Table 1S. Compositions of PGE minerals from borehole **PH-14**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| No. | Depth | Formula | Ag | As | Au | Bi | Fe | Ir | Ni | Pd | Pt | Rh | S | Sb | Pb | Sn | Te | Total |
| 1 | 845.0 | Pt1.00As2.00 |  | 42.40 |  |  |  |  |  |  | 55.52 |  |  |  |  |  |  | 97.92 |
| 2 | 845.0 | (Pd4.54Ag)4.98Pb3.01 | 4.00 |  |  |  |  |  |  | 40.30 |  |  |  |  | 52.00 |  |  | 96.30\* |
| 3 | 850.0 | (Rh0.47Pt0.24Fe0.15Ru0.12Ir0.05)1.03As0.96S1.02 |  | 30.98 |  |  | 3.60 | 3.90 |  |  | 19.93 | 21.00 | 14.10 |  |  |  |  | 98.61\*\* |
| 4 | 850.0 | (Pt0.91Rh0.10)1.01As1.98 |  | 42.91 |  |  |  |  |  |  | 51.50 | 3.10 |  |  |  |  |  | 97.51 |
| 5 | 850.0 | (Pd2.61Pt0.36)2.97(Sn0.38As0.35Sb0.30)1.03 |  | 5.70 |  |  |  |  |  | 59.80 | 14.90 |  |  | 7.80 |  | 9.70 |  | 97.90 |
| 6 | 866.0 | Pt1.01(As1.96Sb0.03)1.99 |  | 41.30 |  |  |  |  |  |  | 55.70 |  |  | 1.00 |  |  |  | 98.00 |
| 7 | 866.0 | (Pd4.57Ag0.43)5.00Pb3.00 | 3.80 |  |  |  |  |  |  | 39.90 |  |  |  |  | 50.95 |  |  | 94.65\* |
| 8 | 866.0 | (Pd1.71Pt1.26)2.97Sn1.03 |  |  |  |  |  |  |  | 32.10 | 43.50 |  |  |  |  | 21.53 |  | 97.13 |
| 9 | 891.8 | (Rh0.81Pt0.12Fe0.08)1.01S1.01As0.99 |  | 34.20 |  |  | 2.02 |  |  |  | 10.45 | 38.30 | 14.90 |  |  |  |  | 99.87 |
| 10 | 891.8 | (Rh0.84Fe0.07Pt0.05)0.96S1.03As1.00 |  | 35.24 |  |  | 1.80 |  |  |  | 4.70 | 40.70 | 15.50 |  |  |  |  | 97.94 |
| 11 | 891.8 | Pt0.98(As1.94S0.08)2.02 |  | 42.15 |  |  |  |  |  |  | 55.60 |  | 0.70 |  |  |  |  | 98.45 |
| 12 | 891.8 | Pd1.03(Bi0.56Te0.39As0.02)0.97 |  | 0.60 |  | 41.83 |  |  |  | 39.00 |  |  |  |  |  |  | 17.60 | 99.03 |
| 13 | 891.8 | Pd1.00Ni1.01As0.99 |  | 30.64 |  |  |  |  | 24.66 | 44.30 |  |  |  |  |  |  |  | 99.60 |
| 14 | 891.8 | (Pd2.02Au0.03)2.05(Sn0.55As0.34Sb0.06)0.95 |  | 7.91 | 1.80 |  |  |  |  | 67.20 |  |  |  | 2.20 |  | 20.48 |  | 99.59 |
| 15 | 891.8 | (Pd2.06Au0.02)2.08(Sn0.59As0.33)0.92 |  | 7.70 | 1.00 |  |  |  |  | 67.60 |  |  |  |  |  | 21.76 |  | 98.06 |
| 16 | 896.7 | Pd1.02Bi0.98Te1.00 |  |  |  | 45.60 |  |  |  | 24.08 |  |  |  |  |  |  | 28.30 | 97.98 |
| 17 | 896.7 | Pd2.00(Te2.45Bi0.42Sn0.13)3.00 |  |  |  | 14.10 |  |  |  | 33.84 |  |  |  |  |  | 2.50 | 49.73 | 100.17 |
| 18 | 896.7 | Pd1.99(As0.77Sb0.24)1.01 |  | 19.15 |  |  |  |  |  | 70.50 |  |  |  | 9.60 |  |  |  | 99.25 |
| 19 | 908.2 | (Rh0.50Ir0.26Fe0.17Pt0.12)1.05S1.04As0.91 |  | 28.02 |  |  | 3.90 | 20.20 |  |  | 9.60 | 21.10 | 13.75 |  |  |  |  | 96.57 |
