environs

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ENERGY FUTURE:

Coal Plants and Northern California

The difficult question of what type of fuel will be relied on by California for new electric energy generation in the 1980's and '90's is complicated by the problems of fuel cost and availability as well as issues of safety and cleanliness of operation. Since all conventional sources of energy have disadvantages, and the unconventional sources such as solar and wind power seem unable to produce the quantities of energy needed in the near future, the process of making a commitment to one form or another amounts to a weighing of the respective problems presented.

The federal government has effectively eliminated oil and gas from consideration by ordering presently-operating plants to convert to coal and by strictly limiting new oil and gas plants to generation of 15% of peak demand, or to situations where energy is critically needed and no alternative source exists. While hydroelectric power is cheap and clean, there are few favorable hydroelectric damsites left, and public opposition to flooding beautiful canyons and valleys is growing. Fear of calamitous accidents and the problem of disposing of high-level radioactive waste have caused the further development of nuclear power to be viewed with concern.

Coal is considered to have several advantages. There are large domestic supplies, and its use is perceived as being relatively safe. The Brown Administration has been promoting coal as an alternative to more nuclear power plants, and apparently needs to demonstrate that it is not as "anti-business" or "anti-energy" as some of its critics have charged. The federal government is eager to see America's plentiful deposits of coal developed as an alternative to importing foreign oil. Its cost is low: about 1.8 cents per kilowatt-hour, as compared to 1.5 cents for nuclear power, and 3.5 cents for oil.

The cost of coal power is increasing, however. New plants must be equipped with expensive anti-pollution equipment to control the huge quantities of air pollutants that pour from the plants' smokestacks. Even with the best available emission-control equipment, significant quantities of extremely fine ash and other pollutants will escape; some scientists fear that even these relatively small emissions may have grave health and agricultural impacts. There is also increasing concern over the possibility that the carbon dioxide produced by fossil fuel-burning plants could result in a "greenhouse effect" which could in turn cause significant climatic changes in the next century.

These are the kinds of problems that were analyzed by the Energy Commission in its decision to approve Pacific Gas and Electric Company's (PG&E) Notice of Intention (NOI) to file an Application for Certification (AFC) for construction of Fossil 1 & 2—a two-unit, 1600 megawatt coal-fired steam electric powerplant. The project is expected to cost $2 billion and will be California's first coal-fired powerplant. It will burn up to 16,000 tons of low-sulphur Utah coal, delivered in two 80-car trains every day.

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LETTER FROM THE EDITORS

ENVIRONS is published by the students of King Hall—the University of California, Davis, School of Law. It is edited by members of the Environmental Law Society. Our current circulation is one thousand copies, with most subscribers located in Northern California and others scattered across the nation.

ENVIRONS presents its analysis of all substantive issues in an objective, non-partisan format. We hope to include in future issues more articles written by attorneys, resource managers, and others involved in the development, implementation, and analysis of environmental resources law and policy. We encourage you to submit articles for publication in *ENVIRONS* on your area of expertise. Articles presenting the scientific or technical implications of environmental regulations and policies, or explaining the nature and significance of the ecological systems which such policies will affect (in a manner understandable by a lay audience) are also welcome. All articles submitted should either conform to our non-partisan format, or be accompanied by suggestions of possible authors who could effectively present alternative views of the issues.

We are grateful for your past response to *ENVIRONS,* including both encouragement and financial support. Our financial situation, however, remains precarious. To achieve any measure of permanence, *ENVIRONS must receive support from our readers. If you have not already done so, please help ensure the continued publication of ENVIRONS* by making use of the subscription form in the back of this issue. Suggestions for improving *ENVIRONS* and for obtaining alternative sources of funding are also welcome.

Woody Brooks, Donald Segerstrom, Bruce Klafter

MONO LAKE

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million at current prices, would have to be burned to compensate for the loss of 225 million kilowatt-hours of energy now produced by gravity flow of the water in the aqueduct system.

In late January 1979, Assemblyman Norman Waters (D-Plymouth) introduced A.B. 367, a bill to protect Mono Lake. The bill would have declared the diversion of water from streams feeding Mono Lake an unreasonable use of water under Article X, section 2, of the California Constitution. Continued diversion from these streams would have been prohibited after 1980 unless the State Water Resources Control Board made certain findings regarding the level of Mono Lake, and the air quality in the Mono Basin. The Bill was altered considerably during the legislative process and as signed by Governor Brown on Sept. 17, 1979, it was limited to providing funds for the dredging of a channel between Negit Island and the mainland.

The State Department of Water Resources is heading up an inter-agency study of the problems of Mono Lake and possible solutions. The Draft Report of this inter-agency task force calls for a reduction in diversions from the Mono Basin. The reduction would be made up by water conservation measures in the Los Angeles area, along with additional water from the State Water Project. Because of staunch opposition to such a plan by LADWP the future of the report is uncertain.

The future of Mono Lake is less uncertain. Because of the critical need for water, it seems likely that water will continue to be diverted from Mono Lake, and that the level will continue to drop. In a sense, the Mono Lake controversy is a microcosm of the water battles which Californians will face in the future—a battle in which the participants will be fighting over pieces of a rapidly shrinking pie. Whether, as a result, the dessicated Owens Lake to the south is "the image of Mono's future" remains to be seen.

Scott Finley

WATER RIGHTS REFORM

(continued from page 5)

To bring greater *certainty* to surface water rights, the Commission emphasizes improvements to and more use of an existing process for the administrative determination of water rights known as "statutory adjudication." To encourage greater *efficiency* in water use, recommendations are made to remove barriers to the free transfer of water rights from willing sellers to willing buyers. Resource economists have long argued that freer transferability of water and water rights would allow water to move from lower value uses to higher value uses—within agriculture as well as between agriculture and other sectors—and thus would bring more efficiency, a benefit to all of us.

