

NEGATIVE DECLARATION
Pursuant to Section 21108
Public Resources Code

State of California
The Resources Agency
1416 Ninth Street, Room 1311
Sacramento, CA 95814

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

PROJECT TITLE: "Mesa Geothermal Well No. 87-6 and Pump Test"

PROJECT DESCRIPTION:

Republic Geothermal, Inc. (RGI), operator for Sperry Research Center under contract to the U.S. Department of Energy (DOE) is proposing to construct a drilling and equipment testing pad (160m x 120m) at East Mesa, California (T.16 S., R.17 E., Sec.6); drill one new 1830 m deep production well (87-6) and rework an existing injection well in Sec. 5 (well 5-1); build a geothermal fluid disposal pipeline (300 m long) from well 87-6 to DOE's existing brine-holding pond at DOE's Geothermal Component Test Facility; and install, test, and remove a binary-fluid down-hole pump designed by Sperry Research Center. The two fluids are the geothermal fluid, and refrigerant R-114 which will be circulated in well 87-6 in its own closed system, and used to drive the down-hole pump. RGI also proposes to construct a tool-handling practice area at well 5-1 by putting a 76 cm diameter caisson 30 m into the ground. No new surface disturbance will be needed at the well 5-1 site for this practice area. If this down-hole pump test is successful, then Sperry intends to install a down-hole heat exchanger and small (1 to 5 Mw) surface power plant, which will be the subject of a future plan of operation and environmental assessment.

THE CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD, COLORADO RIVER BASIN REGION, HAS DETERMINED THAT THE PROPOSED ACTION 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 Plans for the West Colorado River Basin (7A).
2. No significant adverse impacts to beneficial uses of surface or groundwaters 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 purpose of the project.
7. This project will not result in adverse impacts to historic or archaeological sites.

CONTACT PERSON: Arthur Swajian, Executive Officer

TELEPHONE: (714) 346-7491

DATE: _____

ARTHUR SWAJIAN
Executive Officer

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
COLORADO RIVER BASIN • REGION 7

73-271 HIGHWAY 111, SUITE 21
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Initial Study

Mesa Geothermal Well No. 87-6 and Pump Test

- I. Description of the Project
- II. Environmental Setting
- III. Environmental Effects (Checklist)
- IV. Mitigation of Significant Effects
- V. Compatibility with Existing Plans and Zoning
- VI. Contact with Responsible Agencies
- VII. Preparer's Certification
- VIII. Attachments

I. Description of the Project

Republic Geothermal, Inc. (RGI), operator for Sperry Research Center under contract to the U.S. Department of Energy (DOE) is proposing to construct a drilling and equipment testing pad (160m x 120m) at East Mesa, California (T.16 S., R.17 E., Sec.6); drill one new 1830 m deep production well (87-6) and rework an existing injection well in Sec. 5 (well 5-1); build a geothermal fluid disposal pipeline (300 m long) from well 87-6 to DOE's existing brine-holding pond at DOE's Geothermal Component Test Facility; and install, test and remove a binary-fluid down-hole pump designed by Sperry Research Center. The two fluids are the geothermal fluid, and refrigerant R-114 which will be circulated in well 87-6 in its own closed system, and used to drive the down-hole pump. RGI also proposes to construct a tool-handling practice area at well 5-1 by putting a 76 cm diameter caisson 30 m into the ground. No new surface disturbance will be needed at the well 5-1 site for this practice area. If this down-hole pump test is successful, then Sperry intends to install a down-hole heat exchanger and small (1 to 5 Mw) surface power plant, which will be the subject of a future plan of operation and environmental assessment.

II. Environmental Setting

The vicinity in the area of proposed operations is a desert environment dominated by creosote bush vegetational community and wildlife habitat. Various exploratory and developmental geothermal resource projects are in existence or proposed in the area including the Magma 10 Mw power plant about two miles south, the Republic 10 Mw power plant about two miles north, and the GCTF adjacent to the proposed project site.

The East Highline Canal is about one and one-half miles west of the project site and the agricultural portion of the Imperial Valley is immediately west of the canal. The incorporated community of Holtville is the nearest populated area and is about seven miles north and west of the project site. Imperial County, through their Geothermal Element, has recognized and approved the East Mesa as a probable area of geothermal resource development.