| 20 | 912.0 | (Pd2.05Pt0.75Au0.20)3.00Sn1.00 |  |  | 7.43 |  |  |  |  | 41.60 | 27.75 |  |  |  |  | 22.60 |  | 99.38 |
| 21 | 912.0 | (Pd2.75Pt0.09Au0.11)2.95(Sn0.59As0.35Sb0.10)1.04 |  | 5.92 | 5.00 |  |  |  |  | 65.93 | 3.80 |  |  | 2.80 |  | 15.85 |  | 99.30 |
| 22 | 912.0 | Pd2.97(Sb0.61Sn0.23As0.19)1.03 |  | 3.20 |  |  |  |  |  | 72.11 |  |  |  | 16.90 |  | 6.33 |  | 98.54 |
| 23 | 919.6 | Pt1.01As1.99 |  | 42.72 |  |  |  |  |  |  | 56.15 |  |  |  |  |  |  | 98.87 |
| 24 | 919.6 | (Pd2.75Ni0.23)2.98As1.01 |  | 19.56 |  |  |  |  | 3.50 | 75.44 |  |  |  |  |  |  |  | 98.50 |
| 25 | 927.1 | Pt1.01As1.99 |  | 42.30 |  |  |  |  |  |  | 56.00 |  |  |  |  |  |  | 98.30 |
| 26 | 927.1 | Pd0.99(Bi0.46Te0.44Sb0.06Sn0.05)1.01 |  |  |  | 35.20 |  |  |  | 38.91 |  |  |  |  |  | 2.10 | 20.90 | 99.91 |
| 27 | 927.1 | Pd3.01Ni1.99As3.00 |  | 33.99 |  |  |  |  | 17.70 | 48.42 |  |  |  |  |  |  |  | 100.11 |
| 28 | 927.1 | (Pd1.96Au0.03)1.99(Sn0.62As0.31Sb0.08)1.01 |  | 7.10 | 1.60 |  |  |  |  | 63.40 |  |  |  |  |  | 22.40 |  | 97.50 |
| 29 | 927.1 | Pd8.01As2.99 |  | 20.34 |  |  |  |  |  | 77.56 |  |  |  |  |  |  |  | 97.90 |
| 30 | 927.1 | Pd5.01As1.99 |  | 21.51 |  |  |  |  |  | 76.89 |  |  |  |  |  |  |  | 98.40 |
| 31 | 935.9 | Pd1.01(Te0.94Bi0.05)0.99 |  |  |  | 3.90 |  |  |  | 40.43 |  |  |  | 44.70 |  |  | 44.70 | 89.03 |
| 32 | 935.9 | Pd1.02(Te0.58Bi0.40)0.98 |  |  |  | 30.93 |  |  |  | 40.05 |  |  |  | 27.64 |  |  | 27.64 | 98.62 |
| 33 | 938.4 | Pt1.04(Fe0.80Cu0.09Ni0.07)0.96 |  |  |  |  | 17.15 |  | 1.60 |  | 78.12 |  |  |  |  |  |  | 99.17\*\*\* |

Note. 1-18 – picritic gabbro-dolerite (g-d) including with Chr-Sp (9-18); 19-33 – Olivine g-d; \* – The Total after subtracting of matrix elements; \*\* – 5.10 wt.% Ru and \*\*\* – 2.30 wt.% Cu included in the Totals. 1,4,6,11, 23,25 - Sperrylite PtAs2; 2,7 – Unnamed Pd5Pb3; 3,9,10,19 Hollingworthite (Rh,Pt)AsS; 5,21 – C 8,20 – Atokite (Pd,Pt)3(Sn,Sb,As); 7 – Stibiopalladinite Pd5Sb3; 12,26 – Sobolevskite Pd(Bi,Te); 13 – Majakite PdNiAs; 14,15,28 – Paolovite Pd2(Sn,As); 16 – Michenirite PdBiTe; 17 – Unnamed Pd2(Te,Bi,Sn)3; 18 – Palladoarsenide Pd2(As,Sb); 20 – Atkite (Pd,Pt)3Sn; 22 – Unnamed Pd3Sb or mertieite II Pd8(Sb,As)3?; 24 – Guanglinite Pd3As; 27 – Menshikovite Pd3Ni2As3; 29 - Stillwaterite Pd8As3**;** 30 – Unnamed Pd5As2; .31,32 – Кotulskite Pd(Te,Bi); 33 – Tetraferroplatinum Pt(Fe,NiCu).