

NEW MEXICO HANDBOOK  
FOR GEOTHERMAL RESOURCE DEVELOPMENT  
STATE AND LOCAL GOVERNMENT REGULATIONS

JULY 1980

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## PREFACE

### Purpose

This handbook is intended to be a brief guide to the layman, in both the private and public sectors, who may be interested in initiating a project which involves geothermal resources.

Hopefully, the handbook will enable the prospective developer to understand from the outset which state and local agencies have review responsibilities, their review procedures, and the appropriate time frame necessary to complete their review process. The handbook does not relieve the private developer from his responsibility to determine the particular details of the regulatory process which involve his project.

The first part of the handbook covers the regulatory aspects of a wide range of potential projects and sequences within the projects, such as: exploration, demonstration, construction, commercialization, and operation. The handbook addresses such topics as environmental studies, water rights, district heating, taxation, archaeological clearances, and construction permits.

The second part of the handbook provides other general information which may assist a prospective geothermal developer.

### Methodology

The New Mexico Energy and Minerals Department contracted with the planning firm of David Hanna & Associates, Santa Fe, for assistance in preparing the handbook. The Consultant and the Department worked as a team in gathering and analyzing existing information. During October 1979, interviews were held with twelve state agencies, five cities, four counties, and several

private consultants to discuss their respective responsibilities and to insure the most up-to-date and accurate information possible.

The persons contacted during the preparation of the handbook are identified in the Sources of Information chapter by an asterisk following their names.

Existing laws, regulations and procedures were summarized in the handbook for easy reference. Copies of complete laws, regulations, rules, program guidelines, agency personnel and other applicable information were compiled and are available for review at the geothermal reference library of the Energy and Minerals Department, 113 Washington Avenue, Santa Fe. These are identified as Appendix Volumes 1 and 2.

#### Acknowledgments

Both the Department and the Consultant wish to express their sincere appreciation to the many people and institutions who cooperated graciously in the preparation of this handbook, by providing their time, information, and viewpoints. We hope that this handbook will assist our State's citizens in developing New Mexico's geothermal resources in an efficient manner consistent with State and local laws.

Preparation of this handbook was funded by the U.S. Department of Energy and the New Mexico Energy and Minerals Department under DOE Contract No. DE-FC07-79ID/2017. Neither the United States nor its agent, the Department of Energy, nor any Federal employees, nor any other contractors, or their employees, make any warranty, express or implied, or assume any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product or process disclosed, or represents

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Reference to a company or product name does not imply approval or recommendation of the product by New Mexico Energy and Minerals Department or the U.S. Department of Energy to the exclusion of others that may be suitable.

## SUMMARY

There are eleven state agencies which have jurisdiction over some phase of a project to develop geothermal resources. At first glance this may seem to be a large and unwieldy number of bureaucracies for a developer to deal with. However, each one of these agencies addresses itself to a particular need in protecting the citizens of New Mexico from hazardous or undesirable development practices. Therefore, it is inappropriate to presume that any of the agencies should relinquish their powers over their phase of geothermal development. As long as the developer is aware of the specific agencies involved and in what sequence and at what stage of his project he should begin dealing with each agency, he should be able to comply with all regulations in such a manner as to minimize the amount of delay in his project due to bureaucracy. This handbook attempts to present a coordinated game plan for dealing with agencies. It is when the developer comes to the agency (for permitting or go-ahead) unprepared or in non-compliance that the delays occur. Each agency contacted has sufficient personnel to deal with the approaching developer. If at sometime in the future an agency were to experience a time delay for processing due to lack of personnel, they would expand their staff accordingly.

At first glance, it may seem that a small geothermal operation (not involving a utility) would have difficulty dealing with the agencies because of its lack of legal and technical staff. However, it must be remembered that the smaller the operation, the smaller the potential impact on the population at large, and the less complicated the dealings with each agency would be.



The Energy Resource and Development Division's staff can provide guidance to the small operation developer in complying with the regulations. It would appear that a small operation, involving limited controversy, (such as a commercial greenhouse operation on private land in a rural area) might be able to develop the necessary information, and obtain the necessary state permits for operation within eighteen months including well drilling and construction.

A large project would require legal, engineering, and other technical assistance in order to properly address the complex questions involved and to deal with the agencies' regulatory process. A proposed utility district heating project would require legal assistance in order to deal with the proceedings involved with the Public Service Commission.

It would appear that it would take over eight to ten years to obtain the necessary State permits for operation of a utility project including construction.

Principal State Agencies

1. Energy and Minerals Department, Larry Kehoe, Secretary  
Energy Resources and Development Division  
Patrick Rodriguez, Director  
George Scudella, Energy Consultant  
Dennis Fedor, Energy Consultant  
113 Washington Avenue  
P.O. Box 2770, Santa Fe, New Mexico 87503  
(505) 827-2471

The Energy Resource and Development Division administers the State's program aimed at accelerating the commercial utilization of geothermal resources. The program includes planning, research, project funding assistance, public information and coordination with the numerous entities involved in geothermal development.

2. Mining and Minerals Division  
Emery C. Arnold, Director  
Kay Hatton, Staff Geologist, Bureau of Geology  
First Northern Plaza East  
P.O. Box 2860, Santa Fe, New Mexico 87501  
(505) 827-5621

The Bureau of Geology is charged with the responsibility of conducting, within the state, geological studies of known, probable, and potential supplies of natural sources of energy with the aim of determining reserves and life expectancy of various energy mineral classes. These classes include geothermal energy. The bureau's program includes research, public information, and information-gathering from geothermal researchers in New Mexico and the nation. A yearly summary of this information is included in the Bureau's annual report.

3. State Land Office  
Alex J. Armijo, Commissioner of Public Lands  
Jack Kennedy, Director, Mineral Division  
State Land Office Building  
P.O. Box 1148, Santa Fe, New Mexico 87503  
(505) 827-5378

The State Land Office has jurisdiction over the State Trust Lands and manages the leasing of these lands and their many natural resources to procure revenues for twenty beneficiary institutions and agencies in New Mexico.

4. Oil Conservation Division  
Joe D. Ramey, Director  
Dan Nutter, Chief Engineer  
Carl Ulvog, Geologist  
State Land Office Building  
P.O. Box 2088, Santa Fe, New Mexico 87503  
(505) 827-2333

The Oil Conservation Division is charged with the authority and duty to regulate the drilling, development, and production of geothermal resources, and to conserve and prevent waste of geothermal resources within New Mexico.

5. Water Resources Division  
Steve Reynolds, Director and State Engineer  
D.E. Gray, Chief, Water Rights Bureau  
Brad Compton, Engineer  
Bataan Memorial Building  
Santa Fe, New Mexico 87503  
(505) 827-2423

The State Engineer has general supervision of all surface and ground waters, in liquid or vapor form, of the State including the measurement, appropriation, distribution, and administration of water rights.

6. Environmental Improvement Division  
Thomas E. Baca, Director  
Cubia Clayton, Chief Statewide Services Bureau  
Crown Building, 725 St. Michael's Drive  
P.O. Box 968, Santa Fe, New Mexico 87503  
(505) 827-5271

The Environmental Improvement Division administers a wide range of environmental protection program including air, water, solid waste, radiation, occupational health and safety, drinking water supply, food and milk, hazardous waste, insect, rodent and noise control. The Division provides staff support for the Water Quality Control Commission.

7. Public Service Commission  
Robert L. Swartout, Executive Director  
Bataan Memorial Building  
Santa Fe, New Mexico 87503  
(505) 827-2827

The Public Service Commission has decisive powers over the securities issued and services and rates provided by gas, electric and water utilities.

8. State Corporation Commission  
Columbus Ferguson, Chairman  
Manuel Salinas, Director, Corporation Division  
PERA Building  
P.O. Box 1269, Santa Fe, New Mexico 87503  
(505) 327-2277

The State Corporation Commission regulates a wide range of corporate activity in New Mexico, including transportation, insurance, communication, oil and gas pipelines, and administers the incorporation of companies who wish to do business in New Mexico.

9. Construction Industries Division  
Ernest Coriz, Acting Director  
Bataan Memorial Building  
Santa Fe, New Mexico 87503  
(505) 827-5571

The Construction Industries Division administers the Construction Industries Licensing Act to protect the public against substandard or hazardous construction, alteration, installation, connection, demolition or repair work. Besides licensing contractors, the Division requires building permits and carries out inspections during construction.

10. Taxation & Revenue Department  
Fred Muniz, Secretary  
Administration and Services Division  
Dorothy Grosvenor, Communications Bureau Chief  
Property Tax Division  
Billy West, Censoral Assessment Bureau Chief  
Manuel Lujan Building  
St. Francis Drive at Alta Vista  
Santa Fe, New Mexico 87503  
(505) 827-3221

Oil & Gas Accounting Division  
Tony Martinez, Director  
Land Office Building  
P.O. Box 2308, Santa Fe, New Mexico 87503  
(505) 827-2537

The Taxation & Revenue Department administers the taxation and revenue laws of New Mexico as they relate to geothermal industries.

11. Museum Division of New Mexico  
Laboratory of Anthropology  
Curtis Schaafsma, Director and State Archaeologist  
Camino Lego, Santa Fe, New Mexico 87503  
(505) 827-3241

The State Archaeologist administers the State Cultural Properties Act and issues permits for archaeological survey work on State Land or permits for the use of mechanical earth moving equipment involving archaeological sites on private land. While not a regulatory agency in the normal sense, this Agency should be contacted early in the project if there is a reasonable possibility of culturally significant sites being impacted by the project.

12. New Mexico Heritage Program  
Bill Isaacs, Director  
Villagra Building  
Santa Fe, New Mexico 87503  
(505) 827-3149

The State Heritage Program administers the New Mexico Endangered Species Act and provides guidance on rare and endangered plant species. While not a regulatory agency, this Agency would be heavily involved during the preparation of an environmental impact statement or issuance of a local building permit if a rare or endangered plant species were found on the project site.

13. Energy Institute  
New Mexico State University  
Larry Iceman, Director  
P.O. Box 3EI  
Las Cruces, New Mexico 88003  
(505) 646-1745

The Energy Institute at NMSU provides geothermal energy research and development expertise and facilities, and is the primary source for geothermal technical reports and writings.

PERMITS BY AGENCY

November, 1979

State Agency	Permit	Required Prior To	Estimated Time for Issuance	Note
State Land Office	Lease for Geothermal Rights	any activity on State land	2 months	sold at public auction to highest bonus offered
Oil Conservation Division	Permit to drill Geothermal Well including permit for WQCC discharge to ground water	drilling of geothermal well	few days	bonds must be posted, designated agent licensed SCC
State Engineer	Permit to drill Exploratory Well	drilling in designated basin	automatic	granted for up to 1 year
" "	Well Driller's license	drilling in designated basin	few days	
" "	Appropriation of water rights	use of water	indefinite	
" "	Permit to drill Development Well	drilling development well in designated basin	few days	must have water rights and apply water to beneficial use
Public Service Commission	Certificate of necessity and convenience	commencement of construction of generating plant	2-18 months	should begin application at conceptualization
Taxation and Revenue	Gross Receipts Tax number	conducting business in New Mexico	1 day	
Environmental Improvement Division	1. Permit to discharge water to surface water OCD approves ground water discharge plan	construction	4-6 months +	should consider requirements at conceptualization
	2. Permit to discharge air contaminant	construction	4-6 months +	should consider requirements at conceptualization
	3. Permit to install septic tank	construction	2 days	need soil, slope data
	4. Permit to construct public water system	construction	2-4 months	definition of "public" system complex
	5. Permit to operate coffee shop, etc.	operation	2-4 months	very detailed regulations

PERMITS BY AGENCY (continued)

<u>State Agency</u>	<u>Permit</u>	<u>Required Prior To</u>	<u>Estimated Time for Issuance</u>	<u>Note</u>
State Corporation Commission	License to do business in New Mexico	applying for drilling permit from OCD	2-3 months	
Construction Industries Div.	Building permit	construction	1 week - 1 month	
State Archaeologist	Permit to conduct archaeological survey on State lands	activity on land	1 week	
" "	Permit to conduct archaeological survey on private land using mechanical earth moving equipment	activity on land	1 week	
NM Heritage Program	None			
Energy Resources & Development Div.	None			

