# Canadian Manganese Company Inc. Files Technical Report for the Woodstock Project

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## New Mineral Resource Estimate for Plymouth Deposit 43,070,000 tonnes grading 10.01% Manganese

Toronto, Dec. 3, 2021 - <u>Canadian Manganese Company Inc.</u> ("CMC" or the "Company") is pleased to report that it has filed a technical report in accordance with National Instrument 43-101 - Standards of Disclosure for Mineral Projects, reporting a Mineral Resource Estimate for the Plymouth manganese-iron deposit (Plymouth Deposit) (the "Woodstock Project") in New Brunswick, available on SEDAR (www.sedar.com).

The technical report is entitled "NI 43-101 Technical Report for the Woodstock Project, (Plymouth Manganese-Iron Deposit) Woodstock Area, New Brunswick, Canada" (the "Report") and has been prepared by Paul Ténière, M.Sc., P. Geo.; Matthew Harrington, P. Geo. (both of Mercator Geological Services Limited); Dean Thibault, P. Eng.; (Thibault and Associates Ltd) and Lawrence Elgert, P. Eng. (AGP Mining Consultants Inc) with an effective date of November 10, 2021. The Report updates the previous Mineral Resource Estimate of the Plymouth deposit disclosed in the Woodstock Project Preliminary Economic Assessment dated July 10, 2014.

Following the recent completion of the reassessment of strategic focus from the production of Electrolytic Manganese Metals ("EMM") to High Purity Manganese Sulphate Monohydrate ("HPMSM"), including current pricing analysis and preliminary operating cost estimates, the new Mineral Resource estimate, prepared in accordance with the CIM Definition Standards for Mineral Resources and Reserves as amended in 2014, (CIM Standards 2014) now stands at 43,070,000 tonnes grading 10.01% manganese (utilizing a cut-off grade of 5% Mn) in the Inferred category.

# **Report Highlights:**

- Applying a cut-off grade of 10% Mn results in Inferred Mineral Resources of 22,330,000 tonnes grading 11.86% Mn
- Well defined opportunities to expand the current mineral resources exist in the immediate strike and dip extension areas of the mineralized zones that comprise the currently defined deposit
- The nearby, historically explored Hartford Mn-Fe deposit has good potential for definition of new mineral resources

Matthew Allas, President & CEO commented, "We are very encouraged with this meaningful step towards both the re-imagining of the Woodstock Project and our public listing process. This new technical report highlights the size, grade, and growth potential of the Woodstock Project. We are excited to demonstrate the numerous strategic benefits the Woodstock Project can provide to the future of HPMSM production and global supply."

The mineral resource estimate described in the Report is presented in the table below.

# Plymouth Manganese-Iron Deposit Resource Estimate - Effective November 10, 2021

Type	Mn % Cut-off	Category	Rounded Tonne	s Mn	% Fe %
Open Pit	5.00	Inferred	43,070,000	10.01	14.32

#### Notes:

- 1) Mineral resources were prepared in accordance with the CIM Standards (2014) and CIM MRMR Best Practice Guidelines (2019).
- 2) Mineral resources are defined within an optimized conceptual pit shell with average pit slope angles of 45⁰ in bedrock, 20⁰ in overburden
- 3) Pit optimization parameters include: pricing of US\$1500 /tonne for High Purity Manganese Sulphate

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Monohydrate - 32% Mn (HPMSM - 32 % Mn), US\$ 935/tonne for Manganese Sulphate Monohydrate - 32% Mn (MSM - 32%Mn), exchange rate of CDN\$1.30 to US\$ 1.00, mining at CDN \$6.50/t, combined processing and G&A (1000 tpd) at CDN \$193.22/t processed and a process recovery of manganese to MSM and HPMSM of 85%. Iron was not considered in the pit optimization but has potential for future commercial value.

- 4) Mineral resources are reported at a cut-off grade of 5 % manganese within the optimized conceptual pit shell. This cut-off grade reflects total operating costs used in pit optimization and is used to define "reasonable prospects for eventual economic extraction" by open pit mining methods.
- 5) Mineral resources were estimated using Inverse Distance Squared methods applied to 3 m downhole assay composites. No grade capping was applied. Model block size is 10 m (x) by 10 m (y) by 10 m (z).
- 6) Bulk density was estimated using Inverse Distance Squared methods applied to core specific gravity determinations.
- 7) Mineral resources may be materially affected by environmental, permitting, legal, title, taxation, sociopolitical, marketing, or other relevant issues
- 8) Mineral resources are not mineral reserves and do not have demonstrated economic viability.
- 9) Mineral resource tonnages are rounded to the nearest 10,000.

The table below presents a cut-off grade sensitivity analysis for within-pit mineral resources.

