TO: James L. App, City Manager

FROM: Meg Williamson, Assistant to the City Manager/Interim Public Works Director

SUBJECT: Mineral Hot Spring Mitigation –
California Energy Commission Grant Applications

DATE: March 16, 2004

Needs: For the City Council to consider filing California Energy Commission Geothermal Grant Applications to partially fund examination of various spring mitigation measures.

Facts:

1. Following the December 22, 2003 earthquake, a mineral hot spring ruptured underground and surfaced onto the parking lot of the City's Library/City Hall facility.

2. The City engaged the services of geologic, geothermal and hydrogeologic experts to examine the scientific characteristics of the spring and recommend mitigation and/or use alternatives.

3. Based on information generated to date, the City has developed a phased plan to identify parking lot and excavation repair options, confirm interim water disposal/diversion as a long-term mitigation, and explore possible beneficial uses of the water.

4. The City is seeking reimbursement of costs from FEMA. However, it is possible that not all of the costs will be reimbursable.

5. Therefore, a funding source has been identified for the analysis of potential water use alternatives. The California Energy Commission (CEC) has a Geothermal Grant Application Program available to local governments for geothermal-related activities. This is a competitive grant program that requires City commitment of both administrative in-kind participation, and in some cases, hard cost matching fund.

6. In the 1980's the City obtained a similar grant from the CEC which resulted in the completion of a Geothermal Report of the underlying hydrogeological structure of the Paso Robles area. This document has proven valuable as a resource, especially in the context of this new mineral springs challenge.

7. The City has filed four (4) pre-applications to the CEC for geothermal resources assessment, spring development and well installation, study of hot water uses, and flow mitigation.

8. The attached letter from Floyd Butterfield, dated February 16, 2004, indicates the budget break down for each of the four applications. Two of the four would require no matching funds. In the two projects that require the City to match costs in cash, $29,480 provides for project management and some material costs.

9. Attached to this report is a narrative description of each of the four CEC applications, and a summary budget for each. A brief summary is as follows:

   Geothermal Resource Assessment
   This grant request is to fund work to assess the geographic and geologic setting for the geothermal resource using ground temperature surveys and other geologic and hydrologic methods. Flow measurement and chemical analyses of the recently appeared spring will also be taken and analyzed to collect baseline information needed for planned and possible future spring, production well, or reinjection well development or mitigations. *Grant Amount Request: $109,100*

   Hot Spring Development/Well Installation
   Purpose of the grant would be to 1) Acquire all necessary permits for the well including those required for CEQA compliance; 2) Contract with a geologic consulting firm to monitor during drilling; 3) Complete the anticipated well design and contract with a drilling company for well installation; 4) Establish communication between the well and the spring flow and attempt to shut off flow through cement injections in the well; 5) Construct appropriate wellhead to allow use of the flow. *Grant Amount Request: $123,000*

   Feasibility Study to Identify and Study Potential Hot Water Uses
   Purpose of grant would be to 1) Identify feasible direct applications, analyze feasibility and success potential; 2) Identify priorities and pursue commitment with potential owner/users; 3) Conduct economic feasibility of beneficial uses at existing public facilities. *Grant Amount Request: $44,481*

   Geothermal Spring Flow Mitigation
   Purpose of the grant would be to identify successful treatment processes to turn the disposal of the geothermal water from a liability to an asset. Study would include chemistry analysis, feasibility for removal of hydrogen sulfide gas from the water, and use of reverse osmosis for either a potable source or use in mineral bath applications. *Grant Amount Request: $23, 040*

10. These grant applications are independent; the City could implement one or all of the projects. If funding is not secured through the CEC for one or more of the applications, the City will need to evaluate which of the projects it may wish to fund through alternative funding sources.

11. Final applications are due with the CEC by April 6, 2004. It will be necessary to provide the CEC with resolutions indicating the City's commitment to provide the required matching funds.

12. Four separate resolutions are attached which identify the City's commitment for matching funds for each application.

ANALYSIS & CONCLUSION: The City is expanding its efforts to address the potential alternative beneficial uses and/or disposal and diversion options for the geothermal mineral water. Pursuing these grant applications will provide a funding source for this critical endeavor. The grant(s) would involve minimum investment for an optimum return.

POLICY
REFERENCE: California Energy Commission – Geothermal Program.

FISCAL
IMPACT: The City's cash "match" funding contribution will come from reserves (either from the General Fund, Sewer or Water operations). The exact fund to which the match will be charged is dependent on the outcome of the studies and the final use/application of the water (e.g. potable water applications versus water discharge). The City would only spend the matching funds if the grants are secured. Matching funds are identified as a combination of "in kind" staff costs and "hard" costs. Depending on whether one or all of the grants are secured, the impact to the City reserves for hard costs could range from $0 to $29,480. The net benefit to the City in securing the grant funding could be up to $299,621 in beneficial work product.

OPTIONS:

a. (1) Adopt Resolution No. 04-XX authorizing the City Manager to appropriate up to $14,880, in addition to in-kind matching funds of $33,404, for a Geothermal Resource Assessment grant application with the California Energy Commission;

(2) Adopt Resolution No. 04-XX authorizing the City Manager to appropriate up to $14,600, in addition to in-kind matching funds of $35,097, for a Hot Spring Development/Well Installation grant application with the California Energy Commission;

(3) Adopt Resolution No. 04-XX authorizing in-kind matching funds up to $11,305 for a Feasibility Study to Identify and Study Potential Hot Water Use grant application with the California Energy Commission;

(4) Adopt Resolution No. 04-XX authorizing in-kind matching funds up to $8,707 for a Geothermal Spring Flow Mitigation grant application with the California Energy Commission.

b. Amend, modify or reject above option.

Attachments:

1. February 16, 2004 Letter from Floyd Butterfield
2. Resolution No. 04-XX authorizing the City Manager to appropriate up to $14,880, in addition to in-kind matching funds of $33,404, for a Geothermal Resource Assessment grant application
3. Resolution No. 04-XX authorizing the City Manager to appropriate up to $14,600, in addition to in-kind matching funds of $35,097, for a Hot Spring Development/Well Installation grant application
4. Resolution No. 04-XX authorizing in-kind matching funds up to $11,305 for a Feasibility Study to Identify and Study Potential Hot Water Use grant application
5. Resolution No. 04-ZZ authorizing in-kind matching funds up to $8,707 for a Geothermal Spring Flow Mitigation grant application
6. Individual Grant Applications

February 16, 2004

Fred Cardenas
Utilities Director
City of Paso Robles

Dear Fred,

Today I sent the four grant applications to the California Energy Commission on behalf of the City. They are as follows:

Title	Total Budget	CEC Request	Match	Hard $
1. Geothermal Resource Assessment	$142,504	$109,100	$33,404	$14,880
2. Hot Spring Development/Well Installation	$158,097	$123,000	$35,097	$14,600
3. Feasibility Study To Identify and Study Potential Hot Water Uses	$ 55,786	$ 44,481	$11,305	0
4. Geothermal Spring Flow Mitigation	$ 31,747	$ 23,040	$ 8,707	0
Totals	**$388,134**	**$299,621**	**$88,513**	**$29,480**

These are actually pre-applications. If they are accepted, then final applications, which carry with them some obligations on the City's part, are due on April 6. The match amounts are primarily City staff time for required meetings and reports and project overhead at 10% of each project's total cost. As you know, the minimum match is 80% so I had to show the City paying some project costs in the two bigger grants to meet the minimum. Notice of proposed grant awards will be approximately May 21, 2004 and work could probably begin in about mid July.

