CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
COLORADO RIVER BASIN REGION

ORDER NO. 83-74

WASTE DISCHARGE REQUIREMENTS
FOR
MAGMA POWER COMPANY
THREE GEOTHERMAL DEVELOPMENT WELLS
East Mesa Area - Imperial County

The California Regional Water Quality Control Board, Colorado River Basin Region, finds that:

1. Magma Power Company, (hereinafter also referred to as the discharger), 631 South Witmer Street, Los Angeles, CA 90017, submitted a Report of Waste Discharge, dated June 7, 1983.

2. The discharger proposes to drill three development geothermal wells in the East Mesa area at the following locations:

Well	Location
81-7	NE¼, NE¼, NE¼ of Section 7, T16S, R17E, SBB&M
61-7	NE¼, NW¼, NE¼ of Section 7, T16S, R17E, SBB&M
63-7	NE¼, SW¼, NE¼ of Section 7, T16S, R17E, SBB&M

3. An impervious lined mud sump, 125 feet by 50 feet by 5 feet deep, with an approximate capacity of 234,000 gallons would be constructed at each well site. Each site would utilize about one acre of surface area.

4. The discharger proposes to discharge into each mud sump a maximum of 96,000 gallons of drilling mud and drill cuttings. Following some evaporation, the residual mud would be removed from the sumps and discharged at a solid waste disposal site approved by the Regional Board to receive this waste.

5. The drilling mud components which may be used are:

Bentonite
Lignite
Caustic Soda (NaOH)
Detergent
Sodium Bicarbonate
Sodium Polyacrylate
Mica
Sawdust
Sodium Hexametaphos

Superseded 1/27/88 by order # 88-12

6. The discharger proposes to discharge into each mud sump 21,000 gallons of cleanout fluid. Final disposal of this fluid would be by subsurface reinjection, or after some evaporation, the residual fluid would be discharged at a Class I or Class II-1 solid waste disposal site approved by the Regional Board to receive this waste.

7. Production flow testing fluids would be injected subsurface.

8. Geothermal brines in portions of Imperial County are known to contain certain constituents which are classified as hazardous by the Department of Health Services, Hazardous Materials Management Section, in accordance with California Administrative Code, Title 22, Chapter 30, Article 9, Section 66680.

9. The Water Quality Control Plan for the West Colorado River Basin was adopted on April 10, 1975. The Basin Plan contains water quality objectives for the Imperial Hydrologic Unit.

10. There are no surface waters in the vicinity of the discharge. Shallow ground waters are of marginal quality and presently are not beneficially used. Deep ground waters are being tested for potential geothermal power production.

11. The Regional Board approved on September 21, 1983, Negative Declaration SCH #83070608 for these wells in accordance with California Environmental Quality Act and State Guidelines. The Board determined that there will be no substantial adverse effect on the environment as a result of this project.

12. The Department of Fish and Game's review of the proposed Initial Study and Negative Declaration contained a recommendation that waterfowl and other wildlife be protected from the geothermal fluids in the sumps. However, the discharger assures that protective measures would be provided.

13. The Board has notified the discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for the proposed discharge.

14. The Board in a public meeting heard and considered all comments pertaining to the discharge.

IT IS HEREBY ORDERED, Magma Power Company shall comply with the following:

A. Discharge Specifications

1. Neither the treatment nor the discharge of wastes shall create a pollution or a nuisance as defined in Division 7 of the California Water Code.

2. Geothermal fluids and other wastes shall not enter any rivers, canals, drainage channels, or drains (including subsurface drainage systems), which could provide flow or seepage to Salton Sea.

3. Temporary discharge and/or storage of drilling mud, drill cuttings and cleanout fluid other than in mud sumps or other containers having a lining coefficient of permeability of 1×10^{-6} cm/sec., or less, is prohibited, and the fluids contained within shall not penetrate through the lining during the containment period.

4. Long term storage and/or discharge of geothermal wastes for longer than one year, other than in containers having a lining coefficient of permeability of 1×10^{-8} cm/sec., or less, is prohibited, and the fluids contained within shall not penetrate through the lining during the containment period.

5. Adequate protective works and maintenance shall be provided to assure that mud sumps will not become eroded or otherwise damaged during the project period, and/or until all well drilling and well cleanout materials are removed.

