CONTRACTOR PROPOSAL

(the "Agreement")

This Contractor Proposal #PP0503 (hereinafter the "Agreement") is effective as of the date of acceptance by and between:

KEMETCO RESEARCH INC., a Canadian corporation,
with an office located at #150 – 13260 Delf Place, Richmond BC, Canada, V6V 2A2 (hereinafter "Kemetco");

and

AMERICAN MANGANESE INC., a Canadian corporation,
with an office located at 17942 55 Ave #2, Surrey, BC, Canada, V3S 6C8 (hereinafter "Client").

For the purposes of this Agreement, each of Kemetco and Client may be referred to herein as a "Party" or collectively as the "Parties".

WITNESSETH:

WHEREAS Kemetco and Client wish to enter into this Agreement under which Kemetco shall provide research, development, and/or analytical services to Client.

1. PARTY CONTACT INFORMATION

KEMETCO RESEARCH INC.		**AMERICAN MANGANESE INC.**	
Attention:	Norman Chow	Attention:	Larry Reaugh
Title:	President	Title:	President and CEO
Phone:	(604) 273-3600	Phone:	(778) 574-4444
Fax:	(604) 273-3609	Fax:	(xxx) xxx-xxxx
Email:	nchow@kemetco.com	Email:	lreaugh@amymn.com

2. PROJECT TITLE

Cathode Waste Recycling Demo Plant Upgrade & Operation and Commercial Plant Design

3. OBJECTIVES

American Manganese Inc. (AMY) has worked with Kemetco Research Inc. to develop technology for recycling cathode waste from lithium ion batteries since 2016. The objectives of the proposed project are:

1. to upgrade and operate the current pre-leach and leach pilot plant to include shredding, aluminum removal, nickel, cobalt, and manganese recovery, and lithium recovery stage in order to collect operation data for commercial plant design; and

2. to design a commercial cathode waste recycling plant capable to process five tonnes of cathode waste per day.

The details of the tasks to be undertaken are provided in the work detail proposal (the "Work Detail Proposal") attached hereto as Schedule A and incorporated herein by reference.

4. STATEMENT OF WORK (SCOPE OF SERVICES)

Kemetco has agreed to undertake tasks outlined in the Work Detail Proposal to achieve the Objectives as defined in Section 3 of this Agreement and in accordance with all terms of this Agreement. It must be emphasized that the exact experimental program, associated tasks, schedules, and staff may change as more information is obtained. Kemetco will update Client throughout the course of this project.

5. DELIVERABLES

Reporting and deliverables will be as follows:

- A comprehensively written report summarizing all research findings will be issued at the end of the test program.
- A commercial plant design package including flowsheet, P&ID, and plant design drawing.

6. ESTIMATED PROJECT SCHEDULE

The project will begin upon acceptance of the proposal, receipt of the down payment. The total duration of the project is estimated to be 18 months. The cathode waste recycle demonstration plant assembly and test work will take 13 months to complete. The commercial plant design will take 5 months to complete. The report and design package will be issued by the end of the project.

Note: Every effort will be made to complete each task on schedule provided that the project is not delayed due to reasons outside the control of Kemetco. If it is anticipated that the project will not be completed within the proposed schedule, Client will be notified as soon as possible.

7. ESTIMATED PROJECT COST

Cost estimates are based on estimated equipment, labour, analytical charges, and disbursements (with 15% mark-up) incurred by Kemetco. All goods and services provided are subject to applicable sales taxes.

Table 1. Estimated Project Cost.

ITEM	COST (CAD)
Item 1: Demonstration Plant Upgrade and Operation	$2,164,900
Equipment	$398,500
Reagent	$69,400
Labour	$1,455,000
Analytical	$122,000
Cathode waste (10 tonnes)	$120,000
Item 2: Commercial Plant Design	$555,000
Total Budget*	**$ 2,719,900**

*All goods and services are subject to applicable sales taxes.

8. PAYMENT TERMS

Receipt of project down payment is required for work to start. Invoices will be emailed to Client and are Net 30 as of the Invoice Date. Kemetco reserves the right to halt work if payment is not received within 30 days of the Invoice Date.