I have attached project narratives, budget summaries, and schedules for each grant. These applications do not include requests for funds for the monitoring wells or for the near-surface casing installation as we have been discussing.

Please let me know if you have any questions,

Thanks,

Floyd

RESOLUTION NO. 04-

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF PASO ROBLES AUTHORIZING THE CITY MANAGER TO SUBMIT APPLICATIONS TO THE CALIFORNIA ENERGY COMMISSION FOR **GEOTHERMAL RESOURCE ASSESSMENT** AND COMMIT MATCHING FUNDS AS REQUIRED IN OBTAINING SUCH GRANTS

WHEREAS, the **City of El Paso de Robles** recognizes that it is in the interest of the regional, state, and national economy to develop alternative energy resources to reduce our dependence on foreign oil; and,

WHEREAS, geothermal energy is indigenous to **the Paso Robles area**, and its careful development may provide benefits to the local community in the form of jobs and reduced fuel costs; and,

WHEREAS, GRDA or PIER funds are available through the California Energy Commission for grants and loans to local governments for geothermal-related activities;

NOW, THEREFORE, BE IT RESOLVED that the **Paso Robles City Council** authorizes the submittal of the application to the California Energy Commission for funds to execute the **Geothermal Resource Assessment**.

BE IT FURTHER RESOLVED, if recommended for funding by the Commission, the State Legislature, and the Department of Finance, the **Paso Robles City Council** authorizes **the City of El Paso de Robles** to accept a loan or grant award up to the amount of this application for **$109,100**, and, that **the City Manager,** acting for the **City of El Paso de Robles** is hereby authorized and empowered to execute in the name of **the City of El Paso de Robles,** all necessary contracts and agreements, and amendments hereto, to implement and carry out the purposes specified in the application;

BE IT FURTHER RESOLVED, that the City Manager is authorized to appropriate up to $14,880 from fund reserves upon securing the aforementioned grant, in addition to in-kind matching funds of $33,404.

PASSED AND ADOPTED by the City of El Paso de Robles this 16th day of March 2004 by the following vote:

AYES:
NOES:
ABSTAIN:
ABSENT:

_____
Frank R. Mecham, Mayor

ATTEST:

_____
Sharilyn M. Ryan, Deputy City Clerk

Section F. Application Attachment F.2: Detail Category *Budget*

All Applicants are required to complete Attachment F.2 for the pre-application and the final application.

Applicant: City of El Paso de Robles
Project Title: Geothermal Resource Assessment

Budget Category Item			*CEC Share*	*Match Share*	*Total Budget*
Personnel:					
Fred Cardenas, Project Director	49 hours	$41.04/hr	0	2,011	2,011
Mike Compton, Finance Director	26 hours	$49.11/hr	0	1,277	1,277
Jim App, City Manager	6 hours	$58.73/hr	0	352	352
Meg Williamson, Public Works Dir.	6 hours	$41.04/hr	0	246	246
	Total Personnel Direct Labor		**0**	**3,886**	**3,886**
Fringe Benefits:					
35% of Personnel Direct Labor	**Total Fringe Benefits**		**0**	**1,360**	**1,360**
Travel:					
2 trips to Sacramento for meetings			0	326	326
.34 cents per mile at approximately 480 miles per trip					
	Total Travel		**0**	**326**	**326**
Equipment:	*Qty*	*Unit Cost*			
Item	Qty	Unit Cost	0	0	0
Item	Qty	Unit Cost	0	0	0
	Total Equipment		**0**	**0**	**0**
Supplies:	*Qty*	*Unit Cost*			
Item	Qty	Unit Cost	0	0	0
Item	Qty	Unit Cost	0	0	0
	Total Supplies/Materials		**0**	**0**	**0**
Contractual (Sub-Contracts):					
Floyd Butterfield			0	8,880	8,880
SubContractor and Purpose			109,100	6,000	115,100
	Total Contractual		**109,100**	**14,880**	**123,980**
Other:					
Item			0	0	0
Item			0	0	0
	Total Other		**0**	**0**	**0**
Indirect:					
Indirect Overhead 10% of Total Direct Costs			0	12,955	12,955
G&A Overhead ___% of ___			0	0	0
	Total Indirect		**0**	**12,955**	**12,955**
	TOTAL BUDGET		**109,100**	**33,407**	**142,507**

Section F. Application Attachment F.3: *Task Budget*

All Applicants are required to complete Attachment F.3 for the pre-application and the final application.

NOTE: Do NOT fill in this spreadsheet.

All data are transferred from other spreadsheets in this Excel workbook.

Summary Task Budget Applicant: City of El Paso de Robles		*CEC Reimbursable Costs*	*Match Funds from Prime & Subs*	*Total Task Costs*	*CEC Percentage of Task Costs*
Project Title: Geothermal Resource Assessment					
1.0	**Project Start-Up Tasks**				
Task 1.0 Total	1.1 Kickoff Meeting, 1.2 Document Matching Funds, 1.3 Identify Required Permits, 1.4 Obtain Required Permits	**0**	**2,130**	**2,130**	**0.0%**
2.0	**Project Technical Activities**				
Task 2.1 Total	Literature Review and Creation of Arcview Database	0	7,487	7,487	0.0%
Task 2.2 Total	City-Wide Ground-Temperature Survey	37,600	5,533	43,133	87.2%
Task 2.3 Total	Detailed Ground-Temperature and Other Investigations at Thermal Anomalies	41,300	6,073	47,373	87.2%
Task 2.4 Total	Detailed Ground-Temperaure and Other Investigations at New Springs	30,200	4,611	34,811	86.8%
Task 2.5 Total		0	0	0	NA
Task 2.6 Total		0	0	0	NA
Task 2.7 Total		0	0	0	NA
Task 2.8 Total		0	0	0	NA
Task 2.9 Total		0	0	0	NA
Task 2.10 Total		0	0	0	NA
Task 2.11 Total		0	0	0	NA
Task 2.12 Total		0	0	0	NA
	Technical Activity Subtotals	**109,100**	**23,703**	**132,803**	**82.2%**
3.0	**Reporting Activities**				
Task 3.1 Total	Quarterly Progress Reports	0	3,056	3,056	0.0%
Task 3.2 Total	Final Report	0	2,968	2,968	0.0%
Task 3.3 Total	Final Meeting	0	1,546	1,546	0.0%
	Reporting Activity Subtotals	**0**	**7,571**	**7,571**	**0.0%**

Project Totals	*Total CEC Cost*	*Total Match Funds*	*Total Project Cost*	*CEC % of Total Cost*
	109,100	**33,404**	**142,504**	**76.6%**

Section B. Application Attachment B.2:

Narrative for Project Description, Goals, and Actions

All Applicants are required to complete Attachment B.2 for the pre-application and the final application.

