



DEPARTMENT OF NATURAL RESOURCES

DIVISION OF WATER RESOURCES

January 31, 2011

John W. Hickenlooper
Governor

Mike King
Executive Director

Dick Wolfe, P.E.
Director/State Engineer

David L. Nettles, P.E.
Division Engineer

COLBY J. HAYDEN
DEERE & AULT CONSULTANTS, INC.
600 S. AIRPORT ROAD, BLDG A, STE 205
LONGMONT, CO 80503

**RE: LA POUDRE AGGREGATE MINE (WDID 0303010) – DRMS M1983090
SLURRY WALL LEAK TEST FOR LA POUDRE RES NO 3 (WDID 0303376) &
LA POUDRE RES NO 4 (WDID 0303377)
WATER DIVISION 1, WATER DISTRICT 5**

Dear Colby:

Our letter dated January 3, 2011 expressed concerns regarding the use of 100% precipitation in the mass balance equations, and the lack of discussion regarding any change in storage volume. Your email dated January 20, 2011 responded to those comments. The purpose of this letter is to respond to your email.

Storage Volume

The supplemental information and discussion within your email is sufficient to accept the claim of negligible change in storage volume. Therefore we approve not including this volume in the mass balance equation for this leak test.

Precipitation

Our position, as stated in the January 3, 2011 letter, is that 100% of the rainfall does not make it to the pump and therefore 100% should not be used as a credit against pumping. This is important as the more rainfall that can be shown to flow through the pump, the less ground water inflow would be documented during the leak test. Thus an overestimation of rainfall leads to an underestimation of ground water inflows. In an effort to show accepted common practice, your email provided a list of eighteen other approved leak test that Deere & Ault was involved with and all of which used 100% precipitation. I reviewed nine of those tests whose data I had readily available.

Of those nine sites, one recorded no rainfall data during the test and therefore did not include precipitation in its mass balance equation, four elected not to use rainfall data as it would have produced a negative leak value, and the other four would have passed regardless of the rainfall percentage used. In the "Shores Ponds A Leak Test Report" in discussing why precipitation was not included you state *"Including the precipitation values, results in a negative leakage value. This is likely due to a significant portion of the rainfall infiltrating into the soil and being taken up to replace soil moisture in the dry soils rather than resulting in effective runoff at the dewatering sump."* Indeed, our standard for effective precipitation (that portion of rainfall that infiltrates into the soil and is taken up to replace soil moisture) when looking at historical consumptive use is 70% of total precipitation; a value in line with the statement of "a significant portion."

Water Division 1 • Greeley

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I do recognize that we have in the past accepted leak test reports that utilized 100% of the precipitation. Honestly, I don't think this was an issue in the past as the other liners would have passed regardless of the percentage used; it simply wasn't a cause to delay a liner approval. However, since we have previously accepted tests utilizing 100% of the precipitation without comment you had no way of knowing that utilizing 100% of the precipitation was not acceptable. Therefore, we will accept the 100% value for this test. Please be advised that we will no longer accept utilization of 100% of the precipitation in gravel pit liner tests

La Poudre Reservoirs Number 3 and Number 4 are accepted as having been lined to the performance standard referenced in the August 1999 State Engineer Guidelines for Lining Criteria for Gravel Pits. **Meeting the performance standard requires that all water inflows and outflows for the reservoirs must be accounted for on a weekly basis.**

With this liner approval, La Poudre Reservoirs Number 3 and Number 4 may be used to store water in accordance with the 1999 SEO Guidelines. Prior to any storage at this site, the operator will need to coordinate with the District 3 Water Commissioner, currently George Varra, to review operations and accounting.

If you would like to discuss the matter any further please contact me or Jonathan Hernandez, at the number on the first page.

Sincerely,



David L. Nettles, P.E.
Division Engineer

ec: George Varra, District 3 Water Commissioner
WDID (0303010, 0303376, 0303377)