# WOLFDEN

# Developing one of North Americas Highest Grade Base Metal Deposits

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Don Hoy, P. Geo., and Ron Little, P. Eng. are the Qualified Persons for the information contained in this presentation and is a Qualified Person within the meaning of National Instrument 43-101.

For further information on the technical data provided in this presentation, including the key assumptions underlying the mineral resource herein, refer to the Sedar filings as listed below:

Unless otherwise stated, the financial information in this presentation is as reported in the latest quarterly filings or press release related to the financial information of the Corporation.

Pickett Mountain aerial photographs provided courtesy of LandVest

Information in this presentation is as of January 14, 2019.



#### **Capital Structure**

**Proven Team** 

Stock Chart WLF.V

Share Price	\$0.30
Shares Outstanding	115.2 M
Warrants and Options	19.6 M
Market Capitalization	\$34.6 M
Cash Nov 26/18 (no debt)	\$1.8 M
Insider Ownership	20.7 M (18%)



#### **Years Experience**

Ewan Downie	Non-Exec Chairman, CEO Premier Gold Mines	25
Ron Little	President CEO, Director, Previously CEO of Orezone	30
Don Hoy	SVP Exploration, Previously CEO of WLF, VP Exp of Freewest	35
Don Bubar	Director, CEO of Avalon	40
lan Atkinson	Director, Previously CEO of Centerra	40
John Seaman	Director, Previously CFO of Premier and Wolfden	25

## Wolfden First Mover in Maine



 In 2013, Maine started process to reform mining laws to allow underground mining only

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- November 2017 New Mining Code enacted - Bill LD820
- 1980's was the last significant exploration
- Pickett Mountain is one of the highestgrade undeveloped volcanogenic massive sulphide deposits in North America that remains open for potential expansion
- Jan 7, 2019 Mineral Resource Estimate

2.05 Mt at 19.32% ZnEq of Indicated 2.03 Mt at 20.61% ZnEq of Inferred (ZnEq cut-off grade of 9%)

## VMS Endowment Appalachians

#### **Tectonic Map of the Appalachians**



 Ganderia Terrain endowed with high-grade Zn-Pb-Cu-Ag massive sulphide deposits

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- BATHURST CAMP 349 Mt Worlds Largest VMS District Production 134 MT
- BUCHANS CAMP 112 Mt
  Production 16 MT
- PICKETT MOUNTAIN
  Proximal to other camps and
  very much underexplored
- 2017 New Maine Mining Code

## History, Location & Infrastructure



 Discovered in 1979 by Getty Mines Ltd and called Mount Chase; Diamond drilling, metallurgical work, environmental studies and PF studies 1979 – 1984

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- Chevron Ltd.- Deeper drilling, metallurgical work 1984-1989
- Easy year round access via State Highway 11 and three miles of forestry road
- Access to Power Line 11 km
- No population living within miles of the project
- Timber sales generates some revenue from the Property

## Geology & Area of Exploration 2018





Airborne Geophysics completed over the main deposit and the larger grid

Other similar targets targets identified within the same favourable package of rocks

Trenching and drill testing of targets in H1 2019

NI 43-101 resource Completed Q1 2019

## Expansion Potential – Geochemistry/Geophysics





Well defined soil anomalies of Zn-Pb-Cu along strike

Coincident HLEM conductors along strike

Down-hole EM surveying in progress

Drill testing of Geophysical Targets near and away from Main Zone to follow













## Isometric View of Main Zone Lenses

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## Footwall Zone Discovery





- The Footwall Zone (FWZ) appears to be 180 metres from the East Lens (to the North)
- Only 2 historic drill holes (G-6 and G-97) were deep enough to intersect the FWZ above and below hole PM-18-031



January 7, 2019 Mineral Resource Statement										
Category Tonnes % Zn % Pb % Cu g/t Ag g/t Au Density % Z										
Indiacated	2,050,000	9.88	3.93	1.38	101.58	0.92	3.99	19.32		
Inferred 2,030,000 10.98 4.35 1.20 111.45 0.92 4.00 20.61										
US\$ Metal prices used to determine Z	inc Equivalent (ZnEq) cut-off	grades where \$1	.20/lb Zn, \$1.00	/lb Pb, \$2.50/lb	Cu, \$16.00/oz Ag	g, and \$1200/oz	Au.			

The base case utilized a calculated cut-off grade of 9.00% ZnEq.