A December 22, 2003 earthquake caused a hot spring to appear in the City Hall parking lot, flowing at approximately 450 gallons per minute at a temperature of 109 F. Other, smaller springs also appeared within the City limits. Local geologic mapping and geophysical investigations (infrared scans and ground-temperature survey) done soon after the eruption indicate that the spring locations are most likely the result of intersecting north-south and northwest-southeast trending fractures or faults.

That geothermal resources underlie the City of Paso Robles is well known. A ground-temperature survey completed in 1983 (through a CEC grant) identified several anomalously warm zones within the City limits. One of the identified zones covers the area of the City Hall spring. That study, and other geologic and geophysical evidence, indicates the likelihood of fault/fracture control of the geothermal occurrences.

Two spa-type resorts exist within the City limits that utilize the hot water, producing from wells drilled for that purpose. There has been considerably more interest in using the hot water but one of the limiting factors in such use has been the lack of a clear understanding of the extent of the resource and the geologic controls on it.

This grant request is to fund work to assess the geographic and geologic setting of the geothermal resource using ground temperature surveys and other geologic and hydrologic methods. Flow measurements and chemical analyses of the recently-appeared springs will also be taken and analyzed to collect baseline information needed for planned and possible future spring, production well, or reinjection well development or mitigation.

Because of the main spring's location and its appearance in association with the earthquake, public interest in the hot water resource underlying the city is at an all-time high. The City of Paso Robles is located over a large (at least 20 square mile) geothermal reservoir and was originally founded partly because of its hot springs. Resorts using the hot water coming from springs and wells within the City attracted world-wide attention from the late 1800's through the early 1900's. Eventually, most of the resorts closed for economic reasons and in the 1960's and 1970's almost all geothermal flows within the City were sealed with concrete because the geothermal water contains hydrogen sulfide gas (with its objectionable smell) and is of lower quality than the more near-surface, fresh-water aquifer.

In 1999, the Paso Robles Inn (located across the street from the City Hall) completed the first permitted geothermal well in San Luis Obispo County and has incorporated the use of the geothermal water in hot tubs available for guests at the Inn. The Inn employs a patented odor removal system to eliminate the objectionable hydrogen-sulfide smell while retaining the valuable mineral content of the water.

This grant work will be accomplished with funds provided by the CEC and in-kind contributions by the City of Paso Robles.

The major goals of the grant work are to:

1. Review the already-existing information about the resource, especially in light of the new information provided through the earthquake occurrence and resulting studies.
2. Repeat a ground-temperature survey made throughout the City in 1983 and interpret the results based on the most recent geologic information.
3. Conduct detailed ground-temperature and other geophysical, geologic and hydrologic investigations in the vicinity of several of the most interesting thermal anomalies.
4. Conduct detailed ground-temperature and other geophysical, geologic and hydrologic investigations in the vicinity of the several new, smaller springs that have erupted since the earthquake.

The earthquake of December 22, 2003 caused extensive damage throughout Paso Robles. City funds were in good shape prior to the earthquake but are stretched thin as a result of it. The hot-spring occurrence has become a very public topic and much interest and opinion surrounds its potential use. Thorough understanding of the costs and benefits associated with its use and communication of those costs and benefits to the public will likely enhance the continued development of this unique resource. Energy Commission funding is essential to further the work. Given the many other emergency demands placed on the City's finances, it alone is not able to fund all the necessary work associated with the wise and orderly development of the resource. The Federal Emergency Management Association (FEMA) will hopefully reimburse the City a portion of its costs incurred to date in trying to control and study the spring occurrence, but will not provide funding for development of the resource.

Section F. Application Attachment F.4: *Products and Due Dates*

All Applicants are required to complete Attachment F.4 for the pre-application and the final application.

Applicant:	City of El Paso de Robles			
Project Title:	Geothermal Resource Assessment			
Task Number	**Task Name**	**Product(s)**	**Planned Start Date**	**Planned Completion Date**
1.0	**Project Start-Up Tasks**			
1.1	Kick-Off Meeting	Kick-Off Meeting Presentation and Participation	08/01/04	08/01/04
1.2	Document Match Funding	Cash/In-Kind Lists, Commitment Letters	08/01/04	08/30/04
1.3	Identify Required Permits	Permit Plan or No Permits Required Letter (no permits expected)	08/01/04	08/15/04
1.4	Obtain Required Permits	Updated List of Permits, Copy of Approved Permits (no permits expected)	08/01/04	08/30/04
2.0	**Project Technical Activities**			
2.1	Literature Review and Creation of ARCVIEW Database		09/01/04	11/01/04
2.1.1	Literature Review	Literature Review Report	09/01/04	11/01/04
2.1.2	Creation of ARCVIEW Database	ARCVIEW Database	09/01/04	11/01/04
2.2	City-Wide Ground Temperature Survey	Ground-Temperature Survey Report	10/01/04	01/01/05
2.3	Detailed Ground-Temperature Surveys and Other Investigations at Thermal Anomalies	Detailed Investigations Report	12/01/04	02/01/05
2.4	Detailed Ground-Temperature Surveys and Other Investigations at New Springs	New Springs Report	12/01/04	02/01/05
3.0	**Reporting Activities**			
3.1	Quarterly Progress Reports	Quarterly Progress Reports (due the 15th following the end of each calendar quarter)	10/15/04	04/15/05
3.2	Final Report			
3.2.1	Final Report Outline	Final Report Outline	02/01/05	02/10/05
3.2.2	Draft Final Report	Draft Final Report	02/15/05	02/25/05
3.2.3	Final Report	Final Report	02/25/05	03/10/05
3.3	Final Meeting	Final Meeting Presentation and Participation	03/15/05	03/15/05

RESOLUTION NO. 04-

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF PASO ROBLES AUTHORIZING THE CITY MANAGER TO SUBMIT APPLICATIONS TO THE CALIFORNIA ENERGY COMMISSION FOR **HOT SPRINGS DEVELOPMENT / WELL INSTALLATION** AND COMMIT MATCHING FUNDS AS REQUIRED IN OBTAINING SUCH GRANTS

WHEREAS, the **City of El Paso de Robles** recognizes that it is in the interest of the regional, state, and national economy to develop alternative energy resources to reduce our dependence on foreign oil; and,

