

Dear Sirs,

Exploration Drilling and Core Logging Procedures Employed by RJC

In 2009 Wardell Armstrong conducted a Technical Due Diligence review of the Tabornoye deposit owned by Severstal-Resurs, located in Yakutia, Russia. The audit included assesment of the exploration drilling and quality of core logging procedures.

Wardell Armstrong reviewed the core logging procedures developed by RJC Exploration (RJC). RJC approach consists of a computer-based core logging system an 'Automated system of collection and processing of exploration drilling data the 'AGR system''. Before the system is employed a core logging standard is transferred to the computer files that contain information about all material characteristics that control the mineralisation. The electronic core logging standard template contains, for instance, the following information: 1) characteristics of host rocks and their texture and structure; 2) characteristics of jointing; 3) particularities of veins and other types of mineralisation; 4) epigenetic alterations, their type and names of secondary minerals, their appearance, quantity and size.

The figure below illustrates the initial core logging template and drop-down menus.

Interval			Rock description	Rock names	Color	Texture	Structure	Ang stru- aga core
From	To	Length						
0.0	2.2	2.2	Anthropogenic depositions: brown. Core condition: debris and cylinders.	Anthropogenic depositions				
2.2	4.4	2.2	Eluvial-Bluvial Deposits: grey. Core condition: debris and cylinders. Contacts with previous interval: drilled.	Eluvial-Bluvial Deposits				
4.4	23.7	19.3	Weakly Altered Sandstones: light-brown, small-grained thin-laminated. Angle of strike against core axis: 70°. Core condition: debris. Contacts with previous interval: drilled. Subinterval 4.4-8 m: highly dense. Angle of jointing against core axis: 30°, 60°, 0°. Sil Filled with hydrous ferric oxides. Subinterval 8-13 m: moderate. Angle of jointing against core axis: 20°, 50°, 70°. Silicification. Filled with hydrous manganese oxide. Subinterval 11 moderate. Angle of jointing against core axis: 20°, 40°, 60°. Silicification. Filled with ferric oxides. Veins: mineral assemblage: quartz-pyrite. vein per 1 run.m: 5-20. Angle against core axis: 80°. Subinterval 9-15m: mineral assemblage: quartz; thickness: to 3 mm; vein per 1 run.m: >20. Angle against core axis: 70°. Ore mineralization: Subinterval 10-15m: composed of magnetite. Appearance: crystals. Density: maximum. Size 1-5 mm; Subinterval 15.2-22m: composed of pyrite. Appearance: patches. Density: seldom. Size >5 mm. Epigenetic mineralization: Subinterval 4.4-12.1m: mineral: quartz. Appearance: even distribution. Density: medium; Subinterval 4.4-12.1m: mineral: calcite. Appearance: spots. Density: angle. Subinterval 15-22.3m: mineral: barite. Appearance: even distribution. Density: medium.	Anthropogenic depositions Eluvial-Bluvial Deposits Alluvial-Fluvial Deposits Alluvial-Gravel Deposits Unaltered Sandstones Weakly Altered Sandstones Altered Sandstones Severely Altered Sandstones				
				Weakly Altered Sandstones	light-brown	small-grained	thin-laminated	70°



Wardell Armstrong International is the trading name of Wardell Armstrong International Limited, Registered in England No. 3813172
 Registered office: Sir Henry Doulton House, Forge Lane, Etruria, Stoke-on-Trent, ST1 5BD, United Kingdom
 UK Offices: Stoke-on-Trent, Cardiff, Edinburgh, Greater Manchester, Liverpool, London, Newcastle upon Tyne, Sheffield, Truro, West Bromwich. International Offices: Almaty, Beijing

ENERGY AND CLIMATE CHANGE
 ENVIRONMENT AND SUSTAINABILITY
 INFRASTRUCTURE AND UTILITIES
 LAND AND PROPERTY
 MINING, QUARRYING AND MINERAL ESTATES
 WASTE RESOURCE MANAGEMENT

The final logging sheet showing the description format is presented in the figure below.

Interval			Rock description
From	To	Length	
0.0	2.2	0.0	Anthropogenic depositions: brown. Core condition: debris and cylinders.
2.2	4.4	2.2	Eluvial-Dilluvial Deposits: grey. Core condition: debris and cylinders.
4.4	23.7	19.3	Weakly Altered Sandstones: light-brown, small-grained, thin-laminated. Angle of structure against core axis: 70°. Core condition: debris. Contacts with previous interval: drilled. Jointing Subinterval 4.4-8 m: highly dense. Angle of jointing against core axis: 30°, 60°, 0°. Slickensides. Filled with hydrous ferric oxides; Subinterval 8-13 m: moderate. Angle of jointing against core axis: 20°, 50°, 70°. Slickensides. Filled with hydrous manganese oxide; Subinterval 13-15 m: moderate. Angle of jointing against core axis: 20°, 40°, 60°. Slickensides. Filled with hydrous ferric oxides. Veins: mineral assemblage: quartz-pyrite, veins per 1 run.m: 5-20. Angle against core axis: 80°; Subinterval 9-15m: mineral assemblage: quartz, thickness to 3 mm, veins per 1 run.m: >20. Angle against core axis: 70°. Ore mineralization: Subinterval 10-15m: composed of magnetite. Appearance: crystals. Density: maximum. Size 1-5 mm; Subinterval 15.2-22m: composed of pyrite. Appearance: patches. Density: seldom. Size >5 mm. Epigenic mineralization: Subinterval 4.4-12.1m: mineral: quartz. Appearance: even distribution. Density: medium; Subinterval 4.4-12.1m: mineral: calcite. Appearance: spots. Density: single; Subinterval 15-22.3m: mineral: epidote. Appearance: even distribution. Density: medium.

The completed core logging sheets are therefore uniform, unified, informative and concise. The final data base represents transparent and comprehensive geological description that is easy to analyse and meets high quality QA/QC requirements and international “Best Practice”.

Yours sincerely

for Wardell Armstrong International Ltd



M Owen

Technical Director, Geology and Resources



Wardell Armstrong International is the trading name of Wardell Armstrong International Limited, Registered in England No. 3813172

Registered office: Sir Henry Doulton House, Forge Lane, Etruria, Stoke-on-Trent, ST1 5BD, United Kingdom

UK Offices: Stoke-on-Trent, Cardiff, Edinburgh, Greater Manchester, Liverpool, London,

Newcastle upon Tyne, Sheffield, Truro, West Bromwich. International Offices: Almaty, Beijing

ENERGY AND CLIMATE CHANGE
 ENVIRONMENT AND SUSTAINABILITY
 INFRASTRUCTURE AND UTILITIES
 LAND AND PROPERTY
 MINING, QUARRYING AND MINERAL ESTATES
 WASTE RESOURCE MANAGEMENT