November, 1979

FEES BY AGENCY :

State Agency:

State Land Office

On lease sale date:

- 1) \$10 filing fee
- 2) 1-year advance rent, \$1/acre or part of acre
- 3) Bonus minimum set by Commissioner

Before signing of lease:

- 1) Post Performance bond - \$1000 single well  
\$2000 multiple wells

Before activity on hand:

- 1) Post bond, minimum \$5,000, amount set by Commissioner

Throughout lease:

- 1) Rent - Primary term \$1/acre
- 2) Rent - Secondary term \$5/acre

Once producing:

- 1) Royalties - rate assessed by product type

State Corporation  
Commission

To incorporate:

- 1) \$100 filing fee
- 2) \$10 annual franchise fee

Oil Conservation  
Division

To obtain drilling permit:

- 1) Plugging bond \$2,000 minimum, determined by well type

State Engineer

- 1) \$5 filing fee for appropriation of new water right
- 2) \$5 filing fee for change in water right

Public Service  
Commission

To obtain and maintain license as utility:

- 1) \$25 filing fee with all petitions
- 2) Inspection fee, 1/2 of 1% Gross Revenues from business within New Mexico

Construction Industries  
Division

To obtain building permit:

- 1) \$2.00 per each \$1,000 up to \$15,000  
\$0.60 per each \$1,000 over \$15,000  
(estimated cost of building)

Taxation and Revenue

Once producing:

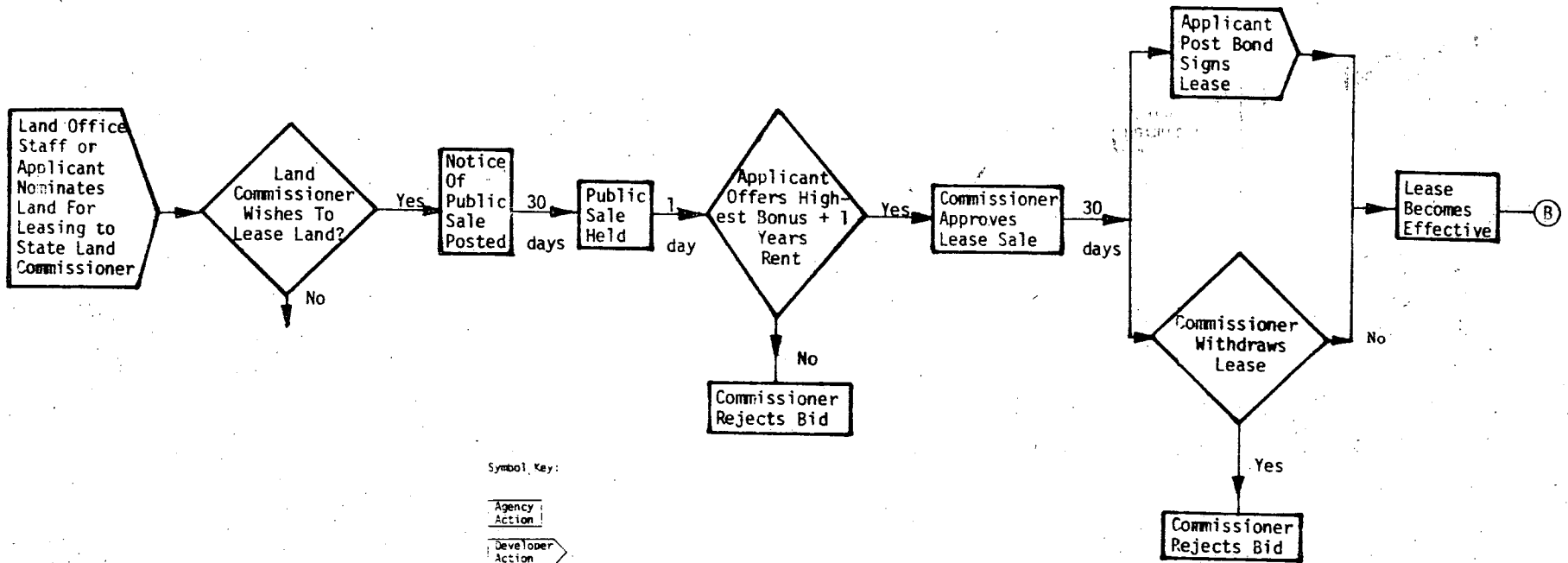
- 1) Oil and Gas Conservation Tax, 19/100 of 1% taxable value of product at first sale or use
- 2) Gross receipts tax - 4 - 4-1/2% of gross receipts
- 3) Compensating tax: 3-3/4% (See Taxation and Revenue, Chapter )



FEES BY AGENCY (continued)

<u>Taxation and Revenue,</u> cont.	4) Property Tax: on real and tangible property; rates depend on location. 5) Income Tax: Based on Federal adjusted gross income, corporations 5% rate.
<u>Environ. Imp. Div.</u>	None
<u>State Archaeologist</u>	None
<u>NM Heritage Program</u>	None
<u>Energy Resources and Development Division</u>	None

CHART A  
 STATE OF NEW MEXICO  
 LEASING PROCEDURE FOR STATE LANDS



Symbol Key:



(B) Continuation to Next Page or Chart as Indicated

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Cumulative Months for Procedure

1	2	3	4	5 - 12	13	14	15	16	17	18	19
EXPLORATION PHASE						DEVELOPMENT PHASE					

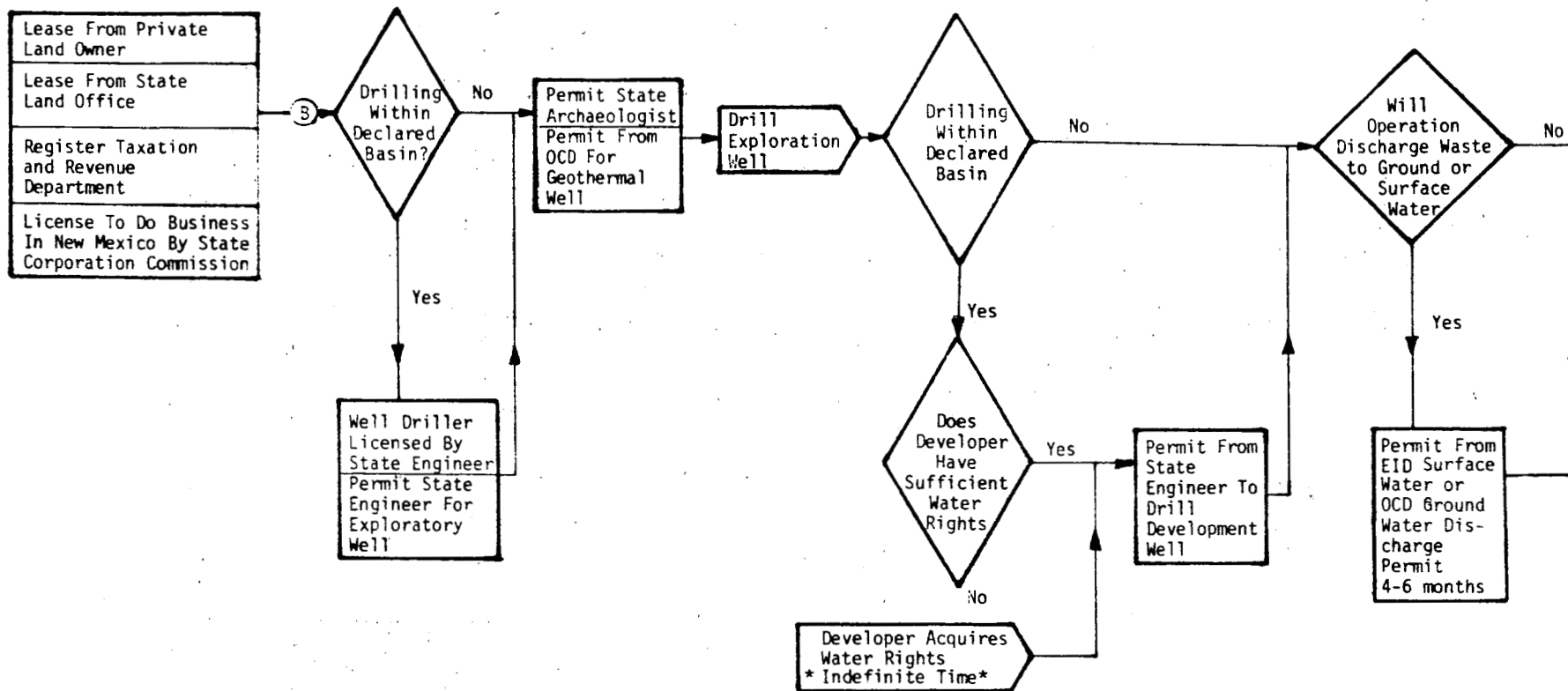
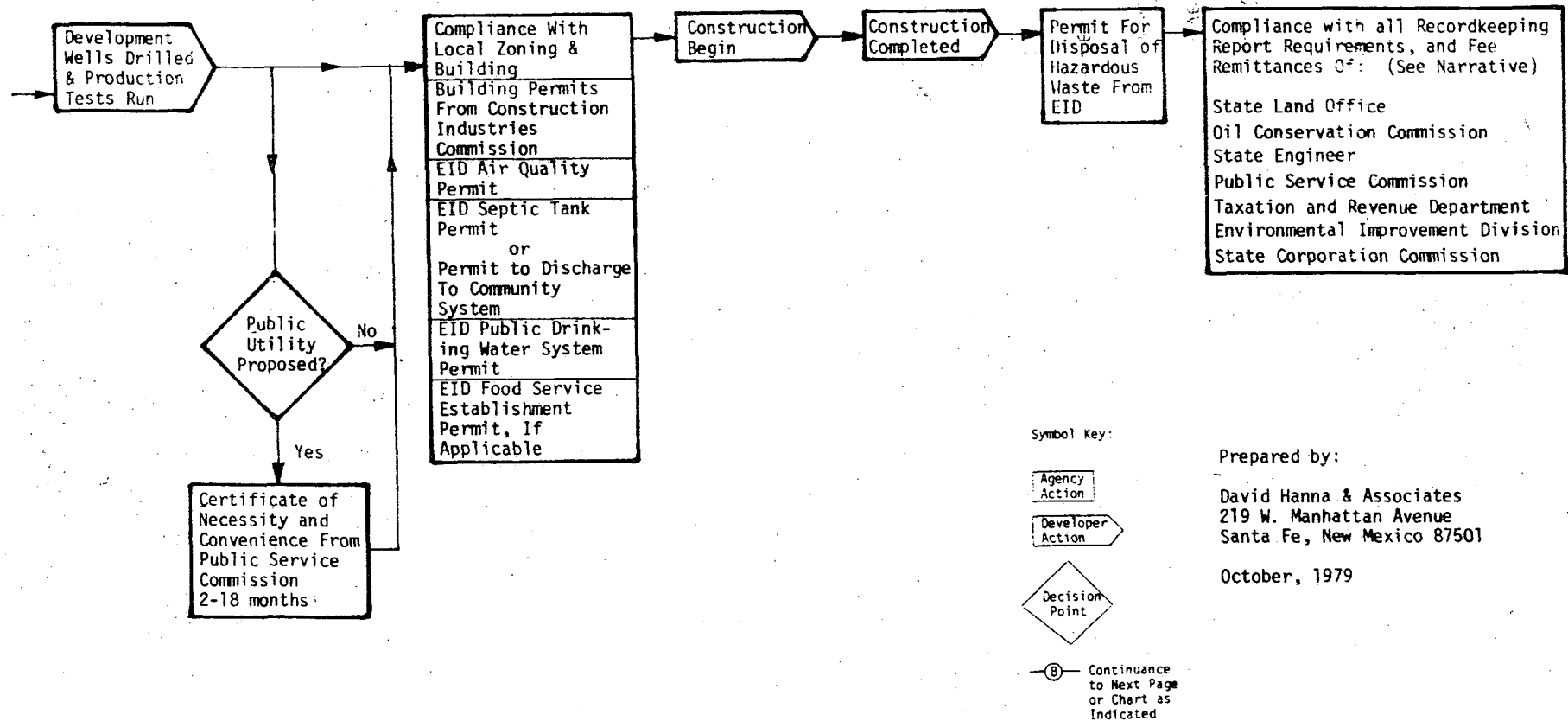


