****** **URGENT** ******

MEMORANDUM

TO: DAVE TUTHILL

FROM: STEVE LESTER

DATE: SEPTEMBER 7, 1994

RE: WATER DELIVERY IN WATER DISTRICT 63-S

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This memo outlines current conditions in the Stewart Gulch district and proposes options to assist the Watermaster (WM) in regulating geothermal wells. Water supply problems normally occur around late August to late September according to water users' information. We need to determine the best management plan to follow based on current knowledge of the aquifer dynamics.

A prompt decision will assist the WM and the water users in meeting the current challenge. Work on more long term solutions can continue but short term needs must be met soon if normal experience is a guide in 63-S.

Based on limited WM regulation last year, IDWR invited the two junior parties, Terteling and Quail Hollow Golf Course, to provide us with information to allow use of their wells during water shortages. In other words, the burden was on the junior users to show that their water uses would not adversely impact senior rights. The golf course has not provided anything in this matter, while Terteling has hired Ed Squires to investigate the situation.

Recall also that IDWR determined that unregulated domestic use could continue for the Ryan and Nelson (formerly Stralow) wells as long as senior uses were not disturbed. The senior to junior priority rights to be regulated include Flora Co., Edwards, then Flora Co. again, Terteling and finally Quail Hollow Golf Course. This is abbreviated for discussion purposes as Flora, Edwards, Terterling and golf course. No party has suggested pursuing regulation of Ryan and Nelson domestic uses.

1993-1994 Aquifer Testing

Ed Squires conducted limited aquifer testing in the area from late 1993 through mid 1994. He called this "opportunistic testing", working with given conditions instead of being able to design conditions to meet particular objectives. Therefore, the results provide useful but not complete data.

With the permission of the Tertelings, Mr. Squires discussed the testing and summarized his conclusions in a public meeting hosted by IDWR on 8/23/94. Most of the district players were present along with Phil Rassier, John Homan, Ken Neely, Lori Graves and me.

The bottom line of Squires' limited study showed a probable fault line separating the upper and lower portions of the drainage in the vicinity of Terteling's "Windsock Well" (see attached map prepared by E. Squires). I roughly sketched the line on the map. The Windsock Well and those down gradient were found to be immediately interconnected and thus need to be regulated if a call for water is made. Well interference across the suggested fault line was not found.

The data did not appear to define recovery periods for the wells southwest of the fault. The Tertelings have agreed to provide the raw data to Ken Neely for computer modeling. Ken will see if the information provides some basis for estimating recovery periods of given wells to assist the WM as needed.

Status Report - Senior Water Right Owners

I telephoned the two senior parties in the district during the morning of August 31. The most senior, Flora Company, reported that water levels have been six to eight feet below LSD since July. This represents unusually low water levels at an earlier than expected time of the year. Water needs were marginally met at the time of the conversation and the owner projected that conditions would most likely remain stable if current weather continues and if the golf course limits its water use. The two parties had been discussing golf course water use reductions recently in an attempt at arriving at a useful arrangement without WM involvement yet.

The next senior right, Edwards Greenhouses, reported no problems at that time. The owner expected stability if weather remains about normal (no freezing) and if Edwards' conservation efforts continued (trying to make best use of available supply).

Both parties reported that calls for water were not expected in the next week or two, subject to changing weather or other unpredictable conditions. It looked like we had a short timeframe in which to make some decisions.

However, either later that day or early the next day, Flora Co. changed positions for some reason and called the Watermaster for water to be delivered. The Watermaster was unable to contact appropriate IDWR staff and acted late in the day on September 1. He closed and locked the Terteling windsock well and the two golf course wells.

Between then and now, recovery has been in process. Currently, one Flora well produces a small amount (from .07 to .14 cfs) but a second Flora well is not producing. Meanwhile, recovery at Edwards' well continues (currently 12.4 psi and @ 80 gpm). Flora Co. has indicated that it is acceptable to allow the junior Edwards well to receive water while Flora is still struggling, but Flora was not willing to risk any additional delay in recovery by allowing subsequent junior users to divert. Therefore, Terteling and Quail Hollow wells remain shut down.