6. A minimum freeboard of at least two feet shall be maintained in mud sumps.

7. Permanent disposal of drilling muds or any wastes is prohibited at the well sites.

8. Fluids discharged by subsurface injection shall not be discharged into any subsurface zone which has a total dissolved solids concentration of less than 10,000 mg/l, unless the total dissolved solids concentration of the injection water is less than or equal to that of the receiving water.

9. Saline drilling muds, with extractable water containing a total dissolved solids concentration exceeding 6,000 mg/l, and brine and salt wastes, shall be discharged at a Class I or Class II-1 disposal site approved by the Regional Board to receive said waste.

10. Non-saline drilling muds, with extractable water containing a total dissolved solids concentration which is less than 6,000 mg/l, and not containing hazardous wastes[1] may be disposed at a Class II-2 disposal site approved by the Regional Board to receive said wastes.

11. Final disposal of residual wastes in accordance with Specifications No. 8., 9., and 10. above, and cleanup of all contents, shall be accomplished upon abandonment of operations. Lack of construction or operational activity on the site for a period of one year shall constitute abandonment for the purposes of this Order.

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1. See Attachment A

12. The total volume of fluids discharged into the sumps shall not exceed 250,000 gallons-per-day.

B. Provisions

1. The discharger shall comply with "Monitoring and Reporting Program No. 83-74", and future revisions thereto, as specified by the Executive Officer.

2. At least 5 days prior to the discharge of any materials into a mud sump, the discharger shall submit to the Regional Board a technical report showing the construction of each sump, and a certificate signed by a California Registered Civil Engineer stating that the sump and attendant facilities are constructed to meet the requirements of this Order.

3. The discharger shall submit to the Board, at least 30 days prior to commencement of operation at each well, a written report on the proposed method and estimated costs of cleanup and closure of each well site in a manner that will not adversely effect water quality.

I, Arthur Swajian, Executive Officer, do hereby certify the foregoing is a full, true and correct copy of an Order adopted by the California Regional Water Quality Control Board, Colorado River Basin Region, on September 21, 1983.

Arthur Swajian
Executive Officer

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
COLORADO RIVER BASIN REGION

ATTACHMENT A
to Board Order No. 83-74

Threshold Limit Concentrations
for
Bioaccumulative Toxic Substances

A. Limitations

Drilling mud, cuttings, and other geothermal wastes containing the following substances having concentrations equal to or greater than those listed below are designated as hazardous by the State of California Department of Health Services.

	Soluble Threshold Limit wet weight mg/kg	Total Threshold Limit wet weight mg/kg
1. Arsenic and compounds	5	50
2. Barium (excluding barite) and compounds	100	1,000
3. Lead compounds, inorganic	5	50
4. Lead compounds, organic	—	13
5. Zinc compounds	20	200

B. Definitions of Limitations

1. The waste is designated hazardous if the wet weight analysis of any of the above constituents exceed the Total Threshold Limits as listed above. The waste would therefore not be acceptable for disposal in a Class II-2 waste disposal site. No further analyses are necessary.

2. The waste is considered to contain non-hazardous levels of the above substances if all of the weight analyses of the above constituents do not exceed the Soluble Threshold Limits as listed above. The waste would therefore be acceptable for disposal in a Class II-2 waste disposal site provided the waste also complies with the other Discharge Specifications and Provisions in this Order. No further analyses of the metal constituents are necessary.

3. If the analyses of the waste do not conform to the conditions described under Definitions 1 or 2, above, extractions of the soluble waste constituents must be made in accordance with a procedure approved by the Executive Officer and analyzed for those constituents in which the wet weight concentrations exceeded the Soluble Threshold Limits as listed above.

   (a) If the wet weight analysis of <u>any</u> of soluble constituents exceeds the Soluble Threshold Limits listed above, the waste is designated hazardous and is not acceptable for disposal in a Class II-2 waste disposal site.

   (b) If the wet weight analyses of <u>all</u> of the soluble constituents do not exceed the Soluble Threshold Limits as listed above, the waste is considered to contain non-hazardous concentrations of these constituents. The waste would therefore be acceptable for disposal in a Class II-2 waste disposal site provided the waste also complies with the other Discharge Specifications and Provisions in this Order.

