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DEC 05 2013
DEPARTMENT OF
WATER RESOURCES

December 5, 2013

Jeff Peppersack
Idaho Department of Water Resources
333 E Front St
PO Box 83720
Boise, ID 83720-0098

RE: Hoot Nanney Farms, Inc.

Dear Jeff:

Enclosed is a memorandum from Sherl Chapman dated November 17, 2013 along with the cross section you requested. The well logs and maps submitted electronically are still appropriate to use as part of your analysis.

Since the applicant agreed to case out the upper zone to protect a domestic well in the area the applicant desires to drill below 200 feet in depth in order to obtain a sufficient water supply to irrigate the 80 acre parcel on the south of the Hoot Nanney land east of highway 16.

Please let me know if you have questions or need additional information. Thank you for your consideration.

Yours truly,



David Shaw

Enc.

cc: Mike Dixon

Denver
1842 Clarkson St.
Denver, CO 80218
303.830.1188

Durango
1015 1/2 Main Avenue
Durango, CO 81301
970.422.2136

Hotchkiss
P.O. Box 932
161 South 2nd St.
Hotchkiss, CO 81419
970.872.3020

Idaho
4001 East Main Street
Emmett, ID 83617
208.365.7684

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These are my thoughts on the Hoot Nanny project near Star. I've tried to capture my interpretation of the upper contact of the deep aquifer in this area as it relates to the proposed well. I've drawn a rough cross section of the geology which can be refined if necessary. I had to project some of the wells quite away but I think it is as accurate as I can get. Let me know what you need next.

BACKGROUND: Hoot Nanny Farms (Dixon) has applied to appropriate groundwater from a well located in the NW/4SW/4 Section 3 T4N, RI W. Concern has been expressed that the well will effect domestic wells in the area and adversely effect the deep aquifer which has experienced water level declines in the past. In order to address these concerns, the applicant has agreed to case the well to approximately 125 feet or the first confining layer at or below the bottom of the nearby domestic wells. Additionally, the IDWR has limited drilling to the aquifer above the deeper aquifer which they have determined to begin at approximately 200 feet below land surface. The narrow window for development will severely limit the applicant's ability to develop a successful well. For that reason ERO Resources has examined the area in an effort to better identify the top of the deep aquifer.

ANALYSIS AND CONCLUSIONS: The investigation included the review and interpretation of 19 well driller reports from wells in sections 2, 3, and 4 T4N, RI W. These wells range in depth from 57 to 704 feet in depth. Two of the wells flow at land surface and seem to be unrelated to the widespread deep aquifer. The other wells often penetrate both the shallow and deep aquifers, usually taking water from both. For this analysis however, the lithology of the well bore was of the most interest. All of the wells penetrated a series of alternating, sand, silt, and clay beds, deriving water from much of them. This effort was to try to identify layers of clay or other impervious zones that could be considered as a sufficient aquaclude to separate the shallow and deep aquifers. Of the well driller reports, 13 were found to be instructive in this effort (attached). These wells either did not reach the deep aquifer or penetrate it significantly, allowing a general interpretation of its position at the proposed well location. Within the area investigated (sections 2,3,4), the top of the deep aquifer appears to lie from 263 to 318 feet below land surface. The

shallow area is found in a well located in the NE/4NE/4 Section 4, T4N, R1W. The deeper value is found in a well located in the SW/4NW/4 Section 2, T4N, R1W. While the relative elevations vary within this range the top of the deep aquifer does not seem to be any shallower than 263 feet below land surface. While many wells indicate clay and sand beds above this level most also indicate obtaining water throughout most of the geologic column suggesting continuity with the upper aquifer. Based on this analysis it appears that the top of the deep aquifer in the area of the proposed new well is approximately 290 feet below land surface. This would suggest a reasonable restriction on the proposed depth should not be any less than 290 feet which would allow the potential for development of a successful well.

A handwritten signature in black ink, appearing to read 'Sherl Chapman', with a stylized, cursive script.

Sherl Chapman IPG

Proposed well - Hoot Nanny Farms

