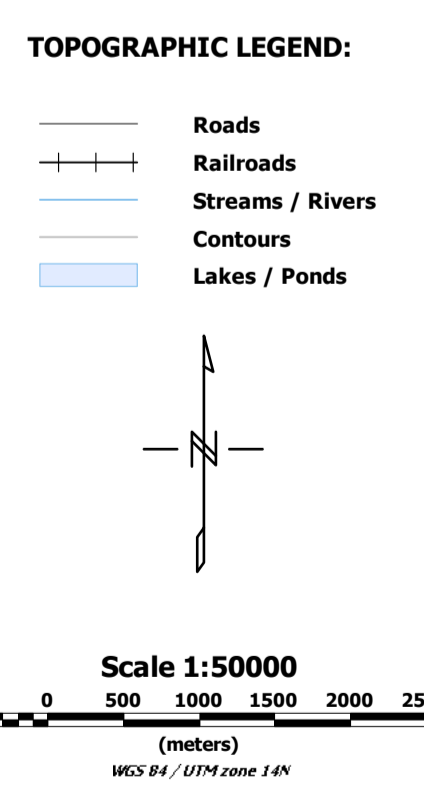
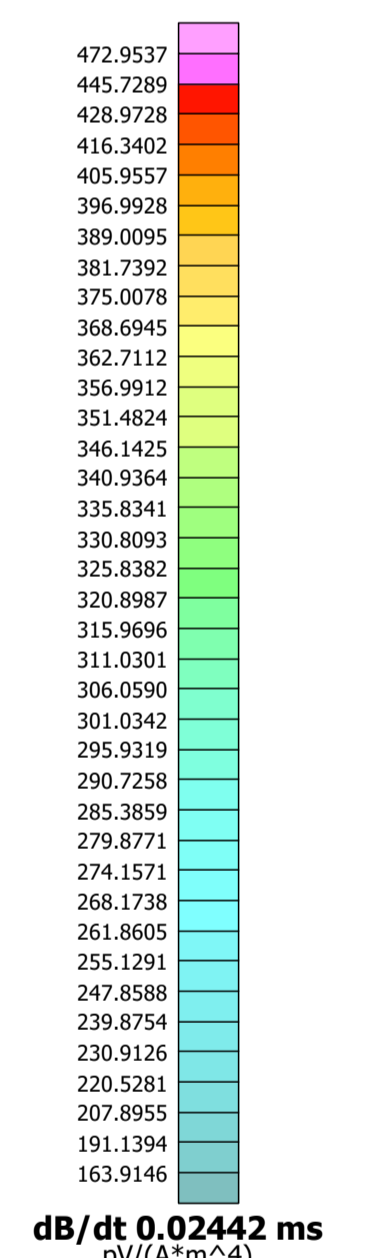


SURVEY SPECIFICATIONS:
 Survey Date: 2019
 Survey Base: Tolna, Nevada
 Aircraft: Aerospaciale A5350 B3
 Survey Line Spacing: 500 metres
 Survey Line Direction: N 68° E / N 148° E
 Tie Line Spacing: n/a
 Tie Line Direction: n/a
 Average Aircraft Terrain Clearance: 65 metres
 EM Transmitter Loop: Towed at an average terrain clearance of 29 metres below the helicopter
 Magnetic Sensors: Towed at an average terrain clearance of 10 metres below the helicopter

INSTRUMENTS
 Geotech Time Domain Electromagnetic System (VTEM)
 Concentric Rx/Tx Geometry
 Z-Coil Diameter 1.2m
 Transmitter Loop: Diameter 17.1 Metres
 Dipole Moment: 144,098 nA
 Transmitter Wave Form: Trapezoid, Pulse Width 7.1 ms, Base Frequency 30 Hz
 Geometrics High Sensitivity Caesium Magnetic Sensor
 Mag Resolution: 0.02 nT at 10 samples/sec

MAP PROJECTION
 Datum: WGS84
 Projection: Universal Transverse Mercator
 Central Meridian: 99°W (Zone 14N)
 Central Scale Factor: 0.9996
 False Easting/Northing: 500,000m/0m
 Major Axis: 6378137
 Inverse Flattening: 298.25722



The topographic data base was derived from North Dakota GIS Hub Data Portal (<https://gishubdata.nd.gov/>)
 US Government Open Data (<https://www.data.gov/>)
 Inset data derived from Geocommunities (www.geocomm.com)
 Background shading is derived from USGS ASTER DEM (<https://gdem.cr.usgs.gov/gdem/>)