Management Options to Consider

The decree protects water quantity and artesian pressure at LSD. The senior party or parties can call for water whenever either of these are not met. The artesian pressure factor complicates the instructions that IDWR provides to the WM in meeting calls for water. It appears that we do not have sufficient data to make reasonable estimates for realistic recovery periods once a junior well(s) is shut down. Perhaps Ken Neely can find something useful in the data from E. Squires. In any case, we should identify the best course of action for the WM to follow in delivering water for this year.

Three options are shown for your consideration.

OPTION NO. 1

Senior user Flora Co. calls for water. Senior wells have no flow or inadequate flow (this occurred last year, for example). WM makes a complete shut-down of all junior wells that are using water beyond a minor range. When Flora Co. is satisfied with the water delivery, other well use resumes in a priority order (one well at a time) to the extent that Flora Co. is not adversely affected.

This option prevents a situation in which the senior party is without water while a junior party continues to use water. This is the traditional water district procedure.

A possible exception to the above concerns limited use of wells junior to Flora Company. The October 22, 1993 Amended Final Memorandum Decision & Order allows domestic use for the Ryan and Nelson wells to the extent that adverse impact does not occur at other wells within the water district. Similarly, any well within the water district could be used for domestic purposes with the same limitation.

Another significant exception involves the senior party agreeing to provide water to junior uses in the priority order identified in the deliverable water rights while recovery occurs. If the senior user is willing to risk delaying recovery of senior wells by allowing a junior user(s) to divert, this should be acceptable to IDWR as it would be in a surface water district. This is the current situation in 63-S. The senior party is not obligated to provide such water to all junior parties, just to junior users to the extent that the senior is willing to assume a risk.

OPTION NO. 2

When Flora Co. calls for water, shut down only the junior user, the golf course (two wells). If Flora Co. is not satisfied after an expected interval (recovery period), curtail use at the Terteling Windsock Well. If, after another expected interval, Flora is still not satisfied, curtail use at Edwards. In other words, in the paraphrased words of Joe Terteling, "knock over the dominoes one by one instead of all at once".

There are conceptual and perhaps legal problems with this approach. What is the expected recovery period based on X conditions? Why should a junior well with clearly established interference patterns be allowed to divert while a senior well is without water? This option seems to violate the water district concept and is not recommended. Additional risk of increased recovery time should not be assumed by the senior party except on a voluntary basis. Option 2 should only be considered at the request of the senior appropriator.

OPTION NO. 3

IDWR treats a call for water in this aquifer in a manner similar to a call for reservoir water with a more or less predictable delivery time. The senior user is expected to make a reasonable prediction for a water need and call for water in advance of the need (projected recovery time is assumed). This idea was suggested by Phil Rassier at the 8/23 meeting. This could be done based on typical weather patterns and other more or less defined factors.

The WM curtails use at the junior wells to deliver the senior right by a specified date. Again, this raises the problem of which junior wells to regulate: just the golf course or also Terteling and perhaps Edwards? If only the golf course is restricted, the risk of prolonging the senior well(s) recovery period is assigned to the senior party instead of the junior parties.