CUT-GRADE SENSITIVITY TO INDICATED MINERAL RESOURCE January 7, 2019												
% ZnEq Cut-off Grade Tonnes % Zn % Pb % Cu g/t Ag g/t Au Density												
3% ZnEq	3,970,000	6.03	2.38	1.02	65.39	0.68	4.02	12.39				
5% ZnEq	2,820,000	7.89	3.12	1.21	83.61	0.81	4.00	15.79				
7% ZnEq	2,320,000	9.11	3.62	1.32	95.04	0.88	3.98	17.99				
9% ZnEq	2,050,000	9.88	3.93	1.38	101.58	0.92	3.99	19.32				
11% ZnEq	1,770,000	10.77	4.29	1.41	109.32	0.96	4.00	20.79				

<b>CUT-GRADE SENSITIVITY TO INFERRED MINERAL RESOURCE</b> January 7, 2019												
% ZnEq Cut-off Grade	6 ZnEq Cut-off Grade Tonnes % Zn % Pb % Cu g/t Ag g/t Au Dens											
3% ZnEq	4,020,000	6.59	2.58	0.94	69.91	0.68	4.03	13.03				
5% ZnEq	2,980,000	8.35	3.29	1.06	87.12	0.79	4.01	16.14				
7% ZnEq	2,450,000	9.67	3.83	1.15	99.99	0.86	4.00	18.43				
9% ZnEq	2,030,000	10.98	4.35	1.20	111.45	0.92	4.00	20.61				
11% ZnEq	1,740,000	12.06	4.77	1.24	121.42	0.97	4.00	22.39				



Project	Company	Tonnage	Zinc	Zinc	ZnEq	ZnEq	ZnEq	Value	Value
		(MM)	(%)	(MMIb)	(%)	(MMIb)	Rank	(US\$/t)	Rank
Kipushi	Ivanhoe Mines Ltd	15.7	29.8%	10,275	34.5%	11,916	3	\$876	1
Izok Lake	MMG Ltd	14.6	13.0%	4,184	21.9%	7,046	8	\$555	2
Pickett Mountain	Wolfden Resources	4.1	10.4%	938	20.9%	1,878	30	\$529	3
Prairie Creek	Norzinc Ltd	15.8	9.2%	3,211	19.4%	6,723	9	\$491	4
High Lake	MMG Ltd	14.0	3.8%	1,173	14.3%	4,422	17	\$363	5
Arctic	Trilogy Metals Inc	39.5	4.1%	3,567	14.2%	12,409	2	\$361	6
Aznalcóllar	Emerita Resources Corp	20.0	6.7%	2,932	12.4%	5,454	15	\$314	7
Florida Canyon	Solitario Zinc Corp	12.1	10.7%	2,855	12.0%	3,202	23	\$304	8
Lik	Solitario Zinc Corp	23.5	8.2%	4,253	11.5%	5,940	13	\$291	9
Seal Zinc	Aston Bay Holdings Ltd	1.0	10.2%	226	11.1%	245	47	\$282	10
Group Average (to	23.1	5.3%	2,469	9.2%	4,108		\$232		

In-situ ZnEq value based on Cormark's long-term metal pricing including US\$1.15/lb zinc, US\$1.00/lb lead, US\$3.00/lb copper, US\$1,250/oz gold, and US\$15.00/oz silver. Source: Company disclosure and Cormark Securities Inc.

"Growth potential aside, Pickett Mountain's high-grade tenor already positions Wolfden as a meaningful player relative to zinc-developer peers on a contained metal (1.9 Blb ZnEq) and in-situ value per tonne basis (US\$529/t)"

Stefan Ioannou – Analyst Cormark Securities, Jan 8/19

"Of these projects, Pickett Mtn. arguably has a favored location with excellent infrastructure and could be one of the most straight forward to develop"

## **Exploration Upside – IP Targets**





- Main Zone Lens correlate well with high chargeability anomalies
- Other similar anomalies to the North and West will be drill tested as shown in black areas



 The East & West lenses of the massive sulphide deposit are coincident with a well-defined Zn +Pb+Cu soil anomaly

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- There are 2 soil anomalies located up-ice and to the north of the known deposits that have not been drill tested
- Some soil anomalies also coincident with geophysical targets