CHART B  
 TIME LINE CHART OF INSTITUTIONAL PROCEDURES  
 FOR EXPLORATION & DEVELOPMENT OF GEOTHERMAL RESOURCES IN NEW MEXICO

47	59	67	68	CUMULATIVE MONTHS FOR PROCEDURE
CONSTRUCTION & IMPLEMENTATION PHASE			OPERATIONAL PHASE	



## STATE LAWS AND PROCEDURES

### New Mexico Definition of Geothermal Resource

Geothermal Resources are defined by the New Mexico Geothermal Resources Conservation Act as follows: "'Geothermal Resources' means the natural heat of the earth, or the energy, in whatever form, below the surface of the earth present in, resulting from, created by or which may be extracted from, this natural heat, and all minerals in solution or other products obtained from naturally heated fluids, brines, associated gases and steam, in whatever form, found below the surface of the earth, but excluding oil, hydrocarbon gas and other hydrocarbon substances."  
(Sec. 71-5-1 NMSA 1978)

### Leasing State Land

#### Acquisition of Lease

A person wishing to explore and develop a particular parcel of land for geothermal resources must first ascertain the ownership of the land. If the land is federally owned, the developer must comply with federal leasing requirements. If the land is privately owned, the developer would negotiate his lease with the private landholder. If the land is State Trust land, it will be listed in the Tract Books, maintained in the Minerals Division of the New Mexico State Land Office. The State Land Office handles all leasing of State Trust lands.

A person desiring a geothermal lease on State Trust lands must write a letter to the State Land Commissioner nominating the specific tract he wishes to be let for lease. The Commissioner may either reject the nomination or hold a sale for the lease of the tract of land at his discretion. All geothermal leases of State Trust land are sold at public auction

which is designated as either sale by sealed or oral bids. Public notice will be posted of the scheduled sale not less than 10 days before the date of sale.

To place a bid for the tract, one must submit to the State Land Commissioner, on the prescribed form obtained from the State Land Office, accompanied by a check for \$10, the required filing fee, plus a separate check for (1) the first year's rent, at \$1/acre or part of an acre; (2) the bonus offered. A minimum bonus for each tract of land is set by the Commissioner. Leases are granted to the bidder offering the highest bonus. Once a bidder has been awarded the lease, he has 30 days in which to file a performance bond (in the amount of \$1,000 for a single lease, or \$2,000 in the case of multiple leases) and to sign the lease. The Commissioner has the power to cancel the lease offer for just cause at any time between the date of sale and the signing of the lease.

Once the lease is signed, the lessee must, before commencing any activity on the land, file a bond in the amount prescribed by the Commissioner (but not less than \$5,000) in favor of the State of New Mexico, to secure payment for damages to improvements on the leased land that might result from the operational development of the lessee.

#### Lease Term and Rent

A lease is awarded for 10 years consisting of a primary term of 5 years and a secondary term of 5 years. The yearly rental is \$1/acre or portion of an acre, during the primary term and so long thereafter as geothermal resources are being produced or utilized, in commercial quantity, or the capacity for such production or utilization has been established. If commercial production or capacity has not been demonstrated at the end of the primary lease period, the lease continues for a secondary term of 5 years at a yearly rental of \$5/acre or portion of an acre.

### Royalties

The following royalties are required to be paid to the State by a geothermal lessee:

(1) 10% of gross revenues minus transportation costs from sale or use of steam, brines, or hot water from which no minerals have been extracted, and associated gases or any other form of heat or energy.

(2) Not less than 2% nor more than 5% of gross revenue received from sale or use of minerals or chemical compounds recovered from geothermal fluids.

(3) 8% of net revenue received from the operation of an energy producing plant.

(4) Not less than 2% nor more than 10% of gross revenue from recreational, space heating, or health purposes.

(5) Once geothermal resources have been discovered in commercial quantities, a minimal yearly royalty of \$2/acre or portion of an acre must be paid to the State.

### Limitation of Lease Size

The land to be leased must be contiguous. No leases are granted for a tract of land which is less than 640 acres, unless the desired tract is isolated and not contiguous with other lands available for leasing. No leases are granted which contain more than 2560 acres. No person or association of persons may hold or control more than 51,200 acres in geothermal resource leases.

### Exploration and Development

#### Geothermal Well Regulation

The Oil Conservation Division of the Energy and Minerals Department has authority over the regulations of all drilling, development, production

and conservation of geothermal resources. For geothermal operations on Federal lands, the operator must comply with United States Government regulations. By virtue of Rule 6 of the Geothermal Resources Section, Rules and Regulations of the Oil Conservation Division, the operator must also comply with the applicable State rules and regulations as long as they do not conflict with the Federal regulations. The following discussion addresses itself to geothermal operations on State and fee simple land.

Anyone intending to drill a geothermal well must comply with the rules and regulations of the Oil Conservation Division (OCD).

Designation of Agent. First a person must file a Designation of Agent on the prescribed form. This agent must be a permanent resident of New Mexico and will be responsible for maintaining copies of all well and operation records required by the Division.

Licensing. An out-of-state corporation must become licensed by the State Corporation Commission before it may engage in geothermal exploration within New Mexico.

Bonding. A plugging bond, executed by a surety company that is licensed in New Mexico, must be posted with the Division. The amount of the bond is determined as follows:

1. One-well, low-temperature thermal well, or geothermal observation well - \$2,000
2. Multiple-well low-temperature thermal well - or geothermal observation well - \$10,000 for up to 10 wells; \$2,000 for each additional well, or \$10,000 for each additional 10 wells
3. One-well geothermal exploratory, development, injection, or disposal well - \$5,000
4. Multiple-well geothermal exploratory, development, injection or disposal well - \$10,000 for up to 5 wells; \$5,000 for each additional well, or \$10,000 for each additional 5 wells.



Drilling Application. Once a person has designated an agent and posted the necessary bond(s), he may file Form G-101, Application to Drill, Deepen, or Plug Back Geothermal Resources Well, to obtain a drilling permit. Providing the application is in compliance with the regulations, the permit will be granted within a week's time.

Required Reports. Form G-102, Geothermal Resources Well Location and Acreage Dedication Plat must accompany Form G-101 filed with the Division.

Sundry Notices and Reports on Geothermal Resources Well (Form G-103) must be filed as required to seek approval for, and as notice of completion of various well activities. In addition, Forms G-104, G-105, G-106, G-107, G-108, G-109, G-110, G-111, and G-112, have been adopted covering various aspects of geothermal operations. Requirements regarding these forms are covered in the Oil Conservation Division's Rules and Regulations for geothermal resources.

It is essential for any envisioned geothermal operator to obtain a copy of these Rules and Regulations from the Division to assure compliance and to expedite proceedings with the Division. The rules and reporting requirements are extensive but are written concisely and specifically, so that compliance should not cause undue problems for the agent.

### Water Well Regulations

Exploration Well. Although the Oil Conservation Division has authority for regulating geothermal wells, the State Engineer has jurisdiction of the appropriation of all surface water of the State and ground water within the boundaries of declared underground water basins. Therefore, anyone intending to drill a geothermal well on Federal, State or private land within the boundaries of a declared basin must also file an Application for Permit to

drill an exploration geothermal well, with the State Engineer. A copy of the State Engineer's application form should be obtained from his office to insure that all required information is supplied on the geothermal application. If the Application for Permit is in compliance, the exploratory permit will be granted, usually for a period of one year's time. To comply with the State Engineer's Rules and Regulations of Ground Water in New Mexico, the well must be drilled by a water well driller licensed by the State Engineer (Water Resources Division).

Development Well. The State Engineer is charged with the protection and distribution of ground and surface water in New Mexico. If it can be documented that the well does not deplete the quantity of the aquifer, the State Engineer may grant the application for a development well if no impairment to prior water users is shown. If the well does affect the aquifer's quantity, that is, one is going to deplete water in the pumping process which is not going to be pumped back into the ground, then the developer must acquire water rights to cover the amount of water that will be depleted. If there is unappropriated water available, the developer may apply to the State Engineer for a permit to appropriate the water, showing that they will be put to beneficial use. If no unappropriated water is available, the developer must acquire existing water rights through purchase from a present owner, thus retiring this right and/or changing the point of diversion, place and purpose of use.

Once the developer has obtained the necessary water rights or option for water rights purchase in sufficient quantity to cover the needs of the operation, he then files an application with the State Engineer for a Development Well Permit. If the application is in compliance with regulations, the developer should be granted his permit within six weeks, assuming no protest and everything is in order. If someone files a protest against the

application, a public hearing must be held. A hearing will be set as soon as possible, but usually within a two-month period. Once the hearing has been held, the State Engineer reviews the findings and generally gives his decision no later than 30 days. The decision is then subject to court appeal by applicant or protestor. Thus a protest may cause a lengthy halt to the appropriation of water. Proper acquisition of water rights is crucial. There is a filing fee of \$5 for a new appropriation of a water right, and a \$5 filing fee for a change in an existing water right.

#### Correlative Rights vs. Prior Appropriation

To drill a geothermal well one must comply with the regulations and rules of two agencies, namely, the State Engineer's Office and the Oil Conservation Division. The technical aspects of the two agencies' drilling requirements are compatible. However, the two agencies operate under two divergent philosophies concerning who has the right to how much of a given resource--namely hot water in liquid or vapor form.

The Oil Conservation Division operates under the philosophy of correlative rights. Correlative right simply stated means that you as an owner of a portion of a geothermal reservoir (by virtue of the drilling permits issued by the OCD) have the right to recover, as much as is practical, without undue waste, your ratable share of the total geothermal resources of the reservoir based on your share of the land surface of the reservoir. The larger your holdings in the reservoir, the larger your share of the resources, and no one else should develop his holdings in such a way as to deprive you of your ratable share.

The State Engineer operates under the doctrine of prior appropriation. Prior appropriation separates the ownership of land from the right to use the water on the land. It holds that the water belongs to the public and is subject to the appropriation for beneficial use. By applying water to a beneficial use, you acquire the right to use the water. The first person to apply beneficial use has the first and prior right to the water. Therefore, if you drill for geothermal resources first in a given reservoir, and establish your rights, you have applied beneficial use of the water (steam) and you have prior right to develop the resources in the reservoir up to the limit of your rights. Permits can be granted to subsequent users only if the State Engineer finds that the granting will not impair the right of the prior users.

## Utility Applications

### Public Utilities - Public Service Commission

The Public Utility Act of 1941 created the Public Service Commission as the regulatory agency having decisive powers over the securities issued and services and rates provided by gas, electric and water utilities. The Public Service Commission is comprised of three Commissioners who are appointed by the Governor, subject to approval by the State Senate, serving staggered six-year terms. The Commissioners are supported by a staff of 23. A three-person team composed of an engineer, a lawyer, and a rate analyst is assigned to each case or petition before the Commission.

### Certificate of Convenience and Necessity

In order to operate as a utility, specifically as a geothermal power producing facility, one must be licensed by the Public Service Commission. (The Public Service Commission does not have jurisdiction over municipally owned utilities or utilities on Indian land.) The License is called a Certificate of Convenience and Necessity, and is obtained by petitioning the Commission. (Any petition to the Commission requires a \$25 filing fee.) At present the Certificate may be obtained no more than one year before the commencement of construction of the power facility, and must be obtained before the commencement. The Certificate may take anywhere from 2 to 18 months to obtain. Realizing the possible time lag, a potential utility would start working toward licensing by the Commission as soon as the project is conceptualized.