Table 2. Milestone Payment Schedule.

Milestone #	Milestone Description	% of Estimated Project Fee	Estimated Amount (CAD)
1	Project down payment; due upon Client acceptance of this Agreement	25%	$ 680,000
2	Upon completion of demo plant upgrade	25%	$ 680,000
3	Upon completion of demo plant operation	25%	$ 680,000
4	Upon completion of commercial plant design	25%	$ 679,900

All goods and services are subject to applicable sales taxes.

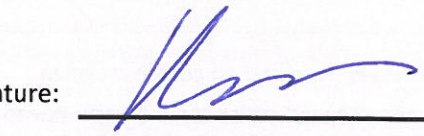
9. ACCEPTANCE

This Agreement may be signed in counterparts, and delivered by facsimile transmission or otherwise, each of which counterparts, when executed by any of the signatories hereto, shall be deemed to be an original and such counterparts shall together constitute one and the same Agreement.

IN WITNESS WHEREOF, the Parties have caused this Agreement to be executed by their duly authorized representatives, as of the later of the following two signature dates.

Proposal Submitted by:

KEMETCO RESEARCH INC.

Signature: 

Name: NORMAN CHOW

Title: PRESIDENT

Date: MAR 9, 2021

Proposal Accepted by:

AMERICAN MANGANESE INC.

Signature: 

Name: **Larry Reaugh**

Title: **President and CEO**

Date: **March 9, 2021**

SCHEDULE A

Work Detail Proposal

I. BACKGROUND

AMY has worked with Kemetco since 2016 to develop lithium ion battery cathode waste recycling technologies that form the RecycLiCo™ process. RecycLiCo™ is a closed-loop, hydrometallurgical process with SO_2 reductive leaching system and electrochemical process to recycle cathode material scraps from cathode manufacturers and spent cathode materials. The process achieves near 100% recovery and battery-grade purity of materials such as lithium, cobalt, nickel, manganese, and aluminum from various cathode chemistries, including NCA, NMC, LCO, and LMO. The work has led to two issued American patents: US Patent 10246343 and US Patent 10308523. To date, the work has been conducted with a batch mode pre-leach and leach pilot plant capable of processing 20 kg/h cathode scraps. Other unit operations, such as shredding cathode scraps, removing aluminum from pregnant leach solutions, precipitating nickel, cobalt, and manganese, and recovering lithium, are also operated separately in a batch sequential fashion and not in a continuous manner. In order to commercialize RecycLiCo™, a major upgrade is required to integrate all unit operations with added controls. The process water balance still needs to be refined, the process flowsheet still needs to be finalized, and the mode of operation still needs to be optimized.

II. SERVICES PROPOSED

AMY has requested Kemetco to commercialize RecycLiCo™ process. In order to commercialize RecycLiCo™, further development work is required before a commercial plant can be engineered. The following four-stage work plan is proposed.

Stage 1: purpose is to upgrade the current pilot plant into a demonstration plant as shown in Figure 1 and Figure 2 that capable of processing 500 kg/day cathode waste and including the following unit operations in a continuous manner: shredding, pre-leach, leach, aluminum removal, nickel/cobalt recovery, and lithium recovery.

Stage 2: purpose is to operate the demonstration plant to collect engineering data including reagent consumption, mass balance of recycling, and process water balance.

Stage 3: purpose is to design a continuous commercial plant capable of processing five tonnes of cathode waste per day, based on the information learned from the demonstration plant.

Stage 4: preparation of a report detailing the process flowsheet, P&ID, equipment selection, and engineering drawing(s).