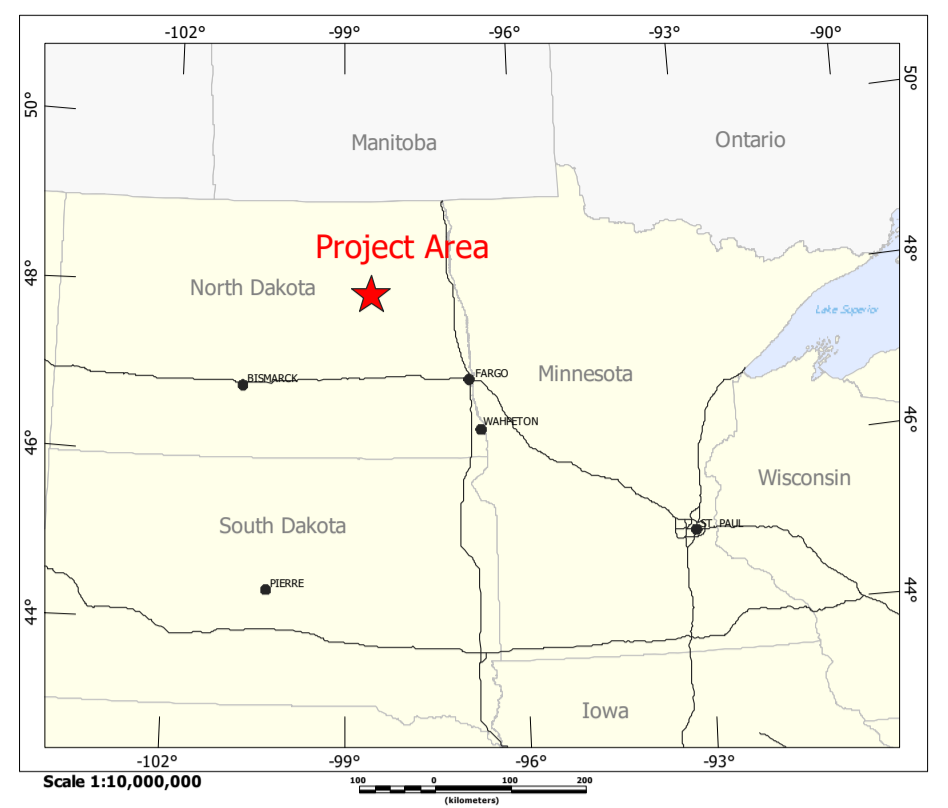
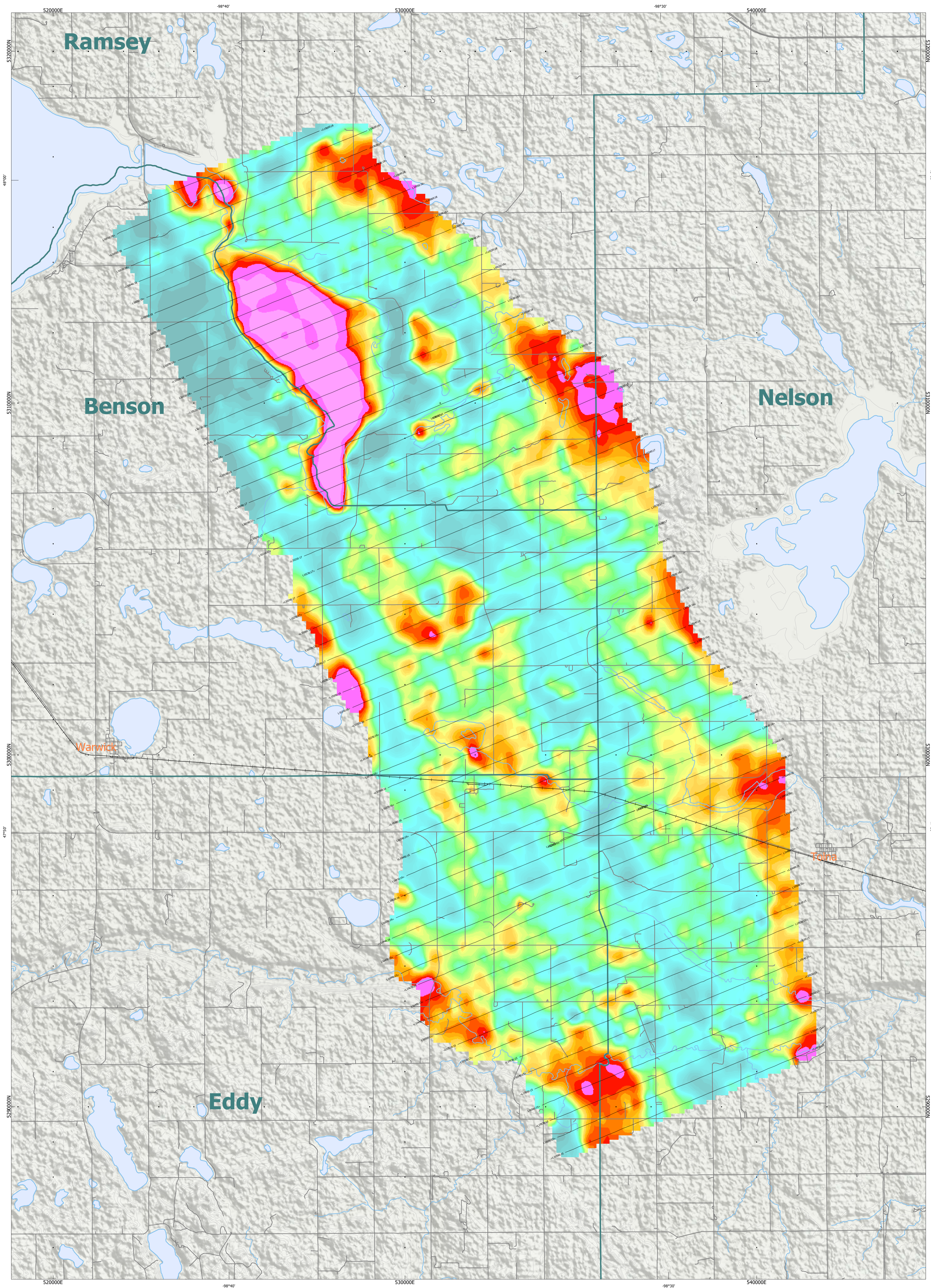
**North Dakota State Water Commission
 Tolna Project
 Tolna, North Dakota**