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
COLORADO RIVER BASIN REGION

MONITORING AND REPORTING PROGRAM NO. 83-74
FOR
MAGMA POWER COMPANY
THREE GEOTHERMAL DEVELOPMENT WELLS
East Mesa Area - Imperial County

Location of Discharge: Section 7, T16S, R17E, SBB&M

MONITORING

Magma Power Company shall report monitoring data to the Regional Board in accordance with the following schedule:

1. The discharger shall submit to the Board, at least 30 days prior to commencement of operation at each well, a written report on the proposed method and estimated costs of cleanup and closure of each well site in a manner which would not adversely effect water quality.

2. At least 5 days prior to the discharge of any drilling mud or geothermal materials into a mud sump or other container, the dischager shall submit to the Regional Board a technical report on the construction of said container, and a certificate signed by a California Registered Civil Engineer stating that the container and attendant facilities are constructed to meet the requirements contained in Board Order No. 83-74.

3. At least 10 days before the initial discharge of any geothermal fluids from each well, the discharger shall report said plan to discharge to the Board.

Constituents	Units	Reporting Frequency
4. Volume of geothermal wastes contained in each sump.	Gallons	Monthly
5. Volume of saline drilling mud and salt and brine waste hauled to a Class I or Class II-1 waste disposal site, and name of site.	Gallons	Monthly
6. Volume and total dissolved solids concentration of non-saline drilling mud hauled to a Class II-2 waste disposal site, and name of site.	Gallons and mg/l	Monthly

Constituents	Units	Reporting Frequency
7. Total dissolved solids concentration of waste fluid injected into each injection well.	mg/l	Monthly
8. Total dissolved solids concentration of ground water contained in strata receiving waste fluid injection.	mg/l	At least 10 days prior to commencement of injection.

9. Representative samples of drilling mud, cuttings, and geothermal fluid to be discharged at a Class II-2 waste disposal site shall be analyzed for the following constituents (in accordance with Attachment A of Order No. 83-74), which shall be reported to the Regional Board five days prior to discharge:

Constituents	Unit
Arsenic and compounds	mg As/kg wet sample weight
Barium (excluding barite) and compounds	mg Ba/kg wet sample weight
Lead compounds, inorganic	mg Pb/kg wet sample weight
Lead compounds, organic	mg Pb/kg wet sample weight
Zinc compounds	mg Zn/kg wet sample weight

10. Immediate reporting of any accidental spillage or release of waste material, and plan for immediate measures being taken to correct same and to limit detrimental effects.

11. Report of completion of removal of all geothermal waste from mud sumps - reported within one week following completion of work.

12. At least 10 days prior to destruction of each sump, the discharger shall request a Regional Board staff inspection and approval of the cleanup procedure.

REPORTING

The above monitoring program shall be implemented immediately upon commencement of discharge at each site.