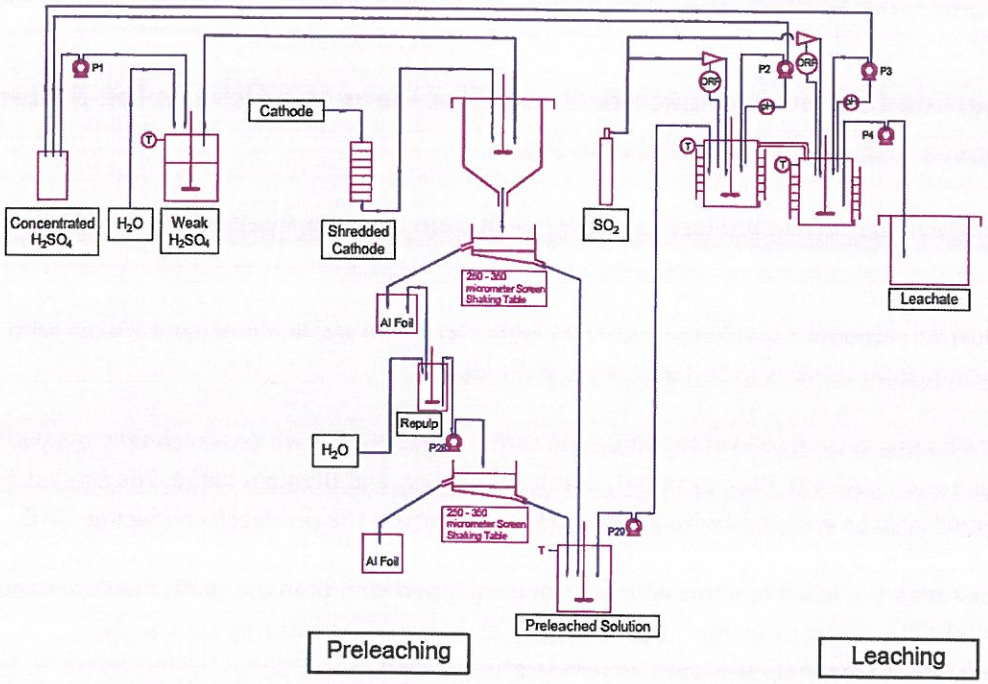


Figure 1. Pre-leach & Leach

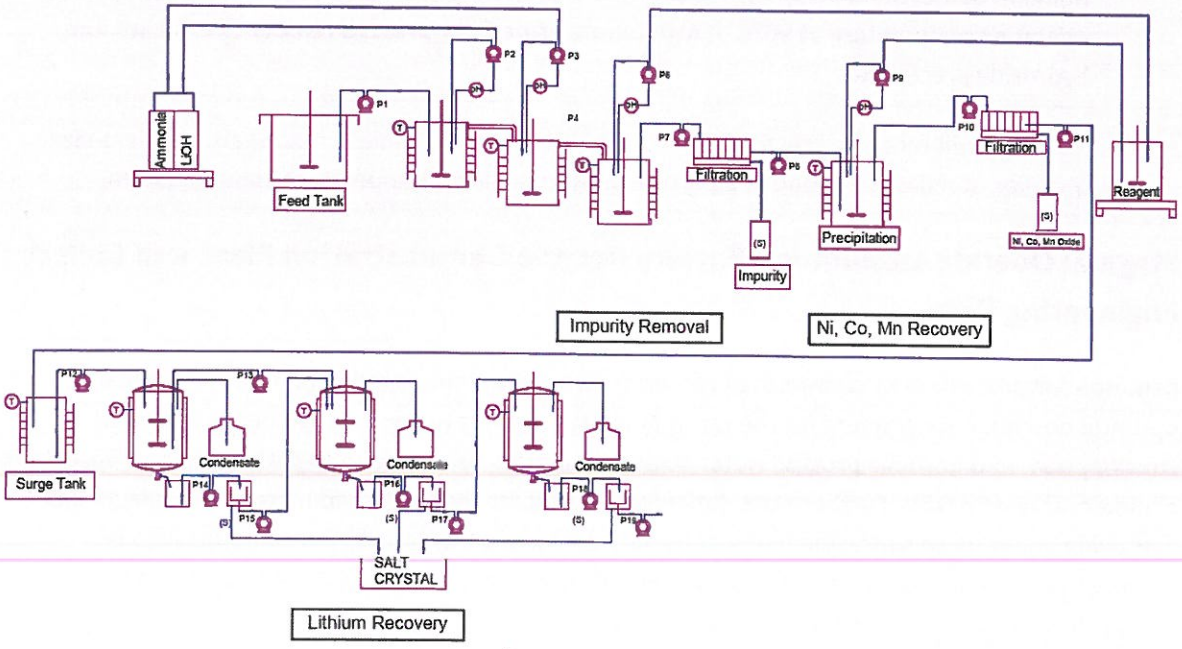


Figure 2. Impurity removal, metal recovery, and lithium recovery

III. WORK PLAN

The proposed work is split into four stages, as follows:

