

## GRAFTON COUNTY COMMISSIONERS MEETING

Office of the Commissioners  
3855 Dartmouth College Hwy.  
N. Haverhill, NH 03774  
Tuesday October 28, 2008

PRESENT: Commissioners Michael Cryans, Martha Richards and Ray Burton, Executive Director Clough and Sec. Martino

PUBLIC: Harold Brown and Candidate for Register of Deeds, Lynn Wheeler and Haverhill resident Ron Willoughby.

Commissioner Cryans called the meeting to order at 9:08 AM at which time he turned the meeting over to Commissioner Richards who had invited Dr. Gary Phetteplace of GWA Research LLC, and Darryl Calkins of Catamount Subsurface Investigators, who would be making a PowerPoint presentation. Maint. Supt. Jim Oakes and Engineer Shannon LaRocque were also in attendance.

Commissioner Richards introduced the two gentlemen and said that G. Phetteplace was a volunteer Alternative Energy Committee member. She briefly discussed the committee saying that they had discussed many things, one of them being geothermal energy which the two gentlemen would be going over today. Commissioner Richards discussed her commitment to working on alternative energy for both the new Jail and the complex as a whole.

Dr. Phetteplace presented the Commissioners with an unsolicited proposal for geothermal assessment for heating and cooling the proposed Correctional Facility and then made the PowerPoint presentation \*(see attached)

At a moment during the presentation, Commissioner Cryans asked if it could be put on hold for a moment in order to give R. Willoughby a chance to speak as he had to leave for an appointment. Dr. Phetteplace conceded.

Mr. Willoughby stated that he was a Haverhill resident and made note that there is rarely any citizen input given to the operation of Grafton County. He said that although the Commissioners may not have heard, there are concerns out in the community about County spending, and in particular the proposed new Jail. He asked that due to the economic conditions the Jail be either scaled back or put on hold. He also noted that all construction contracts should be put out to bid and awards should go to the lowest bidders. He added that substandard companies should be barred from bidding altogether. It was also his opinion that large projects such as the Jail project should go out for a County referendum and not just be decided upon by the Delegation. He asked that the County Commissioners take this all under advisement.

Commissioner Richards suggested that Mr. Willoughby take a tour of the Jail and speak with Supt. Libby. Mr. Willoughby said that the need for a new Jail is not under contention, but what is being proposed, is.

Mr. Willoughby left and the PowerPoint presentation continued.

After the presentation was over, Commissioner Burton asked if the Shoreline Protection Act has any effect on the proposal and Mr. Calkins, said that he had not reviewed that law.

Commissioner Burton asked if there was a model elsewhere of what is being proposed and G. Phetteplace said that CRREL is using the system for cooling. D. Calkins said that the Sharon rest area and the VT Home in Bennington will be put on a system and that Monroe is considering geothermal. He said that there is a lot of interest now and that it's gaining acceptance.

Commissioner Richards asked if they would be able to offer a good guess as to whether or not this is a system that would work here without having to do more work to find out and G. Phetteplace said that they may still need to do some further work or they may be able to tell straight off it won't work at all.

Commissioner Richards asked if there was money that could be found to accept this proposal of \$3200 to basically study the area to see if the geothermal system is possible and Director Clough said that it might be wise to wait for the court decision before going any further with this project.

Commissioner Richards thanked the two gentlemen for coming in and said that she certainly appreciated their skills and expertise, as well as Dr. Phetteplace's time on the Alternative Energy Committee.

Director Clough reviewed a letter that was sent from Woodsville Water and Light regarding the water tank agreement. Director Clough had spoken directly to B. Fagnant about taking over the tank. An \$8K connection fee has been paid for the water main however, this fee is part of the on-going negotiations and may end up being waived once the agreement has been made. At present, the utility easement has been taken care of. The cost to run the electricity to the tank is still under consideration. Some of Woodsville's concerns are:

- Would like more information on the warranty on the concrete tank.
- Can not do any road maintenance as there is no equipment to do so.
- Water pressure stipulation.

S. LaRocque gave the Commissioners a letter from Natgun which outlined their level of responsibility of the tank. The main reason the warranty is not for a longer period of time is because of bonding. S. LaRocque said that the concrete tanks are "virtually" maintenance free. The letter also referenced Natgun's commitment to the Village of Ludlow when one of their dome roofs' had an issue after 30 years, and was taken care of by Natgun at no charge to the Village.