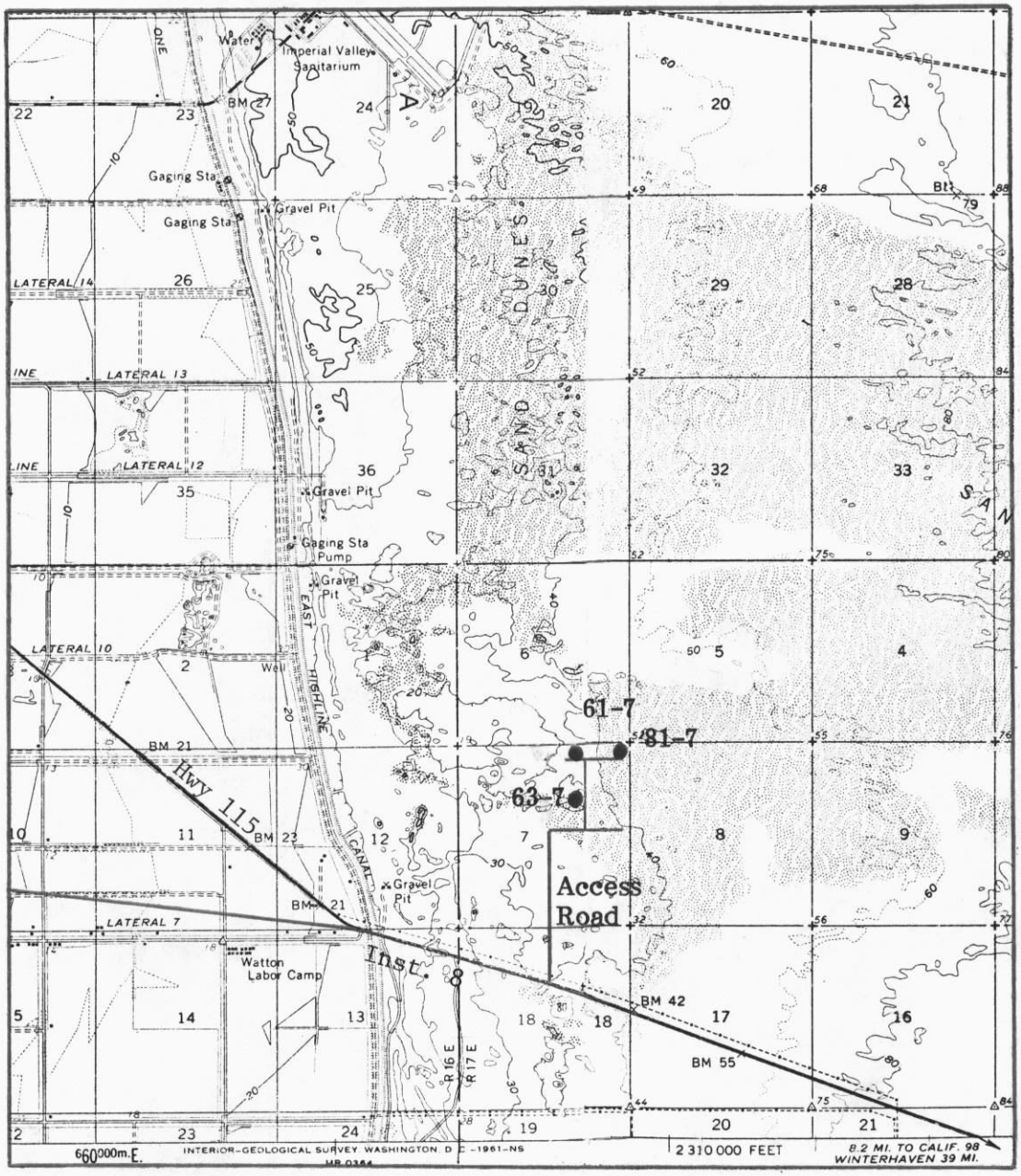
Monthly reports shall be submitted to the Regional Board by the 15th day of the following month. Reports for Item 10 (above) shall be forwarded immediately and if at all possible shall be preceded by phone communication to the Regional Board's office. Phone No. (619) 346-7491. Copies of the reports submitted to the Board pursuant to this Monitoring and Reporting Program shall be maintained at the operations site, and shall also be made available to staff of the Regional Board upon request.

Mail reports to:

California Regional Water Quality Control Board
Colorado River Basin Region
73-271 Highway 111, Suite 21
Palm Desert, CA 92260

ORDERED BY: Arthur Swajian
Executive Officer
Oct. 4, 1983
Date

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD - 7



N.

Scale:
1" = 1 mi.

SITE MAP

MAGMA POWER COMPANY
GEOTHERMAL WELLS
East Mesa Area - Imperial County
Portions of the N½ of Section 7, T16S, R17E, SBB&M
USGS Holtville and Glamis 15 min. Topographic Maps

Order No. 83-74

INITIAL STUDY

MAGMA POWER COMPANY
FOUR GEOTHERMAL DEVELOPMENT WELLS
IN EAST MESA AREA

I. Description of the Project

II. Environmental Setting

III. Environmental Effects

IV. Discussion of Environmental Evaluation

V. Compatibility with Existing Plans and Zoning

VI. Preparer's Certification

I. Description of Project

Magma Power Company, 631 S. Witmer Street, Los Angeles, CA 90017, proposes to drill four deep development geothermal wells in the East Mesa area on Federal Lease CA-964. These wells are necessary to define the limits and commercial potential of the geothermal resources. The following sequence of operations may occur when drilling each development well:

1. Construct drilling site, including pad and required access roads, if any.

2. Drill each well and discharge drilling mud and drill cuttings into mud sump, with final disposal at a Regional Board approved disposal site.