PRODUCT	WEIGHT			GRADE			% DISTRIBUTION				
	t/d	Cu(%)	Pb(%)	Zn(%)	Au(g/t)	Ag(g/t)	Cu	Pb	Zn	Au	Ag
ORE FEED	100.00	1.60	4.80	12.60	0.94	84.4	100.0	100.0	100.0	100.0	100.0
COPPER CONCENTRATE	5.36	23.10	3.40	2.82	2.31	429.7	77.4	3.8	1.2	13.3	27.3
LEAD CONCENTRATE	7.31	0.35	50.90	8.28	2.63	457.2	1.6	77.5	4.8	20.4	39.6
ZINC CONCENTRATE	20.85	0.86	1.50	53.00	0.56	45.0	11.2	6.5	87.7	12.5	11.1
PLANT TAILINGS	66.48	0.24	0.88	1.19	0.75	27.8	9.8	12.2	6.3	53.8	22.0

- Preliminary metallurgical work (1984) on drill core produced 3 floatation concentrates with recoveries of 88% Zinc, 78% Lead and 77% Copper
- These are excellent recoveries in comparison to most volcanogenic massive sulphide deposits in the North American Appalachians.
- Further metallurgical and base line studies are planned for 2019



## **Pickett Mountain Summary**

- ✓ The Pickett Mountain one of the highest-grade undeveloped VMS deposits in the World
- Excellent potential to expand the deposit and discover other lenses and satellite deposits
- Preliminary metallurgical work yielded recoveries of Zinc (88%), Lead (77%) and Copper (74%) which are excellent for a VMS deposit in the Appalachians
- ✓ The Maine Volcanic Belt neighbours the well endowed Bathurst Camp in New Brunswick
- ✓ Entire Belt is very much underexplored compared to Bathurst
- ✓ 2017 Maine enacts New Mining Laws
- ✓ Local community very supportive on ongoing exploration

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## **Pickett Mountain Focus**

- +14,000 m Drilling Completed to date in 35 holes
- Down-hole EM Surveying underway results pending
- Initial Resource Estimate statement released, report pending
- Planning underway for 2019 expansion & infill drilling and technical studies

## **Other Drill Programs**

• Drilling completed at Orvan Brook, New Brunswick – Follow up of recent high-grade drill results in Bathurst Mining Camp

• Nickel Island & Rice Island, Manitoba – high-grade Ni-Cu-Co deposits, planned for 2019

## **Evaluate prospective base metal opportunities in North America**

## **Contact Details**

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Tetagouche Projects including Orvan Brook - Bathurst, NB (Zn, Pb, Cu, Ag)

Rice Island Project – Manitoba (Ni, Cu, Co)

Nickel Island Property – Manitoba (high-grade Ni with potential PGE's)

## Tetagouche Project – Bathurst, NB





- Wolfden has a dominant land position in the prolific VMS Bathurst Camp
- 100% interest in 6 historic massive sulphide deposits

## Orvan Brook – Geology Plan Map







Banded fine-grained massive sulphides with locally high grade zinc values as per photo

• Orvan Brook is 2.3 km and open along strike and at depth

## **Vertical Longitudinal Drill Section**





- Highly prospective East and West Zones warrant additional drilling
- Infill Drilling around widely space holes could significantly increase resources Deeper Zones - up to 8.2% Zn, 2.9% Pb, 0.3% Cu over 5.5m



#### The Armstrong A & B deposits exhibit bullseyeshaped IP anomalies (resistivity lows)

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- Both are located to the west of the Orvan Brook Horizon and are not believed to be the bedrock source of the high-grade massive sulphide boulders located down-ice and to the east. Some of those boulders are also lower grade implying that some of the boulders on the neighbouring ground to the east are from Armstrong A & B
- High Priority Drill targets (Blue Ellipses) a series of IP anomalies coincident with the Orvan Brook Horizon with a similar signature to the Armstrong A and B deposits





- 2,600 hectare property close to infrastructure
- Stall Lake mill 8 km NW of Rice Island
- Rice Island intrusion within a NE structure

- Rice Island Ni-Cu-Co deposit: exhibits magnetic high & conductors
- Priority Targets are similar signatures on both NE structures