If an already existing licensed utility wishes to expand operation to include a geothermal power producing facility, with less than 230 megawatt production capacity, it must approach the Commission under General Order 10 for commission assessment. The Commission may at its discretion call for a public hearing as part of the assessment process. If no action is

taken by the Commission, de facto approval is assumed. If the existing utility planned an expansion to include a geothermal generating station of greater capacity than mentioned above, it would need to petition for a Certificate of Convenience and Necessity.

The Public Service Commission's decisions on licensing are based on its responsibility to three sectors, namely: the consumer, the utility investor, and the public interest at large, to provide public utilities in the most economic, efficient and reliable means possible. Therefore, in petitioning the Commissioner for Certification, a proposed utility must demonstrate need for the capacity of the facility. One must also demonstrate, to the satisfaction of the Commission, that the proposed facility will meet that need in the most efficient way possible in both technical and economic aspects. Reliability of the facility to provide service through its particular technology must also be demonstrated. The Commission must also address itself to environmental issues when assessing a petition.

#### Issuing of Securities

A utility must petition the Public Service Commission for permission to issue securities. The Commission is required to respond to such petition within 30 days.

#### Rate Setting for Utility

It is the responsibility of the Public Service Commission to set an allowable rate of return for each utility. It is up to the utility to earn that allowable return through efficient management policies. The allowable rate of return for a utility is determined by analysis of the facility's operating revenues and expenses during a normal test year in connection with the plant's capital cash investment less accumulated depreciation.

User rates are then set according to user type, namely, residential, commercial, and industrial, by determining the direct costs of providing service to each user type and then allocating all other costs equitably among the separate types.

#### Inspection and Supervision Fees

Annually a utility is required to pay to the Public Service Commission a fee for inspection and supervision of the utility business, at the rate of  $\frac{1}{2}$  of 1% of the utility's gross receipts from business conducted within New Mexico the the preceding calendar year. The payment of this fee is to be in quarterly installments due in February, May, August and November.

#### District Heating

The Public Service Commission has jurisdiction over all water, gas and electric public utilities (except municipally owned utilities), and specifically, over the distribution of steam through a pipeline.

An energy distribution operation becomes defined as a utility by its service to or readiness to serve an indefinite public, or portion of the public as such, which has a legal right to demand and receive its services or commodities.

The public character is not based on how many persons an energy producer serves, but rather on if it is open to the use and service of all members of the public who may require it to the extent of its capacity.

Therefore, a district heating system by virtue of its distribution method, would come under the jurisdiction of the Public Service Commission, if the system was servicing an indefinite public. Specifically, a district heating system owned and operated by a subdeveloper for the service of the public residing within his development would be a public utility.

District heating systems would be regulated by Cities and Counties, as well, through their power to issue franchises to public utilities.

A City or County can approve a franchise for the erection, construction, maintenance or operation of a public utility for right-of-way over, under, in and about the streets of the municipality or county for a maximum of 25 years.

Following a request for a franchise and submittal of required documents, the City or County would hold a public hearing before making a decision. Reasonable fees can be charged for processing the franchise request, such as legal, engineering and staff review. A franchise could be issued in 90 days.



## Taxation

Registration: Any individual or firm which enters into business in New Mexico must register with the Taxation and Revenue Department. Registration can be done through either the Department's headquarters in Santa Fe or any of its field offices. The following taxes apply to a geothermal developer (direct heating, district heat or other utility):

Oil and Gas Conservation: A tax is imposed at the rate of nineteen one-hundredths of one percent (0.19%) against the value of geothermal energy at its first point of sale. Allowable deductions from this value, before tax calculation, are cost of transportation to the first point of sale and royalties paid to the United States, New Mexico or Indian tribes, pueblos or individuals who are wards of the United States. This tax is paid to and administered by the Oil and Gas Accounting Division of the Taxation and Revenue Department.

Gross Receipts: This tax is a tax on the privilege of engaging in business in New Mexico. The basic state rate is 3 3/4% measured by the gross receipts of each taxpayer. Gross receipts include revenue from the sale of tangible personal property, performance of a service, or leasing tangible personal property employed in New Mexico. Municipalities may impose additional rates up to a maximum of 3/4 of 1%. Counties may charge another 1/4%. All of these taxes are paid to and administered by the Revenue Division of the Taxation and Revenue Department.

Compensating: The value of tangible property manufactured and then used by the taxpayer and property purchased by a taxpayer from an out-of-state vendor which would have been subject to the gross receipts tax if sold by a New Mexico vendor are taxed at a uniform 3 3/4% rate. No local option taxes apply. Administered also by the Revenue Division.

Property Tax: The real and tangible personal property of a person extracting and selling geothermal energy are subject to taxation. In general, the value of such property, other than land, will be measured by original cost less straight-line depreciation. If this energy is sold by the exploiter or converted by him into electrical energy for sale, the property will be valued by the Property Tax Division of the Taxation and Revenue Department. Otherwise the county assessor is the valuing authority. Tax rates will depend upon location of the property. Taxes will be billed and collected by the county treasurer.

Income Taxes: All income taxes are administered by the Revenue Division. They are based on federal adjusted gross income. The tax rate for corporations is 5%.

Severance and Natural Resource Excise Taxes: Exploitation of geothermal energy is not subject to these taxes.

## Environmental

An environmental impact statement is not required for geothermal projects (or other development) by state law.

The Environmental Improvement Division (EID) administers a wide range of regulatory programs which deal with a potential geothermal project, direct heat, district heating or other utility, on Federal, State or private lands. Policy for these programs, except water pollution control, is set by the Environmental Improvement Board (EIB) established by the Environmental Improvement Act, 24-10-1, NMSA 1978. The Board consists of five public members appointed by the Governor with the advice and consent of the Senate.

Policy for water pollution control programs, as provided by the Water Quality Act, 74-6-1, NMSA 1978, is established by the Water Quality Control Commission (WQCC). The WQCC consists of eight state agency directors or their designee and one public member appointed by the Governor.

### Water Quality Control Commission Members

Environmental Improvement Division - Chairman  
Water Resources Division (State Engineer)  
Oil Conservation Division  
Department of Agriculture  
Department of Game and Fish  
State Parks and Recreation Division  
Soil and Water Conservation Division  
Bureau of Mines and Mineral Resources  
Public Member

As can be seen, several of the agencies involved in a geothermal project have direct policy setting responsibilities for the protection of New Mexico's water quality by virtue of being a constituent agency of the WQCC. The State Land Office, in its state land leasing program also takes into consideration the protection of environmental quality on these lands to insure long term viability of the numerous potential surface and subsurface resources. Thus, a number of agencies become involved in environmental issues although, by far, the bulk of the effort involves the EID as discussed below.

Air

A permit must be obtained from the EID prior to construction or modification of any source of air contaminants, which, if it were uncontrolled, would result in an emission of the contaminant greater than ten pounds per hour or twenty five tons per year, or would result in the emission of a hazardous air pollutant. Sufficient information must be submitted by the permit applicant in order to demonstrate a projection model of the levels of emissions for comparison with the ambient conditions and standards. A permit may be denied if it appears the projects' emissions will not meet applicable regulations of the N.M. Air Quality Control Act; if the project will emit an air contaminant in excess of a Federal standard of performance; if the project will cause or contribute to air contaminant levels in excess of any national or state (or Class A county - Bernalillo) ambient air quality standards. No Federal new source performance standards are available for geothermal resource projects. To date, experience has shown that the parameters hydrogen sulfide, H<sub>2</sub>S, and Total Suspended Particulate, TSP, are the main air pollution problems associated with geothermal resources development.

A developer should visit with the Air Quality Section staff prior to filing an application for permit to avoid unnecessary delays or expenditures. Following submittal of an application, the EID has fifteen days in which to notify the applicant of its completeness or stating what additional information or clarification is necessary.

As is true with most regulatory agencies, it is the agency which determines when an application is "complete." The greatest time lapse is usually experienced in developing a complete application to the satisfaction of the agency. Within 120 days of receipt of a complete application for permit the

EID must either grant, grant subject to conditions or deny the permit for construction or modification of a source.

The Environmental Improvement Division's decision may be appealed to the Environmental Improvement Board. The EID's decision may be appealed to the Courts.

#### Water Pollution

State Water Quality Control Commission regulations require several permits or notifications for discharge of water contaminants to surface or ground water.

1-201 "Notice of Intent to Discharge" requires any person intending to make a new or change a water contaminant discharge, to file a notice with the Water Quality Section (does not apply to oil or gas production, refinement and transmission, or to discharge to community sewer systems).

1-202 "Filing of Plans and Specifications - Sewerage Systems" requires the filing of plans and specifications for sewerage systems, prior to commencement of construction, with the Water Quality Section (does not apply to oil and gas facilities).

1-203 "Notification of Discharge - Removal" requires that any person in charge of a facility as soon as he has knowledge of a spill of any water contaminant shall immediately notify the Chief Water Quality Section of the spill and take appropriate steps to contain, remove and mitigate the damage caused by the spill.

2-100 "Applicability of Regulations" applies the State's surface discharge regulations to those discharges which are not subject to the Federal National Pollutant Discharge Elimination System (NPDES) and establishes parameter effluent levels for these discharges. At this time, The EID has legally not taken over administration of the NPDES program,

although it assists the U.S. Environmental Protection Agency (EPA) Region VI office in Dallas in the day-to-day operations of the program through an annual contract with EPA. Jurisdiction of the NPDES program to navigable waters of the U.S. is as inclusive as the WQCC's definition of water course which includes any channel having definite banks and bed with visible evidence of the occasional flow of water.

3-100 "Regulations for Discharges Onto or Below the Surface of the Ground", are aimed at protecting the quality of all ground water in New Mexico with an existing concentration of 10,000 mg/l or less Total Dissolved Liquids (TDS). The Regulations establish ground water standards for specific parameters; require an approved discharge plan prior to commencement of discharge. The discharge includes monitoring and reporting requirements among other requirements.

For geothermal projects, the Oil Conservation Division (OCD) will review and approve the ground water discharge plan on behalf of the WQCC.

The OCD has 60 days, after receipt of a notice of intent to discharge by the developer, in which to notify the developer if a discharge plan is required. For good cause, a developer may be allowed to discharge without an approved discharge plan for up to 120 days. From submittal of a complete discharge plan until approval to construct may take 4-6 months or more, depending on the degree of controversy. New Mexico's ground water regulations are one of the most stringent in the Nation.

#### Liquid Waste

The EID's Liquid Waste Disposal Regulations apply to disposal systems of 2000 gallons or less per day. The regulations require a permit to install such systems as a septic tank and leach field or alternative treatment and disposal methods.

### Hazardous Waste

Hazardous Waste Regulations apply to the transportation and disposal of those materials deemed hazardous substances by the Regulations. Hazardous waste must be disposed of only at permitted hazardous waste disposal sites approved by the EID. These regulations would control the removal and disposal of potential solids build up from a geothermal operation which could contain highly toxic concentrations of trace elements.

### Solid Waste Regulations

These regulations primarily apply to local governments' solid waste systems. New Mexico is not currently involved in the Federal program under the Resource Conservation and Recovery Act (RCRA). The U.S. EPA administers and enforces this Law in New Mexico. The States' solid waste regulations and the Federal RCRA would probably come into play only in the operation phase of a project.

### Water Supply

Water Supply Regulations require approval by the EID for construction or modification of storage, treatment or production facilities for public water systems. A written application containing plans and specification, and levels of contaminants in the drinking water supply must be submitted prior to commencement of construction. Monitoring data of water quality must be submitted on a routine basis for identified contaminants.

The State has taken over "primacy" for administration of the Federal Safe Drinking Water Act which also includes enforcement. This Act defines different monitoring and reporting procedures for public, community and noncommunity systems and for nonpublic systems.

### Food Protection in Food Service Establishments

Regulations apply to coffee shops, cafeterias, sandwich stands, restaurants, etc. A permit is required prior to operation of a food service establishment. Permit requirements cover such items as general sanitation, equipment, design, construction and materials, etc.

After receipt of a completed application, the EID has 30 days to act on the permit.