Geotech VTEM System

VTEM dB/dt Z Component
 Channel 15, Time Gate 0.02442 ms

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www.geotech.ca

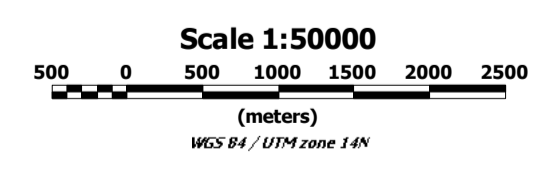
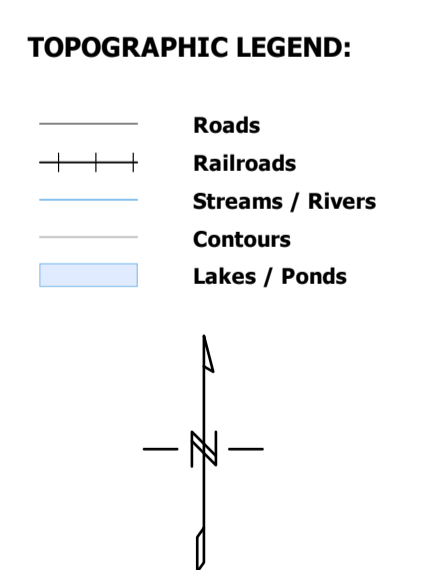
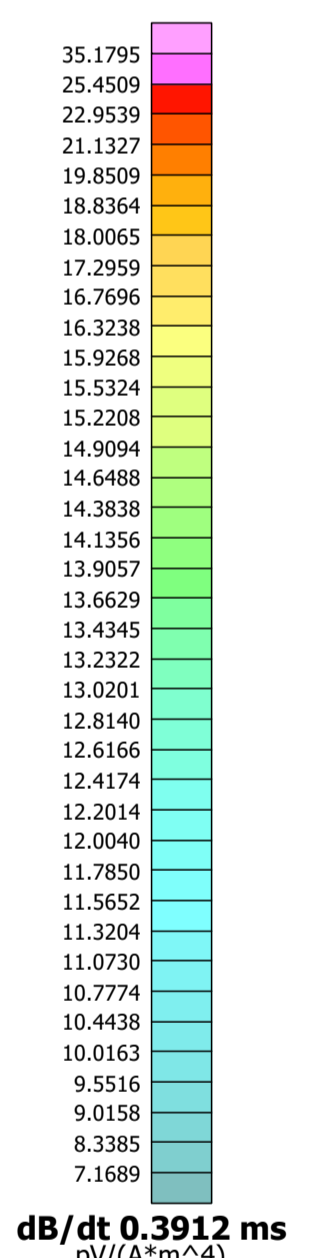
June 2019



SURVEY SPECIFICATIONS:
 Survey Date: 2019
 Survey Base: Tolna, Nevada
 Aircraft: Aerospaciale A5350 B3
 Survey Line Spacing: 500 metres
 Survey Line Direction: N 68° E / N 148° E
 Tie Line Spacing: n/a
 Tie Line Direction: n/a
 Average Aircraft Terrain Clearance: 65 metres
 EM Transmitter Loop: Towed at an average terrain clearance of 29 metres below the helicopter
 Magnetic Sensors: Towed at an average terrain clearance of 10 metres below the helicopter

INSTRUMENTS
 Geotech Time Domain Electromagnetic System (VTEM)
 Concentric Rx/Tx Geometry
 Z-Coil Diameter 1.2m
 Transmitter Loop: Diameter 17.1 Metres
 Dipole Moment: 144,098 nA
 Transmitter Wave Form: Trapezoid, Pulse Width 7.1 ms, Base Frequency 30 Hz
 Geometrics High Sensitivity Caesium Magnetic Sensor
 Mag Resolution: 0.02 nT at 10 samples/sec

MAP PROJECTION
 Datum: WGS84
 Projection: Universal Transverse Mercator
 Central Meridian: 99°W (Zone 14N)
 Central Scale Factor: 0.9996
 False Easting/Northing: 500,000m/0m
 Major Axis: 6378137
 Inverse Flattening: 298.25722

