Modified from Ratcliffe et al. (2011)

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USING DRONE SURVEYS TO INTERPRET THE GEOMETRY AND KINEMATICS OF A MESOZOIC FAULT ZONE IN DOLOSTONES OF THE CHAMPLAIN VALLEY BELT, WEST-CENTRAL VERMONT

To evaluate the geometry and kinematics of this zone, field mapping of fractures was necessary. Air photo of field area (purple polygon), which is a bedrock spillway for the Green Mountain Power Co. dam.

Drone (UA V) surveys of the Winooski River spillway field area were flown at altitudes of 41 m (135') and 26 m (85') by John Van shop, and assembled in Adobe Illustrator, we were able to characterize the fracture network at the outcrop scale in detail in the southwestern part of the field area. The pattern seen at this scale is generally similar to that of the whole field area. Technique adopted from R.D. Jacobi.

Horizontal slickensides that strike 067° and step to the NW. Meter-scale scangrids, scanlines, and pace shop, and assembled in Adobe Illustrator, we were able to characterize the fracture network at the outcrop scale in detail in the southwestern part of the field area. The pattern seen at this scale is generally similar to that of the whole field area. Technique adopted from R.D. Jacobi.

Using a series of four adjacent scangrids (a 3' square composed of stainless-steel rulers), which were photographed, undistorted in Adobe Photo-

The fractures that were measured in the scangrid mosaic dominantly strike 055/236 and dip steeply, parallel to the fault zone. Subordinate sets strike 022, 284, and 326. The strike and dip of bedding in the Clarendon Springs Formation varies little in the field area.

Although the dip of bedding wobbles from station to station, there does not appear to be any major deflection caused by fault activity. The strike and dip of bedding in the Clarendon Springs Formation varies little in the field area.

The fractures that were measured in the scangrid mosaic dominantly strike 055/236 and dip steeply, parallel to the fault zone. Subordinate sets strike 022, 284, and 326. The strike and dip of bedding in the Clarendon Springs Formation varies little in the field area.

Using drone surveys, we confirmed that the fracture orientations are consistent with the regional stress field. The fractures in the Winooski Spillway are dominantly oriented at 055° and dip to the NW. The fractures in the Clarendon Springs Formation are dominantly oriented at 022° and dip to the NW.

The Riedel shear model applies to fractures that are coeval and propagate out of the main fault plane. In this case, the fractures are not coeval and do not propagate out of the main fault plane. Therefore, the Riedel shear model does not apply.

The echelon shear fractures and step-over zones. These zones deform to accom-