There was a discussion about the County taking care of the road to the tank and Supt. Oakes said that he would like to see a new snowmobile path cut and moved to a different

area so as not to run on that road. Commissioner Burton said that he would advocate for that and that trail machines should be kept away from the road during mud season.

Commissioner Cryans asked S. LaRocque if he would call the Village of Ludlow and verify the information in the letter, which he said he intended to do.

S. LaRocque also gave the Commissioners a letter from the DES which encourages WW&L to take over ownership of the tank as they are a company operating under that purview.

All the aforementioned information will be discussed at the WW&L meeting this evening which Commissioner Cryans and Richards will attend along with Supt. Oakes and S. LaRocque.

Commissioner Burton asked if an agreement with WW& L would call for three Commissioners' signatures under the law and if there is an agreement as of yet. Director Clough said that it would require all three Commissioners and there is no agreement now. Commissioner Burton said that he would not approve anything until everything was clear to him.

#### GRAFTON COUNTY CDBG APPLICATION ~ PUBLIC HEARING

CDBG Administrator Donna Lane arrived along with David Hammel and Joyce Presby from MicroCredit New Hampshire. They also brought along sandwiches from the River View Café and candies and gourmet popcorn from other businesses.

10:30 Commissioner Cryans Opened the Public Hearing

Community Development Block Grant funds are available to municipalities through the NH Community Development Finance Authority. Up to \$500,000 annually is available on a competitive basis for economic development, public facility and housing projects and emergency activities that directly benefit low and moderate income persons. Up to \$12,000 is available for feasibility study grants.

Purpose of Community Development Block Grant funding request:

A proposed application to the Community Development Finance Authority for up to \$500,000 in Community Development Block Grant (CDBG) funds. The County will retain \$10,000 for administrative costs and will subgrant up to \$490,000 of the funds to NH Community Loan Fund (CLF). NH CLF will use the Microenterprise funds for the Microcredit -NH Program. The project funds will be used for training of low and moderate income persons engaging in business development.

This project conforms with Grafton County's Housing and Community Development Plan's Goal of encouraging economic development.

Funding request: up to \$500,000

Commissioner Cryans asked for any public comments.

Commissioner Richards asked what the chances were of getting \$500K in this economy and D. Lane said that they may not need that much money but there haven't been any cut backs yet.

H. Brown asked about training such as what kind of training for which jobs. D. Hammel said that training is throughout the whole state and are for whatever jobs are required. He said that there were tutorial skills in business for those who wanted to go into business as well as skills for those already in business. He said 85% of members are in the program less than three years and 179 new members joined this year. He added that the program gives people the tools and techniques to run their own business.

10:40 AM Commissioner Cryans Closed the Public Hearing

10:40 AM Commissioner Cryans opened the Public Hearing

#### Residential Antidisplacement and Relocation Assistance Plan

Although this project does not involve any displacement or relocation of persons (or businesses), if the Town were to undertake a CDBG project which involved displacement or relocation they would follow this plan. The plan outlines the measures they would take to find comparable, suitable housing for persons (or businesses) displaced or relocated.

Commissioner Cryans asked for any public input. There was no public input.

10:41 AM Commissioner Cryans Closed the Public Hearing

10:41 AM Commissioner Cryans Opened the Public Hearing

Discuss the progress of the 2008 Microenterprise project. This project is moving along well. At least 60 low and moderate income persons have participated in the training to date. This year the required participants number is 80, down from the previous years' goal of 100. This is based on the reduction in CDBG funding from \$500,000 to \$400,000.

10:42 AM Commissioner Cryans Closed the Public Hearing

10:42 AM Commissioner Cryans Opened the Public Hearing

D. Lane discussed the progress of the Littleton Area Learning Center project. The renovations are complete. Both daycares are in the building, and have been for 6 months. At least 100 children are being served by this project.

10:44 AM Commissioner Cryans Closed the Public Hearing

10:44 AM Commissioner Cryans Opened the Public Hearing

D. Lane discussed the progress of the GCEDC/Adimab project. This project is ready to be successfully closed out. It had a goal of 21 jobs, but created 37 jobs.

10:45 Commissioner Cryans Closed the Public Hearing

10:45 Commissioner Cryans Opened the Public Hearing

D. Lane discussed the Gile Tract Affordable housing project. This project is behind schedule, the site work was more difficult than anticipated. Two buildings are complete, two more will be by December 2008. Another will be complete in January and the final building will be complete in February.