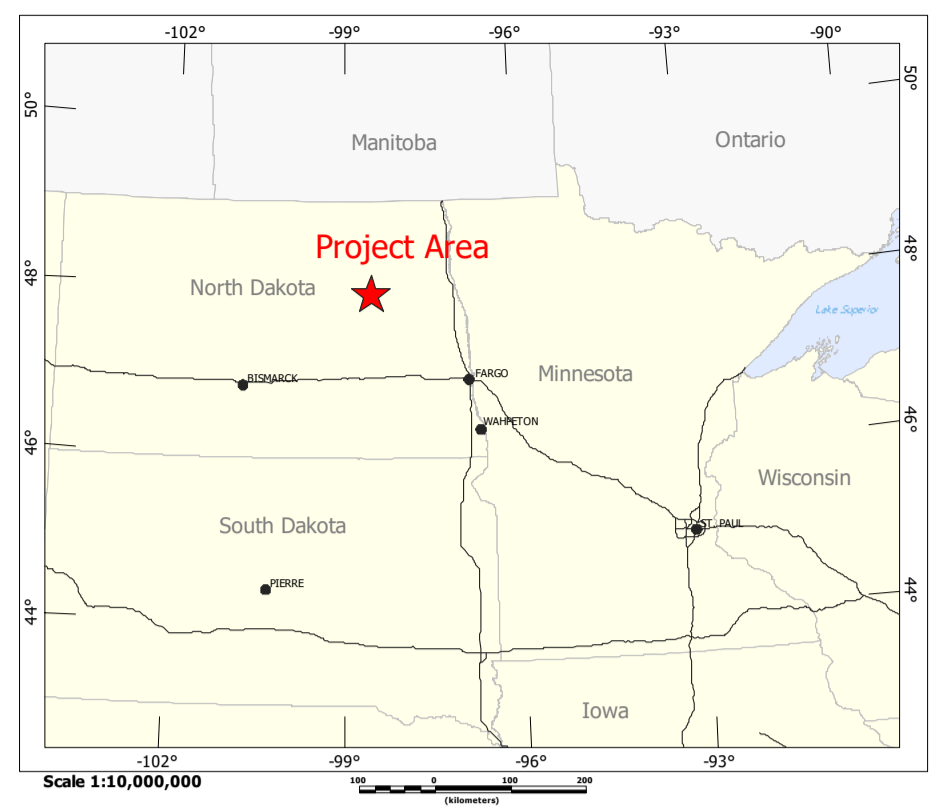
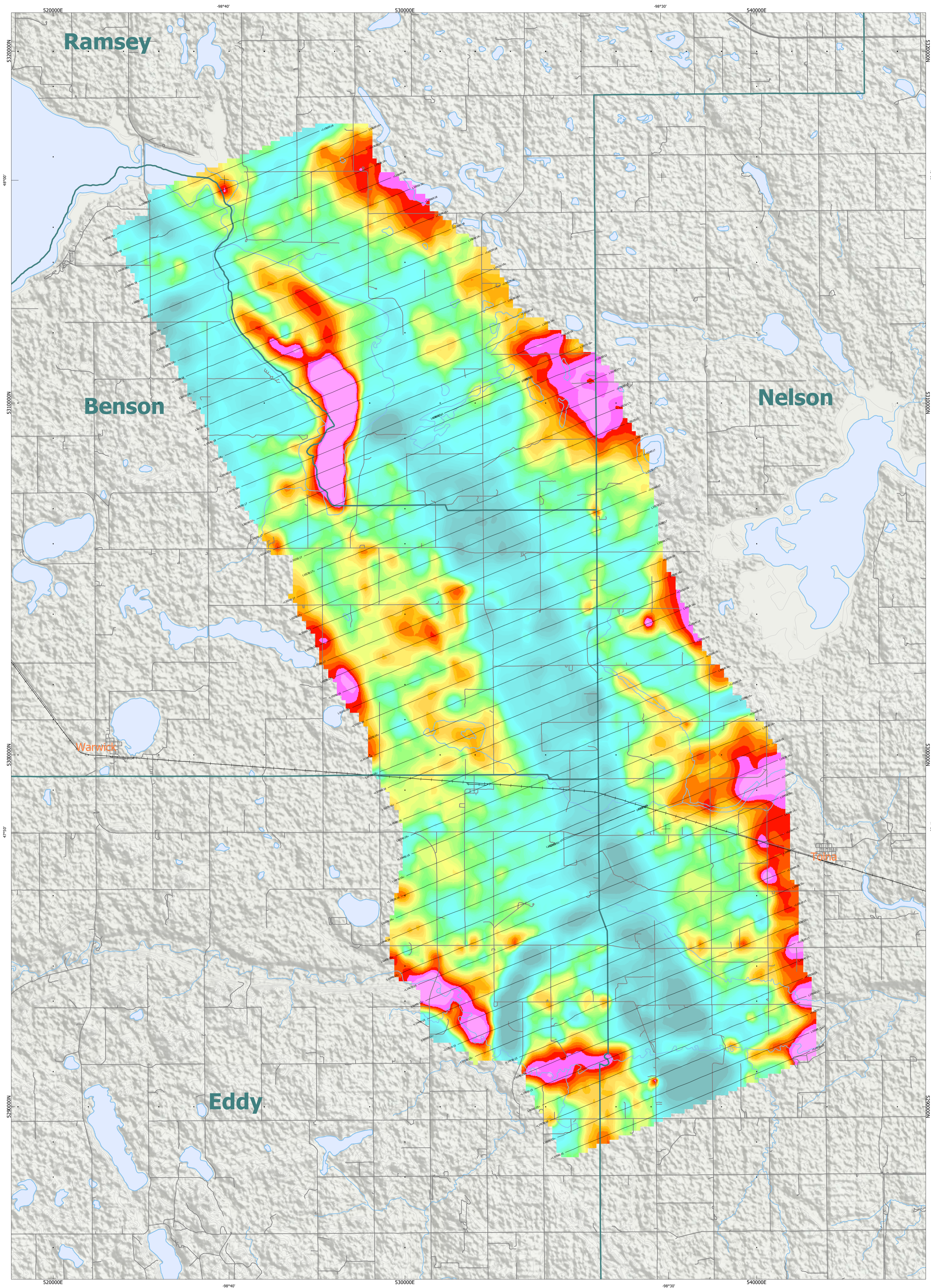


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 Inset data derived from Geocommunities (www.geocomm.com)
 Background shading is derived from USGS ASTER DEM (<https://gdx.cr.usgs.gov/gdx/>)