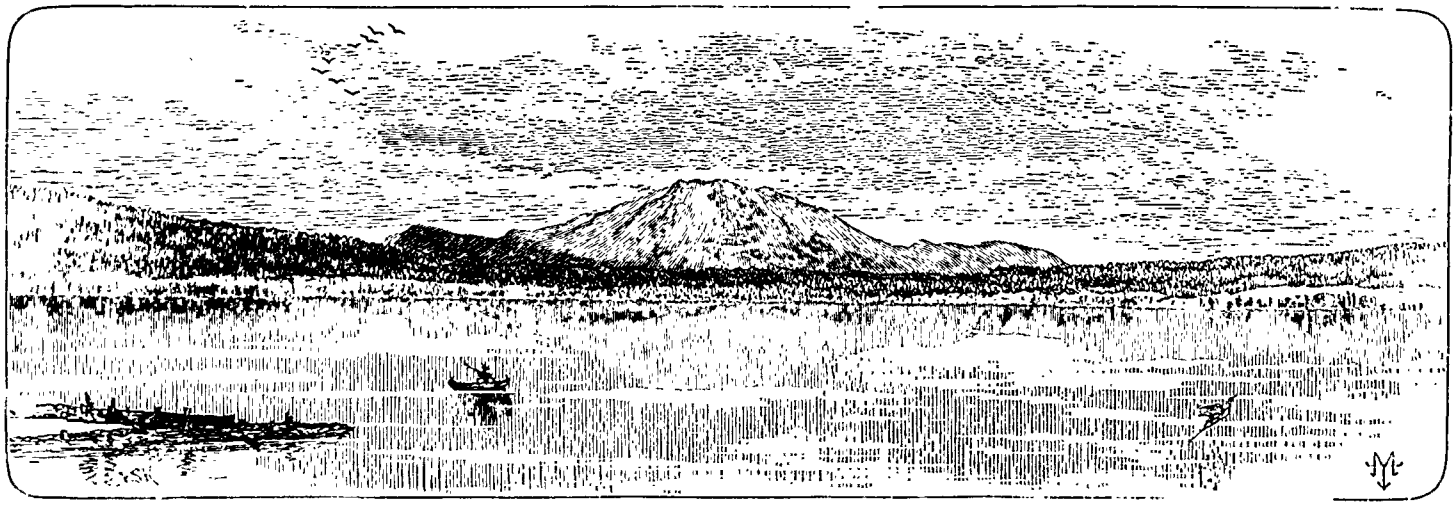
Historically, the answer in California to water shortages has been to build more dams. But today that historic solution is not an easy one. Conservationists seek to preserve a few rivers in their wild state and demand that any new water projects be planned and constructed with sensitivity to the impacts on instream uses. Economists point to the skyrocketing increases in the cost of water projects, and politicians to the Proposition 13 mood, which suggests that those deriving direct economic benefit from water projects pay their fair share of the costs. The drought led many to insist that water conservation practices be improved, particularly in agriculture where over 80 percent of the developed water is used.

To the disinterested observer, all this may suggest that the days of "business as usual" are over—that better water management, including needed reforms in water rights law, must occur. But political reality may be otherwise. Proponents of reform lack a grass roots constituency which understands the subtle and somewhat esoteric legal questions, while the opponents are well organized, well financed and politically highly sophisticated. The matter currently is before the Legislature, the principal bill based on the Commission's recommendations being AB 442 (Kapiloff).

MONO LAKE

In 1869, when John Muir was spending his first summer in the Sierra Nevada, he visited the shores of Mono Lake. He said:

> I saw a number of streams dash swiftly into the dead sea . . . The lake, eight or ten miles in diameter, shines like a burnished disk of silver, no trees about its grey, ashy, cindery shores . . .



Much of that area looks the same today as it did 100 years ago. Mono Lake, however, does not. The explanation forms another chapter in the continuing controversy over the water desires of southern California and the water needs of the eastern Sierra ecosystems.

Mono Lake is a 65-square mile body of brackish water lying directly east of Tioga Pass. It is a remnant of one of the huge Ice Age lakes which once filled valleys all over the Great Basin. In the 1940's, the Los Angeles Department of Water and Power (LADWP) acquired water rights to four of the five major streams which feed Mono Lake. About 100,000 acre-feet of water per year are diverted south and into the Los Angeles aqueduct. The arid Mono Basin lies north of the Owens Valley, another LADWP-controlled watershed.

Mono Lake is an ecologically important body of water. One of its major islands, Negit, is the largest rookery of the California Gull and also a major stopover for one-third of the world's phalaropes on their way to Argentina, as well as for huge numbers of eared grebes, avocets, ducks and other migratory waterfowl. The island was designated a "natural area" by the Bureau of Land Management in 1972. The lake's warm, salty water (there is no natural outlet) supports simple brine shrimp and brine flies in great abundance.

Consequences of Continuing Diverson

Diversions have caused the level of the lake to drop nearly 40 feet since the 1940's. As a result of increased diversions, the level has dropped at least two feet per year since 1970. The lake is expected to shrink within the next few decades to about one-third of its present volume. Environmentalists believe that clouds of alkali dust from the 10,000 acres of exposed lake bottom will be swept into the atmosphere and will jeopardize the health of people, animals and plants near and far.

Already, the lake level has dropped so far that a land bridge has formed from the shore to Negit Island. Last year the bridge was blasted away by the California National Guard, using several tons of high explosive. However, further drops in the lake level have bridged the gap, and it was blasted again in April of this year. Environmentalists fear that the land bridge will permit small mammals and coyotes to prey on the gull nests.

The Mono Lake Committee, a conservationist group, has determined that a water level four feet above the present would protect Negit Island and maintain the lake's ecosystem. They contend that keeping the surface at that level, elevation 6378, would require that Los Angeles reduce its annual diversion to 25,000 acre-feet, one quarter of the present amount. Conservation and wastewater reclamation have been suggested as viable alternatives to the continuation of Los Angeles' present diversions. In May 1979, the Mono Lake Committee, along with the National Audobon Society and others, filed suit to enjoin the diversions by LADWP. That suit is now pending in Superior Court in Alpine County.

LADWP cites critical dependence on Mono Basin water, the source of 15-20 percent of its daily supply. LADWP claims that it would have to purchase additional water at an annual cost of at least $7.5 million, if it could be obtained. The most likely supplier is the already overcommitted State Water Project. Furthermore, when the Central Arizona Project goes into operation in the 1980's, the amount of water available to Los Angeles from the Colorado River will be cut in half. This loss will have to be recouped, hopefully also from the State Water Project. The city's most important source, the Owens Valley, may also yield less water than LADWP had hoped, as a result of long-standing litigation [See Case Note, *ENVIRONS* Vol. 2, No. 1. *Ed.*]

In addition, LADWP cites the importance of Mono Basin water for power generation. Officials estimate that 375,000 barrels of fuel oil per year, costing about $5.5

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CALIFORNIA'S AIR-POLLUTION TRADE-OFF POLICY:

The New Source Review Rule

The California Air Resources Board (ARB) recently approved a "New Source Review Rule" to serve as a model for local air pollution control districts. Districts must adopt rules for reviewing applications to construct new stationary sources of pollution, or to modify existing sources.