## Rice Island - Drill Results (2015-16)



Hole No.	Interval (m)	Ni (%)	Cu (%)	Co%	Comments	Hole No.	Interval (m)	Ni (%)	Cu (%)	Co%	Comments
RI-15-01	36.20	1.50	0.57	0.06	Main Zone	RI-15-14	18.30	0.34	0.20	0.01	Main Zone
	Incl. 7.50	1.95	0.71	0.08			and 6.30	1.07	0.83	0.10	New Lower Zone
	also 15.60	2.48	0.79	0.09	New Lower Zone		Incl. 2.40	1.82	0.73	0.10	
RI-15-02	2.20	1.45	0.70	0.03	Main Zone	RI-15-15	51.90	1.18	0.69	0.05	Main Zone
RI-15-03	1.30	1.02	1.94	0.04			Incl. 12.40	3.29	1.32	0.13	
	4.30	0.97	1.00	0.04		RI-15-16	63.00	0.56	0.45	0.03	
	5.50	2.00	0.65	0.07	Main Zone		Incl. 5.70	1.34	1.06	0.08	Main Zone
RI-15-04	7.70	2.76	1.08	0.11	Main Zone		and incl. 2.60	2.04	1.60	0.08	
RI-15-05	9.30	1.64	0.62	0.10	Main Zone	RI-15-17	41.30	0.54	0.47	0.02	
	Incl. 2.40	2.73	0.96	0.21			Incl. 3.80	1.57	1.84	0.07	Main Zone
	also 3.90	2.15	0.80	0.10		RI-15-18	38.30	0.59	0.35	0.03	
	and 4.60	3.97	0.95	0.18	New Lower Zone		Incl. 10.20	1.22	0.67	0.06	Main Zone
RI-15-06	13.10	0.67	0.44	0.03			and incl. 1.90	3.34	1.43	0.15	
	and 5.20	2.21	0.83	0.09	Main Zone	RI-15-19	6.30	0.44	0.26	0.02	
RI-15-07	40.50	0.60	0.54	0.03			Incl. 0.70	2.05	0.45	0.01	Main Zone
	2.80	3.74	1.21	0.18	Main Zone	RI-16-20	2.50	3.36	0.90	0.13	New Lower Zone
RI-15-08	4.30	0.69	0.49	0.04		RI-16-21	5.45	0.44	0.45	0.02	New Lower Zone
	also 6.00	0.74	0.61	0.11			Incl. 0.25	2.89	1.15	0.05	
	also 3.50	0.74	0.46	0.03	Main Zone		and incl. 0.30	2.08	2.23	0.10	
	Incl. 0.70	1.46	0.38	0.04		RI-16-22	14.70	3.63	1.13	0.12	Main Zone
RI-15-09	0.60	1.66	0.32	0.09	Main Zone		and 3.90	0.63	0.67	0.03	New Lower Zone
	Incl. 0.20	4.31	0.43	0.26			Incl. 1.10	1.11	1.37	0.04	
RI-15-10	30.35	1.50	0.67	0.07	Main Zone	RI-16-23	34.00	0.77	0.65	0.04	Main Zone
	Incl. 9.90	3.83	1.33	0.17			Incl. 11.20	1.29	0.68	0.05	
RI-15-11	3.50	2.54	1.20	0.10	Main Zone		that incl. 2.30	2.51	0.81	0.09	
	also 1.20	0.89	1.01	0.06	New Lower Zone		and 13.00	0.70	0.75	0.03	
RI-15-12	15.20	0.69	0.49	0.02	Main Zone		Incl. 2.00	1.42	0.87	0.08	
	Incl. 4.60	1.10	0.59	0.03		RI-16-24	22.20	0.65	0.70	0.03	Main Zone
	and 2.80	0.86	0.47	0.04	New Lower Zone		Incl. 1.30	3.44	1.91	0.12	
	and 2.60	1.23	0.84	0.13	New Lower Zone		and incl. 1.40	1.50	1.17	0.06	
RI-15-13	17.40	2.57	1.07	0.08	Main Zone	RI-16-25	52.10	1.62	0.86	0.09	Main & New Lower Zones
	Incl. 10.60	3.28	1.26	0.11			Incl. 6.10	3.29	1.08	0.09	Main Zone
	and 14.10	1.14	0.70	0.06	New Lower Zone		and incl. 30.80	1.94	1.08	0.12	New Lower Zone
	Incl. 2.20	2.66	0.77	0.10			that incl. 21.10	2.42	1.29	0.16	
	and incl. 2.00	2.90	1.11	0.10			and 1.80	3.34	1,17	0.15	

- Wolfden completed 6,676 metres of drilling in 29 drill holes;
- Significant Ni-Cu-Co was intersected in all 25 of the holes in the historical deposit locale including: 3.8% Ni, 1.3% Cu, 0.17% Co over 9.90 m and;

3.3% Ni, 1.3% Cu, 0.13% Co over 12.4 m





- 10 Drill holes (yellow) all hit the Ni-Cu-Co mineralization and extended the dike 300 m SW of the Rice Island Deposit – See 2017 Drill Results
- Additional conductors to the SW indicate further expansion potential