**North Dakota State Water Commission
 Tolna Project
 Tolna, North Dakota**

**Geotech VTEM System
 VTEM dB/dt Z Gate Component
 Channel 35, Time Gate 0.3912 ms**

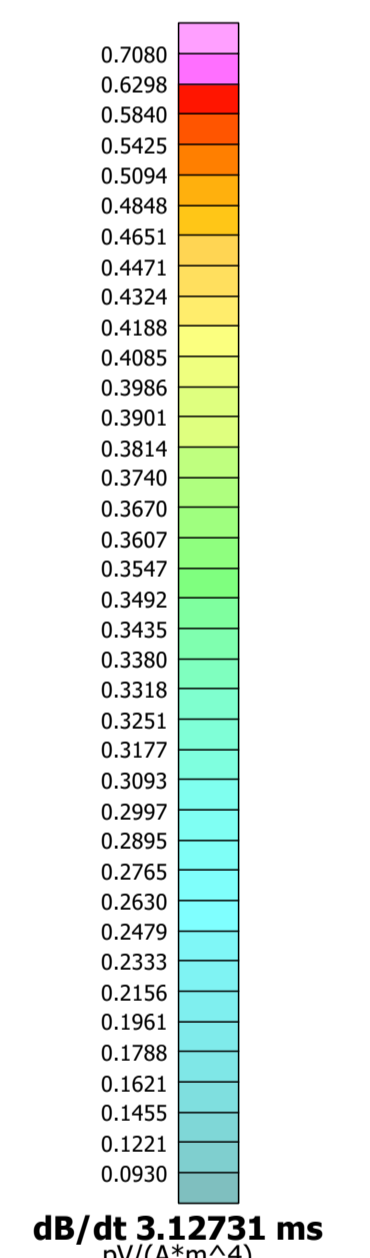
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www.geotech.ca



SURVEY SPECIFICATIONS:
 Survey Date: 2019
 Survey Base: Tolna, Nevada
 Aircraft: Aerospaciale A5350 B3
 Survey Line Spacing: 500 metres
 Survey Line Direction: N 68° E / N 148° E
 Tie Line Spacing: n/a
 Tie Line Direction: n/a
 Average Aircraft Terrain Clearance: 65 metres
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 Magnetic Sensors: Towed at an average terrain clearance of 10 metres below the helicopter

INSTRUMENTS
 Geotech Time Domain Electromagnetic System (VTEM)
 Concentric Rx/Tx Geometry
 Z-Coil Diameter 1.2m
 Transmitter Loop: Diameter 17.1 Metres
 Dipole Moment: 144,098 nA
 Transmitter Wave Form: Trapezoid, Pulse Width 7.1 ms, Base Frequency 30 Hz
 Geometrics High Sensitivity Caesium Magnetic Sensor
 Mag Resolution: 0.02 nT at 10 samples/sec

MAP PROJECTION
 Datum: WGS84
 Projection: Universal Transverse Mercator
 Central Meridian: 99°W (Zone 14N)
 Central Scale Factor: 0.9996
 False Easting/Northing: 500,000m/0m
 Major Axis: 6378137
 Inverse Flattening: 298.25722



TOPOGRAPHIC LEGEND:

- Roads
- Railroads
- Streams / Rivers
- Contours
- Lakes / Ponds

Scale 1:50000
 500 0 500 1000 1500 2000 2500
 (meters)
 WGS 84 / UTM zone 14N

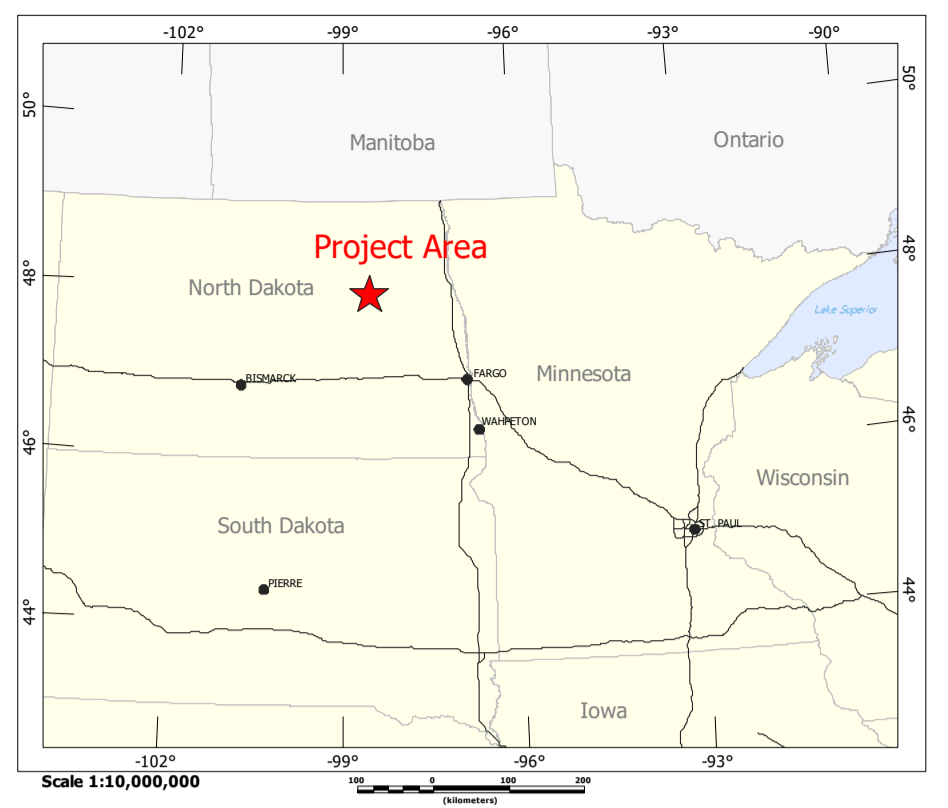
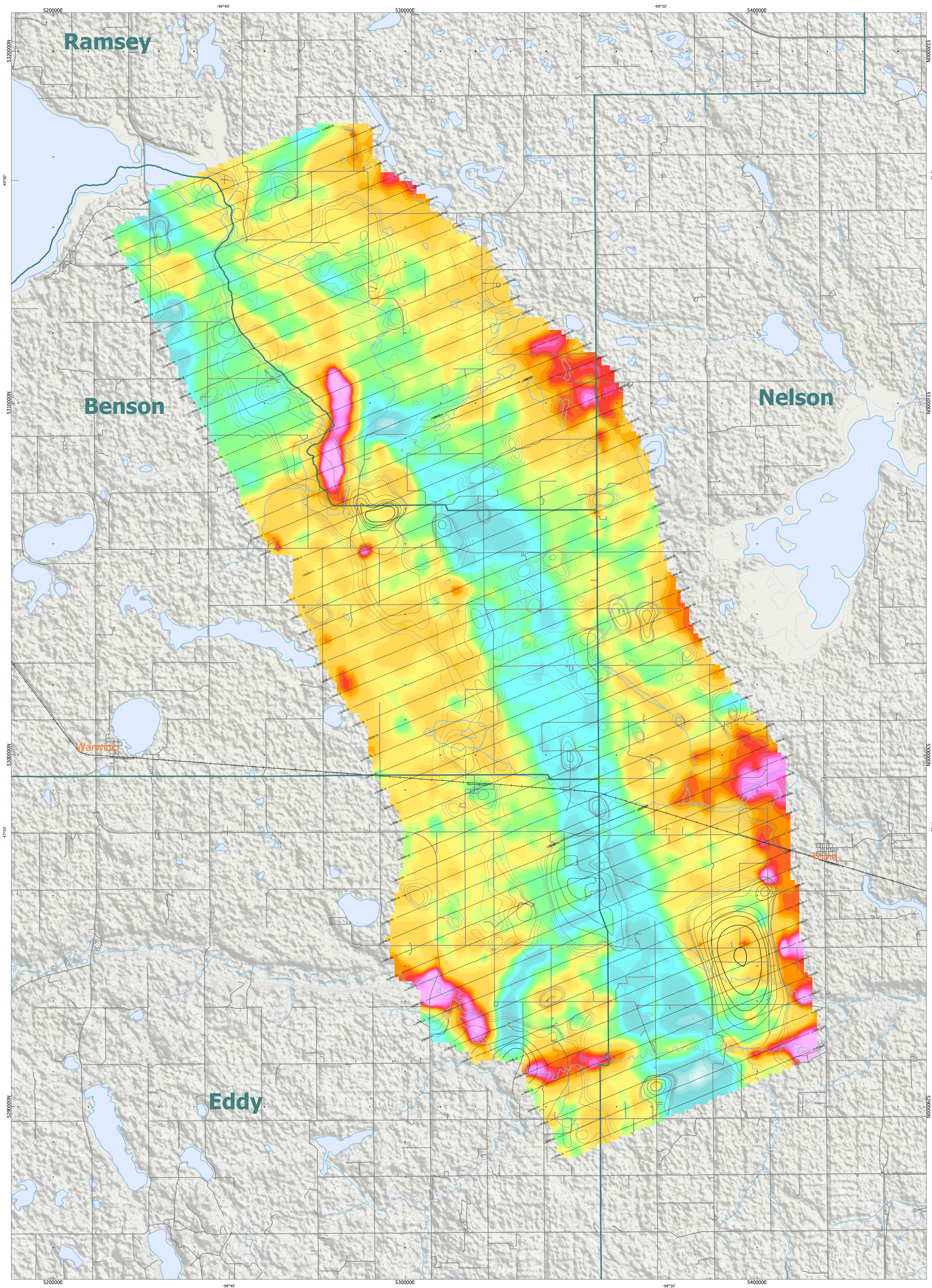
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North Dakota State Water Commission
Tolna Project
Tolna, North Dakota
 Geotech VTEM System

VTEM dB/dt Z Component
Channel 50, Time Gate 3.12731 ms

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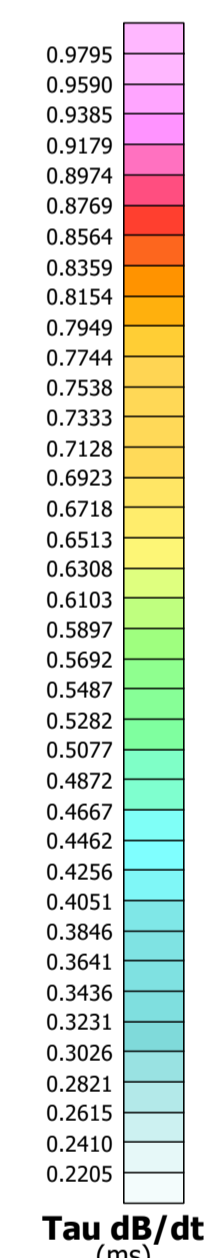
June 2019