Recommended Option for Watermaster Instructions

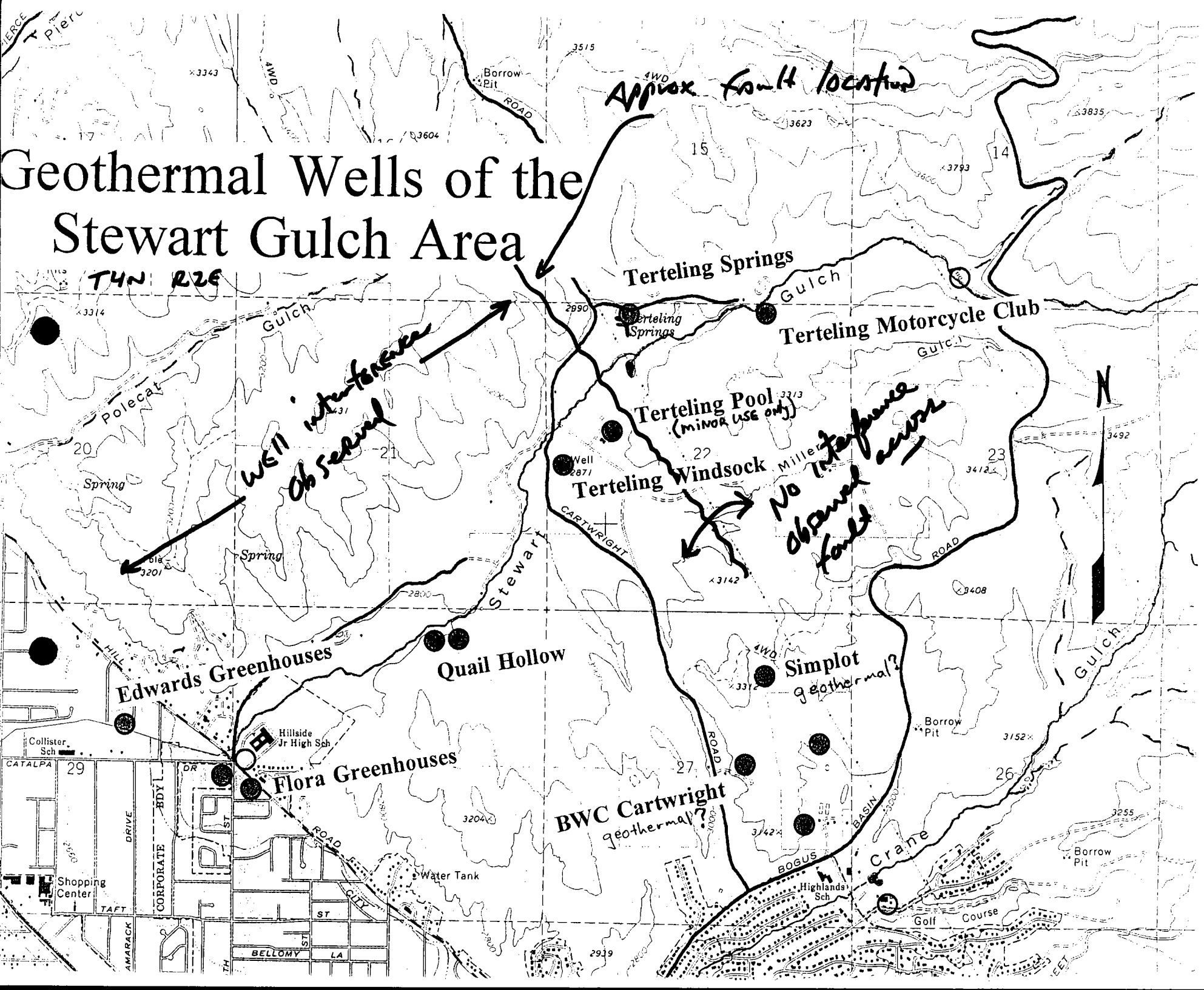
Based on current data available to IDWR, a call for water should be managed under Option 1 or some variation of that option. If the senior party is not willing to provide water to the next junior user or users within the order of priority identified in deliverable water rights, all junior wells should be limited to domestic use only. Domestic use would be curtailed only if reliable data showed that adverse impact was being experienced at a senior well or wells.

However, if the senior party is willing to provide water beyond domestic use for junior users within priority parameters, this can be allowed within the risk factors that the senior user is willing to assume.

If junior parties can present additional information for department review, other options can be considered. For example, if data can lead to reasonably predictable recovery periods for given conditions, perhaps the senior party can be persuaded to initiate its call for water in a predictive manner based on expected weather patterns and flow amounts required. This suggests that only the most junior user might be regulated if sufficient data is obtained.

None of these methods or any other plan possibly suggested by other parties should include WM regulation of the Terteling wells located up gradient from the Windsock Well (Terteling Pool Well use is minor and tangential to this process).

In any scenario during the regulatory period, the water users, WM and IDWR could monitor recovery intervals and other pertinent parameters as needed to assist in refining our management plans for this complicated water district.


Geothermal Wells of the Stewart Gulch Area
T4N R2E
Approx fault location
Terteling Springs
Terteling Motorcycle Club
Terteling Pool
(MINOR USE ONLY)
Terteling Windsock
Well
2871
Well interference observed
No interference observed
Miller
Polecat Gulch
Stewart Gulch
Crane Gulch
Cartwright Road
Borrow Pit
Quail Hollow
Edwards Greenhouses
Flora Greenhouses
Simplot
geothermal?
BWC Cartwright
geothermal?
Hillside Jr High Sch
Collister Sch
Shopping Center
Water Tank
Highlands Sch
Golf Course
N
Map by S. Ingraham 5/2 3/94