3. Cleanout each well and discharge fluids into mud sump or into impervious storage tanks, with final disposal by subsurface reinjection.

4. Flow test each well and discharge fluids by injection subsurface.

5. Place well on sustained production test.

6. If well does not demonstrate satisfactory commercial potential, possibly convert for use as an injection well.

There would be one new access road proposed. Each well pad would be about one acre. A total of about four acres may be affected by the project.

II. Environmental Setting

The vicinity in the area of proposed operations is a desert environment dominated by creosote bush vegetational community and wildlife habitat. These development wells would add to the geothermal energy being supplied to the existing Magma 10MW power plant, which is about one-half mile west of the proposed sites.

The East Highline Canal is about one and one-half miles west of the well sites. The agriculture portion of the Imperial Valley is immediately west of this canal. The incorporated community of Holtville is the nearest populated area and is about seven miles north and west of the sites. Imperial County has recognized and approved the East Mesa as a probable area of geothermal resource development.

III. Environmental Effects

	YES	MAYBE	NO
1. Earth. Will the proposal result in:			
a. Unstable earth conditions or in changes in geologic substructures?	___	___	X
b. Disruptions, displacements, compaction or overcovering of the soil?	X*	___	___
c. Change in topography or ground surface relief features?	X*	___	___
d. The destruction, covering or modification of any unique geological or physical features?	___	___	X
e. Any increase in wind or water erosion of soils, either on or off the site?	___	X*	___
f. Changes in deposition or erosion of beach sands, or changes in siltation, depositions or erosion which may modify the channel of a river or stream or the bed of the ocean or any bay, inlet or lake?	___	___	X
g. Exposure of people or property to geologic hazards such as earthquakes, landslides, mudslides, ground failure, or similar hazards?	___	X*	___
2. Air. Will the proposal result in:			
a. Substantial air emissions or deterioration of ambient air quality?	___	X*	___
b. The creation of objectionable odors?	___	X*	___
c. Alteration of air movement, moisture or temperature, or any change in climate, either locally or regionally?	___	___	X
3. Water. Will the proposal result in:			
a. Changes in currents, or the course or direction of water movements, in either marine or fresh water?	___	___	X

*See Section IV

	YES	MAYBE	NO
b. Change in absorption rates, drainage pattern, or the rate and amount of surface water runoff?	___	___	X
c. Alterations to the course or flow of flood waters?	___	___	X
d. Change in the amount of surface water in any water body?	___	___	X
e. Discharge into surface waters, or in any alteration of surface water quality, including but not limited to temperature, dissolved oxygen or turbidity?	___	___	X
f. Alteration of the direction or rate of flow of ground waters?	___	___	X
g. Change in quantity of ground waters, either through direct additions or withdrawals, or through interception of the aquifer by cuts or excavations?	___	___	X
h. Substantial reduction in the amount of water otherwise available for public water supplies?	___	___	X
i. Exposure of people or property to water related hazards such as flooding or tidal waves?	___	___	X
4. Plant Life. Will the proposal result in:			
a. Change in the diversity of species, or number of any species of plants (including trees, shrubs, grass, crops, microflora and aquatic plants)?	___	___	X
b. Reduction of numbers of any unique, rare or endangered species of plants?	X*	___	___
c. Introduction of new species of plants into an area, or in a barrier to the normal replenishment of existing species?	___	___	X
d. Reduction in acreage of any agricultural crop?	___	___	X

*See Section IV

	YES	MAYBE	NO
5. Animal Life. Will the proposal result in:			
a. Change in the diversity of species, or numbers of any species of animals (birds, land animals including shellfish, reptiles, fish and benthic organisms, insects or microfauna)?	___	___	X
b. Reduction of the numbers of any unique, rare or endangered species of animals?	___	___	X
c. Introduction of new species of animals into an area, or result in barrier to the migration or movement of animals?	___	___	X
d. Deterioration to existing fish or wildlife habitat?	X*	___	___
6. Noise. Will the proposal result in:			
a. Increases in existing noise levels?	X*	___	___
b. Exposure of people to severe noise levels?	___	___	X
7. Light and Glare. Will the proposal produce new light or glare?	___	___	X
8. Land Use. Will the proposal result in a substantial alteration of the present or planned land use of an area?	___	___	X
9. Natural Resources. Will the proposal result in:			
a. Increase in the rate of use of any natural resources?	X*	___	___
b. Substantial depletion of any nonrenewable resource?	___	___	X
10. Risk of Upset. Does the proposal involve a risk of an explosion or the release of hazardous substances (including, but not limited to, oil, pesticides, chemicals or radiation) in the event of an accident or upset condition?	___	X*	___