## Rice Island, Manitoba – Longitudinal Section





- Magmatic Ni-Cu-Co deposit within Flin-Flon Snow Lake greenstone belt in Manitoba
- Main massive zone in addition to a feeder/conduit zone that remains open along strike with conductors

## Rice Island – 2017 Drill Results



Hole No.	Coordinates	Dip	Azimuth (degrees)	From (m)	To (m)	Interval (m)	Ni (%)	Cu (%)	Co (%)	Pt+Pd+Au (ppb)
RI-17-27	440786E, 6074642N	-55	302	80.20	82.70	2.50	3.08	1.13	0.16	201
RI-17-28	440786E, 6074642N	-73	302	107.60	109.70	2.10	1.12	1.14	0.05	165
RI-17-29	440768E, 6074603N	-55	302	83.00	85.20	2.20	1.67	0.63	0.16	753
RI-17-30	440768E, 6074603N	-76	302	169.70	178.00	8.30	2.24	1.42	0.10	181
				Inc. 169.70	172.30	2.60	3.57	1.67	0.19	393
RI-17-31	440956E, 6074638N	-55	302	246.20	247.00	0.80	0.57	0.34	0.04	128
RI-17-32	440778E, 6074570N	-68	302	165.70	167.90	2.20	1.58	0.82	0.07	122
				Inc. 165.70	167.30	1.60	2.14	0.93	0.09	110
RI-17-33	440778E, 6074570N	-55	302	131.40	134.70	3.30	0.69	0.71	0.04	183
				Inc. 132.20	133.80	1.60	1.14	0.69	0.05	134
RI-17-34	440778E, 6074570N	-76	302	230.80	233.50	2.70	1.15	0.95	0.20	151
				Inc. 230.80	232.40	1.60	1.73	0.68	0.32	175
RI-17-35	440908E, 6074591N	-65	302	312.30	314.20	1.90	0.32	0.81	0.05	476
RI-17-36	440781E, 6074516N	-65	302	239.70	240.30	0.60	1.13	1.06	0.07	688
RI-17-37	440781E, 6074516N	-55	302	183.10	183.60	0.50	1.32	0.94	0.04	148

- 10 Drill holes (yellow) all hit the Ni-Cu-Co mineralization and extended the dike 300 m SW of the Rice Island Deposit
- Open to the SW with additional conductors

## **Rice Island - Main Zone Drill Targets**

#### CONDUCTOR LEGEND First Priority Target 2 cond Priority ind Priority ip of Conductor Sub-Vertical Conductor Dip Unknown Conductor axis/first priorit Conductor axis/second priori RI-17-39 FLEM CONDUCTOR LEGEND Mid-Time Conducto Late Conducto DRILL COLLAR LEGEND INCO DRILL COLLAR WOLFDEN DRILL COLLAR(2015-2010) WOLFDEN DRILL COLLAR(2017) ORE BODY PROJECTED TO SURFACE RI-17-31 RI-17-27 RI-17-28 Target 1 RI-17-29 RI-1/-38 RI-17-30 RI-17-36 RI-17-32 RI-17-37 RI-17-33 RI-17-34 GEOTECH AIRBORNE SURVEY TILT-ANGLE MAGNETOMETER

## Target 1

SW extension of the of the conductors along the Rice Island Deposit trend for 500 m

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#### Target 2

Parallel strong magnetic high and series of conductors to NW of Rice Lake Deposit

 Drilling can be completed from land given the close proximity of the anomalies to the shoreline





- Nickel Island last drilled 50 years ago by Inco (1957-1958)
- District Scale Property
  > 6,000 hectares

 Presence of appreciable "Kambalda-type" mineralization with stringer, disseminated, net-textured and semi-massive nickel-copper sulphides hosted within spinifex-textured ultramafic flows and intrusions (komatiites)



- · Kambalda-style Ni-Cu mineralization hosted within komatiites
- Historic Ni intercepts include: 4.6 m at 4.3% , 2.9 m at 3.1%, 7.6 m at 1.9% and 21.3 m at 1.2%
- Nickel Island >1 km in strike and deposit is open along strike and at depth

## Nickel Island – Exploration Potential

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#### District Scale Opportunity

 Two large target areas from airborne geophysics (VTEM)

#### North Target Area

- includes Nickel Island and other conductors
- Two Priority 1km drill targets SE of Nickel Island deposit with similar geophysical signature

#### • South Target Area drill targets

- > 10 km magnetic feature
- Associated conductors