



Map projection: Transverse Mercator  
 Central Meridian: 101°  
 North American Datum 1983

- SYMBOLS**
- Major highways
  - Railways
  - Federal and provincial parks
  - - - Provincial boundary
  - - - DLS system (township/range grid)
  - Manitoba Geological Survey data
  - ▲ Manitoba Petroleum Branch data
  - Saskatchewan data
  - Formation edge (subcrop, outcrop)
  - Large-scale geological structure
  - Limit of Phanerozoic outcrop



Targeted Geoscience Initiative (TGI)  
**WILLISTON BASIN ARCHITECTURE AND HYDROCARBON POTENTIAL**  
**Mississippian Charles Formation,**  
**Midale Beds: Isopach**

Stratigraphic Map SM2008-MMB-1

Contour interval: 2 metres Scale: 1:1 000 000



**Geological compilation:** TGI Williston Basin Working Group: R.K. Bezys<sup>1</sup>, K. Kreis<sup>2</sup>, C. Martiniuk<sup>3</sup>, D. Barchyn<sup>4</sup>, J. Christopher<sup>5</sup>, J. Coolican<sup>6</sup>, G.G. Conley<sup>7</sup>, A. Cross<sup>8</sup>, F. Haid<sup>9</sup>, G.R. Keller<sup>10</sup>, D. Kerst<sup>11</sup>, A. Mason<sup>12</sup>, G.L. D. Maitle<sup>13</sup>, M.P.B. Nicolas<sup>14</sup>, P. Thomas<sup>15</sup>, S. Spooner<sup>16</sup>, M. Yurkowsky<sup>17</sup>, A. Nimegeers<sup>18</sup>, E. Nadeau<sup>19</sup>, M. Opatosh<sup>20</sup>, T. Musil<sup>21</sup>

**GIS spatial analysis and cartography:** L.E. Chackowsky<sup>22</sup>

**Published by:** Manitoba Science, Technology, Energy and Mines, Manitoba Geological Survey, 2008.

<sup>1</sup> Manitoba Science, Technology, Energy and Mines  
<sup>2</sup> Saskatchewan Ministry of Energy and Resources  
<sup>3</sup> Geological consultant  
<sup>4</sup> Formerly of Manitoba Science, Technology, Energy and Mines  
<sup>5</sup> Formerly of Saskatchewan Ministry of Energy and Resources

Digital release only; maps can be downloaded free of charge in PDF format at [www.manitoba.ca/minerals](http://www.manitoba.ca/minerals) or [www.WillistonTGI.com](http://www.WillistonTGI.com)

**Suggested Reference:**  
 TGI Williston Basin Working Group 2008: Mississippian Charles Formation, Middle Beds: Isopach; Manitoba Science, Technology, Energy and Mines, Manitoba Geological Survey, Stratigraphic Map SM2008-MMB-1, scale 1:1 000 000, URL: [www.WillistonTGI.com](http://www.WillistonTGI.com).