North American Palladium Announces Major Expansion to Sunday Lake PGM Zone and Best Drilling Results to Date

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TORONTO, April 29, 2019 (GLOBE NEWSWIRE) -- **North American Palladium Ltd.** ("NAP" or "the Company") (TSX:PDL) (OTC PINK:PALDF) is pleased to announce new results from the Sunday Lake exploration project (the "Project"), located 25 km northeast of Thunder Bay, Ontario and 60 km south of the Lac des Iles Mill. The Project is focused on an extensive zone of platinum-group metal ("PGM") and copper-nickel sulfide mineralization hosted within the lower portions of the Sunday Lake mafic-ultramafic intrusion.

Highlights

- Hole SL-19-026, targeting the strongest conductivity anomaly in the western part of the intrusion, returned the highest-grade multi-metre intersection found to date. The main intersection is 41.2 metres with 3.22 g/t Pt, 2.08 g/t Pd and 0.21 g/t Au (5.51 g/t 3E*), 0.57% Cu and 0.19% Ni. Included in this interval is a 15.8 metre section containing 9.11 g/t 3E with 0.88% Cu and 0.24% Ni that, in turn, contains a 8.30 metre sub-interval grading 13.06 g/t 3E, 1.23% Cu and 0.32% Ni.

- Hole SL-19-29, a 275 metre step-out from hole SL-19-26, intersected 32.0 metres with 3.35 g/t 3E, including 8.17 metres of 5.44 g/t 3E and 0.51% Cu.

- Hole SL-19-25, one of three follow-up holes to mineralization discovered last year in the central part of the intrusion, intersected 14.80 metres with 2.33 g/t 3E and 0.29% Cu. Included in this interval are two separate higher-grade sub-intervals:

    - 2.30 metres with 4.11 g/t 3E and 0.48% Cu, and
    - 1.60 metres with 5.18 g/t 3E and 0.70% Cu.

- Hole SL-19-30, also drilled in the central part of the intrusion, intersected 20.61 metres with 1.87 g/t 3E, including a higher-grade sub-interval of 5.50 metres with 3.67 g/t 3E and 0.83% Cu.
- Based on new and prior drilling results, the PGM and base metal sulfide mineralization located along the base of the Sunday Lake intrusion (the "SLI") is modelled as a near-continuous blanket with a north-south extent of approximately 1.5 km and an east-west extent of 900 metres. The mineralization shows thickening and grade improvement along three or more structures inferred from recent geophysical surveys.

*3E = combined Pt, Pd and Au concentrations

"We continue to expand the PGM Zone at Sunday Lake. This is currently our most advanced regional exploration project and represents our best blue sky opportunity and is a key element in our long-term strategy of building an inventory of high-quality PGM assets in the Thunder Bay region. This strategy is anchored by the LDI Mill, which is uniquely positioned to treat ore from new development projects in this part of Ontario. This large facility could help these projects reduce their capital requirements and improve investment returns," said Jim Gallagher, President and CEO of North American Palladium.

Dr. Dave Peck, Vice-President, Exploration at North American Palladium, adds, "We are encouraged by the higher PGM grades and base metal sulfide contents observed in drill hole SL-19-026 from the newly-discovered western extension of the Sunday Lake PGM mineralization. The new drill results prove the effectiveness of advanced geophysical methods in detecting this mineralization at significant depths. We have continued to identify promising geophysical targets that warrant testing in the next phase of drilling."

Context for the Current Program

The Company entered into a Definitive Option Agreement (the "Option Agreement") in June 2017 with Impala Platinum Holdings Ltd. ("Impala") and Transition Metals Corp. ("Transition") through a wholly-owned subsidiary. The Option Agreement gives the Company the exclusive right to earn Impala's 75% interest in the Sunday Lake property, with Transition maintaining a 25% free carried interest through to the completion of a Feasibility Study.

The SLI is part of the Proterozoic Mid-continent Rift magmatic event that also produced the Eagle nickel deposit in Michigan and the Tamarack and Duluth Complex magmatic sulfide deposits in Minnesota. The SLI is an elliptical body having lateral dimensions of ~1 km2 that is entirely encased in older basement rocks. Depths to the top of the

