9.1 **Lacustrine Stratigraphic and Stable Isotopic Expression of Overfilled and Balanced-Filled Transitions within the Tipton Member of the Green River Formation, Wyoming**

Jennifer C. Walker, Alan R. Carroll

The University of Wisconsin-Madison, Madison, Wisconsin, United States

Three distinct transitions in facies associations, geochemistry, carbonate mineralogy, and organic content occur within the Early Eocene Tipton Member of the Green River Formation (GRF), which occupies much of the Greater Green River Basin (GGRB) of Wyoming and Colorado. The contact between the Scheggs Bed and overlying Rife Bed is the first of these transitions, and is thought to reflect the initial impoundment of Lake Gosiute. The Scheggs Bed ranges from 23.5 m to 36.5 m, and is characterized by fluvial-lacustrine lithofacies, calcitic mineralogy, an average Fischer Assay content of 7.6 gal./ton, and low $\delta^{18}O$ and $\delta^{13}C$ values (25.3 ‰ and 0.7 ‰, respectively). These deposits transition to the 2-15 m lower Rife Bed over a 5 m interval. The lower Rife Bed is characterized by fluctuating profundal lithofacies, dolomitic mineralogy, an average Fischer Assay content of 17.6 gal/ton, and high $\delta^{18}O$ and $\delta^{13}C$ values (29.3 ‰ and 5.3 ‰). It transitions up-section over 2 m into fluvial-lacustrine lithofacies of the overlying 2.5-20 m thick middle Rife Bed, which exhibits calcitic mineralogy, an average Fischer Assay content of 9.7 gal./ton, and low $\delta^{18}O$ and $\delta^{13}C$ values (23.0 ‰ and 1.9 ‰). The third and final transition, from the middle Rife Bed to the upper Rife Bed, occurs gradationally along 6 meters of section. The 6.5-22 m upper Rife Bed is characterized by fluctuating profundal deposits, dolomitic mineralogy, an average Fischer Assay content of 19.2 gal./ton, and high $\delta^{18}O$ and $\delta^{13}C$ values (29.8 ‰ and 8.5 ‰, respectfully). Our study proposes that the three transitions recorded within the Tipton Member reflect a diversion, recapture, and ultimate diversion of a major source of water and sediment into the basin.