One of the most interesting provisions of the model rule is the *trade-off provision*, which applies to any stationary source construction or modification which will cause either 1) a net increase in emissions during any day of 250 pounds of any pollutant for which there is a national ambient air quality standard (NAAQS), or any precursor of such a pollutant, or 2) any increase in carbon monoxide emissions that would cause violation of the NAAQS for that pollutant. Any such new source must incorporate the best available control technology. (NAAQS's are established by the federal Environmental Protection Agency pursuant to the Clean Air Act. The ARB is responsible for achieving the standards in California. Standards have been set for six pollutants: oxides of nitrogen (NOx), sulfur oxides (SOx), carbon monoxide, photochemical oxidants, hydrocarbons, and particulates.)

If the air basin where a new source would be located has been in violation of the NAAQS for any pollutant, or if the new source's emissions would cause a new violation of any such standard, the trade-off provision requires the new source to mitigate its air quality impact by reducing emissions from existing sources. By closing down, or buying pollution control equipment for existing pollutors, the new source "trades off" their pollution for its own.

These trade-offs, or offsets, are designed to result in an improvement in the air quality of the area. The ratio of emissions offsets to emissions from the new source must be at least 1.2 to 1 when the offsets are located upwind of the new source in the same or adjoining counties, or within a 15-mile radius of the proposed new source. For offsets located outside these areas, the offset ratio must be sufficient to result in a net air quality benefit to the area affected by the new source.

Emission reductions which are already required by federal, state, or district laws or regulations will not be allowed as offsets, since the goal of the offset policy is to reduce emissions that would not be reduced otherwise, so as to achieve a net benefit in the air basin. Excess offsets may be banked for use in the future, but only by the applicant, and only within 15 miles of the site where the reductions occurred.

Impact on Proposed Coal-Fired Power Plant

Special rules apply to power plants. Once an applicant files a notice of intention with the California Energy Commission, the local air pollution control district must inform the Energy Commission of the best available control technology for the plant, the probability that all air quality regulations can be met, and the conditions which should be imposed so that the facility will meet air standards. The applicant can establish an emissions offset bank for a specific plant at a specific location.

The Pacific Gas and Electric Company (PG&E) currently has before the Energy Commission a proposal for a coal-fired power plant to be constructed at one of four proposed sites in the Central Valley. (See A Coal-Fired Power Plant for Northern California, beginning at p.). An ARB spokesman has stated that only at the Montezuma site in Solano County are there enough near-by pollution sources to serve as offsets for the hydrocarbons, NOx, SOx, and directly-emitted particulates that will be put out by the new plant. The Butte, Willows, and South Yuba sites in the northern Sacramento Valley do not have enough local pollution sources that can be mitigated to provide offsets. The Energy Commission recently selected Montezuma as the preferred site.

However, some scientists feel that the Montezuma site has special problems not shared by the other sites. It lies within the Delta region, close to sensitive natural areas such as the Suisun Marsh. It also lies directly in the path of the "bay breeze," the jet of marine air that dominates summer weather patterns in the Sacramento and upper San Joaquin Valleys. This jet would carry pollutants directly into sites of heavy population, such as Sacramento and Stockton, and into surrounding areas of intensive agricultural production. Crops could be severely damaged by toxic metals from coal combustion. This type of particulate is largely absent from Northern California air at present, and could not be effectively mitigated by control of Bay Area sources.

Wind patterns at some of the other sites would tend to carry the pollution away from the valley floor, where it would have less effect on people and crops. Thus, the necessity of finding trade-offs may result in placing the new source at the location of maximum potential impact, scarcely the intent of the Air Resources Board when the regulations were written.

The beneficial aspects of trade-offs could still be realized in this case if regulations were re-written to allow consideration of pollution transport from air basin to air basin. Evidence shows that much of the oxidant and sulfate in the Central Valley comes from gases emitted in the Bay Area, so that one could propose placing the plant at a more remote site, away from cities and intensive agriculture, and still demand trade-offs against Bay Area sources.

The trade-off provisions are designed to improve California's air quality. However, some flexibility in inter-basin trade-offs might result in even greater benefits.

Ginny Cahill

WATER RIGHTS LAW REFORM

BY HARRISON C. DUNNING

(Professor Dunning, a member of the King Hall faculty and faculty adviser for Environs, recently served as Staff Director for the Governor's Commission to Review California Water Rights Law.)

Imagine, underlying California's fertile valleys, a series of geologic structures much like sponges. During wet periods the water in these sponges increases, just as it does in surface reservoirs. In dry periods these sponges provide some 40 percent of the water needed by farmers, cities, and others throughout the state.

Imagine further that at any time anyone can stick a straw in one of those sponges and draw out all the water they want. This can be done in total disregard for harm caused to neighbors. And so many straws can be put in and so much water taken out that in some areas the sponges dry up and compact. In other areas the costs of extraction of water rise enormously and, along the coast, the ocean invades what once was a fresh water preserve.

Impossible? Not so. This is only a statement of California's dependence today on groundwater and of the lack of state law adequate to ensure proper conservation of this important natural resource.

Take another example—imagine a river rising in the mountains to make its way through the valleys to the Pacific. Owners of land along the river have a right to use water from the river for farming or other reasonable beneficial purposes. Other persons also have rights they obtain from the state allowing them similarly to use water. These rights are subject to conditions necessary to protect downstream use for fisheries, recreation or other uses "in the public interest." But no one has ever spelled out, for any given river, what the public interest requires. And those who want water in a river for fisheries or rafting or just plain watching are told they are not entitled to the water rights the farmers can obtain.

Unlikely? Not so. This is merely a statement of the unbalanced way in which California today deals with competing needs for water in and out of a river—a way which has helped cause dramatic losses in steelhead trout and king salmon runs. On the North Coast, for example, such runs have declined about 65 percent. Indeed, some people predict that, if we continue with "business as usual," salmon in California will ultimately disappear.

The Governor's Commission

During the 1976-1977 drought, to deal with water rights problems such as these, a Governor's Commission to Review California Water Rights Law was established. Chaired by Donald R. Wright, retired Chief Justice of California, the Commission spent nearly two years in an intensive review of existing water rights law and ways it could be improved. The result is a 264-page report documenting the need for effective management of groundwater resources, better protection of instream uses, greater certainty in surface water rights, and improved efficiency in water use. The report includes the text of fourteen proposed statutes, which would constitute the first comprehensive legislative reform of California water rights law since 1913.

For *groundwater,* the report recommends a state policy aimed at the eventual end to most overdraft—the practice of regularly taking out more groundwater than nature or people put back underground each year. This deficit spending of a natural resource now runs at an annual average of some 2.2 million acre-feet—many times greater than the projected yield of the New Melones Dam, which has recentty caused great controversy. It is costly in dollars and costly in energy, for massive amounts of electricity are needed to pump water from ever-increasing depths in overdrawn groundwater basins.