III. Environmental Effects

1. Name of Proponent Republic Geothermal, Inc.
2. Address and Phone Number of Proponent 11823 E. Slauson Avenue, Suite 1, Santa Fe Springs, CA 90670
3. Date of Checklist Submission _____
4. Agency Requiring Checklist California Regional Water Quality Control Board, Colorado River Basin Region
5. Name of Proposal, if applicable Mesa Geothermal Well No. 87-6

ENVIRONMENTAL IMPACTS

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

*See attached sheet

	<u>YES</u>	<u>MAYBE</u>	<u>NO</u>
b. Change in absorption rates, drainage pattern, or the rate and amount of surface water runoff?	_____	_____	<u>X</u>
c. Alterations to the course or flow of flood waters?	_____	_____	<u>X</u>
d. Change in the amount of surface water in any water body?	_____	_____	<u>X</u>
e. Discharge into surface waters, or in any alteration of surface water quality, including but not limited to temperature, dissolved oxygen or turbidity?	_____	_____	<u>X</u>
f. Alteration of the direction or rate of flow of ground waters?	_____	_____	<u>X</u>
g. Change in quantity of ground waters, either through direct additions or withdrawals, or through interception of the aquifer by cuts or excavations?	_____	_____	<u>X</u>
h. Substantial reduction in the amount of water otherwise available for public water supplies?	_____	_____	<u>X</u>
i. Exposure of people or property to water related hazards such as flooding or tidal waves?	_____	_____	<u>X</u>
4. <u>Plant Life.</u> 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)?	_____	_____	<u>X</u>
b. Reduction of the numbers of any unique, rare or endangered species of plants?	<u>X*</u>	_____	_____

*See attached sheet

	<u>YES</u>	<u>MAYBE</u>	<u>NO</u>
c. Introduction of new species of plants into an area, or in a barrier to the normal replenishment of existing species?	_____	_____	<u>X</u>
d. Reduction in acreage of any agricultural crop?	_____	_____	<u>X</u>
5. <u>Animal Life</u> . Will the proposal result in:			
a. Change in the diversity of species, or numbers of any species of animals (birds, land animals including reptiles, fish and shellfish, benthic organisms, insects or microfauna)?	_____	_____	<u>X</u>
b. Reduction of the numbers of any unique, rare or endangered species of animals?	_____	_____	<u>X</u>
c. Introduction of new species of animals into an area, or result in a barrier to the migration or movement of animals?	_____	_____	<u>X</u>
d. Deterioration to existing fish or wildlife habitat?	<u>X*</u>	_____	_____
6. <u>Noise</u> . Will the proposal result in:			
a. Increases in existing noise levels?	<u>X*</u>	_____	_____
b. Exposure of people to severe noise levels?	_____	_____	<u>X</u>
7. <u>Light and Glare</u> . Will the proposal produce new light or glare?	_____	_____	<u>X</u>
8. <u>Land Use</u> . Will the proposal result in a substantial alteration of the present or planned land use of an area?	_____	_____	<u>X</u>
9. <u>Natural Resources</u> . Will the proposal result in:			
a. Increase in the rate of use of any natural resources?	<u>X*</u>	_____	_____
b. Substantial depletion of any nonrenewable resource?	_____	_____	<u>X</u>

*See attached sheet

	<u>YES</u>	<u>MAYBE</u>	<u>NO</u>
10. <u>Risk of Upset.</u> 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?	<u>X*</u>	---	---
11. <u>Population.</u> Will the proposal alter the location, distribution, density or growth rate of the human population of an area?	---	---	<u>X</u>
12. <u>Housing.</u> Will the proposal affect existing housing, or create a demand for additional housing?	---	---	<u>X</u>
13. <u>Transportation/Circulation.</u> Will the proposal result in:			
a. Generation of substantial additional vehicular movement?	---	---	<u>X</u>
b. Effects on existing parking facilities, or demand for new parking?	---	---	<u>X</u>
c. Substantial impact upon existing transportation systems?	---	---	<u>X</u>
d. Alterations to present patterns of circulation or movement of people and/or goods?	---	---	<u>X</u>
e. Alterations to waterborne, rail or air traffic?	---	---	<u>X</u>
f. Increase in traffic hazards to motor vehicles, bicyclists or pedestrians?	---	---	<u>X</u>
14. <u>Public Services.</u> 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?	---	---	<u>X</u>
b. Police protection?	---	---	<u>X</u>
c. Schools?	---	---	<u>X</u>