SURVEY SPECIFICATIONS:
 Survey Date: 2019
 Survey Base: Tolna, Nevada
 Aircraft: Aerospabale A5350 B3
 Survey Line Spacing: 500 metres
 Survey Line Direction: N 68° E / N 148° E
 Tie Line Spacing: n/a
 Tie Line Direction: n/a
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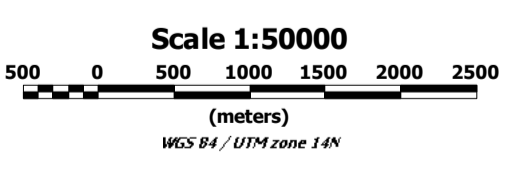
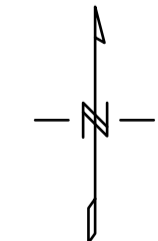
INSTRUMENTS
 Geotech Time Domain Electromagnetic System (VTEM)
 Concentric Rx/Tx Geometry
 Z-Coil Diameter 1.2m
 Transmitter Loop: Diameter 17.1 Metres
 Dipole Moment: 144,098 nA
 Transmitter Wave Form: Trapezoid, Pulse Width 7.1 ms, Base Frequency 30 Hz
 Geometrics High Sensitivity Caesium Magnetic Sensor
 Mag Resolution: 0.02 nT at 10 samples/sec

MAP PROJECTION
 Datum: WGS84
 Projection: Universal Transverse Mercator
 Central Meridian: 99°W (Zone 14N)
 Central Scale Factor: 0.9996
 False Easting/Northing: 500,000m/0m
 Major Axis: 6378137
 Inverse Flattening: 298.25722



TOPOGRAPHIC LEGEND:

- Roads
- Railroads
- Streams / Rivers
- Contours
- Lakes / Ponds

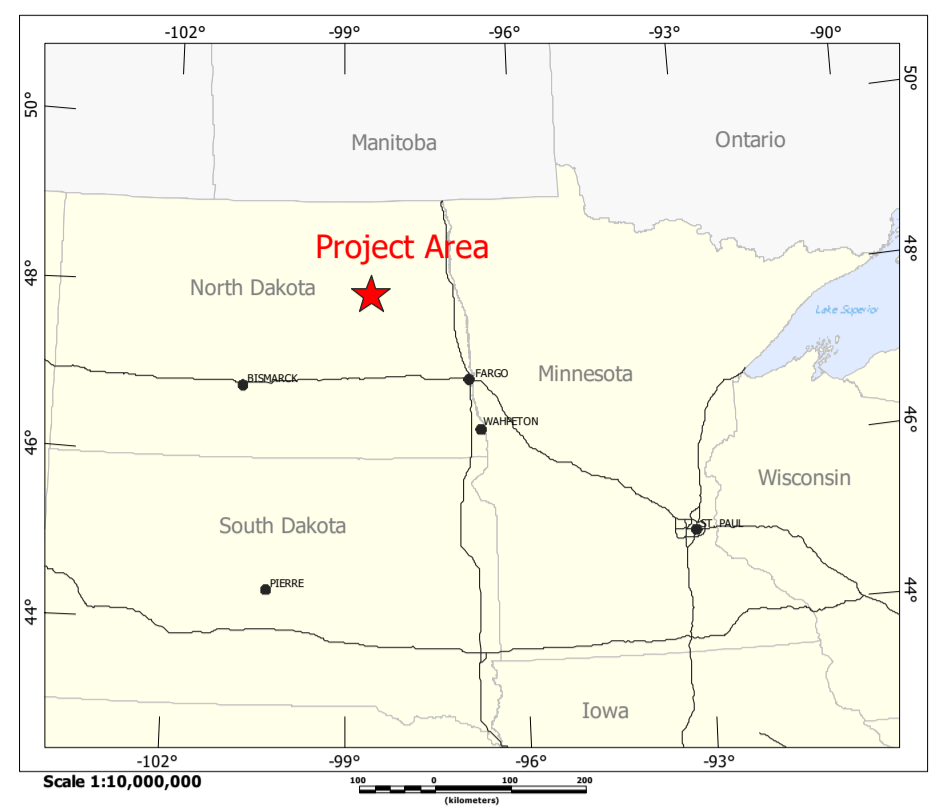
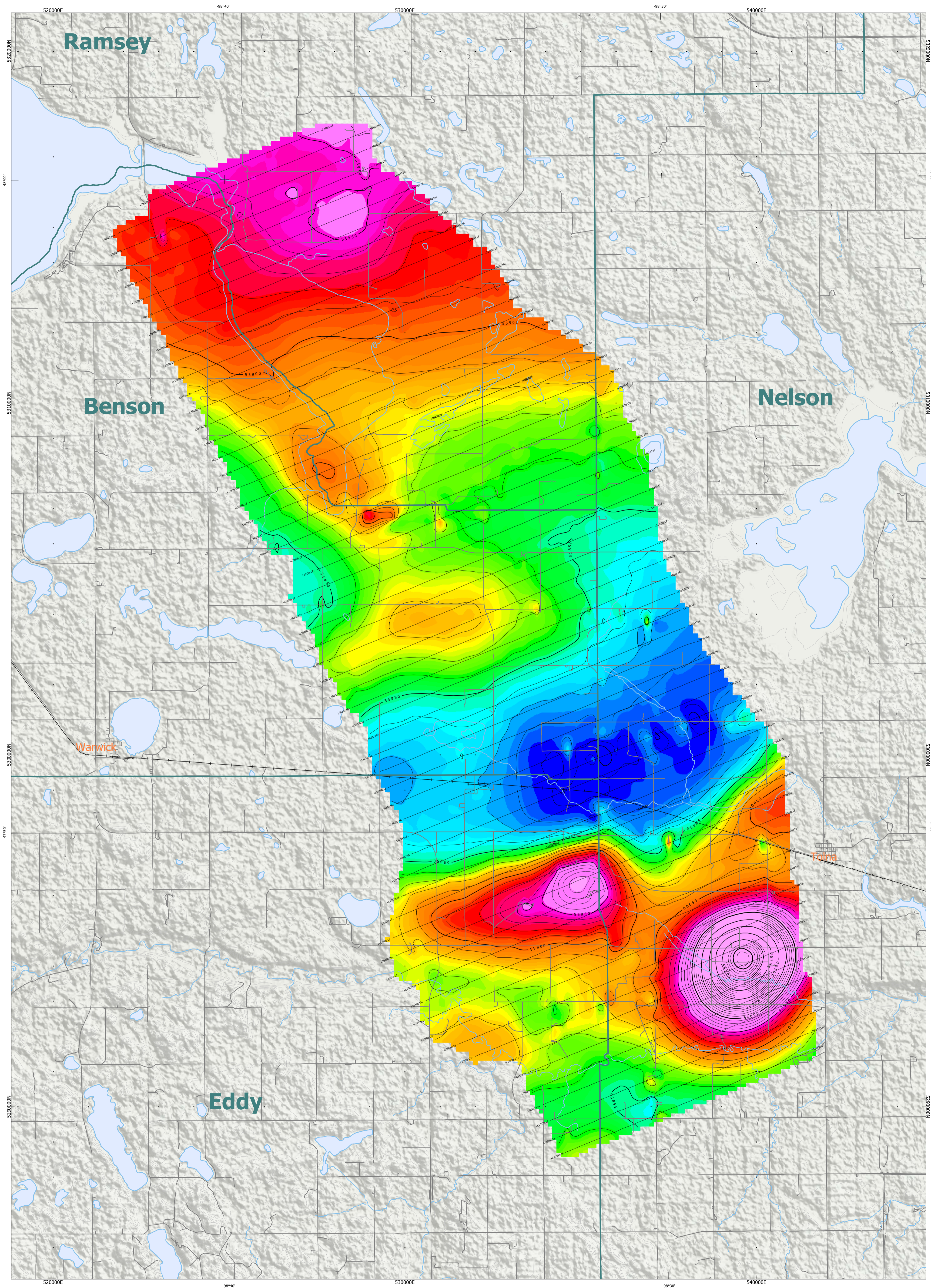