Instead of suggesting a state program run from Sacramento to implement the state policy, the Commission recommends a regional approach which would place the principal responsibility in the hands of local water agencies. These agencies would be given the fiscal and regulatory tools needed for effective management. Where groundwater problems are now critical and are not being adequately addressed, the agencies would be required to develop and implement a groundwater management plan. At a minimum these plans would be expected to prohibit further aggravation of the problem—as, for example, when during the drought Tenneco West sold its surface water rights on the Kern River and then installed well fields to provide a substitute supply, which greatly aggravated the pressure on an already overdrafted groundwater basin.

To deal with the *instream* problem, the Commission recommends that the State Water Resources Control Board be authorized to develop instream flow standards. These standards would represent a balancing of instream and offstream needs and equities, and they would be implemented by developing "physical solutions," which could rearrange use patterns to enhance instream values without injuring other uses, by adjusting existing rights to provide additional flow, so long as no existing legal user suffers substantial harm, and by the purchase of water rights.

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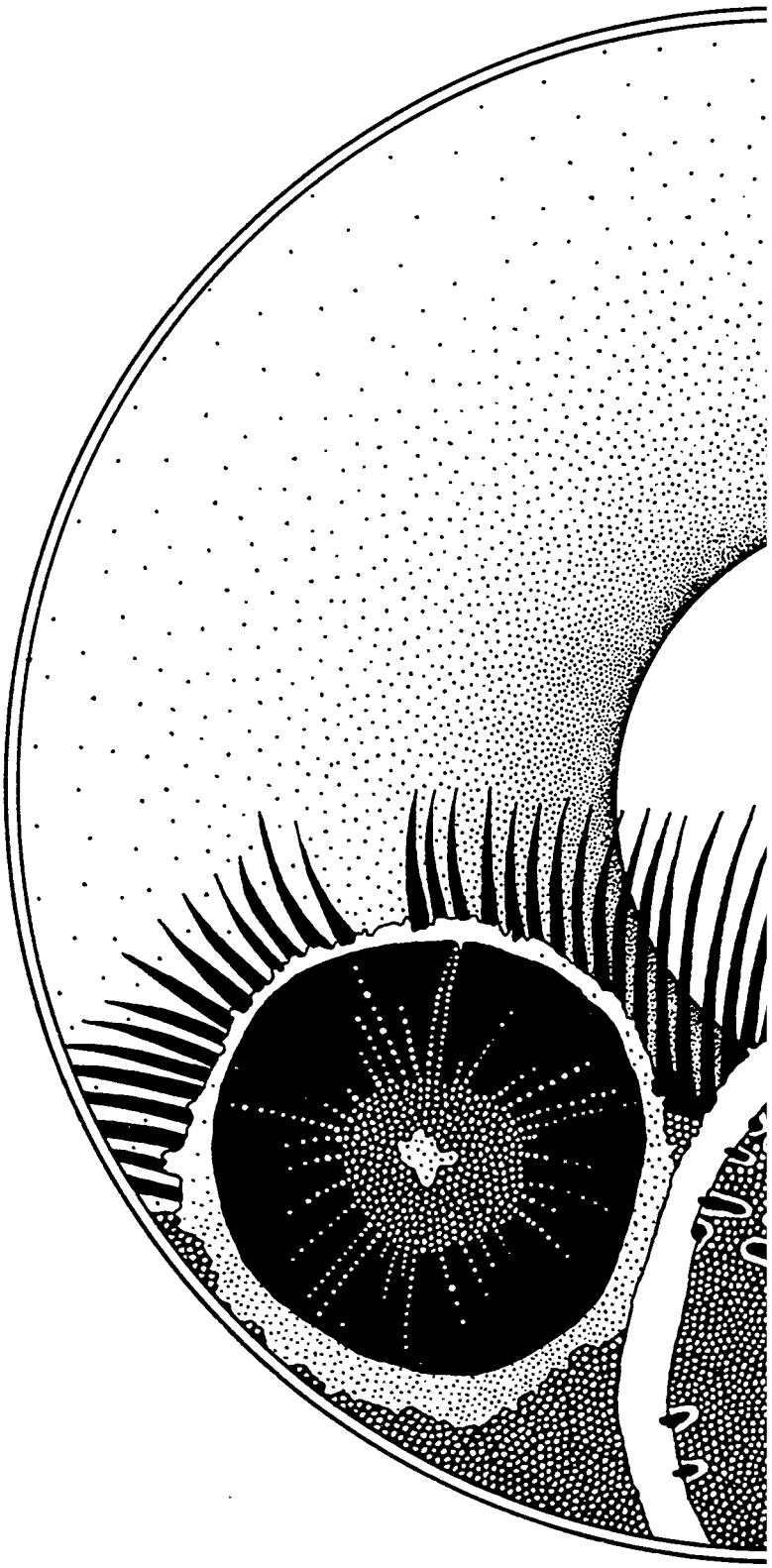
NUCLEAR SAFEGUARD LAWS: pro and con

