

TO: James L. App, City Manager
FROM: Meg Williamson, Interim Public Works Director
SUBJECT: Mineral Hot Springs Project
DATE: March 2, 2004

NEEDS: To report progress and plans to examine use and mitigation options for the Library/City Hall mineral hot springs.

- 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/Administrative building.
 2. The City hired a group of geothermal, geologic, and hydrogeologic experts to examine the spring and recommend mitigation and/or use alternatives. Their analysis suggests the spring is the result of seismic fissure activity, not the failure of a man-made structure.
 3. Data gathered indicates the rupture is fault controlled, there is additional near-surface thermal water just east of the exposed spring and as a consequence, that there is a high risk of additional surface ruptures if there is a premature or unduly aggressive attempt to seal the spring.
 4. The City's engineers and outside experts have developed a three-track plan to further evaluate, use and/or mitigate the spring including:
 - Design and install an excavation and flow mitigation system;
 - Complete evaluation of water disposal/diversion options;
 - Examine possible beneficial uses of the water.
 5. These three tracks will proceed on a parallel and somewhat concurrent course as follows:
 - A. 60' deep monitoring wells must be installed to observe subsurface water displacement associated with future mitigation and testing.
 - B. A water tracer test will be run to determine connectivity between/with other area thermal water sources
 - C. Construct a vertical suction pipe to evacuate the water to the river discharge pipeline. The suction pipe may be powered either by artesian pressure (if adequate) or mechanically. Because the depth and stability of the spring fissure is unknown, a structural bridge will be installed to support the suction pipe. The cost for this installation is estimated at \$100,000.
 - D. Once the flow is stabilized and contained, the excavation can be dried out, filled, repaved, and placed back in use as a parking area.
 - E. Concurrent with this construction effort, continued river discharge will be reviewed with the regulatory agencies having jurisdiction (odor mitigation will be examined if river discharge becomes long-term). And, subsurface re-injection will be tested for viability either as part of a future disposal or beneficial use option.

- F. Additionally, beneficial uses including commercial hot spring development and geothermal/energy production potential will be examined. A number of California Energy Commission grant applications (\$390,000) have been submitted to fund these assessments.

ANALYSIS

AND

CONCLUSION: The City experienced a 6.5 magnitude earthquake on December 22, 2003. The earthquake caused a mineral hot spring rupture onto the parking lot of the City's Administrative building. Controlling the water spring is essential to further investigate beneficial use of the water. A plan for controlling the spring water and eventual permanent repair and/or beneficial use of the spring water has been developed and is described in summary form above.

FISCAL

IMPACT: Not yet confirmed – estimated at \$2,000,000.

OPTIONS:

- a. Receive and file staff report.
- b. Amend, modify, or reject the above option.

- 1) Attachments (none)