WHEREAS, geothermal energy is indigenous to **the Paso Robles area**, and its careful development may provide benefits to the local community in the form of jobs and reduced fuel costs; and,

WHEREAS, GRDA or PIER funds are available through the California Energy Commission for grants and loans to local governments for geothermal-related activities;

NOW, THEREFORE, BE IT RESOLVED that the **Paso Robles City Council** authorizes the submittal of the application to the California Energy Commission for funds to execute the **Hot Spring Development/Well Installation;**

BE IT FURTHER RESOLVED, if recommended for funding by the Commission, the State Legislature, and the Department of Finance, the **Paso Robles City Council** authorizes **the City of El Paso de Robles** to accept a loan or grant award up to the amount of this application for **$123,000**, and, that **the City Manager,** acting for the **City of El Paso de Robles** is hereby authorized and empowered to execute in the name of **the City of El Paso de Robles,** all necessary contracts and agreements, and amendments hereto, to implement and carry out the purposes specified in the application;

BE IT FURTHER RESOLVED, that the City Manager is authorized to appropriate up to $14,600 from fund reserves upon securing the aforementioned grant, in addition to in-kind matching funds of up to $35,097.

PASSED AND ADOPTED by the City of El Paso de Robles this 16th day of March 2004 by the following vote:

AYES:
NOES:
ABSTAIN:
ABSENT:

_____
Frank R. Mecham, Mayor

ATTEST:

_____
Sharilyn M. Ryan, Deputy City Clerk

Section F. Application Attachment F.2: Detail Category *Budget*

All Applicants are required to complete Attachment F.2 for the pre-application and the final application.

Applicant: City of El Paso de Robles

Project Title: Hot Spring Development/Well Installation

Budget Category Item			*CEC Share*	*Match Share*	*Total Budget*
Personnel:					
Fred Cardenas, Project Director	58 hours	$41.04/hr	0	2,380	2,380
Mike Compton, Finance Director	26 hours	$49.11/hr	0	1,277	1,277
Jim App, City Manager	6 hours	$58.73/hr		352	352
Meg Williamson, Public Works Dir.	7 hours	$41.04/hr		287	287
	Total Personnel Direct Labor		**0**	**4,296**	**4,296**
Fringe Benefits:					
35% of Personnel Direct Labor	**Total Fringe Benefits**		**0**	**1,504**	**1,504**
Travel:					
2 trips to Sacramento for meetings			0	326	326
.34 cents per mile at approximately 480 miles per trip					
	Total Travel		**0**	**326**	**326**
Equipment:	*Qty*	*Unit Cost*			
casing			18,000	0	18,000
			0	0	0
	Total Equipment		**18,000**	**0**	**18,000**
Supplies:	*Qty*	*Unit Cost*			
drilling mud			7,000	0	7,000
tracer			3,000	0	3,000
	Total Supplies/Materials		**10,000**	**0**	**10,000**
Contractual (Sub-Contracts):					
Floyd Butterfield, Project Manager			0	10,800	10,800
Geologic Consulting			12,000		12,000
Drilling Contractor			58,000		58,000
Logging contractors			10,000		10,000
Cementing contractor			15,000		15,000
Wellhead design and constr. Contr.				3,800	3,800
	Total Contractual		**95,000**	**14,600**	**109,600**
Other:					
Item			0	0	0
Item			0	0	0
	Total Other		**0**	**0**	**0**
Indirect:					
Indirect Overhead 10% of total direct costs			0	14,373	14,373
G&A Overhead ___% of ___			0	0	0
	Total Indirect		**0**	**14,373**	**14,373**
	TOTAL BUDGET		**123,000**	**35,099**	**158,099**

Section F. Application Attachment F.3: *Task Budget*

All Applicants are required to complete Attachment F.3 for the pre-application and the final application.

NOTE: Do NOT fill in this spreadsheet.

All data are transferred from other spreadsheets in this Excel workbook.

Summary Task Budget Applicant: City of El Paso de Robles		***CEC Reimbursable Costs***	***Match Funds from Prime & Subs***	***Total Task Costs***	***CEC Percentage of Task Costs***
Project Title: Hot Spring Development/Well Installation					
1.0	**Project Start-Up Tasks**				
Task 1.0 Total	1.1 Kickoff Meeting, 1.2 Document Matching Funds, 1.3 Identify Required Permits, 1.4 Obtain Required Permits	**0**	**4,379**	**4,379**	**0.0%**
2.0	**Project Technical Activities**				
Task 2.1 Total	Well Design and Construction	108,000	15,700	123,700	87.3%
Task 2.2 Total	Tracer Test and Cementing of Fractures	15,000	2,563	17,563	85.4%
Task 2.3 Total	Wellhead Construction	0	4,627	4,627	0.0%
Task 2.4 Total		0	0	0	NA
Task 2.5 Total		0	0	0	NA
Task 2.6 Total		0	0	0	NA
Task 2.7 Total		0	0	0	NA
Task 2.8 Total		0	0	0	NA
Task 2.9 Total		0	0	0	NA
Task 2.10 Total		0	0	0	NA
Task 2.11 Total		0	0	0	NA
Task 2.12 Total		0	0	0	NA
	Technical Activity Subtotals	**123,000**	**22,890**	**145,890**	**84.3%**
3.0	**Reporting Activities**				
Task 3.1 Total	Quarterly Progress Reports	0	3,056	3,056	0.0%
Task 3.2 Total	Final Report	0	3,226	3,226	0.0%
Task 3.3 Total	Final Meeting	0	1,546	1,546	0.0%
	Reporting Activity Subtotals	**0**	**7,828**	**7,828**	**0.0%**

Project Totals	***Total CEC Cost***	***Total Match Funds***	***Total Project Cost***	***CEC % of Total Cost***
	123,000	**35,097**	**158,097**	**77.8%**

Section B. Application Attachment B.2:

Narrative for Project Description, Goals, and Actions

All Applicants are required to complete Attachment B.2 for the pre-application and the final application.

A December 22, 2003 earthquake caused a hot spring to appear in the City Hall parking lot, flowing at approximately 450 gallons per minute at a temperature of 109 F. This grant request is for the funds necessary to complete a producing geothermal well at the spring site and cement off the fractures. A well will protect the Paso Robles fresh water aquifer located above the geothermal aquifer from intrusion of the lower-quality geothermal water, and will possibly allow the well flow to be regulated, at least partly in accordance with the demand for the resource.

Geologic and geophysical investigations done soon after the eruption indicate that the spring location is most likely the result of intersecting north-south and northwest-southeast trending fractures or faults. These fractures have opened a pathway for geothermal water to rise to the surface from a confined geothermal aquifer at approximately 300 feet in depth. The principal investigators believe that shutting off the spring flow, if possible, would create a significant risk that it might erupt in another, less satisfactory location. Therefore, the flow is considered to be a permanent resource to be utilized. A study of appropriate beneficial uses of the hot water is the subject of another grant proposal, as is eventual disposal of the flow. As beneficial uses are put into place, it is important to have a reliable, controlled supply. Also, since reinjection of the fluids is a leading alternative of disposal, it is important to try to cut off communication between the confined geothermal reservoir and the overlying fresh water aquifer. The spring allows such communication and a well does not.