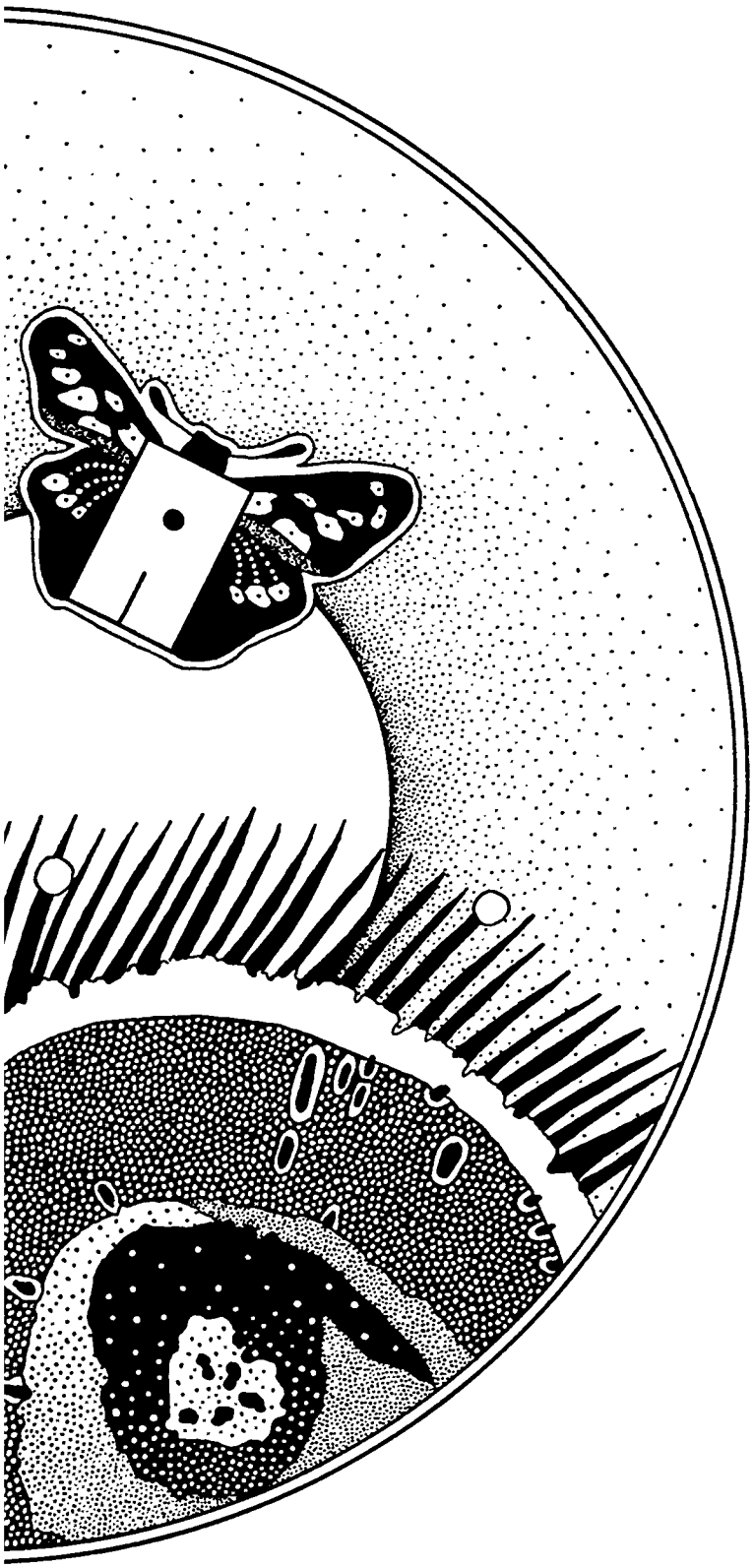


California's Nuclear Safeguard Laws (sections 25525.1, 25525.2, and 25525.3 of the Public Resources Code) were passed by the Legislature in 1976 on the eve of a statewide vote on Proposition 15, which would have halted nuclear development, and ultimately phased out existing nuclear power plants, unless or until certain rather stringent safety-related conditions were met. The Safeguard Laws have been characterized by some as a legislative attempt to provide a more moderate and reasonable check on the perceived dangers of nuclear power development than that which would have been imposed by Proposition 15, and by others, somewhat cynically, as a last-minute attempt to prevent passage of Proposition 15, an initiative measure which could not be repealed or amended by the Legislature. In early 1978, after the Energy Commission determined that approval of the proposed Sundesert nuclear plant was precluded by the Safeguard Laws (see "Sundesert," *ENVIRONS*, vol. 2, no. 3, p. 6), a proposed exemption for Sundesert was rejected by the Legislature. Recently, the validity of the Safeguard Laws has been challenged in court. The following pair of articles, written by two of the attorneys involved in this litigation, present the issues and some of the arguments on each side of this controversy.

THE NUCLEAR POWER OPTION:
Who Has the Right to Say No?

By ROBIN L. RIVETT
Attorney Pacific Legal Foundation

Whether nuclear energy should play a role in supplying California's energy needs has evoked emotional, heated, and sometimes explosive controversy over the last few years. Respected advocates have argued pro and con claiming nuclear energy is or is not safe, is or is not economical, is or is not reliable. Out of this debate arose Proposition 15, the California Nuclear Safeguards Initiative, which asked the voters to decide whether the state should call a temporary yet longlasting halt to nuclear power development in California until the state certified its safety. Although the moratorium proposed by Proposition 15 was never imposed due to the proposition's defeat by a margin of nearly two to one, a moratorium every bit as effective was imposed by enactment of a legislative alternative—the "nuclear safeguard laws." In June 1976, the California Legislature enacted three statutes designed to stop the licensing of nuclear power plants until the California Energy Commission made certain findings and conducted certain studies. These findings and studies concern reprocessing of nuclear fuel and undergrounding or berm containment of nuclear power plants. Since their



enactment, these laws, California Public Resources Code sections 25525.1, 25525.2, and 25525.3, have denied California utilities the ability to rely on the nuclear option to supply new electricity demands.

This background marks the setting for two recent lawsuits brought to have these laws declared null and void on the legal theory that they have been preempted by federal law. In October 1978, one suit was filed in the federal district court in San Diego (*Pacific Legal Foundation, et al. v. Energy Resources Conservation and Development Commission, et al.,* Civ. No 78-711-E) and the other in the federal district court in Sacramento (*Pacific Gas & Electric Co., et al. v. Energy Resources Conservation and Development Commission, et al.,* Civ. No. S-78-527-TJM).

To date, only the former case has reached decision, the court granting summary judgment and ruling that the reprocessing and berm containment sections are moot, having no present impact. But, the court also ruled that section 22524.2, which prohibits the licensing of a nuclear power plant until the California Energy Commission finds there exists a demonstrated method for the permanent and terminal disposition of high level nuclear waste, was preempted by federal law under the supremacy clause of the United States Constitution.

On March 6, 1979, Judge William Enright issued his decision. The court recognized that the police powers of the states to protect the health and welfare of their citizens are superceded only if that was the clear and manifest purpose of Congress, or if state law is in conflict with a valid federal statute. On both bases, the court ruled section 25524.2 null and void.

On the first count, defendants had argued that section 2021(k) of the Atomic Energy Act (AEA), which provides authority for state regulation for *purposes other* than radiation hazards protection, sanctions the requirements of section 25524.2. The other purposes asserted by the state were the assurance of an economical and reliable energy supply. The court ruled, though, that section 2021(k) must be "interpreted in such a fashion as *not* to nullify what Congress provided in section 2021(c)." Section 2021(c) provides that the Nuclear Regulatory Commission (NRC) shall retain authority and responsibility with respect to the regulation of the construction and operation of nuclear power plants and with respect to the regulation of nuclear waste disposal.

The court stated:

> "In the exercise of its discretion, the NRC has decided not to require the existence of a technology for permanently disposing of nuclear waste as a condition precedent for the construction and operation of nuclear reactors. The NRC's decision in this regard falls within the preempted sphere because it relates to, touches upon, and invokes the regulation of radiation hazard pertaining to the construction and operation of nuclear power plants and to nuclear waste disposal."