*See Section IV

	YES	MAYBE	NO
11. Population. Will the proposal alter the location, distribution, density or growth rate of the human population of an area?	___	___	X
12. Housing. Will the proposal affect existing housing, or create a demand for additional housing?	___	___	X
13. Transportation/Circulation. Will the proposal result in:			
a. Generation of substantial additional vehicular movement?	___	___	X
b. Effects on existing parking facilities, or demand for new parking?	___	___	X
c. Substantial impact upon existing transportation systems?	___	___	X
d. Alterations to present patterns of circulation or movement of people and/or goods?	___	___	X
e. Alterations to waterborne, rail or air traffic?	___	___	X
f. Increase in traffic hazards to motor vehicles, bicyclists or pedestrians?	___	___	X
14. Public Services. Will the proposal have an effect upon, or result in a need for new or altered governmental services in any of the following areas:			
a. Fire protection?	___	___	X
b. Police protection?	___	___	X
c. Schools?	___	___	X
d. Parks or other recreational facilities?	___	___	X
e. Maintenance of public facilities, including roads?	___	___	X
f. Other governmental services?	___	___	X

*See Section IV

	YES	MAYBE	NO
15. Energy. Will the proposal result in:			
a. Use of substantial amounts of fuel or energy?	___	___	X
b. Substantial increase in demand upon existing sources of energy, or require the development of new sources of energy?	___	___	X
16. Utilities. Will the proposal result in a need for new systems, or substantial alterations to the following utilities:			
a. Power or natural gas?	___	___	X
b. Communications systems?	___	___	X
c. Water?	___	___	X
d. Sewer or septic tanks?	___	___	X
e. Storm water drainage?	___	___	X
f. Solid waste and disposal?	___	___	X
17. Human Health. Will the proposal result in:			
a. Creation of any health hazard or potential health hazard (excluding mental health)?	___	___	X
b. Exposure of people to potential health hazards?	X*	___	___
18. Aesthetics. Will the proposal result in the obstruction of any scenic vista or view open to the public, or will the proposal result in the creation of an aesthetically offensive site open to public view?	X*	___	___
19. Recreation. Will the proposal result in an impact upon the quality or quantity of existing recreational opportunities?	___	___	X

*See Section IV

	YES	MAYBE	NO
20. Archeological/Historical. Will the proposal result in an alteration of a significant archeological or historical site, structure, object or building?	___	___	X
21. Mandatory Findings of Significance.			
a. Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	___	___	X
b. Does the project have the potential to achieve short-term, to the disadvantage of long-term, environmental goals? (A short-term impact on the environment is one which occurs in a relatively brief, definitive period of time while long-term impacts will endure well into the future.)	___	___	X
c. Does the project have impacts which are individually limited, but cumulatively considerable? (A project may impact on two or more separate resources where the impact on each resource is relatively small, but where the effect of the total of those impacts on the environment is significant.)	___	___	X
d. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	___	___	X

*See Section IV

IV. Discussion of Environmental Evaluation

This project will not result in any significant effects on the environment.

1.b During well pad and sump construction, it will be necessary to displace minor amounts of sandy soil and to cover the site(s) with sufficient clay or gravel materials to provide suitable soil base for access.

1.c Up to four acres will be graded flat with a topographic modification of about three to ten feet which will not be a significant effect.

1.e During construction of the site, newly exposed soils may be susceptible to wind erosion. This will be mitigated by watering the exposed areas during construction and during periods of significant vehicular traffic.

1.g Both induced seismicity and subsidence are recognized to be potentially associated with geothermal production activities. Federal requirements for baseline and operational monitoring should provide adequate identification of potential problems. The relatively small volume of fluid produced from an exploratory well should not result in either induced seismic events or detectable subsidence.

2.a Noncondensable gases in the geothermal fluids produced at East Mesa have, to date, shown very low concentrations of hydrogen sulfide, ammonia, and non-methane hydrocarbons. Neither national nor state ambient air quality standards should be expected to be exceeded as a result of emissions from the proposed operations.