SLI vary from ~200 metres in the north to ~600 metres in the south. The thickness of the SLI ranges from <200 metres on the margins to >800 metres in the centre. Drilling completed on the Project prior to the Company's involvement had delineated a laterally extensive zone of disseminated magmatic sulfide mineralization along the base of the SLI within the eastern part of the intrusion. In 2018, NAP's first drilling program extended the mineralization into the centre of the SLI. So far in 2019, the Company has further extended the mineralization to the western side of the SLI. The SLI magmatic sulfide mineralization typically comprises several percent of sulfide minerals (pyrrhotite-chalcopyrite-pentlandite +/- bornite) that are strongly enriched in precious metals, especially platinum and palladium. The new drilling results suggest that the mineralization is a relatively continuous blanket that extends across the length and width of the intrusion. The mineralization is confirmed to thicken to greater than 40 metres in proximity to conductivity anomalies detected by geophysical surveys completed last year. The sulfides are interpreted to have accumulated adjacent to and within three or more discrete feeder faults to the SLI. The bulk of the known mineralization is hosted by plagioclase-bearing peridotite (Marginal Zone) and, in some areas, by overlying plagioclase-free peridotite (Ultramafic Series). The mineralization locally extends into the underlying basement rocks (Quetico Subprovince metasedimentary units) where discrete massive sulfide veins up to ~20 cm in width have been observed.

Given that the mineralization crosses lithological boundaries and is not assignable to any single stratigraphic zone, it was decided to abandon the former name "Marginal Zone." For the time being, the magmatic sulfide mineralization in the lower part of the SLI and extending into the immediate footwall will be referred to as the "PGM Zone."

2018 Geophysical Results and Q1 2019 Drilling Results

In mid-April the Company completed its second drilling program at Sunday Lake. Results from the initial program are reported in the March 27, 2018 news release available on the **Company's website**. After completion of the initial drill program the Company re-interpreted the 3D geology using both drill hole and geophysical data and performed a surface magnetotelluric ("MT") survey over the entire SLI that was designed to detect increased conductivity associated with magmatic sulfide mineralization to significant depths. The current drilling program commenced in mid-January and was completed in mid-April. A total of 7,300 metres of diamond drilling was completed in six holes (Figure 1). In addition, borehole electromagnetic ("EM") surveys were completed for all of the drill holes. The program was designed to explore for higher-grade sulfide mineralization near the lower contact of the intrusion, including any underlying feeder structures. The selection of specific drill targets was guided by geophysical models derived from the most recent MT survey. The survey highlighted three subparallel conductive trends across the interpreted extent of the SLI (Figure 1). The easternmost trend coincides with the eastern part of the PGM Zone that has been the subject of the majority of historical drilling. The central conductivity trend encompasses a drill hole (SL-18-022) designed to test a single line MT anomaly from an orientation survey completed in 2017. This hole

intersected 33.20 metres with 2.85 g/t 3E, 0.34% Cu and 0.12% Ni. The westernmost and strongest conductivity trend was not previously tested. The 2019 drilling program included three holes each on the central and western anomalies.

Figure 1 is available at: **http://www.globenewswire.com/NewsRoom/AttachmentNg/e8f1578e-8349-4f40-86be-5fbde0569945**

Plan-view image of the cumulative conductivity model derived from the Q4 2018 MT survey. Current and previous drill hole collar locations are shown together with section lines referenced in Figures 2 and 3. Areas of higher conductivity are indicated by hotter colours. Source – North American Palladium, April 29, 2019.
Selected drilling results for the 2019 exploration program are provided in the table below.

Pd, Pt, Au, Cu and Ni assay results for the PGM Zone for the Q1 2019 Sunday Lake exploration drilling program. Reported interval lengths are estimated as being between 80% and 95% of the true width of the intersected sulfide mineralization.

Hole#	Area	Target		From (m)	To (m)	Length (m)	Pt (g/t)	Pd (g/t)	Au (g/t)	Cu (%)	Ni (%)	3E (g/t)
19-025	Central	BHEM		1013.00	1027.80	14.80	1.33	0.90	0.10	0.29	0.10	2.33
"	"	"	inc.	1020.00	1022.30	2.30	2.47	1.48	0.16	0.48	0.15	4.11
"	"	"	and	1026.20	1027.80	1.60	2.95	1.93	0.30	0.70	0.06	5.18
19-026	West	MT		1392.00	1433.20	41.20	3.22	2.08	0.21	0.57	0.19	5.51
"	"	"	incl.	1417.40	1433.20	15.80	5.42	3.35	0.34	0.88	0.24	9.11
"	"	"	with	1418.85	1427.15	8.30	7.67	4.97	0.42	1.23	0.32	13.06
"	"	"	and	1425.24	1427.15	1.91	9.29	7.12	0.58	1.56	0.36	16.98
"	"	"	and	1425.24	1425.90	0.66	9.90	9.27	0.63	1.66	0.42	19.80
19-029	West	MT		1405.00	1466.00	61.00	1.23	0.82	0.15	0.22	0.15	2.20
"	"	"	inc.	1433.00	1465.00	32.00	1.89	1.23	0.23	0.33	0.18	3.35
"	"	"	inc.	1443.00	1449.00	6.00	2.87	1.94	0.34	0.55	0.28	5.15
"	"	"	and	1454.00	1465.00	11.00	2.73	1.72	0.30	0.46	0.18	4.75
"	"	"	inc.	1455.46	1463.63	8.17	3.16	1.96	0.33	0.51	0.20	5.44
"	"	"	and	1461.00	1463.00	2.00	3.46	2.17	0.35	0.64	0.19	5.97
19-030	Central	BHEM		1067.39	1088.00	20.61	1.04	0.76	0.07	0.33	0.11	1.87
"	"	"	inc.	1067.39	1079.00	11.61	0.79	0.59	0.06	0.18	0.10	1.45
"	"	"	and	1082.50	1088.00	5.50	2.05	1.50	0.12	0.83	0.17	3.67