The court also found preemption on the independent basis that section 25524.2 stands as an obstacle to the accomplishment and execution of the full purposes and

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NUCLEAR SAFEGUARDS

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objectives of Congress in encouraging and fostering the development, use, and control of atomic energy. Upon thorough analysis of the AEA and subsequent legislation, the court determined that Congress intended and contemplated the ongoing development of nuclear energy. "Pub. Res. Code 25524.2 is preempted because it would seriously disrupt the national plan and policy of Congress for the development of nuclear energy." The court reasoned that Congress' policy would be decidedly frustrated if all fifty states had statutes similar to California's. Indeed there would seem little point in enacting the AEA and establishing the NRC to promulgate extensive and pervasive regulations on the subject of construction and operation of nuclear reactors and the disposal of nuclear waste if it is within the prerogative of the states to outlaw the use of atomic energy within their borders.

In review, then, the court ruled that a state does not have the power to prohibit nuclear energy development by requiring a finding of proven permanent waste disposal technology prior to licensing. In its decision, the court emphasized that a state legislature is not free to conjure up a state legislative purpose other than radiation control in order to fall within the permitted scope of regulation found in section 2021(k). A state cannot expect such declaration of purpose to be conclusive, for the zone of exclusive federal regulation under section 2021(c) could readily be nullified through careful tailoring of state legislative purposes. The court ruled this could not have been Congress' intent but that the various sections of the AEA in question (sections 2021(c) and (k)) had to be interpreted in concert. Consequently, the court found state regulation of nuclear waste disposal violated section 2021(c), thereby narrowing the scope of a state's authority to regulate in the nuclear power area under section 2021(k).

Thus, the court has thrown light on the scope of state authority to regulate in the arena of nuclear energy, but this ruling's future impact is uncertain. The California Energy Commission has announced its intent to appeal the decision, thereby postponing its finality. The second suit filed in Sacramento, addressing the same issues and others, is still pending. Although this decision clearly provides California utilities with a legally sanctioned nuclear option, whether or not they decide to exercise this option is dependent upon extrajudicial political factors. This uncertain status possibly forecloses the ability of California's utilities to employ the nuclear option in their short term planning. But the issue of long term planning still remains. If utilities are to rely on the nuclear option many uncertainties must be alleviated. As the court expressed, though, many of these question-marks, such as the long term environmental, safety, and economic ramifications of high level nuclear waste disposal, are best resolved outside the courtroom. Judge Enright stated:

> "The arguments advanced with respect to this subject are indeed weighty and not lacking in appeal. However, it is the province and the duty of this court 'to say what the law is,' . . . rather than to pass on the public policy question of whether states ought to utilize or not to utilize atomic energy, or whether the federal government ought to grant autonomy to the states on the nuclear question. Many of the arguments made before this court, therefore, would seem more appropriately presented to Congress."

In conclusion, it would appear that if the state is dissatisfied with the federal government's control of nuclear energy, it has really only one option. It must take its case to Congress.

RELIANCE ON NUCLEAR POWER: An Act of Faith

By KATHRYN BURKETT DICKSON
Staff Counsel, California Energy Resources Conservation and Development Commission

The coincidence of the enormously popular movie, "The China Syndrome," and the similar near-disaster at the Three-Mile Island Nuclear Reactor near Harrisburg, Pennsylvania, have once again focused national attention on the potentially explosive political issue of continued reliance on nuclear power.

Nuclear power is saddled with two great unknowns—reactor safety and waste disposal. Until very recently the public was told that its chances of being injured by a nuclear reactor accident were as remote as its chances of being injured by a falling meteorite. The federal reactor safety study, "The Rasmussen Report," which contained this reassuring assessment, was repudiated by the Nuclear Regulatory Commission (NRC) just two months prior to the Harrisburg accident. Now that the public is recovering from the shock and fear associated with the initial danger, they are becoming aware of the economic costs of the nuclear power unknowns. The utility has already announced that unless its ratepayers assume the costs of decontamination, repairs, and the purchase of replacement power, the utility will go bankrupt.

One must wonder whether the federal reassurances that nuclear waste can and will be disposed of safely and economically are subject to the same degree of certainty.

The California Legislature of 1976 wondered the same thing. The magnitude of the problem and the federal government's past failure to solve the problem caused the Legislature to enact California Public Resources Code section 25524.2, which prohibits the licensing of new nuclear reactors until the Energy Commission has determined that a nuclear waste disposal technology has been identified and approved by the federal government.

[A nuclear power reactor uses as fuel enriched (concentrated and purified) uranium 235. U-235 is an isotope which naturally undergoes fission, a process in which the atomic nucleus breaks into two or more fragments, emitting neutrons and energy. A neutron which strikes another atomic nucleus may be absorbed, or may cause that nucleus to fission. In the controlled chain reaction in a power reactor, the fuel is slowly converted by these processes of neutron absorption and nuclear fission into many other elements, called fission or breakdown products of uranium. Some of these products, such as plutonium and thorium, are, like the U-235 in the fuel, radioactive. After a period of use (typically about three years), the proportion of radioactive elements in the fuel mass declines to the point where the activity, although still significant, is no longer sufficient for efficient power generation, and the fuel must be replaced. The spent fuel is now waste, and must be disposed of. *Ed.*]

A typical 1,000 megawatt nuclear power plant produces about 30 tons per year of "waste," which contains a number of radioactive elements, including plutonium. In terms of the quantity which will induce cancers (a mere "speck"), plutonium is one of the most toxic substances known to man. Aside from this extreme toxicity, the element is also extremely long-lived. It has been estimated that plutonium would decay to safe levels only after 250,000 years, a period longer than the entire recorded history of mankind.

At present there is no method for permanently disposing of this spent nuclear fuel. Once extracted from the reactor, the spent fuel is stored in large water-filled pools at each reactor site, awaiting an ultimate waste disposal solution. But spent fuel pool storage space is being rapidly exhausted and a number of reactors in California and around the country may be forced to close prematurely if a waste disposal solution is not forthcoming.

Although the federal government has known of the need to solve the nuclear waste disposal problem for the entire twenty-five years of commercial nuclear power, there has been little apparent progress towards a solution. With each ensuing federal report on waste disposal (and there has been a veritable flood of them in the past few years), the anticipated commencement of a commercial nuclear waste repository's operation has slipped so that at present we cannot anticipate an operating waste disposal facility until the early 1990's. Because the technology has not yet been identified and demonstrated, it is impossible to even reasonably estimate the economic costs of waste disposal.