*See attached sheet

	<u>YES</u>	<u>MAYBE</u>	<u>NO</u>
d. Parks or other recreational facilities?	_____	_____	<u>X</u>
e. Maintenance of public facilities, including roads?	_____	_____	<u>X</u>
f. Other governmental services?	_____	_____	<u>X</u>
15. <u>Energy</u> . Will the proposal result in:			
a. Use of substantial amounts of fuel or energy?	_____	_____	<u>X</u>
b. Substantial increase in demand upon existing sources of energy, or require the development of new sources of energy?	_____	_____	<u>X</u>
16. <u>Utilities</u> . Will the proposal result in a need for new systems, or substantial alterations to the following utilities:			
a. Power or natural gas?	_____	_____	<u>X</u>
b. Communications systems?	_____	_____	<u>X</u>
c. Water?	_____	_____	<u>X</u>
d. Sewer or septic tanks?	_____	_____	<u>X</u>
e. Storm water drainage?	_____	_____	<u>X</u>
f. Solid waste and disposal?	_____	_____	<u>X</u>
17. <u>Human Health</u> . Will the proposal result in:			
a. Creation of any health hazard or potential health hazard (excluding mental health)?	_____	_____	<u>X</u>
b. Exposure of people to potential health hazards?	_____	_____	<u>X</u>
18. <u>Aesthetics</u> . 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?	<u>X*</u>	_____	_____

*See attached sheet

YES

MAYBE

NO

19. Recreation. Will the proposal result in an impact upon the quality or quantity of existing recreational opportunities?

_____ _____ X

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

VIII. ATTACHMENT TO ENVIRONMENTAL CHECKLIST FORM

Explanation of "Yes" and "Maybe" Answers to Environmental Impacts

- 1.b During well pad and sump construction, it will be necessary to displace minor amounts of sandy soil and to cover the site with sufficient clay or gravel materials to provide suitable soil base for access. Only the approximately 4.9 acres of project site should be affected.
- 1.c Approximately 4.9 acres will be graded flat with a topographic modification of about three 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.
- 2.c Very slight increases in air moisture content can be expected in the immediate vicinity of the geothermal fluid separators as a result of flashing the resource fluids to steam. No adverse long-term effects have been identified which could be attributed to a temporary increase in relative humidity from the proposed operations.
- 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 California 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. Noise levels from construction, drilling, and testing operations will be increased substantially during the proposed operations. Noise levels will be regulated by the USGS and must be less than 65 db(A) from the source of the noise during all geothermal activities. The project site is remote from human receptors and should not be a significant impact on the environment.
- 9.a The project will produce 500,000 lbs/hr of geothermal fluid during the testing operation. Ninety percent of this fluid will be injected back into the reservoir. Ten percent will 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 and the use of appropriate operating procedures and safety precautions. The USGS is the regulatory agency charged with these responsibilities on Federal lands. Their evaluation of the project resulted in a Negative Determination, including a determination that the potential for accidental fluid releases is minimal and as such no significant related environmental impacts should be anticipated. The potential exists for the accidental release of the R-1114 fluid, although this fluid is noted for its low toxicity, inflammability and inertness. Accidental releases of this fluid should not be a significant hazard.
18. The proposed operations will temporarily effect 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. Subsequently, a steam plume 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.

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD ←

COLORADO RIVER BASIN • REGION 7

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PALM DESERT, CALIFORNIA 92260
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April 10, 1979

UNIVERSITY OF UTAH
RESEARCH INSTITUTE
EARTH SCIENCE LAB.

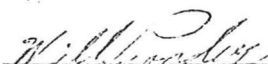
TO ALL INTERESTED PARTIES:

In accordance with Section 2723(c) of Subchapter 17, Chapter 3, Title 23 and Section 15803(d) of Article 7, Chapter 3, Title 14 of the California Administrative Code, notice is hereby given that the California Regional Water Quality Control Board, Colorado River Basin Region has prepared a Negative Declaration and Initial Study for Republic Geothermal, Inc., "Mesa Geothermal Well No. 87-6 and Pump Test". ←

Please find enclosed a copy of said documents. The Regional Board will accept comments on the Negative Declaration and Initial Study until May 4, 1979. ←

If you have any questions, please contact our office in Palm Desert at (714) 346-7491.

Very truly yours,


WILL PONDER
Sr. WRC Engineer

WCP/slh