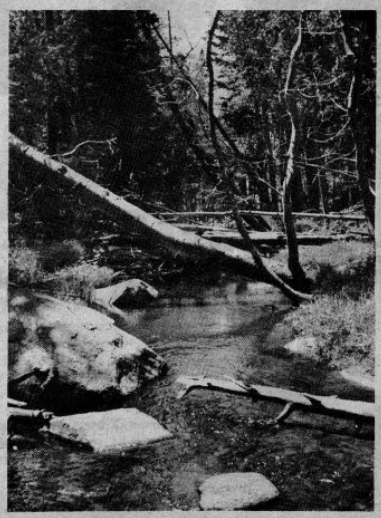


Photo courtesy of the BLM

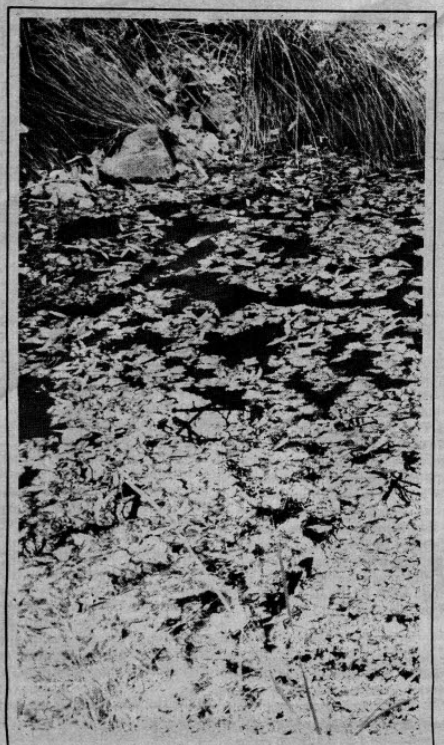
**SCAB CREEK Primitive Area**

**Wildernesses are demanding, but they are also fragile. In any contest with man and his machines, the wilderness always loses. Today, they can survive only if man makes a conscious choice to preserve them. Once, the people set the machinery of government to the task of conquering the wilderness — today it is necessary that that same government effort be directed to the task of reserving the few remaining areas that have wilderness potential.**

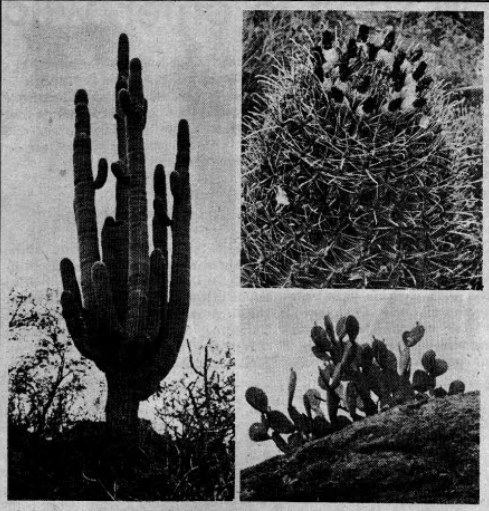
**—from OUR PUBLIC LANDS, a BLM publication, fall 1977.**

**Official BLM Primitive Areas acres**

| | |
|---|---|
| Aravaipa Canyon, Ariz. | 4,044 |
| Paria Canyon, Utah-Ariz. | 27,515 |
| Dark Canyon, Utah | 57,248 |
| Grand Gulch, Utah | 24,080 |
| Humbug Spires, Mont. | 7,041 |
| Beartrap Canyon, Mont. | 2,761 |
| Powderhorn, Colo. | 40,400 |
| Scab Creek, Wyo. | 6,680 |
| Centennial Mountains, Mont. | 24,165 |
| Paiute, Ariz. | 35,092 |
| Chamise Mountain, Calif. | 3,941 |



Pondweed and leaf patterns in Paisano Canyon



A 25-foot tall saguaro at dawn. Top, buttons at the top of saguaro. Below, prickly pear.


# ARAVAI

## BLM's first

**Photos by Philip White**


**by Philip White**

Having sloshed only 100 yards into the Aravaipa Canyon Primitive Area in southeast Arizona, I knew Jimmy Carter was right. In his environmental message of May 23, 1977, the President said he would "give early attention to other wilderness proposals, including . . . Aravaipa Canyon, Arizona, which would be the first wilderness area on Bureau of Land Management (BLM) lands."

On the winter solstice, I drove to Klondyke, Ariz., and on to Aravaipa to determine if this 7½-mile, 4,044-acre, little-known desert canyon deserved such illumination. In terms of the gross national product of the soul, I was impressed. I was recreated.

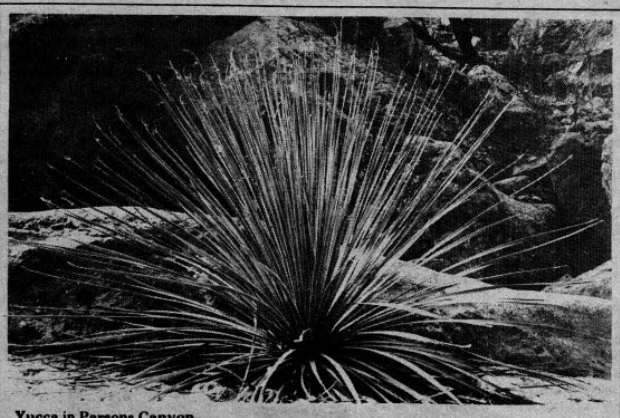
As I crossed the creek the first time, a huge bird jumped from the water and slowly flew up to a sandstone ledge where it stood among agave and barrel cactus, motionless. The curve-necked silhouette of the great blue heron high on a rock ledge symbolized the concept that, given a palette free of man's machines and noise and smoke, nature paints with unpredictable sublimeness.

Many of the rusty sycamore star-leaves still clung to their contorted white branches. Cottonwoods also wore most of their scintillating yellow vesture, here in this never-winterland. A lovely female cardinal appeared. Loquacious canyon wrens blew their soft police whistles. The creek, which flows underground for most of its 60-mile journey from the Pinaleno Mountains to the San Pedro River, meanders on the surface in typical canyon-country fashion here in a box of rock walls sometimes 700 feet high.

Like the Gila River's canyons in the Gila Wilderness 125 miles to the east, Aravaipa's wetter and shadier slopes grow various species of oaks whose leaves, here in December, remain green and thick on the trees. A full understanding of the dry and hot summers can be gained on the south-facing slopes, which, like the Grand Canyon's, support catclaw acacia and yucca, junipers and barrel cactus.

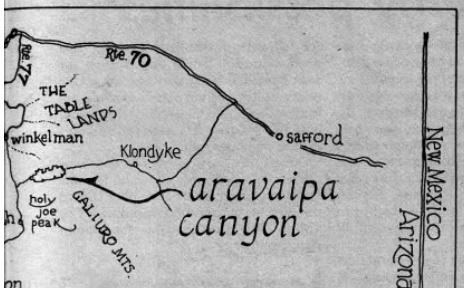
But Aravaipa has a special distinction which nearly all other southwest canyons lack: the accordian-pleated, sort-of-a-preacher, the sentinel of the desert, old saguaro. Sometimes singly, often in a "forest" on the steep slopes, the trunks and arms and little fat fingers of the saguaro cactus give Aravaipa a quiescent grandeur. Wherever you go, friend saguaro is there, over your shoulder, invoking a blessing.

Walking up dry Parsons side canyon, I noticed again the quiet and solitude that these deep canyons provide. Away from the stream's gurgling, absolute silence exuded from the



Yucca in Parsons Canyon

*Wherever you go, frien*
*is there, over your shoulder,*
*a blessing.*

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rocks and trees, sometimes for minutes at a time, interrupted by an airplane or a Gila woodpecker. At a pothole in the rock floor of the side canyon, I watched as a flicker, a solitaire, a rock wren, a kinglet, a junco, and a rufous-sided towhee each took its turn to drink. At a narrow point, I looked up to see a skyful of swifts.