The states of California, Iowa, Maine, Wisconsin, and Montana have found that present uncertainties about waste disposal are too great to permit continued reliance on additional nuclear power plants within their jurisdictions. The Pacific Legal Foundation (PLF) and the California utilities have sued the California Energy Commission, challenging the right of California, and in effect the right of any state, to make that rational choice. PLF and the utilities argue that because the federal government chooses to continue to license nuclear reactors in the absence of a solution to the waste disposal problem, the states are bound to the same indiscretion—that the states have not a nuclear "option," but a nuclear "mandate."

In 1976 the Natural Resources Defense Council petitioned the NRC to determine whether continued reactor licensing in the absence of an accepted plan for waste disposal "provided for adequate protection to the health and safety of the public" as required by the Atomic Energy Act. The NRC denied the petition and refused to hold the rulemaking to determine the safety of the waste situation. Without conducting any hearings to develop a record to support its findings, the NRC stated: "The NRC would not continue to license reactors if it did not have reasonable confidence that the wastes can and will be disposed of safely."

And it added that "Reasonable progress toward the development of permanent disposal facilities is presently being accomplished." The NRC's sanguine assessments were challenged at the time the petition was denied, and their credibility is even more questionable today.

Peter Bradford, a relatively new appointee to the Nuclear Regulatory Commission, states:

> "Not having been on the Commission at that time, I find it difficult to accept the basis for the findings of 'reasonable confidence' and 'reasonable progress.' The facts may have supported the findings, but no hearings of any kind were held and the Department of Energy's and the Interagency Review Group's findings along with other studies since mid-1977, have, while continuing in general to assert confidence, tended to undermine some of the conventional wisdom at the time of the Commission finding."

Other federal officials have also questioned the wisdom of generating more deadly waste when we don't know how to dipose of the wastes which currently exist. The President's Council on Environmental Quality favors "a national decision which would make the expanded use of nuclear power contingent upon a clear and convincing showing, after consideration of both technical and institutional factors, that nuclear power's deadly by-products can be safely contained for geologic periods."

Congress has before it now several bills which specifically address the linkage of continued reactor licensing and a solution to waste disposal. Whether or not Congress includes an overt national decision on this issue in new law, a deadline clearly exists. A growing number of states and state officials and large segments of the increasingly-interested public are refusing to engage in an act of faith. Many people feel that the trust they placed in the federal government to protect the public from the unknowns of nuclear power has already been breached. Some combination of state laws, public demonstrations, and impatience in the Congress, federal environmental agencies, and possibly the courts will eventually halt reactor licensing if the federal government cannot deliver on its promises.

ENERGY FUTURE: Coal Plants and Northern California

(continued from front page)

MAJOR PROBLEM AREAS

There are three major areas of concern with regard to the proposed power plant:

1) Air Pollution

Plant emissions that would escape the air quality protection devices are estimated to be 4,800 lbs/hr of smog-creating nitrogen oxides (NOx), 1,890 lbs/hr of lung-damaging sulfur dioxide (SOx), as well as significant quantities of hydrocarbons, carbon monoxide and particulates. Evaporation from the two huge cooling towers would result in "salt drift" since the proposed system would draw cooling water from the variably saline estuarine system.

Although permissible levels of sulphur dioxide for the area have not yet been exceeded under federal ambient air quality standards, there may be problems meeting the stricter state standards, so tradeoffs may be required for that pollutant.

While federal law does not specifically require offsets for NOx if the area is already in attainment of federal ambient air quality standards for that pollutant (an ozone precursor), state requirements are stricter here too. Although the Energy Commission has the power to override state requirements in some cases, it is hesitant to do so unless the power is direly needed and no alternatives exist. As a result, tradeoffs may be required for NOx as well. These matters will be negotiated during the AFC stage.

2) Effects of drawing Sacramento River Water for Cooling

If the plant is designed to draw river water for its cooling system it would draw about 50,000 acre-feet of variably-saline water per year and return about 30,000—the difference being water lost in evaporation from the cooling towers. If fresh water were piped to the site, only 20-25,000 acre feet would be needed per year since fresh water can be circulated through the cooling system more times than saline water.

If river water is drawn into the cooling system most organisms brought in with it would be killed or injured. This includes larval fish such as the shad and striped bass—the most important game fish in the Bay/Delta system. Salmon and steelhead pass through this area in great numbers as well. Small organisms such as the **Neomysis** shrimp—an important food source for the fish—would be killed in great numbers. The plant would also have an adverse impact on water temperature and salinity levels. PG&E has indicated that discharge water could be 20°F warmer and substantially more saline than the river. These changes could have a destructive effect on the estuarine system during low water levels.

All NOI's (except those relating to geothermal plants) must propose at least three different sites. PG&E suggested four locations for Fossil 1 & 2: Butte County near Oroville (Butte), Glenn County near Willows (Willows), Yuba County near Marysville (South Yuba), and Solano County near Collinsville (Montezuma).

Rare pickleweed, habitat for the Saltmarsh Harvest Mouse.

Two of these sites were approved: Montezuma and Butte, (the Butte site approval was conditional). This means that PG&E can "bank" the approved but unused site. "Banking" means that while PG&E intends to build only one plant at present, any other approved site can be set aside for future use without the necessity of repeating the expensive, 18 month long NOI process.

Now that the NOI is approved, the way is cleared for filing the Application for Certification (AFC). The AFC process, also 18 months long, covers such issues as safety, reliability and economic and environmental feasibility. PG&E has notified the Energy Commission that it intends to file an AFC for the Montezuma site in April, 1980. The Butte site will be banked, although a supplemental NOI will be required to establish that air-quality standards in that area can be met.

Some of the factors which led to the approval of the Montezuma site are: 1) PG&E owns most of the land, 2) there are uninterruptable riparian water rights if the plant is built next to the river, 3) there is a large pool of construction workers available, 4) an existing railroad is nearby, 5) only 35 miles of new transmission lines would be required, compared to 145 miles for Butte, 150 for South Yuba, and 180 to 220 for Willows, 6) supplementary fuels may be available nearby, 7) the site is most desirable in terms of air pollution tradeoffs [See "California's Air Pollution Trade-Off Policy" in this issue—Ed.] Also, the Bay Conservation and Development Commission (BCDC) gave conditional approval to the site in October, 1978. However, the BCDC report called for a wide range of protection of the environment, especially the nearby Suisun Marsh.