### Radiation

These regulations pertain to ground water for drinking water uses with naturally occurring levels of 15 micro curies per liter, or to facilities or areas where radiation exposure levels to the general public exceed 2 rem per year. In most instances, geothermal resource projects would not encounter naturally occurring radioactive material which would place the project under jurisdiction of these regulations.

### Noise Control

To date there are no State Laws or regulations dealing specifically with noise control other than regulations addressing noise exposure under the Occupational Health and Safety Regulations. The nuisance abatement Statute 30-8-1 NMSA 1978 would be an applicable control mechanism. Enforcement under the nuisance statute is at the local level.

The EID participates in a noise control education program with the U.S. EPA which is primarily aimed at providing guidance and technical assistance to local governments.

### Occupational Health and Safety Regulations

These regulations do not require specific permits or licenses for construction. The State's program follows the Federal government's requirements and applies primarily during the construction and operation phases in order "to assure working men and women safe and healthful working conditions."



### Archaeology

The State Archaeologist, pursuant to the State Cultural Properties Act of 1977, issues permits to recognized archaeologists for archaeological survey work on State lands. It is a misdemeanor to excavate or destroy cultural property without the permit.

The Act prohibits excavation of an archaeological site with the use of mechanical earth moving equipment when sites are on private or State land without a valid permit.

The Act allows a private land owner to personally excavate on his own land without a permit, provided that no transfer of ownership is made with the intent of excavating archaeological sites as prohibited by the Act.

Enforcement of the State Act is in limbo following a Catron County judge ruling against application of the Act to private land. The ruling has been appealed.

The State Archaeologist (also Director of the N.M. Laboratory of Anthropology in Santa Fe), is one of three members of a committee established by the Act to prepare the N.M. Register of Culturally Significant Properties and to otherwise administer the Act.

Federal legislation and regulations cover "significant" cultural artifacts on Federal, State, and, possibly, County lands and in projects with indirect Federal involvement through funding or permitting. The term "significant" is left vague but includes sites "eligible for inclusion on the National Register of Historic Places." Federal agency responsibilities are identified for dealing with these sites, and civil and criminal penalties for violations are spelled out. Private actions on private land with no indirect Federal involvement are not covered by Federal legislation, although they are covered by State Legislation, currently under appeal.

The most blanket Federal coverage of cultural sites is provided by Sec. 106, p. 6068 of the Federal Register, January 30, 1979, under the National Historic Preservation Act, 1966, P.L. 89-665. These regulations include "indirect" Federal involvement through funding or permitting, and by including sites "eligible to be listed on the National Register of Historic Places." Federal agencies involved are required to seek comments on the project from the Advisory Council on Historic Preservation.

Copies of applicable State and Federal laws and regulations are provided in the Appendix.

#### Rare and Endangered Species

The New Mexico Heritage Program of the Natural Resources Department administers the New Mexico's Endangered Species Act. A copy of the State's rare and endangered animal and plant species is provided in the Appendix. The lists include all Federally recognized rare and endangered species, as well, pursuant to the Federal Rare and Endangered Species Act, U.S. Fish and Wildlife Services regulations. There is no State statutory authority on plants. Primarily, the Heritage Program provides guidance on plant species. Similarly, at the Federal level the original 1975 recommended plant list has not been acted upon by Congress.

## GENERAL INFORMATION

### Incentives

#### Tax Incentives

The Federal government provides tax incentives for the exploration of geothermal resources through depletion allowances under Federal tax laws, the grantor of a geothermal lease or an independent producer (that is, a person producing geothermal energy on his own land) is allowed a 22% depletion allowance as a deduction from the income derived from his geothermal resources. Since New Mexico's taxable income is based on Federal taxable income, this deduction is passed on to the state tax level.

At the present time, there are no direct tax incentives for geothermal developers under New Mexico State law. However, New Mexico's State tax rates are relatively low, and therefore act as an indirect incentive. Further, geothermal exploitation is not subject to New Mexico's Severance Tax or the Natural Resource Excise Tax.

At this time, there are no tax incentives available at the local or city level.

#### Research, Demonstration and Development

The Energy Research and Development Act, Sec. 71-4-1 NMSA 1978, created a fund, administered by the Energy and Minerals Department to stimulate research, demonstration or development projects in the energy field, including geothermal. Besides projects initiated by private or public developers, the Energy Institute at NMSU conducts on-going research in the geothermal resource field.

There are no other identified research, demonstration and development programs earmarked specifically for geothermal projects.

All state and local laws, regulations and permits apply to these R&D projects as they would to commercial projects.

Information Incentives

The Energy Resource and Development Division provides guidance to geothermal developers on the institutional requirements, and "walks" the developer through the State bureaucracies in order to expedite the processing of geothermal developments as much as possible. The staff also performs a liaison role and coordination function for the project, and stimulates information exchange among the various geothermal projects and resource people in the State.

This outreach effort, the geothermal handbook, and the Department's other public information programs, are positive demonstrations of the EMD's incentive efforts for geothermal energy.

Funding Assistance

The State's Energy Resources and Development Division attempts to identify potential funding sources and assists the developer in obtaining public and private funding for geothermal related projects. In addition, the New Mexico Energy Research and Development Program provides funding for geothermal research, geophysical and engineering projects, and demonstration projects. The annual R&D program budget is \$2.5 million.

It is assumed that the Federal geothermal handbook will identify the numerous Federal agencies' funding programs which can provide assistance to geothermal related projects.

Potential private sources of funding assistance are listed below:

Exxon USA Foundation (713) 656-3008  
800 Bell Street  
Houston, Texas 77002  
Harold A. Reddicliffe, Secretary

General giving, with primary emphasis on support of selected local community and national service activities; environmental energy, and free enterprise educational projects.

The Ford Foundation (212) 573-5000  
320 East 43rd Street  
New York, New York 10017  
Howard R. Dressner, Secretary

Grants primarily to institutions for experimental, demonstration, and developmental efforts including alternative approaches to learning; resource management and ecology; support of minority-operated community development corporations; research on international environmental problems; analysis of energy policy.

Orleton Trust Fund (415) 345-2818  
1777 Borel Place, Suite 306  
San Mateo, California 74402  
Mrs. Jean Sawyer Weaver

Primary interest is to promote sound ecology and self-sufficiency through creative and innovative solution-related programs on the local, national and international levels; alternative energy systems, farming methods and recycling technologies. Emphasis is given to the poor and the powerless at home and abroad. No grants to individuals.

### Local Incentives

The Municipal Industrial Revenue Bond Act, 3-21-1 NMSA 1978, may be one local source of funding to assist a geothermal related industry or business.

Both Counties and Municipalities may issue industrial revenue bonds to stimulate the location and expansion of commercial enterprises. A potential project must be located within corporate limits of the entity issuing the Bond. The Bonds cannot be used for utilities. Under certain circumstances, industrial revenue bonds could be used to assist in the discovery, development, demonstration, commercialization and generation of industrial, commercial or mining projects using geothermal resources. A good example of such a project would be the issuance of the bond by Sandoval County to induce a large commercial greenhouse operation to locate in the County using geothermal resources for heating the greenhouses.

Local governments could provide other funding assistance for a project if they choose to do so. These incentives could be in the form of matching funds, donated land, material or in-kind services. No specific examples of this type of assistance were identified in the preparation of this handbook.

### Local Project Sponsorship

A decided incentive to a geothermal project would be the initiation, participation in, or sponsorship of the project by one of the many local institutions.

Opposition to a potential geothermal project by these local institutions would be a sizeable impediment to rapid and successful completion of the project.

Besides Cities and Counties, appropriate local institutions are discussed below:

"Regional Councils of Governments." Regional Councils of Governments' or Economic Development Districts' powers are enumerated in Sec. 3-56-1 and 11-1-1 NMSA 1978. The Council of Governments (COG) is an association of local governments formed to work together on matters of mutual concern. The Board of Directors, composed of the heads of the member local governments, can authorize the COG to endorse projects, collect data, coordinate research, conduct planning studies, and review development proposals. The current local planning framework study for geothermal development in Dona Ana County by the Southern Rio Grande Council of Governments is an example of this cooperative effort. The COGs also act as regional clearing-houses, providing local comments, in the OMB A-95 review process for Federal grant proposals.

"Local School Boards." Powers and duties of local school boards are enumerated in Sec. 22-5-4 NMSA 1978. Local school boards have the authority to initiate or participate in geothermal resource developments for the benefit of the school district. They would not be involved in the regulation or review of a geothermal project, except as the proposed project would have a direct impact on school property, structures, or the health and safety of its students. Pertinent powers are listed below:

- Sue or be sued
- Supervise property
- Contract, lease, purchase and sell for the school district
- Acquire real estate by eminent domain as in the case of railroads
- Issue general obligation bonds
- Repair and maintain property

"Spanish Land Grants." Powers of the General Land Grants throughout New Mexico are enumerated in SEC. 49-1-1 NMSA 1978, while the additional "Powers Granted to Certain Community Land Grant Corporations" are enumerated in Sec. 49-2-1 NMSA 1978.

New Mexico is unique in the number, extent and vitality of its Spanish Land Grant organizations. The Land Grants can play an important role in the development of potential geothermal resources within their respective lands.

Among the general powers of all Land Grants Boards of Trustees are three important points, listed below:

"To control, care for and manage the grant and real estate, and to prescribe the terms and conditions under which the common lands thereof may be used and enjoyed, and to make all necessary and proper rules and regulations for the government thereof;

To sue and be sued under the title aforesaid;

To make such rules and regulations, not in conflict with the constitution and laws of the United States or the State of New Mexico, as may be necessary for the protection, improvement and management of such common lands and real estate and the use and enjoyment thereof, and of the common waters thereon."

Certain community land grants have additional powers. One pertinent power with a limitation is provided below:

"To sell, convey, lease, mortgage or otherwise dispose of so much of the land of the grant under their management and control as is held in common by the owners and proprietors.

Provided, however, that no sale of the lands held in common can be made to persons who are nonheirs of the grant unless a majority of such heirs present at a mass meeting vote in favor of any proposed sale to nonheirs, and provided, further, that no lease of the lands held in common can be made to any person whatsoever for a period of time exceeding twenty (20) years; provided, further, nevertheless, that as to any oil and gas lease executed upon lands held in common where oil and gas or either of them in commercial quantities is being, or shall be, produced from lands covered by said lease, then and in such event, this limitation as to the period of time shall not apply as to any such oil and gas lease so long as oil or gas or either of them is being produced in commercial quantities from said land."



"Soil and Water and Watershed Conservation Districts." Powers of these Districts are enumerated in Sec. 73-20-1 NMSA 1978. Statewide administrative assistance is provided by the Soil and Water Conservation Division in Santa Fe.

There are forty-seven Soil and Water Conservation Districts (SWCD) in New Mexico. The purpose of the SWCD program is to further the conservation, development, utilization, flood prevention and disposal of water to conserve and develop the natural resources of the state, and protect the tax base.

With a liberal interpretation of the Act it appears these Districts could initiate and participate in geothermal related projects as long as the projects had direct agricultural application (greenhouses, food processing run by farm cooperatives). Many District projects in the past have been production oriented such as expansion of irrigation works and it would appear that geothermal based greenhouses could be construed as a next step in this direction.

If a geothermal resource based, agricultural project was shown to be within the purpose of the Act, the SWC Districts have strong powers to carry out the project as spelled out in the Act below:

" A. levy an annual assessment on the real property within the district within the limitations provided in Section 73-20-17 NMSA 1978, for administration, construction, operation and maintenance of works of improvement within and without the district as are required by the district in the performance of its functions;

B. acquire, by purchase, gift, grant, bequest, devise or through condemnation proceedings in the manner provided in Sections 42-1-1 through 42-1-39 NMSA 1978, lands or rights-of-way necessary for the exercise of any authorized function of the district; provided, that no land or water rights shall be condemned for the purposes of recreation;

C. construct, improve, operate, contract and maintain such structures as may be necessary for the performance of any function authorized by the Watershed District Act;

D. borrow money necessary for the purpose of acquiring rights-of-way and establishing, constructing, reconstructing, repairing, enlarging and maintaining the structures and improvements required by the district in the performance of its functions, and repay these loans with the proceeds of the annual assessment provided for in Subsection A of this section or by the issuance, negotiation and sale of its bonds as provided in Section 73-20-14 NMSA 1978; and

E. receive and grant assistance and cooperate with counties, municipalities and state and federal agencies in carrying out the provisions of the Watershed District Act. "

"Resource Conservation and Development Districts." Resource Conservation and Development Districts have no statutory authority. The districts serve a coordinative function for communities, local organizations and state agencies. As a coordination and advisory body of separate entities, the Resource Conservation and Development Districts and its members may promote, encourage, endorse, or oppose geothermal development projects within their area but they cannot by themselves carry out a project. Resource Conservation and Development Districts usually operate with the assistance of the New Mexico Regional Councils of Governments.