Stage 1: Upgrade Current Pre-leach & Leach Pilot Plant to a Lithium-ion Battery Cathode Waste Recycle Demonstration Plant

Kemetco will upgrade the current pre-leach and leach pilot plant to a complete demonstration plant including:

1. An industrial shredder capable to process 25 kg/h of cathode waste. Kemetco will work with several industrial vendors to test and select a shredder.

2. An easy loading system to load the shredded cathode waste into two pre-leach reactors with each one equipped with titanium shaft, titanium impeller, and titanium baffle. The pre-leach reactor will also be equipped with a heater/chiller to ensure the pre-leach conduct at 60^{o}C.

3. Four cascaded SO_2 leach reactors with each one equipped with titanium shaft, titanium impeller, titanium baffle, titanium sparger, a pH control system, an ORP control system, and a heater/chiller to maintain the leaching temperature at 80^{o}C.

4. Three aluminum removal reactors, each one equipped with titanium shaft, titanium impeller, titanium baffle, titanium sparger, a pH control system, and a heater/chiller to maintain the operating temperature at 90^{o}C. A high temperature filter press to remove filter aluminum hydroxide precipitate.

5. Three lithium recovery reactors, each one equipped with stainless steel shaft, stainless steel impeller, stainless steel baffle, a pH control system, and a temperature control system.

Stage 2: Operate Lithium-ion Battery Recycle Demonstration Plant and Collect Engineering Data

Kemetco will process up to 10 tonnes of cathode waste using the upgraded demonstration plant to optimize operation parameters for the cathode waste recycling process, to understand reagent consumption, to determine process water balance and mass balance, and to gather engineering data for commercial plant design. Furthermore, Kemetco will process the recovered nickel hydroxide, cobalt hydroxide, manganese hydroxide to generate sufficient sample of lithium ion cathode material precursor, as well as process the lithium ion cathode material precursor with the recovered lithium hydroxide to produce lithium ion cathode material.

Stage 3: Design a Commercial Plant to Recycle Lithium-ion Battery Cathode Waste

Based on the engineering data collected from the demonstration plant operation, Kemetco will design a commercial lithium ion battery cathode waste recycle plant that is capable to process five tonnes of cathode waste per day. The design will include process from shredding the cathode waste, pre-leach to separate aluminum foil and cathode active material, leach of the active material, purification of the pregnant leach solutions, precipitation of nickel, cobalt, and manganese, and recover of lithium. Process flowsheet, P&ID, equipment selection, and engineering drawing(s) will be prepared.

Stage 4: Reporting

After completion of the proposed work, a written final report for the demonstration plant study will be issued detailing test procedures, conditions, results, observations, and recommendations. All test data and assay sheets will be appended to this report, which could address or highlight any specific issues raised by Client. Furthermore, a five tonne/day commercial plant design package will be issued detailing the process flowsheet, P&ID, equipment selection, and engineering drawing(s).

