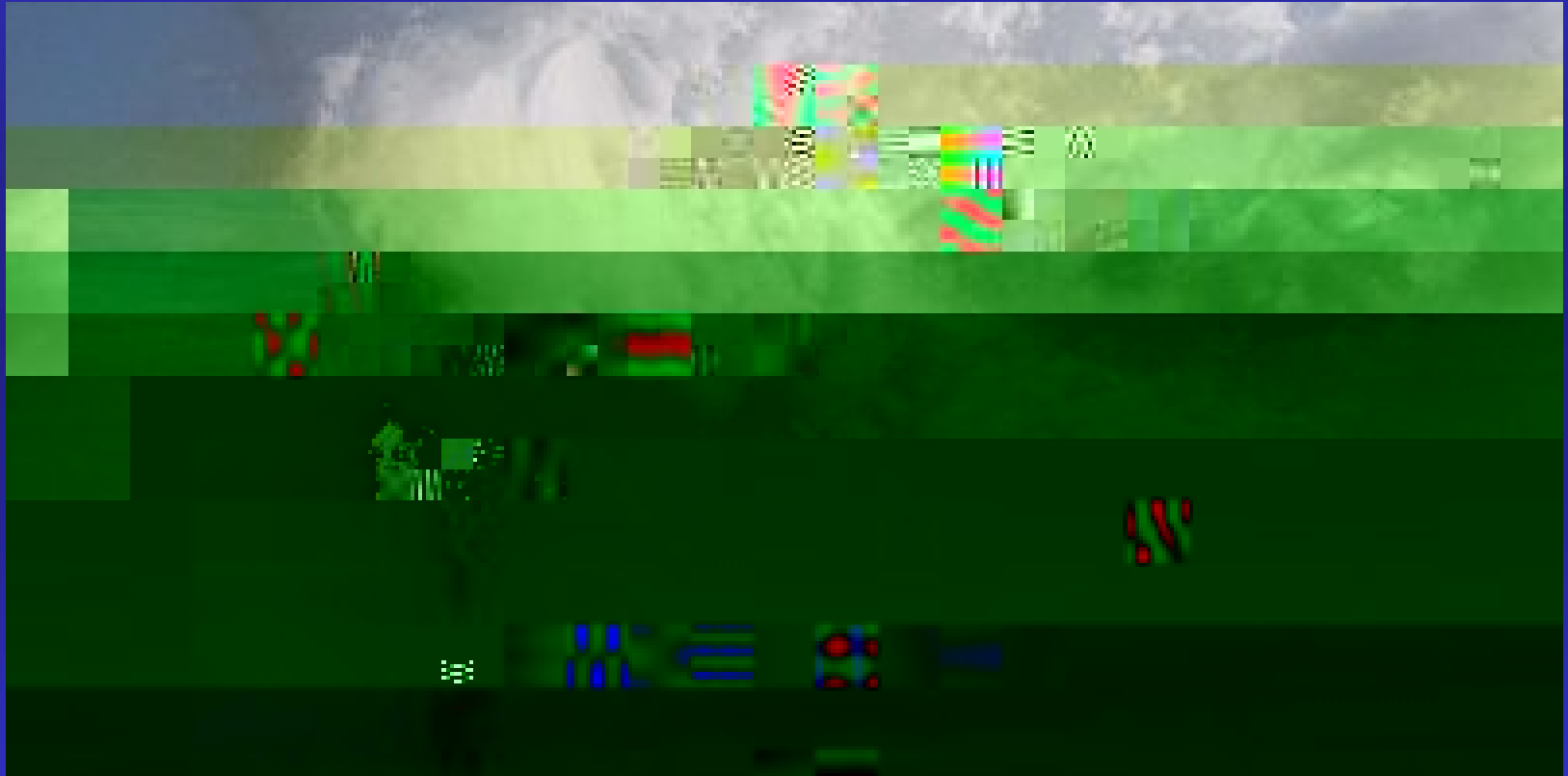


Role of The Railroad Commission in Regulating Development of Geothermal Energy in Texas

**Doug O. Johnson, PE
Railroad Commission of Texas**

**Geothermal Energy Conference
Southern Methodist University
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GEO THERMAL – TEXAS STYLE!



Introduction

- **Geothermal Resources Act of 1975 – Codified as Chapter 141 of the Natural Resources Code.**
- **RRC rules applicable to oil and gas formally extended to apply to geothermal operations.**
- **Summary of basic requirements.**
- **Useful information maintained by the RRC.**

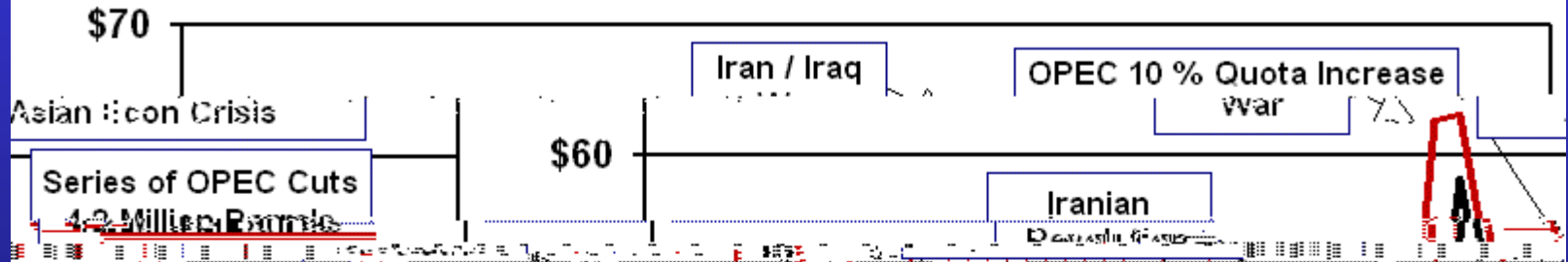
Background

- **RRC curtailed production to meet market demand until 1972.**
- **The first Arab Oil Embargo began in October 1973. Supply plummets and prices skyrocket.**
- **America scrambles to find alternative fuels, including geothermal.**