In total, there will be 45 units for low and moderate income households. An additional 15 units will be market rate units.

10:47 AM Commissioner Cryans Closed the Public Hearing

Commissioner Burton moved to adopt the Residential Antidisplacement and Relocation Assistance Plan, which was seconded by Commissioner Richards. All were in favor.

Commissioner Burton moved to approve the submittal of the application and to authorize Commissioner Cryans to sign and submit the application, and upon approval of the CDBG application, authorize Commissioner Cryans to execute any documents which may be necessary to effectuate the CDBG contract, which was seconded by Commissioner Richards. All were in favor.

Sheriff Dutile and HR Director Mann arrived to ask the Commissioners to reconsider approving the grade increase of the Criminal Record's Clerk at the Sheriff's Dept. to grade 4, which they had voted down a month ago.

Sheriff Dutile said that the responsibilities of that position have increased due to the increase in transports and the civil services needed. In the event of these increases, a revised job description was sent to the consultant and a reply that a higher grade was warranted was the graded response.

Sheriff Dutile said that if the Commissioners adopt the change it would mean a \$400 increase for the year. He stressed that the person in this position has taken on this job and is doing an excellent job, adding that this is an important position and that he has money in his budget for this.

Commissioner Cryans said that he has an issue with asking for more money after the budget has already been approved and that it would open up a window for others to come in and do the same thing and that it is very difficult in these economic times.

Director Clough said then that you are asking an employee to take on more work and responsibility and not to get compensated for that.

Commissioner Cryans said that there are job freezes and layoffs going on out there and that so far the County hasn't been in the position of having to do any of those things.

Commissioner Burton said that he plans to vote in favor of this request should it come to a vote.

Commissioner Richards said that she was perplexed with these economic times and that other places are laying off people and or expecting their staff to take on more responsibility for the same rate of pay. Commissioner Richards asked HRD Mann what she thought.

HRD Mann said that she thinks it's appropriate for the amount of money that is being requested and said she wasn't quite sure how it would be handled if it were not approved. Sheriff Dutile questioned whether or not he would have to put a Deputy in the position.

Commissioner Burton moved that the request be approved and that the grade be increased to a grade 4 for the Criminal Records Clerk, which was seconded by Commissioner Richards.

Commissioner Burton and Richards were in favor. Commissioner Cryans was opposed. Motion passed.

While Sheriff Dutile was still present, Commissioner Burton said that he attended the NE Chapter of Emergency Safety in Colebrook yesterday at the request of Director Andross and that he was pleased to meet the people who had built the command trailer. He also noted that the DUI van will be here at the County, Thursday November 13<sup>th</sup> at 3:00 PM.

Commissioner Burton also informed everyone that Governor Lynch re-nominated R. Cheney to head up 911 and that the Commissioner would like to see information passed out on flip charts that informs 911 operators where to direct people should anyone call who has no food or heat and needs help.

L. Wheeler asked the Commissioners if the County has considered layoffs or hiring freezes for the upcoming budget year and if so, what is HR Director Mann's role in that. Commissioner Cryans replied that it is not something that had been discussed to do but we were facing very difficult economic times and he was uncertain of what the upcoming budget might bring.

Commissioner Burton moved to approve the minutes from October 21, 2008 in Littleton, which was seconded by Commissioner Richards. An edit was made. All were in favor.

The Commissioners signed the check registers.

HR Assistant Karen Clough arrived to speak with the Commissioners regarding the newly created position in the HR Department. She presented the Commissioners with a letter that she had prepared.

HRA Clough said that she had gone on medical leave from June 18 to Aug 15 and upon her return there was a new person in HR and nothing was ever said to her about it. She also noted that the new person was making \$1.14 more than she was as the Assistant. The new person was brought in as a Clerk and was scored by the consultant at a grade 2. This position has less responsibility and according to the policy manual, violated the Grafton County policies for transfers.

HRA Clough said that she commends the fact that three people who could have lost their jobs due to a department dissolving are kept in a position at the County but now HR has 4

people and a higher rate of pay is given to someone with no experience. She said that in her opinion it sets a bad example.

Commissioner Cryans said that this was a special set of circumstances and the goal was to avoid layoffs and that people were moved where they were meant to be moved. HRA Clough said that she understood that and knows that no one wanted to be laid off, yet these people were allowed to shadow other positions and choose where they wanted to go and said she didn't understand why that was allowed.