Because of the spring's location and its appearance in association with the earthquake, public interest in the hot water resource underlying the city is at an all-time high. The City of Paso Robles is located over a large (at least 20 square mile) geothermal reservoir and was originally founded partly because of its hot springs. Resorts using the hot water coming from springs and wells within the City attracted world-wide attention from the late 1800's through the early 1900's. Eventually, most of the resorts closed for economic reasons and in the 1960's and 1970's almost all geothermal flows within the City were sealed with concrete because the geothermal water contains hydrogen sulfide gas (with its objectionable smell) and is of lower quality than the more near-surface, fresh-water aquifer.

In 1999, the Paso Robles Inn (located across the street from the City Hall) completed the first permitted geothermal well in San Luis Obispo County and has incorporated the use of the geothermal water in hot tubs available for guests at the Inn. The Inn employs a patented odor removal system to eliminate the objectionable hydrogen-sulfide smell while retaining the valuable mineral content of the water.

This grant work will be accomplished with funds provided by the CEC and in-kind contributions by the City of Paso Robles.

The major goals of the grant work are to:

1. Acquire all necessary permits for the well including those required for CEQA compliance.
2. Contract with a geologic consulting firm for monitoring during drilling.
3. Complete the anticipated well design and contract with a drilling company for well installation including cementing off the fresh water aquifer and appropriate logging.
4. Establish communication between the well and the spring flow and then attempt to shut off the spring flow by injecting cement through the well.
5. Construct an appropriate wellhead to allow use of the flow.

The earthquake of December 22, 2003 caused extensive damage throughout Paso Robles. City funds were in good shape prior to the earthquake but are stretched thin as a result of it. The hot-spring occurrence has become a very public topic and much interest and opinion surrounds its potential use. Thorough understanding of the costs and benefits associated with its use and communication of those costs and benefits to the public will likely enhance the continued development of this unique resource. Energy Commission funding is essential to further the work. Given the many other emergency demands placed on the City's finances, it alone is not able to fund all the necessary work associated with the wise and orderly development of the resource. The Federal Emergency Management Association (FEMA) will hopefully reimburse the City a portion of its costs incurred to date in trying to control and study the spring occurrence, but will not provide funding for development of the resource.

Section F. Application Attachment F.4: *Products and Due Dates*

All Applicants are required to complete Attachment F.4 for the pre-application and the final application.

Applicant:	City of El Paso de Robles			
Project Title:	Hot Spring Development/Well Installation			
Task Number	**Task Name**	**Product(s)**	**Planned Start Date**	**Planned Completion Date**
1.0	**Project Start-Up Tasks**			
1.1	Kick-Off Meeting	Kick-Off Meeting Presentation and Participation	08/01/04	08/01/04
1.2	Document Match Funding	Cash/In-Kind Lists, Commitment Letters	08/01/04	08/30/04
1.3	Identify Required Permits	Permit Plan	08/01/04	08/10/04
1.4	Obtain Required Permits	Updated List of Permits, Copy of Approved Permits	09/01/04	09/30/04
2.0	**Project Technical Activities**			
2.1	Well Design and Construction			
2.1.1	Contract With Geologic Consulting Firm and Proposed Well Design	Proposed Well Design Report	08/01/04	08/30/04
2.1.2	Contract With Driller and Well Construction	Completed Well and Report	10/01/04	01/01/05
2.2	Tracer Test and Cementing of Fractures	Tracer Test and Cementing Report	10/01/04	01/01/05
2.3	Wellhead Design and Construction	Completed Wellhead	12/01/04	01/01/05
3.0	**Reporting Activities**			
3.1	Quarterly Progress Reports	Quarterly Progress Reports (due the 15th following the end of each calendar quarter)	10/15/04	01/15/05
3.2	Final Report			
3.2.1	Final Report Outline	Final Report Outline	01/10/05	01/20/05
3.2.2	Draft Final Report	Draft Final Report	02/01/05	02/15/05
3.2.3	Final Report	Final Report	02/20/05	03/01/05
3.3	Final Meeting	Final Meeting Presentation and Participation	03/15/05	03/15/05

RESOLUTION NO. 04-

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF PASO ROBLES AUTHORIZING THE CITY MANAGER TO SUBMIT APPLICATIONS TO THE CALIFORNIA ENERGY COMMISSION FOR **FEASIBILITY STUDY TO IDENTIFY AND STUDY POTENTIAL HOT WATER USES** AND COMMIT MATCHING FUNDS AS REQUIRED IN OBTAINING SUCH GRANTS

WHEREAS, the **City of El Paso de Robles** recognizes that it is in the interest of the regional, state, and national economy to develop alternative energy resources to reduce our dependence on foreign oil; and,

WHEREAS, geothermal energy is indigenous to **the Paso Robles area**, and its careful development may provide benefits to the local community in the form of jobs and reduced fuel costs; and,

WHEREAS, GRDA or PIER funds are available through the California Energy Commission for grants and loans to local governments for geothermal-related activities;

NOW, THEREFORE, BE IT RESOLVED that the **Paso Robles City Council** authorizes the submittal of the application to the California Energy Commission for funds to execute the **Feasibility Study to Identify and Study Potential Hot Water Uses**;

BE IT FURTHER RESOLVED, if recommended for funding by the Commission, the State Legislature, and the Department of Finance, the **Paso Robles City Council** authorizes **the City of El Paso de Robles** to accept a loan or grant award up to the amount of this application for **$44,481**, and, that **the City Manager,** acting for the **City of El Paso de Robles** is hereby authorized and empowered to execute in the name of **the City of El Paso de Robles,** all necessary contracts and agreements, and amendments hereto, to implement and carry out the purposes specified in the application;

BE IT FURTHER RESOLVED, the City Council authorizes in-kind matching funds of up to $11,305.

PASSED AND ADOPTED by the City of El Paso de Robles this 16th day of March 2004 by the following vote:

AYES:
NOES:
ABSTAIN:
ABSENT:

_____
Frank R. Mecham, Mayor

ATTEST:

_____
Sharilyn M. Ryan, Deputy City Clerk

Section F. Application Attachment F.2: Detail Category *Budget*

All Applicants are required to complete Attachment F.2 for the pre-application and the final application.