"Water and Sanitation Associations." Powers of these Associations are enumerated on Sec. 3-29-1 NMSA 1978. These Associations are primarily established to provide for the installation of sanitary domestic water facilities or sewage works in rural areas under the Sanitary Projects Act. They probably are not prototypes for geothermal resource development.

"Water or Natural Gas Associations." Powers of these Associations are enumerated in Sec. 3-28-1 NMSA 1978. A County may establish a water or natural gas association on behalf of a rural unincorporated community for the purpose of acquiring a water or natural gas utility system. Subject to issuance of Public Convenience and Necessity by the Public Service Commission, the Association may operate these utilities similar to private utilities or municipalities. These Associations could serve as a prototype for small, rural, geothermal district heating or electrical generating utilities.

### Information Programs

The main source of public information and the most active information dissemination programs on the potential for geothermal resource development are conducted by the State Energy and Minerals Department through the local Energy Extension Service offices, the Energy Resource and Development Division's Outreach Program and the Energy Institute at NMSU.

The Energy Extension Service maintains storefront offices in Santa Fe, Roswell, Albuquerque, Las Cruces, Taos, Las Vegas, Raton and Grants, which provide guidance and assistance to the public about energy conservation and utilization of alternate energy sources. Potential geothermal resource applications are one of the energy sources they deal with.

The Energy Resource and Development Division's Outreach Program is aimed at increasing the awareness and utilization of geothermal energy by industry, commerce, agriculture, government and the general public. The Outreach Program has four major aspects:

- 1) identification of geothermal application concepts and potential developers;
- 2) identification of potential funding sources and assistance to the developer in obtaining funding;
- 3) provision of guidance and coordination between the developer and the governmental regulatory process;
- 4) participation in the State's Research and Development Program and administration of the State's Geothermal Demonstration Program.

The Energy Institute at NMSU is the primary source for research, development, and public information in the geothermal technical area pursuant to the Energy Research and Development Act. The Institute has published

numerous public information pamphlets, as well as more technical studies to inform the state's citizens of the potential application of geothermal energy. These pamphlets and technical studies are identified in the Technical Studies Chapter.

None of the other State and local institutions which may become involved in the development of a geothermal resource project provide information to the public regarding their role in the process, except in response to direct personal inquiries. Many of these institutions do maintain identifiable Public Information offices, however, their geothermal related activities are so infrequent or minor that there has been little justification to initiate any public information specifically for geothermal.

### Applicability of State Laws to Federal Lands

There are five categories of Federal lands in New Mexico, not counting Indian Tribal land and Indian Allotted land. These five categories are administered by eleven Federal agencies.

#### Federal Land Categories

1. "Public Domain" - Land acquired by the Federal Government from foreign countries by war, treaty, etc. which has not been in private ownership. Administered by BLM.

2. "Acquired Public Land" - Land acquired by the Federal Government from sources other than foreign countries. In most cases these were Public Domain lands which became private and then were acquired by the Federal Government. Administered by the BLM. Very little difference between the above two categories, except the General Mining Law of 1872 does not apply to, and there are slightly different procedures under the 1920 Mining Leasing Act, for Acquired Public Lands.

3. "Withdrawn Public Land" - Public land which the Federal Government has withdrawn from the Public Domain and is no longer subject to the laws and regulations applicable to the Public Domain. Administered by BLM. Withdrawn amounts to a temporary restriction to protect the land while another Federal agency is studying the land or attempting to transfer ownership to its jurisdiction. A good example is the WIPP site. Probably not available for geothermal leasing.

4. "National Forest Land" - Public Domain and Acquired Public Land which have been declared a National Forest or part of a National Forest. Administered by the U.S. Forest Service.

5. "Reserved Public Land" - Public Land which the Federal Government has reserved for particular purposes. For the most part, these are old water reserves dating to around 1904. Land reserved to protect water sources and to restrict transfer of ownership from the Federal Government. Mostly found along the Rio Grande, other major rivers, and prominent springs. Water holes of early 1900's. Administered by BLM. Probably not available for geothermal leases.

Acres of Federal Land in New Mexico - 1978

Agency:

Bureau of Land Management	12,959,665
Forest Service	9,241,207
Corps of Engineers	2,695,855
Bureau of Indian Affairs	255,850
National Park Service	234,057
Fish and Wildlife Service	385,584
Agriculture Research Service	105,747
Bureau of Reclamation	52,247
Energy Research and Development Agency	33,017
International Boundary and Water Commission	8,805
National Aeronautics and Space Agency	4,198
Total (33% of New Mexico)	25,911,232

For private geothermal operations on leased Federal Lands, the operator is required to comply with the rules and regulations of the following state agencies:

1. Environmental Improvement Division
2. New Mexico Heritage Program
3. Energy and Minerals Department
4. Oil Conservation Division (in so far as this agency's regulations are not in conflict with the Federal Regulations)
5. Public Service Commission
6. State Corporation Commission
7. State Engineers Office (Water Resource Division)
8. Construction Industries Division

Local governments at the city and county level have no jurisdiction over activities on Federal lands. The State Land Office deals only with State lands while the State Archaeologist deals only with State and private lands, and therefore have no jurisdiction over federally leased land.

This handbook has not addressed Federal laws, regulations or permits. It is assumed a similar handbook has been prepared for Federal actions and time periods.

## TECHNICAL STUDIES

### Technical Studies

The New Mexico Energy Research and Development Act created three Energy Institutes located respectively at the University of New Mexico, Albuquerque; New Mexico State University, Las Cruces; and New Mexico Tech, Socorro, to provide energy research and development facilities for the citizens of New Mexico. Each Institute was assigned specific energy sources and their related technical study areas. The New Mexico Energy Institute at New Mexico State University has been assigned the geothermal technical area. Thus NMEI at NMSU is the primary source for technical reports and writings concerning geothermal energy. Other sources of technical reports to be considered are the New Mexico Energy and Minerals Department library and the New Mexico State Library system. The following is a list of technical studies available at the New Mexico Energy Institute at NMSU.

### Geothermal Technical Studies in New Mexico

Research '78 - A Progress Report describes NMEI-NMSU projects up to 1978, NMEI-NMSU staff. NMEI 0-1

Alternate Energy '79 - A Research and Development Report describes NMEI-NMSU projects up to 1979, NMEI-NMSU staff. NMEI 0-2

The Geothermal Option - A Choice for New Mexico is a popular description of the resource and its potential uses, NMEI-NMSU staff. NMEI 0-3

Prospects for Geothermal Energy Development in New Mexico offers decisionmakers in the private and public sectors a step by step account of how New Mexico is developing its geothermal resource, NMEI-NMSU staff. NMEI 0-4

Geothermal Energy - A Success Study for New Mexico describes the state's progress toward geothermal commercialization, NMEI-NMSU staff. NMEI 0-6



Geothermal Investigations in Southwest New Mexico, Chandler Swanberg, New Mexico State University. NMEI 3

Geothermal Resources of New Mexico: A Survey of Work to Date, William Stone and Nancy Mizell, New Mexico Bureau of Mines and Mineral Resources, NMEI 5

Evaluation of Geothermal Potential of the Basin and Range Province of New Mexico, Jon Callender, Gary Landis, George Jiracek et al., University of New Mexico. NMEI 6

Regional Operations Research for Development of Geothermal Energy Resources in the Southwestern United States, Joseph Marlin et al., New Mexico State University. NMEI 10

Geothermal Applications Feasibility Study for the New Mexico State University Campus, Narendra Gunaji, New Mexico State University. NMEI 13

Engineering Methods for Predicting Productivity and Longevity of Hot Dry Rock Geothermal Reservoir in the Presence of Thermal Cracks, Y.C. Hsu, University of New Mexico. NMEI 15

Geothermal Applications Feasibility Study for the New Mexico Institute of Mining and Technology Campus, Alan Miller and Vernon LeFebre, New Mexico Institute of Mining and Technology. NMEI 19

Geological Investigation of Socorro Geothermal Area, Charles Chapin, New Mexico Institute of Mining and Technology, NMEI 26

Enhanced Heat Extraction from Hot Dry Rock Geothermal Reservoirs Due to Interacting Secondary Thermal Cracks, Y.C. Hsu, University of New Mexico. NMEI 27

Seismic Exploration for Shallow Magma Bodies in the Vicinity of Socorro, New Mexico: Phase One, Alan Sanford, New Mexico Institute of Mining and Technology. NMEI 28

Seismic Exploration for Shallow Magma Bodies in the Vicinity of Socorro, New Mexico, Alan Sanford & John Schlue, New Mexico Institute of Mining and Technology. NMEI 33

Deep Terrestrial Heat Flow Measurements in New Mexico and Neighboring Geologic Area, Marshall Reiter, New Mexico Institute of Mining and Technology. NMEI 38

Feasibility Study of Geothermal Energy for Heating Greenhouses, Leo LaFrance, New Mexico State University. NMEI 41

Use of Geothermal Energy for Desalination in New Mexico, Lokesh Chaturvedi, Conrad Keyes, et al., New Mexico State University. NMEI 42

Low Temperature Geothermal Energy Applications in the Albuquerque Area, David Kauffman and Arthur Houghton. NMEI 47

An Appraisal Study of the Geothermal Resources of Arizona and Adjacent Areas in New Mexico and Utah, and Their Value for Desalination and Other Uses, Chandler Swanberg, Paul Morgan et al., New Mexico State University. NMEI 6-1

Regional Operations Research Program for Development of Geothermal Energy in the Southwest United States, Quarterly Reports, Joseph Marlin et al., New Mexico State University. NMEI 10-1Q, 10-2Q, 10-3Q

The District Space Heating Potential of Low Temperature Hydrothermal Geothermal Resources in the Southwestern United States, Paul McDevitt & C.R. Rao, New Mexico State University. NMEI 10-1

Geothermal Development and Production of Electricity in the Southwestern United States, Kenneth Nowotny and C.R. Rao, New Mexico State University. NMEI 10-2

Hydrothermal Sites in the Rocky Mountain Basin and Range Region of the United States, Patrick O'Dea, Roy Cunniff, Roy Heath, & Michael Shales, New Mexico State University. NMEI 10-3

Geothermal Energy: Rocky Mountain Basin and Range Geothermal Operations/ Research Program, Presentation. NMEI 10-4

Geothermal Energy: Cities and Towns in the Rocky Mountain Basin and Range Region, Data Report, Patrick O'Dea, Roy Cunniff, John Jenkins, Gary Glazner, Michael Shales, & Roy Heath, New Mexico State University. NMEI 10-5

Geothermal Potential Applications for the Rocky Mountain Basin and Range Region, Draft Special Data Report, Roy Cunniff, C.R. Rao, Patrick O'Dea, John Jenkins, Gary Glazner, Michael Shales, & Roy Heath, New Mexico State University. NMEI 10-6

Geothermal Potential of Montana, an Economic Alternative to Conventional Energy, Roy Cunniff, C.R. Rao, Kenneth Nowotny, Gary Glazner, New Mexico State University, and Keith Brown, Montana Energy Office. NMEI 10-7

The Electricity Supply Potential of Geothermal Energy in the Rocky Mountain Basin and Range Region, 1980-1990, Paul K. McDevitt and Kenneth R. Nowotny, New Mexico State University. NMEI 30-1

Geothermal Market Penetration Assessment for Colorado, New Mexico, Montana, Roy A. Cunniff and C.R. Rao, New Mexico State University. NMEI 30-2

Vanguard. Newsletter.