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 Inset data derived from Geocommunity (<http://www.geocomm.com/>)
 Background shading is derived from USGS ASTER DEM (<https://glovis.cr.usgs.gov/glovis/>)

**North Dakota State Water Commission
 Tolna Project
 Tolna, North Dakota**

**Geotech VTEM System
 dB/dt Z Calculated Time Contant (Tau) with
 Calculated Vertical Derivative contours**

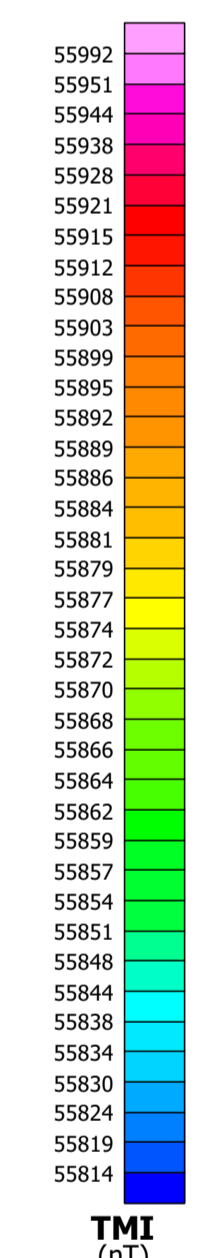
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 June 2019



SURVEY SPECIFICATIONS:
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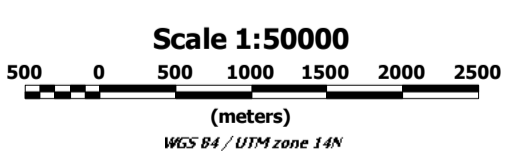
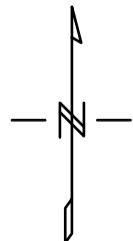
INSTRUMENTS
 Geotech Time Domain Electromagnetic System (VTEM)
 Concentric Rx/Tx Geometry
 Z-Coil Diameter 1.2m
 Transmitter Loop: Diameter 17.1 Metres
 Dipole Moment: 144,098 nA
 Transmitter Wave Form: Trapezoid, Pulse Width 7.1 ms, Base Frequency 30 Hz
 Geometrics High Sensitivity Caesium Magnetic Sensor
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MAP PROJECTION
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 Projection: Universal Transverse Mercator
 Central Meridian: 99°W (Zone 14N)
 Central Scale Factor: 0.9996
 False Easting/Northing: 500,000m/0m
 Major Axis: 6378137
 Inverse Flattening: 298.25722



TMI CONTOUR INTERVALS:
 — 10 nT
 — 50 nT
 — 250 nT

TOPOGRAPHIC LEGEND:
 — Roads
 — Railroads
 — Streams / Rivers
 — Contours
 — Lakes / Ponds



The topographic data base was derived from North Dakota GIS Hub Data Portal (<https://gishubdata.nd.gov/>)
 US Government Open Data (<https://www.data.gov/>)
 Inset data derived from GeoCommunities (www.geo-communities.com)
 Background shading is derived from USGS ASTER DEM (<https://gdx.cr.usgs.gov/gdx/>)

**North Dakota State Water Commission
 Tolna Project
 Tolna, North Dakota**

**Geotech VTEM System
 Total Magnetic Intensity (TMI)**

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