Applicant: City of El Paso de Robles

Title: Feasibility Study to Identify and Study Potential Hot Water Uses Within The City

Budget Category Item			*CEC Share*	*Match Share*	*Total Budget*
Personnel:					
Fred Cardenas, Project Director	64 hours	$41.04/hr	0	2,627	2,627
Mike Compton, Finance Director	26 hours	$49.11/hr	0	1,277	1,277
Jim App, City Manager	6 hours	$58.73/hr	0	352	352
Meg Williamson, Public Works Dir.	3 hours	$41.04/hr	0	123	123
	Total Personnel Direct Labor		**0**	**4,379**	**4,379**
Fringe Benefits:					
35% of Personnel Direct Labor	**Total Fringe Benefits**		**0**	**1,532**	**1,532**
Travel:					
2 trips to Sacramento for meetings			0	326	326
.34 cents per mile at approximately 480 miles per trip					
	Total Travel		**0**	**326**	**326**
Equipment:	*Qty*	*Unit Cost*			
Item	Qty	Unit Cost	0	0	0
Item	Qty	Unit Cost	0	0	0
	Total Equipment		**0**	**0**	**0**
Supplies:	*Qty*	*Unit Cost*			
Item	Qty	Unit Cost	0	0	0
Item	Qty	Unit Cost	0	0	0
	Total Supplies/Materials		**0**	**0**	**0**
Contractual (Sub-Contracts):					
Floyd Butterfield, Project Mngmt.			22,480	0	22,480
OIT or other			22,000	0	22,000
	Total Contractual		**44,480**	**0**	**44,480**
Other:					
Item			0	0	0
Item			0	0	0
	Total Other		**0**	**0**	**0**
Indirect:					
Indirect Overhead 10% of direct costs			0	5,072	5,072
G&A Overhead ___% of ___			0	0	0
	Total Indirect		**0**	**5,072**	**5,072**
	TOTAL BUDGET		**44,480**	**11,309**	**55,789**

Section F. Application Attachment F.3: *Task Budget*

All Applicants are required to complete Attachment F.3 for the pre-application and the final application.

NOTE: Do NOT fill in this spreadsheet.

All data are transferred from other spreadsheets in this Excel workbook.

Summary Task Budget		*CEC Reimbursable Costs*	*Match Funds from Prime & Subs*	*Total Task Costs*	*CEC Percentage of Task Costs*
Applicant: City of El Paso de Robles					
Project Title: Feasibility Study to Identify and Study Potential Hot Water Uses Within The City					
1.0	**Project Start-Up Tasks**				
Task 1.0 Total	1.1 Kickoff Meeting, 1.2 Document Matching Funds, 1.3 Identify Required Permits, 1.4 Obtain Required Permits	**800**	**1,330**	**2,130**	**37.6%**
2.0	**Project Technical Activities**				
Task 2.1 Total	General Use-Feasibility Study	6,000	965	6,966	86.1%
Task 2.2 Total	Detailed Feasibility Studies	24,400	3,292	27,692	88.1%
Task 2.3 Total	Piping and Reinjection Well Studies	8,800	1,489	10,289	85.5%
Task 2.4 Total		0	0	0	NA
Task 2.5 Total		0	0	0	NA
Task 2.6 Total		0	0	0	NA
Task 2.7 Total		0	0	0	NA
Task 2.8 Total		0	0	0	NA
Task 2.9 Total		0	0	0	NA
Task 2.10 Total		0	0	0	NA
Task 2.11 Total		0	0	0	NA
Task 2.12 Total		0	0	0	NA
	Technical Activity Subtotals	**39,200**	**5,747**	**44,947**	**87.2%**
3.0	**Reporting Activities**				
Task 3.1 Total	Quarterly Progress Reports	1,280	1,776	3,056	41.9%
Task 3.2 Total	Final Report	2,400	1,706	4,106	58.5%
Task 3.3 Total	Final Meeting	800	746	1,546	51.7%
	Reporting Activity Subtotals	**4,480**	**4,228**	**8,708**	**51.4%**

Project Totals	*Total CEC Cost*	*Total Match Funds*	*Total Project Cost*	*CEC % of Total Cost*
	44,481	**11,305**	**55,786**	**79.7%**

Section B. Application Attachment B.2:

Narrative for Project Description, Goals, and Actions

All Applicants are required to complete Attachment B.2 for the pre-application and the final application.

A December 22, 2003 earthquake caused a hot spring to appear in the City Hall parking lot, flowing at approximately 450 gallons per minute at a temperature of 109 F. This grant proposal is to study potential uses of the geothermal water and to document associated costs and obstacles to that use.

Because of the spring's location and its appearance in association with the earthquake, public interest in the hot water resource underlying the city is at an all-time high. The City of Paso Robles is located over a large (at least 20 square mile) geothermal reservoir and was originally founded partly because of its hot springs. Resorts using the hot water coming from springs and wells within the City attracted world-wide attention from the late 1800's through the early 1900's. Eventually, most of the resorts closed for economic reasons and in the 1960's and 1970's almost all geothermal flows within the City were sealed with concrete because the geothermal water contains hydrogen sulfide gas (with its objectionable smell) and is of lower quality than the more near-surface, fresh-water aquifer.

In 1999, the Paso Robles Inn completed the first permitted geothermal well in San Luis Obispo County and has incorporated the use of the geothermal water in hot tubs available for guests at the Inn. The Inn employs a patented odor removal system to eliminate the objectionable hydrogen-sulfide smell while retaining the valuable mineral content of the water.

This grant work will be accomplished with funds provided by the CEC and in-kind contributions by the City of Paso Robles. Potential uses of the water will be identified and costs involved in those uses will be quantified to encourage development of the resource.

The goals of the grant work are to:

1. From a review of existing literature, analyze and catalog the various direct applications which seem feasible. Prepare a use-feasibility report to be made available to the public.
2. Identify the most feasible uses of the Paso Robles resource. Incorporate in use-feasibility report.
3. Investigate successful projects in other areas with similar resources. Compile a bibliography including reports on such projects and include in use-feasibility report.
4. Establish a priority list of potential projects. Notify owners of such projects of potential and determine if there is commitment to proceed with further study.
5. Conduct economic feasibility studies of at least five already-identified uses and prepare reports on each.
    a. Use at the Paso Robles Inn in a flow-through system
    b. Use at the municipal pool located at 28th and Oak Streets
    c. Use at the Municipal Waste Water Treatment Plant for digester heating to allow for increased electrical energy production from a proposed cogeneration system
    d. Use for space heating at the City Hall/Library

e. Use for space heating at the City Safety Center located at 10th and Park Streets

6. Determine the costs of hot water delivery and return piping to the various sites.
7. Determine the capital and operating costs of a reinjection well(s)

The earthquake of December 22, 2003 caused extensive damage throughout Paso Robles. City funds were in good shape prior to the earthquake but are stretched thin as a result of it. The hot-spring occurrence has become a very public topic and much interest and opinion surrounds its potential use. Thorough understanding of the costs and benefits associated with its use and communication of those costs and benefits to the public will likely enhance the continued development of this unique resource. Energy Commission funding is essential to further the work. Given the many other emergency demands placed on the City's finances, it alone is not able to fund all the necessary work associated with the wise and orderly development of the resource. The Federal Emergency Management Association (FEMA) will hopefully reimburse the City a portion of its costs incurred to date in trying to control and study the spring occurrence.