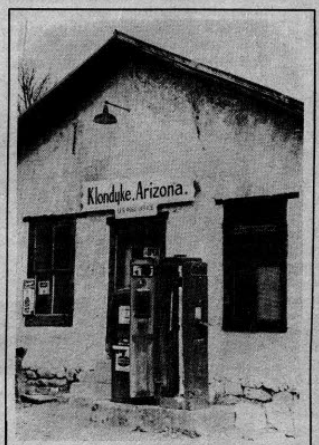
At Paisano side canyon the third day, I found two idyllic waterfalls where trickles of water fell about 15 feet into deep plunge pools in the grey rock. Water also seeped out over moss and maidenhair fern to drip into the pools. I saw the yellow-headed verdin in a mesquite and chased black phoebes back to camp.

During my 2½ days of lazy hiking, I saw 28 species of birds (the BLM checklist shows that 158 species have been seen there) and only one other human, a cowboy from upstream chasing two colts gone AWOL.

It is a good place to take a deep breath, the darkest evenings of the year.

(Permits to visit Aravaipa can be secured by calling the BLM Safford District Office at (602) 428-4040. The east entrance is approached via Klondyke and the west end by way of Winkleman, Ariz. Lands at both ends have been purchased by Defenders of Wildlife and dedicated as the George L. Whittell Wildlife Preserve.)

...friend saguaro
...lder, invoking




Post Office at Klondyke, Ariz.


Agave

At a narrow point, I looked up to see a skyful of swifts.

Waterfall with maidenhair fern on the right

# Indians explore alternative energy possibilities

by Marjane Ambler

A conference on alternative energy resource development on Indian reservations could mark a "historic turning point for Indian people," according to John Redhouse of the National Indian Youth Council (NIYC). Redhouse was the keynote speaker at a conference held Jan. 18-19 on the Fort Berthold Reservation in North Dakota.

Redhouse told the participants, who represented several tribes in North and South Dakota and Montana, of the effects of coal and uranium development on the land and the people of the Navajo Reservation. "We must look at appropriate technology not only for practical reasons, but also for spiritual reasons," he said. "To destroy the land is to destroy the people. . . .Peabody's and Gulf's (two firms active on Indian reservations) efforts are definitely not appropriate," he said.

Coal has not yet been mined on the Fort Berthold Reservation, but it is being intensively developed to the south. Representatives of a farmers' organization fighting the development, the United Plainsmen, also addressed the conference participants, many of whom seemed to be surprised by the Plainsmen's spirit of cooperation. "It's nice to know we're not alone," Carl Whitman of the Fort Berthold tribes said after the presentation.

Two of the Plainsmen, Randolph Nodland and Rick Maixner, detailed what they called the "callous disregard" that energy companies show for people. Nodland, who has been leading a fight for clean air in Dunn County, N.D., south of the reservation, said he could use the tribes' help, but added, "That's a decision you'll have to make."

The only plans for coal development on Northern Plains reservations that were discussed at the conference were for domestic use. Ed Bauer of the Fort Peck Reservation (Mont.) planning staff says tribes there plan to mine enough of their own coal to supply a small coal-fired power plant. Heat produced by the plant could warm 50-70 homes. The electricity produced could perhaps be sold to local utilities, Bauer says.

A feasibility study will be conducted first; the Fort Peck Tribal Council has stipulated that the project won't be approved if there will be too much pollution from the plant or if there is a chance the venture would open up the coal to other mining companies, Bauer says. The coal lies under some of the reservation's most productive agricultural lands.

Four other reservations in Montana and the Dakotas are looking into mining their own coal and using it in stoves to heat their homes directly.

The tribes are interested in these proposals because it is getting harder to get natural gas hookups, and it's getting too expensive. Some families on the Fort Peck Reservation, for example, are paying as much as $160 per month.

"Such a crisis situation impairs solemn thinking," Whitman says. He helped organize the conference to offer an opportunity for such "solemn thinking" on alternatives available to the tribes. Some of the tribes represented at the conference, such as the tribes from Fort Berthold and Fort Peck, are rich in coal. Faced with a high unemployment rate and with attractive potential returns from development, Whitman is afraid many tribes might react by rushing ahead with coal development. Other tribes represented at the conference have only limited oil reserves — if any fossil fuel potential at all — so they must develop alternative energy sources if they hope to become energy self-sufficient.

Whitman, who heads the Industrial Development Division at Fort Berthold, has been pushing for years for alternative energy projects such as solar heating, heat pumps, fuel cells, and an insulation factory.

With a grant from the National Center for Appropriate Technology, he worked with the Fort Berthold Community College to organize the conference.

Following presentations on solar design concepts, wind energy, and solar greenhouses, conversations at the conference were buzzing with ideas of how to put solar energy to work back on the reservations. Pat Spears, assistant planner for the Lower Brule Sioux Tribe in South Dakota, said he was "kind of feeling around in the dark" before the conference, looking for information. Now he wants to build a solar greenhouse large enough to supply food for the elderly, and he wants to explore the geothermal potential on his reservation.

A member of the Fort Peck housing authority said he hopes to get solar collectors on some federally-sponsored housing. The director of the community college there hopes to have a new college building solar-heated. Bauer is looking into a solar grain dryer for his reservation that could serve all of northeast Montana. Several participants are interested in Dow-Corning's proposal to build a solar cell factory on a reservation.

Participants admitted that several hurdles stand in the way of these dreams. No tribal council members attended the conference, and all major policy decisions must be made by them.

Standards set by the Department of Housing and Urban Development (HUD) for federally-subsidized housing are another hurdle. While they provide for solar-heated homes, they specify active solar systems and not passive systems, according to some of the conference participants. Passive systems cost less and require little or no maintenance.

Overall, the participants said they considered the conference valuable. Similar conferences may be held on other Indian reservations in the future, according to Lee Topash of the National Center for Appropriate Technology.

JOHN REDHOUSE: "We must look at appropriate technology for spiritual reasons."



ENERGY E 1978 HCN

energy news of the Rockies and Great Plains

**MONT. TAX CHALLENGE POSTPONED.** Decker Coal paid its quarterly Montana coal severance taxes in January without protest, delaying for at least three months a projected legal challenge by three utilities to the 30% tax. Decker says that it anticipates filing the protest at the next tax payment, however. **The Missoulian** urged editorially that, to protect all states' right to levy taxes, all the coal producing states raise their taxes substantially. **The Missoulian** said, "One state with a high tax apparently excites threat of a suit. But, if all the states raised their taxes, all would be safe — and richer."

**MADISON AQUIFER OVERESTIMATED.** A Wyoming state geologist says that the Madison Formation, the source of underground water proposed for use in a coal slurry pipeline, is replenishing itself at a slower rate than originally estimated. In 1974, it was estimated that the formation recharge was about 100,000 acre-feet per year. The latest tests, performed by ground water geologist Richard Stockdale, indicate that the recharge rate is 75,000 to 80,000 acre-feet annually. The slurry pipeline, proposed by Energy Transportation Systems, Inc., would use about 15,000 acre-feet annually from the formation.

**ANTI-NUCLEAR EFFORT RENEWS.** Montanans for Safe Power plans another petition drive in an effort to ban nuclear power plants from the state for 10 years and to prevent the storage of nuclear wastes in Montana. The same group lost a 1976 initiative at the polls, but a leader of the organization says they received favorable responses from about 40% of the voters then.