2.b Hydrogen sulfide is known to be a malodorous emission associated with geothermal energy resources. To date, only minute concentrations of hydrogen sulfide have been detected at East Mesa wells. In addition, the proposed operations are remote from the human environment. No significant malodors are anticipated.

4.b The plant species desert buckwheat, Eriogonum deserticola, is known to grow in the vicinity of the proposed operations. This plant has been identified by the Calfornia Native Plant Society as a threatened species; however, large populations have been identified on East Mesa and the plant has subsequently been recommended for deletion from the threatened species list. The proposed operations should not remove significant populations of the species nor remove significant potential habitat from the species.

5.d Wildlife habitat comprising the project site will be eliminated during the life of the project.

6.a Noise levels will be maintained within guidelines specified by Federal occupational safety and health standards, and requirements of the United States Geological Survey. Muffling devices will be utilized and rig engines will be equipped with mufflers. Air quality will comply with local air pollution control standards.

9. The project would produce a substantial amount of geothermal fluid during the testing operation. Ninety percent of this fluid would be injected back into the reservoir. Ten percent would be lost to evaporation.

10. The potential for an accidental release of geothermal fluid from a well blowout, pipeline rupture, or sump failure is possible. The potential for accidental fluid releases is mitigated by stringent equipment requirements including blowout protectors and the use of appropriate operating procedures and safety precautions.

17.b All equipment will be secured within a chain-linked fence when not in use. Wells will be surrounded by a chain-link fence when completed. Supervisory personnel will be on the site at all times during the course of operations. All state and federal requirements for casing and blow-out prevention will be followed.

18. The proposed operations would temporarily affect the scenic view of the desert environment from the public lands in the vicinity of the project site. The drilling rig would be visible during drilling operations lasting three to five weeks for each well. Subsequently, steam plume(s) may be intermittently visible during the course of well testing operations. Because similar operations are frequent in the vicinity, no significant additional impacts are anticipated from the proposed project.

V. Compatibility with Existing Plans and Zoning

This project is in accordance with existing County and Regional Plans, including the Water Quality Control Plans for the West Colorado River Basin (7A).

VI. Preparer's Certification

On the basis of this initial evaluation:

X I find the proposed project COULD NOT have a significant affect on the environment, and a NEGATIVE DECLARATION will be prepared.

___ I find that the proposed project could have a significant effect on ground water quality. However, there will not be a significant effect in this case because mitigation measures will be contained in waste discharge requirements, which are to be adopted by the Regional Water Quality Control Board, Colorado River Basin Region. Also, mitigation measures of possible significant effects are described on the attached sheet, and a NEGATIVE DECLARATION is required.

___ I find the proposed project MAY have a significant affect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

June 20, 1983
Date

Arthur Sevajian
Signature

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
COLORADO RIVER BASIN REGION

ATTACHMENT
FOR
MAGMA POWER COMPANY
THREE GEOTHERMAL DEVELOPMENT WELLS
East Mesa Area - Imperial County

APPENDIX

The Regional Board staff has reviewed the comments from each of the state agencies and offers the following responses:

Agency - Department of Fish and Game

Comment No. 1: "Site 63-7 shall be relocated to higher ground. However, if this is not possible, then the pad shall be lined with impervious materials to prevent geothermal fluids from leaching or escaping into the low lying ponded area."

Response No. 1: Magma Power Company has moved Well Site No. 63-7 to the east on higher ground.

Comment No. 2: "Protective small-mesh netting should cover all sumps containing geothermal fluids, especially during the waterfowl migratory season (February, March, April, and September, October and November), to prevent birds from landing on the sump. This will also prevent small mammals and other wildlife from contacting any toxic fluids."

Response No. 2: Magma states that protective measures are to be provided to prevent waterfowl and other wildlife from contacting geothermal fluids in the sumps.

Comment No. 3: "Site 41-7 shall be eliminated or relocated outside of the influence of the low lying ponded area. This is necessary to decrease any chance for contamination of the nearby drainage areas from seepage of geothermal fluids."

Response No. 3: Magma informs that Well Site No. 41-7 has been elminated and will not be relocated.