Section F. Application Attachment F.4: *Products and Due Dates*

All Applicants are required to complete Attachment F.4 for the pre-application and the final application.

Applicant:	City of El Paso de Robles			
Project Title:				
Task Number	**Task Name**	**Product(s)**	**Planned Start Date**	**Planned Completion Date**
1.0	**Project Start-Up Tasks**			
1.1	Kick-Off Meeting	Kick-Off Meeting Presentation and Participation	08/01/04	08/01/04
1.2	Document Match Funding	Cash/In-Kind Lists, Commitment Letters	08/01/04	08/30/04
1.3	Identify Required Permits	Permit Plan or No Permits Required Letter (no permits expected)	08/01/04	08/15/04
1.4	Obtain Required Permits	Updated List of Permits, Copy of Approved Permits (no permits expected)	08/01/04	08/30/04
2.0	**Project Technical Activities**			
2.1	General Use-Feasibility Study	Use-Feasibility Report	08/03/04	10/01/04
2.1.1	Direct-Use Literature Review	Use-Feasibility Report	08/03/04	08/15/04
2.1.2	Identification of Most Feasible Uses	Use-Feasibility Report	08/15/04	08/30/04
2.1.3	Investigation of Successful Projects in Other Areas	Use-Feasibility Report	09/01/04	09/15/04
2.2	Specific Feasibility Studies		08/03/04	11/01/04
2.2.1	Paso Robles Inn Feasibility Study - Flow Through Pool	Feasibility Report	08/03/04	10/01/04
2.2.2	Paso Robles Municipal Pool Feasibility Study	Feasibility Report	08/03/04	11/01/04
2.2.3	Municipal Waste Water Treatment Plant Feasibility Study	Feasibility Report	08/03/04	11/01/04
2.2.4	City Hall/Library Feasibility Study	Feasibility Report	09/01/04	12/01/04
2.2.5	City Safety Center Feasibility Study	Feasibility Report	09/15/04	12/15/04
2.3	Piping and Reinjection Well(s) Studies		11/01/04	01/01/04
2.3.1	Hot Water Delivery and Return Piping Study	Piping Report	11/01/04	01/01/04
2.3.2	Reinjection Well(s) Study	Reinjection Well(s) Report	11/01/04	01/01/04
3.0	**Reporting Activities**			
3.1	Quarterly Progress Reports	Quarterly Progress Reports (due the 15th following the end of each calendar quarter)	10/15/04	04/15/05
3.2	Final Report			
3.2.1	Final Report Outline	Final Report Outline	02/01/05	02/10/05
3.2.2	Draft Final Report	Draft Final Report	02/15/05	03/15/05
3.2.3	Final Report	Final Report	04/01/05	05/01/05
3.3	Final Meeting	Final Meeting Presentation and Participation	05/15/05	05/15/05

RESOLUTION NO. 04-

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF PASO ROBLES AUTHORIZING THE CITY MANAGER TO SUBMIT APPLICATIONS TO THE CALIFORNIA ENERGY COMMISSION FOR **GEOTHERMAL SPRING FLOW MITIGATION** AND TO COMMIT MATCHING FUNDS AS REQUIRED IN OBTAINING SUCH GRANTS

WHEREAS, the **City of El Paso de Robles** recognizes that it is in the interest of the regional, state, and national economy to develop alternative energy resources to reduce our dependence on foreign oil; and,

WHEREAS, geothermal energy is indigenous to **the Paso Robles area**, and its careful development may provide benefits to the local community in the form of jobs and reduced fuel costs; and,

WHEREAS, GRDA or PIER funds are available through the California Energy Commission for grants and loans to local governments for geothermal-related activities;

NOW, THEREFORE, BE IT RESOLVED that the **Paso Robles City Council** authorizes the submittal of the application to the California Energy Commission for funds to execute the **Geothermal Spring Flow Mitigation** project.

BE IT FURTHER RESOLVED, if recommended for funding by the Commission, the State Legislature, and the Department of Finance, the **Paso Robles City Council** authorizes **the City of El Paso de Robles** to accept a loan or grant award up to the amount of this application for $**23,040**, and, that **the City Manager,** acting for the **City of El Paso de Robles** is hereby authorized and empowered to execute in the name of **the City of El Paso de Robles,** all necessary contracts and agreements, and amendments hereto, to implement and carry out the purposes specified in the application;

BE IT FURTHER RESOLVED, the City Council authorizes in-kind matching funds of up to $8,707.

PASSED AND ADOPTED by the City of El Paso de Robles this 16th day of March 2004 by the following vote:

AYES:
NOES:
ABSTAIN:
ABSENT:

_____
Frank R. Mecham, Mayor

ATTEST:

_____
Sharilyn M. Ryan, Deputy City Clerk

Section F. Application Attachment F.2: Detail Category *Budget*

All Applicants are required to complete Attachment F.2 for the pre-application and the final application.

Applicant: City of El Paso de Robles

Project Title: Geothermal Spring Flow Mitigation

Budget Category Item			*CEC Share*	*Match Share*	*Total Budget*
Personnel:					
Fred Cardenas, Project Director	62 hours	$41.04/hr	0	2,543	2,543
Mike Compton, Finance Director	25 hours	$49.11/hr	0	1,228	1,228
Jim App, City Manager	3 hours	$58.73/hr		176	176
Meg Williamson, Public Works Dir.	3 hours	$41.04/hr		123	123
	Total Personnel Direct Labor		**0**	**4,070**	**4,070**
Fringe Benefits:					
35% of Personnel Direct Labor	**Total Fringe Benefits**		**0**	**1,425**	**1,425**
Travel:					
2 trips to Sacramento for meetings			0	326	326
.34 cents per mile at approximately 480 miles per trip					
	Total Travel		**0**	**326**	**326**
Equipment:	*Qty*	*Unit Cost*			
Item	Qty	Unit Cost	0	0	0
Item	Qty	Unit Cost	0	0	0
	Total Equipment		**0**	**0**	**0**
Supplies:	*Qty*	*Unit Cost*			
Item	Qty	Unit Cost	0	0	0
Item	Qty	Unit Cost	0	0	0
	Total Supplies/Materials		**0**	**0**	**0**
Contractual (Sub-Contracts):					
Floyd Butterfield, Project Management			4,640	0	4,640
Floyd Butterfield, consulting			12,400	0	12,400
	Total Contractual		**17,040**	**0**	**17,040**
Other:					
Pilot Plant incidental equipment			4,000		4,000
Pilot Plant lab analyses			2,000	0	2,000
	Total Other		**6,000**	**0**	**6,000**
Indirect:					
Indirect Overhead 10% of total direct costs			0	2,886	2,886
G&A Overhead ___% of ___			0	0	0
	Total Indirect		**0**	**2,886**	**2,886**
	TOTAL BUDGET		**23,040**	**8,707**	**31,747**

Section F. Application Attachment F.3: *Task Budget*

All Applicants are required to complete Attachment F.3 for the pre-application and the final application.