Key Dates

- **1972 – peak US production**
- **1973 – Arab Oil Embargo**
- **1975 – Geothermal Resources Act**
 - RRC Rulemaking
 - State Energy Conservation Office (SECO)
 - GLO and TCEQ
- **1983 – Texas gets primacy over UIC**
- **1989 – 1st and only Texas GT-power plant**
- **Present – renewed emphasis on alternatives**

Crude Oil Prices 2004 Dollars



RRC Regulations

- **Primary directives:**
 - Prevent waste
 - Promote conservation
 - Protect correlative rights
 - Protect environmental health and safety
- **Applicable to oil, gas and geothermal operations.**

RRC Regulations

- **Must have a valid Organization Report (Form P-5) updated annually.**
- **Maintain adequate financial security.**
- **Drilling permits (Form W-1) done online.**
- **Compliance certificate (Form P-4) designates operator of well property.**
- **Production reports.**
- **Injection permits**

Geothermal Injection Wells

- **Underground Injection Control provisions of Safe Drinking Water Act**
- **Oil and Gas waste injected into Class II wells**
- **Injection of geothermal fluids considered Class V for UIC purposes**

Oil & Gas Wells in Texas

- **250,000 \pm active oil and gas wells**
-

7. RRC District

**GEOHERMAL PRODUCTION TEST
COMPLETION OR RECOMP**

1. FIELD NAME (as per RRC Records or Wellbore)

2. OPERATOR

3. ADDRESS

4. If Operator has changed within last 60 Days -- Give former

5a. LOCATION (Section, Block, and Survey)

5b. (If Workover -- Give former Field (with Reservoir))

SECTION 1

15. Date	16. Static test Shut-in well head		17. Total	
	Temp. P	Press. Psig	Lbs/Hr	Temp.

INSTRUCTIONS: All production test forms, with all Railroad Commission not later than 150 days of acceptable Form within the 150 days as specified here more than 150 (150) days prior to receipt and recd

FORM GT-2

CORRECTED REPORT

STATE OF TEXAS
OIL AND GAS DIVISION

Month: _____, 19____

Page Number: _____

11. Percentage produced (Water, Gas, MCP, Other)	12. Percentage of Geothermal Energy
13. Flow temp. (°F)	14. Flow pres. (psig)
15. Flow stream produces (lbs ± 10%)	16. (lbs ± 10%)
17. Well Number	18. Well Identification Number

MONTHLY GEOHERMAL GATHERER'S REPORT

Gatherer Name: _____
Address: _____

FIELD OPERATOR LEASE

PRODUCER'S MONTHLY REPORT OF GEOHERMAL WELLS

Operator Address: _____

RAILROAD COMMISSION DISTRICT FIELD LEASE

1. Well Number	2. Well Identification Number
3. Well Number	4. Well Identification Number

Residual Water	Acre Feet	Gallons †	Disposition of Water
Type and Weight of Minerals Extracted	Disposition of Minerals		

† State type of product: Dry Steam, Geothermal Water, _____

APPLICATION TO INJECT FLUID INTO A RESERVOIR PRODUCTIVE OF GEOHERMAL RESOURCES

7. Have any injection permits been granted previously to any operator in this reservoir? Yes No

11. Composition (sand, limestone, dolomite, etc.)	12. Type of Structure (include cross-section and structural maps)
13. Original Bottom Hole Pressure (psig)	14. Current Bottom Hole Pressure (psig)
15. Was Hydrocarbon Gas Present Originally?	16. Original Average Reservoir Temperature

RESERVOIR AND FLUID DATA

17. Number of Productive Acres in Lease(s) within Project Area	18. Average Depth to Top of Pay (ft.)	19. Average Effective Pay Thickness (ft.)
20. Average Horizontal Permeability (mds.)	21. Range of Horizontal Permeability (mds.)	22. Average Porosity (%)

PRODUCTION HISTORY OF RESERVOIR

23. Date First Well Completed on Lease(s)	24. Stage of Primary Depletion of Project Area
25. Current Number of Producing Wells on Each Lease in Project Area	26. Current Mass Production (lbs. ± 10%)
27. SUBMIT ATTACHED SHEETS GIVING THE TOTAL MASS PRODUCTION BY YEARS SINCE DISCOVERY & TOTALS. FOR THE LAST 3 YEARS, GIVE THESE FIGURES BY MONTHS.	

INJECTION DATA

CERTIFICATE: _____ Signature: _____

DATE OF PROPOSED PERMITS

Information Resources

Central Records

- Hearing records
- Geologic maps
- Reservoir studies

Web Site

- “Interactive Data”
- “Information Resources”

Information Resources

- www.rrc.state.tx.us
- GIS map viewer
- Gas well completion reports (Form G-1)
- Annual well status reports (Forms G-10, W-10, and H-10)

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Thank you!

Questions?