SCHEDULE B

Estimated Project Costs

Description			Unit Cost	Unit	Sub total	Total Cost (CAD)
						$ 2,719,900.00
Demonstration plant (0.5 tonnes per day)						$ 2,164,900.00
Equipment purchasing					$ 398,500.00	
	Unit operation	Equipment				
	Shredding	Shredder	$ 80,000.00	1	$ 80,000.00	
	Preleach				$ -	
	Leach	Reactor	$ 5,000.00	2	$ 10,000.00	
		Leaching mixing motor	$ 2,000.00	2	$ 4,000.00	
		Leaching mixing impeller	$ 2,000.00	2	$ 4,000.00	
		Sparger	$ 100.00	3	$ 300.00	
		Heater/Chiller	$ 8,000.00	5	$ 40,000.00	
		Heating coil	$ 400.00	2	$ 800.00	
		Industrial pH probe	$ 1,100.00	5	$ 5,500.00	
		Industrial pH controller	$ 600.00	5	$ 3,000.00	
		Industrial ORP controller	$ 600.00	4	$ 2,400.00	
		Industrial ORP probe	$ 1,100.00	4	$ 4,400.00	
		Product tank	$ 8,000.00	1	$ 8,000.00	
		Product tank mixing motor	$ 2,000.00	1	$ 2,000.00	
		Product tank mixing impeller	$ 2,000.00	1	$ 2,000.00	
		Product tank sparger	$ 100.00	1	$ 100.00	
		Acid dosage pump	$ 2,500.00	3	$ 7,500.00	
		SO2 totalizer	$ 1,500.00	3	$ 4,500.00	
		Transfer pump	$ 2,000.00	4	$ 8,000.00	
	Aluminum removal	Reactor	$ 5,000.00	3	$ 15,000.00	
		Mixing motor	$ 2,000.00	3	$ 6,000.00	
		Mixing impeller	$ 1,000.00	3	$ 3,000.00	
		Heater/Chiller	$ 8,000.00	3	$ 24,000.00	
		Transfer pump	$ 2,000.00	2	$ 4,000.00	
		Filter press	$ 12,000.00	1	$ 12,000.00	
	Ni, Co, Mn hydroxide precipitation	Reactor	$ 2,000.00	3	$ 6,000.00	
		Mixing motor	$ 2,000.00	3	$ 6,000.00	
		Mixing impeller	$ 1,000.00	3	$ 3,000.00	
		Heater/Chiller	$ 8,000.00	3	$ 24,000.00	
		Transfer pump	$ 2,000.00	2	$ 4,000.00	
		Filter press	$ 12,000.00	1	$ 12,000.00	
	Lithium recovery	Reactor	$ 2,000.00	3	$ 6,000.00	
		Mixing motor	$ 2,000.00	3	$ 6,000.00	
		Mixing impeller	$ 1,000.00	3	$ 3,000.00	
		Heater/Chiller	$ 8,000.00	3	$ 24,000.00	
		Transfer pump	$ 2,000.00	6	$ 12,000.00	
		Electrochemical Cell	$ 6,000.00	5	$ 30,000.00	
		Filter press	$ 12,000.00	1	$ 12,000.00	
Reagent					$ 69,400.00	
		Sulfuric acid			$ 10,000.00	
		Sulfur dioxide	$ 235.00	40	$ 9,400.00	
		Lithium hydroxide			$ 25,000.00	
		Sodium hydroxide			$ 10,000.00	
		Ammonia			$ 15,000.00	
Cathode Waste (10 tonnes)					$ 120,000.00	
Labour					$ 1,455,000.00	
	Project Manager		$ 150.00	2000	$ 300,000.00	
	Mechanical Engineer		$ 135.00	1000	$ 135,000.00	
	Electrical Engineer		$ 135.00	1000	$ 135,000.00	
	Senior supervisor		$ 150.00	1000	$ 150,000.00	
	Senior Chemical Engineer		$ 135.00	1000	$ 135,000.00	
	Chemical Engineer		$ 120.00	1000	$ 120,000.00	
	Chemical Engineer		$ 120.00	1000	$ 120,000.00	
	Chemical Engineer		$ 120.00	1000	$ 120,000.00	
	Chemical Engineer		$ 120.00	1000	$ 120,000.00	
	Chemical Engineer		$ 120.00	1000	$ 120,000.00	
	Chemical Engineer					
Testing					$ 122,000.00	
	ICP		$ 100.00	400	$ 40,000.00	
	Particel Size Analysis		$ 50.00	400	$ 20,000.00	
	SEM/EDX		$ 1,240.00	50	$ 62,000.00	
Commerial plant (3 tonnes per day)						$ 555,000.00
	Project Manager		$ 150.00	1000	$ 150,000.00	
	Mechanical Engineer		$ 135.00	1000	$ 135,000.00	
	Electrical Engineer		$ 135.00	1000	$ 135,000.00	
	Senior Chemical Engineer		$ 135.00	1000	$ 135,000.00	