

INDUSTRY:

Mining and Minerals

LOCATION:

Saskatchewan

SCOPE OF WORK:

- Assist service partner Xtreme Mining with assembly/fitting and welding of six new underground ore bins at PCS/Nutrien Lanigan.
- CT&V (formerly AGI Projects) assisted Xtreme Mining/HCC group with assembly and final alignment of ore bin sections. CT&V completed all welding requirements including ore bin hitch beam steel.

QUALITY:

- CT&V supplied all CWB data sheets and weld procedures.
- CT&V supplied CWB weld supervisors to each crew.
- CT&V personnel performed all welding, with third-party Non-Destructive Testing (NDT) by AM Inspection.
 - All welds MPI inspected.
 - All full-penetration butt welds Shear Wave UT inspected.
- CT&V supplied FCAW-G weld coupons for weld profile evaluation. CT&V standard of quality saved cost and schedule by eliminating post weld profile grinding. Ensuring smooth enough surface finish to prevent potash bridging on the inside of the ore bins.
- **Quote from Stantec – Mining Review**
“The writer inspected all completed welds, and found them to be of very high quality, especially considering the underground environment (being far more susceptible to dirt and contamination than shop welding). AM Inspections NDT reports confirmed this observation, with very few welds requiring rework”.

SCHEDULE:

Completed on schedule.

Project Number: MB184

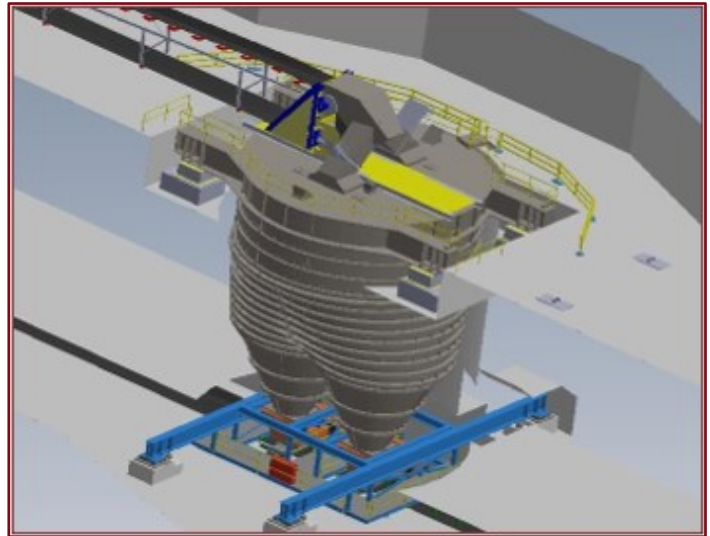


Figure 1: 3D model - 1 of 6 ore bins

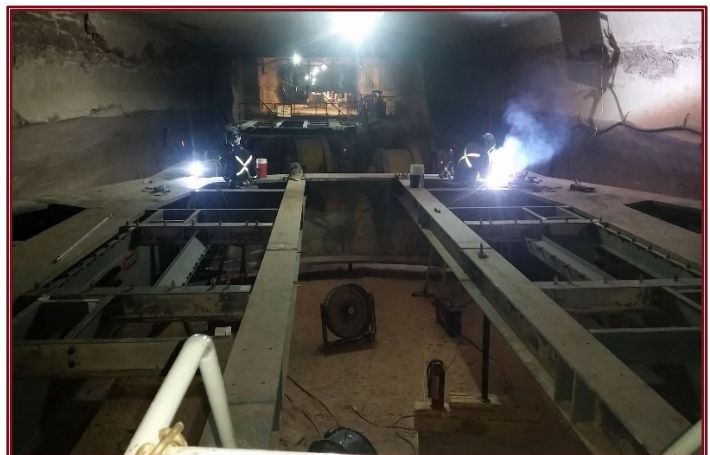


Figure 2: Welding of upper hitch beam



Figure 3: Completed upper hitch beam

MB184 Continued....

CONTRACT TYPE:

CT&V's portion of the project was completed on a Time, Material, & Equipment basis.

- CT&V supplied all welding equipment.
- CT&V supplied all fit-up/alignment tools.
- CT&V supplied all welding consumables.

SPECIALTY ITEMS:

- All semi-automatic and automated welding completed with FCAW-G process. (FCAW-G had not been successfully used in underground ore bin construction in a potash mine until this time).
- CT&V utilized keyplates, bull-pins, and u-bars to optimize bin interior shell alignment.
- CT&V utilized API tank construction scaffolding to optimize shell alignment and welding processes.

SAFETY:

0 Near Misses
0 First Aids
0 Recordables

REFERENCE CONTACT:

Available Upon Request



Figure 4: External fitting and alignment of ore bin



Figure 5: FCAW-G automated welding



Figure 6: Ore bin with engineered scaffolding.