Commissioner Cryans said that he didn't think that they should take a pay cut after many years of services.

HRA Clough asked the Commissioners if they had looked at the positions or where they might be moved to. Commissioner Cryans said that he only looked at the person and again stated that he did not want to give them a pay cut.

HRA Clough said that her supervisor had put in for a double step increase for her and she did not receive it, but had she, this may not even be an issue.

Commissioner Burton suggested that Director Clough and HRD Mann come back to the Board after reviewing the situation and make a recommendation.

Commissioner Richards asked if Director Clough had given this whole issue any thought and she replied that she knew that there were other people throughout the County who felt this was unfair but going through the process at the time it seemed like it was the proper thing to do.

Commissioner Cryans said that no one can turn the clock back and if we had laid people off then that wouldn't have been a good situation either.

Director Clough said that this reflects back to the fact that the step increases have been inconsistent and that there really needs to be a consistent way these situations are handled.

Commissioner Richards said that she didn't look into these moves when they were being proposed. Commissioner Cryans said that he stood by the decision that the Commissioners made and felt as though it was the right one made in order to save the three positions.

HRA Clough said that perhaps the Commissioners did not understand her position and suggested that the Commissioners should not be making decisions without thinking that it doesn't affect another 300-400 people. She made the analogy that if the same displaced person had chosen to go into Activities, where the aids make a lot less than that person, wouldn't it have been considered a poor idea to place them there and Commissioner Cryans said that it was the decision made and that's how it would have been had they decided to go there.

She questioned why, if they would have known the outcome of the decision they had made, would they not re-think it.

HRA Clough said that she would ask that they reconsider the double step increase.

Commissioner Burton gave HRA Clough a dispatch training course booklet and asked that she put it in HR along with other educational items.

Director Clough said that she sent a response letter to Rep. Ingretson and wanted clarification as to Commissioner Burton's request that the letter be put out to a media outlet. Commissioner Burton said that he would like the letter to be responded to publically.

Commissioner Cryans signed a reactivation form for a special employee fund that was currently dormant.

The Commissioners signed a DRA reimbursement form for forest lands.

Director Clough informed the Commissioners that the UVLSRPC dues have increase from \$450 to \$463.50.

The guaranteed maximum rates increase set by Healthtrust for the Matthew Thornton insurance is 10%. Director Clough stated that HealthTrust had sent some additional information regarding different co-pays for the prescription plans and that the County would look into these options as they would reduce the premiums.

NHA Bolander sent a request for the Commissioners to approve the purchase of oxygen and related supplies from Airgas, who bought out Merriam Graves. Two bids were solicited for the yearly contract:

Genter: \$10,205.

Airgas: \$ 9,250.40

Commissioner Burton moved to accept the bid from Airgas in the amount of \$9250.40, which was seconded by Commissioner Richards. All were in favor.

NHA Bolander had sent a prepared report which outlined the disadvantages of going with an outside company to do the Laundry at the Nursing Home, which the Commissioners will review at some point.

Supt. Libby arrived

Commissioner Burton asked that thank-you letters be prepared for the hosts of the Littleton meeting, and others.

Commissioner Burton asked if the award was given to E. Smith yet and Supt. Libby said it had not and that he was waiting for an appropriate time.

Commissioner Richards said that she had attended a debate in Hebron where different items were discussed such as the cost of firewood and training for inmates.

Commissioner Richards visited the Bunton Farm in Orford and was asked to see if she could help them get some kind of waiver so that they can pave over a piece of land that has a conservation easement on it. Commissioner Cryans said first off, it's not an issue that the County can resolve and second, both he and Commissioner Burton have made attempts to help and have not been successful.

Commissioner Cryans said that he and Commissioner Richards attended the UNH Cooperative Ext. meeting and John Pike, Jim Grady and Paul Bonaparte Krogh were all there.

Commissioner Cryans said that 95-100 people attended the Drug Court graduation.

\*12:03 PM – Commissioner Richards moved to enter into Executive Session as per RSA 91-A:3, Paragraph II, Section a). Commissioner Burton seconded the motion. All were in favor.

\*12: 09 PM– Commissioner Richards moved to come out of Executive Session and to permanently seal the Minutes from the Session. Commissioner Burton seconded the motion. All were in favor. No motions were made and no actions were taken while in Executive Session.