The analyses reported in this news release were performed by ALS Global in Vancouver, British Columbia. The Company's rigorous internal quality control and quality assurance protocols are described in detail in the current Technical Report for its Lac des Iles Mine (October 2018 – available on **SEDAR**).

Five of the six holes intersected the PGM Zone with the best results coming from holes SL-19-026 and SL-19-029 in the western part of the intrusion. Of particular interest is the thickening of the mineralization where the strongest MT anomalies occur. This provides confidence in the continued use of the MT models. It also provides support for the possibility that semi-massive or massive sulfide mineralization may exist on the Project. Further support for this comes from the fact that the PGM Zone mineralization locally extends into the footwall of the intrusion where narrow (<20 cm) massive sulfide bands are locally present within highly-altered and recrystallized metasedimentary rocks.

Three of the new drill holes (SL-19-025, 27 and 30) were designed to test geophysical targets in the central part of the intrusion. All three holes intersected the PGM Zone. Assay results for two of the holes are provided in the table above. Not shown in the table is an interval of weakly anomalous mineralization encountered in hole SL-19-27 (18.55 metres with 0.6 g/t 3E). The new intersections are not as thick or do not have the degree of PGM and Cu enrichment seen in the discovery hole for this area (SL-18-022). Nonetheless, the fact that the PGM Zone has been intersected over an area of ~300 x 200m coinciding with the southern part of the central MT conductivity anomaly is encouraging.

The spring thaw precluded additional drilling on the East Zone. Interestingly, the more conductive part of the MT cumulative conductivity model shown in Figure 1 is located to the west of most of the historical intersections of the base of the Sunday Lake intrusion. One drill hole, completed by NAP during the 2018 program (SL-17-18b), intersected the northern part of this conductivity anomaly and returned very encouraging results (e.g., 18.65 metres with 4.05 g/t 3E and 0.48% Cu – see the **Company's March 27, 2018 news release**).

Current geological interpretations based on available drilling and geophysical information suggest that the PGM Zone is a <10 to >60m thick, tabular and laterally extensive zone of magmatic PGM- and Cu-rich disseminated sulfide (Figures 2 and 3). Typical average grades in the more sulfide-rich intervals are in the range of 3 to 6 g/t 3E and 0.5 to 1% copper with maximum grades over the most sulfide-rich intervals exceeding 15 g/t 3E, 1.5% and 0.4% nickel. Geochemical data obtained from both historical and recent drill core samples suggest that increases in the PGM grades correlate strongly with higher total sulfide mineral abundances throughout the SLI. Both surface MT and borehole EM techniques have proven effective in discovering the most sulfide-rich and highest-grade mineralization in the SLI.

Figure 2 is available at: **http://www.globenewswire.com/NewsRoom/AttachmentNg/d43968f0-e297-44dd-8f95-3fceeb8febf2**

Longitudinal section A-A' showing the thickness variability of the SLI stratigraphy and the PGM Zone as denoted by green bars on hole traces. Source – North American Palladium, April 29, 2019.

Figure 3 is available at: **http://www.globenewswire.com/NewsRoom/AttachmentNg/cdbffc2a-db95-41dc-89ed-575eeac6f8a0**

Oblique south to north section B-B' showing the thickness variability of the SLI stratigraphy and the PGM Zone as denoted by green bars on hole traces. Source – North American Palladium, April 29, 2019.