NOTE: Do NOT fill in this spreadsheet.

All data are transferred from other spreadsheets in this Excel workbook.

Summary Task Budget Applicant: City of El Paso de Robles		***CEC Reimbursable Costs***	***Match Funds from Prime & Subs***	***Total Task Costs***	***CEC Percentage of Task Costs***
Project Title: Geothermal Spring Flow Mitigation					
1.0	**Project Start-Up Tasks**				
Task 1.0 Total	1.1 Kickoff Meeting, 1.2 Document Matching Funds, 1.3 Identify Required Permits, 1.4 Obtain Required Permits	**800**	**1,330**	**2,130**	**37.6%**
2.0	**Project Technical Activities**				
Task 2.1 Total	Water Chemistry Study	1,600	343	1,943	82.4%
Task 2.2 Total	Hydrogen Sulfide Gas Removal Study	2,400	605	3,005	79.9%
Task 2.3 Total	Reverse Osmosis Pilot Plant Demonstration and Study	12,000	2,176	14,176	84.7%
Task 2.4 Total	Reverse Osmosis Brine Study	2,400	484	2,884	83.2%
Task 2.5 Total		0	0	0	NA
Task 2.6 Total		0	0	0	NA
Task 2.7 Total		0	0	0	NA
Task 2.8 Total		0	0	0	NA
Task 2.9 Total		0	0	0	NA
Task 2.10 Total		0	0	0	NA
Task 2.11 Total		0	0	0	NA
Task 2.12 Total		0	0	0	NA
	Technical Activity Subtotals	**18,400**	**3,607**	**22,007**	**83.6%**
3.0	**Reporting Activities**				
Task 3.1 Total	Quarterly Progress Reports	800	1,728	2,528	31.6%
Task 3.2 Total	Final Report	2,400	1,311	3,711	64.7%
Task 3.3 Total	Final Meeting	640	730	1,370	46.7%
	Reporting Activity Subtotals	**3,840**	**3,769**	**7,609**	**50.5%**

Project Totals	***Total CEC Cost***	***Total Match Funds***	***Total Project Cost***	***CEC % of Total Cost***
	23,040	**8,707**	**31,747**	**72.6%**

Section B. Application Attachment B.2:

Narrative for Project Description, Goals, and Actions

All Applicants are required to complete Attachment B.2 for the pre-application and the final application.

A December 22, 2003 earthquake caused a hot spring to appear in the City Hall parking lot, flowing at approximately 450 gallons per minute at a temperature of 109 F. The hot springs water contains hydrogen sulfide gas and has a total mineral content of approximately twice that of the local fresh water aquifer. Constructive uses of the water's heat energy are the subject of a separate grant proposal. Even after that energy is removed, the water presents a disposal problem. This grant proposal is to evaluate the possibility of removing the hydrogen sulfide gas from the water and to process the water through a reverse osmosis (RO) system to make it usable as a source of potable water for the city. The brine from the RO system will also be evaluated as a possible product for sale for mineral bath ingredients.

This grant work will be accomplished with funds provided by the CEC and in-kind contributions by the City of Paso Robles. Successful demonstration of the treatment processes to be examined will turn disposal of the geothermal water from a liability to an asset.

The goals of the grant work are to:

1. Gain a complete understanding of the hot springs water chemistry and compare it to the local potable water chemistry.
2. Investigate the removal of hydrogen sulfide gas from the water.
3. Using an RO pilot plant, determine the feasibility and total cost of making the hot springs water potable.
4. Evaluate the brine from the RO pilot plant as a possible product for sale for mineral bath ingredients.

The earthquake of December 22, 2003 caused extensive damage throughout Paso Robles. City funds were in good shape prior to the earthquake but are stretched thin as a result of it. The hot-spring occurrence has become a very public topic and much interest and opinion surrounds its potential use and disposal. Thorough understanding of the costs associated with its disposal and communication of those costs to the public will likely enhance the continued development of this unique resource. Energy Commission funding is essential to further the work. Given the many other emergency demands placed on the City's finances, it alone is not able to fund all the necessary work associated with the wise and orderly development of the resource. The Federal Emergency Management Association (FEMA) will hopefully reimburse the City a portion of its costs incurred to date in trying to control and study the spring occurrence.

Section F. Application Attachment F.4: *Products and Due Dates*

All Applicants are required to complete Attachment F.4 for the pre-application and the final application.

Applicant:	City of El Paso de Robles			
Project Title:	Paso Robles Geothermal Spring Flow Mitigation			
Task Number	**Task Name**	**Product(s)**	**Planned Start Date**	**Planned Completion Date**
1.0	**Project Start-Up Tasks**			
1.1	Kick-Off Meeting	Kick-Off Meeting Presentation and Participation	08/01/04	08/01/04
1.2	Document Match Funding	Cash/In-Kind Lists, Commitment Letters	08/01/04	08/30/04
1.3	Identify Required Permits	Permit Plan or No Permits Required Letter (no permits expected)	08/01/04	08/15/04
1.4	Obtain Required Permits	Updated List of Permits, Copy of Approved Permits (no permits expected)	08/01/04	08/30/04
2.0	**Project Technical Activities**			
2.1	Water Chemistry Study	Water Chemistry Report	08/03/04	09/01/04
2.2	Hydrogen Sulfide Gas Removal Study		08/03/04	10/01/04
2.2.1	Literature Review	H2S Removal Feasibility Report	08/03/04	09/01/04
2.2.2	H2S Removal Feasibility Study	H2S Removal Feasibility Report	09/01/04	10/01/04
2.3	Reverse Osmosis Pilot Plant Demonstration and Study		08/03/04	03/30/05
2.3.1	RO System Vendor Evaluation	RO System Vendor Evaluation Report	08/03/04	09/01/04
2.3.2	RO System Pilot Plant Installation and Evaluation	RO System Operations Report	09/01/04	03/30/05
2.3.3	RO System Full-Scale Feasibility Study	RO System Feasibility Report	02/01/05	03/01/05
2.4	Reverse Osmosis Brine Study	Brine Recovery/Use Feasibility Report	10/01/04	03/01/05
3.0	**Reporting Activities**			
3.1	Quarterly Progress Reports	Quarterly Progress Reports (due the 15th following the end of each calendar quarter)	10/15/04	04/15/05
3.2	Final Report			
3.2.1	Final Report Outline	Final Report Outline	04/01/05	04/10/05
3.2.2	Draft Final Report	Draft Final Report	04/15/05	04/30/05
3.2.3	Final Report	Final Report	05/01/05	05/10/05
3.3	Final Meeting	Final Meeting Presentation and Participation	05/15/05	05/15/05