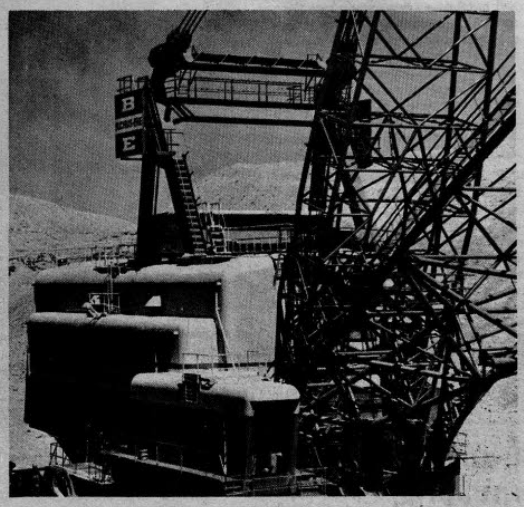


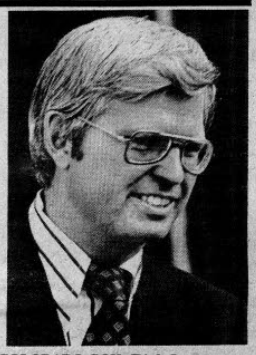
Photo by Carol Harlow

**DECKER COAL has paid its first quarter Montana severance taxes without protest. So a lawsuit threatened by three utilities against the state's 30% severance has been delayed at least three months.**

## The HCN Hot Line

energy news from across the country

**NUCLEAR COSTS TOO MUCH.** The Connecticut Public Utilities Control Authority has told Northeast Utilities to curb its nuclear expansion program because it would push its rates too high, according to **Power Line.** Northeast Utilities had planned to buy into the Seabrook, N.H., nuclear plant and into the Montague I and II nuclear plants in Massachusetts. One commissioner said, "We can't afford to bankrupt a whole generation of taxpayers by a construction program which is building an edifice that is not required and may never be required."



**COLORADO GOV. Dick Lamm says that the federal government is finally paying attention to Western problems.**

**WASHINGTON PAYS HEED.** Colorado Gov. Dick Lamm says that Western state governors have reached an agreement in principle for a federal-state energy impact program. Lamm told the **Denver Post** after a Washington, D.C., meeting with Vice President Walter Mondale, Energy Secretary James Schlesinger, and others, "We have convinced the federal government that growth caused by energy development is not traditional growth that pays its own way. We've convinced them that energy growth needs not only front-end money, but special grants and loans because the cost of such growth often overruns the benefits." Lamm said that Energy Secretary Schlesinger agreed to present detailed recommendations to President Jimmy Carter by early March.

**ANTELOPE'S PROGRESS HALTED.** As a result of a protest by the National Wildlife Federation, Basin Electric Power Cooperative is being forced to consider alternatives sites for its 880 megawatt coal-fired Antelope Valley Station near Beulah, N.D. The wildlife group says the plant would sit on about 80 acres of wetlands and about 200 acres of prime farmland, according to the Associated Press. Basin says it hadn't seriously considered alternative sites in its environmental statement for the Rural Electrification Administration because it is planning a joint project with ANG Coal Gasification Co. at the same site. Basin will provide the power for the gasification plant. The objection will result in at least a two month delay on the construction start-up, according to the **Hazen Star.**

**WHO WILL BUY?** Natural gas from Alaska may sell for as much as $5.35 per thousand cubic feet — almost 3.7 times more than the maximum now allowed for domestic gas sold across state lines, according to the chairman of the Northwest Alaskan Pipeline Co. That means the price of Alaskan gas must be averaged among all U.S. gas users to get consumer costs down to a practical level, John McMillian, the chairman, says.

**UDALL FIGHTS BIG OIL.** Rep. Morris Udall (D-Ariz.) is proposing that eight major oil companies be prohibited from bidding on any new uranium, coal, natural gas, geothermal, or oil leases on federal lands. Gannett News Service reports that Udall hopes to use this "back door" method instead of immediately renewing the fight over horizontal divestiture of energy companies. Udall's proposal has passed the House Interior Committee's energy and environment subcommittee. Observers believe that he has enough votes on the full committee to gain approval. The bill targets Exxon, Standard of California, Mobil, Shell, Gulf, Texaco, Standard of Indiana, and Sohio-British Petroleum as those companies that would not be allowed to obtain new federal leases.

**COAL COMPANIES SUE.** More than 100 coal companies and the National Coal Association have filed legal challenges to the interim regulations promulgated by the U.S. Interior Department to enforce the Surface Mining Control and Reclamation Act of 1977. The companies charge that the rules will cause "immediate and irreparable injury, loss, and damage." Two western companies, Sunoco Energy Development Co. and Cordero Mining Co., asked the courts to invalidate the regulations and issue both temporary and permanent injunctions against enforcement. The lawsuit charges that the rules are "inconsistent with the law, arbitrary and capricious, and without support of substantial evidence."

**CO-OPS TO BUY NUKE SHARE.** Pacific Northwest Generating Co. (PNGC), a group of 17 rural electric cooperatives in Washington, Oregon, Idaho, and Wyoming are planning to buy 10% of a nuclear power plant proposed by Portland General Electric, according to United Press International. The plant would be built near Arlington, Ore. PNGC members in Idaho are Kootenai Electric Cooperative, Raft River Rural Electric Cooperative, and Clearwater Power. The Wyoming member is Lower Valley Power and Light.

# IJC urges Canada to halt Poplar River Project

by Dan Whipple

The Saskatchewan government has rejected a recommendation by the International Joint Commission (IJC) to halt construction on the 300 megawatt Poplar River power plant, currently under construction about eight miles north of the Montana border. The IJC, an organization that arbitrates boundary disputes between the U.S. and Canada, called for a stop to all work on the site, including construction, excavation, mine dewatering, and coal mining, until an IJC committee had received and analyzed water quality data from the power company, provincially-owned Saskatchewan Power.

Fearing that the plant will adversely affect water quality in the Poplar River as it enters Montana, the IJC set up a water quality study board last September. On Nov. 3, 1977, that committee requested extensive information from Saskatchewan Power, which as of Jan. 30, 1978, it reportedly had not received. As a result of the delay, the IJC issued its recommendation for a construction moratorium.

One source says, "Saskatchewan Power agreed to provide this information and hasn't. Since the current construction may hurt the water quality, there was no alternative to a moratorium."

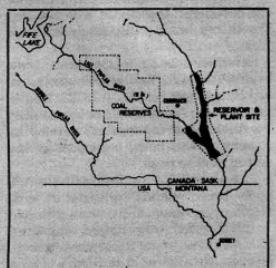
IJC recommendations are not binding on either country, however, and Saskatchewan has decided to reject this one. Carl Jonietz of the U.S. State Department says, "The recommendations carry a lot of weight, but we've never really had a situation parallel to this one. The IJC has never recommended stopping construction of a project."

John Messer, a Saskatchewan official who oversees the power company, flatly denies that there has been any delay in providing material to the IJC. He says that the commission recommendation is "unwarranted." Messer says that Poplar River water quality hasn't changed since 1974, before construction began.

Saskatchewan Minister of the Environment Grant Mitchell says that all of the information requested by the IJC had been forwarded to them. He says, "All available information has been sent. Up until now, there has been no indication that the information transmitted was inadequate."

Another Saskatchewan Power official admits, however, that, though the water quality data was requested on November 4, it was not mailed until January 23, 1978. U.S. diplomatic sources say that this delay is inexcusable, since much of the data has been complete for nearly a year.

Mitchell also says that some information was not available. One technical report is not complete, he says, though it will be shortly. In addition, the IJC requested




**POPLAR RIVER PROJECT, eight miles north of the U.S. border in Saskatchewan, potentially will create water quality problems for Montana.**

samples of the overburden from the coal mine site near the power plant, which Mitchell said the company does not have. U.S. sources say however, that the State Department requested the same information in July of 1976, and was told that it was available. After a delay of several months, the Canadians announced that the information was not available after all.

A U.S. official says, "This has been the story of this whole project. Saskatchewan has provided too little too late."

The Poplar River project consists initially of only one 300 megawatt power plant, but the provincial government is beginning the processes necessary to construct another 300 megawatt plant on the site. Planning documents prepared several years ago call for four plants, totaling 1,200 megawatts and a number of coal conversion facilities to produce synthetic natural gas and ammonia.