Agency - Department of Water Resources

Comments:

Because of the potential danger of contamination of the surface and ground water resources in the area from the leaking of noxious geothermal products, the report should indicate what safety measures will be taken to protect these resources. In addition, the Department of Water Resources recommends the following guidelines:

a. Adequate plans should be prepared in advance to deal with a disaster, natural or human.

b. Adequate hydrological and geological data on the surface and subsurface areas should be furnished by the sponsor before initiating the drilling operations.

c. Records should be kept of all significant events and made available upon request.

d. All toxic wastes should be stored in places designated as able to withstand earthquakes, floods, and other natural disasters. All storage facilities should be of impervious materials and their construction should be under the supervision of a registered civil engineer.

Responses:

The purpose of the Regional Board Waste Discharge Requirements, contained in Order No. 83-45, is to insure protection of the surface and ground water resources from degradation resulting from discharge of geothermal wastes. The guidelines listed above should be adequately addressed by the following requirements respective for each:

a. Monitoring and Reporting Program No. 83-74 which is a part of the requirements, requires in Item 10: "Immediate reporting of any accidential spillage or release of waste material, and plan for immediate measures being taken to correct same and to limit detrimental effects".

b. Finding 10 of said Order states: "There are no surface waters in the vicinity of the discharge. Shallow ground waters are of marginal quality and presently are not beneficially used. Deep ground waters are being tested for potential geothermal production". Also, Item 8 of the Monitoring and Reporting Program requires reporting of the Total Dissolved Solids concentration of ground water contained in strata receiving waste fluid injection at least 10 days prior to commencement of injection.

c. The Monitoring and Reporting Program should serve also as a record of all significant events at the sites, and shall be made available to Board staff upon request.

d. Discharge Specifications A.3 and A.4 of said Order require the extent of impervious lining needed to safely store geothermal wastes for specific periods. Specification A.5 requires adequate flood protection of the sumps, and Provision B.2 requires submittal of the technical report at least 5 days prior to discharge showing the construction of each sump, and certification by a California Registered Civil Engineer.

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
COLORADO RIVER BASIN REGION

NEGATIVE DECLARATION
SCH #83070608

___ Draft

X Final

PROJECT TITLE:

Magma Power Company, three geothermal development wells on Federal lease CA-964 Magma Power Company, East Mesa KGRA, Imperial County, CA.

Magma Power Company proposes to drill three development geothermal wells in the East Mesa area at the following locations:

Well	Location
81-7	NE¼, NE¼, NE¼ of Section 7, T16S, R17E, SBB&M
61-7	NE¼, NW¼, NE¼ of Section 7, T16S, R17E, SBB&M
63-7	NE¼, SW¼, NE¼ of Section 7, T16S, R17E, SBB&M

The following sequence of operations may occur when drilling each development well:

1. Construct drilling site, including pad, mud sump and required access road, if any.
2. Drill each well and discharge drilling mud and drill cuttings into sump, with final disposal at a Regional Board approved disposal site.
3. Cleanout each well and discharge fluids into sump, with final disposal by subsurface reinjection.
4. Flow test each well and discharge fluids by injecting subsurface.
5. Place well on sustained production test.
6. If well does not demonstrate satisfactory commercial potential, possibly convert for use as an injection well.

There is to be one new access road proposed. Each well pad would be about one acre. A total of three acres may be affected by the project.

THE CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD, COLORADO RIVER BASIN REGION, HAS DETERMINED THAT THE PROPOSED PROJECT WILL NOT HAVE A SIGNIFICANT EFFECT ON THE ENVIRONMENT FOR THE FOLLOWING REASONS:

1. This project is in accordance with existing County and regional plans, including the Water Quality Control Plan for the West Colorado River Basin (7A).

2. No significant adverse impacts to beneficial uses of surface or ground waters as a result of changes in water quality or quantity are indicated.

3. No significant adverse impacts upon fish, wildlife, or natural vegetation are indicated.

4. No significant adverse impacts to rare or endangered species as a result of this project are indicated.

5. No significant adverse impacts on esthetics, air quality, noise levels, land forms, or nonrenewable resources are indicated.

6. No significant secondary impacts resulting from growth inducement or limits to potential uses are indicated because of the limited effects and purposes of the project.

7. This project will not result in adverse impacts to historic or archaeological sites.

Sept. 21, 1983
Date

Arthur Swajian
ARTHUR SWAJIAN
Executive Officer