## Plymouth Manganese-Iron Deposit Cut-off Grade Sensitivity Analysis Within Resources

Туре	Mn % Cut-off	Category	Rounded Tor	nnes	Mn %	Fe %
Open Pit	5.00	Inferred	43,070,000	10.01	14.32	
Open Pit	6.00	Inferred	41,120,000	10.22	14.57	
Open Pit	7.00	Inferred	37,950,000	10.53	14.92	
Open Pit	8.00	Inferred	33,560,000	10.93	15.36	
Open Pit	9.00	Inferred	28,640,000	11.34	15.83	
Open Pit	10.00	Inferred	22,330,000	11.86	16.42	

#### Notes:

This table shows sensitivity of the November 10, 2021, mineral resource estimate to cut-off grade. The base case at a cut-off value of 5.00% manganese is bolded for reference.

Subsequent to the 2014 PEA, CMC shifted focus from EMM to MSM and HPMSM products to better address the significant forecast growth in battery market opportunities. This prompted CMC to update the Plymouth Deposit mineral resource estimate to reflect preliminary estimates of MSM and HPMSM processing costs developed by Thibault in June 2021.

To meet the requirement of reasonable prospects for eventual economic extraction an optimized pit shell was generated to constrain definition of mineral resources. AGP Mining Consultants Inc. ("AGP") provided pit optimization services that defined a cut-off value of 5% manganese for definition of mineral resources within the pit shell. This reflects conceptual production of 50% MSM and 50% HPMSM at a manganese total recovery factor of 85% and long-term prices of \$1500/tonne and \$935/tonne for HPMSM and MSM, respectively.

Preliminary operating cost estimates developed by Thibault for combined (50%: 50%) production of MSM and HPMSM reflect an estimated manganese recovery of 85%. Production of EMM is not included in the updated processing flow sheet, which is a different approach from the 2014 PEA that specifically addressed EMM. Conservative processing cost estimates that apply for combined MSM and HPMSM production are in part offset significantly by corresponding higher metal prices of the HPMSM market.

## **Recommendations in the Report**

Mercator recommended that completion of infill drilling to upgrade mineral resource categorization to levels necessary for Prefeasibility (PFS) or Feasibility (FS) programs is required to move the Woodstock Project forward, in combination with completion of new metallurgical studies recommended by Thibault focused specifically on optimization of MSM and HPMSM production.

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Well-defined opportunities to expand current mineral resources exist in the immediate strike and dip extension areas of the mineralized zones that comprise the currently defined Plymouth deposit. The historically explored Hartford manganese-iron occurrence that is located on the CMC property, a short distance from the main Plymouth deposit, has not been drilled by CMC to date but has good potential for definition of mineral resources. Below are some of the key recommendations:

- Infill drilling at a 50 m section spacing should be carried out to upgrade Inferred Mineral Resources to the Indicated and Measured mineral resource categories
- A geotechnical assessment of the deposit area should be undertaken to establish data required for future open pit design programs.
- Baseline environmental permitting and community consultation studies should be initiated to expedite transition of the project to the PFS stage of evaluation
- The results of previous bench scale testing for development of a hydrometallurgical process to produce a market grade EMM product from the Plymouth Deposit indicated that the process is technically viable and EMM with a metallic manganese content of greater than 99.99% and with a total achieved manganese content ranging from 99.70% to 99.76%. Further bench scale testing is recommended to constrain production of MSM and HPMSM to a similar level of confidence.

## **QUALIFIED PERSON**

The 2021 Report, including the new Mineral Resource Estimate, was prepared by Paul Ténière, M.Sc., P. Geo.; Matthew Harrington, P. Geo. (both of Mercator Geological Services Limited); Dean Thibault, P. Eng.; (Thibault and Associates Ltd) and Lawrence Elgert, P. Eng. (AGP Mining Consultants Inc). All are Independent Qualified Persons as defined by NI 43-101. Mr. Ténière, and Mr. Harrington have read and approved the contents of this news release.

For the purposes of this news release, Paul Moore, P. Geo., is the designated non-Independent Qualified Person and has reviewed and approved the technical and scientific contents of this news release.

## **ABOUT CANADIAN MANGANESE**

CMC is a Canadian mineral development company aiming to become a supplier of high-purity manganese metal products for the rechargeable battery industry. CMC holds the Woodstock Project in New Brunswick.

### For further information:

Canadian Manganese Company Inc.

investors@CanadianManganese.com

John F. Kearney: Chairman +1 416 362 6686 Matthew Allas: President and CEO +1 647 338 3748

Additional information on CMC is available at www.CanadianManganese.com

## Notice regarding forward-looking statements:

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