The U.S. and the state of Montana are concerned about possible air pollution from the plants, as well as the water quality problems. Environment minister Mitchell says that neither of the first two plants will have scrubbers, but that the company's tests indicate that they will be able to meet the air quality requirements of the U.S.

The State Department is negotiating with Canada to study air pollution problems, but says it is running into the same information problems that are affecting the water quality studies. U.S. sources say that Saskatchewan Power has been slow to provide samples of the coal that will be burned in the power plants so that the U.S. can confirm the results of the test burns.

U.S. sources say that there is reason to believe that the Canadians' test burn results are biased. According to the Canadians, 40% of the sulfur dioxide will be retained in the stacks, even without a scrubber. U.S. sources say that the usual retention under those circumstances is 7% to 10%. "The reason that the Canadians have been slow to turn over the information is because it is not favorable to their case," a U.S. official says.

Meanwhile, the Saskatchewan Power Company is continuing construction on the first power plant, despite the IJC recommendation.

# Herschler opposes Sweetwater wild, scenic study

by Marjane Ambler

Gov. Ed Herschler of Wyoming has written a letter to the U.S. Bureau of Recreation objecting to a study of a 40-mile segment of the Sweetwater River as a wild, scenic, or recreational river. The stretch of river was recommended by President Jimmy Carter for study last year, and it was included in a list of 20 rivers submitted to Congress this year.

Since the House committee considering which rivers should be studied asked for the governors' input, it is assumed that Herschler's letter will strongly influence them.

Herschler's letter to the bureau (now named the U.S. Heritage, Conservation, and Recreation Service — HCRS) said in part that the "state should be able to exert its authority to manage and develop its waters without being preempted by the federal government."

Under the Wild and Scenic Rivers Act, rivers that Congress designates as wild, scenic, or recreational rivers are protected in their "free-flowing, natural condition." This means no water impoundments or diversions are allowed on the stretch of river designated. However, existing uses of lands along the rivers, such as grazing, are generally not affected, according to the HCRS.

Ironically, the state is already restricted by a 1945 U.S. Supreme Court decision from diverting or damming any of the tributaries of the North Platte, including the Sweetwater, according to Frank Trelease, director of the state's water planning program.

"Why ask for more restrictions?" Trelease says. He adds that the state administration also thinks federal protection is unnecessary when use of the river is restricted already by the court decree. He says the only possibility for using the Sweetwater would be diverting water from either the Green River Basin or the Wind River Basin, through the Sweetwater, and into the North Platte. This, he says, could enhance the Sweetwater's qualities.

Whether this would be economically feasible is another question, he points out. Such proposals have been considered in the past but dropped for political reasons, he says.

Trelease admits he doesn't know whether such a project would be allowed if the river were designated wild, scenic, or recreational.

The Bureau of Land Management (BLM) had anticipated opposition to the study of the Sweetwater segment. BLM already conducted a study of a 10 mile stretch including Sweetwater Canyon downstream from the present proposed study area. While BLM planners said at the time they thought the upper stretch deserved study, too, this portion had been omitted because of the mixed private and federal ownership of land adjoining the river, which would make designation more difficult politically (see HCN, 6-17-77).

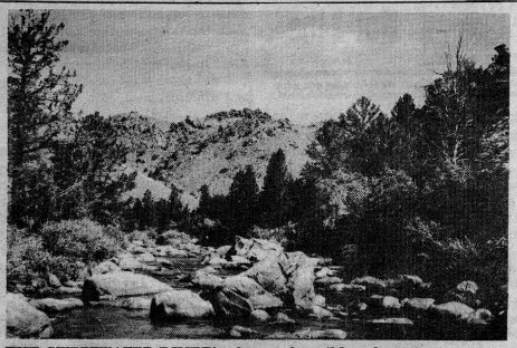
However, the canyon segment alone could not be included in the wild and scenic river system primarily because it was too short.

One of the private landowners along the river is the Yellowstone Ranch, which was recently purchased by Herschler and two other parties. Of the approximately one million deeded and leased acres on the ranch, about 10 miles front on the Sweetwater River. About two miles of this is on the segment proposed for study. Herschler told HCN, however, that this had nothing to do with his decision to oppose the study. "I'm not that familiar with the area," he says. "I don't even know whether the Yellowstone borders on the river."

Herschler supporters point out that since water diversions or dams are prohibited along the river presently, there doesn't seem to be any monetary gain possible for Yellowstone Ranch whether the river is designated wild and scenic or not.

Herschler's decision to oppose the study was based in part, he said, on recommendations from his staff and other members of his administration. The state engineer and the head of the department of agriculture recommended against the study, but the head of the game and fish department supported it.

"As I'm sure you're aware, I have been pretty much opposed to federal interference in water matters no matter where they are," Herschler concluded.



THE SWEETWATER RIVER's chances for wild and scenic river status don't look good since Wyoming Gov. Ed Herschler has recommended against the study.


SWEETWATER RIVER would be studied from its headwaters in the Wind River Mountains to Wilson Bar (sandbar) under President Jimmy Carter's proposal. The river has already been studied downstream from Wilson Bar to Spring Creek. Yellowstone Ranch deeded lands are indicated on the map by stippled boxes near Wilson Bar and downstream from Spring Creek.

### OTHER RIVERS

Segments of the following rivers were recommended to Congress for study for potential inclusion in the Wild and Scenic River System:

—Gila in New Mexico
—Green in Utah
—Yellowstone in Wyoming and Montana
—Delta and Gulkana Rivers in Alaska
—Madison in Montana

## HCN Bulletin Board

### MADISON RANGE WILDERNESS

A new citizens group is forming to protect the Madison Range in southern Montana. The group will work to protect the entire roadless range from the Spanish Peaks to Mt. Hebgen. The area is threatened by logging, a power line route, and a new ski area. Interested persons should contact Fred Swanson, Box 821, Ennis, Mont. 59729 or Harold Bockelman, 215 N. Church, Bozeman, Mont. 59715.

### OREGON BOTTLE BILL

A free report on the success of the Oregon Bottle Bill including effects on waste and litter is available from the Oregon Department of Environmental Quality, 1234 S.W. Morrison St., Portland, Ore. 97205.

### UNION PASS EIS

A final environmental impact statement for a proposed land management plan on Union Pass in western Wyoming has been completed. The statement assesses the effect of the comprehensive management plan in Sublette, Teton, and Fremont counties. Copies are available from Reid Jackson, Forest Supervisor, Bridger-Teton National Forest, Jackson, Wyo. 83001.

### SOLAR SYMPOSIUM FOR HOMEOWNERS

Colorado State University Extension Service is offering a "Solar Energy Symposium for Homeowners" on March 7 and 9 at the Jefferson County Fairgrounds, Sixth and Indiana, Golden, Colo. from 7:00 p.m. to 10:00 p.m. The symposium is designed to assist homeowners in choosing the best solar system for their homes. Dr. S. Karaki of CSU's Solar Energy Applications Laboratory will teach about active solar system equipment and Malcolm Lillywhite of the Domestic Technology Institute will discuss passive systems. A $12.00 symposium fee will be charged and enrollment will be limited. To obtain a registration form, contact CSU Jefferson County Extension Service, 15200 W. 6th Ave., Golden, Colo. 80401 or call 303-279-4511.

### MISSOURI RIVER BASIN CONFERENCE

A third Missouri River Basin governors' conference on water will be held in Great Falls, Mont., on May 23 to 25. The conference is expected to develop a regional position on questions about water policy, possibly including the developing national water policy and the national natural resources reorganization study. For more information contact the Missouri River Basin Commission, Suite 403, 10050 Regency Circle, Omaha, Neb. 68114.

### GEOTHERMAL ENERGY

The U.S. Environmental Protection Agency has prepared a publication entitled **Western Energy Resources and the Environment: Geothermal Energy.** The document defines the potential of geothermal resources, the technology available for development, and the associated environmental concerns. The report is available free of charge from EPA, Office of Research and Development, Washington, D.C. 20460.