Draft Environmental Overview for the Development of Geothermal Resources in the State of New Mexico, NMEI-NMSU Staff, August, 1979.

Draft Environmental Impact Statement Geothermal Demonstration Program 50 MWe Power Plant Baca Ranch, Sandoval and Rio Arriba Counties, New Mexico, U.S. Department of Energy, July, 1979.

GEOHERMAL INFORMATION SOURCES (1) (2)

FEDERAL

U.S. Department of Agriculture (505) 988-6328  
Forest Service  
Santa Fe National Forest Office  
Federal Building, 3rd Floor  
P. O. Box 1689  
Santa Fe, New Mexico 87501  
Cristobal Zamora, Forest Supervisor

U.S. Department of Agriculture (505) 988-6592  
Forest Service  
Santa Fe National Forest Office  
P. O. Box 1689  
Santa Fe, New Mexico 87501  
Joe Quade, Recreation and Lands

U.S. Department of Agriculture (505) 766-2401  
Forest Service  
Southwestern Region  
Federal Building, 517 Gold Avenue, S.W.  
Albuquerque, New Mexico 87102  
M. M. Hassell, Regional Forester

U.S. Department of Energy (505) 988-6533  
Room 102, U.S. Courthouse  
Santa Fe, New Mexico 87501  
Ron Zee, Federal/State Liaison Officer

U.S. Department of Transportation (505) 988-6255  
Federal Highway Administration  
117 U.S. Courthouse  
Santa Fe, New Mexico 87501  
John F. MacAllister, Division Administrator

U.S. Department of Housing and Urban Development (505) 766-3231  
Federal Housing Administration  
625 Truman, N.E.  
Albuquerque, New Mexico 87110  
Luther Branham, Director

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(1) Persons with an asterisk after their name were contacted for information during the preparation of this Handbook.

(2) A partial listing of Special Interest Groups, Private Consultants, Interested Persons or Geothermal Project Grant Recipients in New Mexico, is available at the Energy Resource and Development Division. The listing was compiled as a service to prospective geothermal developers and does not imply a recommendation by DOE or the N.M. Energy and Minerals Department to the exclusion of others. Individuals or companies who wish to be added to the list may so inform the Energy Resource and Minerals Division.

FEDERAL (continued)

U.S. Department of the Interior Bureau of Land Management New Mexico State Office P. O. Box 1449 Santa Fe, New Mexico 87501 Arthur W. Zimmerman, State Director John Gumert, Supervisor, Public Affairs*	(505) 988-6243
U.S. Department of the Interior Bureau of Indian Affairs First National Bank Building E P. O. Box 8327 Albuquerque, New Mexico 87198 Sidney Mills, Area Director	(505) 766-3171
U.S. Department of the Interior Northern Pueblos Agency Federal Building P. O. Box 849 Santa Fe, New Mexico 87501 Cel Papuyo, Superintendent	(505) 988-6431
U.S. Department of the Interior Southern Pueblos Agency 1000 Indian School Road, N.W. P. O. Box 1667 Albuquerque, New Mexico 87103 Sam Montoya, Superintendent	(505) 766-3021
All Indian Pueblos Council Natural Resources Project 1015 Indian School Road, N.W. P. O. Box 6507 Albuquerque, New Mexico 87103 Delfin J. Lovato, Chairman Harold Sando, Project Director	(505) 247-0486
Eight Northern Indian Pueblos Council P. O. Box 969 San Juan Pueblo, New Mexico 87566 Ed Smith, Executive Director	(505) 852-4265
Six Sandoval Indian Pueblos, Inc. P. O. Box 580 Bernalillo, New Mexico 87004 William McKinstry, Executive Director Frank Chaves, Economic Development Director	(505) 867-2393

FEDERAL (continued)

U.S. Department of the Interior (505) 766-2455  
Bureau of Land Management  
Albuquerque District Office  
P. O. Box 60770  
Albuquerque, New Mexico 87107  
L. Paul Applegate, District Manager

U.S. Department of the Interior (505) 766-3515  
Heritage Conservation and Recreation Service  
Patio Plaza, Suite 211  
5000 Marble, N.E.  
Albuquerque, New Mexico 87110  
Rolland B. Handley, Regional Director

U.S. Department of the Interior (505) 672-3861  
National Park Service  
Bandelier National Monument  
Los Alamos, New Mexico 87544  
John Hunter, Superintendent

U.S. Department of the Interior (505) 988-6388  
National Park Service  
Southwest Regional Office  
1100 Old Santa Fe Trail  
P. O. Box 728  
Santa Fe, New Mexico 87501  
John E. Cook, Regional Director

U.S. Department of the Interior (505) 988-6200  
Office of the Solicitor  
Field Solicitor  
U.S. Courthouse  
Santa Fe, New Mexico 87501

U.S. Department of the Interior (505) 766-2547  
Office of the Solicitor  
Field Solicitor  
500 Gold Avenue, S.W.  
Albuquerque, New Mexico 87102

U.S. Fish and Wildlife Service (505) 766-2321  
10304 Candelaria, N.E.  
P. O. Box 1306  
Albuquerque, New Mexico 87103  
W.O. Nelson, Jr., Regional Director

Los Alamos Scientific Laboratories (505) 677-5061  
P. O. Box 1663  
Los Alamos, New Mexico 87545  
David Freiwald, Assistant for Research

FEDERAL (continued)

U.S. Geological Survey (505) 988-6307  
Water Resources Division  
Federal Building - Cathedral Place  
Santa Fe, New Mexico 87501

U.S. Geological Survey (505) 766-2246  
Water Resources Division  
505 Marquette, N.W.  
Albuquerque, New Mexico 87102

STATE

State Land Office (505) 827-5378  
Minerals Division  
P. O. Box 1148  
State Land Office Building  
Santa Fe, New Mexico 87503  
Jack Kennedy, Director\*

Taxation & Revenue Department (505) 827-2537  
Oil and Gas Accounting Division  
Land Office Building  
Santa Fe, New Mexico 87503  
Tony Martinez, Director\*

Taxation & Revenue Department (505) 827-3221  
Fred Muniz, Secretary  
Manuel Lujan Building  
St. Francis Drive at Alta Vista  
Santa Fe, New Mexico 87503  
Jim O'Neill\*

Commerce and Industry Department (505) 827-5571  
Bataan Memorial Building  
Santa Fe, New Mexico 87503  
John Salvo, Secretary

Construction Industries Division (505) 827-5571  
Bataan Memorial Building  
Santa Fe, New Mexico 87503  
Ernest Coriz, Acting Director

Economic Development Division (505) 827-5571  
Bataan Memorial Building  
Santa Fe, New Mexico 87503  
Miriam McCaffery, Existing Industry Liaison\*

STATE (continued)

Mobile Housing Division (505) 827-5571  
Bataan Memorial Building  
Santa Fe, New Mexico 87503  
Juanita Pino, Director

Tourism and Travel Division (505) 827-5571  
Bataan Memorial Building  
Santa Fe, New Mexico 87503  
Dave Santillanes, Jr., Director

Public Service Commission (505) 827-2827  
Bataan Memorial Building  
Santa Fe, New Mexico 87503  
Robert L. Swartout, Executive Director\*

Department of Health and Environment (505) 827-5671  
P. O. Box 968  
Santa Fe, New Mexico 87503  
Dr. George S. Goldstein, Secretary

Environmental Improvement Division (505) 827-5271  
P. O. Box 968  
Santa Fe, New Mexico 87503  
Thomas E. Baca, Director  
Cubia Clayton, Chief, Statewide Services Bureau\*

Health Planning and Development Division (505) 827-5671  
P. O. Box 968  
Santa Fe, New Mexico 87503  
Danielle Wilson, Director

Health Services Division (505) 827-3201  
P. O. Box 968  
Santa Fe, New Mexico 87503  
Michael J. Burkhart, Director

Department of Human Services (505) 827-2371  
PERA Building, Room 301  
P. O. Box 2348  
Santa Fe, New Mexico 87503  
Larry Ingram, Secretary

Employment Services Division (505) 842-3239  
P. O. Box 1928  
Albuquerque, New Mexico 87103  
Eric Serna, Director

Income Support Division (505) 827-5151  
PERA Building, Room 506  
P. O. Box 2348  
Santa Fe, New Mexico 87503  
Charles Lopez, Director

STATE (continued)

Social Services Division PERA Building, Room 517 P.O. Box 2348 Santa Fe, New Mexico 87503 Margaret Larragoite, Director	(505) 827-2208
Department of Transportation P.O. Box 1028 Santa Fe, New Mexico 87503 Ruben Miera, Secretary	(505) 827-2045
Motor Vehicle Division Manuel Lujan Sr. Building Santa Fe, New Mexico 87503 Jerry Manzagol, Director	(505) 827-2924
Energy & Minerals Department P.O. Box 2770 Santa Fe, New Mexico 87503	(505) 827-2471
Oil Conservation Division State Land Building P.O. Box 2088 Santa Fe, New Mexico 87503 Joe Ramey, Director Dann Nutter, Engineer*	(505) 827-2432
Energy Resource & Development Division 113 Washington Avenue Santa Fe, New Mexico 87503 George Scudella, Energy Consultant* Dennis Fedor, Energy Consultant*	(505) 827-2471
Mining & Minerals Division Emery C. Arnold, Director Kay Hatton, Staff Geologist, Bureau of Geology First Northern Plaza East P.O. Box 2860, Santa Fe, New Mexico 87501	(505) 827-5621
Natural Resources Department Soil and Water Conservation Division 1405 Luisa Street Santa Fe, New Mexico 87503 Audi Miranda, Director* Albert Marquez, Planner*	(505) 827-5182
Forestry Division Land Office Building Santa Fe, New Mexico 87503 Ray Gallegos, Director	(505) 827-2312
Game and Fish Division Villagra Building, Second Floor Santa Fe, New Mexico 87503 Harold F. Olson, Director	(505) 827-2923



STATE (continued)

Park and Recreation Division P. O. Box 1147 Santa Fe, New Mexico 87503 Mark K. Sideris, Director	(505) 827-2726
Water Resources Division Bataan Memorial Building Santa Fe, New Mexico 87503 Steve Reynolds, Director, State Engineer D.E. Gray, Chief, Water Rights Bureau* M. B. Compton, Engineer*	(505) 827-2526
State Planning Office 505 Don Gaspar Avenue, Greer House Santa Fe, New Mexico 87503 Judi Ross, Director	(505) 827-2073
New Mexico Heritage Program Villagra Vuilding, Basement Santa Fe, New Mexico 87503 William Isaacs, Director*	(505) 827-3149
Bureau of Mines and Mineral Resources New Mexico Institute of Mining and Technology Socorro, New Mexico 87801 Frank E. Kottowski, Director	(505) 835-5420
New Mexico Water Resources Research Institute Box 3167 New Mexico State University Las Cruces, New Mexico 88003 Tom Bahr	
Energy Institute New Mexico State University Post Office Box 3EI Las Cruces, New Mexico 88003 Arlene Starkey, Director	(505) 646-1745
Energy and Minerals Department Energy Conservation and Management Division Energy Extension Service Santa Fe - 113 Washington Avenue Albuquerque - 3018 Monte Vista N.E. 87106 Roswell - 330 N. Richardson Street 88201 Las Cruces - Mechem House 88003 Grants - 1500 Third Street 87020 Las Vegas - 608 Douglas Avenue 87701 Taos - P. O. Box 2334 87571	(505) 827-2386 (505) 842-3158 (505) 623-9010 (505) 526-5002 (505) 287-7984 (505) 425-3876 (505) 758-4051

REGIONAL

Four Corners Regional Commission (505) 766-2990  
2350 Alamo, S.E., Suite 303  
Albuquerque, New Mexico 87106  
Paul Mackey, Executive Director

North Central New Mexico Economic Development District (505) 827-2014  
P. O. Box 5115  
Santa Fe, New Mexico 87502  
Leo Murphy, Executive Director