Commissioner Burton moved to accept the decision of Supt. Libby to suspend one of his Correctional Officers for 5 days without pay with an additional 5 days to be put on hold pending satisfactory completion of a detailed corrective action training assignment, which was seconded by Commissioner Richards. All were in favor.

12:10 AM With no further business the meeting was adjourned.

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Raymond S. Burton, Clerk

## Geothermal Heat Pumps for the Grafton County Correctional Facility

Dr. Gary Phetteplace, PE  
GWA Research LLC  
and  
Darryl Calkins, PE  
Catamount Subsurface Investigations

28 October 2008

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## Geothermal Heat Pumps and Geothermal Energy

- Geothermal heat pumps should not be confused with "true Geothermal Energy".
- True geothermal energy is normally in the form of hot water or steam geysers or hot springs that may be used directly for space heating, agriculture/aquaculture, and even in some cases electric power generation.
- To varying degrees geothermal heat pumps make limited use of energy from the earth, however largely they use the earth as an energy storage device.

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## Heat Pump Background

- Heat normally flows from regions/bodies at warmer temperatures to colder ones, analogous to water flowing down hill.
- If we want to make heat move in the opposite direction on the temperature scale, energy must be input, just as we must input energy to move water to a higher elevation.
- Moving heat up the temperature scale is the purpose of a heat pump, air-conditioner, or refrigerator.
- In terms of the basic physics involved they are all the same, the nomenclature is strictly a function of the application.

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**Heat pumps, Air-Conditioners, and Refrigerators:  
what's the difference?**

	Purpose	Heat Source ( $T_h$ )	Heat Sink ( $T_c$ )
Refrigerator	Cool interior of refrigerator	Interior of refrigerator	Room Air
Air-Conditioner	Space Cooling	Room air	Outdoor air or other
Heat Pump	Space Heating	Outdoor air or other	Room Air

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**So how does a heat pump or refrigerator work?**

- It's some thermodynamic trickery that is called a "vapor compression cycle".
- This cycle basically exploits the fact that at lower pressures liquids boil at lower temperatures.
- Just as water boils at a lower temperature at 10,000 feet where the atmospheric pressure is lower, a refrigerant behaves the same way.
- Forcing the refrigerant around a cycle between two temperatures by changing it's pressure allows heat to be transferred up the temperature scale.

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**What does a heat pump look like?**



- Most common type is water-to-air, closed-loop:
  - Water (or a water based solution) is supplied to the unit as it's heat source/sink
  - The same water/solution is circulated to the ground to pick up/discharge heat
  - Air is the medium that delivers the heating/cooling to the room

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### Why is a heat pump advantageous?

- It turns out that if you don't need to move the heat very far up the temperature scale, it takes a lot less energy to do so than to create the heat by another means (i.e. burn fuel).
- A "lot less" is the order of one third or one fourth.
- It's also a simple matter to change the direction of the refrigerant flow such that a heat pump can provide both heating and cooling; i.e. air-conditioning becomes part of the system at negligible extra cost.
- In larger buildings like the proposed Grafton County Correctional facility, multiple heat pumps are often connected to a single circulating loop of water and not only is it possible for one unit to be heating while another cooling, it's advantageous.

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### So what's the downside?

- A heat pump is an electric driven technology in most all cases and electricity is a high value/high cost form of energy.
- Recent escalation in heating fuel cost has greatly decreased this disadvantage.
- Thermally connecting the heat pump to the ground, i.e. ground-coupling, can be expensive and is most often the cost driver in these systems.
- Understanding the site is important in determining feasibility and economics.

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### Basic System Types of Interest for the Grafton County Correctional facility

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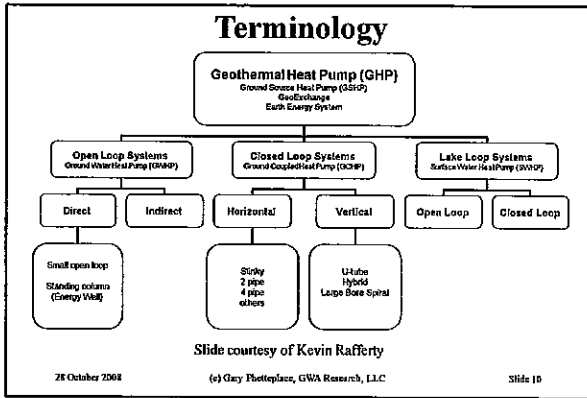
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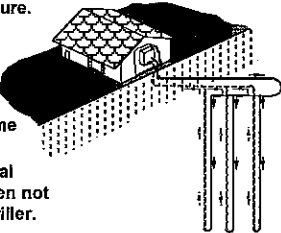
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### CLOSED LOOP Vertical Ground Coupled

- **Advantages**
  - low land area requirement.
  - stable deep soil temperature.
  - adaptable to many sites.
- **Disadvantages**
  - may have high cost.
  - does not work well in some geological conditions.
  - needs experienced vertical loop installer. That is often not your conventional well driller.