### GAS SAVING BOOKLET

Petroleum geologist Robert Sikorsky has compiled a booklet with 230 ways to save gasoline for drivers everywhere. Sikorsky says that by using his methods, a driver who travels 15,000 miles could save $200 in gasoline costs. The booklet, "Every Driver's Guide to More Miles per Gallon," is available from Sikorsky at P.O. Box 4800H, Tucson, Ariz. 85717 for $1.95.

# Western Roundup

HCN

## Utah citizens quash Wellsvilles trail

A U.S. Forest Service plan to make the Wellsville Mountains in northern Utah part of a proposed national Wasatch Crest Trail has been scrapped due to strong public opposition.

"The Forest Service will not proceed with the trail head and trail reconstruction plans," Wasatch Forest Supervisor Chandler St. John told the **Logan Herald.** "While the environmental analysis report on the project showed no major environmental problems, the strong public opposition to any major changes in the existing trail system was a major factor in my decision."

Conservationists feared that development of a national trail in the Wellsvilles might also open the area to trail bike use.

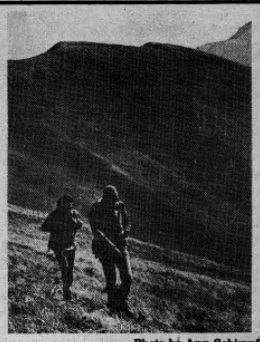


Photo by Ann Schimpf

**NO NEW TRAILS will be built in the Wellsville Mountains, the Forest Service says.**

## Endangered wilderness bill approved

The Endangered American Wilderness Act was passed by both houses of Congress and sent to President Jimmy this week for his signature. The vote was 83-5 in the Senate and 333-44 in the House, according to Rep. Teno Roncalio (D-Wyo.).

A total of 17 areas in ten Western states were included. The bill also calls for a wilderness study for the Spruce Creek addition to the Hunter-Fryingpan Wilderness in Colorado.

When the President signs the bill, a total of 1.3 million acres will become wilderness in Arizona, California, New Mexico, Colorado, Oregon, Washington, Utah, Wyoming, Idaho, and Montana.

## Utilities pacify Nebraska, still face suit

The six utilities building the Laramie River Station near Wheatland, Wyo., appear to have settled out of court a dispute with the state of Nebraska over water. The Nebraska Wildlife Federation, a party to the suit, says it will pursue the lawsuit even if the state pulls out, however.

Nebraska feared that the power station's Grayrocks Dam on the Laramie River would rob the Platte River of water needed by the state. The Nebraska attorney general says that the state may withdraw from the suit if the utilities can guarantee certain minimum releases of water from Grayrocks Dam, however.

While the lawsuit is pending, the U.S. Army Corps of Engineers in Omaha has delayed its decision on a building permit for the dam.

The wildlife federation group and the National Audubon Society, another party to the suit, say that the proposed power plant is larger than is needed and that the utilities haven't explored energy conservation alternatives.

The Nebraska Wildlife Federation has called for a moratorium on consumptive water developments on the Platte River, pending completion of a three-year study by the Department of Interior.

"The 30% of the Platte flows which we have left are simply too critical for irreversible decisions to be based on guess," says federation President Howard L. Wiegers.

In the meantime, preliminary work for construction of the dam has already begun.

## Subcommittee passes strong Alaska bill

After a very slow start last year, legislation to preserve Alaskan wilderness, the "d-2 lands," has begun to move in Congress.

Conservationists were encouraged that the Alaska Lands subcommittee chose to work from H.R. 39, a bill introduced by Reps. John Seiberling (D-Ohio) and Morris Udall (D-Ariz.) and supported by the Administration. This meant defeat for Rep. Lloyd Meeds' (D-Wash.) weaker substitute bill.

February 7 the bill emerged from the Alaska Lands subcommittee with few weakening amendments, recommending that over 99 million acres of Alaska be protected under the bill.

"On all the major issues, we won," says Sierra Club lobbyist Chuck Clusen. "The bill is now largely intact."

The questions of how much of the 99 million acres should be classified as wilderness and where and how mining should be allowed on National Interest Lands are still being hotly debated, however. The size of some areas proposed in the bill, especially in southeastern Alaska, is also being questioned.

On the Senate side, committee hearings on d-2 legislation began in early February.

Interior Secretary Cecil Andrus says that the Alaska legislation is the number one legislative priority of his department.

## Melcher backs Absaroka-Beartooth bill

Sen. John Melcher (D-Mont.) surprised environmentalists recently by backing a wilderness proposal that he had earlier opposed. He said he gave his support to protecting 913,500 acres of wilderness in the Absaroka and Beartooth mountains in Montana as a tribute to his former colleague, Sen. Lee Metcalf, who died Jan. 12. Metcalf had sponsored the Absaroka-Beartooth Wilderness Area legislation.

At Melcher's urging the Senate Energy and Natural Resources Committee voted unanimously to create the Absaroka-Beartooth Wilderness Area. Before the vote, the bill had been trimmed by 6,300 acres as a concession to off-road vehicle and mining interests, according to Bill Cunningham, Montana representative of the Wilderness Society.

The bill now awaits approval by the House Interior Committee and the full House and Senate.

## Park service wants to turn off motors

The National Park Service has suggested phasing out the use of motorized boats in the Grand Canyon on the Colorado River.

The park service also wants to increase the private users' share of trips through the canyon from 8% to 30%. The commercial users' share would be correspondingly reduced from 92% to 70%. In addition, the agency suggests expanding the rafting season from 3½ months to six months per year.

Eighty per cent of the commercial trips in the canyon now use motorized craft. The park service says that while motors allow for faster, cheaper trips, they reduce the quality of the canyon visitor's experience.

Hearings on the park service's proposal will be held in February in Arizona, Colorado, Utah, and California.

## Utah legislators fund White River dam

The proposed White River dam is one of the largest of several dam projects earmarked for funding under the $25 million water development bond passed in the 1978 session of the Utah legislature. The dam site would be 40 miles southeast of Vernal in northeastern Utah.

**Deseret News** writer Joseph Bauman criticized the legislature's action, saying "the White River dam project deserved a tough critical review before the legislature passed it. It did not get one because the state's environmental safeguards were ignored."

Bauman claims that the solons bypassed the state's Environmental Coordinating Committee, which is supposed to rule on every state action with the potential to significantly affect the environment.

The dam is designed to provide water for the oil shale industry, irrigation for Ute Indian lands, and electrical power. Dam proponents hope to finance it with $10 million in state funds and $10 million from the Ute tribe. No agreement has been reached with the Utes yet, however.

The Bureau of Land Management has decided that an environmental impact statement must be prepared before granting the easements necessary for dam construction.

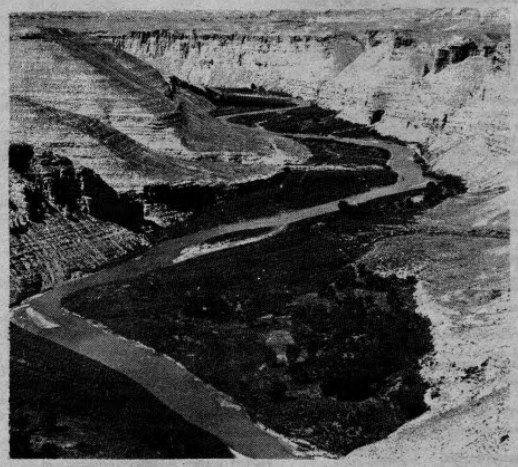


Photo by Dorothy Harvey

**NEAR THE SITE of the proposed White River Dam in Utah.**

## Classified Ads

Show you care. Become a member of National Parks & Conservation Association. For over 50 years NPCA has been a leader in the continuing battle to protect our environment. Join with us today in our fight for a better tomorrow. Members receive our fascinating, monthly magazine. For membership information write to: NPCA, Dept., M, 1701-18th St., N.W. Washington D.C. 20009.