Southern Rio Grande Council of Governments (505) 523-7474  
575 So. Alameda Street  
City/County Office Building  
Las Cruces, New Mexico 88001  
Sanchez, Executive Director (new)  
Glenn Hummer, Executive Director (resigned)\*

Middle Rio Grande Council of Governments (505) 243-2819  
505 Marquette Avenue, N.W., Suite 1320  
Albuquerque, New Mexico 87101  
Al Pierce, Executive Director

San Juan Regional Committee (505) 334-9464  
San Juan County Courthouse  
Aztec, New Mexico 87410

McKinley Area Council of Governments (505) 722-4237  
309 South Third Street  
Gallup, New Mexico 87301

Eastern Plains Council of Governments (505) 762-7714  
Curry County Courthouse  
Clovis, New Mexico 88101

Southwest New Mexico Council of Governments (505) 388-1974  
P. O. Box 2157  
Silver City, New Mexico 88061

Southeast New Mexico Economic Development District (505) 347-5425  
Roswell International Air Center  
Roswell, New Mexico 88201

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COUNTY

Santa Fe County P. O. Box 276 Santa Fe, New Mexico 87501 Gil Tercero, Land Use Administrator* Earl Potter, Attorney*	(505) 988-8871
Los Alamos County P. O. Box 30 Los Alamos, New Mexico 87544 Neil G. Seeley, County Administrator	(505) 622-4122 ext. 60
Sandoval County P. O. Box 40 Bernalillo, New Mexico 87004 Carlos Pino, County Manager	(505) 867-2342
Taos County P. O. Box 1914 Taos, New Mexico 87571 Allen Vigil, Planner*	(505) 758-8834
Bernalillo County City/County Planning Department 400 Marquette, N.W. Albuquerque, New Mexico 87103 Lloyd Barlow, Planner*	(505) 766-7371
Dona Ana County 575 So. Alameda Street City/County Office Building Las Cruces, New Mexico 88001 Fred Day, County Manager	(505) 523-5634
Sierra County 300 Date Street Truth or Consequences, New Mexico 87901	(505) 894-2840
Socorro County 200 Church Avenue, S.W. Socorro, New Mexico 87801	(505) 835-0423
Luna County 700 S. Silver Street Deming, New Mexico 88030 Administrative Assistant	(505) 546-8051
Hidalgo County Courthouse Lordsburg, New Mexico 88045 County Manager	(505) 542-9428
Grant County Courthouse Silver City, New Mexico 88061 County Manager	(505) 538-3338

CITY

City of Santa Fe (505) 982-4471  
City Hall  
200 Lincoln Avenue  
P. O. Box 909  
Santa Fe, New Mexico 87501  
James Siebert, Planner\*

City of Albuquerque (505) 766-7371  
City/County Planning Department  
400 Marquette, N.W.  
Albuquerque, New Mexico 87103  
Lloyd Barlow, Planner\*

Town of Taos  
Armory Building  
Taos, New Mexico 87571  
Bill Sisneros, Town Manager\*

City of Las Cruces (505) 526-0280  
575 So. Alameda Street  
City/County Office Building  
Las Cruces, New Mexico 88001  
J. R. Harrison, City Manager

City of Socorro (505) 835-0241  
201 Church Avenue, S.W.  
Socorro, New Mexico 87801  
James Cole, Building Inspector, Zoning Officer,  
Utilities Director\*

## ANALYSIS AND RECOMMENDATIONS FOR STATE PROCEDURE

There are eleven state agencies which have jurisdiction over some phase of a project to develop geothermal resources. At first glance this may seem to be a large and unwieldy number of bureaucracies for a developer to deal with. However, each one of these agencies addresses itself to a particular need in protecting the citizens of New Mexico from hazardous or undesirable development practices. Therefore, it is inappropriate to presume that any of the agencies should relinquish their powers over their phase of geothermal development. As long as the developer is aware of the specific agencies involved and in what sequence and at what stage of his project he should begin dealing with each agency, he should be able to comply with all regulations in such a manner as to minimize the amount of delay in his project due to bureaucracy. This handbook attempts to present a coordinated game plan for dealing with agencies. It is when the developer comes to the agency (for permitting or go ahead) unprepared or in non-compliance that the delays occur. Each agency contacted has sufficient personnel to deal with the approaching developer. If at sometime in the future an agency were to experience a time delay for processing due to lack of personnel, they would expand their staff accordingly.

At first glance, it may seem that a small geothermal operation (not involving a utility) would have difficulty dealing with the agencies because of its lack of legal and technical staff. However, it must be remembered that the smaller the operation, the smaller the potential impact on the population at large, and the less complicated the dealings with each agency would be.

A large project would require a legal staff in order to deal with the proceedings involved with the Public Service Commission.

In the case of a large project, where it is deemed necessary, it would be in the best interest of all for facilitating the development of geothermal resources, if there were more cooperative effort among the state agencies. For example, development efforts would be facilitated if the State Land Office, when considering an application for lease, would contact the Environmental Improvement Division, State Engineer, State Heritage Program and the State Archaeologist, so that they would have a chance to informally comment about the potential negative impacts of such a lease in regards to their individual charges and concerns. They would not have veto power over the granting of the lease. But they would make the lessee aware of any probable future difficulties he may have in his future dealings with their respective agencies.

Similarly, coordination between the Oil Conservation Division, State Engineer, EID and the Energy and Minerals Department would be helpful so as to alert each respective agency to potential technical problems or inadequacies in the project's program. A coordinated effort among these agencies would alleviate duplication in paper work for the developer. The Energy and Minerals Department would serve as the liaison between these agencies, and as the moving force behind their coordination.

However, even though some coordination between agencies would be helpful, it must be recognized that the developer is responsible to each agency separately and he cannot expect the agencies to coordinate and combine their activities solely for his benefit. Such a combination would be too expensive in time and money to the citizens of New Mexico. Without

allowing the individual agencies to regulate their particular charge, the system of safeguards to protect the public at large would be destroyed. With proper planning a developer should not have prohibitive difficulties in complying with the regulations of the state agencies involved. Also, the fees, rents and royalties assessed to geothermal developers by the State are minor when compared to the overall cost of development.

One step the State could take which would further the development of geothermal resources, would be the determination, either by law or court proceedings, of exactly what geothermal energy is. Namely, is it a mineral, is it oil and gas, or is it water (steam vapor)? Once this issue has been decided, some of the ambiguities in dealing with the resource could be resolved, namely, the ambiguity created by the divergent philosophies of prior appropriation (water) and correlative rights (oil and gas), as discussed earlier. This determination could encourage more investment in geothermal developments since clarification under the laws would reduce the investors' risk.

To date there has been relatively little geothermal development within the State. As more projects are proposed, and the state agencies actually run through the process of dealing with such developments, new insights will arise as to how to minimize the work load of compliance for both the agency and the developer.

APPENDIX

This Appendix contains copies of pertinent State statutes and various State agencies regulations, guidelines, and permitting or licensing forms. In some instances, because of the length of the law, only a Table of Contents or Index is provided in this compilation.

The compilation is provided only as a guide to the reader and is not intended to be an inclusive listing of the numerous laws and regulations applicable to a geothermal development project.

Because of the relative infancy of geothermal development activity the laws, regulations, and permit procedures are subject to revision. The reader is advised to check with the specific agencies involved to obtain the most recent and accurate regulatory material. The State Supreme Court Library contains all of the State statutes updated to 1978. Photocopies of specific pages can be obtained for a nominal fee.



INDEX OF STATE LAWS, REGULATIONS, PERMITS IN VOLUMES 1 & 2 OF APPENDIX

Energy Resources and Development Division

Laws: Energy Research and Development Act 71-1-1 NMSA 1978

State Land Office

Laws: Geothermal Resources Act, as amended, with emergency clause, Sec. 19-13-1, NMSA 1979.

Regulations: Rules and Regulations Relating to Geothermal Resources Leases as amended 1979

Forms: 1) Application for Geothermal Resources Lease upon State Lands  
2) New Mexico State Land Office, Bond for Performance of Mineral Lease

Oil Conservation Division

Laws: Geothermal Resources Conservation 71-5-1 NMSA 1978, and 1979 amendments

Regulations: Geothermal Resources, Rules and Regulations, updated to 1979

Permits: All Oil Conservation Division permits regarding geothermal resources

Water Resources Division (State Engineer's Office)

Laws: a) New Mexico Water Law 72-1-1 NMSA 1978 Index only; entire statutes are 79 pages long.

b) Special Districts 73-1-1 NMSA 1978 Index only

c) Aquifer containing non-potable water at a depth of twenty-five hundred feet or more excluded from underground basin. Sec. 72-12-25 NMSA 1978.

Regulations: Rules and Regulations Governing Drilling of Wells and Appropriation and Use of Groundwater in New Mexico, 1977 updated.

Permits: Application for Permit to appropriate the Underground Waters of the State of New Mexico

Guidelines: "New Mexico View of Groundwater Law" by D. E. Gray, Chief, Water Rights Bureau

D. E. Gray letter to Mr. Bennie G. DiBona, U.S. Department of Energy, Division of Geothermal Energy, August 27, 1979, regarding Draft EIS for Baca Ranch, Geothermal Demonstration Program

Public Service Commission

Laws: New Mexico Statutes 1978 Annotated, Chapter 62: Electric, Gas and Water Utilities, Pamphlet 100: 62-1-1 through 62-15-33

Rules and Regulations: General Orders 1-32 of Public Service Commission

State Corporation Commission

Regulations: Requirements to Qualify a Foreign Corporation Under the Laws of the Business Corporation Act of New Mexico

Forms: 1) Application for Certificate of Authority

2) Affidavit of Acceptance of Appointment by Designated Initial Registered Agent

Construction Industries Division

Laws: Construction Industries Licensing Act 60-13-4, NMSA 1978  
Regulations: N.M. Uniform Building Code  
Permit: Form Application for State Building Permit

Taxation and Revenue

Oil and Gas Accounting Division

Laws: Oil and Gas Conservation Tax Act 7-30-1 to 7-30-26 NMSA 1978  
Forms: Operators Remittance Report 0-1  
Operators Unit Report 0-2

Laboratory of Anthropology/State Archaeologist

State Laws: N.M. Cultural Properties Act 1977 Sec. 18-6-1 NMSA 1978

Regulations: --

Permits Forms: --

Federal Laws: a) Federal Antiquities Act, 1906 PL 34-209  
b) National Historic Preservation Act, 1977 PL 89-665  
Regulations: Federal Register January 30, 1979  
p. 6-68 CFR 36-800  
c) Executive Order 11593 May 13, 1971  
Protection and Enhancement of the Cultural Environment  
d) Archaeological and Historic Preservation Act of 1974 PL 93-291  
Procedures: Federal Register March 26, 1979, p. 18117  
e) Archaeological Resources Protection Act of 1979 (Senate Bill 490)

New Mexico Heritage Program

Laws: N.M. Endangered Species Act 17-2-41 NMSA 1978

Regulations: No. 599, Listing of Endangered Species and Subspecies of New Mexico,  
May 25, 1979

Guidelines: Endangered and Threatened Plant Species in New Mexico, revised  
9-11-79

Local Governments

Municipalities - Index of State Law 3-1-1 through 3-61-4 NMSA 1978

Counties - Index of State Law 4-37-1 through 4-37-9 NMSA 1978

Water and Natural Gas Associations - Index of State Law 3-28-1 through  
3-28-20 NMSA 1978

Water & Sanitation Districts Index of State Law 73-21-1 NMSA 1978 & 3-29-3  
NMSA 1978

Soil and Water and Watershed Conservation Districts 73-20-1 NMSA 1978

Spanish Land Grants and Corporations for Management of Community Land Grants  
Index of State Laws 49-1-1 through 49-2-18 NMSA 1978

Resource Conservation and Development Districts HUB RC&D public information  
literature

Municipal Industrial Revenue Bonds - public information literature.

Environmental Improvement Division - Vol. 2 of Appendix

All Laws and Regulations, Compilation updated to 1978, administered by the  
Environmental Improvement Division, including the Water Quality Control  
Commission