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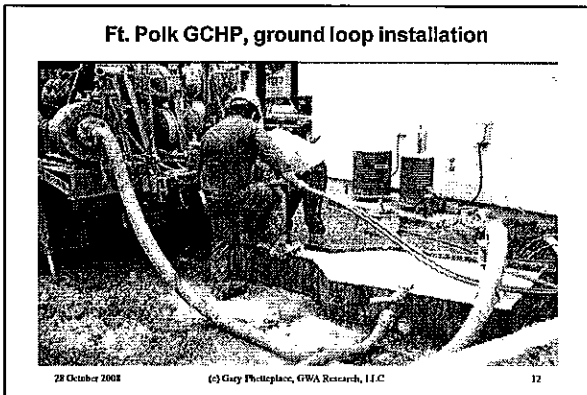
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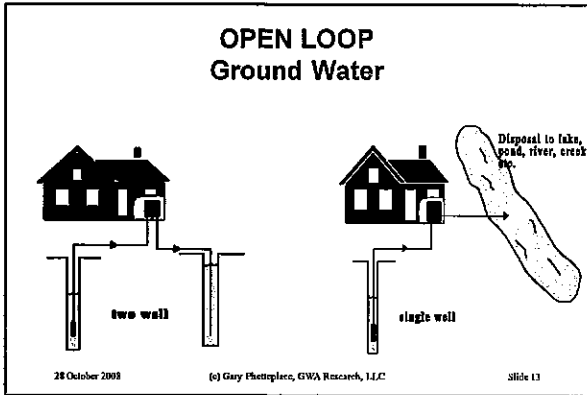
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- ### Open loop ground water system
- Advantages
    - May have lowest first cost, especially for large loads
    - Stable source temperature, high efficiency
    - Some direct cooling possible
    - Oldest, lots of experience (a lot of the early systems had problems, most of which would have been solved by a heat exchanger isolating the ground water)
  - Disadvantages
    - Environmental requirements may be tougher
    - Site specific
    - Poor water quality can cause difficulties, isolating ground water from heat pumps is often necessary
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### Comparative Commercial Installation Costs

Type of Equipment	Square Foot Costs (2005)
Rooftop gas/electric package	\$9.00 – 11.50
Packaged air-to-air heat pump	\$10.00 – 12.00
Water source heat pump (boiler-tower system)	\$10.50 – 13.00
Ground source heat pump	\$14.00 – 17.00
VAV – chiller/boiler	\$13.00 – 16.00
Four pipe unit ventilator – chiller/boiler	\$15.00 – 18.00

Compiled by and Courtesy of Lisa Meline, typical for Northern California

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## Comparative Commercial Maintenance Costs

Type of Equipment	Mean Cost (\$ per 100 sf, 2005)
Geoexchange system – ground source heat pump	14.28
Water source heat pump	27.48
Split system air-to-air heat pump	15.21
Reciprocating chiller	36.18
Centrifugal chiller	36.37
Absorption chiller	59.46

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## What our proposed study will do:

- Determine what is known about water yield and chemistry.
- Identify previous water supply studies.
- Look at the permitting requirements for an open loop system.
- Based on available building loads from designers determine the water production requirements.
- Provide a simple schematic of a geothermal system and first order approximate costs.
- Review the vertical ground loop option as previously dismissed.
- Recommend further courses of action.

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## What our proposed study will NOT do:

- Drill tests wells or conduct water tests.
- Provide construction or design level details.
- Remove all doubt of geothermal feasibility and cost effectiveness.

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## Credits

- Kevin Rafferty, Engineering Consultant, Klamath Falls, OR. [tripower@cvc.net](mailto:tripower@cvc.net) (See [heatspring.com](http://heatspring.com) for design course offerings)
- Lisa Meline, meline engineering, Sacramento, CA. 916-366-3458, [lisa@meline.com](mailto:lisa@meline.com), [www.meline.com](http://www.meline.com)

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