WANTED. Office equipment needed for High Country News staff. Used typewriters, file cabinets, desks, file folders, staplers, etc. Recycle that junk collecting dust in your home-office. HCN can put repairable office equipment to good use. Thank you. Contact: HCN, Box K, Lander, Wyo. 82520.

ALTERNATIVE ENERGY projects in your neighborhood? HCN is interested in knowing about them! Send a black and white photograph and tell us a little about the project: who built it, what inspired them, how it works, and how well it works. Write to Joan Nice, Box K, Lander, Wyo. 82520. Only projects in the Northern Plains or Rockies states, please.

FAMILY PLANNING CENTER. Providing responsible counseling, thorough educational classes, clinics. Costs no more than you can afford. Anyone is eligible. Serving eight Wyoming counties with outreach RNs. NOWCAP, 268 Main Street, Lander, Wyo. 82520. (332-9315).

POSITION WANTED: Experienced environmental-consumer activist, seeking research, advocacy and-or organizing position with action-oriented organization. Expertise in energy with ability to work with other issues. Have skills, made waves, looking for change. For resume write: Charles Sheketoff, 92 River Street, Montpelier, VT 05602, (802) 223-3546 (H) or (802) 223-5221 (O).

COMPOSER, Playwright, Puppeteer, Teacher: coming home from Eastern exile; available for assignments in Southwest-Rocky Mountain area through August. J. Forman, Bayview Road, Saco, Maine 04072.

OUTDOOR, NATURE, AND HISTORY guidebooks. Free catalog of 500 titles! Dealer inquiries invited. VISTABOOKS-USA, Box 2006-HC, Olympic Valley, California 95730.

# Eavesdropper

environmental news from around the world

### LOONEY LIMERICKS

by Zane E. Cology

A Hereford once said to his honey,
"My dear, don't you think that it's funny?
When grass is all gone
The feds come along
And cover our pasture with money!"

**HIGHER ACREAGE LIMIT?** A compromise on the amount of acreage that can legally be owned by an individual in a federal reclamation project has been suggested by National Land for People, the group that last year won a lawsuit aimed at federal enforcement of acreage limits. The group has suggested that the 160-acre limit in the 1902 Reclamation Act be increased to 640 acres. The limit would be applicable to individuals, families, and corporations. The group has also recommended that the Interior Department purchase 20% of the reclaimed acreage for disposal in lotteries to encourage new family farms, according to **Land Use Planning Reports.**

**BUDGET BLEAK.** Environmentalists in Washington were generally disappointed with President Jimmy Carter's 1979 budget recommendations. The share of the budget devoted to natural resources and the environment dropped from 2.6% in fiscal year 1978 to 2.4% in fiscal year 1979, according to **Conservation Report.** This includes a cut in the U.S. Forest Service budget of almost $54 million. A 10% increase is proposed for the Bureau of Land Management budget. One "bright spot" in the budget, according to the report, is the Environmental Protection Agency budget, which is up 33% over the previous year. In the field of energy: the conservation budget rose by 80% to over $1.5 billion; nuclear reactor research was cut from $935 million to $815 million; fossil fuel research doubled to $1.1 billion; total solar research increased by 25% to $281.4 million, but both the photovoltaic program and the solar thermal program were reduced slightly.

### STATE OF WYOMING PUBLIC NOTICE

**PURPOSE OF PUBLIC NOTICE**

THE PURPOSE OF THIS PUBLIC NOTICE IS TO STATE THE STATE OF WYOMING'S INTENTION TO ISSUE WASTEWATER DISCHARGE PERMITS UNDER THE FEDERAL WATER POLLUTION CONTROL ACT AMENDMENTS OF 1972 (FWPCAA), P.L. 92-500 AND THE WYOMING ENVIRONMENTAL QUALITY ACT (35-502 et. seq., WYOMING STATUTES 1957, CUMULATIVE SUPPLEMENT 1973).

IT IS THE STATE OF WYOMING'S INTENTION TO ISSUE WASTEWATER DISCHARGE PERMITS TO (1) ONE COMMERCIAL WASTEWATER FACILITY AND (1) ONE OIL TREATER FACILITY; TO MODIFY (9) NINE OIL TREATER DISCHARGE PERMITS AND (1) ONE INDUSTRIAL DISCHARGE PERMIT; AND TO RENEW (1) *ONE INDUSTRIAL DISCHARGE PERMIT WITHIN THE STATE OF WYOMING.*

**APPLICANT INFORMATION**

(1) APPLICANT NAME: RADIX, INC.
MAILING ADDRESS: "TRAILS WEST SUBDIVISION"
WESTERN RESOURCES BUILDING, SUITE 230
CASPER, WYOMING 82601
APPLICATION NUMBER: Wy-0027596

The Trails West Subdivision is a proposed permanent housing development of 1,100 housing units to be located west of the City of Casper. Proposed wastewater treatment will consist of an extended aeration plant with a capacity of .7 millions of gallons per day (MGD), which will discharge to the North Platte River (Class I stream).

The proposed permit requires compliance with National Secondary Treatment Standards for the parameters BOD5, total suspended solids and pH. The fecal coliform bacteria effluent limit will be set at 200-400 organisms per 100 ml, which will insure no violation of Wyoming water quality standards.

The proposed permit also requires that no chlorine be discharged from this facility.

Self-monitoring of the effluent quality will be required on a regular basis with reporting of results monthly. The permit will expire January 31, 1983.

(2) APPLICANT NAME: TERRA RESOURCES, INC.
MAILING ADDRESS: P.O. BOX 2500
CASPER, WYOMING 82601
FACILITY LOCATION: SALT CREEK SOUTH UNIT, WATERFLOOD SYSTEM, SE¼, SECTION 19, T39N, R78W, NATRONA COUNTY, WYOMING
APPLICATION NUMBER: Wy-0027588

This discharge consists of excess water from a water supply well located in Natrona County, Wyoming. A discharge permit is not generally required for a facility such as this, however, due to the fairly high total dissolved solids content of the discharge (approximately 2,500 mg per l), a permit is being issued.

The proposed permit will require that the discharge meet Wyoming's Produced Water Criteria effective immediately. The discharge is to Teapot Creek via an unnamed drainage (Class III stream).

Semi-annual self-monitoring and reporting will be required for all parameters. The permit will expire February 28, 1981.

(3) PERMIT NAME: BRADEN-DEEM, INC.
MAILING ADDRESS: 200 EAST 1st STREET, SUITE 530
WICHITA, KANSAS 67202
FACILITY LOCATION: COOPER COVE MD UNIT, NW¼, SW¼, SECTION 30, T18N, R77W, CARBON COUNTY, WYOMING
PERMIT NUMBER: Wy-0024715

(4) PERMIT NAME: CHAMPLIN PETROLEUM COMPANY
MAILING ADDRESS: P.O. BOX 1257
ENGLEWOOD, COLORADO 80110
FACILITY LOCATION: NO. 1 FAUL, SW¼, SECTION 7, T16N, R77W, CARBON COUNTY, WYOMING
PERMIT NUMBER: Wy-0026930

(5) PERMIT NAME: MARATHON OIL COMPANY
MAILING ADDRESS: P.O. BOX 120
CASPER, WYOMING 82601
FACILITY LOCATION: DIAMOND RANCH FIELD, SECTION 24, T26N, R78W, CARBON COUNTY, WYOMING
PERMIT NUMBER: Wy-0000752

FACILITY LOCATION: KYLE FIELD, SECTION 35, T21N, R76W, CARBON COUNTY, WYOMING
PERMIT NUMBER: Wy-0000787

FACILITY LOCATION: ROCK RIVER FIELD, SECTION 24, T26N, R76W, CARBON COUNTY, WYOMING
PERMIT NUMBER: Wy-0001929

(6) PERMIT NAME: SUNBURST EXPLORATION, INC.
ENERGY 1 BUILDING,
107 WERNER COURT
MAILING ADDRESS: P.O. BOX 3440
CASPER, WYOMING 82601
FACILITY LOCATION: PHILLIPS-HINTZE GOVERNMENT LEASE, SECTION 16, T22N, R76W, CARBON COUNTY, WYOMING
PERMIT NUMBER: Wy-0026016