The process of choosing the Montezuma site was complicated by the fact that there were three possible sitting configurations for that site. The first, the riparian site, would have placed the plant along the river. The advantage was that PG&E would have access to free river water at this site. The second possibility, the non-riparian site, would be set back from the river bank so as to reduce adverse environmental impact. Here, PG&E would still draw the necessary water from the river, but it would not be free. PG&E would have to contract with the Department of Water Resources or the Sacramento Regional Treatment Plant for water for cooling and other purposes. The third plan would place the plant 10 miles north of the river near Travis Air Force Base. The major

drawback was that the plant's 600 foot smokestacks would interfere wtih Travis' flight patterns.

In it's final report, the Energy Commission found that the non-riparian site could comply with the Suisun Marsh Protection Plan and was therefore approved. Although not rejected outright, the site near Travis was not recommended since the non-riparian site would avoid most adverse environmental effects. The riparian site was rejected mainly for environmental reasons.

3) Effects on Critical Habitat

Over 90% of the wetlands that once surrounded San Francisco Bay have been destroyed, so preservation of remaining areas is of the greatest importance. The Suisun Marsh Protection Plan, adopted by the California legislature, states:

> ". . . the marsh waterways, managed wetlands, tidal marshes, seasonal marshes and lowland grasslands are critical habitats for marsh-related wildlife and are essential to the integrity of the Suisun Marsh."

Although the plantsite is situated within the Suisun Marsh Secondary Zone, and construction of the plant is clearly inconsistent with the Marsh Protection Plan, the Bay Conservation and Development Commission (BCDC) conditionally approved the project. BCDC's decision, however, calls for a number of modifications, such as setback from the marshland, development of an alternative water supply, and a demonstration that salinity and water quality standards will not be violated. While the non-riparian site would be set back so as to destroy only 11 acres of critical habitat, these figures do not reflect the earth-moving activity, dust, noise, and vehicular emissions that would be caused by site preparation and plant construction. The construction will require access roads, railroad lines, and a 10-mile slurry pipeline to carry 570 acre feet per year of coal ash and recaptured pollutants to the disposal site 10 miles to the north.

The area near the riparian site provides critical habitat for the salt marsh harvest mouse, peregrine falcon, white-tailed kite, golden eagle, California clapper rail, black rail, and the Suisun shrew—all rare or endangered species. It also provides important winter habitat for migrating waterfowl of the Pacific flyway. It is unlikely that this unique and fragile ecosystem can withstand the prolonged stress that would be caused by plant construction and operation.

The Energy Crisis our country faces makes it clear that new energy sources must be developed—but this must be done with the least possible environmental impact. There is no perfect site for a huge power plant from an environmental perspective, so it becomes a matter of balancing different alternatives—many of which are unattractive. We can only hope that if Fossil 1 & 2 is built at the Montezuma site—or anywhere else—that environmental concerns are given the weight they deserve and not scuttled by a narrow-minded focus on energy development at any cost. The Suisun Marsh is a fragile and beautiful place which must be protected.

Bruce Waggoner

our MONEYTREE

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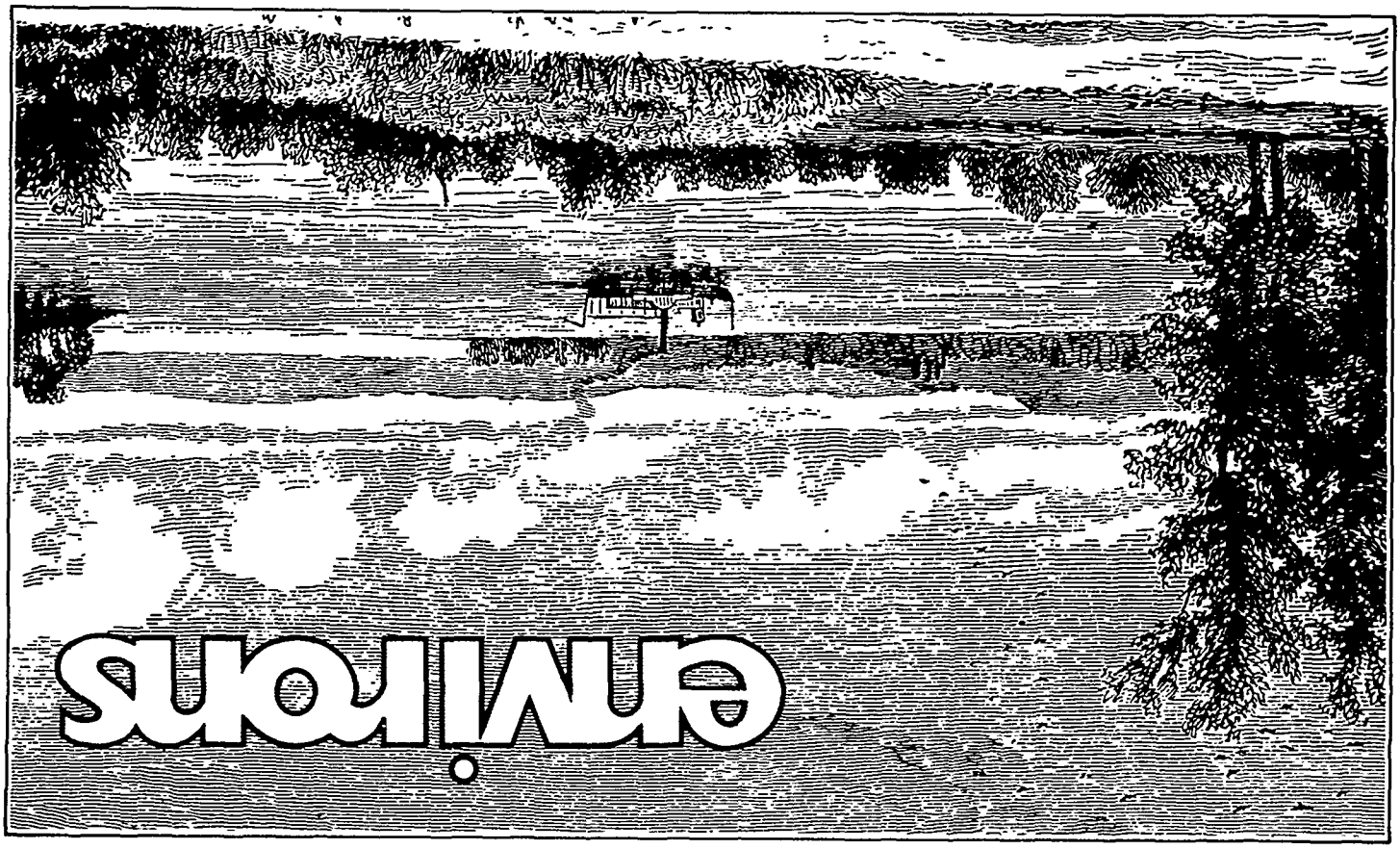

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