

AMERICAN FALLS FARM LLC PIVOT EXPLANATION

American Falls Farm LLC (hereinafter “AFF”) and MPH Farms LLC (hereinafter “MPH”) are both entities involved in this matter. This matter was initiated by the *Preliminary Order Rescinding Transfer* dated August 3, 2021 (the “Preliminary Order”), which was issued by James Cefalo, the Regional Manager of the Eastern Region of the Idaho Department of Water Resources (“IDWR” or “Department”). The *Preliminary Order* concerns transfer application 81333 (the “Transfer” or simply “81333”).

I. FACTUAL BACKGROUND.

On November 21, 2016, MPH submitted the original application for the Transfer. The Transfer originally proposed amendment of three water rights (portions of 35-2306 and 35-8197 and the entirety of 35-8932) for irrigation of a combined place of use of 181.8 acres. As described in the *Preliminary Order*, the cover letter accompanying the original Transfer provided:

A variable rate irrigation (VRI) pivot package will be installed on the existing pivot that is currently being irrigated by 35-8932. The VRI package will allow the pivot nozzles to be turned off as the pivot travels over rock piles or unproductive soil that has historically been irrigated. This irrigation application will greatly increase the efficiency of irrigation on this farm and allow an increase of crop production.

The VRI system is operated by a computer system after the mapped areas for non-irrigation are inputted in the computer system. Accordingly, the VRI pivot system has both computer and mechanical components.

A map of the pivots with VRI systems is set forth below—the only pivot that experienced the malfunction is the pivot labeled as Pivot 1 below (it is referred to internally as Pivot #206 by the tenant, Lance Funk Farms):



II. MALFUNCTION INFORMATION

June 30, 2021 was the date of the IDWR agent's site visit where he observed Pivot #1 irrigating rock patches that were not authorized. Darren Watt is the manager of the lessee that operates Pivot #1. The VRI system was repaired by Double M Ag & Irrigation from American

Falls (“Double M”) shortly after June 30th. I have visited with the tenant and Travis Mills of Double M to better understand the pivot system and the likely source of the malfunction.

The pivot is a Zimmatic pivot that is branded as part of its Growsmart Division. The Growsmart package places individual valves (solenoids) that allow individual risers (nozzles) to be turned on and off based on programming.¹ In AFF’s *Petition for Reconsideration*, the detail of the computer inputs was included as an exhibit.

Pivot 1 is served by a well and pump with a Variable Frequency Drive (“VFD”). VFDs allow the diversion rate of water to be varied to match the amount of water being called for by an irrigation system. There is a transducer next to the VFD that receives communication from the irrigation system to either increase or decrease water diversions based on pressure. VFDs can be programmed to be more or less sensitive to pressure changes.

In June, Darren Watt reported that there was too much pressure at the pivot, and the result was that the individual valves were blowing out. Double M ordered the replacement valves, but because they were not immediately available, Watt attached the individual risers to the pivot until the replacement valves were available to install—otherwise, the pivot would not be function and the crops would be damaged. The valves were eventually replaced after IDWR’s site visit, and Pivot 1 is currently functioning properly as evidenced by these photos:

¹ https://www.lindsay.com/uploads/files/resources/318-lindsay_zimmatic_bro_controller_0917_web.pdf



Additionally, Double M looked at computer program inputs and adjusted them to fine tune the mapped rock patch areas.

Double M initially thought the issue was with the Zimmatic pivot. However, Double M has ultimately concluded that the most likely cause of the malfunction was the VFD, which

apparently was not adjusting to pressure changes like it should have to prevent blowing out the valves. There is a VFD transducer which receives a radio signal from the pivot to increase or decrease water output from the VFD to increase or decrease pressure. The VFD is now functioning properly. However, Double M intends to test and fine tune the VFD next spring to minimize the potential for any problems in the future. This conclusion that the main issue was likely the VFD is supported by the fact that the VRI systems installed on Pivots 2-4 did not malfunction as evidenced by the photos in the *Petition for Reconsideration*.

All parties are aware that AFF is subject to the conditions of the Transfer approval, and it is in AFF's self-interest to abide by them. It is also in AFF's interests to limit their diversion of water given the volumetric limitations on all ground water users contained in the *Coalition-IGWA Agreement*.

Double M installed the Bart and Cherie Christensen pivot that James Cefalo discussed at the prehearing in this matter (Transfer No. 84789), which includes the following conditions:

3. Prior to the diversion and use of water right 13-7147 after Transfer 84789, the right holder shall install and maintain an acceptable flow meter and data logger on each center pivot to record the gallons per minute distributed by the variable rate irrigation system to each pivot on a 15-minute interval.
4. On or before December 15th in the years 2022, 2023 and 2024, the right holder shall provide the Department a report summarizing the data collected at the flow meters during that year's irrigation season. The data provided should demonstrate that the variable rate irrigation system was functioning properly during the irrigation season. In 2025 and thereafter, the right holder shall provide a report summarizing the data collected only if requested by the Department.
5. Failure of the right holder to comply with the conditions of this transfer, including the prohibition on applying water to the rock piles or rock outcroppings under the center pivots in S1/2, Sec 28, T09S, R40E, is cause for the Director to issue a notice of violation.

AFF is willing to include these conditions (or conditions in substantially the same form) as part of the reinstatement of the transfer approval to record and document the VRI pivot system performance. Double M has indicated that installation of a flow meter and data logger on the pipeline running to Pivot 1 can be implemented prior to next year's irrigation season.