Based on 3D geological and geophysical modeling, the following targets have been identified for drilling (note: numbering of the targets listed are referenced to the numbers shown on Figure 4):

An isolated MT anomaly in the southern part of the intrusion;

Several step-out holes covering the full northwest to southeast extent of the western MT conductivity anomaly to determine grade-thickness continuity of the PGM Zone in this area;

Additional drilling on the strongest untested MT conductivity anomalies associated with the central and eastern parts of the intrusion;

Step-out drilling along and adjacent to the eastern part of the deposit to determine the continuity of the mineralization encountered in 2015 and 2018; and,

The narrow MT anomaly north of the main body of the intrusion and west and south of historical drill holes drilled in the Eastern Target Zone.

Figure 4 is available at: **http://www.globenewswire.com/NewsRoom/AttachmentNg/012d6ba6-f26e-4633-a84b-168ef441fd08**

Plan-view map underlain by cumulative conductivity model derived from the Q4 2018 MT survey showing preliminary drill targets for the next phase of exploration at Sunday Lake. Numbered targets are described in the text. Source – North American Palladium, April 29, 2019.

Next Steps

Upon payment of $610,000 to Impala and Transition, the Company can earn an initial 51% interest in the Project. The decision to proceed to Stage 2 of the Option Agreement must be taken within 60 days of the second anniversary date, which is June 20th, 2019.

Qualified Person

The technical content of this news release was reviewed and approved by the Company's Vice-President, Exploration, Dr. Dave Peck. Dr. Peck is a Qualified Person within the meaning of National Instrument 43-101 and a registered Professional Geoscientist with the Association of Professional Geoscientists of Ontario, Engineers and Geoscientists BC, and Engineers Geoscientists Manitoba.

Cautionary Statement on Forward-Looking Information

Certain information contained in this news release constitutes 'forward-looking statements' and ‘forward-looking information’ within the meaning of applicable Canadian securities laws. All statements other than statements of historical fact are forward-looking statements. The words 'target,' 'plan,' 'should,' 'could,' 'estimate,' 'guidance,' and similar expressions identify forward-looking statements. Forward-looking statements in this news release include, without limitation: information pertaining to the Company’s proposed dividend; information pertaining to the Company's strategy, strategic process, plans or future financial or operating performance, such as statements with respect to, long term fundamentals for the business, operating performance expectations, project timelines, tailings management plan, mining method change, production forecasts, operating and capital cost estimates, expected mining and milling rates, cash balances, projected grades, mill recoveries, metal price and foreign exchange rates and other statements that express management's expectations or estimates of future performance. Forward-looking statements involve known and unknown risk factors that may cause the actual results to be materially different from those expressed or implied by the forward-looking statements. Such risks include, but are not limited to: the possibility that metal prices and foreign exchange rates may fluctuate, the risk that the Lac des Iles mine may not perform as planned, that the Company may not be able to meet production forecasts, the possibility that the Company may not be able to generate sufficient cash to pay a dividend and/or to service its indebtedness and may be forced to take other actions, inherent risks associated with development, exploration, mining and processing including environmental risks and risks to tailings capacity, employment disruptions, including in connection with collective agreements between the Company and unions and the risks associated with obtaining necessary licenses and permits. For more details on these and other risk factors see the Company's most recent management’s discussion and analysis and the Company’s annual information form on file with Canadian securities regulatory authorities on SEDAR at **www.sedar.com** under the heading “Risk Factors.”

Forward-looking statements are necessarily based upon a number of factors and assumptions that, while considered reasonable by management, are inherently subject to significant business, economic and competitive uncertainties and contingencies. The factors and assumptions contained in this news release, which may prove to be incorrect, include, but are not limited to: that the Company will be able to continue normal business operations at its Lac des Iles mine, that metal prices and exchange rates between the Canadian and United States dollar will be consistent with the Company's expectations, that there will be no significant disruptions affecting operations, and that prices for key mining and construction supplies, including labour, will remain consistent with the Company's expectations. The forward-looking statements are not guarantees of future performance. The Company disclaims any obligation to update or revise any forward-looking statements, whether as a result of new information, events or otherwise, except as expressly required by law. Readers are cautioned not to put undue reliance on these forward-looking statements.

About North American Palladium Ltd.

North American Palladium (TSX: PDL) (OTC PINK: PALDF) is a Canadian company with 25 years of production at the Lac des Iles Mine in a low-risk jurisdiction northwest of Thunder Bay, Ontario. North American Palladium is the world's only pure play palladium producer. With over 600 employees, the Lac des Iles Mine features a unique, world-class ore body and modern infrastructure, including both an underground mine and surface operations.

For further information, please contact:
North American Palladium Investor Relations at 416-360-7374 or **ir@nap.com**

Source: North American Palladium Ltd.