(7) PERMIT NAME: SUPERIOR OIL COMPANY
MAILING ADDRESS: P.O. DRAWER G
CORTEZ, COLORADO 81321
FACILITY LOCATION: HERRICK FIELD, S½, SECTION 1, T14N, R76W, ALBANY COUNTY, WYOMING
PERMIT NUMBER: Wy-0025565

FACILITY LOCATION: LITTLE LARAMIE FIELD, NE¼ SECTION 5, T16N, R76W, ALBANY COUNTY, WYOMING
PERMIT NUMBER: Wy-0026263

(8) PERMIT NAME: UNION TEXAS PETROLEUM
MAILING ADDRESS: LINCOLN TOWER, SUITE 1125
DENVER, COLORADO 80295
FACILITY LOCATION: BONWEDER TANK BATTERY NO. 4, NE¼, SECTION 28, T16N, R81W, LARAMIE COUNTY, WYOMING
PERMIT NUMBER: Wy-0026541

Facilities are oil production units located in Carbon, Laramie and Albany Counties, Wyoming. The produced water is separated from the petroleum product through the use of heater treaters and skim ponds.

All discharges must meet Wyoming's Produced Water Criteria effective immediately, with the exceptions of the Sunburst and Union Texas discharges. Letters of beneficial use have been received by area ranchers concerning these discharges, therefore, limitations on the chemical parameters have been waived. Semi-annual self-monitoring of the chemical parameters is still required, however, and the limitations on oil and grease (10 mg per l) and pH (6.5-8.5 Standard Units) will remain in effect. All discharges are to Class I streams via unnamed draws, with the exceptions of the Union Texas and Braden-Deem discharges which are to Class III streams.

The permits are being modified to change the expiration dates from June 30, 1980, to December 31, 1982. The modifications will help spread out the expiration dates of oil treater discharge permits, and therefore, eliminate an extensive work load for DEQ in 1980.

Chapter VII of Wyoming's Water Quality Rules and Regulations infers that every produced water discharge is beneficially used if the total dissolved solids concentration is 5,000 mg per l or less.

(9) PERMIT NAME: AMAX COAL COMPANY
MAILING ADDRESS: 205 SOUTH ROSS AVENUE
GILLETTE, WYOMING 82716
FACILITY LOCATION: BELLE AYR MINE
CAMPBELL COUNTY, WYOMING
PERMIT NUMBER: Wy-0003514

Facility is a large open pit coal mine located south of Gillette, Wyoming. A discharge permit for this mine is now in effect and allows discharge of mine water and coal processing plant wastewater to Caballo Creek (Class III stream) at two separate locations. The Company has now requested that the permit be modified to allow a third and a fourth discharge point. The additional points are necessary because progression of the mine will eventually require elimination of the present mine water settling pond (discharge point 001).

The proposed modified permit provides the additional discharge points and requires all discharges to meet effluent requirements judged to be "best practicable." Periodic self-monitoring of the discharges is required with reporting of results quarterly. The permit is scheduled to expire January 31, 1983.

(10) PERMIT NAME: HOLLY SUGAR CORPORATION
MAILING ADDRESS: P.O. BOX 1052
COLORADO SPRINGS, COLORADO 80901
FACILITY LOCATION: TORRINGTON SUGAR REFINING PLANT, TORRINGTON, WYOMING
PERMIT NUMBER: Wy-0000191

The Holly Sugar Corporation operates a beet sugar refining plant at Torrington, Wyoming, with a capacity of one million pounds of sugar per day. Flume washwater and lime wastewater are routed to complete retention evaporation ponds. Barometric condenser water with a volume of approximately 3.0 million gallons per day is discharged to the North Platte River (Class I stream).

The original discharge permit was issued to this facility in October of 1974. That permit required compliance with BOD5 effluent limitations then considered to be "best practicable." Since issuance of that permit, the definition of best practicable has been modified and is now somewhat less stringent, however, since the Corporation has had little difficulty in meeting the more stringent BOD5 limitation, they have been retained in the renewed permit. The instantaneous maximum limitation in the existing permit has been changed to a daily maximum and the daily maximum in the existing permit has been changed to a daily average value in the modified permit, thus making the limitations somewhat less stringent.

Best practicable treatment standards for the parameters temperature (32.2 degrees C) and pH (6.0-9.0) are included in the modified permit. In addition to monitoring for the above referenced limited parameters, the permit requires regular monitoring for fecal coliform bacteria, ammonia and amount of heat added to the receiving water. Results of monitoring reports must be submitted monthly.

**STATE-EPA TENTATIVE DETERMINATIONS**

Tentative determinations have been made by the State of Wyoming in cooperation with the EPA staff relative to effluent limitations and conditions to be imposed on the permits. These limitations and conditions will assure that State water quality standards and applicable provisions of the FWPCAA will be protected.

**PUBLIC COMMENTS**

Public comments are invited any time prior to March 13, 1978. Comments may be directed to the Wyoming Department of Environmental Quality, Water Quality Division, Permits Section, Hathaway Building, Cheyenne, Wyoming 82002, or the U.S. Environmental Protection Agency, Region VIII, Enforcement Division, Permits Administration and Compliance Branch, 1860 Lincoln Street, Denver, Colorado 80295. All comments received prior to March 13, 1978 will be considered in the formulation of final determinations to be imposed on the permits.

**ADDITIONAL INFORMATION**

Additional information may be obtained upon request by calling the State of Wyoming, (307) 777-7781, or EPA, (303) 327-3874, or by writing to the aforementioned addresses.

The complete applications, draft permits and related documents are available for review and reproduction at the aforementioned addresses.

Public Notice No. Wy-78-002


## IT'S MY WEATHER, TOO

by Myra Connell

We who were born early in the century were indoctrinated with several incontrovertible beliefs: birds and bats were expected to fly, but not humans; the moon was unreachable; and weather had to be accepted as it came, because it was regulated by natural law. Therefore, life in the first three-quarters of this century has been a continuous process of readjustment. Cloud seeding and other forms of weather modification have upset my already wobbling world.

From prehistoric times, man has tried to tamper with the weather, since most of his activities depend upon it. Primitive tribes made sacrifices to their gods; others held prayers and dances in hope of getting rain. The ancient Romans shot arrows into storms in an effort to divert them. Special charms were worn to bring fair weather. Western folklore abounds with tales of shyster rainmakers who defrauded farmers in drought-stricken areas.

As late as 1900 people thought setting off explosions would cause rain. The 51st Congress appropriated $9,000 for the first federal weather modification program. Explosives were carried into the clouds by rockets and fired by an electric spark. A mere sprinkle resulted.

These things seem ridiculous, but are they any more so than present-day schemes?

When Nobel Prize winner Irving Langmuir and his associate, Vincent Shaefer, produced artificial snow in 1946, they really opened up a can of worms. In his boundless conceit, man has presumed that his puny toys can overcome the tremendous forces of nature; Langmuir and Shaefer reinforced this fantasy.

As experiments proliferated, scientists, environmentalists, and others took sides, pro and con; a battle royal has ensued.

Apparently some success has occurred in drought relief. An operation in Washington in 1977 over the Cascades and Snoqualmie Pass is said to have increased snowfall 10% to 20%.

The Colorado legislature spent $250,000 for cloud seeding during the dry winter of 1976-77. Officials claimed that 200,000 acre-feet of water were produced, an increase of 13% to 19% over normal in the area seeded. They considered the money well spent, but advocate only winter seeding — summer seeding being very uncertain.

I read with great glee in HCN, Dec. 16, 1977, that Colorado officials had halted cloud seeding because too much snow was blocking roads and increasing danger of avalanches.

Success has also been claimed in preventing heavy wind and rain damage by seeding clouds before they reach an area. Seeding is used in Russia, it is said, to disperse cold ground fog and suppress hail. In the Caucasus Mountains there, artillery and rockets launch chemicals into potential hail clouds, preventing damage to fruit.

Fooling Mother Nature by tinkering with weather has become a multi-million dollar business. Rainmakers are hired by farmers, electric and water utilities, and forest companies. Some experiments have been carried out in secret and this I resent most of all.

Even as I write, the wires are humming with disastrous weather news. Near Steamboat Springs, Colo., about twice as much snow as normal has fallen. As a result, some game biologists are worried about a severe winter kill of elk.

# Land use consultant offers open spaces, profits

by Glenn Oakley

A rancher in the Bitterroot Valley of Montana wants to hand down his ranch to his sons, but the estate taxes are so high he is forced to sell the ranch to a subdivider. Mobile homes replace the patch of woods where the cows once grazed.

Or maybe the sons do inherit the ranch, but surrounding land is being developed. The ranch becomes more valuable as commercial property than as a place to raise wheat and cattle. The property taxes rise accordingly, and the sons are forced to sell out. There seems to be no alternative.

But Bruce Bugbee disagrees. Bugbee is a Missoula-based land use consultant specializing in non-development alternatives for landowners. More specifically, Bugbee says, "I specialize in developing tax shelters" for landowners who will not develop their land. Bugbee says he has developed 15 to 20 techniques that allow landowners to make a profit or at least save money by maintaining their land, or portions of it, as agricultural land or open space.

For example, Bugbee might suggest that the Bitterroot rancher faced with exorbitant inheritance taxes relinquish his rights to ever develop the ranch by granting a conservation easement to a suitable organization such as the Montana Department of Fish and Game or the Nature Conservancy. A conservation easement is a right given by the landowner to prevent certain uses of the land or to use the land for specified purposes.

Easements do not affect the other rights of the landowner; he can still sell, lease, farm, or do anything not specifically prohibited in the easement. An easement does not grant the public access to the land unless specifically authorized.

What the easement does do is remove the ranch as a potential subdivision. The ranch would then be taxed at its fair market value, minus its value as a subdivision. And that difference, says Bugbee, "may make the difference between the heirs being able to keep the ranch or being forced to sell it."

Bugbee sees his work as more than just a business; he sees his work as a "helluva alternative to zoning. Zoning is a very gross tool," although he says it is sometimes necessary.

Bugbee explains that legislative zoning cannot take into account the different and variable qualities of the land. As a result, he says, "extensive compromises are made." But, even worse, zoning "tends to lead to monocultures," he says. Sections of land are relegated to single land uses — factories, homes, businesses, and so forth. Bugbee calls the result of that type of planning a "factory."

Bugbee became involved in land use consultation in his attempt to resolve a problem his parents were having with a parcel of their land in the Rattlesnake drainage near Missoula.

While his parents did not want to sell their land to someone who would develop the property, they needed to get some of their money back from their investment.

"In searching out alternatives for them," he explained, "I came in contact with the Nature Conservancy and the Five Valley River Parks System (FVRPS)." Bugbee found that his family could sell their land to FVRPS at less than the market value of the land, essentially making a gift of part of their property. The FVRPS thus received a bargain land acquisition, the Bugbees got their money out of the land, and the gift value of the land could be deducted from their taxes. They no longer had to worry about high mortgage payments and property taxes, and the land was saved as a permanent natural area. Or, in the words of Bugbee, "Everybody's happy."

Since then, Bugbee has refined and expanded methods to preserve land and the landowner's pocketbook simultaneously. But he is not out to turn every parcel of land into a nature preserve. "The ideal as I see it," he says, "is to match the quality of the land with the quality of the owner. If it's development land it should have a development owner; if it's preservation land it should have a preservation owner."

Bigbee was educated at the University of Montana in biophysical geography and land capability analysis as part of a master's program in rural and regional planning. He uses his background in ecosystem analysis and his own land use philosophy to distinguish between development land and preservation land. "The land will suggest its own best solution," he says. "Uses which are incompatible (with the land) fail." For example, a housing complex built on poorly drained soil may result in drain fields backing up sewage to the porch steps; or the houses themselves may slump in their foundations — all of which cuts into the developers' profits, he says.

On the other hand, Bugbee suggests that land capable of and suitable for development should be developed. Protecting land that can sustain intensive developmental uses increases pressure to develop land that cannot tolerate intensive uses, he says.

Often, someone's property is both development and preservation type land. For example, Bugbee says he was called upon to design a subdivision on 500 acres in the Bitterroot Valley. The typical design for such development would be a grid pattern of 10 to 20 acre plots, each with a house on it.

BRUCE BUGBEE in his office. Photo by Glenn Oakley

Bugbee says he worked out an alternative that would offer quality homesites, bring the developer as much profit as a grid-style design, and preserve some of the land in a natural state: "I took the same density as grid style development, analyzed soil, vegetation, wildlife, groundwater, slope, and geologic history and interpreted it as to land capability. That produced certain patterns of capability. Within those areas (suitable for development), I located home sites and designed a road for access that would minimize conflicts with wildlife." Bugbee says that the road was designed and located for least cost in construction, as well as making it "a pleasing road to drive through."

His blueprint placed 25 houses on individual three-acre circular plots, for a total of 75 acres developed. The remaining 425 acres, under Bugbee's design, would be protected by a conservation easement. Bugbee says the developer could still sell homebuyers 20-acre parcels, but they would be forbidden to develop 17 of those acres. While this restricts the owner's ability to do whatever he wants with all his property, Bugbee says that all the other landowners "have absolute protection their neighbors won't do it either."

Bugbee says the 425 homeowners' natural area would add to the quality of the development and perhaps add to its monetary value. In addition, the developer would receive a tax shelter by granting the conservation easement on the 425 acres. He could deduct the value of this gift from the taxes imposed on his profits made in the development of the 75 acres.

Bugbee does not know whether his plans for this development will be adopted by the developer. "That's the fate of being a private consultant," he said.

# Dear Friends

We were recently visited by an **L.A. Times** reporter. Through reading our paper he had been lured into doing some stories on Jackson Hole, Wyo., and he decided he would do a story about us while he was in the neighborhood.

We imagine that this meeting of the obscure rural biweekly and the prominent urban daily was a bit like that of the country mouse and the city mouse. There was lots of mutual interest and lots of things that neither party could understand.

The **Times** reporter's questions occasionally startled us. It was as if a Martian had landed and asked, with sincerity, "Why are you here?"

We tried to squelch an "Oh, I thought you knew," and started at the beginning. We felt less impatient when it was over. By putting our commitment into words for him, we had strengthened it.

The following are a few of the things the **L.A. Times** wanted to know about us, and, for your information and reflection, a summary of what our position is:

—What newspapers have you scooped and how many times? Are you first when the news happens?

We have to admit on most stories that originate in Denver, Boise, Salt Lake, or Missoula that we're more likely to be last than first. When these stories are of interest to us we synthesize, interpret, and serve up the highlights.

Our "scoops" are usually stories based in rural areas, because few other news organizations pay attention to what happens in the blank spots on the map. Or they are environmental stories that other newspapers, without our degree of specialization, didn't see or consider important.

—An oil man in Casper, Wyo., told me you were a bunch of radicals. What do you think of that?

We've been called that before, but we're not sure why. In editorials, we're usually shouting a conservative message — "Let's keep things the way they are" or "Let's find out more before we mess things up." Once an energy boom has begun, perhaps those are radical ideas.

—Can you understand the oil man's position?

We understand that some people in the mining industry are as dedicated to their goals of "progress" and "production" as we are to the land.

—Who are your enemies?

We find that we have some common ground with most people — an appreciation for the beauty of the West. But we have made innumerable people angry over specific issues. We were once told, "You're as welcome as a skunk at a garden party in southern Utah." We imagine there are plenty of people who feel that way. But then, we're trying to be useful in an effort to protect the environment, not popular.

—Could the region get along without you?

Sure. Western environmentalists are made of sturdy stuff. We like to think they would miss us, but they would not be likely to give up the effort to protect the land they care about.

—the editors

## In the News